CITY OF GRIFFIN
COMPREHENSIVE TRANSPORTATION PLAN





Prepared for

The City of Griffin

April 2011

Prepared by

JACOBS

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1 Executive Summary

1.1 Project Purpose

In May 2010, the City of Griffin contracted with Jacobs Engineering Group (JEG) to prepare a long-range Comprehensive Transportation Plan (CTP) for the community through 2030. The CTP process is facilitated by the Atlanta Regional Commission (ARC) to encourage long range transportation planning throughout the region. Jurisdictions within the ARC Metropolitan Planning Organization (MPO) region are required to maintain an updated CTP, with updates performed on a five-year basis. Projects included in these local CTP's serve as the basis for the update of the Regional Transportation Plan (RTP) and to establish eligibility for federal funding. To ensure a comprehensive and cohesive planning process, the City CTP was coordinated with Spalding County CTP.

ARC's two primary transportation programming documents are the long-range Regional Transportation Plan (RTP) and the short-range Transportation Improvement Program (TIP). These documents include a balanced mix of transportation projects related to all modes and system elements, including roadways, bridges, transit, and bicycle and pedestrian facilities. Consideration is also given to safety, transportation demand management and air quality. The Griffin CTP serves as an essential part of the regional planning process by providing a comprehensive list of improvements in addition to prioritizing projects for inclusion in the RTP. When ARC's call for projects occurs, the City will submit a prioritized list to ARC, upon which each project was identified through an analytical process that demonstrates transportation need.

The CTP final report is the culmination of the process through which data was collected, observations were made, policies were proposed, and improvements were recommended. In addition to explaining the goals and performance measures for the CTP, the report provides a basis and methodology for future transportation analysis and a blueprint for developing future transportation improvements. Accompanying the document is a collection of analytical tools to enhance ongoing transportation decision-making, such as a refined travel demand forecast model, extensive Geographic Information System (GIS) inventory data and analytical information, and a comprehensive program of improvements. To ensure effectiveness and relevance, the CTP document should be updated regularly, with a comprehensive review and associated amendments every five years.

1.2 Background

The City of Griffin was founded as the industrial employment center for Spalding County. Today, much of the textile industry has relocated, replaced by retail, service, financial, and government employment. A crossroads of major east-west (SR 16) and north-south arterials (US 19/41, SR 155, and SR 362), Griffin continues to be the government and retail center of rapidly growing Spalding County, while experiencing little population growth over the past fifty years.

Since 1960, the City has grown only 10% or less than 0.25% annually. During that same time period, Spalding County grew by 82% and the State of Georgia's population grew 149%. Table 1.1 provides a comparison among population growth in Griffin, Spalding County and the state.

Table 1.1 – Population for Griffin, Spalding County, and Georgia

Total Population			
Year	**Griffin**	**Spalding County**	**Georgia**
1930	10,321	23,495	2,908,506
1940	13,222	28,427	3,123,723
1950	13,982	31,045	3,444,578
1960	21,735	35,404	3,943,116
1970	22,734	39,514	4,589,575
1980	20,728	47,899	5,463,105
1990	21,347	54,457	6,478,216
2000	23,451	58,417	8,186,453
2005	23,118	61,278	9,097,428
2009	23,887	64,708	9,829,211

Source: City of Griffin 2020 Comprehensive Plan and US Census Bureau

Serving as a major employment center for Spalding County and a generator of prosperous retail trade, the City has experienced increasing traffic flow through and within the City. Despite well below average population growth, traffic counts have continued to rise as regional prosperity has increased the burden on Griffin's transportation infrastructure. The City's location provides several reasons for this economic vitality including the City's proximity to Hartsfield-Jackson International Airport, its location midway between Interstates 75 and 85 and its central location between Atlanta, Macon and Columbus.

A number of important events and major trends are shaping Griffin's economy and will continue to do so over the next 20 years. Changes to the local transportation network will lead to changes in the types of residents and employers the City can attract. Key transportation improvements on the horizon include a potential South Griffin Bypass, the potential implementation of Commuter Rail to Atlanta, the relocation of the local airport, and the enhancement of the multimodal transportation network throughout the City. City redevelopment initiatives to assist blighted residential and commercial areas could reshape older neighborhoods and districts. Future development and redevelopment, planning efforts such as Livable Centers Initiatives, and continued growth and expansion of University of Georgia's Griffin campus and the Southern Crescent Technical College campus will impact Griffin's existing transportation infrastructure.

1.3 Transportation Overview

The City of Griffin, located 40 miles south of Atlanta and 55 miles north of Macon, is the seat of Spalding County and home to approximately 24,000 people. Through its long history, Griffin has retained much of its historic charm. An inviting city streetscape and successful redevelopment efforts have created a downtown that is welcoming to pedestrians. Largely a manufacturing community, Griffin offers its citizens excellent municipal services that contribute significantly to its high quality of life. The City of Griffin's quality of life is enhanced by its history, charm, and excellent public infrastructure. To accomplish the City's mission to continue to "enhance the quality of life by providing a high level of service in an efficient and responsive manner", City staff and elected officials commissioned a study to evaluate the effectiveness of the City's transportation system and offer recommendations.

Resembling communities across the country, Griffin is struggling to balance the reality of steadily increasing traffic with the desire to retain its charm and "sense of place". Transportation is a critical component of any community's growth strategies. Recognizing this, the City completed the study of its system and developed a comprehensive transportation plan to address existing deficiencies, identify future problem areas, and recommend potential solutions.

The City, along with other key stakeholders including Spalding County and the Three Rivers Regional Commission (RC), identified and addressed a number of key issues in the Griffin Comprehensive Transportation Plan. Included among the project issues are the following needs, deficiencies, and potential improvements:

- Traffic signal coordination and equipment evaluation
- Impact of truck movements through Downtown
- Expansion of the bike/pedestrian network
- Bypass implementation
- Facilitating the implementation of and preparing infrastructure for the new Airport
- Planning for potential for commuter rail
- Addressing land use/development impacts on the transportation network

To approach the issues, a variety of information was required. Information was collected and evaluated during the study so that issues could be thoroughly discussed and alternative solutions identified.

Examples of the type of data collected for evaluation included the following:

- Existing roadway characteristics and condition
- Currently planned and programmed transportation projects
- Regional travel demand forecasts
- Traffic control at signalized and selected non-signalized intersections
- Accident history
- Location of major activity centers
- Location of planned development
- Needs identified by City staff, elected officials, citizens, and stakeholders

- Results from City and County comprehensive plans
- Commuter rail study
- Airport site selection study

To ensure that sufficient information was collected regarding the community's transportation needs and to involve the citizens in shaping the future of transportation in Griffin, a public outreach was conducted including the following meetings:

- July 21, 2010 — Griffin-Spalding Transportation Committee Meeting
- August 10, 2010 — Public Information Meeting
- November 2, 2010 — Workshop with Griffin-Spalding Transportation Committee
- November 9, 2010 — Public Information Meeting

Meetings were held at strategic points during the study process. The first round of meetings was held with the purpose of presenting the identified needs in the city. The July meeting with the Transportation Committee gave them a chance to review and comment on materials to be presented at the August public meeting. The second round of meetings, held in November, focused on the presentation of recommendations based on the results of the Needs Assessment. Based on comments received through the public involvement process, recommendations were finalized and incorporated in the plan document.

2 Plan Development Process

Identifying long range transportation system needs for horizon year 2030 requires multi-faceted, integrated qualitative and quantitative analyses. To gain an understanding of the needs from those who know the transportation system best, effort was taken to actively involve the public, local stakeholders, City and County staff, and other interested parties in the plan development process through meetings and public outreach efforts. Previous planning efforts, studies and plans that have already identified local transportation issues and needs were also reviewed to provide an understanding of previously identified issues and opportunities. A concurrent technical analysis was conducted to validate and supplement the qualitative findings. These steps result in a technically sound project development process that is consistent with regional planning practices and produces a credible transportation plan.

In order to develop a plan that is responsive to the future needs of the City of Griffin, an evaluation process was employed to integrate the many elements comprising the overall transportation system. Required elements include population, employment and socio-economic characteristics, land use and development patterns, transportation system infrastructure and inventory, and multimodal facility utilization. The general process to complete the study and ensuing Plan is illustrated in Figure 2.1. Specific steps to complete the process included:

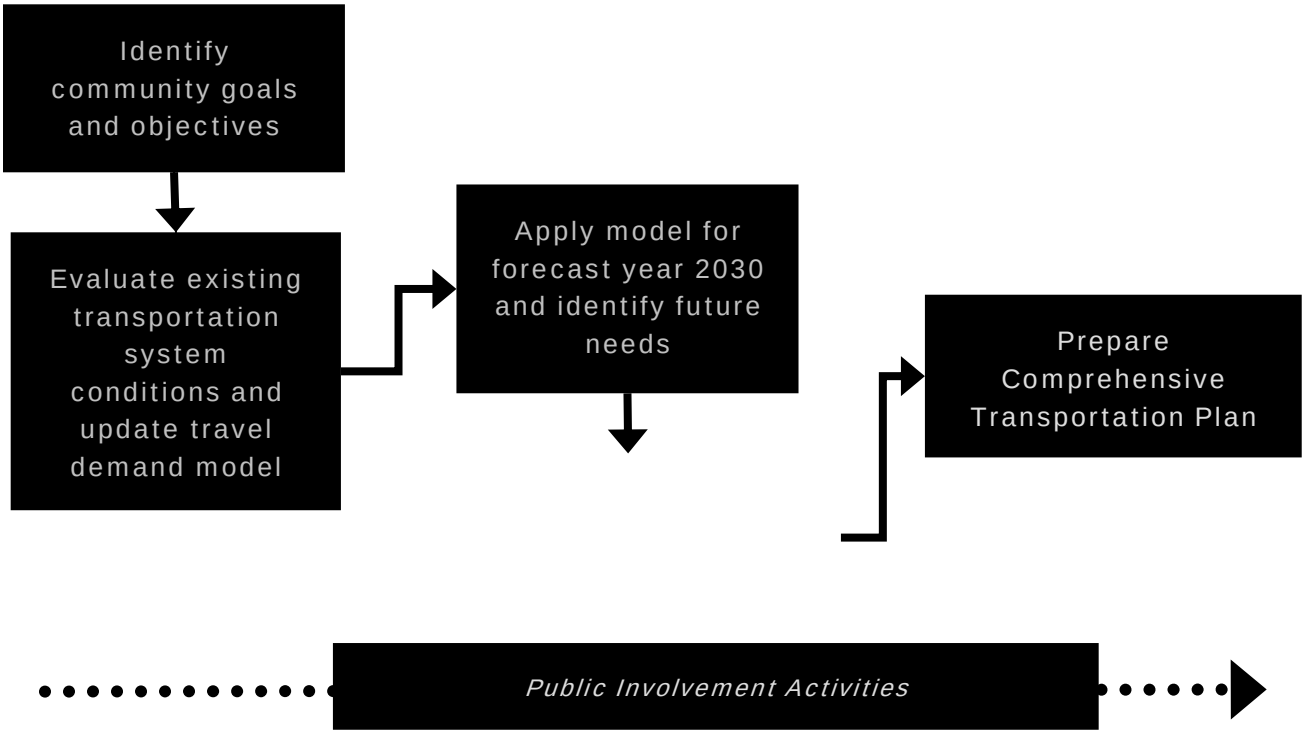


Figure 2.1 - Plan Development Process

- Collect Information on Area Transportation
  Data was collected from various sources through public information efforts, including meetings with the City Commission, City staff, the public, and the Griffin-Spalding Transportation Committee. Data was also collected from existing documentation, such as the 2020 Comprehensive Plan, the Spalding County CTP, various Livable Centers Initiatives (LCIs) and other relevant studies. Field review was conducted to gather existing conditions data at signals, identified intersections and problem areas. Field review also consisted of work sessions with the Regional Commission, City and County staff regarding demographic and interviews with key staff regarding aviation and public transportation data.

- Analyze Area Transportation System
  Roadway network capacity, operations, and deficiencies were analyzed. Bicycle/pedestrian needs were evaluated, along with transit and truck traffic issues. The assessment of alternatives included consideration of factors such as costs, benefits, and impacts associated with each alternative. Three growth forecasts were analyzed and potential improvement strategies were prepared for review by City staff and stakeholders.

- Public Involvement Process
  Throughout the study process, outreach to stakeholders and the public was performed to gather input at critical milestones. The Needs Assessment was presented to the City Commission, City Staff, the Griffin-Spalding Transportation Committee and the public and feedback was received. These audiences were also targeted in presenting project recommendations. Comments received during these key milestones were considered and addressed in the development of the final CTP.

- Develop Capital Improvement Program
  Short, intermediate, and long-range transportation improvement projects were proposed. The program of projects included new roadways, roadway widening projects, intersection improvements, signal recommendations, pedestrian improvements, transit recommendations and a new airport. Cost estimates were developed for each of the recommended projects. A transportation capital improvement program was prepared (see Table 5.1) for consideration by the staff, Steering Committee, and public.

- Prepare Document
  A draft Griffin Comprehensive Transportation Plan was prepared for review by staff and elected officials. It was also placed on the website for public review and comment. A final report was prepared for adoption by the City Commission.

2.1 Plan Purpose

The purpose of developing the transportation plan was to not only meet transportation goals, but also to achieve economic development and quality of life objectives by enhancing the interconnection of people, goods, and services within and through the City of Griffin. A variety of transportation modes are made available to the traveling public in the City. Each was inventoried and evaluated, including automobile, truck, transit, bicycling, walking, air, rail, and intercity bus, with emphasis on compatibility and connectivity.

The comprehensive transportation plan provides not only a blueprint to assist decision-makers with allocation of scarce transportation resources, but also offers the following set of benefits:

- Prioritization of improvement needs so that available funding is allocated accordingly.
- Advance preparation to implement feasible improvement options as the need arises.
- Identification of short and intermediate range improvements to complement future improvement strategies.
- Public notification of future transportation improvements.

Maximizing the efficiency and effectiveness of the existing system is a key component of the Plan. Small investments, such as traffic signal improvements, minor traffic operational improvements, improved signage, public education, and improved management of transportation, can dramatically improve mobility and accessibility, as well as the public's perception of community quality of life.

2.2 Goals

The first step to ensuring a long range transportation plan will best meets a community's needs is to establish an understanding of the community's goals and vision for the transportation network. Thoughtful goals ensure a long-range, needs-based perspective that will assist in effectively identifying and implementing transportation initiatives in the City of Griffin. To meet the challenges presented by regional growth and limited funding, a focused shared vision of the future community is required. A realistic and insightful set of goals can help to identify and assess current and future transportation needs and program directions.

SAFETEA-LU emphasizes that transportation infrastructure investment should be driven by the need to improve mobility, safety and to provide more efficient movement of people and goods. Goals for the 2030 CTP update were designed to meet the City's as well as the greater region's transportation needs while simultaneously incorporating sensitivity to the environment and to the transportation efforts of the regional planning partners. Table 2.1 links the CTP goals and the SAFETEA-LU planning factors.

Table 2.1 - City of Griffin CTP Goals

Goals	**Applicable** SAFETEA-LU **Planning Factor**
Improve the overall performance of the city's transportation system by identifying capacity needs and operating deficiencies in the network. Provide safe and effective local access to aviation facilities in support of local economic development efforts, and reduce the negative impacts of the airport on surrounding residential uses. Support the development of one or more bypass routes to alleviate downtown truck traffic.	• Increase the accessibility and mobility options available to people and for freight • Promote efficient system management and operation
Preserve and maintain the existing system	• Emphasize the preservation of the existing transportation system
Provide safe and efficient vehicular access to and from the city.	• Increase the safety and security of the transportation system for motorized and non-motorized users
Preserve the environment	• Protect and enhance the environment, promote energy conservation, and improve quality of life
Enhance mobility across all travel modes o Enhance sidewalk, pedestrian, bicycle and transit systems to help non-motorists reach destinations o Focus on land use improvements that shorten trips between origins and destinations (e.g. mixed use developments) o Address travel demand efficiently, minimizing congestion and improving the flow of travel o Coordinate transportation and land use plans to better balance transportation need and improve access	• Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
Support the addition of a commuter rail station and the addition of transit, pedestrian and alternate transportation mode infrastructure needed to support it. Support access improvements to the commuter rail station that are consistent with the development goals of the community. These goals include walkable streets, minimal truck traffic, low vehicle speeds, and “neighborhood scale” designs.	• Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency

Goals	Applicable SAFETEA-LU Planning Factor
Development of bypass routes to alleviate downtown truck traffic. Land use and access along these routes should be closely controlled to discourage "urban sprawl" type development.	

2.3 Planning Environment

In order to develop transportation recommendations that meet the needs of the City of Griffin, it is critical to understand the existing conditions of the multimodal transportation network as well as the socioeconomic characteristics and trends. For this reason, an extensive review of existing conditions was conducted to provide a baseline for understanding existing and future needs. This review included an analysis of demographic data, field review of the transportation network, collection of relevant data and review of previous studies.

2.3.1 Study Area

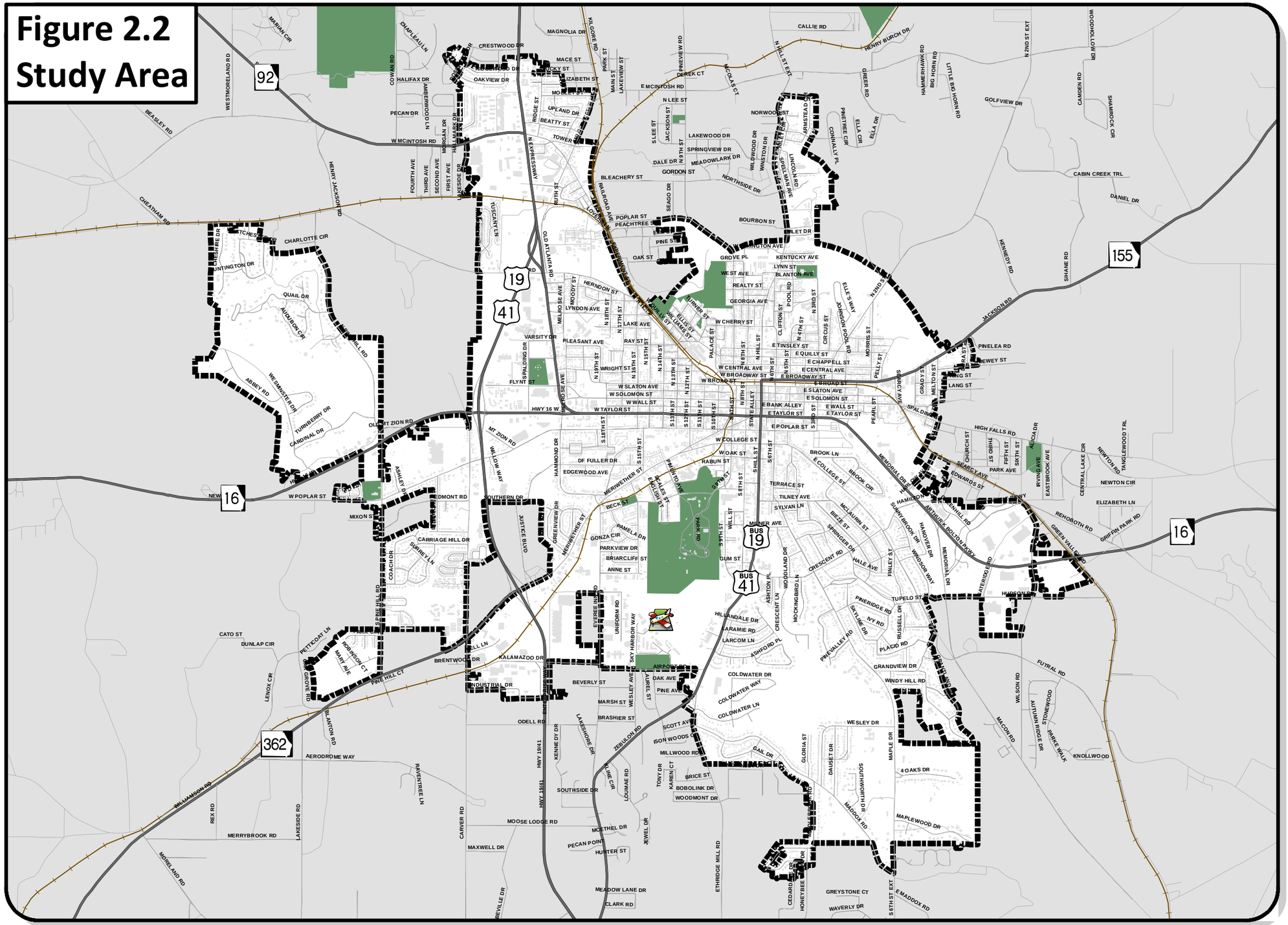
The City of Griffin, located 40 miles south of Atlanta and 55 miles north of Macon, is the seat of Spalding County. The city, shown in Figure 2.2, encompasses 14 square miles. The primary routes for travel to and throughout the City consist of US 19/41, SR 92 and SR 155. US 19/41 serves as the main north/south route through the City. It offers an efficient and effective north-south bypass to serve through and local commercial traffic while Business 19/41 serves as an arterial for north, central and south Griffin. SR 16 (Taylor Street), a major 4-lane arterial, provides the primary east-west connection in Griffin and Spalding County for truck and other through traffic traveling between I-75 and US 19/41 to the east and I-85 to the west. The study area map, shown in Figure 2.2, extends into Spalding County for the purpose of considering bypass options and other regional facilities.

Griffin developed as the industrial employment center for Spalding County. Today, much of the textile industry has relocated, replaced by retail, service, financial, and government employment. Prosperous retail trade has contributed to the increasing traffic flow through and within the City. Despite well below average population growth, traffic counts have risen as regional prosperity has increased the burden on Griffin's transportation infrastructure.

Continuing this trend, traffic volumes are anticipated to outpace population growth. With a projected twenty year increase in population of 67% (mid growth scenario – see section 2.3.2 for discussion of growth scenarios), major roadways are projected to experience significantly higher increases in traffic volumes. Routes expected to see heavy growth include US 19/41 and Old Atlanta Highway, on which traffic volumes are projected to increase by 79 percent and 95 percent, respectively over the next 20 years. During the same period, other major roads, such as Hill Street and Taylor Street, are projected to see less significant growth. This is due to the programmed bypass south of the city which will impact the traffic demand on these streets as well as other streets in the downtown area.

City of Griffin Comprehensive Transportation Plan

Figure 2.2
Study Area



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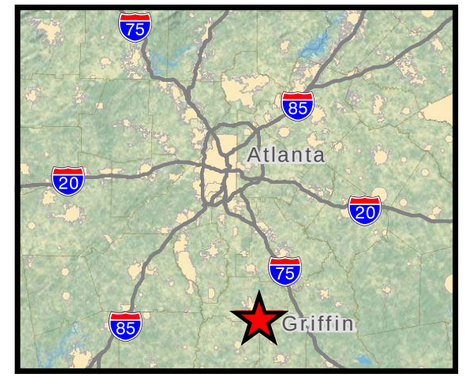
Regional Inset



Legend

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Buildings
- Railroads
- Griffin / Spalding Airport

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

2.3.2 Demographics

The demographic characteristics of an area heavily impact the transportation needs of a community. For example, a reliable and accessible multimodal transportation system is essential for the overwhelming majority of the population but particularly critical for low income workers, the elderly and other non-driving populations.

In Griffin, 26 percent of individuals live below the poverty level, compared to a national average of 13.2%. This population was taken into account in recommending transportation improvements. Additionally, the percentage of individuals age 65 and older was slightly higher than the national average (14.6 % compared to 12.6%). Mobility needs of the aging population must also be carefully considered when planning for future transportation needs.

In addition to considering the varying needs of different demographic groups, understanding the distribution of population and employment is also critical to transportation planning as the array of transportation facilities and services needed directly relates to this distribution in an area. Areas of greater population and employment density require a greater intensity of facilities and services, e.g., urbanized areas can support a well-developed roadway network with transit services. Understanding existing and future employment distribution is important because employment centers serve as one endpoint to most trips.

2.3.2.1 Existing Population and Employment

In the City of Griffin, the majority of the high population densities fall around the area bounded by the North Expressway to the west, Hill Street to the east, Experiment Street and Ellis Road to the North, and Meriwether Street to the South. Most of this density is focused around Taylor Street and the downtown Griffin area. The University of Georgia Griffin Campus is located in the northwestern portion of this region. Employment density is focused around the downtown area and along major roads such as Taylor Street, Hill Street, North Expressway, Meriwether Street, and Broadway Street. The existing 2010 household density can be seen in Figure 2.3, and the employment density can be seen in Figure 2.4.

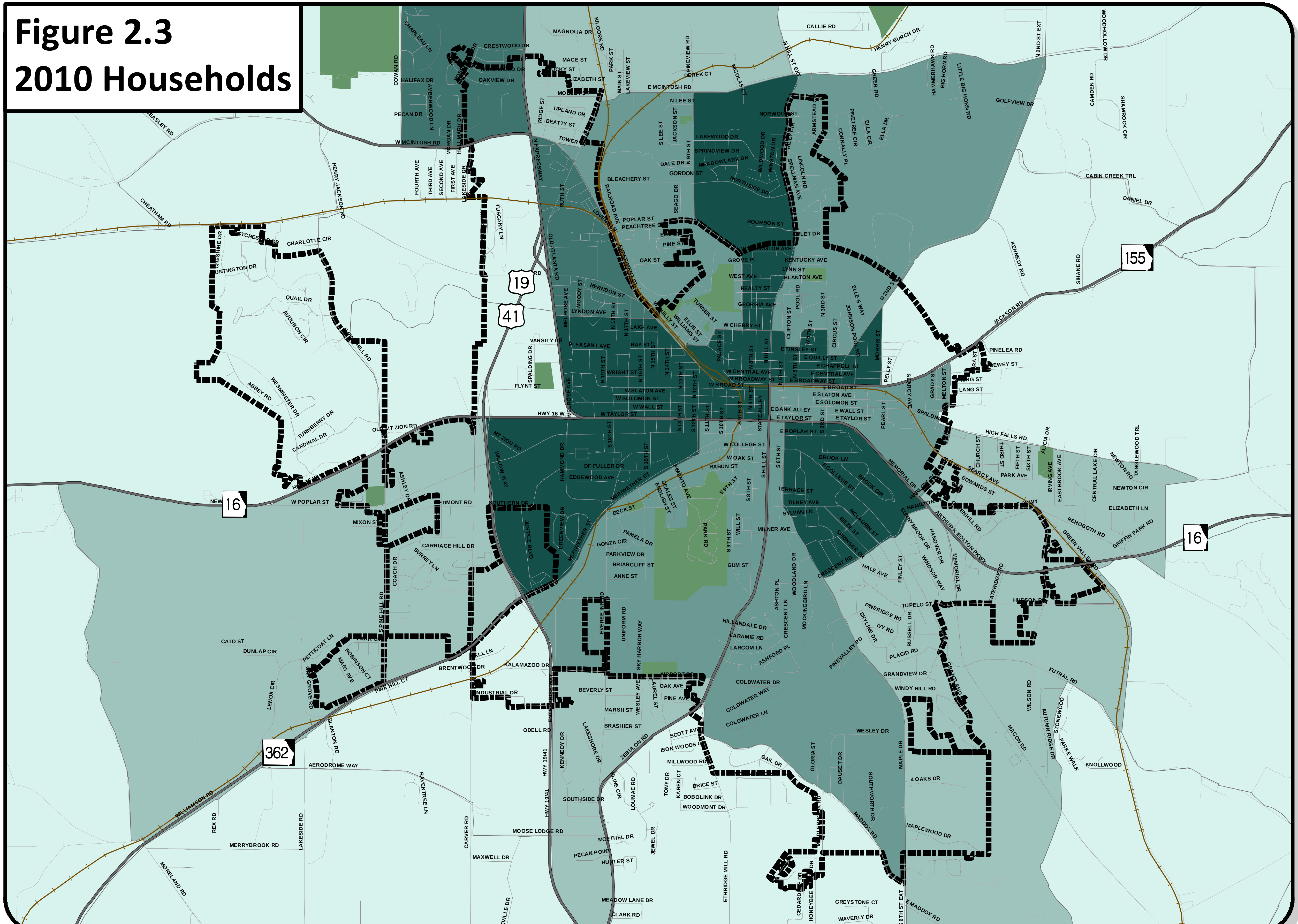
2.3.2.2 Growth Scenarios

In order to accurately assess the future demands on the transportation system, emphasis was placed on the development of growth projections. To understand the dependence of growth on unknown development variables, such as the implementation of commuter rail, three different growth scenarios were developed and transportation impacts were assessed based on these varying levels of projected growth. These three scenarios were based on previous projections developed for the ARC travel demand model, scenarios developed through the Spalding County CTP and input from the City, County and Regional Commission staff. Each scenario results in different transportation, economic, and land use impacts. These growth scenarios were assessed during this study for the purposes of updating the travel demand model.

The Low Growth scenario was based on the socioeconomic data in ARC's travel demand model. Adjustments were made based on knowledge of specific developments, as noted by the Technical Committee.

City of Griffin Comprehensive Transportation Plan

Figure 2.3
2010 Households



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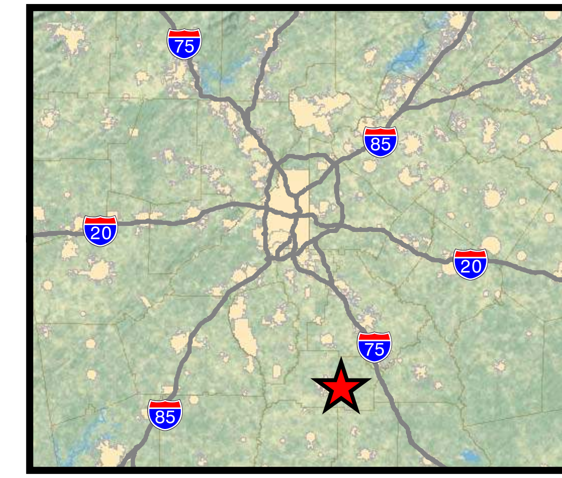

Legend

Household Density (Per Square Mile) by TAZ

- 801 and Above
- 601 - 800
- 401 - 600
- 201 - 400
- 200 and Below

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

0 0.25 0.5 1 Miles

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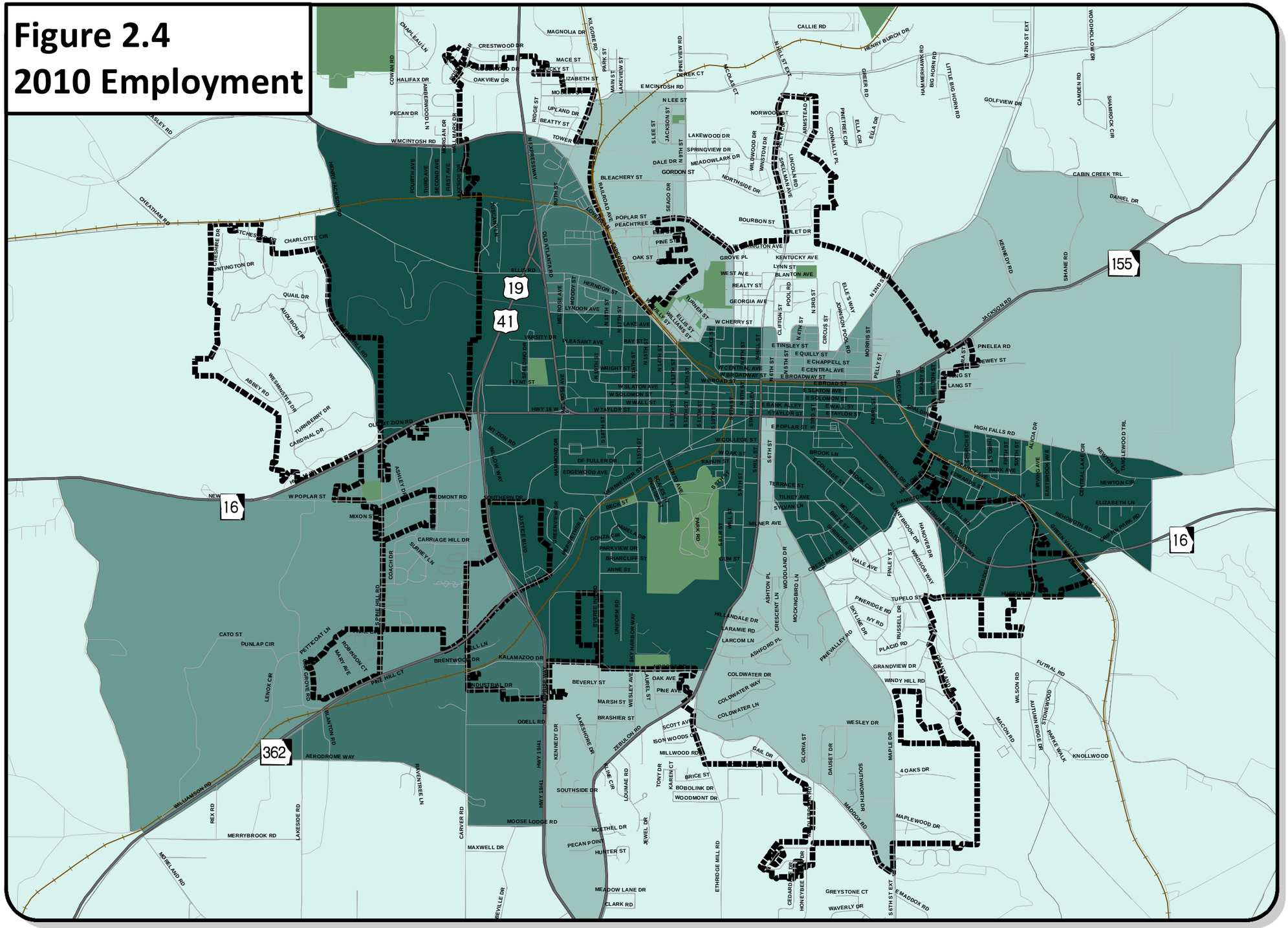
City of Griffin Comprehensive Transportation Plan

Figure 2.4
2010 Employment



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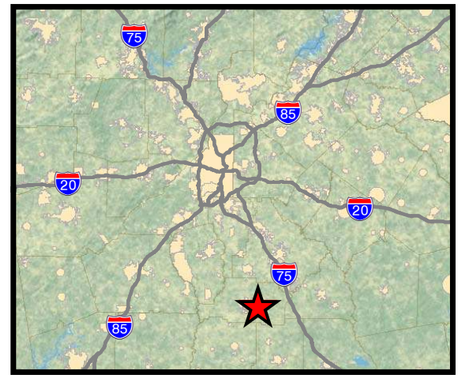

Legend

Employment Density (Per Square Mile) by TAZ

- 801 and Above
- 601 - 800
- 401 - 600
- 201 - 400
- 200 and Below

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

0 0.25 0.5 1 Miles

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The Mid Growth scenario land use patterns that focus around existing and planned centers. New development is centered around these activity centers. This scenario predicts growth according to the Spalding County Comprehensive Plan Policy Area Map and is based on the projected water supply and demand for water. Again, the Technical Committee reviewed this scenario on a TAZ level to ensure known and anticipated development was properly considered.

The High Growth scenario has similar land use patterns to the Mid Growth scenario, again following the Spalding County Comprehensive Plan Policy Area Map. This scenario is based on higher projections of population, employment, and households for year 2030. The high projection assumes that additional sewer capacity and improvements to the local school system will increase housing demand and drive new subdivision developments. Adjustments were made on a TAZ level based on Technical Committee input on future development for this scenario as well.

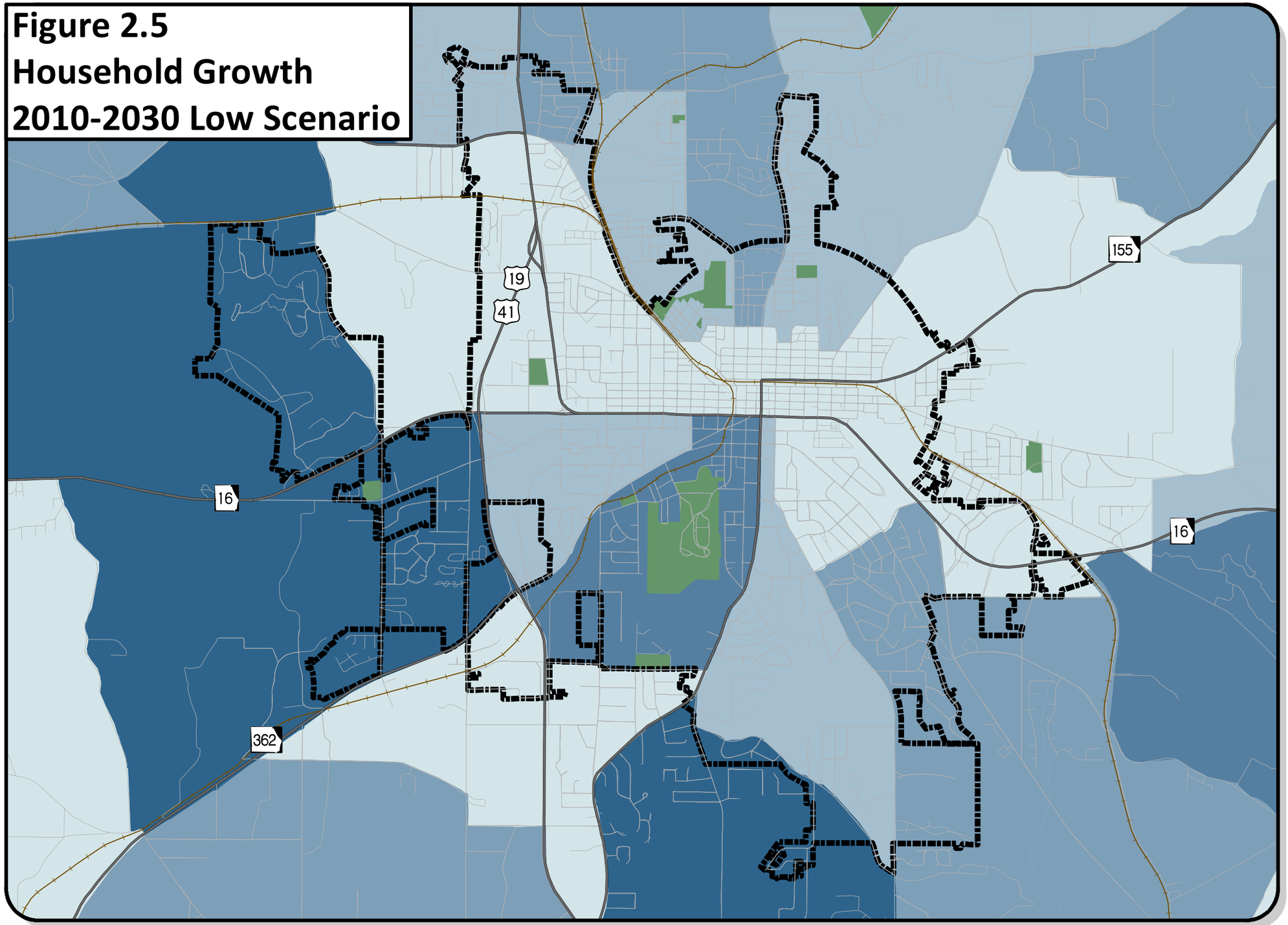
2.3.2.3 Future Population and Employment

Future household densities for the year 2030 are shown for the low growth, mid growth, and high growth scenarios in figures 2.5, 2.6, and 2.7, respectively. The future employment densities for the year 2030 are shown in the same growth scenarios in Figures 2.8, 2.9, and 2.10. The household and employment densities see little change in the downtown area since the area has already been built out.

The highest levels of household growth are anticipated south of the downtown area between Meriwether Street and Hill Street/Zebulon Road. This could be due to the relocation of the existing Airport, which will offer opportunity for redevelopment. A fair amount of growth is also expected around the West Griffin LCI area, which is bounded by US 19/41 on the west side, Lovers Lane on the north side, Experiment Street and 13th Street on the east side; and West Taylor Street on the south. This area is expected to create 905 new housing units. Significant growth to the northeast of the city is expected at Sun City Peachtree, with an anticipated build out of over 3000 new residential units. Sun City Peachtree will also have a large Amenities Center and Golf Club House. A possible commuter rail line connecting Griffin to Atlanta and Macon could potentially cause an increase of 1,500 households.

Large employment growth is anticipated south of the downtown area and at the area around the new airport. Multiple areas outside of the city limits are expected to see heavy employment growth, including the new Lakes at Green Valley Industrial Park. This new development will have an industrial building area, a hotel, a conference center, a grocery store, and specialty retail and is expected to provide approximately 3,000 new jobs. The commuter rail line is anticipated to spur employment growth in downtown as well.

Figure 2.5
Household Growth
2010-2030 Low Scenario



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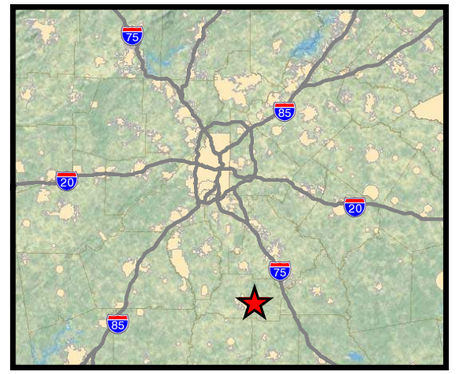

Legend

Household Growth By TAZ

- 801 and Above
- 401 - 800
- 201 - 400
- 101 - 200
- 0 - 100

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

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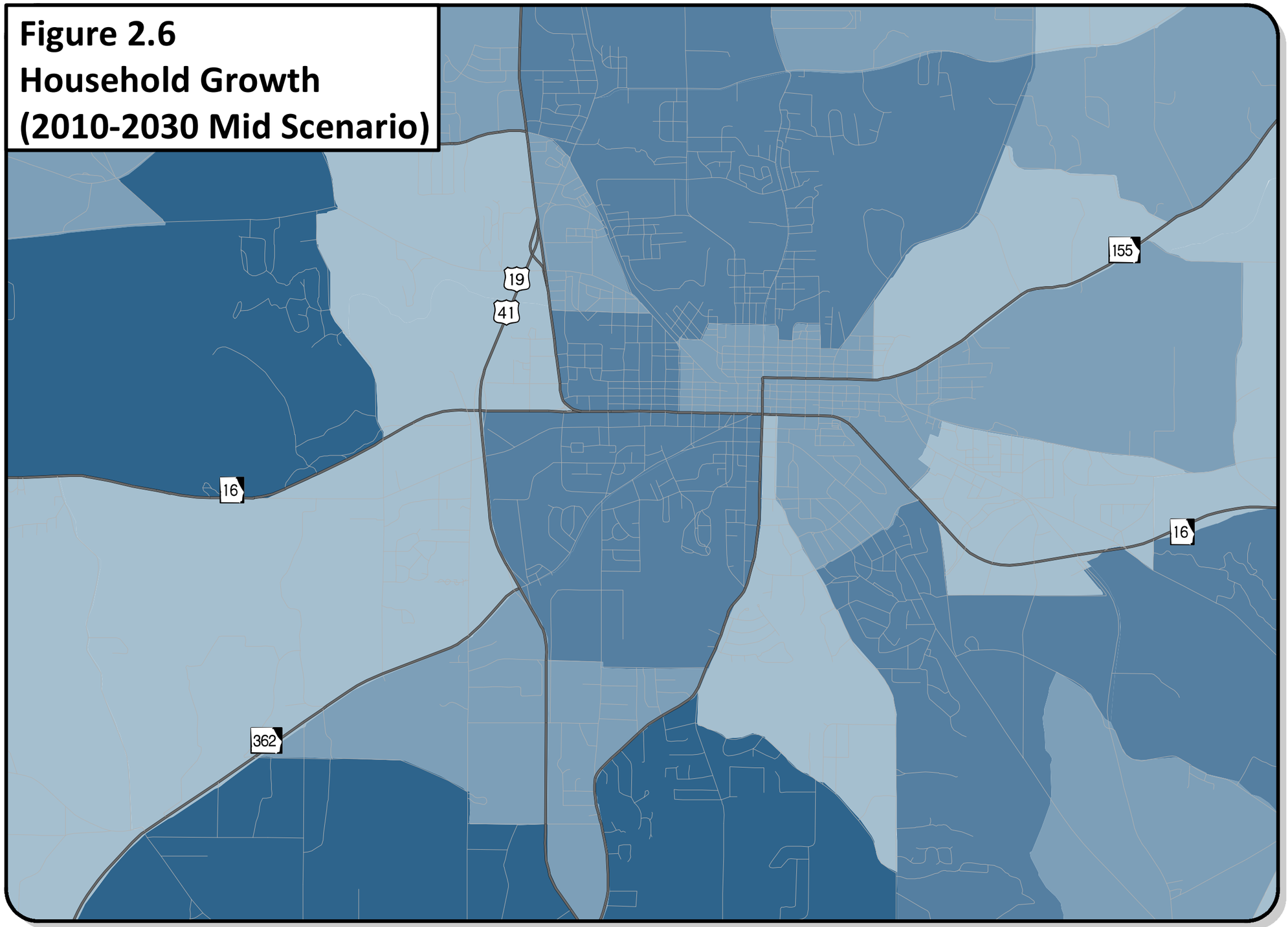
Figure 2.6
Household Growth
(2010-2030 Mid Scenario)



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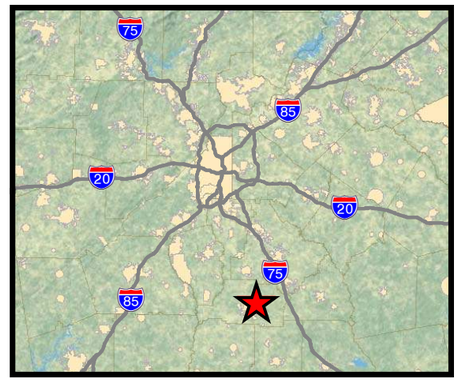

Legend

Household Growth by TAZ

- 801 and Above
- 401 - 800
- 201 - 400
- 0 - 200
- Negative Growth

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

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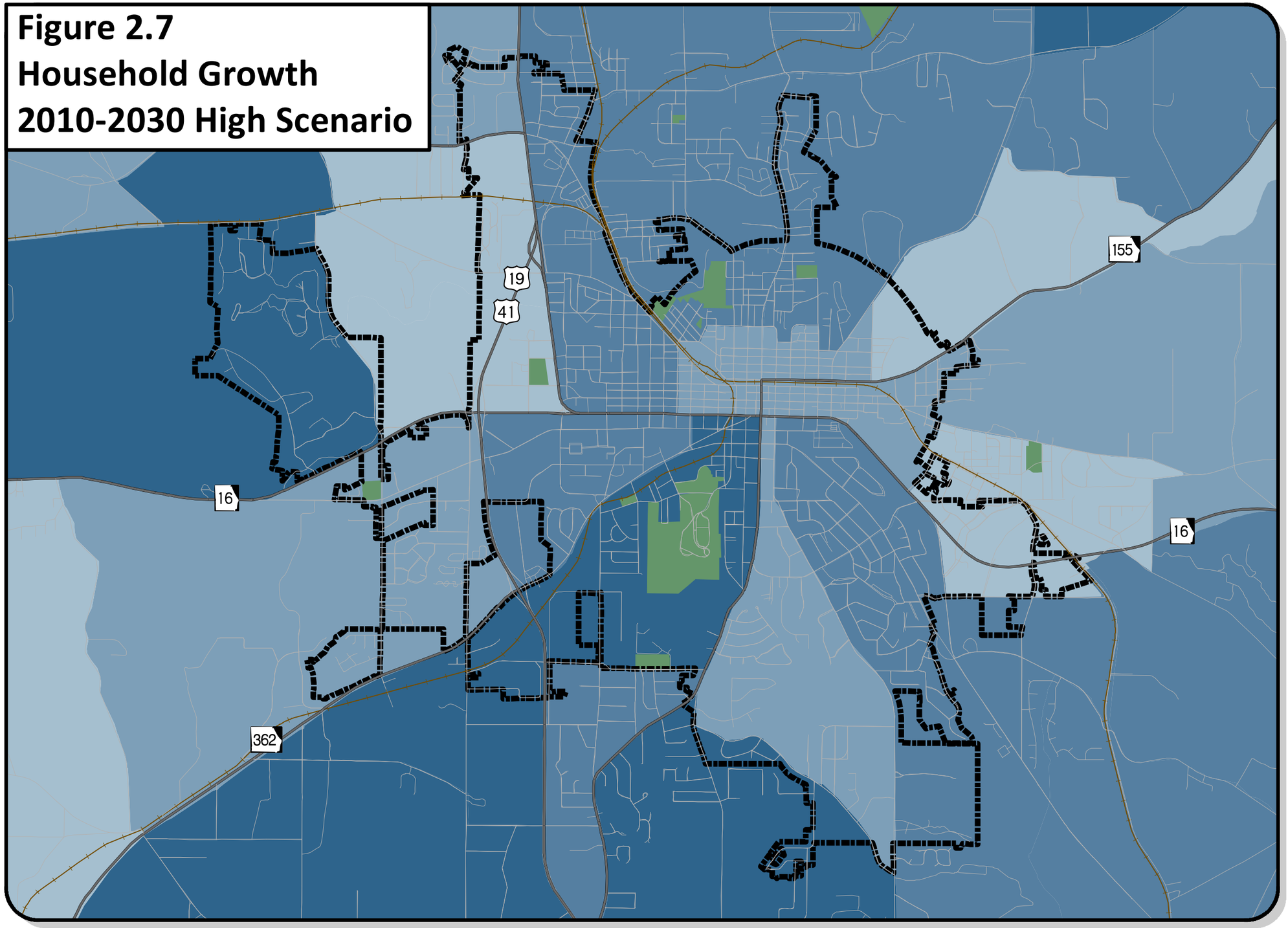
Figure 2.7
Household Growth
2010-2030 High Scenario



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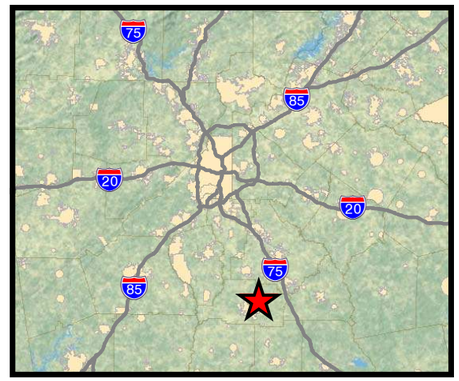

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Household Growth By TAZ

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- 0 - 200
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Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

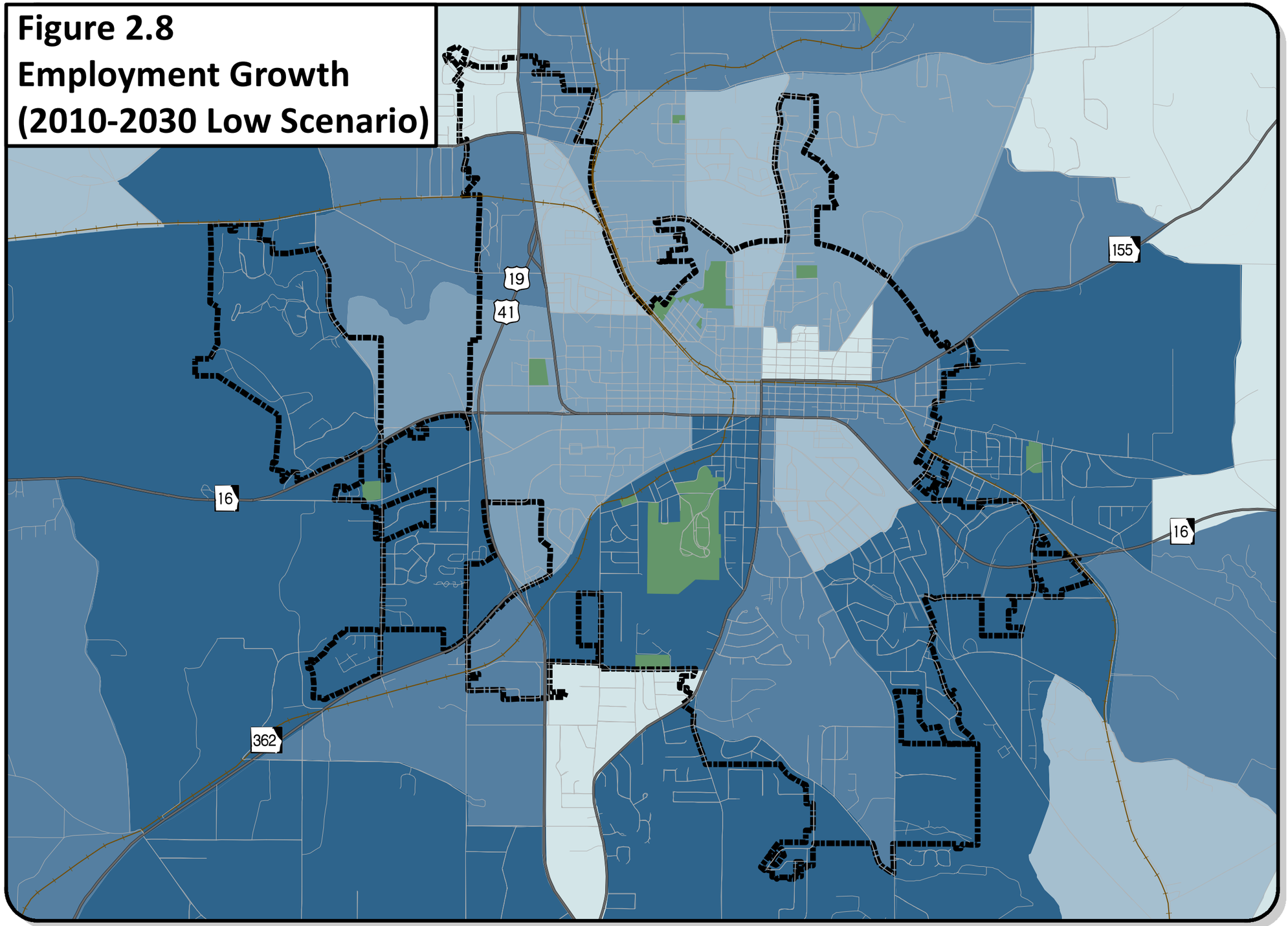
Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

Figure 2.8
Employment Growth
(2010-2030 Low Scenario)



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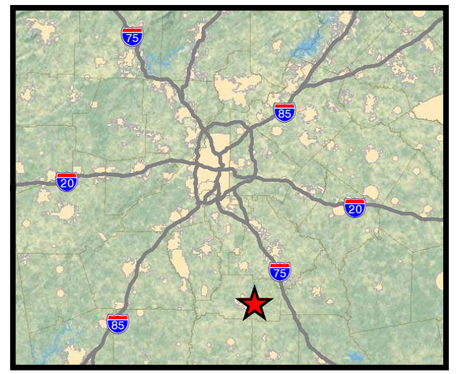

Legend

Employment Growth By TAZ

- 801 and Above
- 401 - 800
- 201 - 400
- 101 - 200
- 0 - 100

Road Network

- State Highway
- Local/Other Roads

Other Layers

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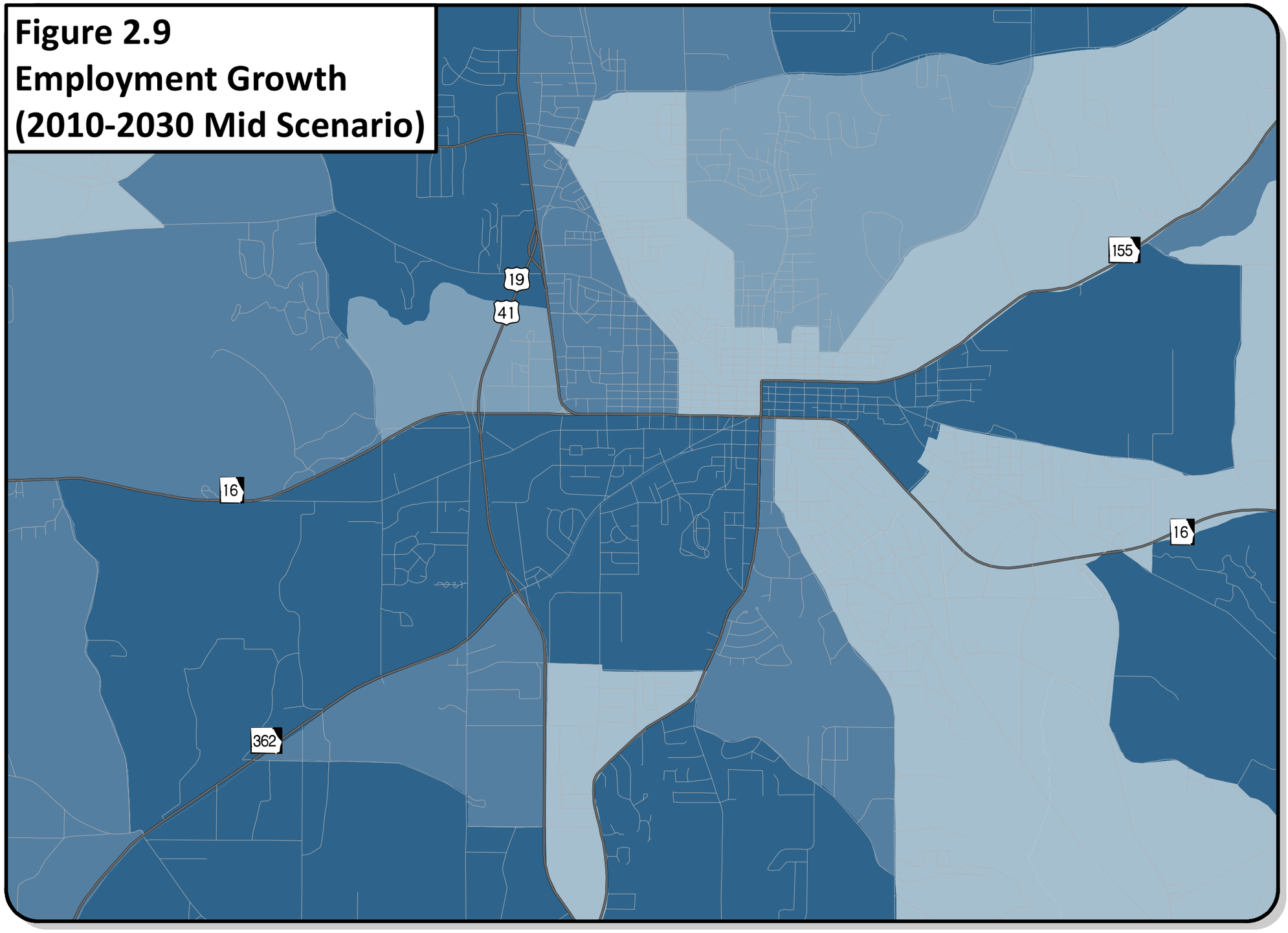
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

0 0.25 0.5 1 Miles

Figure 2.9
Employment Growth
(2010-2030 Mid Scenario)



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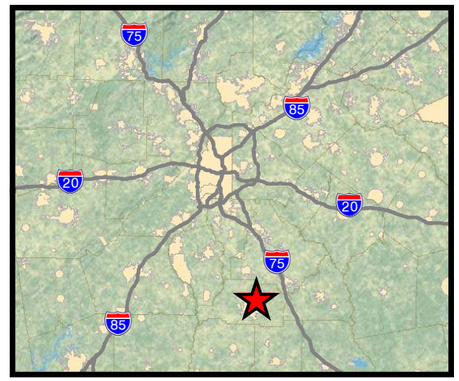


Legend

Employment Growth By TAZ

- 801 and Above
- 401 - 800
- 201 - 400
- 0 - 200
- Negative Growth

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

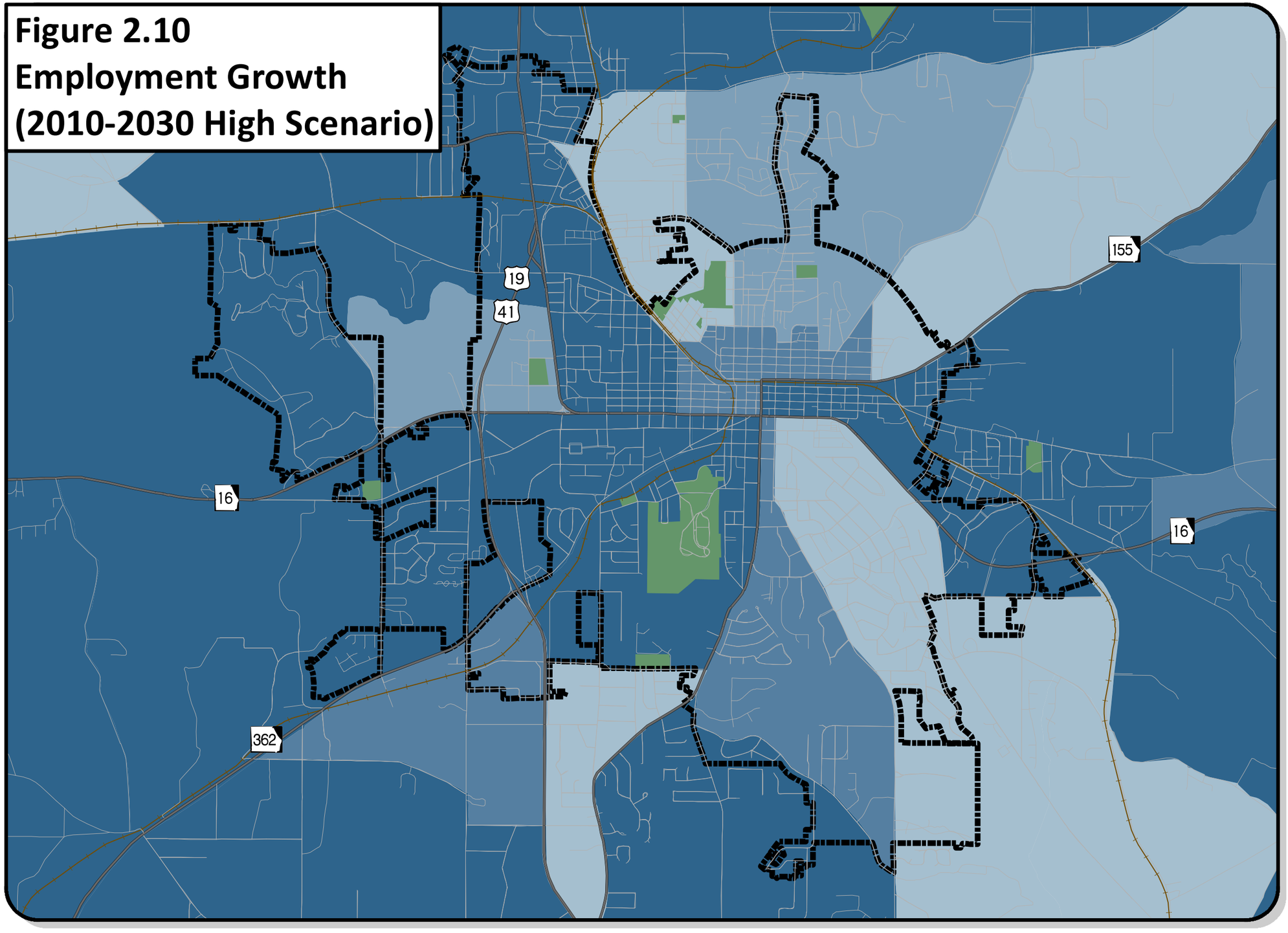
This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

April 2011

Figure 2.10
Employment Growth
(2010-2030 High Scenario)



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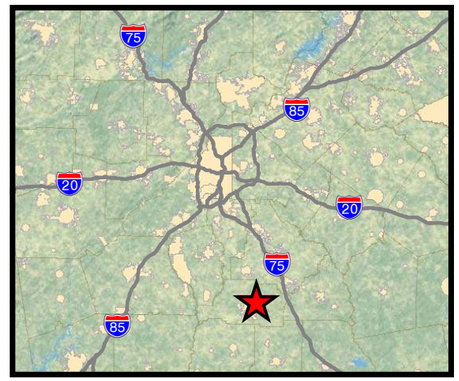


Legend

Employment Growth By TAZ

- 801 and Above
- 401 - 800
- 201 - 400
- 0 - 200
- Negative Growth

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

0 0.25 0.5 1 Miles

2.3.3 Data Collection

A wide variety of information is required to make effective transportation policy decisions in metropolitan areas such as Griffin. Data was collected from local, state, and federal sources to gain an understanding of the planning environment, as well as to conduct the technical analysis required to identify existing and future transportation needs. Table 2.2 indicates primary data used to prepare the 2035 LRTP Update. One essential tool used in the transportation system evaluation is the travel demand model, which aids in future travel demand forecasting and scenario testing. The data requirements for the model update are extensive and include existing and future population and socio-economic data, roadway characteristics, and transportation system utilization.

Table 2.2 - Data for 2035 LRTP Update

Category	Data Resources
Plans	City of Griffin Comprehensive Plan (2024) West Griffin Livable Centers Initiative Study North Hill Street Study Downtown Griffin Livable Centers Initiative Study Spalding County Comprehensive Transportation Plan
Land Use	City of Griffin Zoning Map
Socio-economic Data	ARC Regional Travel Demand Model 2005 Census Data City of Griffin Comprehensive Plan 2024
Roadway Network	Georgia Digital Line Graph File GDOT STARS
Geographic Information System Shape Files	City of Griffin

2.3.4 Review of Previous Studies and Plans

City of Griffin 2024 Comprehensive Plan: Chapter 9 Transportation

The Transportation chapter of the City of Griffin 2024 Comprehensive Plan, completed in December 2004, outlines the community's transportation goals and implementation programs over the next twenty years. The existing conditions of the transportation system have been reviewed including multiple aspects of the system such as roadways, parking, bicycle and pedestrian ways, and airports. An assessment of current and future needs was performed based on the findings of the inventory as well as public involvement. A list of projects recommended for implementation was prepared for further consideration in the Griffin Comprehensive Transportation Plan.

2.3.4.1 City of Griffin Comprehensive Plan Partial Update

The City of Griffin conducted a partial update to its Comprehensive Plan in February 2010. Prior to this, the Comprehensive Plan was last completely updated in 2004. The City of Griffin Comprehensive Plan

Partial Update's purpose is to act as a policy guide for local governments between Comprehensive Plan Updates. It provides a decision-making guide for everyday use by government officials and community leaders. Different projects and plans are outlined and areas requiring special attention are identified. The partial update recommends new policies and implementation programs. These projects, policies and programs were considered in the development of recommendations for the Griffin CTP.

2.3.4.2 West Griffin Livable Centers Initiative Study

The City of Griffin has been the recipient of funds from ARC for a number of Livable Centers Initiative (LCI) studies. The purpose of these studies are to encourage local jurisdictions to plan and implement strategies that link transportation improvements with land use development strategies to create sustainable, livable communities consistent with the regional development policies. The West Griffin LCI focused on the area east of US 19/41, south of Lovers Lane, west of Experiment Street and 13th Street, and north of SR 16 (West Taylor Street), which contains much of the University of Georgia, Griffin Campus as well as Griffin Technical College.

The study focuses on improving connectivity to UGA-Griffin and Griffin Tech, exploring the opportunity of redevelopment, stabilizing the residential neighborhood, and providing housing choices. Recommendations range from converting land uses (for example converting commercial land uses to retail mixed uses) to roadway improvements along key routes such as Experiment. The Griffin Town Center LCI study is located adjacent on the east of 13th Street.

2.3.4.3 Downtown Griffin Livable Centers Initiative Study (Town Center LCI Study)

Another LCI, the Downtown Griffin LCI, focused on the core downtown area, encompassing Hill Street from Oak Street to Georgia Avenue, Solomon and West Taylor Streets from 3rd Street to 13th Street, and Experiment Street from Broad Street to Ray Street. Other major roadways within the study area include Chappel, Broad, Poplar, and College Streets. Recommendations from this study included concentrating pedestrian-oriented storefront retail, increasing housing opportunities, limiting the number of access locations on main roads, utilizing public streetscape improvements.

2.3.4.4 Spalding County Comprehensive Transportation Plan

Like the City of Griffin and all other jurisdictions in the ARC region, Spalding County must maintain an updated CTP. The most recent update, completed in April of 2008, was reviewed for its relevance to this plan. The Spalding County CTP drew many recommendations for the City of Griffin from the previously completed City CTP. These recommendations included signal upgrades, intersection improvements and transportation demand management strategies. The Spalding County travel demand model was configured to reflect three different possible land use pattern scenarios, Base/Low Growth, Nodal/Middle Growth, and Nodal/High Growth. The Base/Low Growth scenario is based on an extension of the current land use patterns. This scenario reflects current low density and scattered land uses continued through 2030. The Nodal/Middle Growth scenario land use patterns that focus around existing and planned centers. New development is centered around these activity centers. The Nodal High Growth scenario has similar land use patterns to the Nodal/Middle Growth scenario. This scenario is based on higher projections of population, employment, and households for year 2030. Each scenario results in different transportation, economic, and land use impacts. These growth scenarios were assessed during this study for the purposes of updating the travel demand model.

2.4 Stakeholder Involvement and Public Outreach

To ensure transportation recommendations that best meet the needs of the community, it is crucial that local agencies, organizations, government officials and the general public have an opportunity to participate in the planning process. Development of the 2030 CTP included regular coordination with these stakeholders and the public. The process for bringing together the varied points of view and competing interests was key to reaching consensus on how to address multiple social needs. The Public Involvement Plan implemented during the study process is included as Appendix A.

The following public involvement strategies and techniques were used during the process to meet study objectives:

- Transportation Committee Coordination – Presentations were made to the Griffin-Spalding Transportation Committee regularly throughout the study process. This group provided input which was incorporated into the identification of needs and development of recommendations.
- Public Information Meetings - The general public was invited to attend advertised public meetings on August 10 and November 9 to offer input and receive information on the status of the plan.
- Media Outreach - Twice during the process, news releases were prepared and distributed to media outlets in the area.
- Website - Content regarding the study was provided to the City to be included on its website.

Issues addressed during the public involvement process:

- Truck traffic in downtown
- Signal cycles at certain intersections
- Potential east-west bypass from SR 155 to SR 92 on McIntosh
- Need for additional rail crossings
- Safety at several intersections
- Coordination of on and off system signals
- Review of specific intersections including: Hammond/Meriwether, Hammond/Poplar, and Poplar/Hill.
- Incorporation of commuter rail into transportation needs analysis

2.5 Performance Measurement

In addition to qualitative identification of local transportation issues and needs, a technical, quantitative assessment to demonstrate transportation need for future projects was conducted. The technical analysis process begins with identification of measurable outputs or outcomes of transportation system performance. Performance measures were developed that provide a means to gauge the progress towards attaining local transportation goals. The CTP goals were used as the basis for the analysis and development of performance measures.

Performance measures are necessary tools in needs-based plan development because they ensure necessary alternatives are identified and evaluated. Performance measures are also utilized to track transportation effectiveness over time. They provide accountability and link strategic planning to resource allocation. By defining specific performance measures, the City of Griffin is able to measure the effectiveness of selected transportation programs in meeting the City's goals. Performance measures as a package give a sense of the extent to which the current and recommended program helps achieve goals. Performance measures also provide a common, clear language to communicate transportation needs to both decision makers and the public.

The main performance measure used to measure system efficiency was volume to capacity (V/C) ratio, which is an indicator of congestion. The higher the V/C ratio, the more congestion there is on the roadway. Congestion needs were defined as road segments with V/C ratios higher than 0.8, as determined by applying 2030 forecast socio-economic data through the travel demand model. This corresponds with a Level of Service (LOS) "E" or "F". LOS is a qualitative measure defined by the Transportation Research Board (TRB) in the Highway Capacity Manual, 2000 and ranges from free flow conditions (LOS A) to gridlock congestion (LOS F). LOS D is considered the lowest level of acceptable LOS for urbanized areas.

Other related performance measures considered in the development of the Needs Plan include average roadway speed, vehicle miles traveled (VMT) and vehicle hours traveled (VHT). These outputs from the travel demand model were reviewed to determine the impact of the Needs Plan projects on the operation of the transportation network.

Roadway Performance Measures and Their Uses:

- Volume to Capacity ratio (V/C): Compares capacity available to volumes using a roadway - Measures congestion.
- *Level of Service (LOS)*: Rating that shows level of congestion - Based on V/C.
- Average speed: Measures congestion.

Other system-wide and multimodal performance measures:

- Vehicle Miles Traveled (VMT)
- Vehicle Hours Traveled (VHT) – Roadway
- Number of miles of pedestrian/bicycle facilities

2.6 Technical Analysis Tools

The two primary tools utilized to perform the transportation system analysis were spatial analysis and travel demand modeling. Spatial analysis was conducted through Geographic Information System (GIS) mapping of data. GIS applications for the plan included mapping existing and future population and employment distribution to understand changes in growth and development patterns, and mapping transportation facilities to show the existing network throughout the study area.

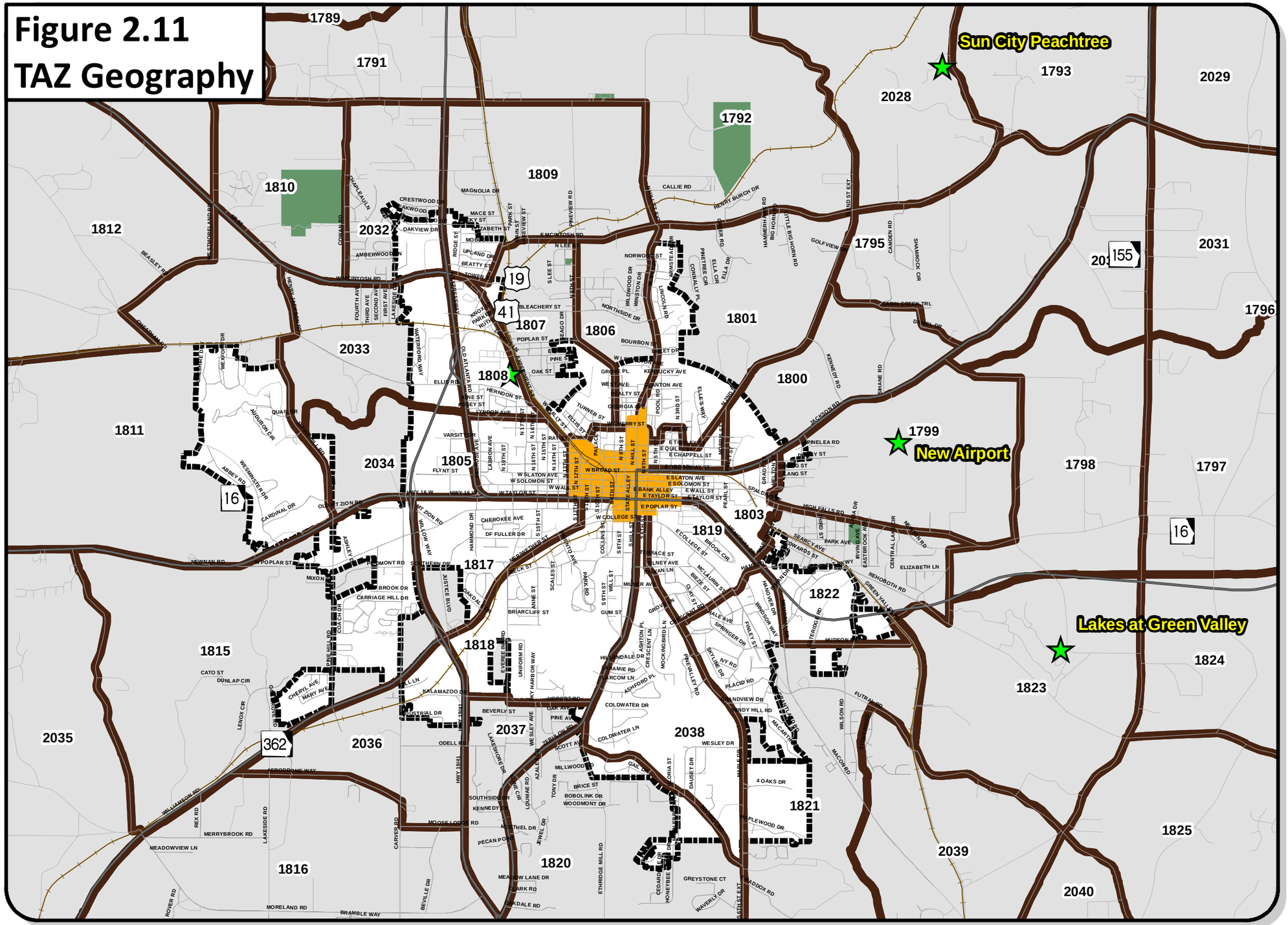
Employing the travel demand model, a major component of the CTP update, provided a quantitative means to evaluate the existing and future transportation system. The ARC travel demand model was utilized and refined for this plan. This tool allocates traffic to the roadway system based on existing and future socio-economic data. The travel demand modeling effort for this plan update included the following elements:

- A base year (2010) model was developed using existing socio-economic and traffic data to represent current transportation system conditions.
- A future year (2030) travel demand forecast was performed utilizing City approved future socio-economic forecasts (for low, medium and high growth scenarios as discussed previously) applied to the Existing plus Committed (E+C) roadway network, which includes projects with committed funding.
- The projects from the Capital Improvement Plan were tested against year 2030 conditions to assess their impacts on the future operations of the roadway network.

The model simulates the transportation system by reflecting the major road network (collectors and arterials) and geographic units called traffic analysis zones (TAZs). TAZs generally reflect similar, cohesive socio-economic characteristics, i.e., trip attractors such as employment centers are separate from trip generators such as residential clusters. The travel demand model for Spalding County contains 53 TAZs. The base year model network represents 249 centerline miles, of which 33 percent are arterials, 39 percent are collectors, 20 percent are local roads and the remaining 8 percent are classified as freeways/expressways.

As discussed in the demographic section, staff from the City and County aided in the development and review of socioeconomic data to ensure its accuracy. This was a key step in ensuring accurate modeling of future traffic volumes in the study area. Figure 2.11 shows the TAZ geography used for the modeling.

Figure 2.11
TAZ Geography



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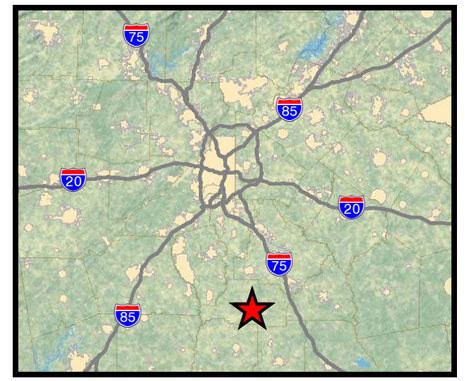


Legend

TAZ Geography
- TAZ Boundary

Griffin Development
- Proposed Developments
- Downtown LCI

Road Network
- State Highway
- Local/Other Roads

Other Layers
- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

3 Existing Transportation System

In order to develop a program of projects that best addresses the issues and accomplishes the goals for the transportation network, it is critical to first gain an understanding of the region's transportation needs. The purpose of this chapter is to provide an inventory of existing transportation conditions and an assessment of transportation needs through year 2030 for the City of Griffin. This Transportation Needs Assessment includes automobile, transit, pedestrian, and bicycle travel modes. A wide range of planning tools, techniques and methods were employed to gain a thorough understanding of City's transportation needs. The activities conducted include:

- Developing goals and performance measures
- Engaging the public through public meetings
- Reviewing existing planning documents
- Using spatial and statistical analysis to analyze various transportation system elements
- Examining future transportation conditions using ARC's travel demand model

The following sections describe the multimodal transportation needs identified using these analysis steps.

3.1 Roadway Network

The foundation of the transportation system is the combination of arterial, collector, and local roads. The City's grid system offers a number of viable alternatives to distribute local traffic; however, issues arise when through traffic conflicts with local traffic on the arterial system. An overall deficiency is the lack of circumferential alternatives that would ease the conflict between through truck traffic, commuters and local residential and business trips. Major, heavily traveled State and US highways converge in Griffin along its primary east-west arterial, Taylor Street (SR 16).

US 19/41 offers an efficient and effective north-south route to serve through and local commercial traffic. Business 19/41 serves as an arterial for north, west and south Griffin. Unfortunately, , SR 16 (Taylor Street), is the only primary east-west connection in Griffin and Spalding County for truck and other through traffic traveling back and forth from I-75 and US 19/41 to I-85 to the west.

3.2 Functional Classification System

Figure 3.2 highlights the functional classification of roadways in the City. Griffin has no Interstate Highways within its corporate limits. However, several roadways classify as arterials because they accommodate high levels of local and regional traffic. Arterials connect activity centers and carry large volumes of traffic at moderate speeds. The arterial system in Griffin includes US19/41, SR 16, SR 155, SR 92, Bus 19/41, Experiment St. (portions), Broad St., N Hill St., Poplar St., Hammond Dr., Meriwether St., Ellis Rd, W. Solomon St., and Old Atlanta Rd.

Collector roads provide access to activity centers from residential areas. Their purpose is to collect traffic from streets in residential and commercial areas and distribute the traffic to the arterial system.

The collector system in Griffin includes Broadway St., College St., Cherry St., Searcy St., Everee Inn Rd., 6th St., 9th St., 13th St., Poplar St., E. Solomon St., Experiment St. (portions), Maple St., and Quilly St.

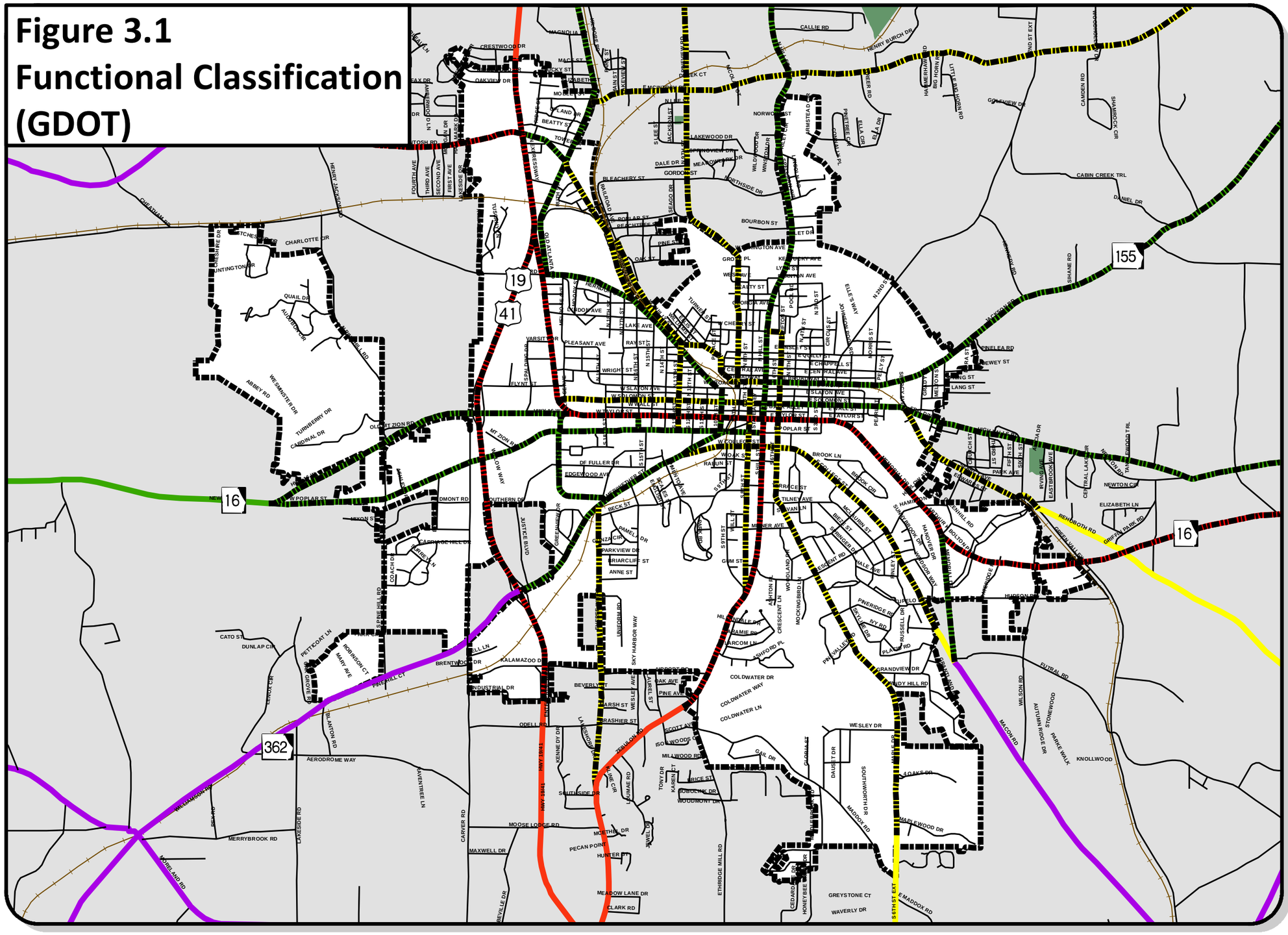
The remaining roadways in the City are classified as local streets. Local streets feed the collector system from low volume residential and commercial areas. The overwhelming majority of Griffin's roadway system is classified as local streets.

Table 3.1 - Travel Demand Model Average Travel Speeds by Functional Classification

Roadway Type	Base Year 2010		2030 E+C	
	Lane Miles	Average Speed (Miles Per Hour)	Lane Miles	Average Speed (Miles Per Hour)
Urban Freeway and Expressway	12	38	12	45
Principal Arterial	16	40	15	31
Minor Arterial	42	28	36	25
Collector Urban	9	28	8	26
Major Collector Rural	0	0	0	0
Minor Collector Rural	20	26	16	22
Ramps	2	19	2	19
Total/Average	99	32	89	28

City of Griffin Comprehensive Transportation Plan

Figure 3.1
Functional Classification (GDOT)



Regional Inset

Legend

Roadway Functional Classification (GDOT Highway Status Oct 2010)

- Urban Principal Arterial
- Urban Minor Arterial
- Urban Collector
- Rural Principal Arterial
- Rural Minor Arterial
- Rural Major Collector
- Rural Minor Collector
- Local

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, GDOT, Jacobs

This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

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3.3 Existing and Projected Traffic Volumes

In order to assess existing and future capacity needs along the roadway network, ARC's travel demand model was utilized. As noted previously, this model was updated with refined socioeconomic data to project three potential growth scenarios. For the purpose of comparing existing to future conditions, only the mid growth scenarios are discussed in this section.

Table 3.2 below displays existing traffic counts as well as existing and projected model volumes for comparison. It contains 2010 model volumes and 2030 E+C volumes. Based on the model, daily traffic volumes along US 19/41 are anticipated to grow from 21,100 south of town and 32,300 north of town in 2010 to 37,500 (a 72 percent increase) and 55,400 (a 88 percent increase), respectively. This large increase is likely due to the widening project programmed for the northern segment of this road.

The traffic on Taylor Street is anticipated to increase by 50 percent on Griffin's west side and by 20 percent in the east by 2030. Similarly, SR 155/S Hill Street/Jackson Rd has comparatively lower increases in volumes. SR 155 is a north-south route that bisects the City and provides a northbound alternative to I-75. According to 2010 model results, traffic volumes on SR 155 range from 15,800 vehicles per day on South Hill Street in southern Griffin to 7,600 vehicles per day just northeast of town along Jackson Road. In year 2030, the two-lane Jackson Road is forecast to carry over 8,500 vehicles per day (12 percent increase) and SR 155/S Hill street is projected to carry 18,100 vehicles per day (15 percent increase). These lower growth rates, compared to other key corridors in the City are due to the programmed south bypass, which would reduce volumes and alleviate congestion on downtown roads.

Table 3.2 - Existing and Projected Traffic Volumes

Count Station	2010 Model	2030 Model Mid Growth
US 19/41	32,300	55,400
US 19/41 (N. of Taylor)	17,700	33,300
US 19/41 (S. of Taylor)	21,100	37500
SR 155/S Hill Street	15,800	18,100
SR 155/Jackson Road	7600	8,500
Old Atlanta Hwy (S.)	7,400	14,100
W. Taylor just west of US 19/41	8,300	13,100
East Taylor Street	21,600	26,100

3.4 Air Quality

In 1990, the Clean Air Act was amended to authorize the Environmental Protection Agency (EPA) to revise the National Ambient Air Quality Standards (NAAQS) to address the following pollutants: Carbon Monoxide, Nitrogen Dioxide, Ozone, Lead, Particulate Matter, and Sulfur Dioxide. In 1990, the Georgia Environmental Protection Division (EPD) and the Governor worked with EPA to finalize the 13 counties (Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale Counties) in metropolitan Atlanta to be assigned one-hour non-attainment. This was revoked in 2005 and a more stringent eight-hour ozone standard was put in place. The new eight hour expanded the Atlanta non-attainment area to 20 counties adding Barrow, Bartow, Carroll, Hall, Newton, Spalding, and Walton. The new standard also added a fine particulate matter standard (PM2.5). The 20-County Atlanta region, including Spalding County, is in nonattainment for ground level ozone and fine particulate matter, two of the six pollutants regulated under the Clean Air Act.

The Atlanta Regional Commission (ARC) has been tasked with developing travel demand and vehicle emissions forecasts within non-attainment areas in order to meet specific emissions levels. All transportation plans must meet these standards and demonstrate conformity with the State Implementation Plan (SIP) for air quality. The long-range plan process must meet specific emissions levels. If it does not meet those levels, the federal government can assign the entire region "non-conforming status," placing onerous control over federal transportation funding for the region's capacity increasing projects. The Atlanta region's long-range transportation plan, Envision6, received positive conformity under the eight-hour ozone standard and the PM2.5 standard on October 10, 2007 and in June 2009.

The implications of non-attainment status in transportation are that jurisdictions must make decisions with a regional perspective and that air quality concerns be reflected in the development of transportation policy, plans, and programs. Close coordination with the Georgia Department of Transportation (GDOT), Spalding County and the metropolitan Atlanta region are encouraged. Despite the complexity of emission control and air quality budgeting, regionally cooperative, transportation planning should keep the City eligible for state and federal transportation funding into the future. GDOT and Spalding County will be working with the City in the near future to develop and implement planning and programming strategies designed to meet the transportation-related regional air quality challenge.

3.5 Commuting Patterns

In addition to population and employment data, behavioral characteristics of the community can have a significant impact on the travel patterns of an area. Table 3.3, below, describes the commuting choices made within the City of Griffin, Spalding County, and the State of Georgia according to the 2005-2009 American Community Survey 5-Year Estimates.

Table 3.3 - Commuting Modes Comparison

	City of Griffin		Spalding County		State of Georgia	
	Total Number of Workers	Percentage of Workers	Total Number of Workers	Percentage of Workers	Total Number of Workers	Percentage of Workers
Workers 16 years and older	**9,043**	**X**	**26,073**	**X**	**4,287,373**	**X**
Drove Alone	6,664	73.7%	20,143	77.3%	3,360,318	78.4%
Carpooled	1,702	18.8%	4,272	16.4%	486,386	11.3%
Used Public Transportation	62	0.7%	303	1.2%	104,093	2.4%
Walked	195	2.2%	265	1.0%	71,473	1.7%
Used Other Means	223	2.5%	483	1.9%	75,952	1.8%
Worked at Home	197	2.2%	607	2.3%	189,151	4.4%

Source: US Census Bureau

According to this survey, 74 percent of Griffin workers drive alone and 19 percent carpool. The carpool rate is higher than both the county and state levels. However, even though the carpool rate is higher than the State of Georgia's carpool rate, it is still down from the year 2000. According to the US Census Bureau, 24 percent of the City of Griffin's workers carpooled in 2000. The number of people that walk to work in the City of Griffin is above both the county-wide and state-wide averages.

Understanding the origin and destination of commute trips is also key to assessing the travel patterns associated with residents' trips to work. The employment location data for Spalding County for 1990 and 2000 is shown in Table 3.4 below.

Table 3.4 - Employment Location for Spalding County Residents

County Where Employed	1990	2000
Spalding	62.9%	55.0%
Henry	6.4%	9.7%
Clayton	8.7%	8.5%
Fulton	7.8%	7.7%
Other	4.5%	7.0%
Fayette	3.6%	5.9%
DeKalb	2.1%	2.3%
Coweta	1.6%	1.4%
Butts	1.6%	1.3%
Pike	1.0%	1.2%

Source: US Census Bureau

Spalding County residents that worked in the county decreased from 62.9% to 55.0% from the year 1990 to 2000. Counties that saw an increase in workers that reside in Spalding County include Henry County, Fayette County, DeKalb County, and other counties not included in the data. The other category includes counties that contributed less than one percent of Spalding County's workers. These counties are further away from Spalding County.

This trend shows that there are more people that are willing to live in Spalding County but work elsewhere. This could be a result of increasing employment opportunities in the surrounding counties,

due to the increasing footprint of Metro Atlanta. It could also be caused by improvements to the roadway network, which make travel to and from these nearby counties more accessible. This trend of working outside the county contributes to longer trips and more vehicle miles traveled, which, in turn, can contribute to a growing air quality problem. This data was collected in year 2000 before the economic downturn. New Census data regarding employment location has not been released.

4 4.0 Analysis and Recommendations

Following the identification of needs and deficiencies, appropriate analysis is required to develop feasible recommendations to improve the system. To complete the analysis, an inventory of traffic signals, intersections and roadways was conducted, needs and deficiencies were prioritized, and solutions were proposed.

4.1 Traffic Signals

During the 2002 CTP process, a thorough examination of the traffic signal system was undertaken. The recommendations from this study that were not yet implemented were reviewed to determine current need. The following sections describe this assessment and the recommended signal improvement projects.

4.1.1 Equipment Inventory

The 52 traffic signals in Griffin are maintained by either GDOT or the City. These signals are in assorted states of condition and capability. Characteristics of many of the various signal installations include:

- Capable of actuation by traffic demands;
- Fixed timed and change without the presence of traffic;
- Capable of coordination with adjacent signals while others are not;
- In need of improved hardware, such as pedestrian signals, pedestrian buttons, new signal heads, and/or signal poles;
- Needing additional or refurbished crosswalks and pedestrian ramps.

Appendix B lists the traffic signals and identifies the agency responsible for maintaining them, as well as type of controller, operation, and coordination. A summary of Appendix B includes:

- There are 52 existing traffic signals; 25 maintained by GDOT and 27 maintained by the City.
- All 25 of the GDOT signals are 2070 type controllers capable of coordination. Of the 25 GDOT signals, 17 are coordinated using fiber optic interconnect cable connections.
- Of the 27 City signals, 10 are Transyt controllers capable of coordination while the remaining 17 are 2070 controllers. The Transyt controllers are not capable of coordination with GDOT's or the City's 2070 type controllers. Thirteen of the City signals are currently coordinated with other signals.
- Four City signals do not have loop detectors and operate as fixed timed controllers (non-actuated).
- There are 17 existing flasher signals.

4.1.2 Signal Upgrades

GDOT signals, located along the high volume arterials requiring coordination, are up to date and capable of actuation and coordination. Most of the GDOT signals have fiber optic interconnect capability and are coordinated with each other.

The City has a mixture of aged controllers and equipment, none capable of coordination with the GDOT equipment (see Figure 4.1). If signal coordination is installed along routes with City maintained intersections, the controller equipment must be upgraded to GDOT compatibility.

A preliminary signal upgrade inventory was conducted to determine immediate equipment needs. Reasons some equipment should be upgraded include:

- Failure to meet current design standard.
- Need for modernization for cost-effective maintenance.
- Need for communication capability.
- Need for additional signal operational capabilities, such as accommodation of pedestrian requirements.

4.1.3 Pedestrian Ramp and Crosswalk Design Needs

Upgrades are required to meet crosswalk and pedestrian ramp needs at six GDOT intersections:

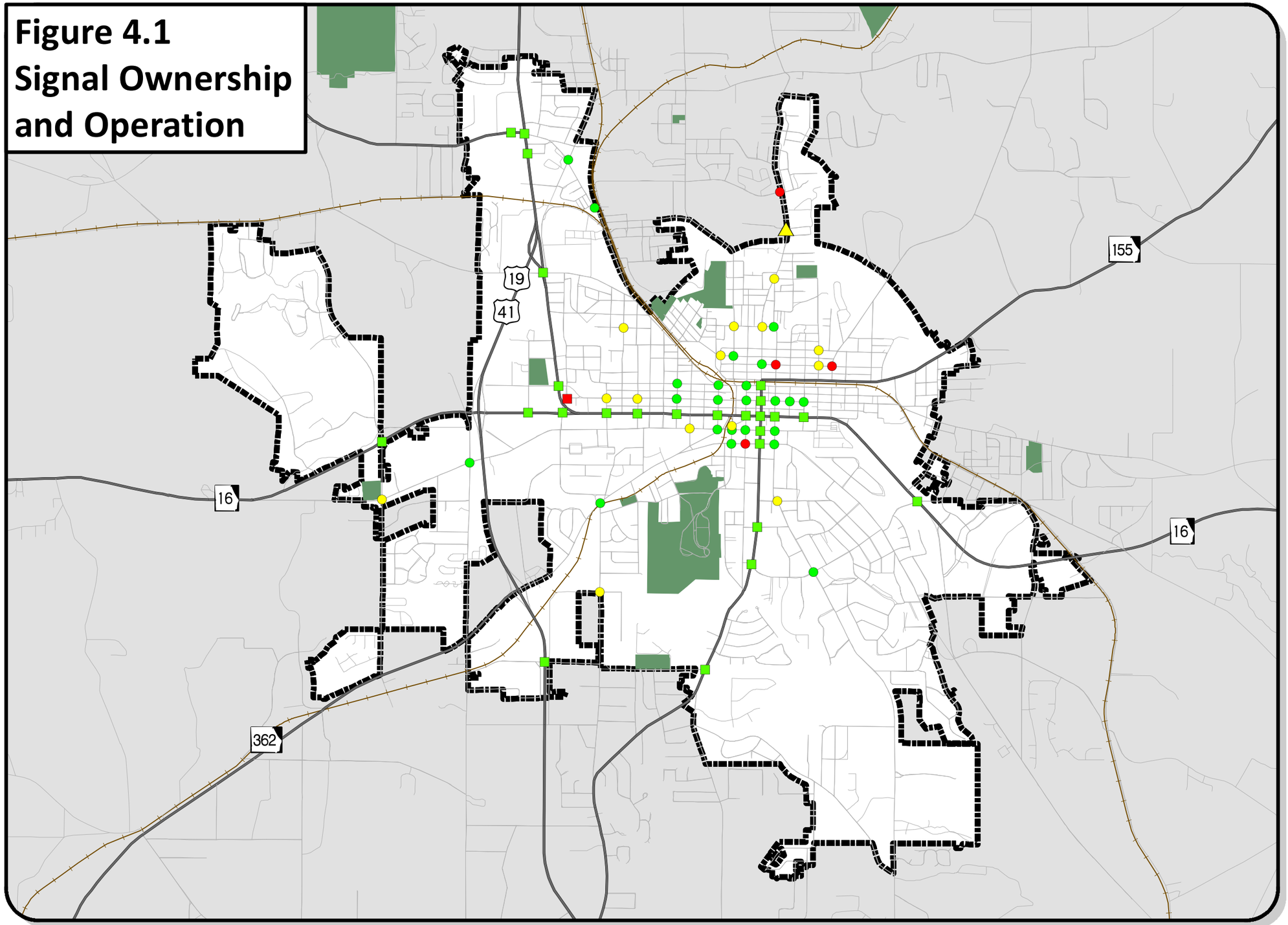
- Taylor Street at 4th Street
- Taylor Street at 6th Street
- Taylor Street at 8th Street
- Taylor Street at 10th Street
- Taylor Street at 13th Street
- Taylor Street at 16th Street

The signal design cost for these intersections is approximately $15,000, with an estimated construction cost of $135,000.

4.1.4 Non-Signalized Intersection Improvements

Citywide, non-signalized intersections identified as potential deficiencies are shown in Figure 4.2. Of the 37 intersections evaluated in 2002, 31 were found to have various levels of deficiencies, with solutions estimated to range in cost from $1,000 to $2,000,000. Since the previous CTP, 9 of these intersections had been improved, leaving 22 remaining in need of improvement (described in Appendix C). All recommended intersection solutions are listed in the proposed Capital Improvements Program, assigned cost estimates, and categorized as short, intermediate, or long-term potential projects.

Figure 4.1
Signal Ownership and Operation



Regional Inset

Legend

Signal Ownership and Operation

- City Owned
- County Owned
- GDOT Owned
- RED = Fixed Time
- YELLOW = Flash
- GREEN = Actuated

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

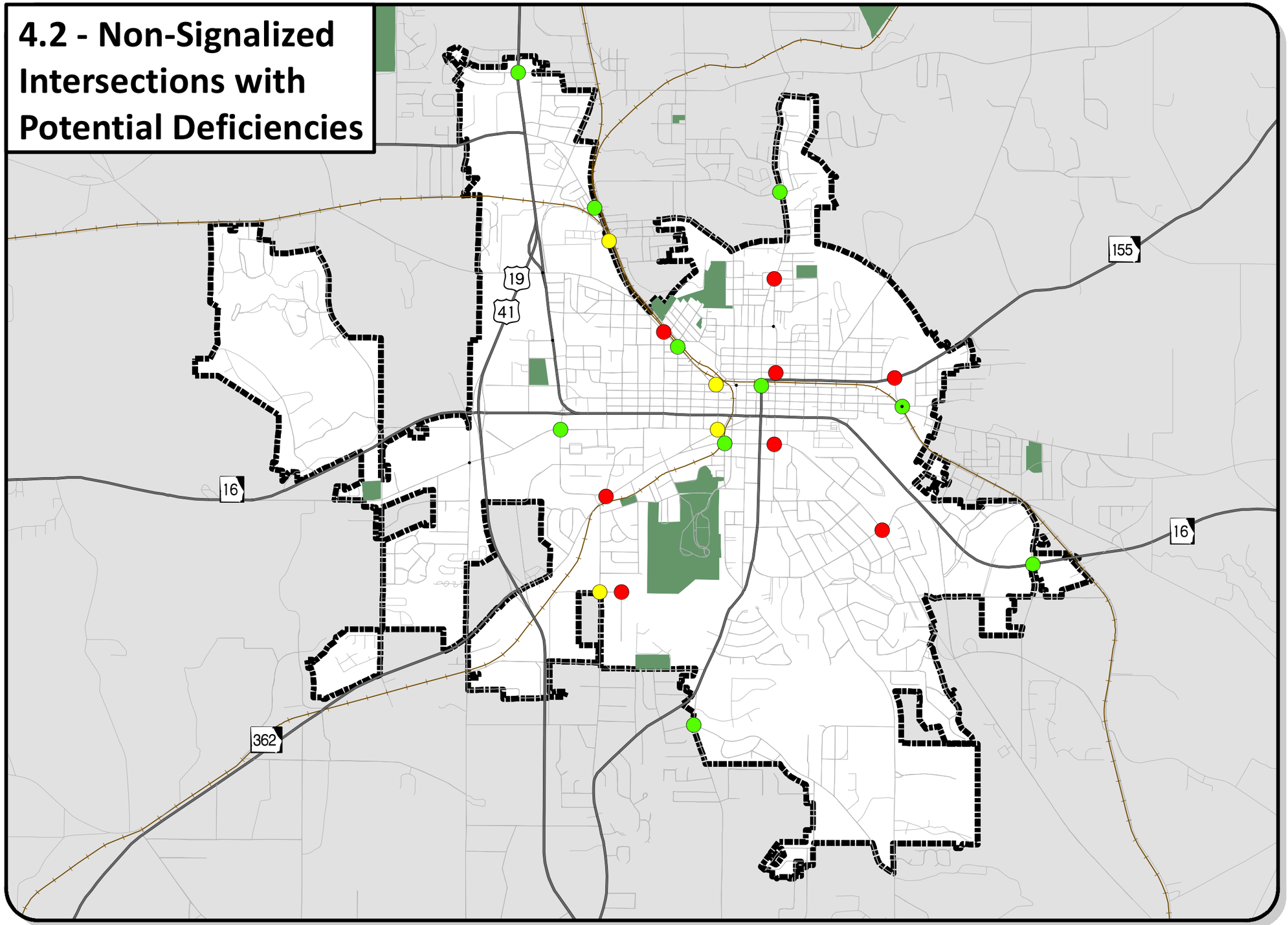
This map is intended for planning purposes only.

0 0.25 0.5 1 Miles

April 2011

City of Griffin Comprehensive Transportation Plan

4.2 - Non-Signalized Intersections with Potential Deficiencies



Regional Inset

Legend

Non-Signalized Intersection Implemention Time Frame

- Long Term
- Mid Term
- Short Term

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

April 2011

4.2 Roadway Needs

Congestion needs were identified based on the volume to capacity (V/C) ratio for each roadway segment. This assessment was based on the application of the travel demand model for the base year roadway network using 2010 socioeconomic data and for the E+C roadway network using 2030 forecast socio-economic data. The results of these calculations are shown in Figures 4.3 and 4.4, respectively. For assessment of future congestion needs, segments with V/C ratios higher than 0.7 (corresponding to LOS E and F conditions) were noted as requiring further examination. In 2010, only 1 percent (3 miles) of the model network, classified as collector and above, demonstrated a V/C ratio greater than 0.7, which means the majority of the system is operating efficiently on a daily basis. In 2030, 16 percent (39 miles) of the model network exceeded this threshold, demonstrating the growing congestion in the future.

Figure 4.3 shows 2010 existing levels of service on Griffin roadways. Figure 4.4 shows forecast levels of service for year 2030. Level of service (LOS) is an indicator of roadway performance and is assigned as follows:

- LOS “A” describes primarily free-flow operations. Vehicles are almost completely unimpeded in maneuvering within the traffic stream and the effects of incidents are easily absorbed. Stopped delay at signalized intersections is minimal.
- LOS “B” describes reasonably free-flow operations where the ability to maneuver is only slightly restricted and signalized intersections provide good progression and minimal delay.
- LOS “C” provides for flow and speeds near free-flow; however, freedom to maneuver is noticeably restricted and lane changes require more vigilance. At signalized intersections, the number of vehicles stopping is significant and individual cycle failures may appear.
- LOS “D” is the level at which speeds begin to decline slightly, freedom to maneuver is more noticeably limited, and incidents are expected to create queuing. At signalized intersections, many vehicles stop and individual cycle failures are noticeable.
- LOS “E” describes traffic operations at or near design capacity. Freeway operations are volatile, and any disruption to the traffic stream can cause breakdown of flow and extensive queuing. Extensive delays are likely at critical intersections along arterial roadways. These arterial delays are likely caused by some combination of adverse progression, high signal density, high volumes, significant delays at critical intersections, and/or inappropriate signal timing. This level is considered by many agencies to be the limit of acceptable delay.
- LOS “F” describes breakdowns in freeway vehicular flow, where there is potential for very long upstream queues. Extremely low average travel speeds, extensive delays, and extensive queuing are likely on arterial roadways. Most drivers consider this level unacceptable.

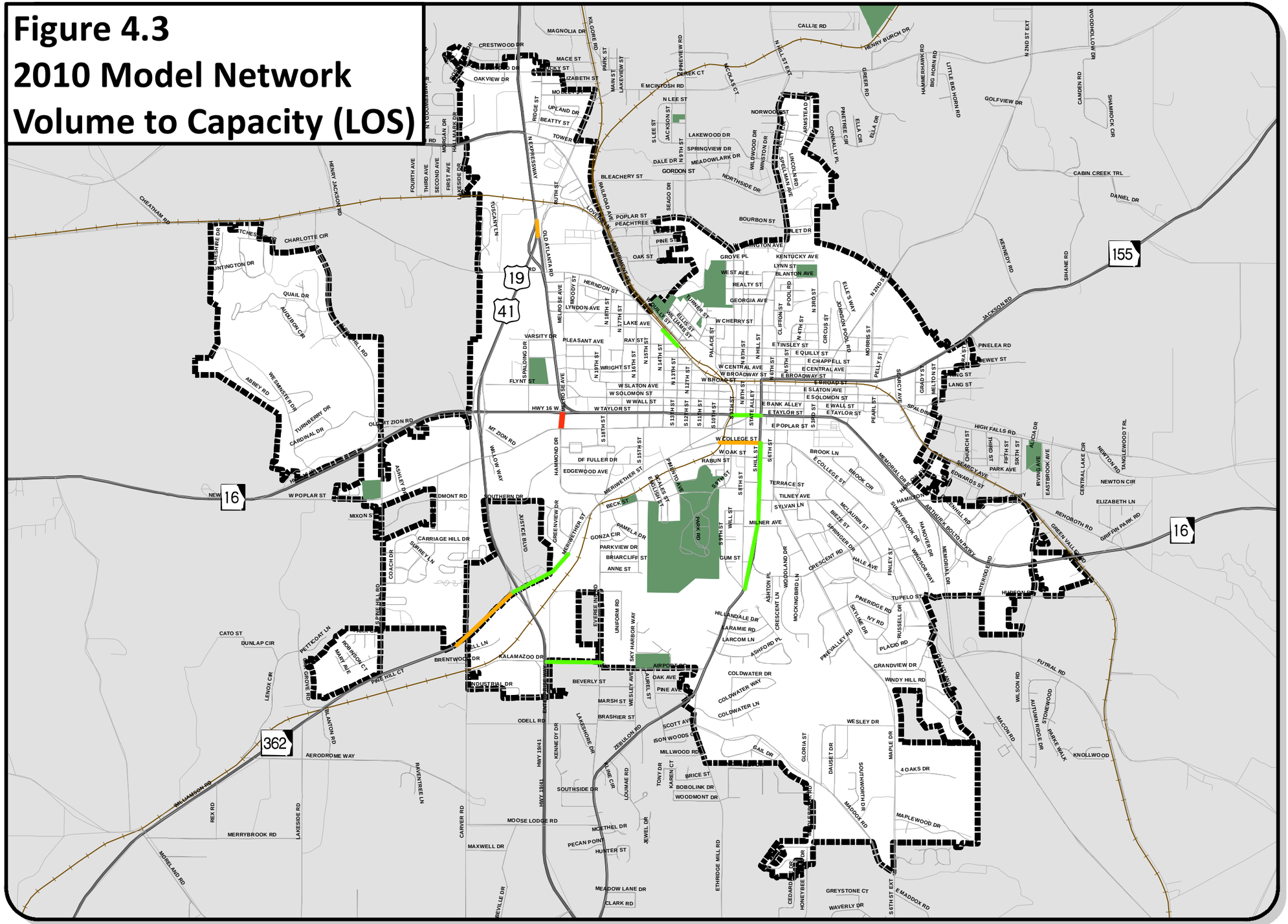
As shown in Figure 4.3, unacceptable levels of service (LOS F) currently exist on Meriwether Street (west of US 19/41) and West College Streets. South Hill Street experiences LOS E, which is also categorized as an unacceptable LOS.

Figure 4.4 shows that traffic forecast for 2030 will shift several additional roadway segments to unacceptable levels of service. These segments include Hill Street (through downtown and north of downtown), Meriwether Street (east of US 19/41 interchange), SR 16 (west of US 19/41), and several

downtown roadway segments. West College Street and Meriwether (west of US 19/41) continue to have unacceptable levels of service in the 2030 Needs Plan model results.

Widening projects are programmed by GDOT and the City for SR 16 (West Taylor Street). To improve the level of service, widening Meriwether should also be considered. Though Hill Street is anticipated to experience congestion in 2030, it is not recommended for widening due to the character of this downtown roadway segment. It serves as a critical function for the downtown area by promoting walkability and economic vitality. This should be preserved by making improvements to alternate routes to encourage rerouting of traffic. Additional discussion regarding recommended improvements to Hill Street is provided in the following sections.

Figure 4.3
2010 Model Network Volume to Capacity (LOS)



Regional Inset

Legend

2010 Model Network V/C Ratio

- V/C Ratio: > 1.0 (LOS F)
- V/C Ratio: 0.85 - 1.0 (LOS E)
- V/C Ratio: 0.71 - 0.85 (LOS D)
- V/C Ratio: <= 0.7 (LOS A to C)

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

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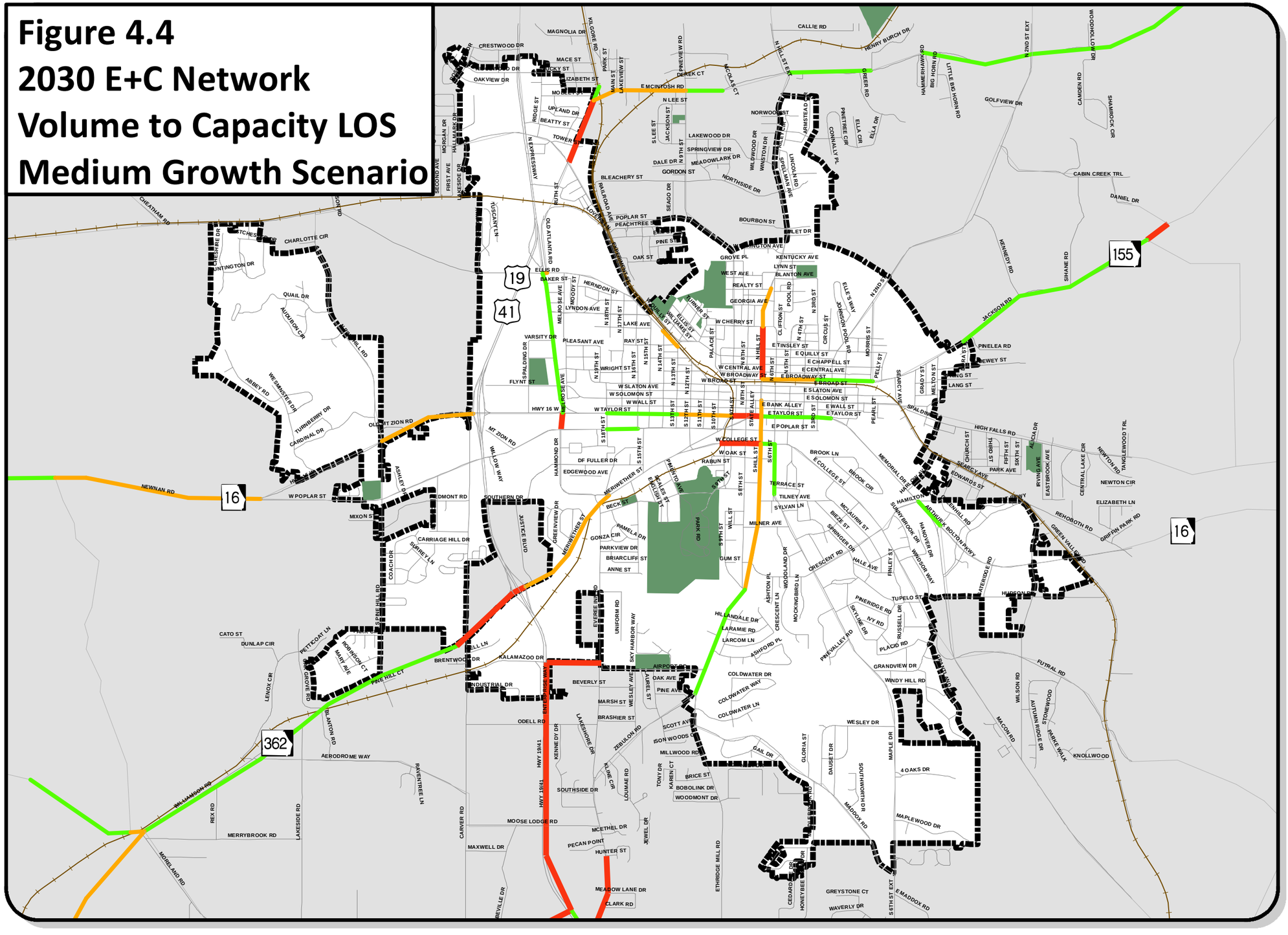
0 0.25 0.5 1 Miles

Figure 4.4
2030 E+C Network
Volume to Capacity LOS
Medium Growth Scenario



Regional Inset

Legend

2030 Model Network V/C
E+C Medium Growth Scenario

- V/C Ratio: > 1.0 (LOS F)
- V/C Ratio: 0.85 - 1.0 (LOS E)
- V/C Ratio: 0.71 - 0.85 (LOS D)
- V/C Ratio: <= 0.7 (LOS A to C)

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

4.2.1 Bypass Alternatives

As noted in the roadway needs section, one of the critical roadway segments experiencing congestion is US 19/41 Business as it transitions from north-south to east-west through the heart of the City. Three highways (US 19/41 Business, SR 155 and SR 16) converge at the intersection of Hill St and Taylor St in the center of downtown. US 19/41 Business and SR 16 share an east-west alignment through downtown until approaching the intersection with Martin Luther King, Jr Pkwy (US 19/41 Business) on the west side of the City. SR 155 follows an east-west alignment north of Taylor St until it meets Hill St, then maintains a north-south alignment along Hill St to south of the City. These highways bring high traffic volumes and significant truck traffic through the downtown area, resulting in poor LOS and safety conditions. According to model results, an efficient alternative route or bypass would enhance the network's safety and operation and help these highways achieve acceptable levels of service for the future year.

The 2020 Griffin Comprehensive Plan, as well as other studies reviewed, includes policy statements supporting the development of one or more bypass routes to alleviate downtown traffic. This was the result of technical analyses and significant stakeholder and public support for the project. As noted in the plan, the need for an alternative route to remove through traffic from SR 16 and other Griffin streets is evident to even the most casual of observers. Degenerating levels of service, increasing traffic volumes, safety issues, development expectations, noise, and aesthetics support the need for a bypass as well. No existing east-west roadway is sufficient to serve as an appropriate truck route; therefore, a bypass is recommended to be designated as a truck route.

Three different potential bypass alternatives were considered. Two of the alternatives use existing alignments and the third recommended a new alignment for the bypass. The proposed alternative in the ARC's Regional Transportation Plan (RTP) involves improving the existing alignments. The project would involve rehabilitation and reconstruction of the current route to support truck traffic. This improvement would include providing adequate travel lanes and shoulders to accommodate these vehicles. According to the travel demand model, this alternative would successfully reroute non-local trips (including truck traffic) around downtown Griffin.

Though rerouting traffic around the downtown Griffin area is a regional issue with an alignment outside of the city limits, the City must continue to focus attention on and support this important project. While pursuing funding and implementing a south bypass, it will be important for the City to keep close contact with GDOT, Spalding County and ARC.

4.2.2 Hill Street and Solomon Street Pedestrian Improvement Analysis

An analysis of the recommended pedestrian improvements along Hill Street and Solomon Street was performed as part of the Comprehensive Transportation Plan. The recommended pedestrian improvements include the reduction of lanes along downtown streets to provide space for sidewalks. This project would reduce Hill Street (between Poplar Street and Tinsley Street) and Solomon Street (from 9th Street to 4th Street) from two lanes in each direction to one lane in each direction. The purpose of this analysis was to determine existing and future operational impacts of this improvement strategy.

The analysis evaluated existing, future no build, and future build conditions. Future traffic projections took into consideration existing and approved projects within the study area, such as the relocation of SR 155 traffic to McDonough Road. Based on field observations and capacity analysis, the study intersections along Hill Street and Solomon Street are currently operating adequately with the exception of Hill Street at Broadway Street. This intersection is on a designated state route that is programmed to be rerouted in the future. However, even with the rerouted traffic, this intersection is expected to have heavy delays in the future without any improvements. This intersection and the Hill Street at Taylor Street intersection require additional improvements to meet the future traffic demand with the recommended pedestrian improvements in place. It is recommended install a 100 foot right turn lane at the southbound approach to Hill Street at Taylor Street and to create a signalized intersection at the Hill Street and Broadway Street Intersection in addition to pedestrian streetscape improvements. A technical memorandum detailing the analysis of these recommendations is provided in Appendix D.

4.3 Transit

4.3.1 Current Operations

The Federal Transit Administration (FTA) administers funding for rural public transportation through the Section 5311 Program, which provides member governments with an opportunity to provide transit services for improving access to business, commercial and activity centers. These funds, which are allocated to the states on a formula basis, can be used for capital assistance, operating assistance, planning, and program administration. In Georgia, GDOT is responsible for administering the program.

The Three Rivers Regional Commission administers a regional public transportation program on behalf of Butts, Lamar, Pike, Spalding, and Upson Counties. This program, which has been operating in four of the five counties since September 2008, was the first regional rural/suburban public transit service established within the state. It is currently one of two suburban regional public transportation systems approved by GDOT. Member governments must enter into annual agreements with the Regional Commission and pay their share of projected transportation funding.

The Three Rivers Transit System operates demand response service model, in which there are no fixed routes our schedules. Passengers must call ahead to schedule a trip. Non-subscription passengers are required to call 24 hours in advance to schedule a trip and daily routes are planned based on trips requested. The fee is $2.00 per one way trip, and the service is offered Monday through Friday between the hours of 8:00 a.m. and 5:00 p.m.

The vehicle fleet is comprised of fourteen passenger Goshen shuttle vans. These vans cost between $43,500 (without lift) and $47,600 (with lift), and do not require a CDL license to operate. Prior to 2003, the regional transit system did use CDL vehicles but those vehicles were cycled out due to cost concerns and the inability to retain CDL qualified drivers.

The regional approach has proved to be a cost effective way to provide public transportation within the service area. The system is most heavily used by the senior citizens, local workforce, and disabled

populations within the service area. The Regional Commission has established the following short term (2009-2014) goals for the system.

- Provide public transportation to residents of Butts, Lamar, Pike, Spalding, and Upson Counties.
- Contract with the Department of Human Resources and other interested local groups to provide purchase of service trips in order to reduce the operating cost required by local governments. Expand the regional transit program to include neighboring Counties that have no local transit, and are seeking to participate in a cost effective regional transit system that serves local needs.
- Develop and implement an effective marketing campaign.
- Offer technical assistance to TPO regarding bookkeeping, transit system operations enhancement recommendations, and identifying training opportunities.
- Achieve or exceed all Section 5311 service criteria as outlined in the GDOT administrative guide.
- Evaluate scheduling and trip routing options to identify the most effective way to operate the system.
- Ensure that the TPO is complying with all federal and state guidelines for operating the transportation program.

4.3.2 Indicators of Transit Need

Some interest has been expressed in restoring public transit service within the City of Griffin and Spalding County. Reasons include a lack of transportation alternatives, such as taxi services, for people unable to drive and the need for transportation to the many services and facilities in the City of Griffin.

Prior to the 2002 CTP update, the Spalding Collaborative, a group of social service agencies and employers, has expressed a desire for the reestablishment of a public transit program in Spalding County. The Workforce Investment Board has also identified the lack of public transportation as a barrier to workforce development and employment sustainability.

Of the 1,122 transportation plan surveys returned, 147 comments (13%) expressed support for the implementation of public transit in Griffin, with 79 additional comments (7%) supporting implementation of commuter rail. Thirteen (13) comments (1.4%) expressed opposition to implementing public transit service in Griffin, with nine additional comments (1%) opposing commuter rail service. While these survey results are not statistically valid, the response does indicate that there is some interest in establishment of transit service within the Griffin area.

Recent socioeconomic data supports the survey results and perceived need for transit service. People who are transportation disadvantaged, such as low income, elderly, and minority populations, tend to rely less on automobile travel and more on transit and other alternative modes. A review of Georgia Department of Community Affairs (DCA) Community Profile information indicates that Griffin has a high percentage of low income, elderly, and minority residents. The following summarizes this information, based on the 2000 Census, with the comparative Georgia information also listed:

	Griffin	Georgia
Population 65 years of age or older	13.8%	9.6%
Population below poverty level	23.3%	11.5%
Minority	52.1%	34%

4.3.3 Potential Opportunities for Improved Service

GDOT is currently conducting an assessment rural transit services administered by the Regional Commissions throughout the state. The results of this study will include recommendations for improving the operational efficiency of these systems. Current recommendations include the implementation of transit technology (such as automated vehicle location) to improve dynamic routing, enhanced call centers/websites for scheduling trips and the sharing of resources between Regional Commissions. The results of this study should be considered in the allocation of future transit funding.

4.3.4 Commuter Rail

In an effort to address increasing congestion, the Georgia Rail Passenger Program has developed set of recommendations for implementing commuter rail on several corridors throughout the Atlanta region. In this plan, the commuter rail line connecting Downtown Atlanta to Macon is recommended as the first phase of a regional commuter rail system.

The 70 mile Atlanta to Macon commuter rail line would begin at a new multimodal terminal adjacent to the Five Points MARTA station and connect at Hartsfield Atlanta International Airport, Forest Park, Morrow, Jonesboro, Lovejoy, Hampton, Griffin, Barnesville, Forsyth, Bolingbroke, and terminate in Macon. This phase is expected to cost $160 million and would be funded through federal and state programs.

A key decision for the City was the placement of the commuter rail station, as this will impact the future development, traffic flows and pedestrian activity in the downtown area. By a unanimous vote, the Griffin Board of Commissioners selected a site for the potential commuter rail station. The recommendation was to locate the station between Broad Street and the existing railroad tracks, just west of 6th Street. This site was chosen for many reasons including the existing grade separation, the close proximity to existing railroad tracks, the potential for economic growth in the area, and the fact that the City already owns the property. Currently, the location is being used as a surface level parking lot. This location also provides the opportunity for a parking deck to be constructed across Broad Street behind the Spalding County Courthouse Annex. Other locations for the station that were considered include adjacent to the old Thomaston Mill and between 8th and 9th Streets north of the railroad tracks.

A new commuter rail station would have great impacts on all aspects of the transportation system, including the roadway network, pedestrian facilities, and parking. Located in the core downtown area, the selected site would most likely increase the amount of pedestrian and bicycle traffic exponentially. To account for this increased activity, pedestrian and bicycle capacity and safety improvements that complement the project were considered in this plan. An increase in roadway capacity will most likely be required in order to handle increased traffic volumes. Because of the close proximity to downtown, the existing congestion will only worsen. The new station would also be a major parking generator and

adequate parking should be provided. These issues would need to be addressed to properly serve a new commuter rail station.

The 2001 Macon-Atlanta Environmental Assessment document suggests a five level parking facility to be constructed in the vicinity of the Griffin/Spalding Welcome Center at the renovated depot. The facility has received the approval of the Griffin City Commission and preliminary engineering has been completed. Funding mechanisms to operate and service the debt of the facility must be explored to ensure the success of the facility. A revenue bond issue was considered but the revenue generated by parking fees would probably only offset operating expenses. Congressional earmarks through the Federal Transit Administration (FTA) have proven to be a successful mechanism to fund major capital projects such as a parking deck to service public transportation. Another potential funding source would be the commuter rail operator agreeing to add to the ticket price to help offset parking costs. To help phase the development of the deck, lower levels could be constructed initially and as commuter ridership grows, additional levels could be added.

4.4 Bicycle and Pedestrian Network

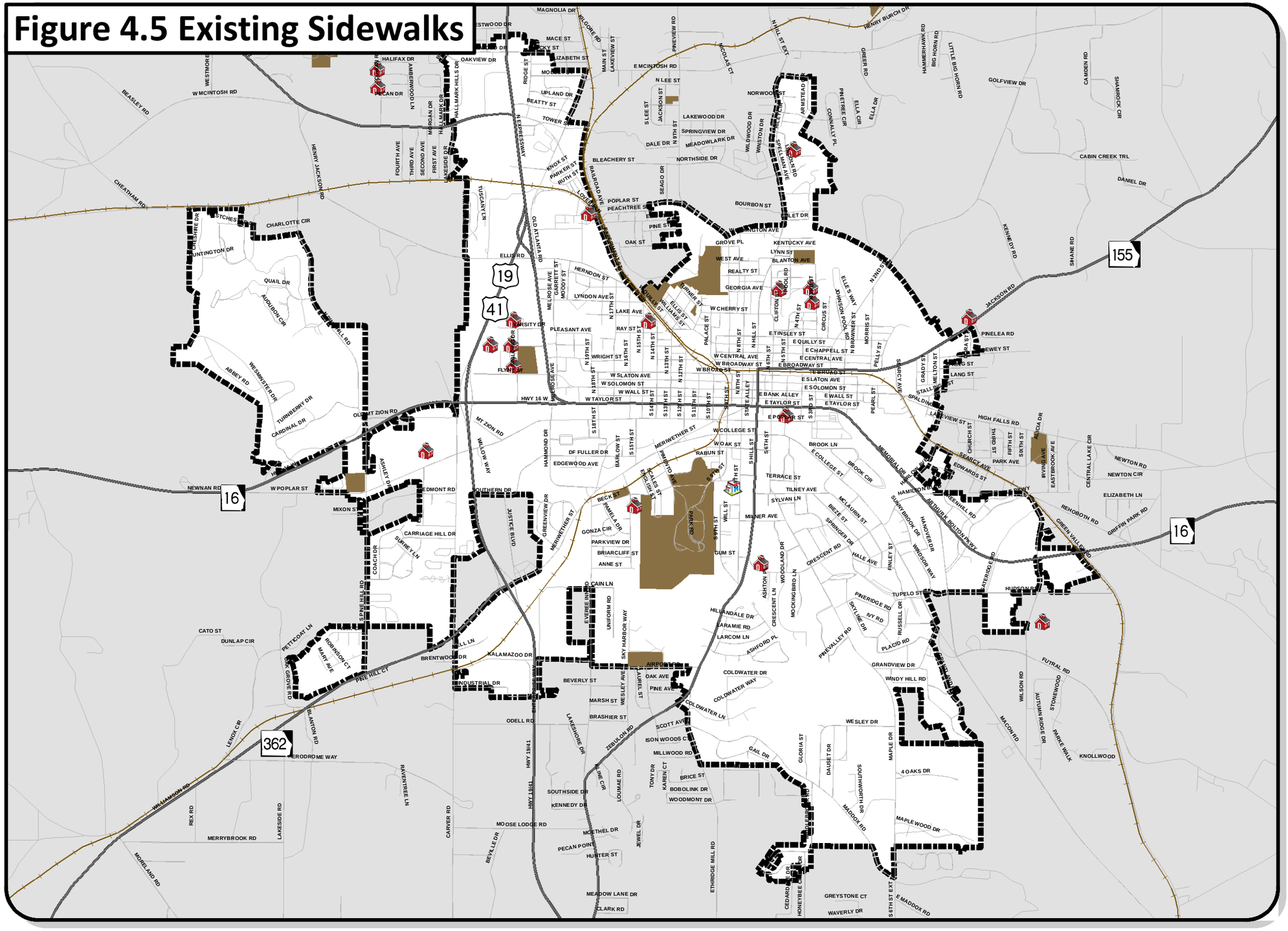
Griffin's sidewalk network shown in Figure 4.5 is extensive and concentrated in the pedestrian-friendly downtown area. Walking is a viable alternative for many residents due to significant residential development adjacent to downtown and other employment centers. Because all trips begin and end on foot, a strong system of sidewalks, paths, and crosswalks to enable people to walk is necessary. Using in house resources, Griffin has made continuous progress in improving the sidewalk network and should continue this effort in order to enhance the economic vitality of the downtown area as well as the quality of life for residents and visitors.

Providing for safe and convenient pedestrian travel is an essential part of creating a lively community, neighborhood, commercial area, or downtown district. Sidewalks and other pedestrian enhancements can promote walking as a viable form of transportation. In downtown areas, pedestrian facilities can improve economic vitality and quality of life for residents and visitors.

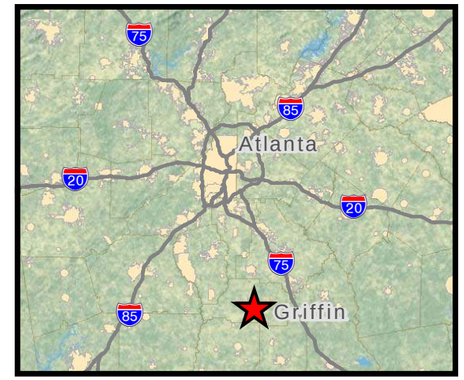
Prior to the commencement of this CTP update, the City had performed work to identify sidewalk needs, as shown in Figure 4.6. Through the CTP process, these identified needs were assessed to ensure a comprehensive program of pedestrian projects were included in the plan. Once the final needs list was complete, prioritization criteria were developed and used to evaluate the recommended sidewalk projects within the city. The criteria included whether or not the roadway was located in a zone that had high employment and household density and whether or not the roadway fell within walkable distance of specified community facilities.

The pedestrian facility needs criteria reflect a qualitative assessment of a pedestrian's expectations of where sidewalks should be available. In general, pedestrians expect to have sidewalks along streets in more developed and highly concentrated areas. In less developed areas, pedestrian needs exist along major roadways that connect to local community facilities. The pedestrian needs to link neighborhoods with community facilities and to provide mobility in high density areas are summarized below.

Figure 4.5 Existing Sidewalks



Regional Inset



Legend

Pedestrian Needs Analysis

- Spalding County Regional Hospital
- Schools
- Existing Sidewalk

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

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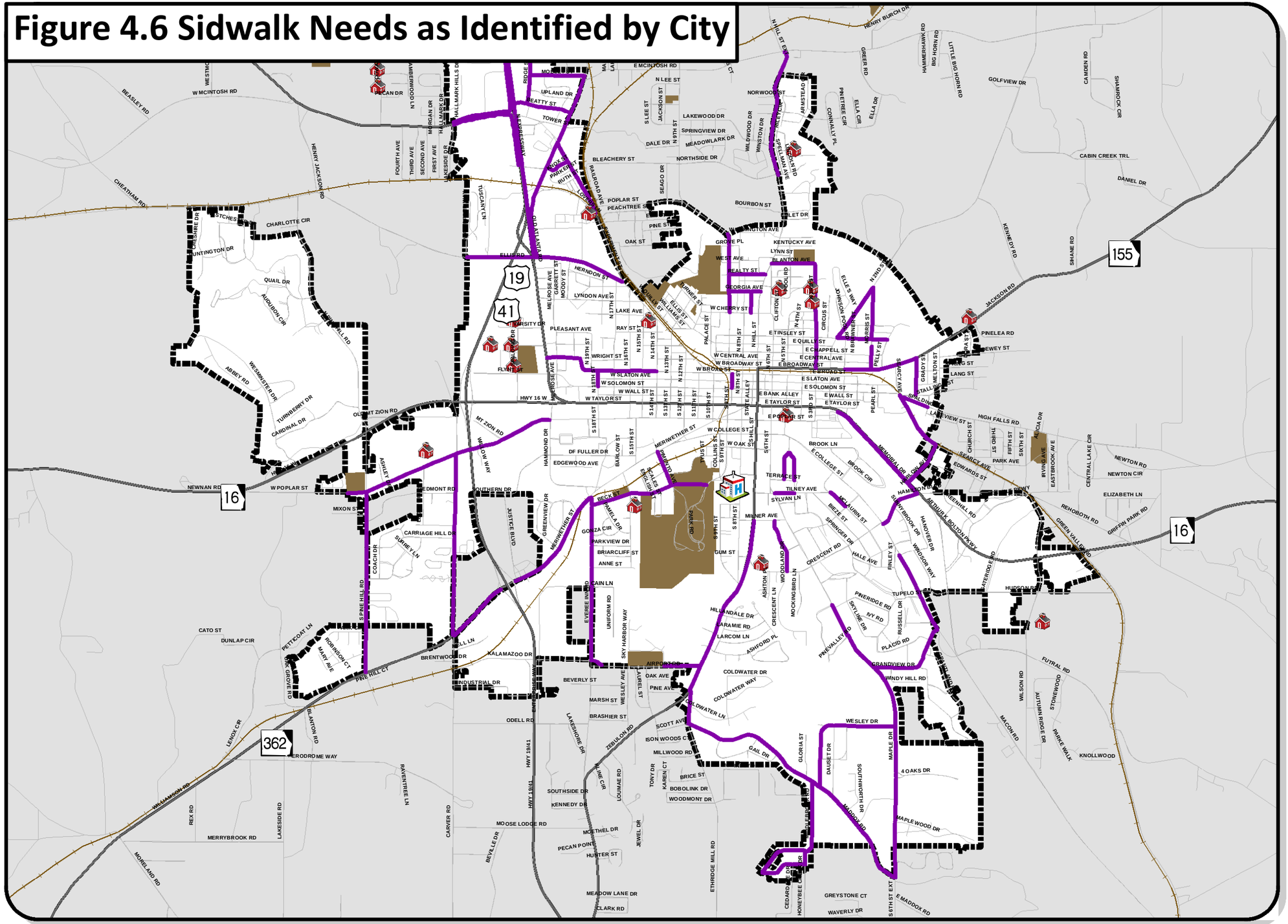
April 2011

Figure 4.6 Sidwalk Needs as Identified by City



April 2011

Regional Inset

Legend

Pedestrian Needs Analysis

- Spalding County Regional Hospital
- Schools
- Existing Sidewalk
- City Identified Sidewalk Need

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

N

0 0.25 0.5 1 Miles

4.4.1 Pedestrian Needs for Linking Neighborhoods to Community Facilities

Pedestrian linkages to community facilities can provide a means for accessing these facilities without the use of automobiles. Areas that were considered as community facilities in this study include public schools, parks, and hospitals. Potential users of these pedestrian connections are often school age children traveling to and from schools or parks. In addition, these facilities are used by all age groups for leisure and recreational access. As personal health and the environment continue to be topics of discussion, pedestrian activity is also likely to increase. Figure 4.7 shows the areas within a walkable distance (1/2 mile) of community facilities as well as the existing sidewalks. As this figure shows, many of the community facilities outside of the downtown area have very few existing sidewalks. In addition to the limited number of sidewalks around these areas, there are only a few sidewalks providing connection to the core downtown area.

4.4.2 Pedestrian Needs in High Density Areas

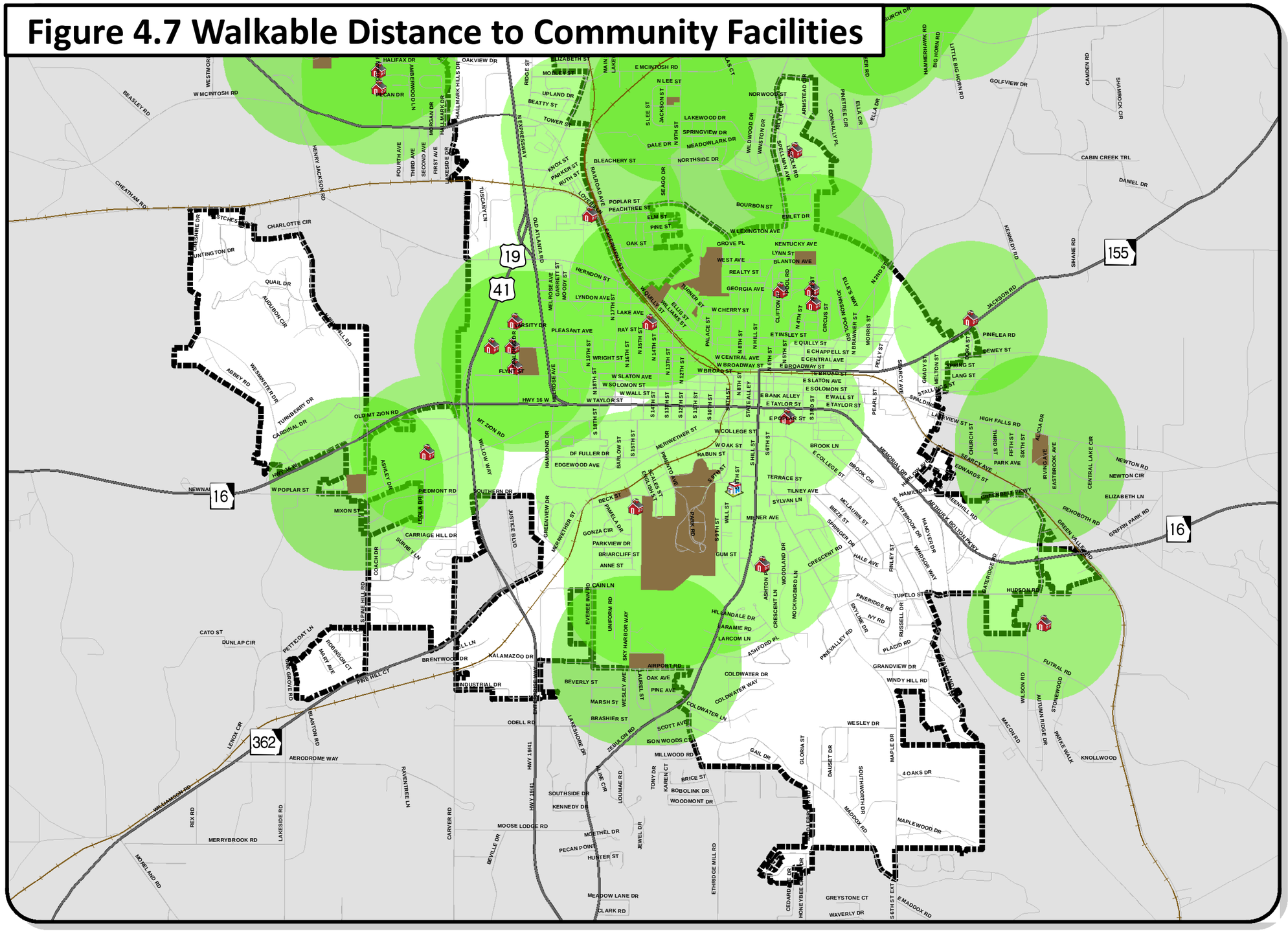
Pedestrian activity generally increases with population and employment density. In developed areas, with significant concentrations of homes and/or businesses, people feel more comfortable making trips by foot. Therefore, pedestrian connections within high density areas should be prioritized higher than those in more rural areas. High density areas are shown in Figure 4.8. As shown in the figure, the high density areas outside of the core downtown area have very few sidewalks. There are sidewalks present along many of the streets in the core downtown area, however, need for additional improvements still exists.

4.4.3 Pedestrian Project Prioritization

Based upon proximity to these key community facilities and high density areas, the previously defined sidewalk projects were prioritized for implementation. A roadway segment that was in a high employment and household density zone was given 2 points towards the total score and 1 point was given for each community facility within half of a mile. Partial points were given for roadways that were located on the edge or overlapped these areas. Roadway segments were prioritized based on their total score of criteria met. Table 4.1 shows the results of the pedestrian improvement prioritization.

This sidewalk project list should be used as a tool for prioritizing future sidewalk projects as funding becomes available. To supplement this analysis, it is recommended that the City perform a focused Bicycle and Pedestrian Network Plan. This recommendation has been included in the Capital Improvement Program.

Figure 4.7 Walkable Distance to Community Facilities



Regional Inset

Legend

Pedestrian Needs Analysis

- Spalding County Regional Hospital
- Schools
- Existing Sidewalk
- Half Mile Pedestrian Activity Buffer

Road Network

- State Highway
- Local/Other Roads

Other Layers

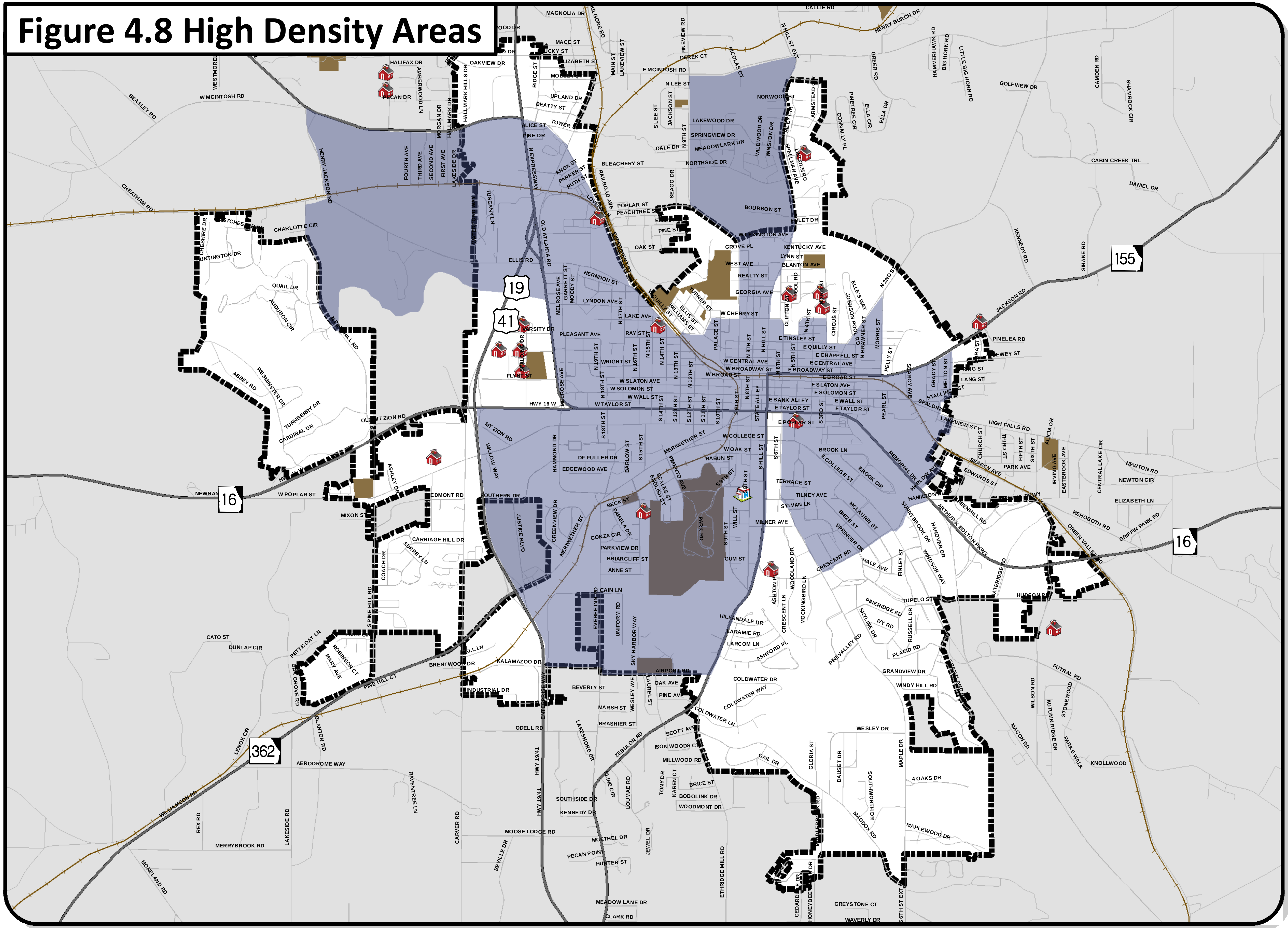
- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

0 0.25 0.5 1 Miles

Figure 4.8 High Density Areas



Regional Inset

Legend

Pedestrian Needs Analysis

- Spalding County Regional Hospital
- Schools
- Existing Sidewalk
- TAZs with High Employment and Household Density

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

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Table 4.1 - Pedestrian Improvement Prioritization

Priority	Road	From	To	Length (ft)	Score
High	Hillwood Ave	N Expy	W Broad St	1035	7.5
High	Realty St	N 9th St	N Hill St	1210	7.2
High	GA Ave	N 9th St	N Hill St	995	7.1
High	Moore St	W Cherry St	GA Ave	717	7.0
High	N 3rd St	Blanton Ave	E Broadway St	3309	6.7
High	N 9th St	W Cherry St	City Limits	2562	6.0
High	W Broad St	Hillwood Ave	N 14th St	2728	5.3
High	Blanton Ave	N Hill St	N 3rd St	1447	5.0
High	Ellis Rd	City Limits	Experiment St	5286	4.8
High	N 2nd St	E Tinsley St	Morris St	2056	4.3
High	W Poplar St	City Limits	Hammond Dr	7248	4.1
High	Beck St	Everee Inn Rd	Camp Northern Rd	3941	4.0
High	Pimento Ave	Meriwether St	Beck St	1228	4.0
High	Experiment St	Atlanta Rd	Lovers Ln	2551	4.0
High	Everee Inn Rd	Kalamazoo Dr	Meriwether St	5375	3.5
Mid	E Terracedale Ct	Terracedale Ct	Terrace St	989	3.0
Mid	Tinley Ave	Maple Dr	Terrace St	660	3.0
Mid	W Terracedale Ct	Terrace St	Terracedale Ct	948	3.0
Mid	S 9th St	W Solomon St	W Broad St	465	2.7
Mid	Zebulon Rd/S Hill St	Ethridge Mill Rd	Milner Ave	6151	2.7
Mid	Morris St	E Broadway St	N 2nd St	2682	2.5
Mid	S 18th St	W Solomon St	W Broad St	492	2.5
Mid	Meriwether St	US 41 Byp	Everee Inn Rd	3947	2.4
Mid	E Tinsley St	N 2nd St	Pelly Ave	1623	2.1
Mid	Airport Rd	Barry Whatley Way	Zebulon Rd	1195	2.0
Mid	Knox St	Atlanta Rd	Experiment St	776	2.0
Mid	SR 3/N Expy	Bowling Ln	Ellis Rd	3093	2.0
Mid	Unnamed	Everee Inn Rd	Airport Rd	405	2.0
Mid	Woodland Dr	Crescent Rd	Milner Ave	1799	2.0
Mid	N Hill St	Northside Dr	E Mcintosh Rd	4255	1.8
Low	Jackson St	E Solomon St	Jackson Rd	1218	1.4
Low	E Broadway St/Jackson Rd	N 1st St	Jackson St	2440	1.3
Low	Memorial Dr	2nd St	Hamilton Blvd	3923	1.3
Low	Atlanta Rd	Ellis Rd	City Limits	6351	1.2
Low	Ethridge Mill Rd	Maddox Rd	Zebulon Rd	1118	1.0
Low	Fayetteville Rd	City Limits	SR 3	3977	1.0
Low	Hamilton Blvd	E College St	Memorial Dr	1669	1.0
Low	Mclaurin St	Mimosa Dr	Forrest Ave	702	1.0
Low	Spalding St	E Solomon St	Little St	886	1.0
Low	Searcy Ave	E Solomon St	Harlow Ave	2112	0.8
Low	Harlow Ave	Memorial Dr	Searcy Ave	1574	0.6
Low	S Pine Hill Rd	Williamson Rd	W Poplar St	6023	0.5
Low	SR 3	Ridgewood/Lucky St	Bowling Ln	7427	0.5
Low	Carver Rd	Williamson Rd	W Poplar St	5942	0.4
Low	Maddox Rd	Ethridge Mill Rd	Maple Dr	9233	0.1
Low	Beatty St	SR 3	City Limits	1909	0.0
Low	E College St	Sheraton Dr	Grandview Dr	2775	0.0
Low	Grandview Dr	Maple Dr	E College St	2901	0.0
Low	Honeybee Creek Dr	Sweetbriar Ln	Sweetbriar Ln	449	0.0
Low	Lucky St	SR 3	City Limits	1488	0.0
Low	Maple Dr	Maddox Rd	Pine Valley Rd	9747	0.0
Low	Middlebrooks Rd	Honeybee Creek Dr	Maddox Rd	2461	0.0
Low	Mobley St	Ridge St	City Limits	1835	0.0
Low	Ridge St	Lucky St	Beatty St	1754	0.0
Low	Ridgewood	Rosewood Dr	SR 3	1819	0.0
Low	Sweetbriar Ln	Honeybee Creek Dr	Middlebrooks Rd	3374	0.0
Low	Wesley Dr	Maddox Rd	Maple Dr	4367	0.0
Low	Williamson Rd	Carver Rd	US 41 Byp	2256	0.0

Additional pedestrian related improvement strategies that should be explored by the City include the following:

- Crosswalks and pedestrian oriented signals where recommended.
- Signals timed to allow pedestrians to cross intersections as recommended.
- No right turn on red in high pedestrian corridors, near hospitals, near schools, and in downtown Griffin.
- Raised medians or stubs should be provided on multi-lane segments of streets with heavy traffic to allow pedestrians a safety zone.
- Pedestrian bridges should be considered near schools bordered by heavily traveled roads. Walking School Bus Programs should be explored.
- Development controls to mandate sidewalks in new residential and commercial developments.
- Access management standards to reduce curb cuts which are hazardous to pedestrians.
- Maximum setbacks and incentives for shopping centers with rear or side parking to provide pedestrian access from the street.
- Implementation of the Greenway Plan project to promote recreation and safe transportation for children.
- Promotion of the pedestrian-friendly downtown area by recruiting and attracting pedestrian destinations such as specialty shops, salons/barber shops, small convenience stores, gift stores, drycleaners, restaurants (outdoor cafes), and service providers.
- Street furniture such as public Post Office drop boxes, garbage receptacles, and benches located on the sidewalk.
- Pedestrian-scale lighting appropriate for the sidewalk environment.
- Street trees to provide shade from the sun and a barrier from vehicular traffic.

In order to better understand the

4.5 Bicycle Network

As Griffin continues to urbanize, there is a need to enhance the infrastructure to include safe, enjoyable bicycle facilities for transportation and recreation. Depending on user preference, funding considerations and anticipated purpose of use, bicycle networks can be built from several types of bicycle facilities both within and outside of existing roadway right-of-way. (American Association of State Highway and Transportation Officials) AASHTO recognizes three classes of bicycle facilities that can be included in the bicycle network:

- Bicycle Paths (Class I): A bicycle facility separate from motorized vehicular traffic. A bicycle path may be located within a highway right-of-way or on an independent right-of-way. A bicycle path is not a sidewalk but may be designed to permit shared use with pedestrians.
- Bicycle Lanes (Class II): A lane designated for exclusive or preferential bicycle use through the application of pavement striping or markings and signage.
- Bicycle Routes (Class III): Roadways designated for bicycle use through the installation of directional and informational signage.

In addition, AASHTO recognizes three classes of cyclists based on their abilities and general acceptance for travel in mixed traffic.

- Class A cyclists - experienced riders who do not mind traveling with traffic. These riders can travel at the mid to top range of cycling speed and often prefer on-street travel to multi-use paths)
- Class B cyclists - occasional riders who are less secure about travel in mixed traffic. These riders typically travel near the middle range of cycling speed and typically prefer to travel along off-road trails or designated bike lanes.
- Class C cyclists - novice riders who are not likely to ride in mixed traffic. These riders operate at speeds closer to that of pedestrians and typically prefer travel along facilitates that are completely separated from traffic.

Providing facilitates for these three classes of cyclists that recognize their varying travel patterns and comfort level is a challenge that must be addressed in the development of a viable bike network throughout Griffin. Detailed analysis of existing bicycle routes, both official and unofficial, combined with coordination with bicycle enthusiasts in the community will help identify the vision for the bicycle network in Griffin. These steps should be taken as part of the recommended Pedestrian and Bicycle Network Plan. To benefit this process, initial needs for the bicycle network have been identified through an assessment of bicycle suitability of roadways in the travel demand model network as well as the identification of roadways best suited for bicycle facilities in high density areas.

4.5.1 Bicycle Suitability

To illustrate the roadways in the Griffin area that are suitable for bicycling, an analysis was conducted to assess bicycle conditions on the 2030 existing roadway network. Each roadway was assigned a suitability score based on travel volume, travel speeds and functional classification. Table 4.2 shows the numeric value for each of the factors. Figure 4-9 includes the following chart which demonstrates the methodology used to identify roadways as offering best, medium, difficult and very difficult conditions for biking.

Table 4.2 Bicycle Suitability Methodology

Factor	Condition	Score
Traffic volume	Less than 2,500 vehicles per day per lane	4
	Between 2,500 and 5,000 vehicles per day per lane	2
	More than 5,000 vehicles per day per lane	0
Traffic speed	Less than or equal to 30 mph	4
	Between 30 and 40 mph	2
	Greater than 40 mph	0
Functional Classification	Local streets/collectors	4
	Minor arterials	2
	Other (major arterials/ highways)	0

It should be noted that, although a street is designated as suitable for bicycle travel, this does not indicate that it should be a high priority for bicycle improvements. Other considerations, such as connections to community facilities and neighborhoods should also be considered, as these connections drive the need for such facilities. Recommendations from the Greenway Plan should be compared with results of the bicycle suitability analysis to determine the best opportunities for new bicycle facilities.

The City can make minor changes to its roadway system to increase safety for the type A Cyclist:

- Limit horizontal and angled on-street parking
- Create safe passageways over railroads
- Maintain high quality pavement surfacing
- Use bicycle safe drainage inlet grates
- Keep manholes at grade with pavement
- Provide secure bicycle parking
- Pave shoulders

In addition to the above recommendations, conditions for the Type B cyclist can be improved through:

- The creation of an off road shared use path such as proposed in the Greenways Plan.
- On road marked bicycle lanes connecting residential areas with commercial businesses, other residential areas, and community service centers.

The Type C cyclist should not travel on roadways other than low traffic residential streets.

- Children below the driving age should be allowed to bicycle on sidewalks yielding to pedestrians when encountered.
- Construction of shared use paths should connect residential areas with schools and parks along with other community centers.

There are several policies the City of Griffin should consider that would promote bicycling as an alternative mode of transport:

- Add bicycle facilities such as bicycle racks at destinations and as part of street furniture in the downtown area.
- Amend code to require businesses to include bicycle racks as part of their development plans when they locate in the City of Griffin. Also include a provision for retrofitting existing streetscape during redevelopment activities.
- Promote policies that offer incentives to bicycle commuters including Guaranteed Ride Home, tax breaks, etc.

In addition to implementing these policies, the City should continually work to identify specific bicycle needs. As recommended in the previous section, it is recommended that the City undertake a focused Bicycle and Pedestrian Network Plan. This project is included in the Capital Improvement Plan.

4.5.2 Key Facilities for Bicycle Improvements

These policies should be considered for improvements throughout the City. Through the Needs Assessment process, several key facilities were identified as priorities for bicycle improvements. The

bicycle suitability analysis, in combination with land use considerations and recommendations from previous studies were considered in identifying key corridors for bicycle facilities.

Bicycle facilities are typically utilized for recreation as well as for travel between community facilities and residential areas. Understanding this, an assessment of key origins and destinations was performed. Key destinations in Griffin that would benefit from bicycle connections include Downtown, commercial areas along US 19/41, the UGA and Griffin Technical College campus as well as other parks and schools throughout the City. Neighborhoods should be considered for bicycle connections, as they serve as the origin of many bicycle trips. Additionally, origins and destinations outside of the City, such as Sun City Peachtree should be considered. The following corridors would provide connections between key community facilities and, therefore, should be considered for bicycle improvements:

- Experiment Street – links UGA campus to Downtown
- N 2nd Street – links residential area to Downtown
- Taylor Street – provides connectivity within Downtown

To supplement the key connections identified through the CTP process and to ensure coordination with comprehensive planning efforts, recommendations from previous studies were considered. The following bicycle recommendations were identified as key projects for the City and have been included in the Capital Improvement Plan (as lump sum amounts associated with the LCI's):

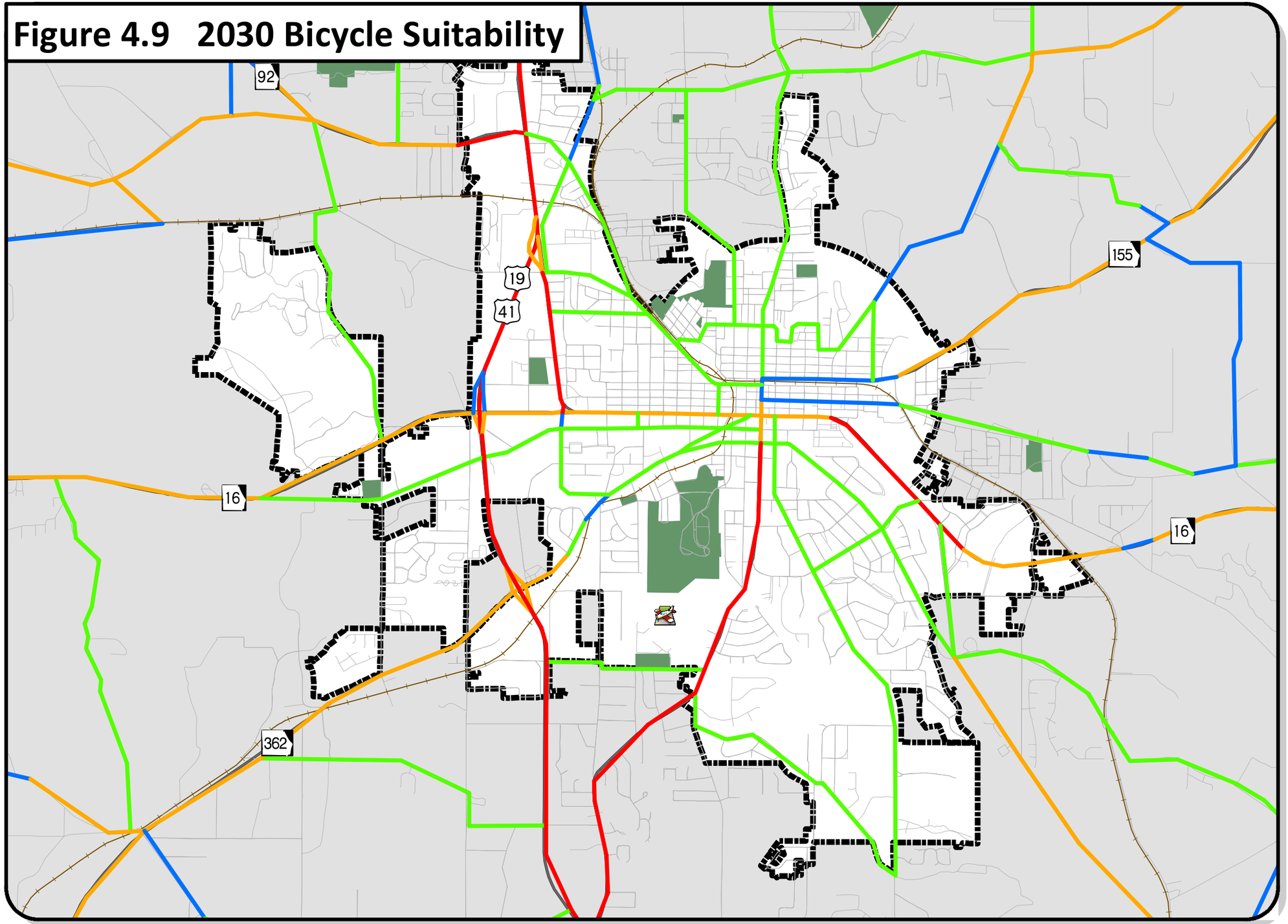
West Griffin LCI

- Experiment Street -Multi-use path with streetscape elements (landscaping, lighting, street furniture) on the west side of roadway from Lovers Lane to Broad Street (east of study area)
- Ellis Road Multi-use Trail and Streetscape -North side of roadway from N Expressway (US 19/41) to Experiment Street
- Flynt Street/Solomon Street Bicycle Lanes -5-ft bicycle lanes on both sides of roadway from Orrs Elementary School driveway west of Spalding Drive to 10th Street
- Wall Street Bicycle Share the Road Signage -From 18th Street to 10th Street
- Melrose Avenue Bicycle Share the Road Signage -From Flynt Street to Ellis Road
- Shoal Creek Greenway -Multi-use trail adjacent to Shoal Creek from N Expressway to the intersection of Hammock Street and 15th Street
- Hammock Street Bicycle Share the Road Signage -From 15th Street to Experiment Street

Griffin LCI

- Downtown bicycle and pedestrian greenway master plan
- Experiment St Bicycle Pedestrian Study
- Broadway St Bicycle/Pedestrian Facility Study
- Kelsey Bicycle/Pedestrian Facility
- Thomaston Mills Bicycle/Pedestrian Facility
- City Park Bicycle/Pedestrian Facility

Figure 4.9 2030 Bicycle Suitability



April 2011

Regional Inset

Legend

Bicycle Suitability

- 3.0 - 4.0 (Best Conditions For Bicycling)
- 2.0 - 2.9 (Medium Conditions For Bicycling)
- 1.0 - 1.9 (Difficult Conditions For Bicycling)
- < 1.0 (Very Difficult Conditions For Bicycling)

Road Network

- State Highway
- Local/Other Roads

Other Layers

- City Limits
- County Boundary
- Parks
- Railroads

Source: City of Griffin, ESRI, Jacobs

This map is intended for planning purposes only.

N

0 0.25 0.5 1 Miles

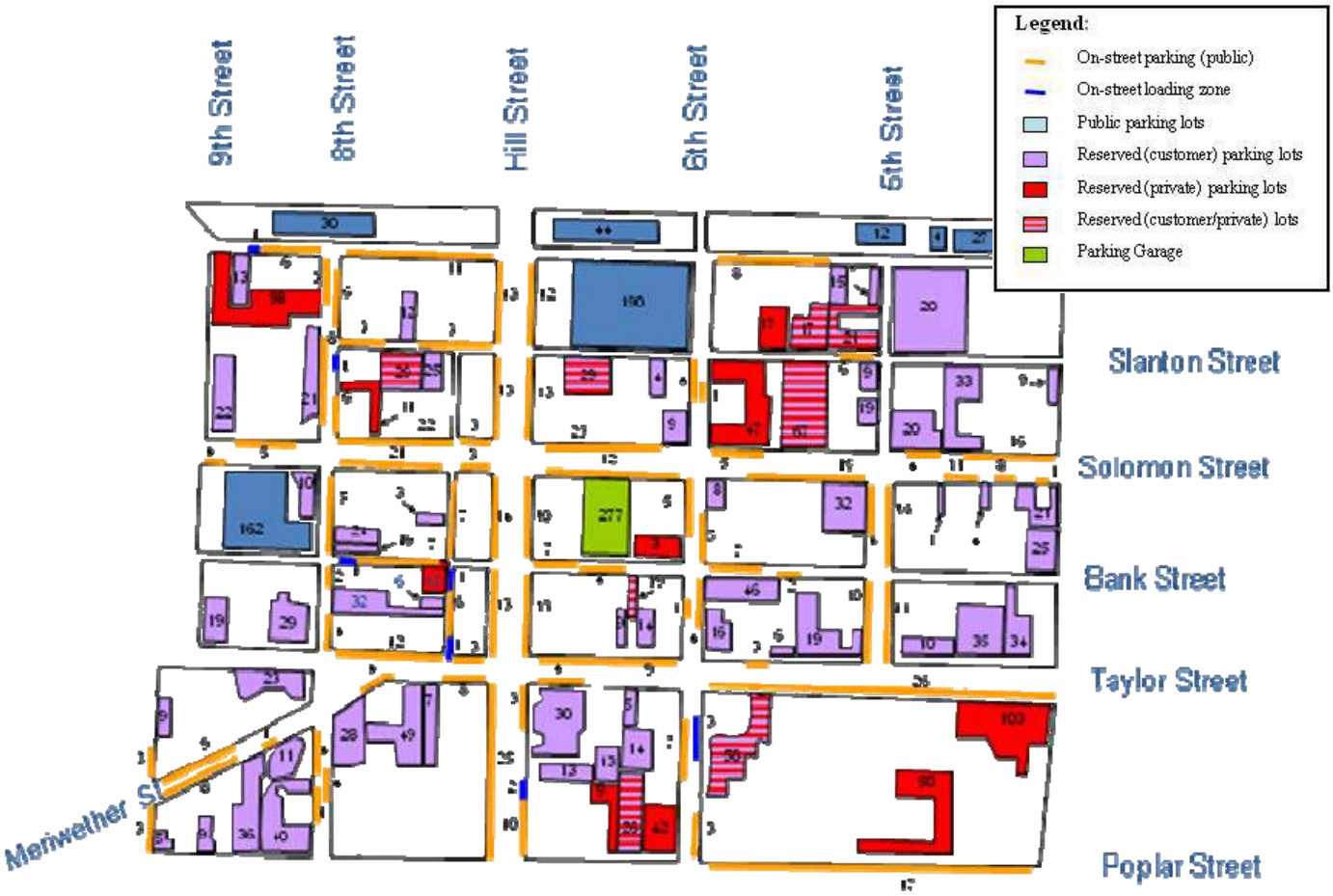
4.6 Downtown Parking

During the previous CTP update in 2002 an extensive assessment of downtown parking availability was conducted. With confirmation from the City that parking supply had not significantly changed since this study, a brief field verification was performed to validate the previous findings. As was determined in the previous plan, few parking deficiencies in downtown Griffin were identified. The supply (2,671 surface spaces and 277 structured spaces) continues to meet current demand. A sufficient mix of time limits are offered and enforced to accommodate both short-term visitors and employees parking all day. In 2002, the analysis and evaluation of downtown parking usage and supply revealed that no more than 43 percent of parking was occupied during the business day (Figure 4.10), with a similar rate achieved through 2010 spot field calculations. Parking management techniques to ensure that the most convenient spaces turn over as often as possible can be considered.

Opportunities to improve parking in downtown Griffin include the following:

- North Hill Street is experiencing high traffic volumes including a significant percentage of truck traffic. As a result, backing out of the angled spaces can be difficult. Converting from angled to parallel parking could be considered, but will result in less valuable and convenient on-street parking.
- Because supply appears sufficient, parking management techniques such as meters, shorter and more widespread time limits, and increased fines can be employed to increase turnover at prime parking locations.
- Lots can be inexpensively restriped to add additional spaces for compact vehicles.
- As part of station area planning for the proposed commuter rail station downtown, a five- level parking structure as recommended in the state's environmental assessment can be constructed using a variety of funding sources. The parking operation in the structure can be managed to accommodate sufficient parking for commuters as well as visitors to downtown.

Figure 4.10 Parking Inventory



4.7 Transportation Demand Management (TDM) Strategies

Strategies to satisfy transportation demand without huge capital expenditure have been effectively implemented in many municipalities. These strategies help decrease the number of vehicle trips or combine trips by increasing the number of occupants per vehicle. Many of the strategies may not be appropriate until population and employment growth place a greater demand on the transportation system; however, alternative strategies and their potential value to City travelers are listed below.

- Park-and-Ride facilities – The strategic placement of park-and-ride lots can be a successful TDM strategy. A park-and-ride lot provides a central location for commuters to meet and carpool to work or access transit. The park-and-ride lot provides a safe and convenient location for people to meet close to their homes without requiring a carpool or transit service to travel to each individual home to pick up the passengers. Griffin has a park-and-ride facility designed to assist commuters, however, it is currently underutilized. Another facility located near future transit or commuter rail service may be better utilized, removing some vehicles from congested facilities.

- Carpooling – Assistance in the form of a ride-finders program could be provided to provide opportunities for carpooling. Transportation Management Associations (TMAs) can be formed to assist in creating a carpooling operation.

- Vanpooling – Assistance in the form of encouraging and organizing vanpooling can lead to reduced costs for the City and the riders. TMAs can assist with organizing vanpools and develop strategies for their funding.
- Telecommuting – Increasingly employers are encouraging telecommuting for appropriate positions. With current and future advances in technology and telecommunications, many employers and employees are experiencing significant cost savings by implementing telecommuting programs that allow employees to work from home. Telecommuting relieves congestion on the transportation system and provides cost-savings such as reduced overhead for employers and significant traveling expenses for the employee.
- Compressed work weeks – Again, the employer, employee, and transportation system can reap benefits similar to telecommuting through the implementation of compressed work weeks. Employer cooperation is necessary to accomplish significant gains from telecommuting and compressed work weeks; however, the benefit to the City of reduced congestion during peak periods can be dramatic.
- Bicycle/pedestrian improvements – Some minor additions of bicycle and pedestrian improvements can reduce vehicular traffic by adding the convenient option of biking or walking to work. Strategically placed bike racks and wide road shoulders coupled with a continuing effort to add to the sidewalk network can offer travelers a more congestion-reducing alternative for Griffin's travelers.

Employers realize many benefits from effective TDM programs, and their active participation is key to the success of TDM strategies. Employers have the ability to modify employee work hours and establish TDM programs, including telecommuting, carpool, and vanpool programs. Employers may choose to take advantage of federal tax benefits from subsidizing employee costs of transit and vanpooling up to $100 per month, a significant tax benefit for both the employer and employee.

Within activity centers, strategies to establish TMAs through public/private partnerships may result in policies and actions that improve congestion, traffic flow, and air quality within the community and region. TMAs are typically comprised of a number of local businesses that partner with government agencies to offer transportation solutions such as ridematching services, discount transit passes, and shuttles.

It is unlikely that the City of Griffin would benefit from all of the proposed TDM strategies. However, as concerns about congestion and air quality increase, appropriate TDMs such as carpooling, vanpooling, employer strategies, bike/pedestrian improvements, and park-and-ride lots should be considered in Griffin's immediate future.

4.8 Traffic Calming

Elected officials, City staff and citizens have expressed interest in implementing traffic calming measures in Griffin. Traffic calming describes traffic control measures that are intended to make neighborhood streets more usable for all travel and increase quality of life. The measures are intended to serve a variety of purposes, including slowing vehicle speeds, reducing cut- through or shortcutting traffic, and creating a more pedestrian friendly environment. They are often implemented on neighborhood streets, which were originally designed to encourage or maximize the flow of traffic.

Many jurisdictions have adopted a formal process and procedures to ensure that proposed locations are considered in an equitable manner, evaluated consistently, and prioritized prior to implementation because the measures are costly and in great demand. The steps that are typically involved in this process include:

- Collection of information and data
- Evaluation and documentation of findings
- Development of recommended strategies and alternatives
- Evaluation of alternatives, including input from the affected public
- Prioritization and approval

Considerations to be addressed in the evaluation include traffic conditions (speed, volume, amount of non-local traffic versus local traffic), neighborhood or community context (design of local neighborhood and streets, number of streets with traffic issues, pedestrian environment), implementation cost, maintenance, and operational requirements and costs.

Evaluation and implementation of measures must be undertaken in a comprehensive manner within a community or neighborhood because their implementation can alter the local traffic pattern and create impacts on adjacent streets. Emergency service, sanitation vehicles, school buses and other oversized vehicles operating on residential streets may experience accessibility issues if some measures are implemented. Community involvement is critical to ensuring that affected residents and businesses understand potential implications, especially with regard to access and circulation.

The following are some of the traffic calming measures for consideration:

- Diverters – objects such as roundabouts and other features built into intersections
- Gateways – entrance features that are not only attractive but discourage cut-through traffic
- Median barriers – placed in intersections to create right in/right out access
- Raised intersections – placed in the middle of an intersection to reduce speeds
- Speed humps or tables – placed across roads to reduce speeds
- Street closures – installation of cul-de-sacs to eliminate cut-through traffic
- Traffic control devices, including stop signs, turn restrictions/prohibitions, signalization – installed to meet various traffic calming objectives

5 5.0 Implementation Plan

As a result of the long range transportation planning process, specific projects were defined for the City of Griffin 2030 CTP update. The recommended projects provide multimodal solutions to address the area's future transportation needs. In order to implement improvement recommendations a plan for implementation is required including estimated costs, funding alternative analysis, and development of a long-term capital improvement program, which includes programmed projects.

The program of projects is based on forecasts of Year 2030 population and employment which are used to predict future traffic volumes. The results reflect planning assumptions and are based on data available to date and identified needs. Therefore, the program of projects should be evaluated periodically and modified as necessary to ensure the plan reflects the changing conditions and needs in the City of Griffin.

5.1 Cost Estimates and Funding Alternatives

For each project an estimated cost is provided. These costs, subdivided by design, right-of-way acquisition, and construction, are approximate and subject to change upon detailed design. Many of the costs were taken from previous studies and updated to reflect current costing assumptions. Reasonable care was taken to ensure that design issues with significant cost implications were reflected in these estimates, but the scope of this study did not permit a detailed review of land valuation in the vicinity, existing right-of-way limits, or identification of specific properties, which would need to be acquired. More precise right-of-way costs will need to be determined during preliminary engineering activities. Relocation utility lines, cleaning up environmentally hazardous sites, mitigating impacts to wetlands, and construction schedules are a few factors, which could impact construction costs.

The most likely funding sources are identified for each project, based largely on the agency (GDOT, City or County) responsible for maintaining the roadway or intersection. For example, improvements at the intersection of City streets would most likely be the City's responsibility. Similar improvements at an intersection that includes at least one state route would fall under GDOT's jurisdiction. In some cases, it may be possible to accelerate the process of upgrading a state facility by contributing City funds to the project. Several projects also could be funded by private interests, notably developers with a vested interest in maintaining effective accessibility to their sites. The following sections describe some of the potential funding sources for the recommended projects.

5.1.1 Local

In addition to federal funding, requiring coordination with GDOT and ARC, local funding sources exist which allow the City of Griffin to accomplish projects which are not eligible for Federal or State funding or which must be accomplished before Federal or State funding is available. Locally collected revenue sources used to fund transportation projects include:

General Fund

This fund is based on the City's general tax revenue and is divided among all City services.

Impact Fees

A one-time fee charged in association with a new development designed to cover part of the cost of providing public facilities to support the development. The impact fee amount charged to a particular development must be directly tied to the amount of new infrastructure the development will require.

Community Improvement District (CID)

A strategy for funding infrastructure projects in a limited area at the discretion of existing property interests. CIDs are essentially self taxing areas, where property owners organize to raise funds to improve property values in the area. CIDs may organize to market an area, work to increase safety in that area, and collect and use funds for all types of transportation projects. CIDs are an innovative source of funding for transportation projects, but the scope of their activities is limited by property owner interests and a defined geographic area.

SPLOST

A one-cent sales tax approved by voters, the money can be used for infrastructure development and maintenance but not operating costs. SPLOST referendums must have an associated time table. Griffin currently receives funds from Spalding County's SPLOST, which was passed in 2007.

5.1.2 Federal and State

The federal funding programs typically dedicate 80 percent of the project cost if the project is eligible for federal funding. The remaining 20 percent is obtained through the state or local jurisdictions sponsoring the projects and generally used for completing the planning and design of the projects. Federal and state funds are programmed by GDOT for PE, right-of-way and construction costs.

National Highway System (NHS)

This program provides funding for roads on the congressionally approved National Highway System. This system includes roads deemed most important to interstate travel and national defense, roads connecting to other modes of transportation, or roads essential for international commerce.

Surface Transportation Program

Surface Transportation Program (STP) provides funding for a wide variety of projects including highways, transit, and other modes such as bicycle and pedestrian facilities. STP funds can be used on any non-interstate facility classified above a local road or a rural minor collector. The distribution of STP funds includes 62.5 percent for use in urban areas (greater than 50,000 population) of the state based on population.

Another 27.5 percent can be used in any area of the state at the direction of the State Transportation Board. STP Statewide funds do not have any specific geographic or use restrictions beyond those applicable to the overall program. The remaining ten percent is used for Transportation Enhancement (TE) projects. STP TE funds are available for non-traditional improvements such as aesthetic enhancements, bicycle and pedestrian facilities, historic preservations, and others. Local jurisdictions

must compete for TE funds by submitting an application to be reviewed by the State Transportation board.

STP Urban funds are administered by ARC as the MPO to implement highway, transit, bicycle, pedestrian, transportation demand management and air quality projects, studies and programs. Funds for construction projects can be used on any roadway classified as a minor arterial or above.

Highway Bridge Replacement and Rehabilitation Program

Highway Bridge Replacement and Rehabilitation Program provides funding for any public bridge replacement or rehabilitation. Included in the study recommendations are four bridges that meet the federal requirements (sufficiency rating of 50 or below) for potential replacement or rehabilitation.

Safe Routes to School

Federal funds available for pedestrian and bicycle projects within two miles of a school. These funds are distributed through GDOT and are available for grades kindergarten through eight. Funding can be assigned to each individual school by following the program's two steps. First, the school must develop a plan which includes a program for promoting bicycling and walking and any proposed infrastructure projects. Funding is available for up to $10,000 per school (up to $100,000 per system) to develop these plans. The second step is to implement the plan. Safe Routes to School funding is also available for this step. Infrastructure projects, which can be sidewalks, bicycle lanes or crosswalks, have a funding limit of $500,000 while non-infrastructure projects, which can include publicity programs, activities and indirect costs, have a funding limit of $10,000. GDOT is developing specific guidelines for the program through a special Safe Routes to School Office. Applications for the current funding cycle were due in 2010, but the City should follow this GDOT program in order to be prepared for future calls for projects.

Highway Improvement Program (HSIP)

Intended to support State and community programs to reduce traffic crashes and resulting deaths, injuries, and property damage on the highways. Funds are administered to the States' Governor Representative for Highway Safety. These funds can be used for a variety of purposes such as, conducting data analysis, developing safety education programs, conducting community wide pedestrian safety programs, and in some cases safety-related engineering programs.

Recreational Trails Program (RTP)

Recreational Trails Program (RTP) provides grants to fund recreational trail projects. Projects typically selected by the RTP for funding must meet the general criteria set forth in the Statewide Comprehensive Outdoor Recreation Plan. A recreation plan is required to demonstrate that the trail project will enhance outdoor recreation and natural resource conservation. The shared-use path recommendations, including shared-use paths along canal systems and the Coastal Georgia Greenway, could be applicable for the RTP funds.

5.1.3 Community Development Block Grants

The community development Block Grants program is sponsored by the U.S. Department of Housing and Urban Development (HUD) and it is one of their longest continuously operating programs. It is designed to be flexible and provide for a wide range of community needs such as, affordable housing, provide services to the most venerable communities, and to create jobs through expansion and retention of businesses. The amount of each grant is established by community need, extent of poverty, population,

housing overcrowding, housing age, and population growth lag.

5.1.4 Transportation Investment Act of 2010

In June of 2010, Governor Sonny Perdue signed House Bill 277 (HB 277), the Transportation Investment Act of 2010, into law. The bill divides the state into 12 regions, from which a "roundtable" of local elected officials, are to develop a comprehensive list of projects to be funded by a one cent regional sales tax. The region could then submit the list and the proposed sales tax to its voters for their approval in a referendum. Georgians will have the opportunity to vote on the tax and approved list of projects in the 2012 primary elections.

As part of the ARC region, Griffin will submit projects for metro Atlanta's regional roundtable. The call for projects was issued in January 2011, with a due date of March 31, 2011 for consideration in the region's list of projects. Griffin should coordinate with Spalding County and ARC in determining the best candidates for funding through this mechanism. One of the main criteria that the City should consider is that projects included in the list must be of regional significance.

5.1.5 Private Sector Funding

Another alternative local funding source worthy of exploring is the private sector. Although not typical, some communities have experienced success in obtaining donations from private sources to fund transportation projects, which directly benefit landowners, developers, and existing businesses. Success relies on the fact that contributors benefit by receiving timely approval of projects and a guarantee of needed transportation improvements.

An approach such as this works best when the local government is negotiating from a position of economic strength and can afford to be more selective in the type of development permitted. Any policy must be carefully crafted to ensure that the City can continue to attract growth of sufficient scope and quality to maintain and enhance its place in the regional economy.

5.1.6 Alternative Funding Sources

There are several possible alternative funding sources, aside from general operating funds or transportation department budgets, which can be explored at the local level to finance improvements outlined in the plan. Some, such as increasing vehicle registration fees, property taxes, and business taxes, are likely to meet significant political and legal obstacles. Communities with a heavy reliance on tourism often use taxes on accommodations and recreational facility admissions to generate revenue. Griffin is not likely to become dependent on visitors for its economic vitality, so the revenue from such taxes would be inconsequential. Other revenue streams, such as development impact fees, are typically implemented only in areas where growth is rampant and not likely to be discouraged through such measures. From experienced gained through this and other studies, impact fees are not likely to be accepted by Griffin's community officials and potential investors.

5.2 Capital Improvement Program

A planning and programming tool to ensure management of scarce transportation resources is the development of a Capital Improvement Program. The program includes capital projects with a lifespan

of at least five years that require funding over $5,000. Transportation projects usually fit the criteria for inclusion as capital projects in a long-term plan and Griffin is no exception.

The Capital Improvement Program (CIP) provided in Table 5.1, includes recommended signal projects, intersection projects, road projects, sidewalks, and other projects prioritized by short, intermediate, and long-term. The CIP can be modified each year but should provide a plan of needed capital projects, cost estimates, and potential funding sources for each project that qualifies. The CIP does not include projects already programmed such as those in GDOT's State Transportation Improvement Program (STIP) or ARC's TIP.

5.3 Programmed Improvements

Included in the adopted GDOT STIP or ARC's TIP are projects programmed for funding within the 2011-2014 or 2008-2013 period, respectively. Within the City limits of Griffin, nine projects are programmed including replacement of the Sixth Street Bridge, US 19 turn lanes, the widening of US 19 from Ellis St to Laprade Rd and the Griffin South Bypass. These projects have already received committed funding and, therefore, most of these projects are not included in the recommended Capital Improvement Program for the City of Griffin. The Griffin South Bypass is shown in the Capital Improvement Plan due to its long term nature and need for continued coordination efforts by the City.

5.4 Implementation Plan

Based on the Needs Assessment, a program of projects were identified and recommended for adoption in the City's Capital Improvement Program. Projects were categorized as short (0-5 years), intermediate (5-10 years), and long-term (beyond 10 years), based on safety, cost, and need. Inexpensive solutions that meet easily identifiable needs were recommended for the short-term. Projects requiring more financial resources that meet a longer term need were assigned either intermediate term or long term status.

Table 5.1 presents a comprehensive summary of the recommended implementation program for projects identified in the Griffin Comprehensive Transportation Plan. Each project has an estimated cost and identified funding source. The anticipated local funding requirement is also shown in the table as many will be funded through Federal and State funding sources.

The Capital Improvement Program lists improvements needed to address current and future deficiencies and identifies studies needed to anticipate transportation deficiencies through 2030 potentially requiring more detailed analysis. The program, coupled with implementation of projects and future studies, will ensure a transportation system that will meet the needs of the citizens and visitors of Griffin for the next two decades.

The program provides a recommended implementation period for each project and cost estimates. The implementation period is recommended based on severity of need and cost estimate. A large number of smaller projects can be accomplished in the short term without significant capital outlay. Projects requiring considerable funding are scheduled for later implementation to allow time for proper engineering and financial planning.

Transportation Demand Management strategies are offered as potential low-cost alternatives. They provide opportunities to take full advantage of the existing transportation system while reducing demand for significant, long-term, and costly roadway infrastructure improvements. Aggressive implementation of carpooling, vanpooling, bicycle/pedestrian improvements, and park and ride lots, as well as telecommuting and compressed work weeks, will satisfy some demand, reducing the need for high-cost roadway improvements.

Table 5.1 – Capital Improvement Program

Short-term Projects	Estimated Costs	Local Funding	Funding Source
Traffic Signal Upgrades for Miscellaneous Improvements Three intersections (Construction)	$450,000	$45,000	STP-Urban, STP Statewide Flexible
Minor Intersection Improvements			
College at Collins	$10,000	$10,000	Local/private
Experiment at School	$15,000	$15,000	Local/private
Major Intersection Improvements			
Broadway at Searcy	$125,000	$125,000	Local/private
Carver at Poplar	$125,000	$125,000	Local/private
Experiment/13th/Ray**	$545,000	$545,000	Local/private
Hill at Broadway**	$230,000	$230,000	Local/private
Hill at Northside – Hill St Improvements	$550,000	$550,000	Local/private
Maddox at Etheridge Mill	$550,000	$550,000	Local/private
N Expressway at Ellis	$86,000	$9,000	Federal Aid, STP-Urban, STP Statewide Flexible
N Expressway at Varsity	$190,000	$19,000	Federal Aid, STP-Urban, STP Statewide Flexible
Poplar at Hammond	$1,000,000	$1,000,000	Local/private
SR 16 at Wilson	$150,000	$15,000	Federal Aid, STP-Urban, STP Statewide Flexible
Solomon/Searcy/Spalding	$900,000	$90,000	Federal Aid, STP-Urban, STP Statewide Flexible
US 19/41 at Ridgewood	$150,000	$15,000	GDOT-NHS, Federal Aid, STP-Urban
Feasibility Study for Improvement at US 19/41 and Ellis Rd	$150,000	$15,000	GDOT-NHS, Federal Aid, STP-Urban
Feasibility Study for Old Atlanta Road Bridge Replacement and Realignment w/N. Expressway	$150,000	$15,000	GDOT-NHS, Federal Aid, STP-Urban
Airport Capital Improvement Program	$45,280,000	$4,574,000	FAA/State/Local
Bicycle and Pedestrian Network Plan	$75,000	$75,000	Local/private
City Sidewalk Projects	$1,666,000	$1,666,000	Local/private
Short-term estimated costs	***$51,722,000***	***$9,688,000***	

Table 5.1 (cont'd.) - Capital Improvement Program

Intermediate-term Projects	Estimated Costs	Local Funding Cost	Funding Source
Traffic signal upgrades for pedestrian improvements (crosswalks)			
Five intersections (Construction)	$5,000	$5,000	Local/private
Intersection improvements			
Everee Inn at Cain**	$215,000	$215,000	Local/private
Poplar/Meriwether/New Orleans/Tenth**	$600,000	$600,000	Local/private
Experiment at Broad**	$840,000	$84,000	Federal Aid, STP-Urban, STP Statewide Flexible
Experiment/Elm**	$430,000	$430,000	Local/private
Broad at 9th**	$865,000	$87,000	Federal Aid, STP-Urban, STP Statewide Flexible
West Griffin LCI *	$4,194,000	$420,000	LCI
North Hill St Improvements	$10,400,000	$1,040,000	LCI
City Sidewalk Projects	$1,180,000	$1,180,000	Local/private
Bypass – Phase 1 - From SR 155 and Jackson Rd to SR 16	22,750,000	$0	Federal Aid, STP-Urban, STP Statewide Flexible
Intermediate-term Estimated Costs	***$41,479,000***	***$4,061,000***	

*Does not include N Expressway improvements (included in short term plan) or US 19/41 at SR 16 Intersection Improvements, as this is a programmed project

** Part of GDOT's Spalding County Intersection Improvement Program: Phase I and II

Long-term Projects	Estimated Costs	Local Funding Cost	Funding Source
Intersection improvements			
College/Hamilton/Kincaid**	$805,000	$805,000	Local/private
Experiment at 14th Street**	$790,000	$790,000	Local/private
College at Meriwether**	$270,000	$27,000	Federal Aid, STP-Urban, STP Statewide Flexible
Hill at Sixth	$550,000	$550,000	Local/private
Cain at Uniform	$125,000	$125,000	Local/private
College at Sixth	$225,000	$225,000	Local/private
Sixth at Central	$125,000	$13,000	Federal Aid, STP-Urban, STP Statewide Flexible
McIntosh/Experiment at Old Atlanta	$4,670,400	$4,670,400	Local/private
City Sidewalk Projects	$3,660,000	$3,660,000	Local/private
Bypass – Phase 2 – From SR 16 to US 19/41	$46, 150,000	$0	Federal Aid, STP-Urban, STP Statewide Flexible
Commuter Rail – Atlanta-Macon	$180,000,000	$0	Federal Aid
Long-term Total Estimated Costs	***$232,700,000***	***$6,195,000***	

** Part of GDOT's Spalding County Intersection Improvement Program: Phase I and II

APPENDICES

APPENDIX A

PUBLIC INVOLVEMENT DOCUMENTATION

The purpose of this document is to summarize the Public Involvement activities performed for the City of Griffin 2030 Comprehensive Transportation Update. Over the course of the planning process, two Public Open House Information Meetings were held. The details of these meetings were as follows:

Public Information Open House Meetings

Date	Location	Address	Time
Thursday August 10, 2010	City of Griffin Municipal Court Room	One Griffin Center 100 South Hill Street	6:00 PM
Thursday November, 2010	City of Griffin Municipal Court Room	One Griffin Center 100 South Hill Street	6:00 PM

Outreach:

- Press release was sent to the Griffin Daily Post
- Information was posted on the City website

Public Meeting Results:

A total of 6 people signed in for the public meetings (see attached sign-in sheets). Three comment forms were received at the meetings.

Information Presented:

August Meeting - Attendees were provided an overview of the study process, the analysis of existing conditions and the identified needs. Study fact sheets and comment forms were distributed to attendees.

Attendees were provided an update of the study progress, an overview of system needs and project recommendations, and information on the funding issues involved in developing a capital improvement program. A preliminary list of recommendations was available for review at this meeting.

City of Griffin - Comprehensive Transportation Plan
Public Meeting - August 10, 2010

Name	Phone	Email
Robert Mohl		RMohl@cityofgriffin.com
Shannon Herren		smhgrace@gmail.com
Roy Herren		herren.roy@gmail.com

GRIFFIN COMPREHENSIVE TRANSPORTATION PLAN
Public Information Meeting – August 10, 2010

Comment Form

1. ***In your opinian, haw wauld you ronk the impartance of tronsportatian amang averoll community needs?***

Very Important	Important	Somewhat Important	Not Important
1	2	3	4

2. ***What ore your greotest transpartatian needs and cancerns?***
Commuter Rail
New Airport

3. ***What transportotion impravements wauld you like ta see ta meet thase needs?***

4. ***What natural and cammunity feotures wauld yau like to see protected?***
Downtown
green space

5. ***Do yau have any ather comments regarding the development af the Camprehensive Tronsportatian Plan ar reloted needs in this area?***

Name:
Mailing Address:
(Optional-
For mailing list only)

For questions or more information, please contact:
Dr Brant Keller, City of Griffin, 678-692-039, BKeller@cityofgriffin.com
Jennifer King, 678-333-0196, Jennifer.king@jacobs.com

Please place forms in the box provided. If you prefer, you can mail your comments to Jennifer King, Jacobs Engineering, 6B01 Governors Lake Parkway, Building 200, Norcross GA 30071

August 2010

GRIFFIN COMPREHENSIVE TRANSPORTATION PLAN
Public Information Meeting – August 10, 2010

Comment Form

1. ***In yaur apinian, how wauld yau rank the importance of transpartatian among overall cammunity needs?***

Very Important	Important	Somewhat Important	Not Important
(1)	2	3	4

2. ***What are yaur greatest transpartatian needs and cancerns?***
enforcement of non-turning lanes (e.g. Burger King)
Need turn lanes at schools
proper timing of lights

3. ***What transportatian improvements wauld you like ta see ta meet those needs?***
Clearly mark non-turn lanes
time lights for minimum congestion & stop-n-go, light-to-light

4. ***What natural and cammunity features wauld yau like to see pratected?***
historically significant elements

5. ***Da yau have any other camments regarding the development af the Comprehensive Transpartation Plan ar related needs in this area?***

Name: Shannon Herrer
Mailing Address: smhgrace@gmail.com
(Optional- For mailing list only)

For questions or more information, please contact:
Dr Brant Keller, City of Griffin, 678-692-039, BKeller@cityofgriffin.com
Jennifer King, 678-333-0196, Jennifer.king@jacobs.com

Please place forms in the box provided. If you prefer, you can mail your comments to Jennifer King, Jacobs Engineering, 6801 Governors Lake Parkway, 8uilding 200, Norcross GA 30071

August 2010

GRIFFIN COMPREHENSIVE TRANSPORTATION PLAN
Public Information Meeting – August 10, 2010

Comment Form

1. ***In your opinion, how would you ronk the importance of tronsportation omong overall community needs?***

Very Important	Important	Somewhat Important	Not Important
1	2	3	4

2. ***Whot ore your greotest tronsportation needs ond concerns?***
   Airport & Rapid rail
   Griffin - By Pass

3. ***What tronsportation improvements would you like to see to meet those needs?***
   New Airport GA Runway & Promote Marketing
   By Pass center of town to get to 155 (HWY)
   Rapid rail getting to Atl

4. ***Whot notural ond community feotures would you like to see protected?***
   Green spaces

5. ***Do you have any other comments regarding the development of the Comprehensive Tronsportotion Plan or reloted needs in this oreo?***

Name:
Mailing Address:
(Optional-
For mailing list only)

For questions or more information, please contact:
Dr Brant Keller, City of Griffin, 678-692-039, BKeller@cityofgriffin.com
Jennifer King, 678-333-0196, Jennifer.king@jacobs.com

Please place forms in the box provided. If you prefer, you can mail your comments to Jennifer King, Jacobs Engineering, 6801 Governors Lake Parkway, Building 200, Norcross GA 30071

August 2010

Public Open House Meeting
November 9, 2010

Name	Title/Organization	Address	Phone/Fax	Email
FRED GARDINER	City of Griffin	100 S Hill St	770-233-[illegible]120	fgardinee@cityofgriffin.com
BRANT D. KELLER	CITY OF GRIFFIN	100 S. HILL ST	678-692-0891	bkeller@cityofgriffin.com
David Kasbo	Jacobs		678-333-0140	david.kasbo@jacobs.com

JACOBS

APPENDIX B

EXISTING TRAFFIC SIGNAL INVENTORY

Table B.1
Existing Traffic Signal Inventory and Design Needs
City of Griffin

Intersection		Existing Inventory				
Main Street	Side Street	Maintaining Agency	Controller Type	Operation	Coordination	Interconnect
SR 16	Hamilton Blvd.	GDOT	2070	Actuated	No	No
SR 16 (Taylor St.)	4th St.	GDOT	2070	Actuated	Yes	Yes
SR 16 (Taylor St.)	6th St.	GDOT	2070	Actuated	Yes	Yes
SR 16 (Taylor St.)	SR 155 (Hill St)	GDOT	2070	Actuated	Yes	Yes
SR 16 (Taylor St.)	8th St.	GDOT	2070	Actuated	Yes	Yes
SR 16 (Taylor St.)	10th St.	GDOT	2070	Actuated	Yes	Yes
SR 16 (Taylor St.)	13th St.	GDOT	2070	Actuated	Yes	Yes
SR 16 (Taylor St.)	16th St.	GDOT	2070	Actuated	Yes	Yes
SR 16 (Taylor St.)	18th St.	GDOT	2070	Actuated	Yes	Yes
SR 16 (Taylor St.)	N. Expressway	GDOT	2070	Actuated	Yes	Yes
SR 16 (Taylor St.)	Spaulding Dr.	GDOT	2070	Actuated	No	No
SR 16	Pine Hill Rd. (Proposed)	GDOT	2070	Actuated	No	No
N. Expressway	Flynt St	GDOT	2070	Actuated	Yes	Yes
N. Expressway	Ellis Rd.	GDOT	2070	Actuated	No	No
US 19/41	SR 92	GDOT	2070	Actuated	No	No
US 19/41	Pine Dr. (Proposed)	GDOT	2070	Actuated	Yes	Yes
SR 92	Wal-Mart (Proposed)	GDOT	2070	Actuated	Yes	Yes
SR 155 (Hill St.)	Broad St.	GDOT	2070	Actuated	Yes	Yes
SR 155 (Hill St.)	Solomon St.	GDOT	2070	Actuated	Yes	Yes
SR 155 (Hill St.)	Poplar St.	GDOT	2070	Actuated	Yes	Yes
SR 155 (Hill St.)	College St.	GDOT	2070	Actuated	Yes	Yes
SR 155 (Hill St.)	Milner Ave.	GDOT	2070	Actuated	Yes	Yes
SR 155 (Hill St.)	Crescent Rd.	GDOT	2070	Actuated	No	No
SR 155 (Hill St.)	Airport Rd.	GDOT	2070	Actuated	No	No
US 19/41	Kalamazoo Dr.	GDOT	2070	Actuated	No	No
McIntosh Rd.	Old Atlanta Rd.	City	Transyt	Actuated	No	No
Experimnet St.	School St	City	Transyt	Actuated	No	No
Hill St.	Northside Dr.	City	Transyt	Fixed Time	No	No
Hill St.	Chappell St.	City	2070	Actuated	No	No
Quilly St.	9th St.	City	2070	Actuated	No	No
Cherry St.	6th St.	City	Transyt	Actuated	No	No
Chappell St.	6th St.	City	2070	Fixed Time	No	No
Chappell St.	2nd St.	City	2070	Fixed Time	No	No
Broad St.	13th St.	City	2070	Actuated	Yes	radio
Broad St.	10th St.	City	2070	Actuated	Yes	radio
Broad St.	8th St.	City	Transyt	Actuated	No	No
Solomon St.	13th St.	City	2070	Actuated	Yes	radio
Solomon St.	10th St.	City	2070	Actuated	Yes	radio
Solomon St.	8th St.	City	2070	Actuated	Yes	radio
Solomon St.	6th St.	City	2070	Actuated	Yes	radio
Solomon St.	5th St.	City	2070	Actuated	Yes	radio
Solomon St.	4th St.	City	2070	Actuated	Yes	radio
Poplar St.	Carver St.	City	Transyt	Actuated	No	No
Poplar St.	10th St.	City	2070	Actuated	Yes	radio
Poplar St.	9th St.	City	2070	Actuated	Yes	radio
Poplar St.	8th St.	City	2070	Actuated	Yes	radio
Poplar St.	6th St.	City	2070	Actuated	Yes	radio
College St.	9th St.	City	Transyt	Actuated	No	No
College St.	8th St.	City	2070	Fixed Time	No	No
College St.	6th St.	City	2070	Actuated	Yes	radio
Maple St.	Crescent Rd.	City	Transyt	Actuated	No	No
Meriwether St.	Everee Inn Rd.	City	Transyt/peek	Actuated	No	No
Everee Inn Rd.	Cain Ln.	City	Transyt	Flash	No	No
Solomon St.	Melrose Ave.	GDOT/City	170	Flash	No	Yes
Lake Ave.	17th St.	City		Flash	No	No
Hill St.	Bourbon St.	County		Flash	No	No
Hill St.	6th St.	City		Flash	No	No
Hill St.	Cherry St.	City		Flash	No	No
Cherry St.	9th St.	City		Flash	No	No
Cherry St.	6th St.	City		Flash	No	No
Quilly St.	10th St.	City		Flash	No	No
Tinsley St.	3rd St.	City		Flash	No	No
Chappell St.	3rd St.	City		Flash	No	No
Solomon St.	16th St.	City		Flash	No	No
Solomon St.	18th St.	City		Flash	No	No
Poplar St.	12th St.	City		Flash	No	No
Poplar St.	Pine Hill St.	City		Flash	No	No
Meriwether St.	9th St.	City		Flash	No	No
Maple St.	Tilney Ave.	City		Flash	No	No

Operation:
Actuated - Loops on the side street
Fixed Time - No loops at the intersection
Flash - Flashing signal

Table B.2
Signal Design Needs
City of Griffin

Intersection			Signal Design Needs										
Main Street	Side Street	Maintaining Agency	Signal Heads		Signal Poles	Pedestrian Facilities			Controllers		Loop Detectors	Signs	Other
			Single	Needed		Ped Ramps	Crosswalks	Ped Signals	Coordination	Actuation			
SR 16	Hamilton Blvd.	GDOT											
SR 16 (Taylor St.)	4th St.	GDOT					3						
SR 16 (Taylor St.)	6th St.	GDOT					3						
SR 16 (Taylor St.)	SR 155 (Hill St)	GDOT											
SR 16 (Taylor St.)	8th St.	GDOT					4						
SR 16 (Taylor St.)	10th St.	GDOT				2	4						
SR 16 (Taylor St.)	13th St.	GDOT					4						
SR 16 (Taylor St.)	16th St.	GDOT					4						
SR 16 (Taylor St.)	18th St.	GDOT											
SR 16 (Taylor St.)	N. Expressway	GDOT											
SR 16 (Taylor St.)	Spaulding Dr.	GDOT											
SR 16	Pine Hill Rd. (Proposed)	GDOT	---	---	---	---	---	---	---			--	---
N. Expressway	Flynt St	GDOT				1							
N. Expressway	Ellis Rd.	GDOT											
US 19/41	SR 92	GDOT											
US 19/41	Pine Dr. (Proposed)	GDOT	---	---	---	---	---	---	---			--	---
SR 92	Wal-Mart (Proposed)	GDOT	---	---	---	---	---	---	---			--	---
SR 155 (Hill St.)	Broad St.	GDOT											
SR 155 (Hill St.)	Solomon St.	GDOT											
SR 155 (Hill St.)	Poplar St.	GDOT					4						
SR 155 (Hill St.)	College St.	GDOT					4						
SR 155 (Hill St.)	Milner Ave.	GDOT											
SR 155 (Hill St.)	Crescent Rd.	GDOT											
SR 155 (Hill St.)	Airport Rd.	GDOT											
US 19/41	Kalamazoo Dr.	GDOT											
McIntosh Rd.	Old Atlanta Rd.	City		8	4								
Experiment St.	School St.	City		6		4	2	4					
Hill St.	Northside Dr.	City		8	3	2	3	6			Yes		
Cherry St.	6th St.	City		6	4								
Chappell St.	2nd St.	City	Single	8	2		4	8		Yes	Yes		
Broad St.	8th St.	City						6					
Poplar St.	Carver St.	City			4								
College St.	9th St.	City		8	3	4	4	8					
College St.	8th St.	City		8	2		4	8			Yes		
Maple St.	Crescent Rd.	City		8	3	4	4	8					
Meriwether St.	Everee Inn Rd.	City			4								
Everee Inn Rd.	Cain Ln.	City				4	4	8					
Total Number				60	29	21	55	56					
Number of Intersection			1	8	9	7	15	8	0	1	2		

Signal Heads:
Single - Single head for each approach, 2 signals are required

The numbers represent the number of the specified items that are needed

Interconnect:
Interconnect should be installed

Signs:
A sign is needed

Other:
The intersection requires additional signal design needs

APPENDIX C

INTERSECTION IMPROVEMENTS

Recommended Intersection Improvements

College Street at Collins Street (Short Range)

Problem
NB sight distance on Collins Street to the east.

Solution
Remove the wooden fence on the SE corner to provide ample sight distance.

Estimated Cost
$10,000

Hill Street at Broadway Street/SR 155 (Short Range)

Problem
Traffic delays for WB Broadway Street and insufficient radius on the SE corner.

Solution
Conduct a signal warrant analysis. If the intersection meets required warrants, install a signal with coordination to the south on Hill Street and railroad preemption. Increase the radius on the SE corner to approximately 50 feet to provide a smoother turn for the trucks continuing north on SR 155.

Estimated Cost
$200,000

Hill Street at Northside Drive/Tuskegee Avenue (Short Range)

Problem
Northside Drive and Tuskegee Avenue do not line up causing unclear vehicle right-of-way during the side street green phase.

Solution
Realign Northside Drive and Tuskegee Avenue so they intersect Hill Street at the same point. If no, when upgrading the traffic signal, change the signal phasing to split phase operation on the side street. This will allow Northside Drive to have the green signal by itself, while Tuskegee Avenue is still red and vice-versa. This will remove the confusion on whether Northside Drive or Tuskegee Avenue traffic has the right-of-way.

Estimated Cost
$500,000 for realignment, or
$0 for signal phasing modification to be included as part of the new signal design

Experiment Street at School Street (Short Range)

Problem
High delay due to an all-way stop operation. A traffic signal has since been installed to reduce the delay and improve the intersection operation. However, there is no EB left turn lane, which causes additional EB and WB delay.

Solution
The traffic signal has improved the intersection delay. The new signal heads have 8-inch lenses, instead of the required 12-inch lenses. An EB left-turn lane can be added through striping to provide EB left turn storage. Since there is an EB left turn arrow, a left turn lane would be preferable to reduce the unnecessary use of the arrow when there no left turning vehicles.

Estimated Cost
$15,000

Experiment Street at 13th Street/Ray Street (Short Range)

Problem
Too many approach legs at the intersection (5). EB sight distance on Ray Street to the north and NB sight distance on 13th Street to the east. On the east side of the railroad tracks Quilly Street and 13th Street from three intersections with a grassed island in the middle which causes confusion to the drivers over which driver has the right-of-way.

Solution
Change Ray Street to a one-way WB street eliminating one approach leg of the intersection. Remove on-street parking along the south side of Experiment Street east of the intersection to improve the NB 13th Street sight distance. A traffic signal would reduce the delays for the side street approaches as well as help determine which side street approach traffic can proceed into the intersection. At the 13th Street at Quilly Street intersection, the grassed triangle should be removed and the four legs of the intersection realigned to intersect at 90 degrees.

Estimated Cost
$350,000

Maddox Street at Etheridge Mill Street (Short Range)

Problem
Maddox Street and Scott Avenue do not line up with each other thus creating two offset intersections along Etheridge Mill Street.

Solution
Realign Scott Avenue to the south to align with Maddox Street so they intersect Etheridge Mill Street at the same point.
Estimated Cost
$500,000

Poplar Street at Hammond Drive (Short Range)

Problem
The two approaches of Hammond Drive do not line up with each other thus creating two offset intersections along Poplar Street.

Solution
Realign the two legs of Hammond Drive to align with each other so they intersect Poplar Street at the same point.

Estimated Cost
$500,000

Solomon Street at Searcy Avenue/Spalding Street (Short Range)

Problem
Too many approach legs (5) to the intersection, too wide an intersection, and railroad tracks in the middle of the intersection. Searcy Avenue to the north parallels the railroad track too closely. The east rail is at the western edge of pavement for Searcy Avenue. There is driver confusion about which movement has the right-of-way for the non stop sign approaches.

Solution
Make Searcy Avenue to the north a dead end street. Access to this portion of Searcy Avenue would be from Broadway Street. Traffic that utilizes this portion of Searcy Avenue would utilize Solomon Street to the east and then north on Jefferson Street to Broadway Street. This would eliminate one leg of the intersection and remove the roadway too close to the railroad tracks. Realign the eastern portion of Solomon Street to intersect Spalding Street at a 90-degree angle, approximately 80-feet east of the existing intersection. The realignment of Solomon Street would remove the convenience store on the east corner of the intersection. The realignment would eliminate the sea of pavement on the east side of the railroad tracks and remove driver confusion as to who has the right-of-way by creating two distinct T-shaped intersections over 100-feet apart. Remove the extra pavement at the railroad crossing providing a two-lane crossing. GDOT is programmed to install railroad crossing improvements.

Estimated Cost
$800,000

SR 16 at Wilson Road (Short Range)

Problem
Too much delay for Wilson Road and too hard to cross or turn onto SR 16.

Solution
Conduct a signal warrant analysis and if the intersection meets required warrants install a traffic signal.

Estimated Cost
$125,000

US 19/41 at Ridgewood Street (Short Range)

Problem
Too much delay for Ridgewood Street and too difficult to cross or turn onto US 19/41

Solution
Conduct a signal warrant analysis and if the intersection meets required warrants install a traffic signal with coordination to the south with the signal at SR 92.

Estimated Cost
$125,000

Experiment Street at Broad Street (Mid Range)

Problem
Experiment Street intersection Broad Street too close to the 10th Street intersection, creating an offset T intersection arrangement.

Solution
Realign Experiment Street and the east leg of Broad Street (west of the 10th Street intersection) to form a two-lane roadway. This would be the continuous movement. The west leg of Broad Street would curve to the north to intersect Experiment Street 150 feet northwest of the existing intersection. A westbound left turn lane would be needed at the new intersection for traffic turning left onto west leg of Broad Street.

Estimated Cost
$750,000

Experiment Street at Elm Street (Mid Range)

Problem
Elm Street and the Experiment Station driveway do not line up with each other, thus creating two offset intersections along Experiment Street. The two approaches of Elm Street do not line up with each other, thus creating one wide intersection along Quilly Street.

Solution
Realign Elm Street to the north 30 feet between Experiment Street and Quilly Street to align with Elm Street on the east of Quilly Street and the Experiment Station driveway west of Experiment Street.

Estimated Cost
$350,000

Everee Inn Road at Cain Lane (Mid Range)

Problem
The SB approach through lane of Everee Inn Road does not line up with the departure lane at the Cain Lane intersection. The NB through lane approaching the Cain Lane intersection abruptly shifts to the right to create the NB left turn lane.
Solution
Create a longer NB lane shift south of the intersection and widen the south approach to the intersection to allow for the SB lane shift.

Estimated Cost
$200,000

Poplar Street at Meriwether Street/New Orleans Street/10th Street (Mid Range)

Problem
The Poplar Street at 10th Street intersection is too close to the Poplar Street at New Orleans/Meriwether Street intersection. The New Orleans/Meriwether Street intersection is located between two traffic signals and is blocked due to the traffic queued at the intersection.

Solution
Add a third lane from 10th Street to 9th Street along Poplar Street. This third lane would be utilized as a left turn bay for the two intersections. The WB left turn onto Meriwether Street would be restricted and the left turn would need to be made at the 10th Street signal. The eastern leg of Meriwether Street would terminate east of the railroad bridge thus WB Meriwether Street traffic between 9th Street and 10th Street would utilize Poplar Street.

Estimated Cost
$400,000

Broadway Street at Searcy Avenue (Long Range)

Problem
NB sight distance on Searcy Avenue to the west. The radius on the SW corner is too small.

Solution
Relocate or lower the fence on the SW corner and improve the radius to 25 feet.

Estimated Cost
$100,000

Cain Lane at Uniform Road (Long Range)

Problem
The turning radius at this L-shape intersection is too small.

Solution
Increase the radius on the SW corner to 50 feet thus providing ample space to make the turning room.

Estimated Cost
$100,000

College Street at Hamilton Boulevard/Kincaid Avenue (Long Range)

Problem
Hamilton Boulevard and Kincaid Avenue do not line up with each other thus causing a zig-zag maneuver with traffic along the Hamilton Boulevard/Kincaid Avenue corridor.

Solution
Realign Hamilton Boulevard to the north to intersect College Street at Kincaid Avenue creating one four-legged intersection. An alternative solution to avoid the roadway realignment is to signalize the intersection with spit phasing for Hamilton Boulevard and Kincaid Avenue.

Estimated Cost
$500,000 for realignment
$125,000 for a traffic signal

College Street at 6th Street (Long Range)

Problem
The approach lanes of 6th Street do not line up with the departure lane at the College Street intersection. There are three lanes on the north side of the intersections and only two lanes on the south side.

Solution
Widen the south side of 6th Street to three lanes to align with the north side of the intersection.

Estimated Cost
$200,000

Meriwether Street at Hammond Drive/College Street/Everee Inn Road (Long Range)

Problem
College Street and Everee Inn Road do not line up with each other thus creating two offset intersection along Meriwether Street. Hammond Drive also intersects College Street and Meriwether Street in same area, creating too many intersections in this area.

Solution
Realign College Street to the west to align with Everee Inn Road so they intersect Meriwether Street at the same point. Eliminate Hammond Drive between College Street and Meriwether Street, thus eliminating the Hammond Drive at Meriwether Street intersection.

Estimated Cost
$1,200,000

6th Street at Central Avenue (Long Range)

Problem
The WB approach stop bar is too far back from the intersection for ample sight distance to the north.

Solution
Remove the SB ramp alongside the bridge that connects 6th Street to Broad Street. This will allow the WB stop bar on Central Avenue to be moved closer to 6th Street. Work should be coordinated with the GDOT 6th Street bridge project.

Estimated Cost
$100,000

Experiment Street at 14th Street (Long Range)

Fourtenth Street currently intersects with Experiment Street at a 60 degree angle causing safety concerns.

Solution

The proposed improvements consist of realigning 14th Street to the south (creating a 90 degree angle with Experiment Street) and realigning the school's north driveway to intersect 14th Street offset from the intersection. This improvement would require right-of-way on the southeast corner of the intersection.

Estimated Cost
$800,000

Hill Street at 6th Street (Long Range)

Problem
Northbound (NB) sight distance on 6th Street to the west and westbound (WB) sight distance on Blanton Street to the south

Solution
Remove the building on the south side of the intersection between Hill Street and 6th Street. Realign 6th Street to intersect Hill Street at a 90-degree angle approximately 80-feet south of the existing intersection.

Estimated Cost
$500,000

APPENDIX D

NORTH HILL STREET/SOLOMON STREET ANALYSIS

JACOBS™

Memorandum

To: Brant Keller, Ph.D.
City of Griffin, Director of Public Works and Utilities

From: Robinson Nicol, Jacobs Engineering Group Inc.

Date: December 30, 2010

Subject: Operational Assessment of Pedestrian Improvements Memo

Referenced Projects: Comprehensive Transportation Plan for the City of Griffin (Task 4)

As part of the Comprehensive Transportation Plan for the City of Griffin, Jacobs Engineering Group (JEG) has analyzed the traffic impact of the recommended pedestrian improvements along Hill Street and Solomon Street in the downtown area. The purpose of this analysis is to determine existing and future operational impacts of this improvement strategy.

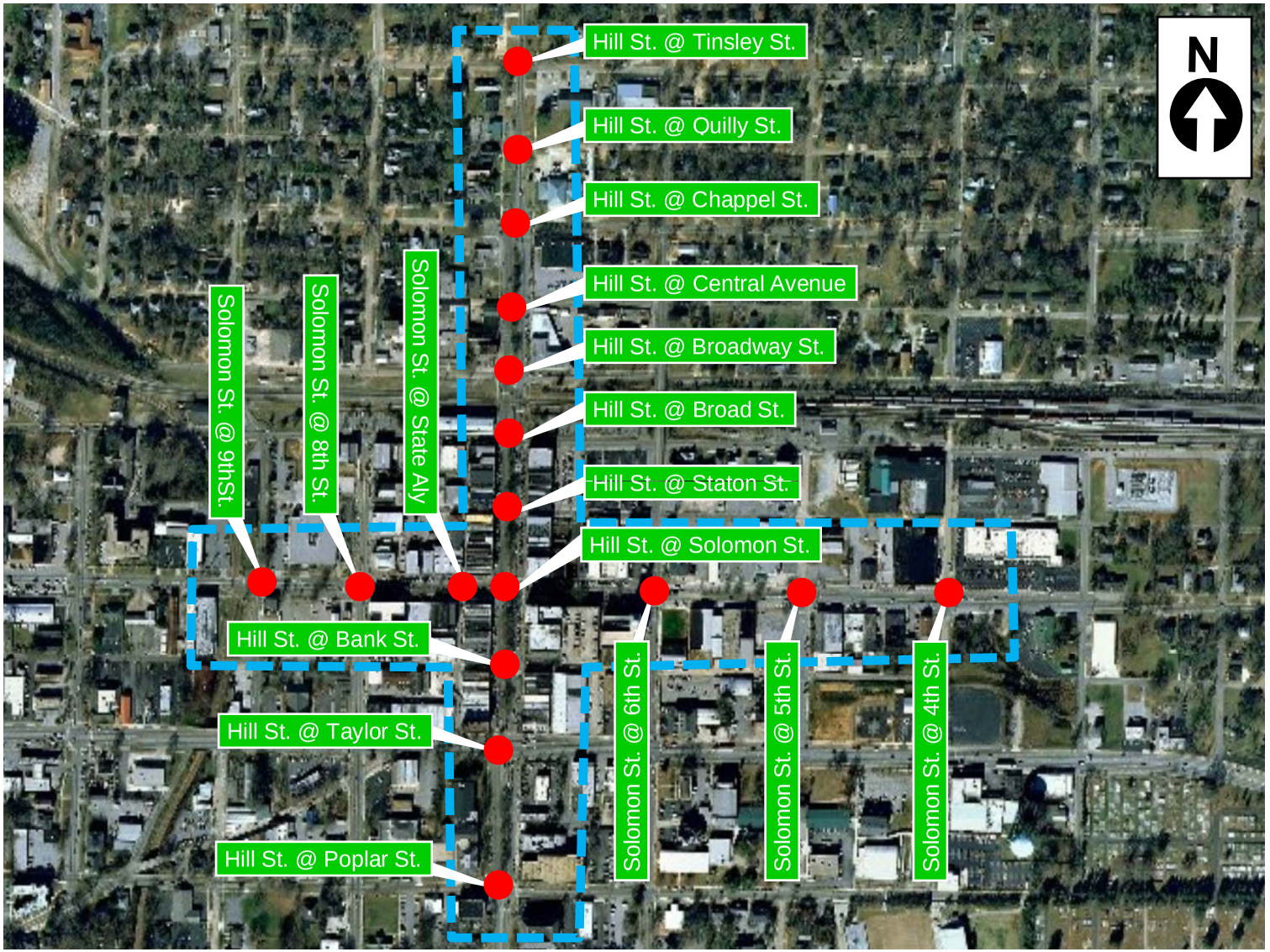
JEG developed recommendations based on field observations of existing traffic conditions, operational analysis of the intersections, and future traffic projections. The recommendations developed from this analysis take into consideration capacity needs and implementation feasibility.

Existing Conditions

In the City of Griffin, Hill Street is classified as an Urban Minor Arterial north of Taylor Street and becomes an Urban Local Road south of Taylor Street. Solomon Street is classified as an Urban Minor Arterial east of Hill Street and Urban Minor Collector west of Hill Street. The two corridors are primary routes connecting in the center of downtown and surrounding roadways form a grid network. The study area focuses on Hill Street from Poplar Street to Tinsley Street and Solomon Street from 9th Street to 4th Street.

Along this segment, Hill Street has two travel lanes north of Chappel Street and four travel lanes south of Chappel Street. Similarly, Solomon Street has two travel lanes west of 6th Street and four travel lanes east of 6th Street. Within the study area, each corridor has sidewalk, curb & gutter, and several locations for on-street parking.

Most intersections in the study area have existing facilities for pedestrians; however several of the intersections on Solomon Street have no pedestrian signals. Speed limits are posted at 25 mph on Hill Street and 30 mph on Solomon Street. The project area is characterized by a mix of high-density commercial and residential land uses. Figure 1 shows the project limits.



Legend

Study Intersection

Project Limits

City of Griffin	
FIG 1	Project Limits
December 2010	JACOBS

The following intersections were included in the study:

1. Hill Street at Tinsley Street
2. Hill Street at Quilly Street
3. Hill Street at Chappel Street
4. Hill Street at Central Avenue
5. Hill Street at Broadway Street (SR 155)
6. Hill Street at Broad Street
7. Hill Street at Slaton Avenue
8. Hill Street at Solomon Street
9. Hill Street at Bank Street
10. Hill Street at Taylor Street
11. Hill Street at Poplar Street
12. Hill Street at 9th Street
13. Hill Street at 8th Street
14. Hill Street at State Alley
15. Hill Street at 6th Street
16. Hill Street at 5th Street
17. Hill Street at 4th Street

The intersecting roadways of Slaton Avenue, Bank Street, and State Alley form intersections where traffic is only permitted to turn off of the mainline onto these streets. In other words, they are all one-way streets away from the mainline at their intersections with Hill Street an Solomon Street.

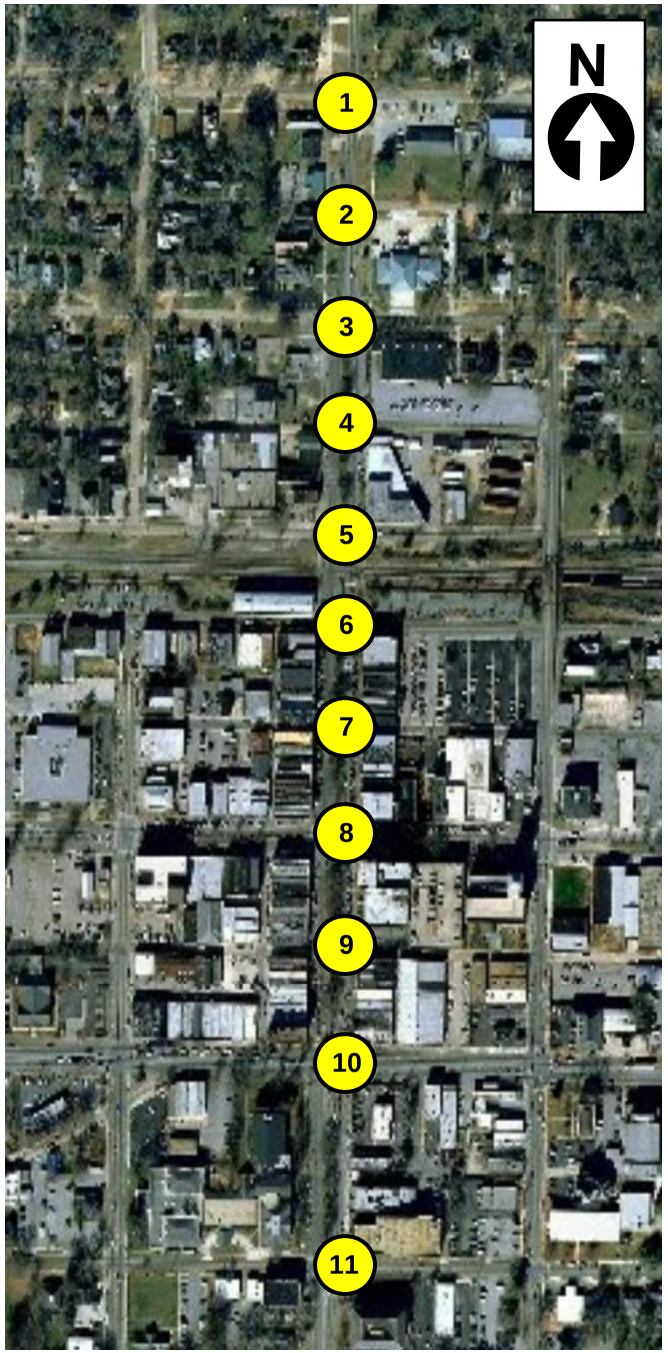
Existing Traffic Volumes

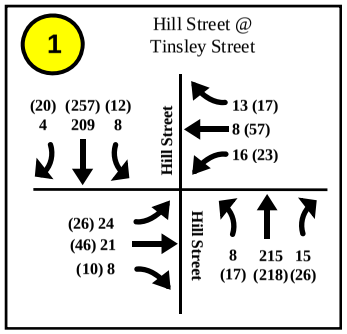
Existing traffic counts were collected at several locations along Hill Street and Solomon Street within the study area during May 2010. Peak hour turning movement counts were taken at each of the study intersections during a typical weekday (Tuesday, May 11th 2010 through Thursday, May 13th 2010) as well as 24-hour bi-directional traffic counts at one location on Hill Street and another on Solomon Street.

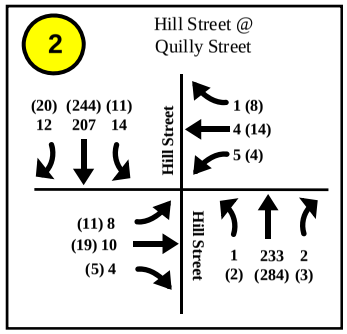
Based on the May 2010 traffic counts, Hill Street had approximately 7,420 vehicles per day (vpd) traveling northbound and 6,720 vpd traveling southbound. Solomon Street had approximately 3,080 vpd traveling eastbound and 3,100 vpd traveling westbound during the same time period. Figures 2 and 3 depict the AM and PM peak hour traffic counts at each of the study intersections along Hill Street and Solomon Street respectively. Figures 4 and 5 show the 24-hour traffic volume distributions for Hill Street and Solomon Street respectively.

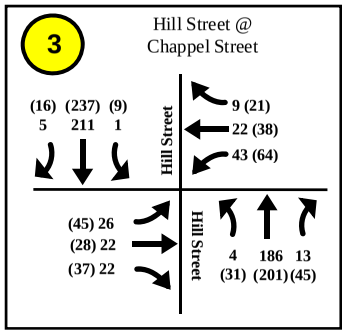
Field Observations

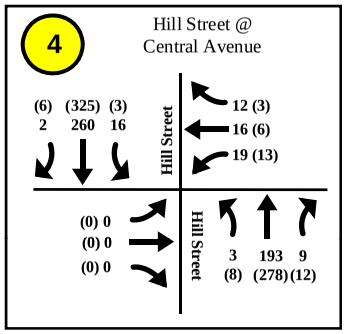
In the existing conditions, traffic was observed along Hill Street and Solomon Street during the weekday peak hours. During the peak hours, minimal traffic congestion was observed throughout the study area. Several trucks were observed approaching the intersection of Hill Street at Broadway Street/SR 155 from east of Griffin. During the site observation, traffic volumes appeared to be in line with traffic counts and vehicle speeds appeared to be at the speed limit.

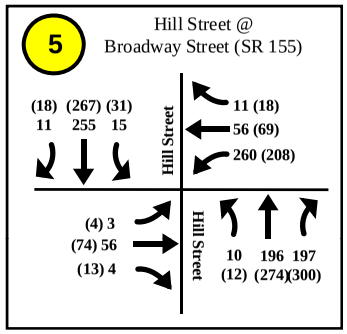


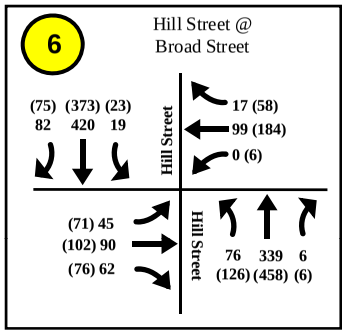


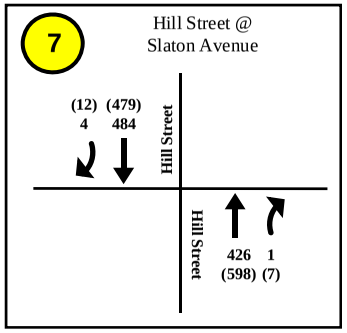


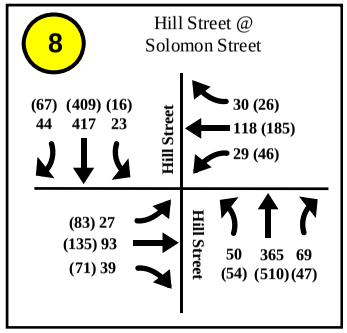


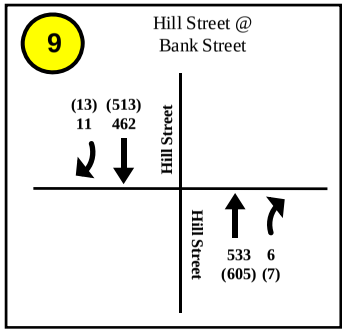


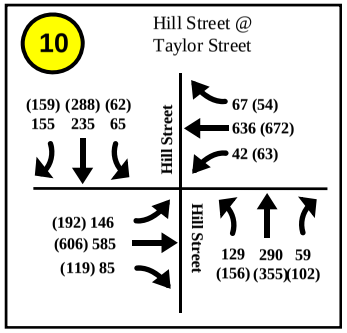


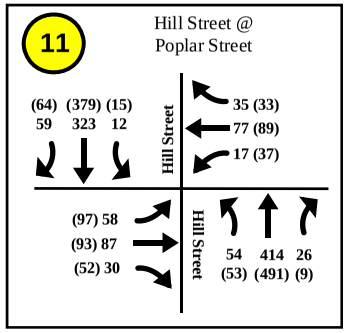












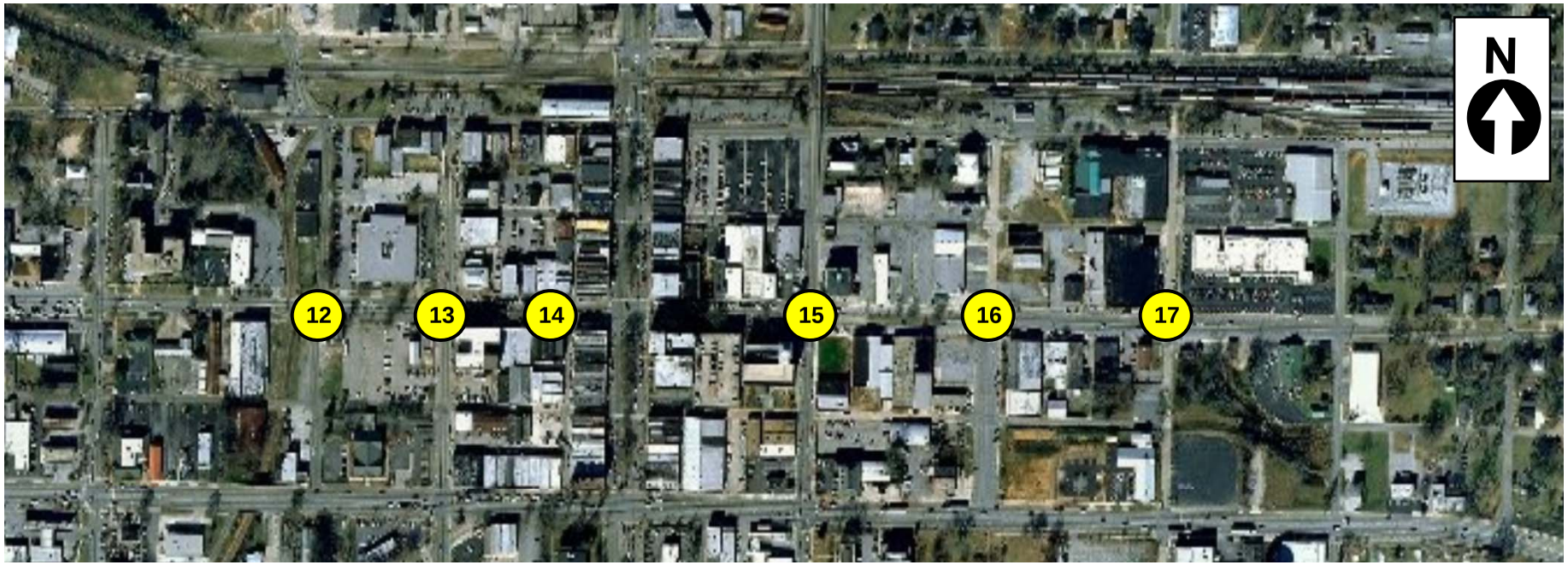
Legend

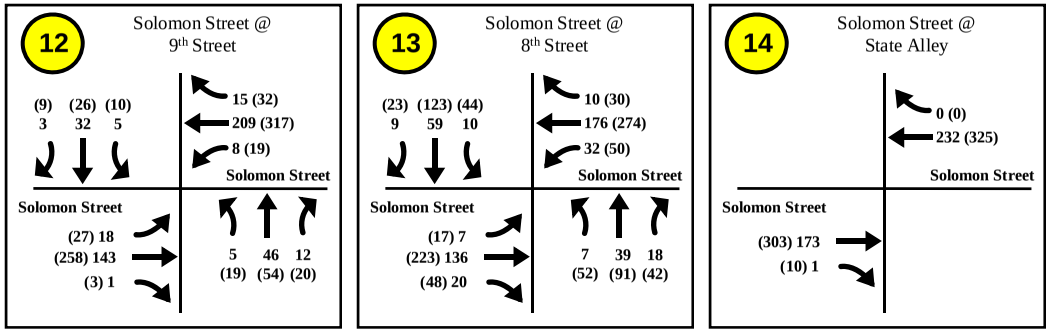
18 AM Peak Hour Volume (vph)

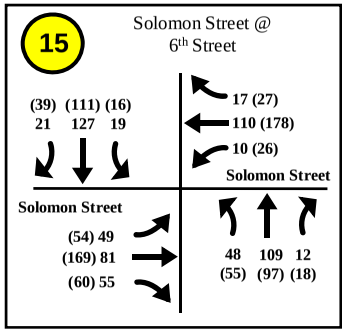
(18) PM Peak Hour Volume (vph)

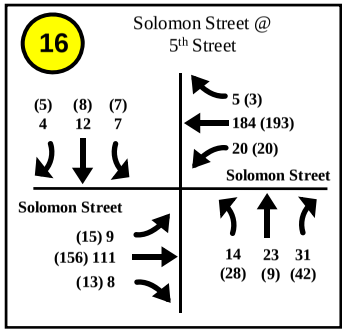
City of Griffin

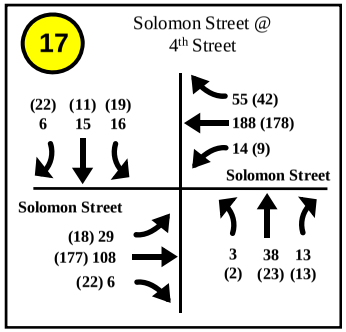
FIG 2	Peak Hour Traffic Counts
December 2010	JACOBS











Legend

18 AM Peak Hour Volume (vph)
(18) PM Peak Hour Volume (vph)

City of Griffin	
FIG 3	Peak Hour Traffic Counts
December 2010	JACOBS

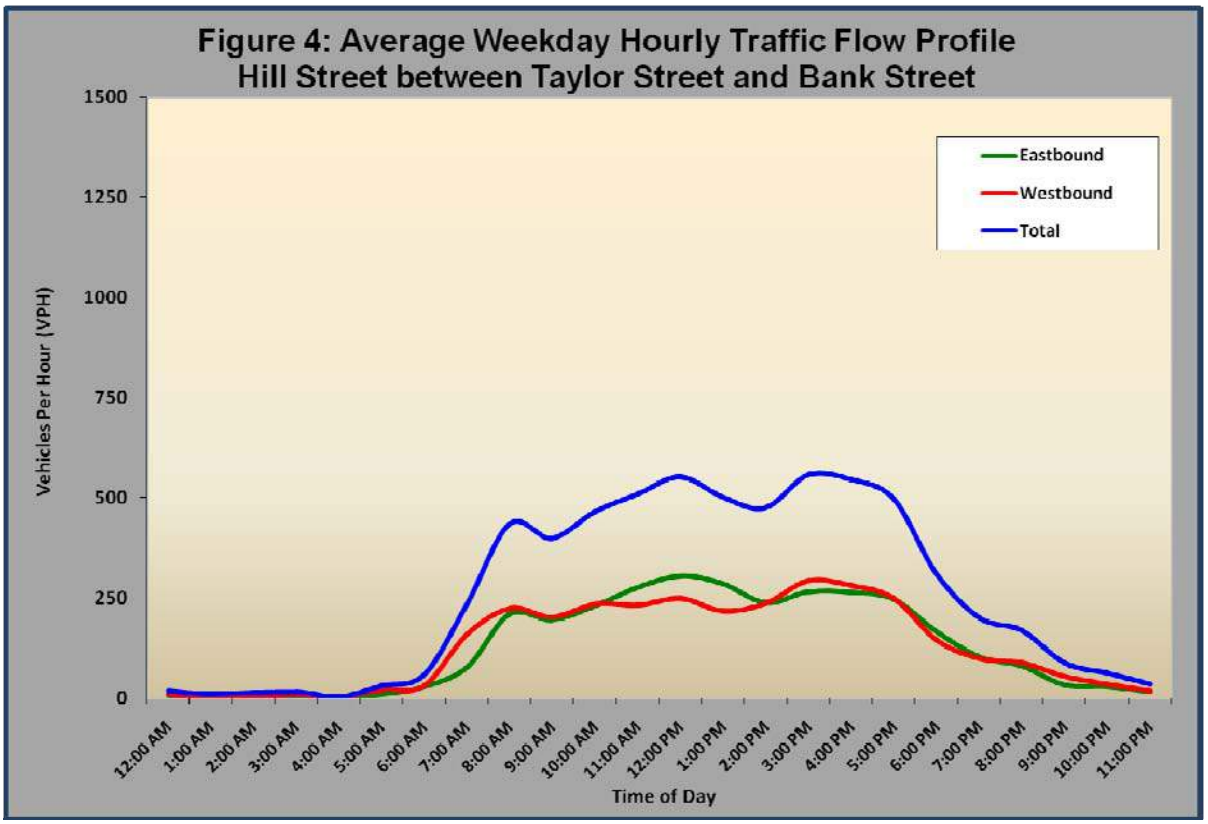


Figure 4: Average Weekday Hourly Traffic Flow Profile
Hill Street between Taylor Street and Bank Street
Vehicles Per Hour (VPH)
1500
1250
1000
750
500
250
0
Eastbound
Westbound
Total
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
Time of Day

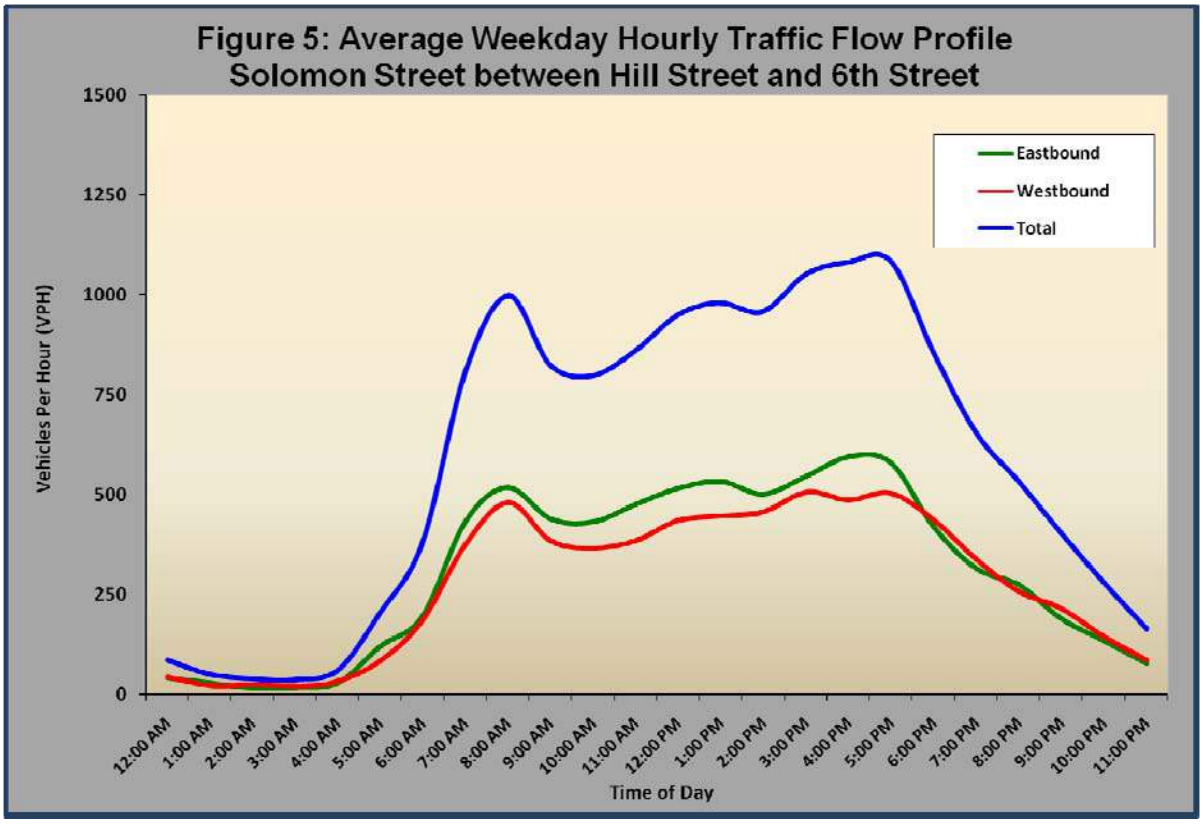
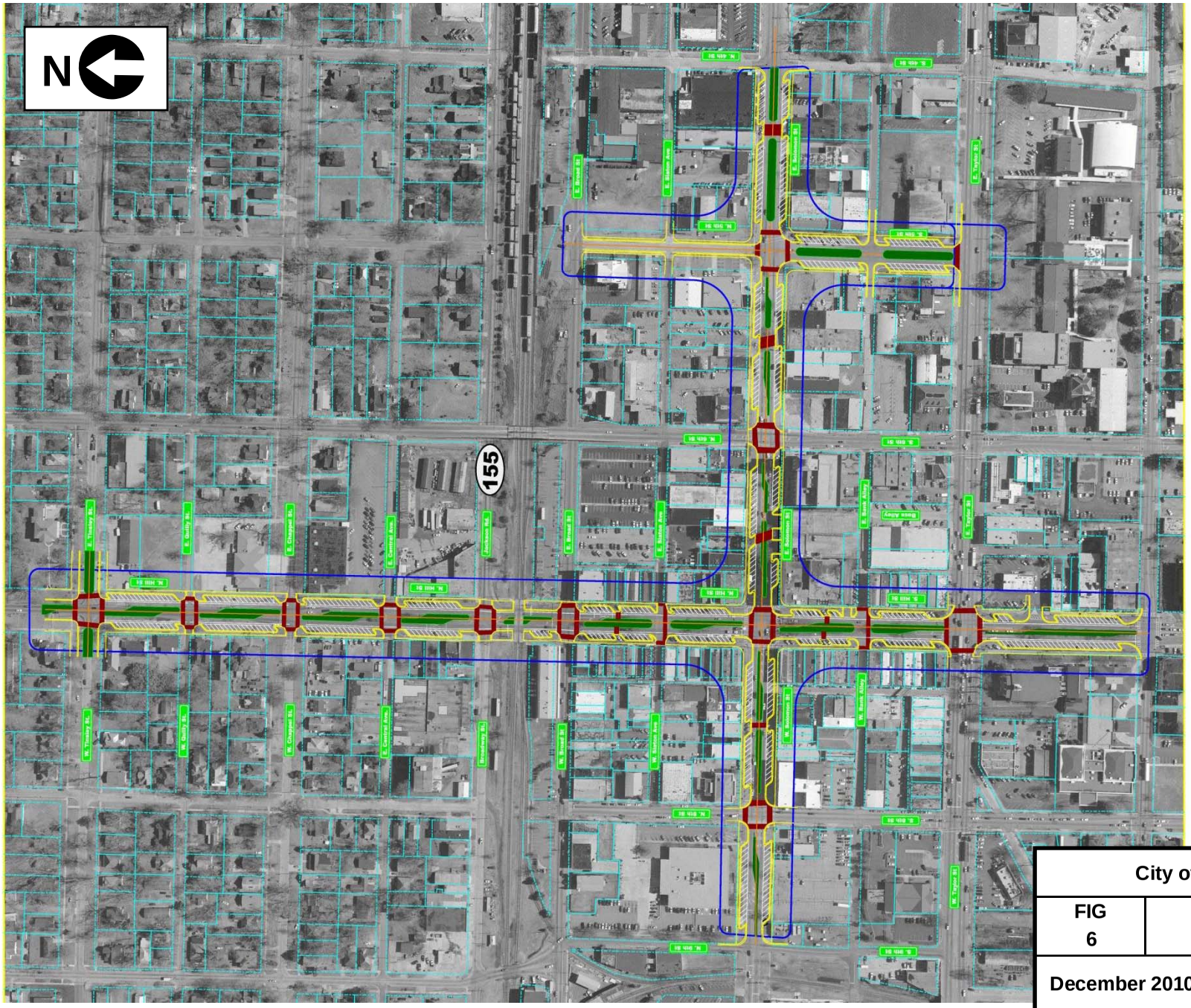


Figure 5: Average Weekday Hourly Traffic Flow Profile
Solomon Street between Hill Street and 6th Street
Vehicles Per Hour (VPH)
1500
1250
1000
750
500
250
0
Eastbound
Westbound
Total
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
Time of Day

Description of Recommended Pedestrian Improvements

Through the Town Center Livable Centers Initiative (LCI) study, the city has identified several opportunities to enhance the pedestrian environment in the downtown area. One recommendation includes the reduction of lanes along downtown streets to provide space for sidewalks. This project would reduce Hill Street (between Poplar Street and Tinsley Street) and Solomon Street (from 9th Street to 4th Street) from two lanes to one lane in each direction. A diagram of the recommended pedestrian improvements is displayed in Figure 6.

An operational assessment of this recommendation was conducted as part of the Comprehensive Transportation Plan for the City of Griffin. As a comparison to the Build condition, the No Build alternative was also being evaluated. For analysis purposes, a 5-year build out was assumed for all the recommended pedestrian improvements to be in place within the study area.



City of Griffin	
FIG 6	Pedestrian Improvements
December 2010	JACOBS

Future Traffic Volumes

Existing and Future peak hour traffic projections were prepared for the study intersections. To estimate future traffic conditions, the existing traffic volumes were increased to account for future growth in background traffic and development along the corridor. The future traffic projections were determined based on the Spalding County 2030 E+C Network travel demand model (existing plus committed network), historic growth trends, and existing traffic volumes and travel patterns. The future traffic projections take into consideration existing and approved projects within the study area, such as the relocation of SR 155 traffic to McDonough Road. A summary of historic growth rates are shown in Table 1 and model growth rates are shown in Table 2.

Table 1: Historical ADT and Growth Rates

County	Station #	Location	5-Year Trend
Spalding	0154	Hill Street north of Tinsley Street	-0.04%
	0049	SR 155 east of Hill Street	-2.14%
	0047	Hill Street south of Slaton Avenue	-1.25%
	0250	Solomon Street east of Hill Street	-4.73%
	0251	Solomon Street east of 5th Street	1.59%
	0152	6th Street south of Bank Street	0.11%
	0218	8th Street south of Bank Street	-5.32%
	0011	Taylor Street east of 9th Street	-3.78%
	0081	Taylor Street east of 5th Street	1.53%
	0009	Hill Street south of Taylor Street	-4.20%
	0077	Poplar Street east of 9th Street	0.47%
5-Year Average			**-1.61%**

Table 2: Model Growth Rates

County	Location	Growth Rate
Spalding	Hill Street north of SR 155	1.60%
	SR 155 east of Hill Street	-0.03%
	Solomon Street east of Hill Street	1.58%
	Taylor Street east of Hill Street	0.45%
	Hill Street south of Taylor Street	1.32%
Average		**0.98%**

As shown in Table 1, the historical growth rates for several GDOT count stations within the study area is negative. The overall historic average shows a 1.61% decline in traffic within the study area over the last

five years. However, the model growth rates in Table 2 show an increase at each location within the study area except for SR 155 east of Hill Street. This is expected because with the relocation of SR 155 to McDonough Road, Hill Street traffic becomes primarily local traffic. The overall average model growth rate shows a 0.98% increase in traffic within the study area over the 2010 base year model. Because the negative traffic growth experienced over the last five years is not expected to continue, JEG proposes disregarding the annual growth rate indicated in Table 1. Therefore a one percent annual growth rate was used for the study intersections in order to capture the overall background growth. This average one percent annual growth rate was applied as an exponential factor over five years to obtain future traffic volumes expected at full build out of the pedestrian improvements.

Capacity Analysis

An analysis of existing and future peak hour traffic conditions was performed to determine the existing operating characteristics within the study area. Synchro software was used to determine the level of service (LOS) at each of the study intersections. LOS for an intersection is based on vehicular delay at the intersection and is a typical measure of effectiveness used to evaluate intersection operations. The Highway Capacity Manual (HCM) provides ranges of delay for each LOS definition, spanning from very minimal delays (LOS A) to long delays (LOS F). LOS E or worse is considered unacceptable for most drivers. The results of the capacity analysis are summarized below.

For the existing condition, the analysis was based on existing traffic volumes, lane geometry and traffic control. Synchro was used to estimate LOS under existing and future conditions based on the HCM methodology. For signalized intersections, Synchro traffic analysis was used to determine LOS, based on the following input data:

- Intersection geometry
- Lane configuration
- Turning movement volumes
- Existing traffic control

For unsignalized intersections where side streets or minor streets are controlled by a stop sign, the criterion for evaluating traffic operations is the LOS for the controlled turning movements at the intersection. Methodology from the HCM to determine the delay and LOS for these turning movements is based on the same input data as for signalized intersections. Synchro outputs for each scenario are included in Appendix A. The results of the capacity analysis for existing conditions are shown in Table 3.

The intersections of Hill Streets at Slaton Avenue, Hill Street at Bank Street, and Solomon Street at State Alley are not included with the capacity analysis. These intersections have minimal turning volumes and no conflicting movements so they are not applicable to the analysis.

Table 3: Existing Capacity Analysis Summary

Intersection	Control Type	Movement	Existing AM		Existing PM	
			LOS	Delay (s)	LOS	Delay (s)
Hill St @ Tinsley St	Stop	EB Approach	B	13.1	C	17.0
		WB Approach	B	12.2	C	16.6
Hill St @ Quilly St	Stop	EB Approach	B	12.3	B	14.4
		WB Approach	B	12.5	B	13.4
Hill St @ Chappel St	Signal	all	B	13.7	B	13.7
Hill St @ Central Ave	Stop	EB Approach	A	min	A	min
		WB Approach	B	12.8	B	13.5
Hill St @ Broadway St	Stop	EB Approach	C	18.4	C	22.1
		WB Approach	F	86.5	F	90.8
Hill St @ Broad St	Signal	all	B	13.3	B	14.1
Hill St @ Solomon St	Signal	all	A	7.7	A	9.1
Hill St @ Taylor St	Signal	all	C	33.0	C	33.9
Hill St @ Poplar St	Signal	all	B	11.1	B	11.6
Solomon St @ 9th St	Signal	all	A	9.1	B	12.1
Solomon St @ 8th St	Signal	all	A	9.4	B	12.7
Solomon St @ 6th St	Signal	all	A	9.1	A	9.2
Solomon St @ 5th St	Signal	all	A	9.2	A	8.4
Solomon St @ 4th St	Signal	all	A	8.7	A	8.6

As shown in Table 3, most of the study intersections currently operate at LOS C or better during both peak hours. However, the westbound approach of the Hill Street at Broadway Street intersection operates at LOS F during both peak hours. The worst delays are experienced at this intersection during the PM peak hour with vehicle delays in excess of 90 seconds on the westbound approach.

Future No Build conditions were analyzed without the recommended pedestrian improvements in place. The analysis was based on projected future traffic volumes and existing lane geometry and traffic control. The results of the capacity analysis for future No Build conditions are shown in Table 4.

Table 4: Future No Build Capacity Analysis Summary

Intersection	Control Type	Movement	Future - No Build AM		Future - No Build PM	
			LOS	Delay (s)	LOS	Delay (s)
Hill St @ Tinsley St	Stop	EB Approach	B	13.9	C	19.2
		WB Approach	B	12.8	C	18.6
Hill St @ Quilly St	Stop	EB Approach	B	12.8	C	15.5
		WB Approach	B	13.0	B	14.2
Hill St @ Chappel St	Signal	all	B	14.0	B	13.9
Hill St @ Central Ave	Stop	EB Approach	A	min	A	min
		WB Approach	B	13.5	B	14.3
Hill St @ Broadway St	Stop	EB Approach	C	20.5	D	26.1
		WB Approach	F	159.2	F	181.0
Hill St @ Broad St	Signal	all	B	13.9	B	15.0
Hill St @ Solomon St	Signal	all	A	7.9	A	9.5
Hill St @ Taylor St	Signal	all	D	48.0	D	46.0
Hill St @ Poplar St	Signal	all	B	11.4	B	12.0
Solomon St @ 9th St	Signal	all	A	9.6	B	13.0
Solomon St @ 8th St	Signal	all	A	9.6	B	14.0
Solomon St @ 6th St	Signal	all	A	9.3	A	9.5
Solomon St @ 5th St	Signal	all	A	9.5	A	8.6
Solomon St @ 4th St	Signal	all	A	8.9	A	9.0

As shown in Table 4, most of the study intersections are expected to operate at LOS D or better during both peak hours. However, the westbound approach of the Hill Street at Broadway Street intersection continues to operate at LOS F during both peak hours. The worst delays are experienced at this intersection during the PM peak hour with vehicle delays in excess of 180 seconds on the westbound approach.

Future Build conditions were analyzed with the recommended pedestrian improvements in place. The analysis was based on projected future traffic volumes and applicable geometric improvements as shown in Figure 3. The results of the capacity analysis for future Build conditions are shown in Table 5.

Table 5: Future Build Capacity Analysis Summary

Intersection	Control Type	Movement	Future - Build AM		Future - Build PM	
			LOS	Delay (s)	LOS	Delay (s)
Hill St @ Tinsley St	Stop	EB Approach	B	13.9	C	19.0
		WB Approach	B	12.8	C	18.5
Hill St @ Quilly St	Stop	EB Approach	B	12.8	C	15.5
		WB Approach	B	13.0	B	14.2
Hill St @ Chappel St	Signal	all	B	11.5	B	12.0
Hill St @ Central Ave	Stop	EB Approach	A	min	A	min
		WB Approach	B	14.5	C	15.8
Hill St @ Broadway St	Stop	EB Approach	C	23.2	E	38.4
		WB Approach	F	343.6	F	535.7
Hill St @ Broad St	Signal	all	B	16.4	C	20.8
Hill St @ Solomon St	Signal	all	B	12.4	B	16.1
Hill St @ Taylor St	Signal	all	D	46.7	E	55.6
Hill St @ Poplar St	Signal	all	B	14.8	B	16.0
Solomon St @ 9th St	Signal	all	B	12.3	B	14.1
Solomon St @ 8th St	Signal	all	B	11.7	B	15.3
Solomon St @ 6th St	Signal	all	B	10.8	B	11.8
Solomon St @ 5th St	Signal	all	B	13.1	B	12.9
Solomon St @ 4th St	Signal	all	B	11.3	B	12.6

As shown in Table 5, most of the study intersections are expected to operate at LOS C or better during both peak hours. However, the intersections of Hill Street at Broadway Street and Hill Street at Taylor Street are expected to operate at LOS E or worse during at least one peak hour. The worst delays are experienced at the Hill Street at Broadway Street intersection during the PM peak hour with vehicle delays in excess of 535 seconds on the westbound approach.

Additional analysis was performed to determine the required improvements at the two study intersections with unacceptable LOS (LOS E or worse). A signal installation was considered at the intersection of Hill Street at Broadway Street. However, at-grade railroad crossings on approaches to signalized intersection have potential safety problems related to vehicle queues forming across the railroad tracks. Therefore, because of the close proximity of the adjacent railroad crossing to the south, a signal is not recommended for this location. The following improvements are recommended:

Hill Street at Taylor Street

- Install 100’ right turn lane on SB Hill Street approach

Hill Street at Broadway Street

- Install 50’ channelized right turn lane on NB Hill Street approach
- Install 350’ left turn lane on WB Broadway Street approach

Future Build conditions were analyzed with the additional recommended improvements in place at these intersections. The analysis was based on projected future traffic volumes and geometric improvements at the Hill Street at Taylor Street and Hill Street at Broadway Street intersections. The results of the capacity analysis for future improved Build conditions are shown in Table 6.

Table 6: Future Improved Build Capacity Analysis Summary

Intersection	Control Type	Movement	Future - Improved Build AM		Future - Improved Build PM	
			LOS	Delay (s)	LOS	Delay (s)
Hill St @ Broadway St	Stop	EB Approach	C	16.8	C	19.5
		WB Approach	F	97.2	F	81.4
Hill St @ Taylor St	Signal	all	D	41.3	D	47.4

Signal Warrant Analysis

A traffic signal warrant analysis was performed for the intersection of Hill Street at Broadway Street using the criteria provided in the Manual on Uniform Traffic Control Devices (MUTCD) published by the Federal Highway Administration (FHWA), 2009. The analysis of each intersection assumed approach speed on Hill Street less than 40 mph, one-lane minor approaches, and 100% warranting volumes. According to the MUTCD, the investigation of the need for traffic signal control shall include an analysis of the applicable factors contained in the following traffic signal warrants and other factors related to existing operations and safety at the study location:

- Warrant 1 – Eight-Hour Peak Volume
- Warrant 2 – Four-Hour Vehicular Volume
- Warrant 3 – Peak Hour
- Warrant 4 – Pedestrian Volume
- Warrant 5 – School Crossing
- Warrant 6 – Coordinated Signal System
- Warrant 7 – Crash Experience
- Warrant 8 – Roadway Network
- Warrant 9 – Intersection Near a Grade Crossing

The warrant analysis was performed with a right turn volume reduction for the minor approaches being applied. Right turn reductions are based on the assumption that minor-road right turning vehicles at an unsignalized intersection incur less delay than the left turning or through vehicles. Thus, an intersection where minor-road drivers are primarily turning right is less likely to derive benefit from signalization than one where most drivers are crossing through or turning left. In terms of the proper allocation or reduction for right turning volumes during the warrant analysis, the National Cooperative Highway Research Program (NCHRP) Report 457 procedure was used. Right turn reduction calculations are provided in Appendix B. Based on these calculations, 100% of the minor street right-turn volumes were reduced.

Table 7: Signal Warrant Analysis Results Hill Street at Broadway Street		
Warrant	**Result**	**Hrs. Met / Required**
1A	Not Met	0/8
1B	Not Met	0/8
1C	Not Met	N/A
2	Not Met	0/4
3A	Not Met	0/1
3B	Not Met	0/1
4	N/A	N/A
5	N/A	N/A
6	N/A	N/A
7	Not Met	N/A
8	N/A	N/A

As Table 7 shows, three of the MUTCD signal warrants were satisfied for Hill Street at Broadway Street.

Conclusion

Based on field observations and capacity analysis, the study intersections along Hill Street and Solomon Street are currently operating adequately with the exception of Hill Street at Broadway Street, which is operating with unacceptable LOS. This intersection is on a designated state route that is programmed to be rerouted in the future. However, even with local traffic only, this intersection is expected to have unacceptable LOS in the future without any improvements. This intersection and the Hill Street at Taylor Street intersection require additional improvements to meet the future traffic demand with the recommended pedestrian improvements in place. It is recommended that the following improvements be considered in addition to pedestrian streetscape improvements:

Hill Street at Taylor Street

- Install 100’ right turn lane on SB Hill Street approach

Hill Street at Broadway Street

- Signalize intersection

Appendix A
Synchro Analysis Results
(available upon request)

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Norcross, GA 30071
Phone: (770) 455-8555
Fax: (770) 455-7391





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