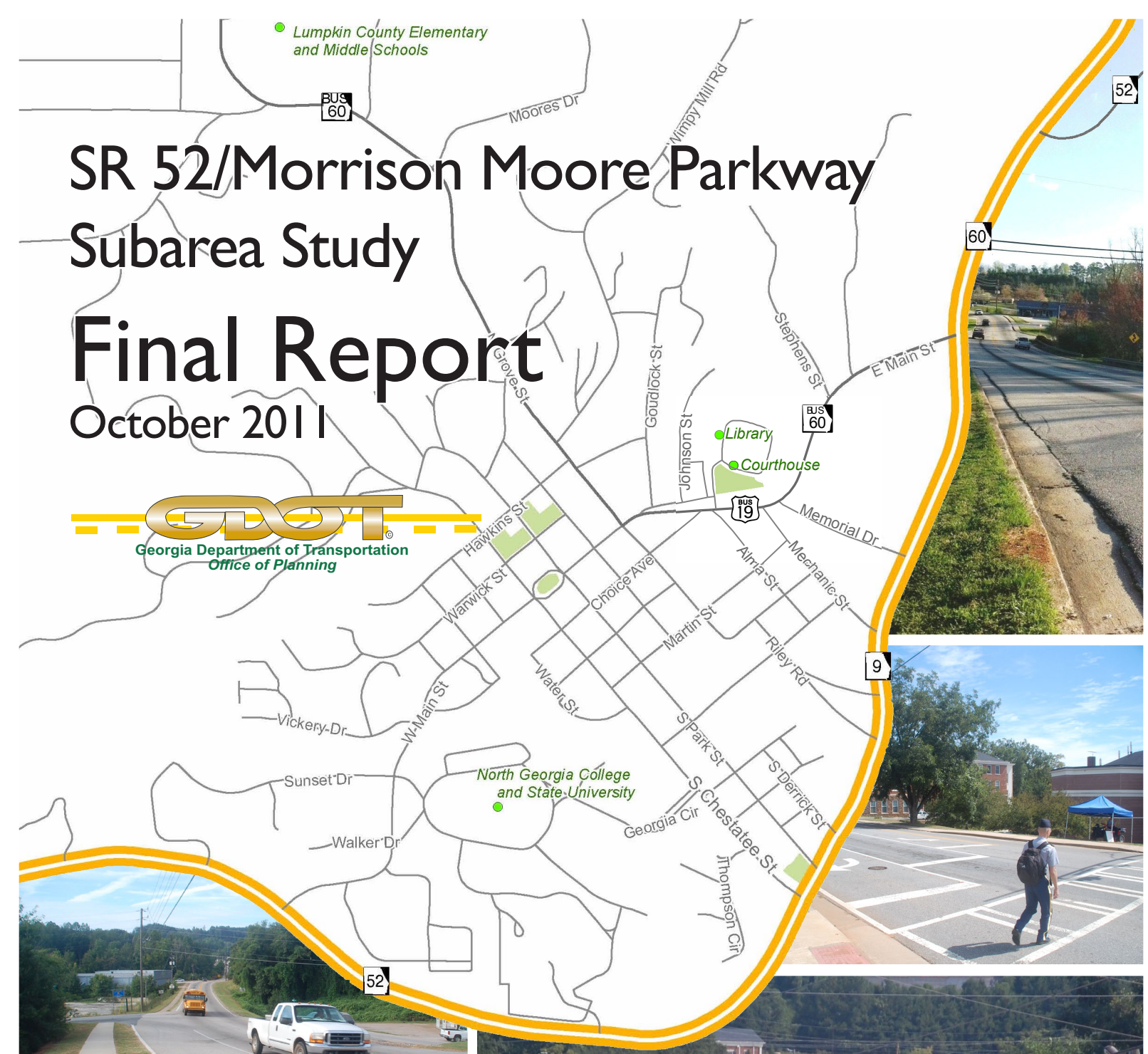
SR 52/Morrison Moore Parkway Subarea Study

Final Report

October 2011

Georgia Department of Transportation
Office of Planning



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SR 52/MORRISON MOORE PARKWAY SUBAREA STUDY

BASELINE CONDITIONS/NEEDS ASSESSMENT REPORT

Prepared for:

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Atlanta, GA

1.0 INTRODUCTION

The Georgia Department of Transportation (GDOT) in partnership with the City of Dahlonega is undertaking the SR 52/Morrison Moore Parkway (SR 52/MMP) Subarea Study to analyze solutions to address the mobility and accessibility needs along the SR 52/MMP Corridor and other major roadways in the subarea. A major objective of the study is to identify and recommend transportation improvements necessary to meet existing and future transportation needs through the year 2035. To this end, a SR 52/MMP Subarea Travel Demand Model (TDM) is being developed to assess travel trends and assist in the evaluation of potential improvements. Transportation projects considered in this study will be identified based on the existing and future travel needs, crash analysis, relevant previous studies, as well as public and stakeholder input. A Stakeholder Advisory Committee (SAC) made up of key local officials, planning staff and community representatives has been established to provide guidance on technical and policy issues. This group will be engaged at key milestones over the course of the study.

1.1 Purpose of Report

The purpose of this report is to provide an inventory of the factors that influence the transportation system in the subarea. These factors include the demographics, community facilities, the natural environment, land uses and development patterns in the subarea. The major findings from this report will identify the transportation needs of the subarea that, in turn, will provide the basis for the goals and objectives of the SR52/MMP Subarea Study.

1.2 Study Process

As shown in **Figure 1-1** on the following page, this study is organized into seven tasks. The study process is non-linear and interactive, with each task providing feedback into the overall analysis.

Stakeholder Outreach – This task refers to the on-going public involvement and community outreach program throughout the study process, starting with the establishment of a Stakeholder Advisory Committee (SAC), stakeholder engagement through interviews, and the development of fact sheets and project websites.

Data Collection – A complete and thorough inventory of data related to transportation will be collected and analyzed. These data items include traffic counts, accident data, existing and future land uses, census information, and environmental data. The analysis results will be used to establish the baseline in which potential projects are identified and evaluated.

Needs Assessment – This needs assessment task involves the use of the findings from the baseline inventory to develop a comprehensive list of transportation needs in the subarea. The needs assessment will identify existing and future travel deficiencies and other mobility issues in the subarea. As part of

this task, a step-down approach will be used to develop a subarea travel demand model to assess travel trends and assist in the evaluation of potential improvements.

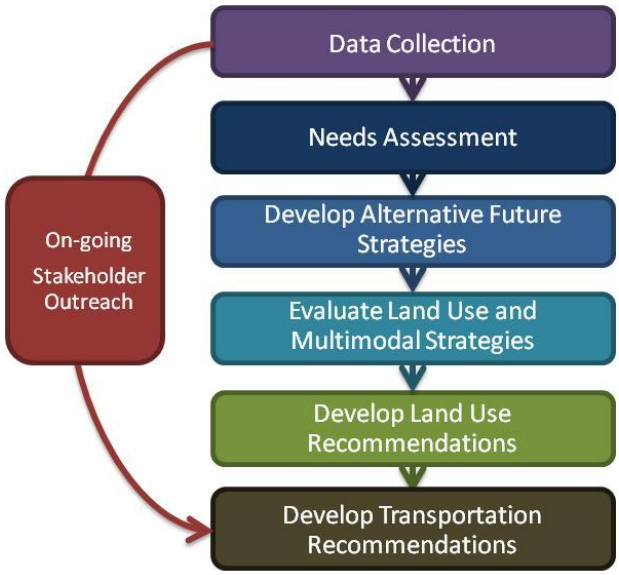
Develop Alternative Future Strategies – The alternative strategies developed from this study will take into account the recommendations from the existing local and state adopted plans. In addition to vehicular mobility, the multimodal strategies will also consider improvements to access management, parking, and pedestrian and bicycle traffic.

Evaluate Land Use and Multimodal Strategies – This task involves the use of the travel demand model and other identified performance measures to evaluate potential impact of existing and future land uses/development on the travel corridors.

Develop Land Use Recommendations – A list of land use and development policies will be recommended based on the previous evaluation results.

Develop Transportation Recommendations – A list of multimodal transportation improvements will be developed which considers the technical analysis efforts and stakeholder input throughout the course of the study. The project list will include preliminary cost estimation and potential funding sources. The associated policy recommendations will foster an environment that will support the transportation projects.

Figure 1-1: Study Process



1.3 Overview of Subarea

As illustrated in **Figure 1-2**, SR 52/MMP Subarea is located wholly within the City of Dahlonega. The subarea consists of Downtown Dahlonega, North Georgia College and State University (NGCSU) and areas east of the SR 52/MMP bypass to include major institutions such as the Chestatee Regional Hospital, new Judicial Center, City Hall, and the Walmart. Major roadways included in the subarea are the SR 52/MMP bypass, US 19/SR 60/South Chestatee Street, East Main Street and West Main Street. Potential impacts to these major facilities will be the focus of this study.

1.4 Review of Previous Studies

This section provides an overview of previous studies and planning initiatives within the study area by the City of Dahlonega and Lumpkin County as well as their various planning partners. These studies provide useful background information on the land use, demographics, and planned improvements in the study area. The findings and recommendations from these studies will be used as a basis for determining the transportation needs in the SR 52/MMP subarea. These studies are summarized here with an emphasis on their relevance to the SR 52/MMP subarea. It should be noted that neither the City of Dahlonega nor Lumpkin County has performed a transportation study or adopted a transportation plan at this time.

- Downtown Dahlonega Master Plan (2008)
- Lumpkin County Comprehensive Plan (2005) and Partial Update (2009) – City of Dahlonega, Georgia, Comprehensive Plan (2005) and Partial Update (2009)
- Parking Plan for the City of Dahlonega (2010)
- North Georgia College and State University Master Plan (2009)

Downtown Dahlonega Master Plan (2008)

This plan presents recommendations intended to contribute to the sustained and future vitality of Downtown Dahlonega. The master plan study focused on the City's Public Square and its surroundings, as evidenced in the Illustrative Plan shown in **Figure 1-3** (on page 1-5). This plan recommends the preservation of the existing historic street grids, including the conversion of one-way streets to two-way facilities and the construction of limited new streets to complete the grids where necessary. It also recommended the construction of a new roadway system for the proposed University Heights neighborhood development and proposed streetscaping on East and West Main Street; North and South Chestatee Street; Park Street; North and South Grove Street and Riley Road; Memorial Drive; and Park Street and Jones Street. Another priority project is new pedestrian linkages with sidewalks and paths which provide access to Yahoola and reservoir trails from the businesses and residents in downtown as well as the University.

Figure 1-2: Study Area Map

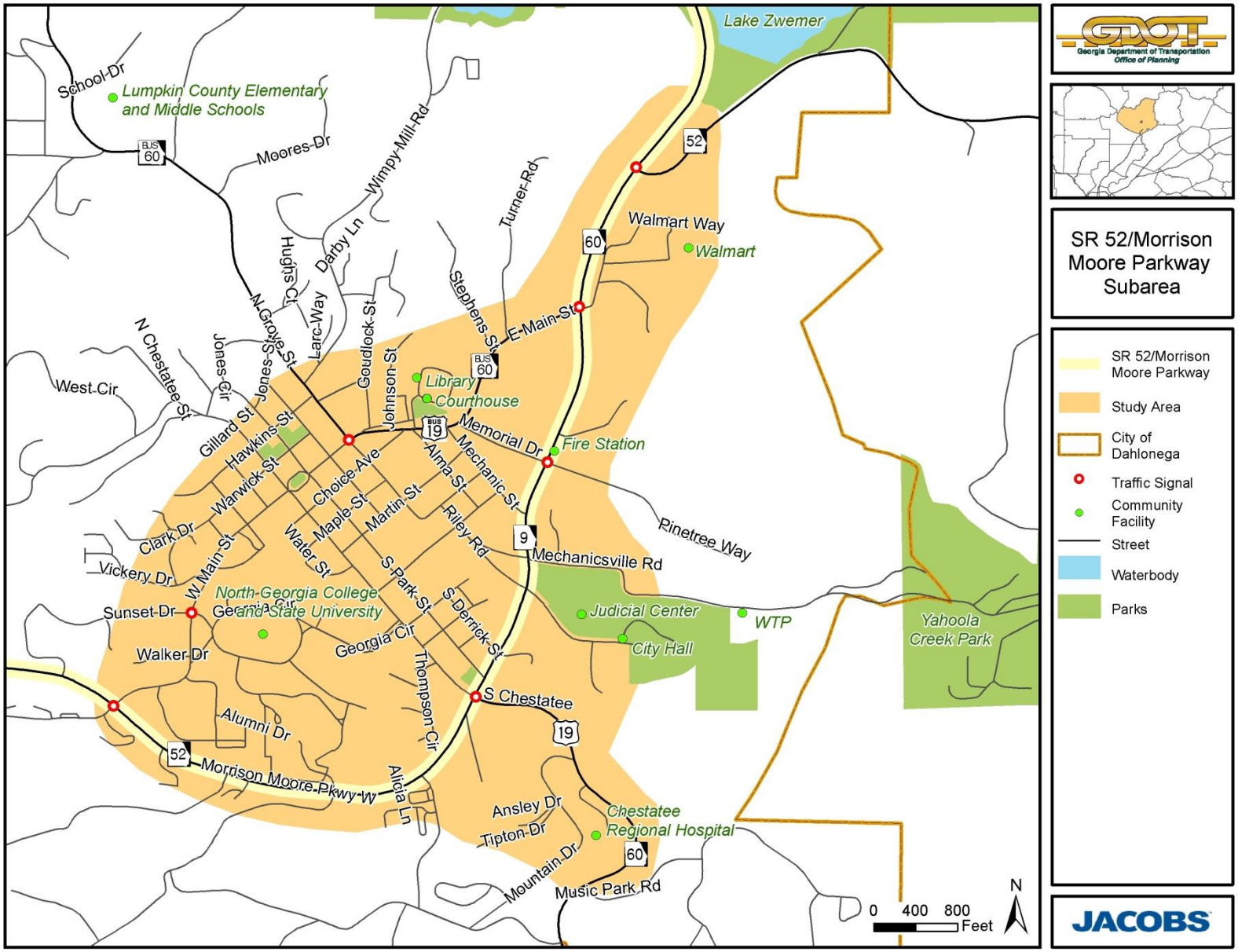
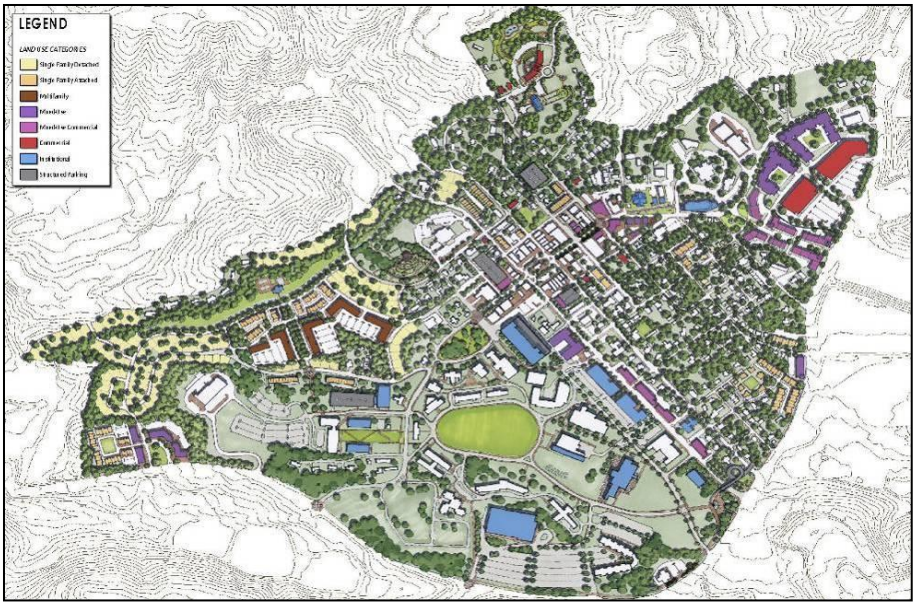


Figure 1-3: Downtown Dahlonega Master Plan Illustrative Plan



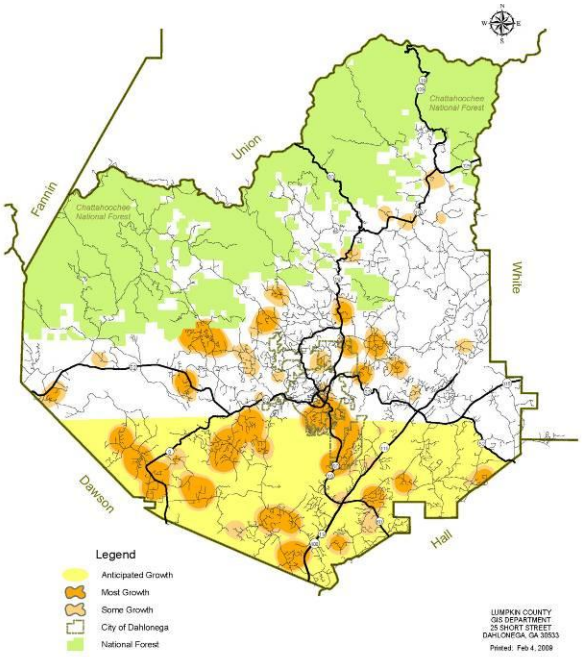
The plan places emphasis on historic preservation and compatibility for new development in the Historic Core and Historic Neighborhoods, and proposes a new historic district in its Historic Neighborhood section. The plan also proposes redevelopment, intensification of uses, and infill development in other areas of Downtown. Specifically, the plan calls for a new civic core including the existing county offices, a new library, and enhanced visual arts campus; a new municipal center at historic McKinney house; a new conference center and retreat with lodging; and a new small inn across from Community House.

Lumpkin County Comprehensive Plan (2005) and Partial Update (2009)

The *Lumpkin County Comprehensive Plan* (2005) found that Lumpkin County is one of the fastest growing counties in the Georgia Mountains area, with a. 44.2% increase in population from 1990 to 2000. The plan projects Lumpkin County's population to be 34,925 by the year 2010 and 66,661 by the year 2025.

The plan notes that Lumpkin County has one airport and a recently established rural on-demand transit program. Sidewalks are only available within the City of Dahlonega and recreational pedestrian trails are limited to national forest areas and the North Georgia College and State University campus in Dahlonega, GA. The plan reports that in 2002, SR 52 had only one area that experienced deficient LOS: between SR 9/SR 60 and House Road the roadway has an LOS D. It was projected that by 2012 SR 52 from SR 9/SR60 to House Road would operate at LOS F and from House Road to SR 115/Long Branch Road at LOS D. By 2022 SR 52 from SR 9 to SR 115/Long Branch Road is projected to operate at LOS F.

Figure 1-4: Areas of Recent and Anticipated Growth (*Lumpkin County Comprehensive Plan)*



The plan found that Dahlonega contains the highest density of development within the County and is its main commercial node as well as the location of the majority of public and institutional uses in Lumpkin County. The plan reports that commercial nodes are found along SR 52. The Plan states that future, rapid development is anticipated south of SR 52, including an area directly south of the study area that is part of the City of Dahlonega.

The *Partial Update* reported that there were needs in Lumpkin County for master plans for transportation, utilities and infrastructure, and parks and recreation facilities and for consideration for measures to improve planning and community development with the City of Dahlonega. It states that ongoing County policy will be to work with the City of Dahlonega to continue developing downtown as an economic and tourism center as part of a regional effort to bring jobs to Lumpkin County. Areas of Recent and Anticipated Growth from the update can be found in **Figure 1-4** above.

City of Dahlonega, Georgia, Comprehensive Plan (2005) and Partial Update (2009)

The *City of Dahlonega Comprehensive Plan* found that the city grew by almost 18 percent from 1990-2000, and is projected to grow by more than 35 percent from 2000-2010 and by more than 100 percent 2000-2025. The plan notes that the student population and others are not included in official population counts of the City. With these populations included, the functional population of the City can top 22,000.

The plan sets forth long-range transportation recommendations not included in the Construction Work Program (CWP). These are the widening of Burnt Stand Road, the widening of Long Branch Extension, and the Extension of GA 400. The extension of GA 400 is proposed to occur in three parts. The first would extend the roadway from its current location to SR 52 by 2015; the second, from SR 52 to Frogtown Road by 2025; and the third, from Frogtown Road to SR 11/US 129 by 2025. Although this project has been recognized as a need, it currently lacks in both funding and public support. The Comprehensive Plan also recommends a joint transportation study for the county and city.

The plan recognizes that future land use will be shaped by the City's desire for and emphasis on non-residential growth. (It is important to note that the City's more recent Downtown Master Plan also emphasizes the demand and need for residential growth and quantifies the need using market data.) Future land uses in the study area are shown in **Figure 4-4** in Chapter 4. GDOT planned transportation improvements indicate that commercial areas along the SR 60 corridor to the south towards GA 400, along SR 52 toward the existing commercial node to the northeast, and on SR 9 to the west of the city will continue to expand.

The *City of Dahlonega Comprehensive Plan Partial Update* notes that development within the City limits is largely limited to infill and redevelopment, and that some annexation may occur. Specifically, Greenbriar, Riley Road, and North Grove areas would benefit from investment and revitalization, and the Mohawk Industries facility remains vacant and should ideally be reused for major commercial or light industrial activity. The plan lists among the projects in its Short term Work Program the development, in tandem with GDOT, of a Bicycle and Pedestrian Plan for the City of Dahlonega.

Parking Plan for the City of Dahlonega (2010)

The *Parking Plan for the City of Dahlonega* found that "parking conditions in Dahlonega can be difficult" because "off-street parking areas are difficult to find and most of the on-street parking spaces are full." Over the next ten years, parking demand is projected to steadily increase but no new parking facilities are planned. This plan recommends that the City implement shared parking, or the pooling of parking resources among various owners. It also recommends that parking in the two central lots and on-street parking in the city's core cease to be free and that time limits be enforced. To this end, it recommends the introduction of meters and improved signage, as well as the hiring of a parking enforcement officer and a fine system, albeit one that allows for fine forgiveness for visitors. Finally, the plan recommends the conversion of the vacant, dirt lot adjacent to the elementary school to surface parking for up to 100 spaces.

North Georgia College and State University Master Plan (2009)

The purpose of the *North Georgia College and State University Master Plan* was to build on the campus's existing strengths by encouraging compact development for a future campus that supports teaching and learning and creates spaces for pedestrian activity and campus life. The plan recommends the realignment of the current NGCSU gateway road from South Chestatee Street to create a more direct visual and physical connection with the Drill Field and allow space for the expansion of Memorial Hall. It also recommends the realignment of the road leading to the Recreation Center parking deck from the south and the rerouting of the road adjacent to the military housing quadrangle. The plan notes that, long-term, the University is contemplating creating a new gateway road from the Morrison Moore Connector.

The plan places an emphasis on improving the pedestrian environment on campus. To this end, it calls for the removal of all parking from along the Drill Field to allow an expansion of the sidewalks and the planting of street trees, as well as the creation of a series of new pedestrian paths and improved sidewalks. It also recommends the removal of vehicular access (exception of handicapped parking and emergency vehicle access) from the road behind Barnes Hall so that this area may become a major pedestrian promenade linking Hoag Student Center west to Rogers Hall and across West Main Street to the West Campus. The plan recommends that the University work with the City to increase the visibility of pedestrian crosswalks across West Main Street and to improve sidewalks along the street from the Morrison Moore Connector to downtown. Additionally, consistent with the Downtown Master Plan, the University has plans for sidewalks, paths and trails which connect the downtown, University, neighborhoods, Yahoola Park and the reservoir. A map of the master plan can be found in **Figure 1-5** below.

Figure 1-5: NGCSU Master Plan Envisioned Growth

2.0 DEMOGRAPHICS AND FORECASTS

This section presents information pertaining to the people living and working in the study area, and by extension, the City of Dahlonega and Lumpkin County. This information about the characteristics of the area's population and employment aids in understanding the nature of travel within, to, and through the SR 52/MMP study area.

2.1 Demographic Profile

The study area lies wholly within the city of Dahlonega. Therefore, the information presented within this section, regarding age, occupation, and income, deals with the City of Dahlonega, for which demographic data such as these are readily available. The study area Census data subset includes:

- Census Tract 960100, Block Groups 1, 2,3, 4, and 5;
- Census Tract 960201, Block Groups 5 and 6; and
- Census Tract 960202, Block Groups 1, 2, 3 and 4.

2.1.1 Population

The population of the city of Dahlonega grew at increasing rates over each decade in the period from 1970 to 2000. As can be seen in **Table 2-1** below, the population grew by seven percent from 1970 to 1980, by nine percent from 1980 to 1990, and by 18 percent from 1990 to 2000. It is also important to note that the day time 'functional' population of the city peaks each day with thousands of NGCSU students and employees as well as hundreds of tourists.

Table 2-1: Population Change in Dahlonega (1970 - 2000)

1970	1980	1985	1990	1995	2000	Change, 1970-1980	Change, 1980-1990	Change, 1990-2000
2,658	2,844	2,955	3,086	3,296	3,638	7.0%	8.5%	17.9%

Source: City of Dahlonega Comprehensive Plan, 2005-2025

By 2000, the city population of 3,638 accounted for 17.3 percent of Lumpkin County's population of 21,016 (**Table 2-2** below). Yet in 1990, the City had accounted for a 21.2 percent of total County population. Lumpkin County's 44.2 percent population growth eclipsed that occurring in Dahlonega proper during the 1990s. Although the county has shown higher rate of growth than the city in the past, this trend may not be sustained due to the rising cost of transportation.

Table 2-2: Population Change in Dahlonega and Lumpkin County (1990-2000)

Area	1990 Population	2000 Population	Growth Rate
Dahlonega	3,086	3,638	17.9%
Lumpkin County	14,573	21,016	44.2%

Source: City of Dahlonega Comprehensive Plan, 2005-2025

2.1.2 Households

There were approximately 1,060 households in Dahlonega in 2000, with an average household size of 2.3 persons. Given the presence of the college in the study area, it is no surprise that non-family households accounted for 46.4 percent of all Dahlonega households, while non-family households accounted for just 28.8 percent of county households. **Table 2-3** on page 2-2 presents household information for Dahlonega and Lumpkin County.

Table 2-3: Households in Dahlonega and Lumpkin County (1990-2000)

	Total Households		Family Households		Non-Family Households		Persons Per Household	
	1990	2000	1990	2000	1990	2000	1990	2000
Dahlonega	777	1,060	505	568	272	492	2.4	2.3
Lumpkin County	4,976	7,537	3,872	5,363	1,105	2,174	2.7	2.6

Source: City of Dahlonega Comprehensive Plan, 2005-2025

2.1.3 Age

As can be seen from **Table 2-4**, the median age in the City of Dahlonega in 2000 was 22.4, which was slightly higher than the median age in 1970. From 1970 to 2000, however, the median age of Lumpkin County and the state of Georgia rose considerably, to 32.5 and 33.4, respectively. The City of Dahlonega Comprehensive Plan (2005) attributes the disparity in median age between city and county to the median age in Dahlonega being primarily influenced by the growth of North Georgia College and State University, while the median age in the county is influenced by a retirement population.

Table 2-4: Median Age

	1970	1980	1990	2000
Dahlonega	21.8	21.5	22.6	22.4
Lumpkin County	23.9	27.1	30.3	32.5
State of Georgia	25.9	28.6	31.6	33.4

Source: City of Dahlonega Comprehensive Plan, 2005-2025

In fact, in a breakdown of the of the city's 2000 population by age, the largest segment, accounting for 30.2 percent of total population, is made up of 18 to 20 year-olds. In contrast, Dahlonega's entire population over the age of 65 accounts for 11.7 percent of the population. The influence of this sector of the population is notable within the City of Dahlonega and within the study area, particularly in the pedestrian traffic in and around the university, and the need for crosswalks and pedestrian signals across major roadways to service them. **Table 2.5** presents the Dahlonega population by age.

Table 2-5: Dahlonega Population by Age 1980-2000

	1980	Percent 1980	1990	Percent 1990	2000	Percent 2000
0-4	120	4.2	204	6.6	141	3.9
5-13	232	8.2	196	6.3	237	6.5
14-17	142	5.0	82	2.6	95	2.6
18-20	834	29.3	798	25.6	1,100	30.2
21-24	360	12.7	435	14.0	554	15.2
25-34	295	10.4	407	13.1	400	11.0
35-44	192	6.8	206	3.3	272	7.5
45-54	174	6.1	234	7.5	288	7.9
55-64	185	6.5	162	5.2	191	5.3
65+	310	10.9	390	12.5	427	11.7
Total	2,844		3,114		3,638	

Source: City of Dahlonega Comprehensive Plan, 2005-2025

2.1.4 Employment

According to Georgia Department of Labor (GDOL) data, three of the five largest Lumpkin County employers, Chestatee Regional Hospital, North Georgia College and State University, and Wal-Mart, have a presence in the study area. The other two, Timken Company and Medical Management Concepts, LLC, have Dahlonega locations just northwest of the study area. However, North Georgia College and State University is the only Lumpkin County company to rank among the top ten employers in the region. The other nine are found in neighboring Hall County. This indicates that Dahlonega serves as the employment capital of Lumpkin County, but not the wider region. Commuting statistics from GDOL support this conclusion. While Lumpkin County residents make up 69.6 percent of Lumpkin County employees, just 51.4 percent of employed county residents work in Lumpkin County.

In general, the provision of services accounts for 51 percent of current Lumpkin County employment; the production of goods, 16.5 percent, and state, local, and federal government jobs, 32.4 percent. The county's transition into the service-based tourism economy is evident in the 13.3 percent of jobs that come from the accommodation and food services sector, and the presence of the Chestatee Regional Hospital in the 13.2 percent of jobs in the health care and social assistance sector. As the largest goods-producing sector, manufacturing makes up 10.9 percent of total employment. **Table 2-6** provides information about employment in Lumpkin County by sector.

Table 2-6: Lumpkin County Employment by Industry

	Employees	Percent of Total
Goods-Producing	**999**	**16.5**
Agriculture, Forestry, Fishing and Hunting	17	0.3
Construction	306	5.1
Manufacturing	658	10.9
Food	43	0.7
Transportation Equipment	100	1.7
Furniture and Related Product	27	0.4
Service - Providing	**3,082**	**51.0**
Utilities	20	0.3
Wholesale Trade	115	1.9
Retail Trade	648	10.7
Transportation and Warehousing	56	0.9
Information	41	0.7
Finance and Insurance, Real Estate and Rental and Leasing	150	2.5
Professional, Scientific, and Technical Services, Administrative and Support and Waste Management and Remediation	333	5.5
Health Care and Social Assistance	795	13.2
Arts, Entertainment, Recreation, Accommodation and Food Services	806	13.3
Other Services (except Public Administration)	98	1.6
Total - Government	**1,955**	**32.4**
ALL INDUSTRIES	**6,042**	**100.0**

Source: Georgia Department of Labor, 2010

2.1.5 Income

In 1990, the median household income for Dahlonega was $25,074 and for Lumpkin County, $26,116. The city and county median incomes approximated 86.4 and 90 percent of statewide median income. While the 1990 figures for city and county are similar, by 2000, median household income in Dahlonega, at $28,636, approximated 67.5 percent of the statewide average, while Lumpkin County, at $39,167, approximated 92.3 percent. **Table 2-7** reports median household income for Dahlonega, Lumpkin County and the state of Georgia, 1990-2000. Note that the Census data does not reflect the incomes of students who live on campus.

Table 2-7: Median Household Income in Dahlonega, Lumpkin County and Georgia 1980-2000.

	1990	Percent of State income, 1990	2000	Percent of State income, 2000
Dahlonega	$25,074	86.4	$28,636	67.5
Lumpkin County	$26,116	90.0	$39,167	92.3
Georgia	$29,021	100	$42,433	100

Source: City of Dahlonega Comprehensive Plan, 2005-2025

2.1.6 Environmental Justice Populations

This section details potential impacts that may arise as a result major transportation improvements in the study area. Environmental Justice is the avoidance of unnecessary and unfair impacts to minority or low-income neighborhoods in the selection or construction of transportation improvements. This document locates these neighborhoods in an effort to avoid negative impacts from potential project recommendations.

Census 2000 data from the P4 and P92 sample datasets were utilized to provide a quantitative analysis of the study area with respect to minority, ethnic, low-income, elderly and disabled populations, and households without vehicles. For this study, data was gathered and mapped at the block-group level for all categories.

Minority Populations

Minority populations are protected by Environmental Justice procedures. Title VI of the Civil Rights Act of 1964 and related statutes assure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, and disability. Executive Order (EO) 12898 Federal Actions to Address Environmental Justice to Minority Populations and Low Income Populations requires federal agencies to consider impacts to minority and low income populations as part of environmental analyses to ensure that these populations do not receive a disproportionately high number of adverse human health impacts as a result of a federally funded project. In 1998, FHWA issued a guidance document that established policies and procedures for complying with EO 12898 in relation to federally-funded transportation projects. This guidance defines a “disproportionately high and adverse effect” as one that is predominantly borne by, suffered by, or that is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the non-minority population and/or non-low-income population.

Minority persons are defined as those people belonging to the following groups: Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, and Hispanic or Latino. It is important to note that while the first five groups are defined as races, Hispanic or Latino is defined as an ethnicity by the Office of Management and Budget as well as Census 2000. As such, people of this minority group can belong to any racial group but are still considered minorities in this case.

In 2000, minority persons made up 12.2 percent of the study area population, as shown in **Table 2-8** below. This is a lower share than the statewide average of 37 percent, but higher than the countywide population of six percent. As can be seen in **Figure 2-1** on page 2-7, the percentage of minorities is not uniform across the study area population.

Table 2-8: 2000 Minority Population Comparisons

	SR 52 Study Area	Lumpkin County	State of Georgia
Total Population	1600	21,016	8,186,500
Minority Population	195	1,256	3,057,800
Percent Minority	12.2%	6.0%	37%

Source: US Census 2000

While a great deal of the study area and its environs are less than three percent minority, the neighborhood between Goudlock Street and Wimpy Mill Road is over fifty percent minority, as are three smaller portions of the study area. The neighborhood surrounding Pinetree Way and the large collection of neighborhoods that abut Main Street are 20 to 50 percent minority. Transportation improvements recommended by this plan in these areas should avoid disproportional, negative impacts on minority neighborhoods.

Low-Income Populations

Like minority populations, low-income populations are protected from discrimination in the alternative selection process by Environmental Justice procedures. Low-income persons are defined as those whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines in Census 2000 data.

In the study area, 22.6 percent of households are considered low income, which is greater than the statewide average of 12.6 percent and the county average of 13.5 percent. The proportion of low-income households, however, varies among neighborhoods. While the majority of the study area falls within a Census block group with over 25 percent low-income households, other block groups have as few as five percent low-income households. **Table 2-9** below lists low-income populations, and **Figure 2-2** on page 2-8 illustrates low-income households in the study area by Census block group.

Table 2-9: 2000 Low-income Household Comparisons

	SR 52 Study Area	Lumpkin County	State of Georgia
Total Households	266	7,752	3,007,678
Low-income households	61	1,043	380,240
Percent low income households	22.9%	13.5%	12.6%

Source: US Census 2000

Figure 2-1: Minority Populations in the Subarea

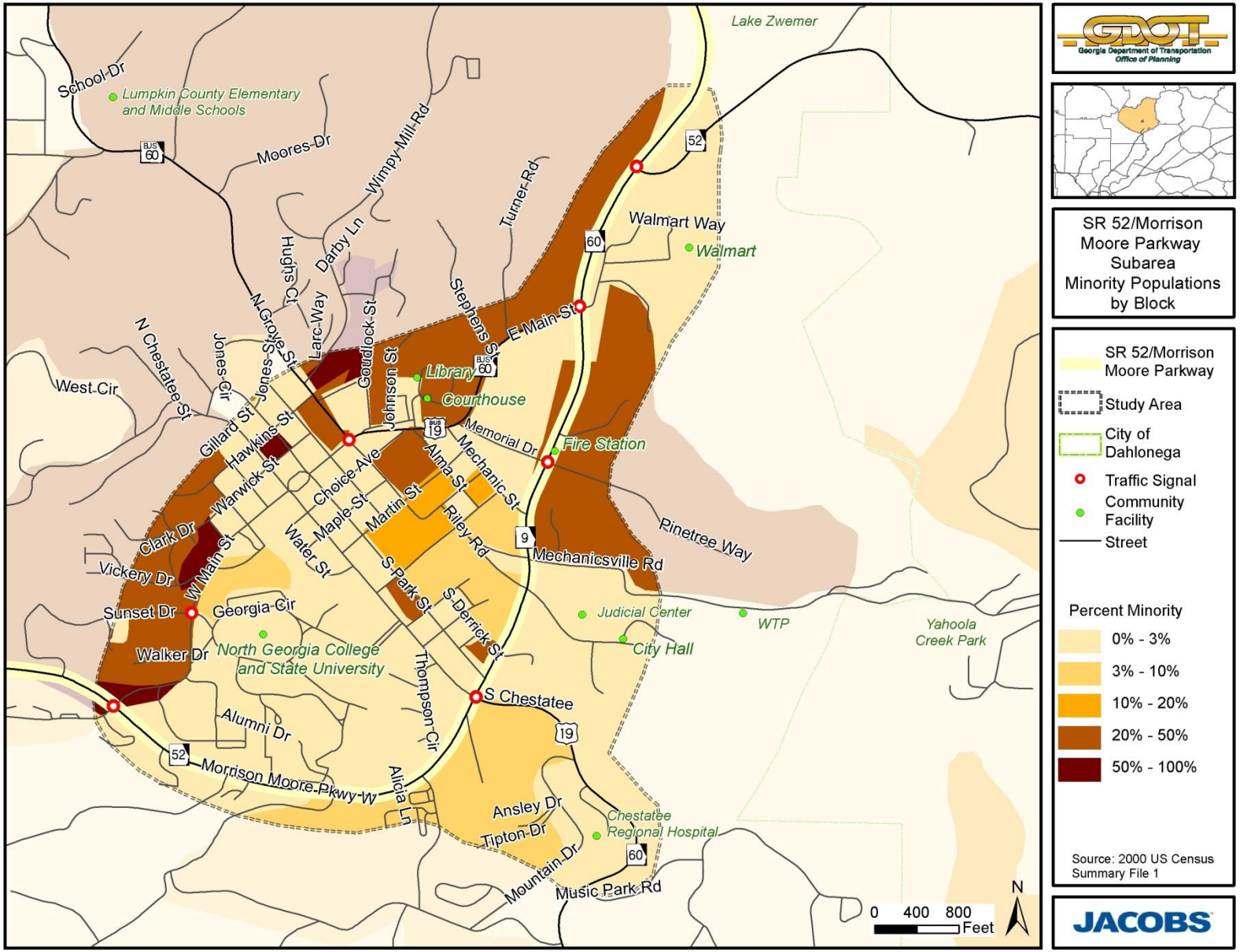
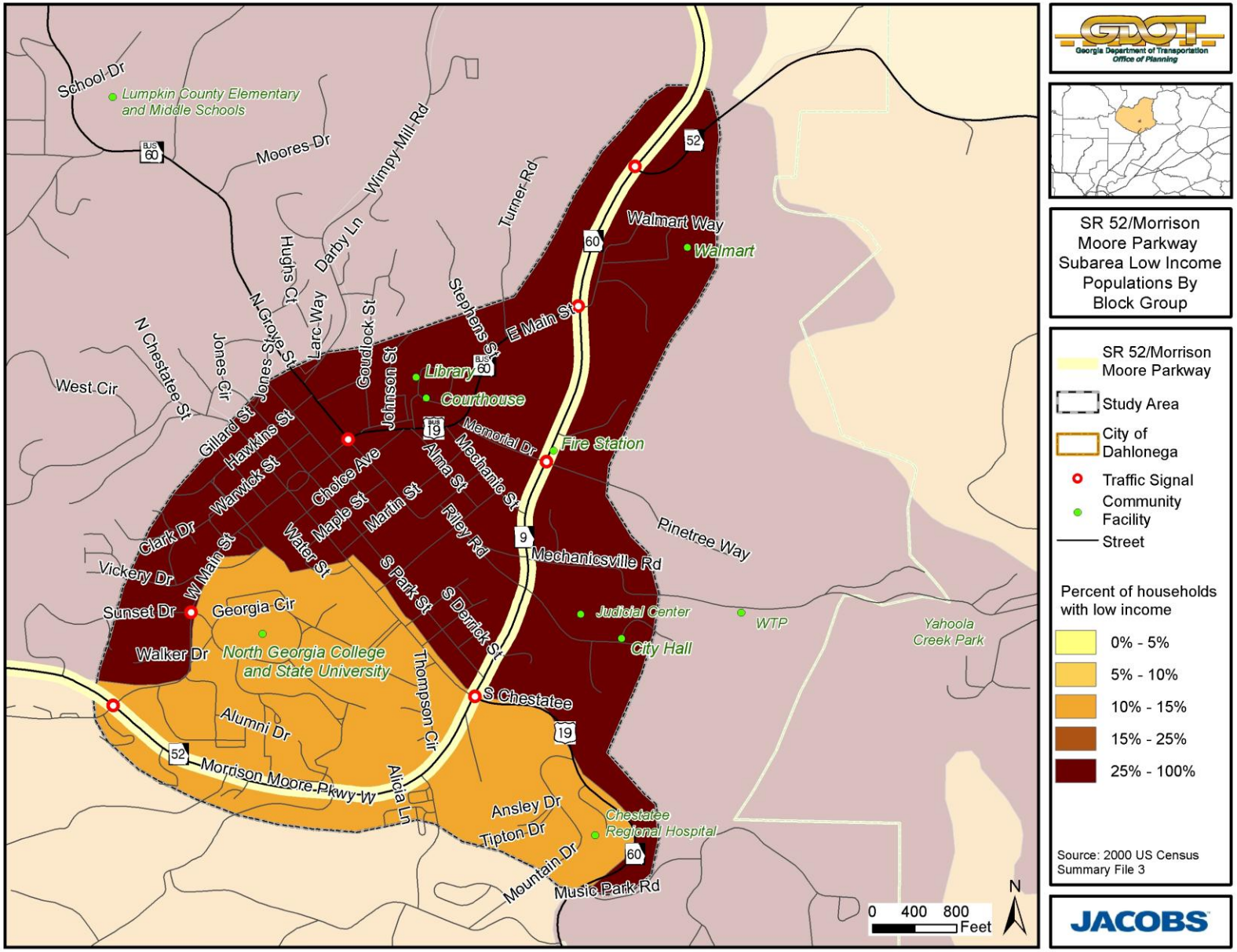


Figure 2-2: Low Income Households in the Subarea



2.2 POPULATION FORECASTS

For the sake of consistency with other demographic data presented in this report, the population forecasts presented in **Table 2-10** have been derived from the City of Dahlonega Comprehensive Plan (2005-2025). Annual growth rate from 2005 to 2025 has been used to extrapolate out to year 2035, which is the planning horizon year for this study. Establishing a valid and reasonable 2035 population forecast is relevant because it is directly tied to future travel conditions and the improvements needed to support the anticipated impact on the transportation system.

As described in Section 2.1, population growth in the City of Dahlonega fell short of that of Lumpkin County in the 1970s, 1980s and 1990s. Accordingly, while Dahlonega population is projected to experience strong growth through 2025, its growth rates are still lower than the overall growth in the county. While Dahlonega made up 17 percent of the county's population in 2000, it is projected to make up 11 percent of county population in 2025. The Comprehensive Plan indicates the increasing population at the North Georgia College and State University as the primary source of future population growth in the city.

Table 2-10: Population Projections for Dahlonega and Lumpkin County (2000-2035)

	2000	2005	2010	2015	2020	2025	2035
Dahlonega	3,638	4,288	4,932	5,623	6,431	7,384	9,690
Lumpkin County	21,016	28,510	34,925	42,780	52,410	66,661	101,923

Source: City of Dahlonega Comprehensive Plan, 2005-2025; Note that 2035 forecast has been extrapolated using the same annual growth rate from 2005 to 2025.

According to the US Census, Dahlonega's population in 2009 was 4,959, which is consistent with estimates from the Comprehensive Plan. However, a significant variance exists when comparing Census data to Lumpkin County's population - Comprehensive Plan's 2010 (34,925) estimates are 24 percent higher than that of Census estimates (26,417). This variance may be explained by the crash in Georgia's housing market, and subsequent recession, which would have curtailed the steady relocation of retirees and others to the county.

Based on the data provided by the Comprehensive Plan, the population of Dahlonega is projected to grow by 125 percent from 2005 to 2035, whereas the Lumpkin County is projected to increase by over 250 percent. In order to ensure the reasonableness and validity of the projections provided in the Comprehensive Plan, a number of other sources were compared at the county level due to the availability of current data (**Table 2-11**).

Table 2-11: Comparison of Lumpkin County Population Forecasts

	Comprehensive Plan	GA Statewide Model	Governor's Office of Planning & Budget	Department of Community Affairs
2005	28,540	-	-	-
2006	-	25,460	25,935	-
2007	-	-	-	-
2009	-	-	27,528	23,580
2010	34,925	-	28,463	26,143
2012		-	-	-
2020	52,410	35,327	36,132	31,270
2025	66,660	-	40,618	33,834
2030	-	-	45,482	36,397
2035	101,876	43,940	51,129	39,886
2040	-	48,275	-	-
Annual Growth Rate	4.33%	1.90%	2.37%	1.85%

Source: Lumpkin County Comprehensive Plan (2005); GA Statewide Travel Demand Model (2010); Governor's Office of Planning and Budget – Georgia 2030 Population Projections (2010); Department of Community Affairs (DCA) Population Projections;

As presented in **2-11**, the Lumpkin County population projection from the Comprehensive Plan is significantly higher than the other projections which have relatively small variances. The Comprehensive Plan assumes the most aggressive growth with a compound annual growth rate (CAGR) of 4.33 percent between 2005 and 2025. When extrapolated out to 2035 using this growth rate, the county population is expected more than double the projections by other valid sources. The Comprehensive Plan being the oldest of the sources, coupled with how its 2010 projections compared with the recent Census, suggests that this Plan may not be the best indicator of future population conditions for Lumpkin County.

The projections published by the Department of Community Affairs (DCA) and the Governor's Office of Planning and Budget (OPB) are widely accepted as industry standards in variety of state planning initiatives including transportation planning. The Statewide travel demand model (TDM) was used as a basis to build the SR 52/MMP model to better understand the subarea travel patterns. This model and the associated socioeconomic forecasts were developed in 2010 for planning purposes by GDOT. Details on the model development will be available as a standalone document. The Statewide model projections were developed using historic Census trends coupled with the more recent published data by the Governor's OPB. Accordingly, the population projections from the Statewide model was considered reasonable, and therefore, will be used to establish the future growth in the subarea.

2.3 Key Findings

- Lumpkin County experienced 44.2 percent population growth between 1990 and 2000. Future population growth projections indicate that current trend will intensify over the years to come, with the county expected to grow at a much higher rate than the city. The significant countywide growth indicates the need for the major study area roadways to be analyzed within the context of the regional transportation system, as well as their efficiency within the study area.

- Future population growth projections indicate that current trend will intensify over the years to come, with the county expected to grow at a much higher rate than the city. However, it must be noted that the rising cost of transportation may results in a higher growth rate for the city.

- The City of Dahlonega Comprehensive Plan calls the increasing population at the North Georgia College and University the primary source of future population growth in the city. The needs of the university residents as well as the role of the university as a regional activity center should be taken into account in planning transportation improvements in the study area.

- North Georgia College and State University is the only Lumpkin County employer to rank among the top ten in the region. The other nine are found in neighboring Hall County. Commuting statistics from Georgia Department of Labor (GDOL) indicate that only half of employed county residents work in Lumpkin County. Therefore, the travel patterns within the study area and the SR 52/MMP Corridor must take into account cross-regional commuter trips as well as local trips.

- Negative impacts to neighborhoods with high Environmental Justice populations must be avoided in the planning and construction of transportation improvements.

- Based on income, the majority of the study area is considered Environmental Justice area, except for the southern area of the study area which includes the college campus and the areas south of SR 52 and SR 60/South Chestatee Street.

- By 2035, Dahlonega's population is projected to grow to approximately 9,700 based on the growth rate provided in the City's Comprehensive Plan. The Comprehensive Plan calls the increasing population at NGCSU the primary source of future population growth in the city. The needs of the university residents as well as the role of the university as a regional activity center should be taken into account in planning transportation improvements in the study area.

3.0 COMMUNITY RESOURCES AND NATURAL SYSTEMS

This section provides baseline data regarding the existing cultural and natural resources in the study area. Community resources are often popular destinations, and can shape travel patterns in the study area. Natural and other resources require respect during the planning process to ensure they are not unduly negatively impacted by transportation improvement recommendations.

3.1 Cultural and Community Resources

The study area is home to many activity centers and points of interest that serve local and regional needs. Among these are schools, parks and recreation facilities, hospitals, and retail and business centers. Cultural resources and culturally sensitive areas can be found in **Figure 3-1**.

3.1.1 North Georgia College and State University

The primary community resource in the study area is the North Georgia College and State University (NGCSU), which extends from south of SR52/MMP north to Vickery Drive/West Main Street/South Chestatee in the southern portion of the study area. NGCS is a public university with over 5,000 students, and is home to The Military College of Georgia, one of six senior military colleges in the US. Thus, the University is a major destination and activity center in the study area and region.

The Master Plan prepared for NGCSU in 2009 aimed to steer compact development on campus while enhancing walkability as the institution expands to its target enrollment of 7,500 full-time equivalent students. The Plan recommends a number of new facilities that would "shift the University's center of gravity to the west." The Plan recommends the realignment of the current gateway road from South Chestatee Street to create a more direct visual and physical connection with the Drill Field, the hallmark of the campus. In the long-term, the University is contemplating creating a new gateway road that ties into SR52/MMP.

The Plan also calls for the removal of all parking from along the Drill Field to allow an expansion of the sidewalks and the planting of street trees. Drill Field Road will remain a one-way access road moving in a counter-clockwise direction, and will serve as the major visual axis connecting the Main Campus to the West Campus. General vehicular access will be removed from the road behind Barnes Hall to create a major pedestrian promenade linking Hoag Student Center west to Rogers Hall and across West Main Street to the West Campus.

Campus roadways, on the whole, have been re-evaluated as gateways and connectors, and are expected to de-emphasize vehicular traffic in the future. To complement this, the Plan expands the campus network of pedestrian paths and sidewalks. On the Main Campus, the Plan would create a series of new pedestrian paths and improved sidewalks, including new pathways that would create better access for mobility-impaired students and staff.

On West Campus, the Plan recommends improvements to sidewalks along Sunset Drive as well as new pathways adjacent to the HNS quadrangle to connect the civilian housing to the Main Campus. It would improve pedestrian circulation through the center of the new Dining Hall via a set of exterior stairs which lead from the Drill Field up to West Main Street and add a pathway between the civilian housing and the Athletics Campus.

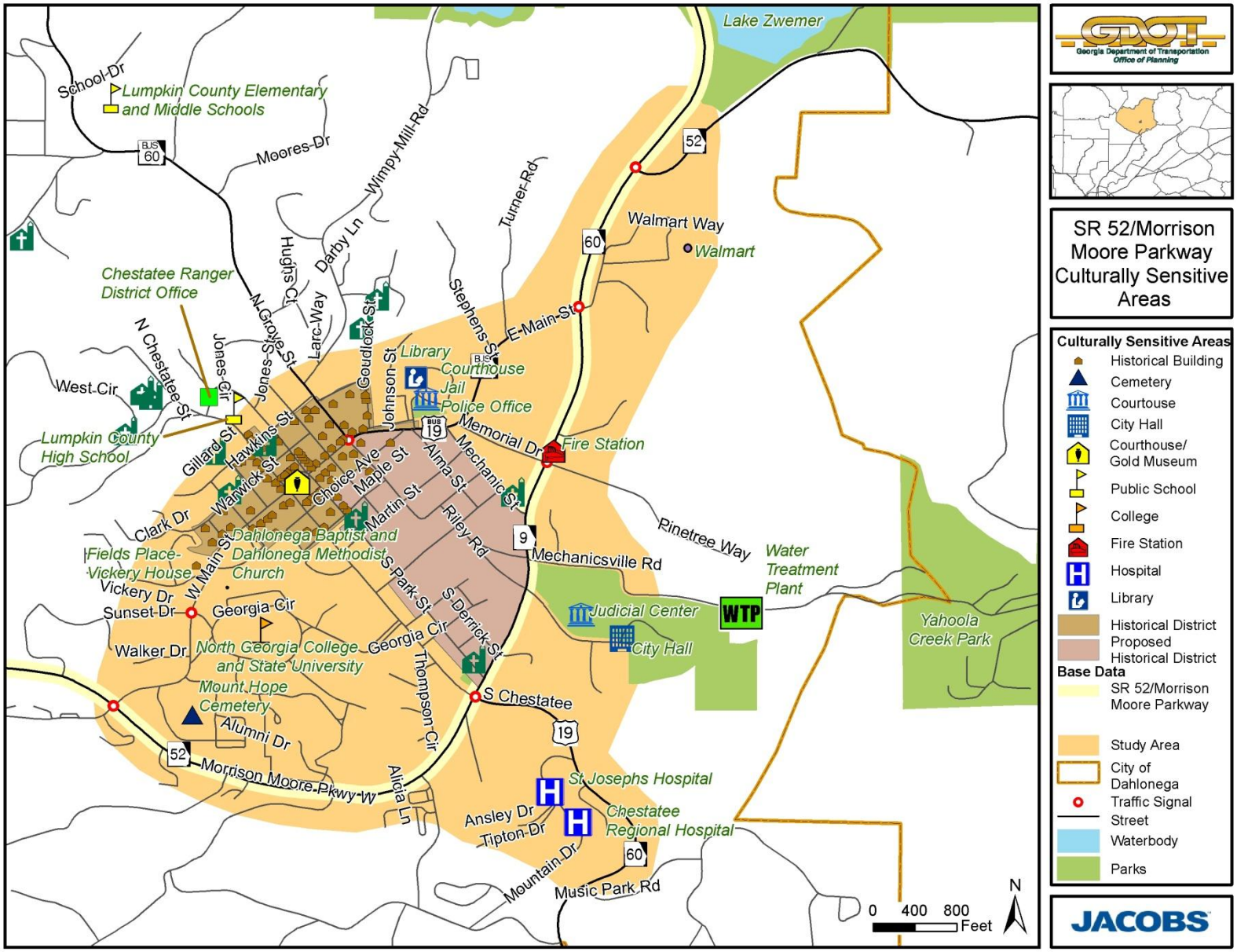
The Master Plan accommodates additional parking for the expanding NGCSU through a combination of existing and proposed surface parking lots and three new parking decks. However, the Plan notes that these measures will provide just 5,300 of the 6,900 parking spaces that NGCSU will need by the time it reaches its goal enrollment of 7,500 full time equivalent students. The Plan recommends that the University consider remote parking and other policy solutions, such as limiting parking for freshman residents. Limited parking availability and an increasingly pedestrian-friendly campus will likely increase the foot traffic in and around NGCSU. To this end, the Plan recommends that the University work with the City to increase the visibility of pedestrian crosswalks across West Main Street as well as to improve sidewalks along the street from the Morrison Moore Connector to downtown.

3.1.2 Parks

Section 4(f) of the Department of Transportation Act specifically prohibits acquiring or impacting parklands for transportation purposes unless there are no feasible and prudent alternatives after all possible planning has been done. Section 4(f) protection applies to all public parklands. Therefore, of primary concern to this study are those parks and parklands which lie along the SR 52/MMP Corridor. As illustrated in **Figure 3-1**, at the study area's northern end, these include the parklands that surround Lake Zwemer. Along the study area's eastern edge, these include the parklands surrounding the Judicial Center and City Hall located at Mechanicsville Road. Finally, as well as the small, city-owned, Madeline Anthony Park at South Chestatee Road. Transportation improvements proposed to SR 52/MMP or the surrounding roadway network in these areas will have to consider these parklands and avoid impacts to them.

There are also three small parks in the interior of the study area, within the historic district. One of these is the Dahlonega Gold Museum, which commemorates the Dahlonega Gold Rush in 1828 and was the first gold rush in the United States. The museum, located in the repurposed 1836 Lumpkin County Courthouse on the public square in downtown Dahlonega, is a historic site and Georgia State Park. The other parks are Hancock Park located near the historic square and Veteran's Park, owned by Lumpkin County and located north of East Main Street by the County Courthouse. The Downtown Master Plan recommends multi-use trails from the proposed University Heights development to Hancock Park in downtown via Hawkins Street and to Lake Zwemer via Wimpy Mill Road.

Figure 3-1: Culturally Sensitive Areas in the Study Area



3.1.3 Schools

The Lumpkin County High School lies on the western edge of the study area on Chestatee Street. The Lumpkin County Elementary and Middle Schools are located to the northwest of the study area off of School Drive, which is accessed from the study area via North Grove Street. Schools are a major destination and can cause congestion on the surrounding transportation network, particularly in the mornings, when school openings coincide with the beginning of the work day.

3.1.4 Known Historic Sites

Like parks, historic resources are protected from impacts due to transportation projects. These resources are not limited to the districts and structures shown here, and a thorough analysis of the impacts of the alternatives on historic resources will be conducted in the later project planning phases.

Downtown Dahlonega in the study area is home to the Dahlonega Historic Commercial District, which extends from approximately Hawkins Street to Maple Street and from Sherman Green Terrace to Goudlock Street, as shown in **Figure 3-1**. There are a number of historical buildings in district, many of which house currently operating retail and commercial operations in the city center.

This historic district dates from 1833 and was entered on the National Register in 1983, and is therefore considered by the National Park service to be a "significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development." Locally, the district is subject to Historic District design guidelines which seek to unify the aesthetics of the district's overall character.

The proposed historic district shown in **Figure 3-1** originated in the Downtown Dahlonega Master Plan (2009). According to the Master Plan, the proposed residential historic district would "preserve the architectural heritage of the area," and preserve buildings and large estate lots, as well as the overall rural character of the area. This would be accomplished through building and landscape guidelines for the rehabilitation of older buildings as well as for new infill development. The Plan notes that a "National Register listing would also qualify property owners to take advantage of available funding sources and tax credits offered by the State of Georgia and the Federal Government."

The creation of this district would require further study, during which its boundaries may be altered. However, as this district abuts the SR 52/MMP in the vicinity of South Chestatee Street, care should be taken in proposing improvements in this area so as to avoid impacts to existing historic resources, regardless of the status of the proposed district.

Mount Hope Cemetery is located north of the SR 52/MMP Corridor from Main Street to Haney Road in the southern portion of the corridor. Furthermore, the Dahlonega City Council is considering the placement of this site on the National Register of Historic Places to further conservation efforts that could make the

location a more attractive draw for historical tourism and genealogists (Dahlonega Nugget, 03 November 2010). Impacts to this property would need to be avoided in improvements to SR 52/MMP and other roadways in this area proposed by this plan.

3.1.5 Other Activity Centers

Other major activity centers, resources, and destinations are also found in the study area. Transportation to and from these activity centers is an important aspect of the regional network. As can be seen from **Figure 3-1**, Wal-Mart and its accompanying retail outlets, in the northern portion of the study area, draw shoppers from Dahlonega and the surrounding area.

The Chestatee Regional Hospital and St. Joseph's Hospital are located in the southeast portion of the study area along US 19/SR 60. These hospitals serve the regional population, and are surrounded by complementary medical offices and services.

3.2 Major Natural Systems Inventory

Natural systems within the corridor are presented here so that possible future constraints on transportation improvements, including legally protected natural areas and topographical obstacles, can be foreseen. There is one major reservoir, Lake Zwellner, at the northern tip of the study area, as can be seen in **Figure 3-2**. In addition, a network of small streams crosses SR 52/MMP in three different sections and may provide challenges to major capacity improvements on SR 52/MMP.

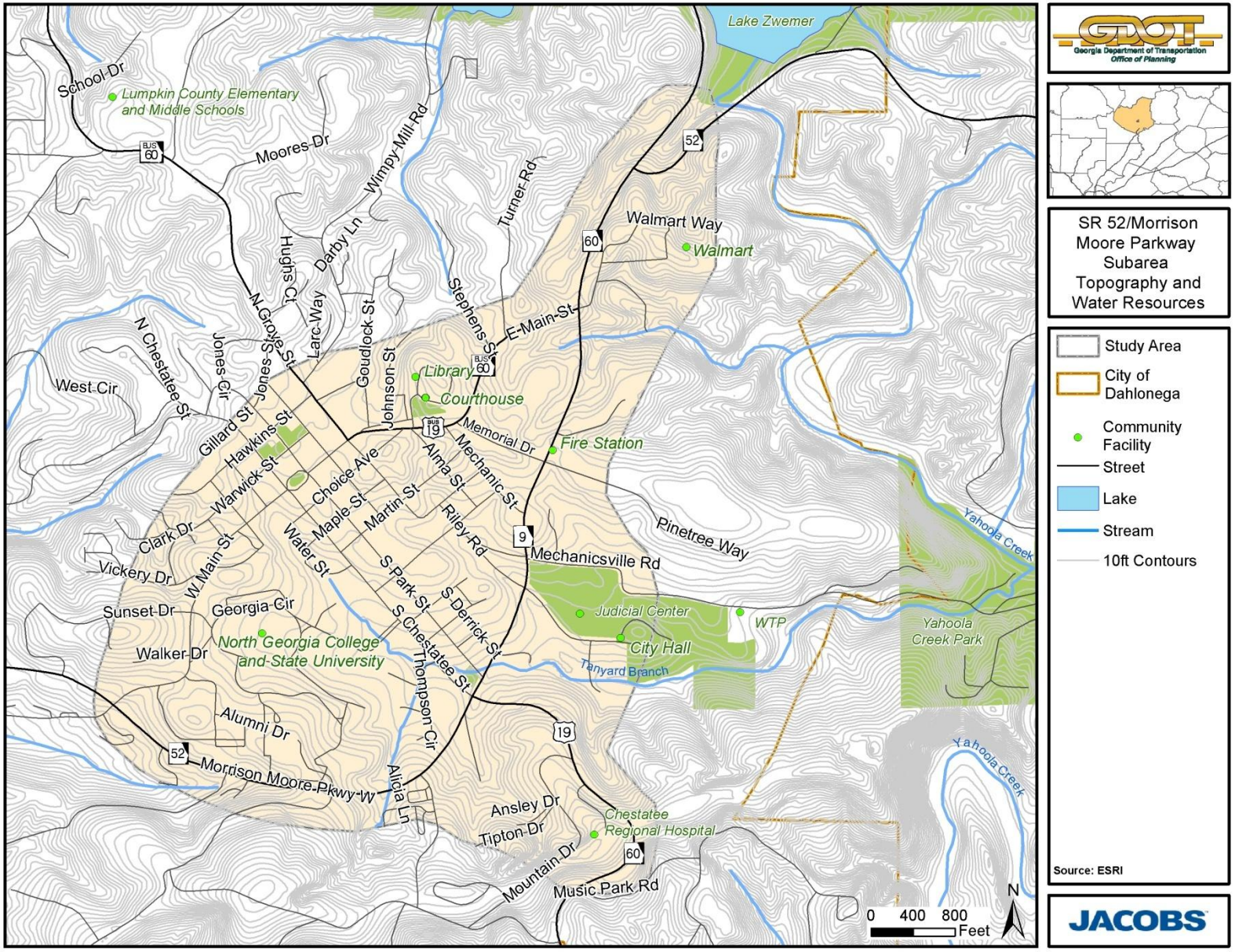
As can be seen in **Figure 3-2**, the topography of the study area and surrounding area is very hilly, as fits is location in the Georgia Mountains. Many of the roadway geometry and placements in the subarea are characterized by winding features and high slopes as dictated by the existing terrain. The topography in this region will likely have significant implications on the cost and feasibility of many of transportation improvements.

3.3 Key Findings

- Expansions plans of NGCSU, as described in its Master Plan (2009), will likely have significant impacts to the study area. The Master Plan envisions a more walkable campus. Pedestrian traffic is therefore expected to increase in the vicinity of campus, placing new emphasis on safe, visible crosswalks on West Main Street and on sidewalk connections from the SR 52/MMP Connector to downtown.

- Dahlonega's historic characteristics and hilly topography are major environmental constraints to implementing transportation improvements. Impacts to parklands and historic sites immediately adjacent to the SR 52/MMP should be avoided in the development of transportation improvements.

Figure 3-2: Water Resources and Topography



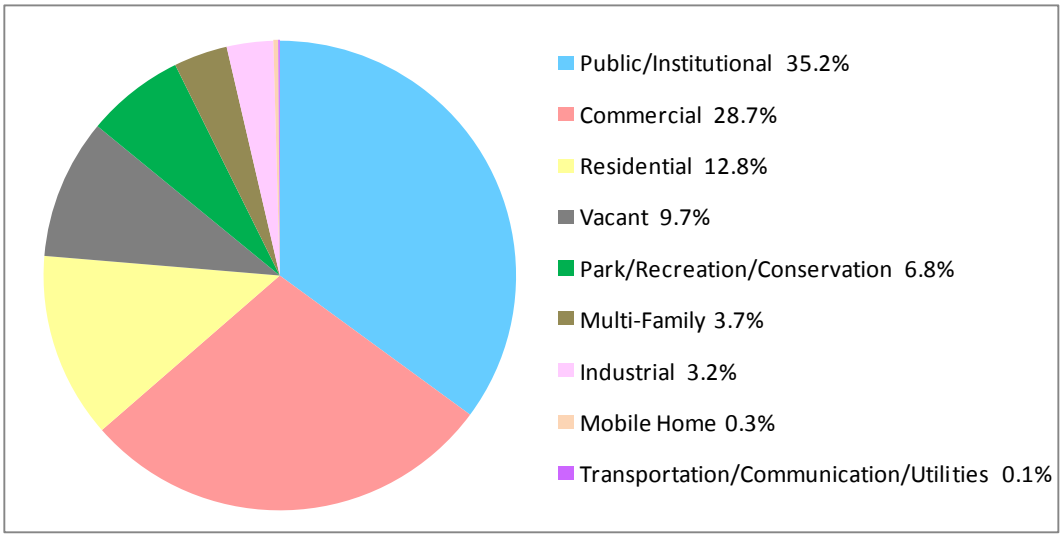
4.0 LAND USE AND DEVELOPMENT CHARACTERISTICS

The transportation improvements recommended from this study must support the land use and development characteristics of the SR 52/MMP subarea. The subsequent sections present an inventory of existing and planned land uses and identify areas for potential development or redevelopment.

4.1 EXISTING LAND USES

This section provides the composition and geographic distribution of existing land uses. An analysis of existing study area land uses reveals the most prominent land use to be public and institutional uses, which make up 35.2 percent of all study area land uses. Since the study area overlaps with downtown Dahlonega, commercial land uses are the second most prevalent in the study area, accounting for 28.7 percent. Residential uses account for 12.8 percent of land uses and vacant lands account for 9.7 percent, which indicates opportunities for new developments. The distribution of existing land uses is tallied in **Figure 4-1** below and shown geographically in **Figure 4-2**. Land uses have been described in their order of prevalence within the study area.

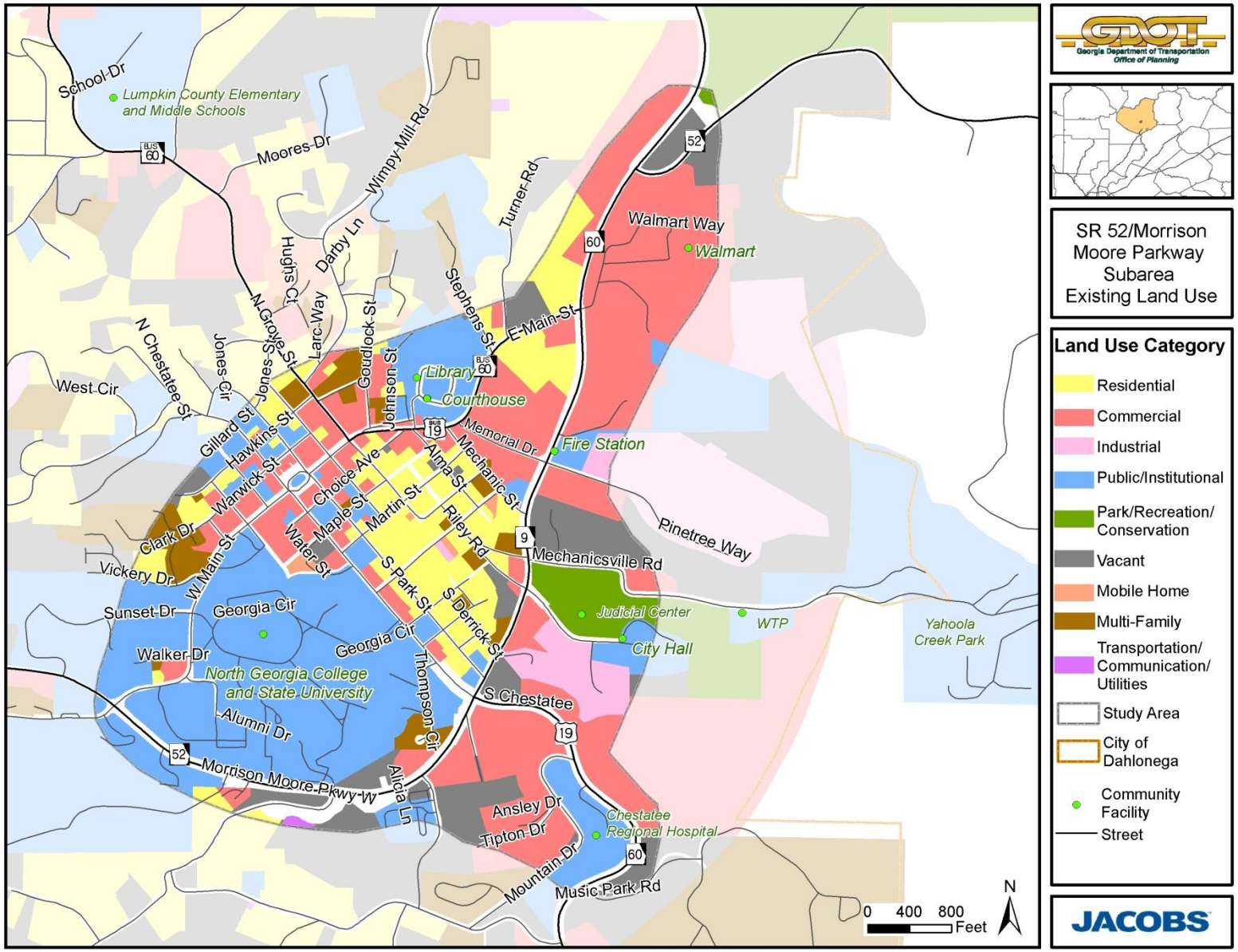
Figure 4-1: Existing Land Use Composition in the Study Area



Public-Institutional

Public-Institutional uses include federal, state and local government uses, and institutional land uses, in the form of city halls and government buildings, schools, universities, hospitals, research facilities, religious institutions, and cemeteries. With greater than a third of the total land area (172.4 acres), Public-Institutional uses are the most prevalent in the subarea. This is particularly relevant since many of the travel patterns of the subarea would be associated with these uses. In particular, access to the courthouse and other public facilities is an important goal for the local and regional transportation network.

Figure 4-2: Existing Land Use



The North Georgia State College and University (NGSCU) campus takes up the majority of the southern end of the study area, as illustrated in **Figure 4-2**. Current enrollment shows 5,260 students, of which about half commute to school. Furthermore, there are 635 faculty and staff members who commute to school on a daily basis. As such, particular attention should be given to commuter student and employee travel patterns in the subarea and consider improvements to better facilitate these trips.

Additional Public-Institutional land uses are found in the northern portion of the study area, where the Library and the County Administrative Complex are found. The new Lumpkin County Judicial Center and Dahlonega's City Hall, located along Riley Road, are also major components of this land use category. The Judicial Center opened for business on October 2010 and houses the County's Probate Court, Magistrate Court, Clerk of Court, District Attorney's Office, Superior Court, Juvenile Court, and the Lumpkin County Sheriff's Office Court Services Division. The County plans to develop this site into a County Government Services Complex with a new library, Department of Health, Park and Recreational Center and a daycare. Potential improvements to Riley Road and Mechanicsville Road will be considered to account for the additional traffic demand as a result of this future development plan. Finally, this study will also take into account the presence of Chestatee Regional Hospital and associated medical facilities in the southeastern portion of the study area.

Commercial

The commercial land category includes non-industrial businesses, including retail, office, service, and entertainment. Commercial land uses are the second most prevalent in the study area, with 140.3 acres. The northern end of the study area along SR 52/MMP Corridor is largely commercial, due to the presence of Wal-Mart and other smaller retail centers. The Public Square along Main Street is a major tourist destination and is home to unique retail shops and restaurants native to Dahlonega. Therefore, a safe pedestrian environment with contiguous sidewalks, pedestrian crossings and streetscape is particularly important to this area.

Residential

Single-family residences account for 62.6 acres and concentrated between East Main Street and SR 52/MMP. Many of the homes in downtown Dahlonega are historic and would require further consideration when evaluating potential impacts of transportation improvements. As illustrated in **Figure 4-2**, many residential uses are also found outside of the study area, particularly to the northwest and south. As such, new local routes may be considered to enhance roadway connectivity and the grid network in the study area.

Multi-family residences comprise of 3.7 percent of the total land area. The multi-family category includes townhomes, duplexes, condominiums, and apartments. Multi-family residential development is found throughout the study area with one university-related concentration found in the vicinity of Clark Street in the western portion of the study area.

The mobile home residential category includes single- and double-wide mobile and manufacturer homes on individual lots, including mobile home parks, along with their accessory structures and uses. This category accounts for less than one percent of study area land uses. There is one small block of Mobile Home use at Water Street in the central study area; a larger concentration of this use can be found outside the study area in the vicinity of Hughs Court to the northwest of the study area.

Vacant

The Vacant land use category represents urban open space that is free of buildings with no identified use. This category represents 9.7 percent (47.2 acres) of the study area. Vacant lands can be found south of SR 52/MMP in the vicinity of Alicia Lane in the southern portion of the study area, east of SR 52/MMP at Mechanicsville Road in the eastern portion of the study area, and on either side of SR 52/MMP at SR 60 in the northern portion of the study area. Vacant areas can also interrupt the roadway network. For instance, Crown Mountain Place commercial condominium development would benefit from improved connectivity through surrounding vacant lands. These vacant lands represent opportunities for development within the study area and will be discussed in much greater detail in the discussion of future land uses.

Park-Recreation-Conservation

Park-Recreation-Conservation uses comprise of 6.8 percent of the total area. This land use type includes parks used for active recreation (ball fields, tennis courts, running tracks, swimming pools, golf courses), as well natural conservation areas. In the study area, this land use category is found in only two areas, principally in the large County park found in the eastern portion of the study area. Secondarily, the north of the study area touches the lands surrounding Lake Zwerner.

Industrial

Industrial land uses include manufacturing facilities, processing plants, factories, warehousing and wholesale trade facilities and similar uses. Industrial land uses comprise 3.2 percent of the study area. These are found primarily to the east of SR 52/MMP, where large lots are available. These areas are mostly surrounded by commercial and vacant lands.

Transportation/Communication/Utilities

The Transportation/Communication and Utilities category includes power generation plants, railroad facilities, radio towers, streets and highways, among others. This category accounts for less than one percent of study area land uses. There is one small segment of this land use in the very southernmost portion of the study area.

4.2 Future Land Uses

One of the goals in the City of Dahlonega's Comprehensive Plan (2005) maintains the importance of placing focus on the growth in economic development over the next twenty years. The City recognizes the significance of additional commercial development to benefit not only its jobs and tax base, but also to promote tourism. Although residential development has been strong throughout the county over the past decade, it has been strongest in the unincorporated portions of Lumpkin County, where large lots are available for new development. Given the relatively build out nature of the study area, there is a need for additional infill residential development to support the anticipated business growth in the city.

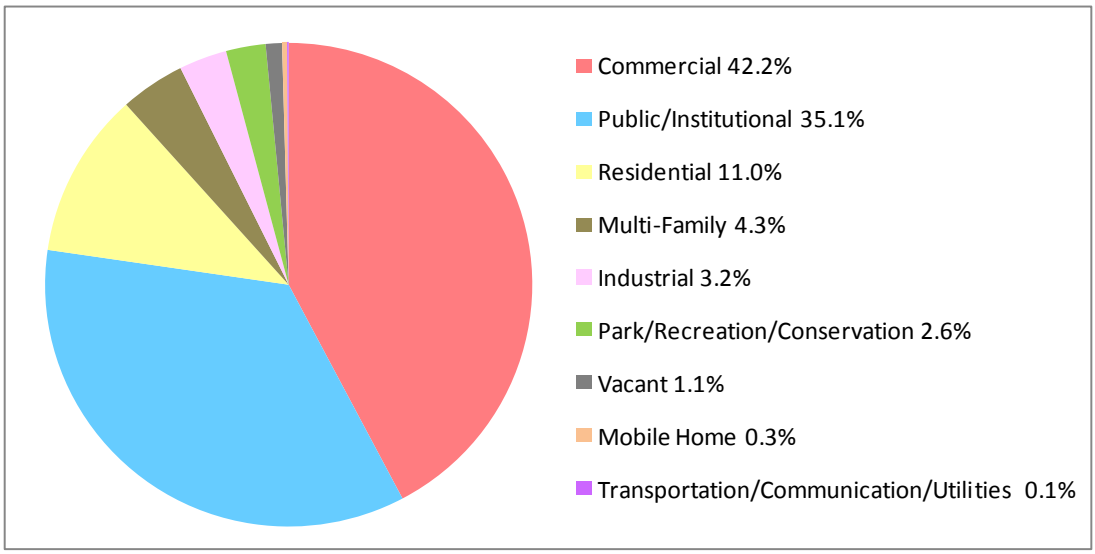
Shifts from existing to projected future land uses in the study area parallel these trends, with a 48 percent increase in acreage for commercial use and a 13.2 percent decrease in acreage for traditional residential use. The City envisions higher density developments with mixed uses such as multi-storied units with commercial uses on the bottom floor and residential units on the top floors found in many town centers. The bulk of available vacant land is projected to be developed by 2025, reducing vacant lands to approximately 5 acres by 2025. Changes in land uses can be found in **Table 4-1**.

Table 4-1: Changes in Study Area Land Use

Category	Future Land Use (Acres)	Existing Land Use (Acres)	Change in Total Acres	Percentage Change
Residential	54.29	62.57	-8.28	-13.2%
Commercial	207.61	140.29	67.33	48.0%
Industrial	15.70	15.70	0.00	0.0%
Public/Institutional	172.37	172.37	0.00	0.0%
Transportation/Communication/ Utilities	0.51	0.51	0.00	0.0%
Park/Recreation/ Conservation	12.98	33.13	-20.15	-60.8%
Vacant	5.32	47.25	-41.93	-88.7%
Mobile Home	1.64	1.64	0.00	0.0%
Multi-Family	21.18	18.15	3.03	16.7%

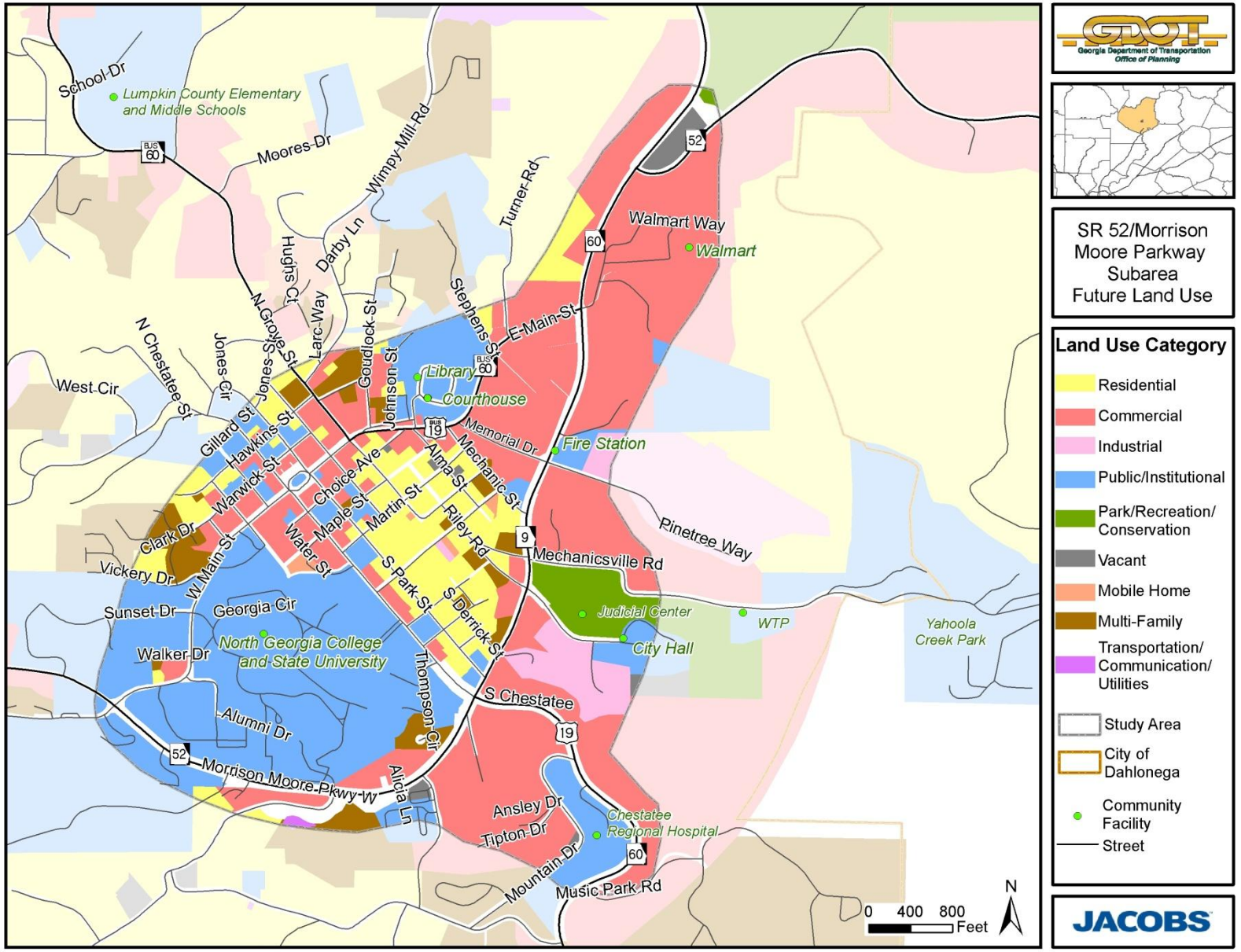
Due to these changes in land uses, future land use is projected to be dominated by commercial uses, rather than public and institutional uses as it is today. Due to development, vacant lands are projected to account for just over one percent of all future study area land uses, while today they account for nearly ten percent. The composition and a map of future land uses in the study area are illustrated in **Figure 4-3** and **4-4**, respectively.

Figure 4-3: Future Land Use Composition in the Study Area



The City's Comprehensive Plan notes that additional commercial development is projected to occur along SR 52/MMP in the vicinity of East Main Street and Mechanicsville Road in the northern portion of the study area, and along SR 52/MMP in the vicinity of the university in the southern portion of the study area. In majority of these areas, land uses are projected to shift from residential to commercial, which would translate to higher number of trips to account for employees, customers, vendors and others associated with commercial uses.

Figure 4-4: Future Land Use



4.3 DEVELOPMENT TRENDS

Since 2005, seven applications for Developments of Regional Impact (DRI) in the City of Dahlonega have been approved or are pending. The status of these applications and developments are listed in **Table 4-2** below. DRIs are large-scale projects that are likely to have regional impacts beyond the boundaries of the local governments of their locations. Due to the magnitude of the land use changes that they institute, DRIs are typically a useful measurement of redevelopment in an area. Also, the size and nature of DRIs mean that they often have implications for their surrounding transportation networks.

DRI applications are reviewed by the Regional Commissions in a process overseen by the Georgia Department of Community Affairs, and issue a finding of whether or not the proposed project is in "the best interest of the Region and therefore the State." The local government uses this recommendation in deciding whether to allow the project to proceed.

Table 4-2: DRI Applications within the City of Dahlonega, 2001-2010

DRI ID	Project	Type	Initial Form Submittal	Application Status	Current Development Status
2033	Gold Creek Foods, LLC	Industrial	April 2009	Completed – Earned RC Approval	The property has been purchased, and structural redevelopment efforts are ongoing.
1890	Buckhorn Development	Mixed Use	June 2008	Completed - Earned RC Approval, with conditions	Plans for this development were approved, but the project was never started. This project is unlikely to be constructed.
1825	Student Residences	Housing	April 2008	Completed- Earned RC Approval, with conditions	Plans for this project were never submitted, and the property is still on the market. This project is unlikely to be constructed.
1744	Whispering Waters	Housing	Feb. 2008	Additional Form Submitted – Decision Pending	This property was never purchased. This project is unlikely to be constructed.
1472	Birch River	Mixed Use	June 2007	Completed- Earned RC Approval, with conditions	Project is ongoing. The project is expanding an existing mixed-use community.
1256	The Village at Buckhorn	Housing	Oct. 2006	Initial Form Submitted- Decision Pending	This development is part of the Buckhorn development, and is unlikely to be constructed.
397	Mountain Music Park	Housing	March 2003	Completed - Earned RC Approval	This project has gone into foreclosure, and is unlikely to be constructed.

Source: Georgia Department of Community Affairs

Of the seven DRI developments in Dahlonega, two remain underway. One is an ongoing expansion of Birch River, a large, existing development along US 19/SR 60 south of the study area. The second is located at the former Mohawk Carpet plant on Pinetree Way in the northern portion of the study area. Gold Creek Foods, LLC, has received a DRI permit for converting the site to a food processing plant, and is currently working on repurposing the facility. The developers estimate that, when operational, the new plant will generate approximately 300 new trips per day with additional truck traffic. Operational improvements may be considered at the Pinetree Way intersection at SR 52/MMP to facilitate additional vehicular turning movement.

As described in its Master Plan (2009), NGCSU is undergoing redevelopment to expand its service to a targeted 7,500 full-time equivalent students. This redevelopment involves the construction of a number of new laboratory, classrooms and housing facilities, which would utilize much of the campus's undeveloped land. The recommendations from this Master Plan are described in Section 3.1.1 of this report.

Much remains to be seen regarding redevelopment in the study area and its surroundings. While many DRI permits were applied for prior to the recession in the housing market, there is little, if any, progress being made in these potential developments at this time. When the economy becomes such that development is once again attractive, some DRI initiatives may be taken up again by their developers as they were or in amended form, while some may be abandoned entirely.

4.4 Key Findings

- The most prominent existing category of land use is the Public and Institutional sector, which makes up over one-third of total land use. Primary among these land uses is the NGCSU campus, which takes up the majority of the study area's southern end. The new Judicial Center, Dahlonega's City Hall and Chestatee Regional Hospital are also major components of this land use category. These locations are particularly relevant since they have implications for the local and regional transportation network.

- Since the study area overlaps with downtown Dahlonega, commercial land uses are the second most prevalent in the study area. Downtown Dahlonega is characterized by many smaller commercial lots typical for a traditional downtown. As such, providing a safe pedestrian environment with contiguous sidewalks, pedestrian crossings and streetscapes are particularly applicable to this area.

- Residential uses account for 12.8 percent of land uses. Historic neighborhoods from Park Street to Mechanic Street make up a large portion of the residential uses and may require further consideration when

evaluating potential impacts of transportation improvements. Many other residential uses are also found outside of the study area, particularly to the northwest and south. As such, new local routes may be considered to enhance roadway connectivity and the grid network in the study area.

- Vacant lands account for nearly ten percent of land uses, which signals that there is some land available for infill and other development within the study area into the future. In fact, the City has an aggressive future land use plan in which almost all its land will be developed by 2025, leaving only one percent of its land vacant. The development of vacant land and potential redevelopment of other, underused properties, as described in the City's Master Plan (2008), will have impacts to the transportation system in the study area.

- The City of Dahlonega states in its Comprehensive Plan (2005) that it intends to prioritize commercial development over residential development over the next twenty years. Accordingly, new commercial development is projected to replace residential land uses along SR 52/MMP from SR 60N to East Main Street in the northern portion of the study area, and replace vacant land uses along SR 52/MMP in the vicinity of the university in the southern portion of the study area. These shifts in land uses are likely to translate to higher number of trips to account for employees, customers, vendors and others associated with commercial uses.

- There are two DRI developments underway in the City of Dahlonega. Gold Creek Foods, LLC, located on Pinetree Way has received a DRI permit for converting a former textile mill to a food processing plant, and is currently working on repurposing the facility. The new plant is expected to generate approximately 300 new trips per day with additional truck traffic, which may require operational improvements at the Pinetree Way intersection at SR 52/MMP.

5.0 TRANSPORTATION SYSTEM

This section provides a comprehensive overview of the transportation system in the subarea including the characteristics of roadway and multimodal facilities, planned improvements, safety analysis and parking. Chapter 6 provides the methodology and results from the traffic modeling analysis conducted using a combination of the Travel Demand Model (TDM) and microsimulation model (VISSIM) in order to evaluate the travel conditions and identify the deficiencies in the major roadways and the intersections.

The findings from the assessment of the transportation system are essential in creating a plan that reflects and addresses the needs of all travelers in the subarea, including the residents, commuters and tourists.

5.1 Roadway Characteristics

An inventory of roadway characteristics was collected to understand the needs and constraints of the subarea's transportation infrastructure and the types of trips served. These characteristics include design elements such as functional class, laneage, speed, and annual daily traffic (ADT) volumes.

The roadways in the subarea are characterized by narrow two-lane facilities and are part of a rural system. The following five major roadways carry the majority of the trips and are the focus of discussion in this section:

- SR 52/Morrison Moore Parkway (SR 52/MMP),
- US 19/SR 60/South Chestatee Street
- SR 60/North Grove Street,
- East Main Street, and
- West Main Street.

Furthermore, an analysis of current and future intersection operations will be conducted as part of the needs assessment for the key intersections in the subarea. Peak hour turning movement counts have been collected at the following locations:

- SR 52/MMP and SR 60/South Chestatee Street;
- SR 52/MMP and Riley Road;
- SR 52/MMP and Memorial Drive/Pinetree Way;
- SR 52/MMP and East Main Street; and
- East Main Street and North Grove Street

Figure 5-1 illustrates some of the roadway characteristics of the transportation network in the subarea, which are also summarized in **Table 5-1**. In general, travel in the subarea is served by rural principal arterials, which are made up of

segments of SR 60/South Chestatee Street, SR 52/MMP, East Main Street and North Grove Street. Rural principal arterials typically serve substantial statewide travel and emphasize regional mobility and connect larger urban areas. As such, it is important to keep in mind how well these principal arterials serve the travelers in the subarea.

Table 5-1: Summary of Major Roadway Characteristics

Roadway	From/To	Functional Classification	Speed Limit	Laneage	2009 ADT
SR 52/MMP	South of SR 60/S. Chestatee St	Rural Minor Arterial	35 MPH	2 Lanes	6,900-8,500
SR 52/MMP	SR 60/S. Chestatee St to E Main St	Rural Principal Arterial	35 MPH	2 Lanes	13,800-17,700
SR 60/MMP	North of E. Main St	Rural Minor Arterial/Major Collector	35 MPH	2 Lanes	5,200
SR 52	East of SR 60/MMP	Rural Minor Arterial	35 MPH	2 Lanes	6,400
E. Main Street	N. Chestatee St /N. Grove St	Rural Minor Collector	25 MPH	2 Lanes	10,700
W. Main Street	SR 52/MMP to N. Chestatee St	Rural Minor Collector	25 MPH	2 Lanes	6,800
E. Main Street	N Grove St to SR 52/MMP	Rural Principal Arterial	25 MPH	2 Lanes	7,700
SR 60/S. Chestatee Street	East of SR 52/MMP	Rural Principal Arterial	40 MPH	2 Lanes	12,800
SR 60/ S. Chestatee Street	SR 52/MMP to Main St	Rural Minor Collector	25 MPH	2 Lanes	6,700
N. Grove Street	North of E. Main St	Rural Principal Arterial	25 MPH	2 Lanes	7,200-12,300

Source: Georgia Department of Transportation

SR 52/MMP is a two-lane highway that serves as the bypass around Downtown Dahlonega. It begins in the southeastern portion of the city and extends west to connect with SR 60/South Chestatee Street, then travels north to the city limits. It is the main corridor serving both local and bypass trips and the travel demand is great with the current and expected growth along the corridor.

As shown in **Figure 5-1**, the segment of SR 52/MMP that traverses east-west in the southern portion of the subarea is classified as a minor arterial and carries between 6,900 – 8,500 vehicles per day. The north-south segment between SR 60/South Chestatee Street and East Main Street is classified as a principal arterial with a daily volume of 13,800. This section of SR 52/MMP is generally characterized by strip retail centers and commercial uses with plans for additional growth. It is also the most traveled corridor in the subarea, and thus, safety and congestion are major issues to consider. The intersection of SR 52/MMP and SR 60/South Chestatee Street is heavily utilized, as it is the main junction for trips to and from GA 400, and this location experiences excessive queuing during

the peak periods. This intersection serves 2,700 vehicles during the PM peak hour, according to turning movements collected as part of this study. Other critical intersections along SR 52/MMP have been identified based on recommendations from the Downtown Master Plan, field survey and stakeholder input. These intersections include the following:

- SR 52/MMP and Riley Road – This location is currently unsignalized and thus, severe delays occur on Riley Road during peak periods. Riley Road is heavily utilized by travelers associated with the new judicial center, city hall and the recreational center. As discussed in a greater detail in the Land Use section of this report, the government complex has expansion plans which could have significant implications to traffic circulation in the surrounding streets.
- SR 52/MMP and Mechanicsville Road – Mechanicsville Road serves the water treatment plant and other public works activities. It also provides access to Yahoola Creek Park, which is extensive and is reported to generate significant event traffic. There are substantial areas of the park that are graded to accommodate additional playing fields, so travel demand can be expected to grow. This intersection is currently unsignalized and the configuration makes ingress and egress difficult.
- It is important to note that the SR 52/MMP intersections of Mechanicsville Road and Riley Road are located in close proximity. Neither road offers much opportunity for improved access to points west of SR 52/MMP. All areas between Mechanicsville Road and Riley Road along the SR 52/MMP frontage are publicly owned, and may offer the opportunity to consolidate these entry roads.
- SR 52/MMP and Crown Mountain Place – Safety is a major concern at this intersection as the traffic island installed to deter drivers from prematurely entering the right turn lane is ineffective. Refer to the subsequent section on safety for a more detailed discussion of this intersection.

SR 60/South Chestatee Street is a two-lane state and federal highway that caries most of the traffic from GA 400 to and through Downtown Dahlonega. SR 60/South Chestatee Street from south of SR 52/MMP carries 12,800 vehicles per day and is classified as a principal arterial. Most of this traffic turns onto the SR 52/MMP bypass, as indicated by the significant drop in the number of vehicles (6,700) on SR 60/South Chestatee Street north of the bypass. As such, facilitating this heavy turning movement will improve the operations at this intersection. The northern segment of SR 60/South Chestatee Street is classified as a minor arterial and provides connection to the NGCSU commuter parking lot and the historic Public Square. Development on the east frontage of SR 60/South Chestatee Street is a mix of commercial and office/institutional uses. There are plans to enhance the streetscape along SR 60/South Chestatee Street and West Main Street as recommended from the Downtown Master Plan. This plan envisions a reduction in lane capacity to accommodate on-street

parking, bike lanes and landscaped islands. Conflict may arise from increased development, growing traffic volumes, and impedance associated with parking and bike activity. To this end, slower traffic through this area should be enforced to provide a safer environment for pedestrians and bicyclists.

North Grove Street is a two-lane principal arterial road that carries 7,200 vehicles per day. It extends to the northwestern section of the city and provides access to a concentration of county public schools. As such, North Grove Street draws considerable school traffic through the downtown and Wimpy Mill Road. Furthermore, an alternative to South Chestatee Street should be identified for school traffic. Providing safe access to school will be a key element considered in this study.

East Main Street from SR 52/MMP to North Grove Street is classified as a principal arterial and carries 7,700 vehicles per day. East Main Street intersects with SR 52/MMP to the east and this has been improved to accommodate the Wal-Mart that lies northeast of the intersection. East Main Street from North Grove Street to the Square is classified as a minor collector, and carries 10,700 vehicles per day, which is the heaviest traveled segment along Main Street. At the Public Square, Main Street splits into a one way pair circumscribing the Gold Museum. This is the most urban corridor in the subarea, creating a need for providing a safe pedestrian environment while facilitating the high number of vehicles that travel through the area as well as those accessing parking. Traffic is controlled using a combination of stop signs and yield signs, creating frequent back-ups.

Traffic volume decreases to 6,800 as West Main Street traverses from the Square to SR 52/MMP. The main access to the NGCSU campus as well as much of the parking, including the new deck on Sunset Drive, is located on West Main Street. The university, in partnership with the City, has been working towards providing a safe pedestrian environment for the students. NGCSU has made efforts to discourage jaywalking along this segment of West Main Street by posting crossing guards during the first weeks of school, but the heavy volumes of conflicting vehicular and pedestrian traffic make this area a safety focus. Further campus development is anticipated in the Sunset Drive corridor, so this conflict is likely to grow. City staff has identified the opportunity to divert through traffic from this intersection by extending and improving Vickery Drive to connect to SR52/MMP.

5.2 Bicycle and Pedestrian Facilities

A robust pedestrian network allows people to access a variety and businesses and other destinations within an area without relying heavily on their vehicles. Similarly, bicycle paths, lanes, and multi-use trails allow for enhancing recreation and mobility without contributing to vehicular congestion. Currently, there are no bicycle lanes in the subarea, but recognizing the importance of a functional multimodal system, the City has proposed to develop a bicycle and pedestrian

plan in the near future. An inventory of sidewalks has been conducted as part of this study.

As illustrated in **Figure 5-2**, sidewalks are mostly concentrated along the streets that provide access to the downtown core area. Sidewalks are located on both sides of Park Street and along at least one side of SR 60/South Chestatee Street through the study area. Within this area, sidewalks are available on one side of many streets; outside of this area, however, sidewalks are widely unavailable. Furthermore, the sidewalk network, even where present, is narrow, not contiguous and, in many places, in disrepair. Many gaps in sidewalks exist from numerous curb cuts and lack of gutters. SR 52/MMP within the study area has sidewalks on one side of the roadway between SR 60/South Chestatee Street and Pinetree Way.

Providing safe pedestrian connections to schools along North Grove Street is a key element in this study and is an integral part of Georgia's Safe Routes to Schools initiative. North Grove Street has continuous sidewalks on its east side from the Lumpkin County Elementary and Middle Schools to Main Street. However, some sections of the sidewalks are in need of maintenance and upgrade and the majority of the sidewalks do not provide buffers from vehicular traffic.

Pedestrian facilities can be found around the northern and western perimeter of NGSCU on West Main Street and SR 60/South Chestatee Street. However, along SR 52/MMP on the southern side of the campus, sidewalks are not available. There is a great deal of pedestrian traffic crossing West Main Street at its intersection with Sunset Drive and Vickery Drive. As noted previously, pedestrian activity is of great concern on West Main Street, not only from the commuters using the parking lots, but also from additional private multifamily housing occupied by students. NGSCU's Master Plan recommends many improvements that would make campus more pedestrian-friendly. These recommendations include new sidewalks, restrictions on motor-vehicle access, and crosswalks at key access points to campus.

It was recently announced that Dahlonega is the recipient of $720,000 in Federal Tiger II Grant for the Downtown Dahlonega Complete Streets Corridor Improvements project, which is intended to encourage revitalization and pedestrian safety in the historic commercial core. This project promotes the complete streets principal by providing sidewalks, lighting, streetscapes, and pedestrian connections to greenspace, and cultural and educational assets. Much of the funding will be used for design, engineering and environmental work. Additional funding source must be identified for the construction of these improvements.

Figure 5-1: Roadway Characteristics

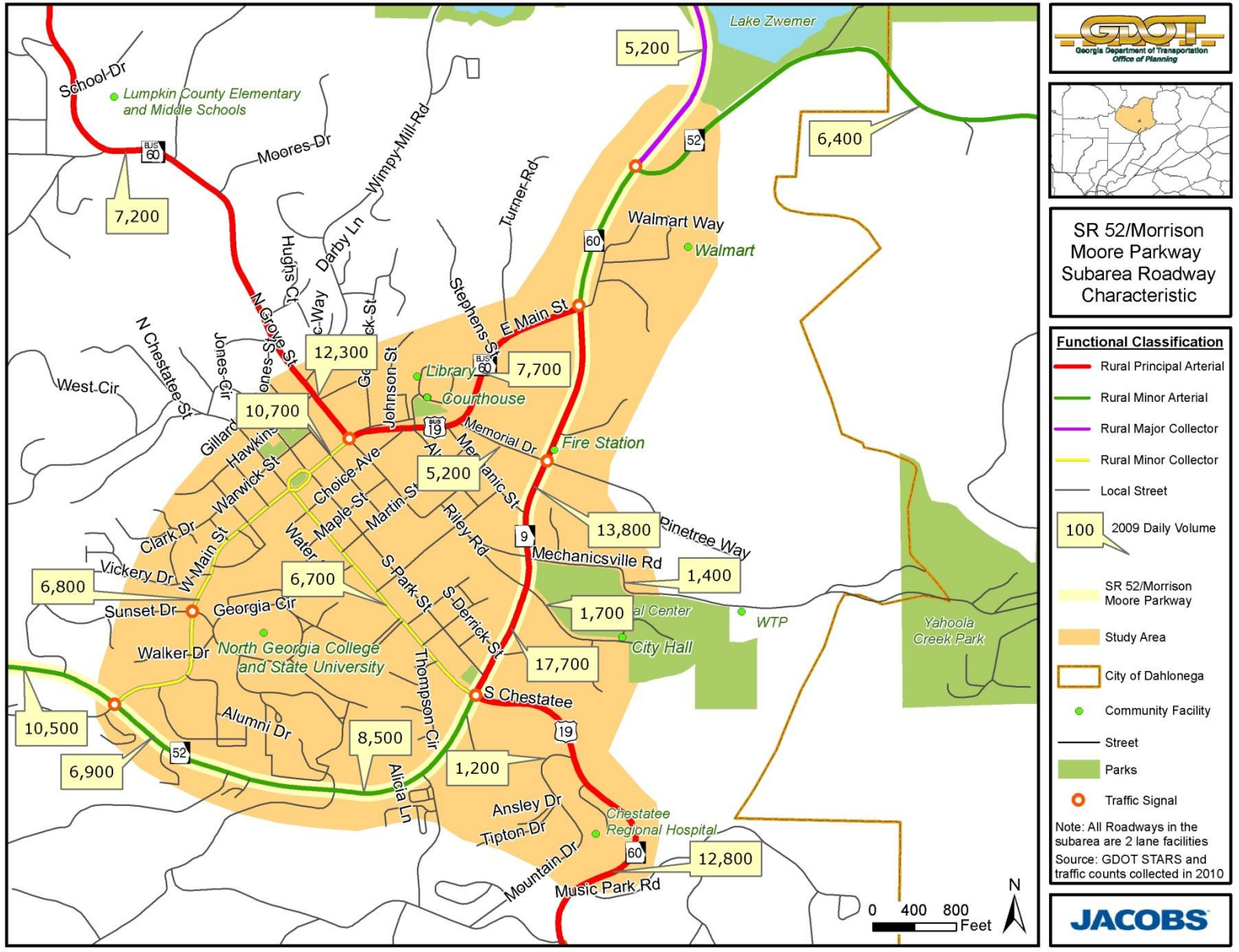
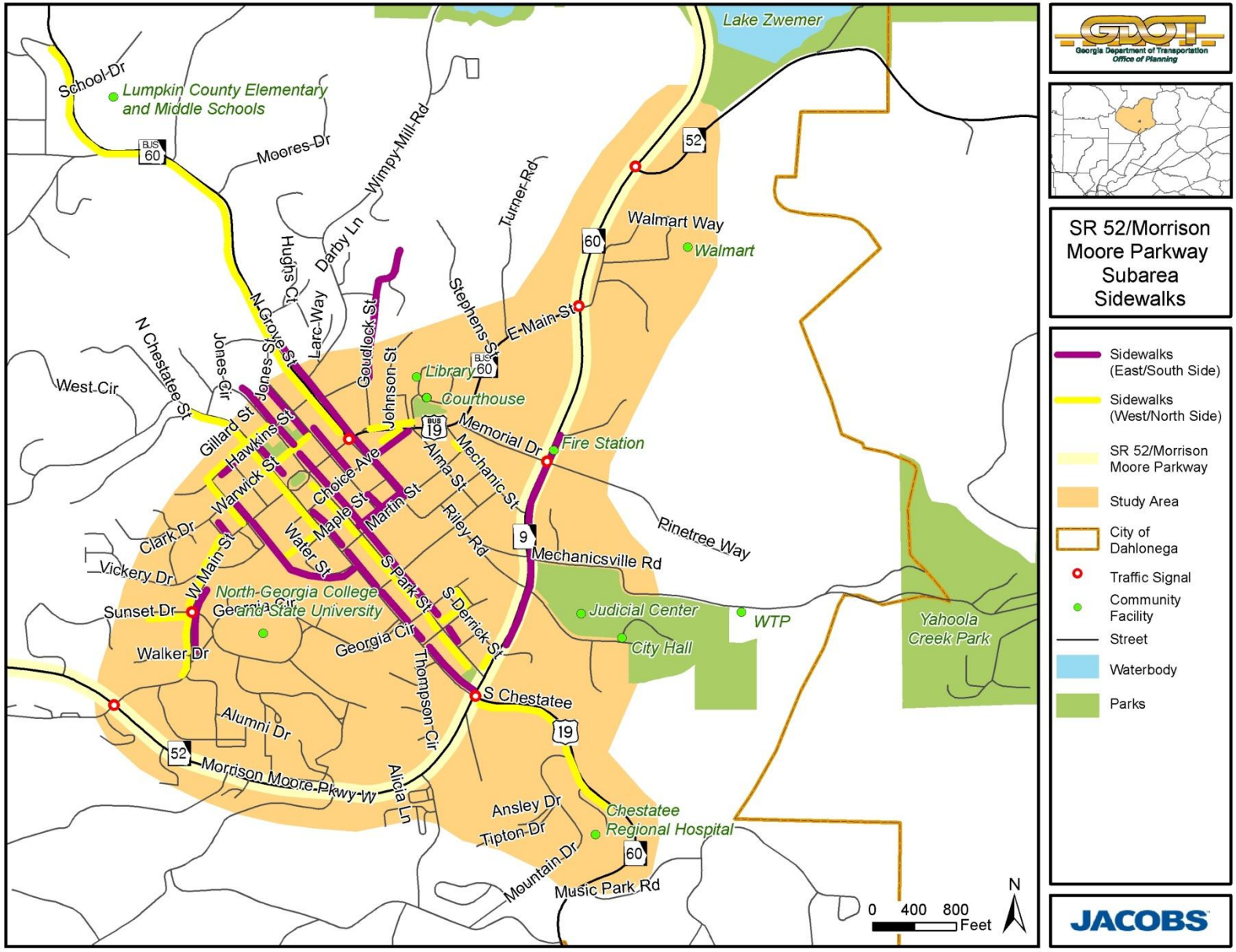


Figure 5-2: Existing Sidewalk Inventory



5.3 Planned and Programmed Improvements

This section presents the planned and programmed improvements to roadways and pedestrian/bicycle facilities within the study area. Programmed projects have had their funding secured from federal, state or local sources. There are no capacity improvements or operational upgrades programmed in the GDOT's State Transportation Improvement Program (STIP). The projects in the STIP are funded with federal and state funds. The only project within the subarea that is currently being undertaken by GDOT is the resurfacing and maintenance of Main Street (PI. M003439).

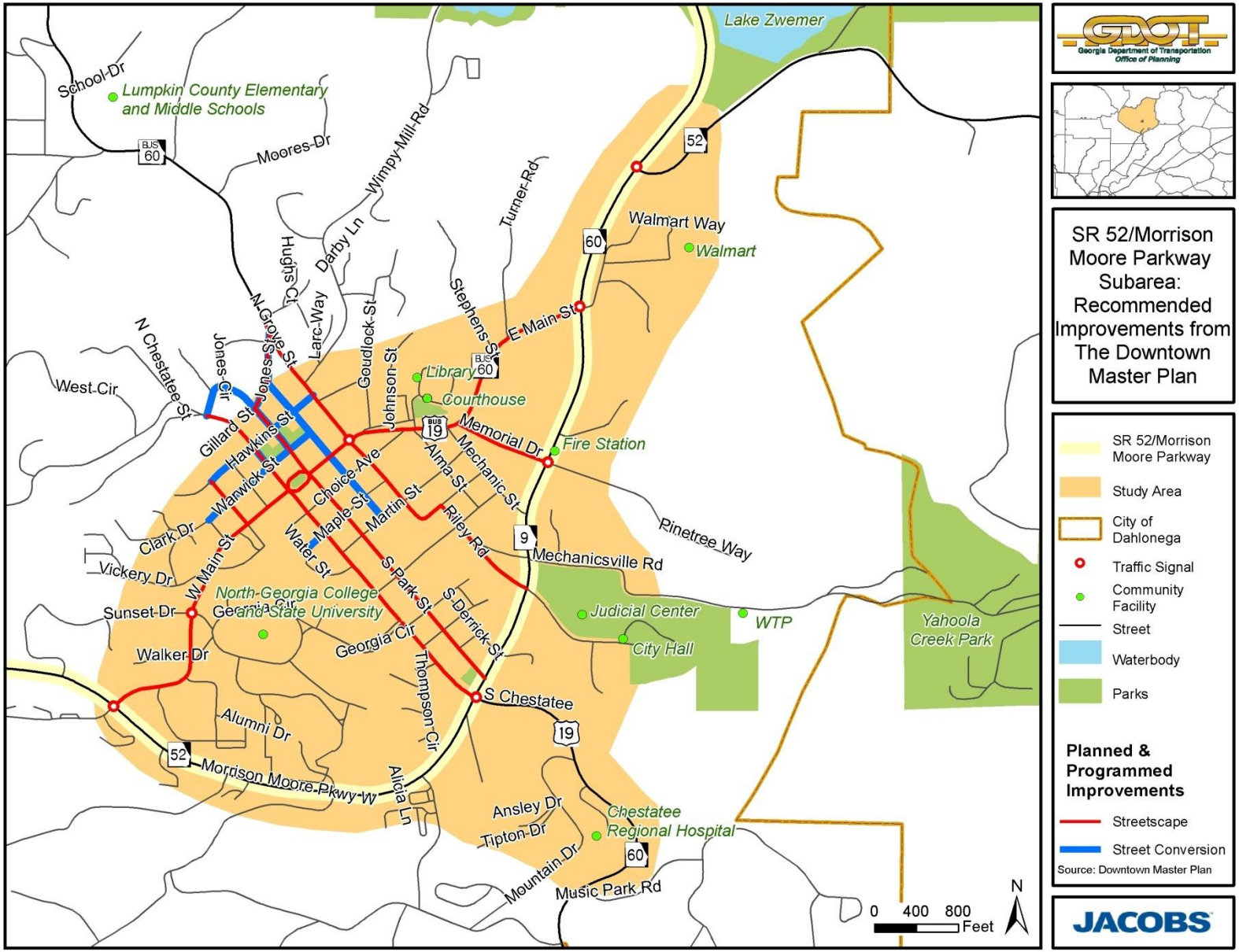
Planned improvements may be eligible for federal, state or local funding but do not have secure funding source. The projects in the Downtown Master Plan will likely be sponsored by the City of Dahlonega, the Downtown Development Authority (DDA), and/or NGCSU. **Table 5-2** below presents the projects recommended from this plan, which include streetscapes and one-way street conversions to promote revitalization and enhance pedestrian activity. These projects are also graphically represented in **Figure 5-3.**

Table 5-2: Recommended Improvements from Downtown Master Plan

Project Name	Project Type	Description	Projected Cost
Maple St	Street Conversion	One-way to two-way, parking, and new sidewalks	$77,000
Warwick St	Street Conversion	One-way to two-way, parking, sidewalk improvements	$425,000
Hawkins St	Street Conversion	One-way to two-way, parking, sidewalk improvements	$418,000
N Meaders St/ S Meaders St	Street Conversion	One-way to two-way, parking, sidewalk improvements	$550,000
Jones St	Street Conversion	One-way to two-way	
N Park St	Street Conversion	One-way to two-way	
N Chestatee St	Street Conversion	One-way to two-way	
Memorial Dr	Streetscape	Sidewalks, Parking, Planting with Trees	$672,750
Church St	Streetscape	Wide sidewalks, parking, textured crosswalks, themed landscape	$388,125
N Chestatee St	Streetscape	Sidewalks, Parking, Planting strip, curb and gutter	$741,750
S Chestatee St	Streetscape	Wide sidewalks, parking, textured crosswalks, themed landscape	$2,403,500
S Grove St/ Riley Rd	Streetscape	Sidewalk, parking, rustic fencing	$1,121,250
N Grove St	Streetscape	Sidewalks, planting strips, trees, curb and gutter	$667,000
S Park St/ N Park St/ Jones St	Streetscape	Sidewalk, parking, planting strip with trees	$2,783,000
E Main St/ W Main St	Streetscape	Sidewalks, Parking, Textured Crosswalks, Bulbouts	$1,536,975
W Main St	Streetscape	Sidewalk, bike lanes, planting strip with trees	$1,656,000
E Main St	Streetscape	Sidewalks, bike lanes, planting strip with trees	$1,932,000

Source: Dahlonega's Downtown Master Plan (2008)

Figure 5-3: Recommended Improvements from Downtown Master Plan



5.4 Safety Analysis

Assessing safety through the use of statistics is useful in identifying intersections and roadway segments that merit further study for safety improvements. To this end, crash data collected by GDOT from 2006 through 2008 were analyzed for all study area intersections. In addition, 2008 crash rates were calculated for major roadway segments and compared to statewide average crash rates for similar facility types.

The annual average numbers of crashes among study area intersections were compared to determine the relative safety of each intersection. The crash frequencies for the ten intersections with the highest number of average annual crashes are listed in **Table 5-3.** These intersections are mapped with 2008 crash frequencies in **Figure 5-4**.

Table 5-3: 2006-2008 Intersection Crashes

Intersection Location	Total (2006-2008)			Annual Average		
	Crash	Injury	Fatality	Crash	Injury	Fatality
SR 52/MMP and SR 60/S Chestatee St	43	7	0	14	2	0
SR 52/MMP and E. Main St	37	7	0	12	2	0
SR 52/MMP and Crown Mountain Pl	32	4	0	11	1	0
Memorial Dr and E. Main St	23	6	0	8	2	0
SR 52/MMP and S Park St	17	3	0	6	1	0
SR 52/MMP and Riley Rd	11	4	0	4	1	0
SR 52/MMP and Mechanicsville Rd	11	0	0	4	0	0
N. Grove St and E. Main St	10	4	0	3	1	0
Public Square	10	1	0	3	0	0
SR 52/MMP and S Derrick St	5	1	1	2	0	0

Source: GDOT 2006-2008 Crash Data

SR 52/MMP at SR 60/South Chestatee Street exhibited the highest average number of accidents during the study period. As previously noted, this intersection is the most-traveled intersection in the study area because SR 60/South Chestatee Street provides access between Dahlonega and GA 400, the major route to Atlanta. As such, the high rate of accidents at this location is likely due to the high traffic volumes it serves. Furthermore, it was observed that there may not be enough left-turn capacity for traffic southbound on SR 52/MMP. The intersection analysis as part of the needs assessment will determine the operational and capacity deficiencies inherently tied to safety. When left-turning traffic demand exceeds storage capacity at this intersection, it can create increased opportunities for crashes.

The second highest number of accidents during the three-year period occurred at SR 52/MMP at East Main Street, in the northern portion of the study area. Similar to the intersection of SR 52/MMP at SR 60/South Chestatee Street, this is

a well-travelled intersection, and it provides access to the busy Wal-Mart shopping area on the eastern side of SR 52/MMP. Therefore, the high rate of accidents at this location is likely also a function of the high traffic volumes it serves.

Over the three-year study period, an average of 11 accidents occurred annually at the intersection of SR 52/MMP at Crown Mountain Place, which is located just over 200 feet south of the SR 60/South Chestatee Street intersection. As illustrated in **Figure 5-8**, this minor T-intersection exhibited the highest crash frequencies occurred in 2008. This phenomenon is likely due to its current design as Crown Mountain Place intersects SR 52/MMP in the middle of the northbound right-turn storage lane, creating conflict between drivers entering the main roadway from the side street and those on the main road trying to get on the right-turning bay. Recently, an island has been installed here to discourage vehicles on SR 52/MMP from entering the right turn lane prematurely, but many drivers ignore the island, making this situation worse. Intersection realignment and/or additional access to this commercial area may be needed to better facilitate the movement of traffic and to ensure safety.

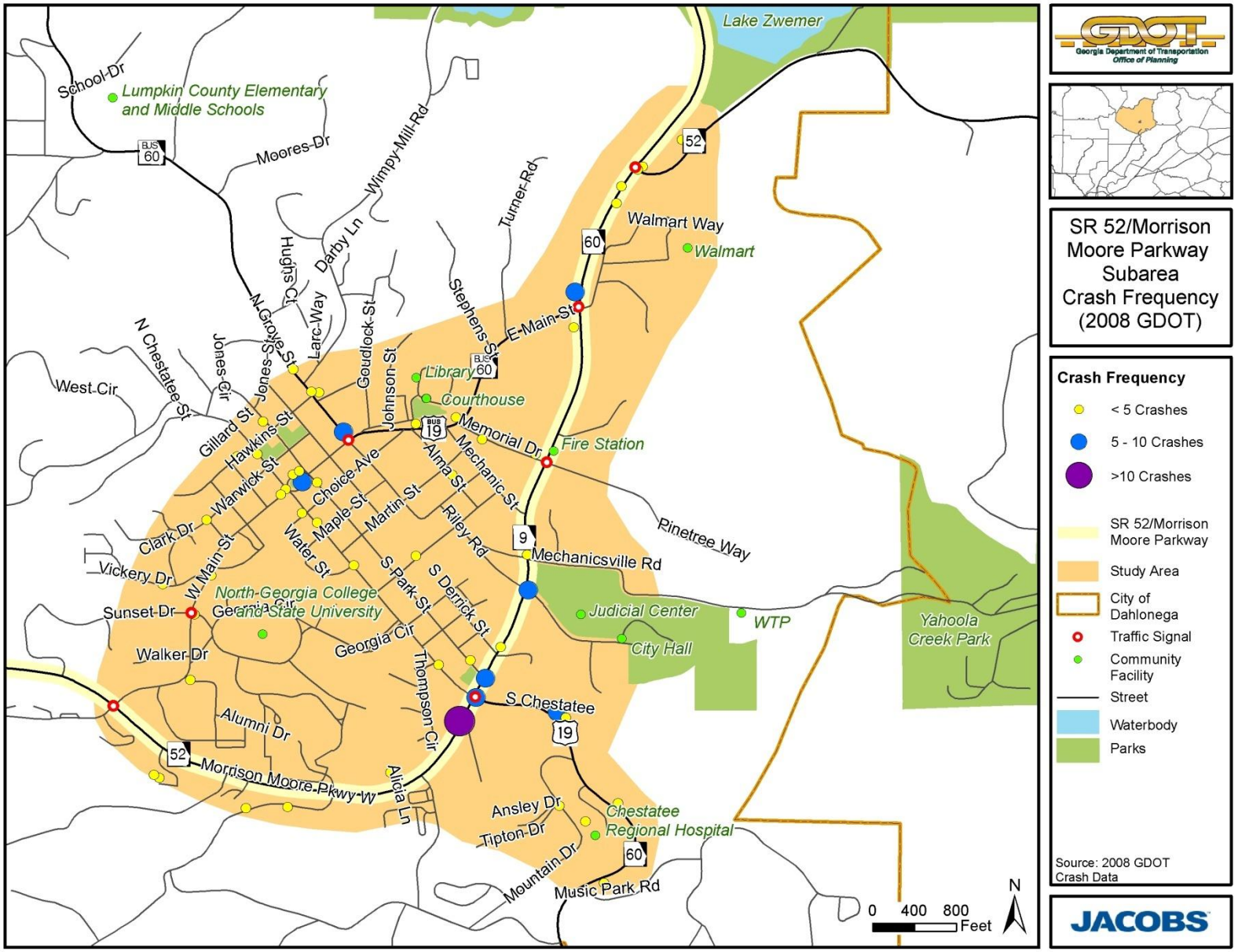
Table 5-4 provides crash rates for major roadway segments in the study area. These crash, injury and fatality rates have been normalized per 100 million vehicle miles traveled (100 MVM), and are compared against their respective statewide averages for similar facilities as indicated in the table.

Table 5-4: 2008 Roadway Segment Crash Analysis

Segment	Functional Class	Length (miles)	Crashes	Crash Rate (per 100 million vehicle-miles (MVM))		Injur-ies	Injury Rate (per 100 million vehicle-miles (MVM))		Fatal-ities	Fatality Rate (per 100 million vehicle-miles (MVM))	
				Road Seg-ment	State-wide Avg.		Road Seg-ment	State-wide Avg.		Road Seg-ment	State-wide Avg.
SR 52 from W. Main St. to SR 60/S. Chestatee St.	R. Minor Arterial	0.85	35	147	152	2	8	75	0	0.00	1.85
SR 52 from SR 60/S. Chestatee to E. Main St.	R. Principal Arterial	0.78	29	65	146	6	13	80	0	0.00	1.47
SR 60/S. Chestatee St. from SR 52 to Music Parker Rd.	R. Principal Arterial	0.6	20	71	146	3	11	80	0	0.00	1.47
SR 60/S. Chestatee St. from SR 52 to W. Main St.	R. Minor Collector	0.51	16	128	178	1	8	84	0	0.00	2.93
W. Main St. from SR 52 to N. Grove St.	R. Minor Collector	0.76	15	80	178	2	11	84	0	0.00	2.93
E. Main St. from N. Grove Street to SR 52	R. Principal Arterial	0.53	13	87	146	1	7	80	0	0.00	1.47
N. Grove St. from E. Main St. to School Dr.	R. Principal Arterial	0.87	27	87	146	8	26	80	1	3.23	1.47

Source: GDOT 2008 Crash Data

Figure 5-4: Study Intersection Crash Frequency, 2008



In general, the roadway segment crash rates are consistently lower than statewide average crash rates for similar facilities. The roadway segment with the highest crash rate in the study area, SR 52/MMP from West Main Street to SR 60/South Chestatee Street, has a crash rate of 147 per 100 MVM, which is slightly lower than the statewide average for Rural Minor Arterials, 152 MVM. This roadway segment experienced two injuries and no fatalities during the study year.

The highest number of injuries in 2008 occurred in accidents on the segment of North Grove Street from East Main Street to School Drive, which experienced eight injuries during the study year. Yet, the injury rate, 26 per 100 MVM, was lower than the statewide average for Rural Principal Arterials, 80 per 100 MVM. Furthermore, this roadway segment experienced one fatality in 2008, which translated into a fatality rate of 3.23 per 100 MVM, which is higher than the statewide average for similar facilities of 1.47 per 100 MVM. There were no other fatalities on studied roadway segments in 2008.

It is important to note that although the roadway segments may have exhibited lower crash rates when compared to statewide averages, this is not necessarily an indicator of safe traffic conditions as almost all the accidents are associated with the intersections. To this end, enhancing intersection operations and design should be a major consideration in improving the overall travel environment in the subarea.

5.5 Parking

The Downtown Master Plan considered the lack of parking in Dahlonega as a "serious problem," which it addressed with a "multifaceted" parking strategy. Although there are several surface lots for their use, tourists consider parking in Dahlonega hard to locate or inconvenient to their destination. In addition, many of the surface lots, such as those on Waters Street and at the Warwick Lot, are well situated for redevelopment, perhaps into mixed use facilities which would include multi-level parking. The Master Plan recommended studying the feasibility of a new, shared parking facility near the historical Dahlonega Baptist Church, now the First Methodist Church.

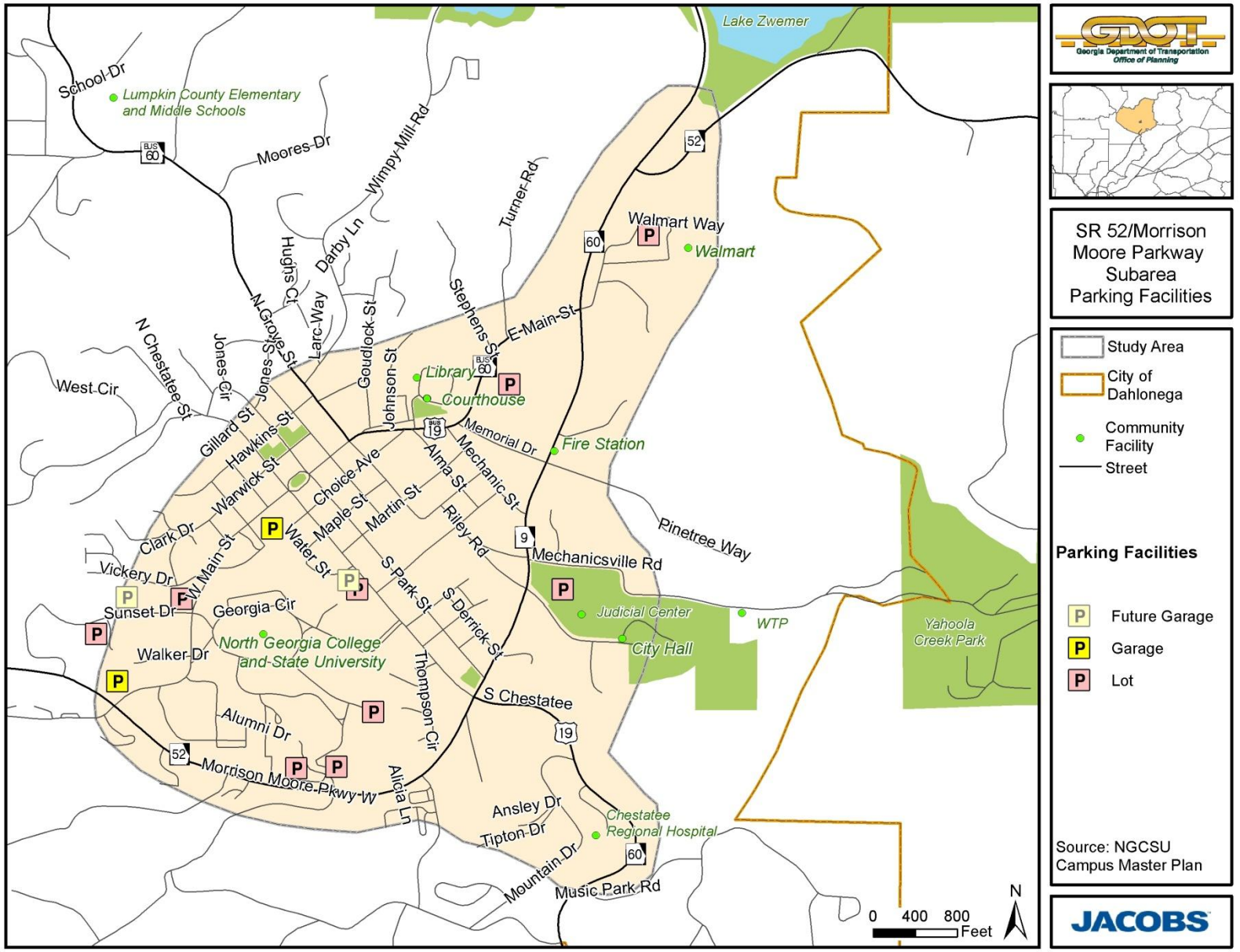
Two years after completion of the Master Plan, the City of Dahlonega commissioned its Downtown Dahlonega Parking Plan. This study estimated existing parking demand in the downtown is at 306 spaces, while the supply was 402 spaces. Thus the Plan reported that while "parking within the [study area] appears very challenging for visitors and employees alike," there was an actual surplus of 96 spaces. However, the Plan estimated that demand would rise to 456 spaces by 2020, creating a parking deficit of 54 spaces. To address the growing need for parking spaces and to create a better environment for locating and using the parking available, the Plan proposed two structural improvements. First, it recommended that the vacant, dirt lot adjacent to the elementary school be converted to surface parking for up to 100 spaces. This location is five minute walk to the Public Square. Second, it recommended that the City purchase the

Choice Lot and surrounding property to retain its use as a parking facility. This location is easy to access by car and is within a short walking distance of the Square. These and other proposed parking facilities can be seen along with existing parking in **Figure 5-5**.

The Plan also recommended that the City implement several strategies to improve the parking environment in Dahlonega. These include the pooling of parking resources among owners, and the institution of paid, metered parking and time limits, enforced by a Parking Enforcement Officer and fines. The City was asked also to consider improved signage to aid in the location of parking by drivers and the promotion of the parking system via newspaper, website, downtown flyers, and parking ambassadors.

Finally, the NGCSU Campus Master Plan reported that there were 3,725 parking spaces on the main campus, including those in the newly opened parking deck. The plan assessed that the parking supply was “adequate but nearing capacity” at the present, but that NGSCU would need 6,900 parking spaces by the time it reached its target enrollment of 7,500 full time equivalent students. While the Plan calls for the restriction of vehicular traffic and parking from many campus roadways, it also proposes to increase and consolidate parking with the addition of three new parking decks. The first deck would be located south of the Health and Natural Sciences building with 1,000 spaces, and was projected to open in 2010. The second deck would be adjacent to the Convocation Center and have 600 spaces, and a third deck would be north of the Health and Natural Sciences building with 900 spaces. The Master Plan provides 5,300 parking spaces out of the needed 6,900, and urges the University to consider “remote parking and other policy solutions over time” to meet the remaining demand.

Figure 5-5: Existing and Proposed Parking Facilities



5.6 Key Findings

- All the roadways in the subarea are narrow two-lane facilities and may not have the capacity to support the future growth planned by the City.

- Heavy through-traffic, particularly trucks, in Downtown Dahlonega was a major community concern in the past. Since then, the state highway designation has been removed for the segments of SR 60/South Chestatee Street north of SR 52/MMP and West Main Street to discourage truck usage of these corridors.

- SR 52/MMP serves as a bypass around the city and is the most traveled corridor in the subarea. The northeastern segment of SR 52/MMP carries almost 14,000 vehicles per day. It is the main corridor in the study area, serving both local and through trips, and travel demand is projected to increase with the additional commercial developments planned along the corridor. Capacity and operational improvements may be needed to provide a functional bypass.

- As another measure to reduce congestion along SR 52/MMP, inter-parcel connectivity and promotion of the grid network on the eastern side of SR 52/MMP should be considered to enhance mobility and connectivity in the subarea.

- As the main entry point to GA 400, the intersection of SR 52/MMP and SR 60/South Chestatee Street is the heaviest utilized intersection in the subarea. The southbound left-turning movement frequently experiences excessive queuing during peak periods.

- With the completion of the Downtown Master Plan, Complete Streets principles have been emphasized in the redevelopment of downtown. To this end, the City has recently received $720,000 in Federal Tiger II Grant help pay for design and engineering of sidewalks, bicycle lanes, on-street parking and streetscapes along South Chestatee Street and West Main Street. The implementation of this project may lead to a reduction in vehicular lane capacity in some locations. As such, there is a need to investigate SR 60/South Chestatee Street's capacity to operate efficiently into the future.

- Riley Road is home to the new Lumpkin County Judicial Center and Dahlonega's City Hall. There are plans in place to expand this site into a County Government Services Complex, which would have significant traffic impacts on the surrounding roadways. There is a need to examine various opportunities to improve the intersection of SR 52/MMP and Riley Road. This could mean signalization and/or addition of turn lanes, or even the consolidation with the Mechanicsville Road intersection to accommodate the additional demand.

- Providing safe pedestrian connections to schools along North Grove Street is a key element in this study and is an integral part of Georgia's Safe Routes to Schools initiative.

- The six intersections in the subarea with the highest crash frequencies are located along SR 52/MMP including the top three at SR 60/South Chestatee Street, East Main Street and Crown Mountain Place. The high number of accidents associated with the intersections of SR 52/MMP at SR 60/South Chestatee Street and East Main Street is likely a function of the high vehicular volume and capacity constraints. However, the intersection of SR 52/MMP and Crown Mountain Place may be in need of realignment and upgrades to the current design to ensure safety and alleviate the conflict between drivers from Crown Mountain Place and those on SR 52/MMP trying to get on the right-turning bay. Enhancing intersection operations and design should be a major consideration in improving the overall travel environment in the subarea. To this end, intersection realignment and/or providing additional access to this commercial area may better facilitate the movement of traffic and to ensure safety.

- Adequate and convenient parking for visitors in the downtown area, as well as NGCSU students, is a great concern in light of the anticipated growth in the subarea. To this end, providing safe pedestrian connections to and from the proposed parking areas is a key element in this study.

  Currently, no fixed route transit service is available in Dahlonega. Lumpkin County Dial-A-Bus system is a demand-response service through the GDOT public rural system that provides curb-to-curb transportation service for the county residents. However, future satellite parking at NGCSU and the needs of students, visitors, residents and the businesses in Downtown Dahlonega could support a shuttle as a safe and effective mobility alternative.

6.0 TRIP MAKING AND TRAVEL CONDITIONS

This chapter of the report details the methodology and results of the traffic modeling analysis conducted to evaluate the travel conditions and identify deficiencies in the major roadways and intersections in the subarea. The findings from this assessment are essential in creating a plan that reflects and addresses the needs of all travelers in the subarea.

6.1 Analysis Methodology

The analysis of existing and future travel conditions in the subarea was conducted using a combination of two planning tools: 1) the Georgia Statewide Travel Demand Model (TDM) to derive travel trends and 2) the VISSIM microsimulation model to study intersection operations. These models are common transportation planning tools used to identify potential roadway capacity and operating needs.

The SR 52/MMP subarea model was developed using a step-down approach with the Statewide TDM as the basis. As part of the model calibration and validation process, the subarea model was refined to better reflect the travel conditions in the subarea. This process includes review and consideration of the following local demographic, land use and traffic data:

- Annual traffic counts collected by GDOT along the state routes;
- Supplemental bi-directional tube traffic counts and peak-period turning movement counts collected as part of this study;
- Recent socioeconomic data from the U.S Census and Department of Labor (DOL);
- Relevant planning studies (e.g., Comprehensive Land Use Plan, Downtown Master Plan, NGSCU Campus Master Plan, etc.); and
- Field surveys and interviews with stakeholders with regards to the developments planned in the subarea.
- Road grade data for use in the microsimulation model compiled from GDOT videotape data.

The step-down modeling approach begins with the Georgia Statewide Travel Demand Model. The Base Year (2006) model is initially run and a subarea network consisting of the Dahlonega study area is extracted. Next, a Matrix Estimator (ME) process is run to develop subarea trip tables. ME uses the GDOT coverage counts (2010 estimates based on growth rate from 2006 counts in Statewide network), counts collected by All Traffic Data for this study, and assigned volumes from the Statewide TDM run. The Matrix Estimator is an iterative process that synthetically creates a trip table that when assigned to the subarea network, will produce loaded volumes that match closely with the counts available in the network.

The result of the ME will be a daily trip table for the subarea network. With this daily trip table as the input, a Matrix Variegator (MV) is run. The MV will parse the daily table down to hourly trip tables that account for capacity constraint (i.e. – peak spreading) on the network. For the Base Year model calibration, an adjustment matrix was developed in order to match turning movements as closely as possible with existing counts. This 'delta' matrix is applied simultaneously to the AM and PM peak hour matrices during the matrix variegator process. The delta can then be subsequently applied to the future year trip tables in order to maintain consistency of traffic development. The hourly trip tables produced from the MV are suitable for input to the VISSIM microsimulation model.

An initial series of assignments are made in VISSIM using the program's dynamic traffic assignment procedure. After the traffic assignment iterations have reached equilibrium state in the VISSIM network, the turning movements are able to be extracted from the simulation output. These turn movements are entered into a SYNCHRO network in order to calculate optimized signal timing for each intersection. The optimized signal files are then imported into VISSIM and another microsimulation run is performed with signalization in order to reach the final intersection analysis results.

The subsequent sections describe in detail the results of the analysis concerning the existing 2010 model and the future 2035 No-Build model, which describes conditions 25 years in the future, if no improvements are made.

6.1.1 Travel Trends

According to the assessment of travel conditions, there were approximately 86,000 daily trips throughout the subarea in 2010. By 2035, this number is expected to increase to 150,000 trips, an increase of 73 percent. This travel results from a multitude of factors ranging from frequent local trips made by Dahlonega residents, longer trips made by commuters during the peak periods, to tourist trips during off peak periods. Furthermore, the growing university student population and the trips associated with the new judicial complex are anticipated to have a significant impact on the travel patterns in the subarea.

6.1.2 Roadway Operating Conditions

Level of service (LOS) is a qualitative measure of traffic flow that describes operating conditions with six levels defined by Federal Highway Administration (FHWA) in the Highway Capacity Manual (HCM), a standard reference work. LOS are given letter designations from A to F, with LOS A representing the best operating conditions and F the worst. A facility may operate at a range of levels of service depending upon time of day, day of week or period of the year. As such, LOS is generally regarded as a standard measure for congestion.

It is important to note the distinction between daily link LOS produced by the TDM based on volume-capacity (v/c) ratio and peak hour LOS produced from the microsimulation model. Daily volume in a TDM is calculated as demand, (i.e., the

amount of daily vehicles that wish to get through a system). A microsimulation model will use service volume (i.e., the amount of vehicles that can physically get through a system based on the capacity of the system for that single peak hour). The important distinction between the two is that the TDM produces an unconstrained volume, while the microsimulation model uses constrained volume. The capacity used in the TDM v/c ratio is a theoretical value since there is no meaning to a "daily" capacity. This value is calculated as the hourly capacity multiplied by 0.10, which is a widely accepted capacity factor as it relates to roughly 10 percent of daily volume occurring in the peak hour. For these reasons, although these model outputs are useful indicators of traffic trends at both system and micro levels, it is difficult to make a direct comparison of LOS between the two model outputs.

Link Volume LOS

The average daily LOS on roadways has been evaluated using the TDM and the peak hour (AM and PM) LOS at major intersections has been analyzed using VISSIM. **Figures 6-1** and **6-2** illustrate the LOS for major roadway network and intersections for 2010 and 2035 No-Build, respectively.

The 2010 LOS map shows a number of locations with current volumes at or exceeding capacity, indicated by LOS D or lower. These roadway segments include the following:

- SR 52/MMP between SR 60/South Chestatee Street and Memorial Drive;
- SR 52/MMP between East Main Street and SR 60/SR52
- SR 60/MMP between East Main Street and SR 52;
- SR 60/South Chestatee Street south of SR 52/MMP; and
- East Main Street between SR 60/South Chestatee Street and Memorial Drive.

By 2035, given the significant growth forecast in the subarea, all the major roadways are expected to exceed capacity and operate at failing LOS E or F.

Figure 6-1: 2010 Existing Roadway LOS

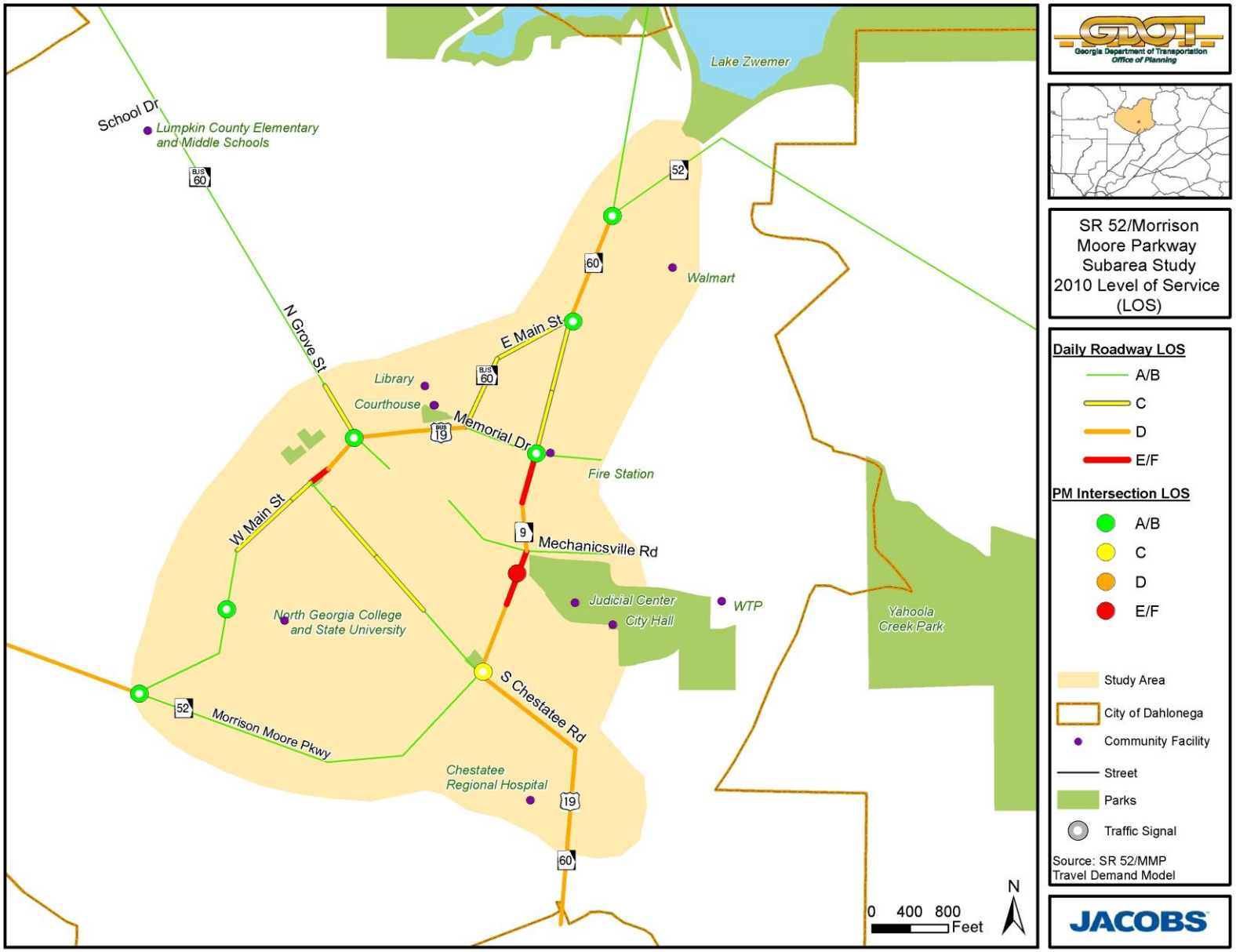
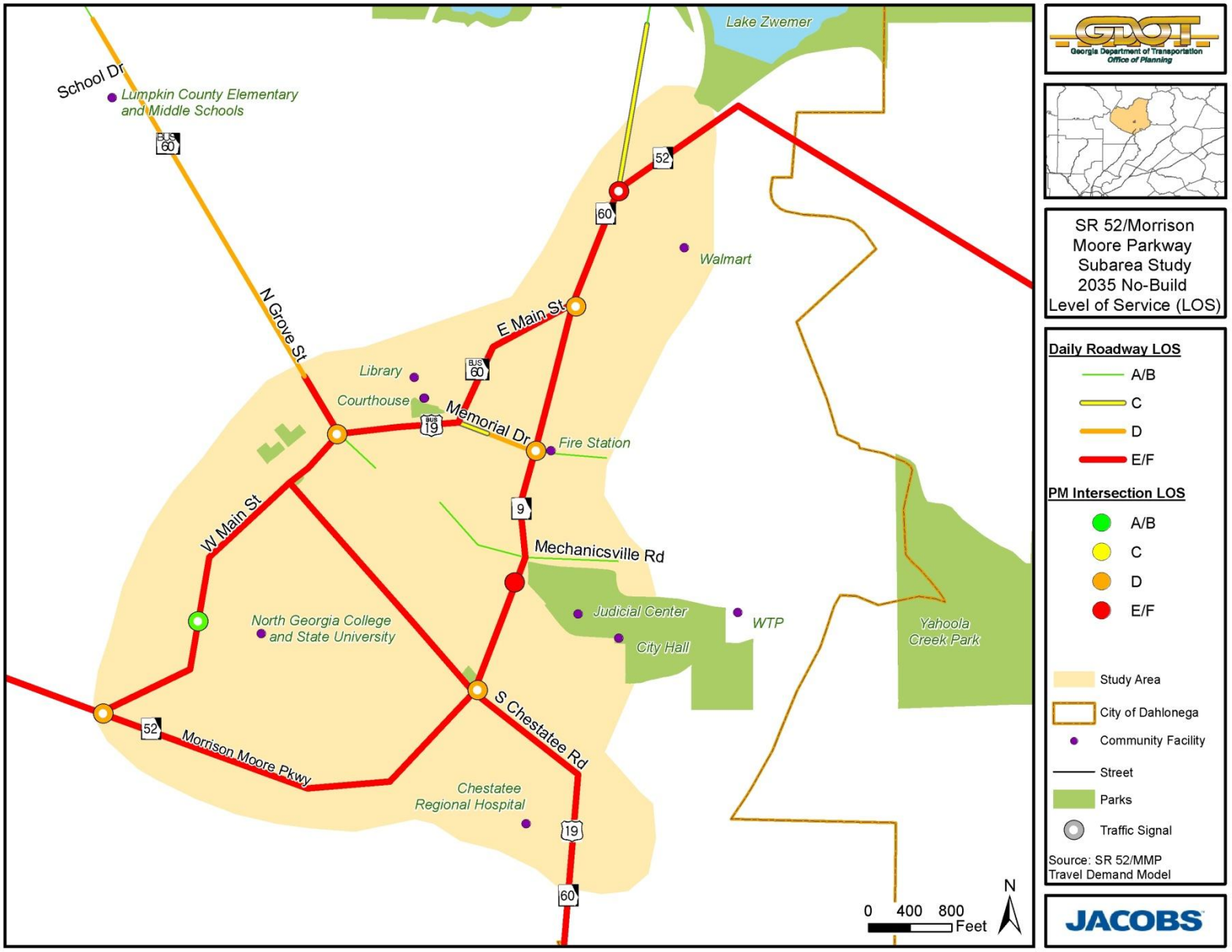


Figure 6-2: 2035 No-Build Roadway LOS



Intersection LOS

Tables 6-1 and **6-2** present the results from the 2010 and 2035 peak hour intersection LOS analysis, respectively, for the major intersections in the subarea. These intersections have been selected based on high traffic volumes and access to planned developments.

Note that the two different volumes (Demand Volume vs. Model Volume) shown in **Tables 6-1** and **6-2** represent the total demand at each approach and the actual number of vehicles that are able to clear the intersection in the VISSM Model. As such, when Demand Volume is much greater than the Model Volume (i.e., the intersection is unable to clear all the vehicles because of high demand), a lower LOS results. The discrepancies are much greater in 2035 as the anticipated traffic growth creates higher demand but the intersections' ability to move the vehicles is expected to diminish without capacity or operational improvements.

With the exception of the unsignalized intersection of SR 52/MMP and Riley Road, the 2010 LOS analysis indicated generally acceptable operating conditions of LOS C or better at the study intersections. It should be noted that although the overall intersection LOS at SR 52/MMP and SR 60/South Chestatee Street may operate at LOS C, long queues and delays are experienced at the southbound and eastbound approaches during the PM peak hour. This may be attributed to a combination of heavy southbound left-turning traffic and eastbound thru traffic leaving Dahlonega to access GA 400. By 2035, analysis results indicated the need for operating improvements at all the major intersections. Anticipated operating deficiencies include the following:

- SR 52/MMP at SR 60/South Chestatee Street – Insufficient left turning capacity on all approaches;
- SR 52/MMP at Riley Road – Insufficient turning capacity on Riley Road during the PM peak hour. Long queues and delays on southbound thru movement due to left turning traffic onto Riley Road. Need for improved interparcel access between Mechanicsville Road and Riley Road;
- SR 52/MMP at Pinetree Way/Memorial Drive – Insufficient left turning capacity on eastbound approach;
- SR 52/MMP at East Main Street – Insufficient thru capacity on SR 52/MMP and westbound left turn approach;
- East Main Street at North Grove Street – Insufficient turning capacity on southbound approach;
- SR 52/MMP at West Main Street – Insufficient thru capacity on SR 52/MMP and capacity on eastbound left turn approach;

- West Main Street at Sunset Drive/NGCU Entrance – Insufficient thru capacity on northbound approach and turning capacity on eastbound approach; and

- SR 52/MMP at SR 60/Clarkesville Street – Insufficient thru capacity on southbound approach and left turning capacity on westbound approach.

These needs will be explored in further detail during the project development and evaluation process.

Table 6-1: 2010 Peak Hour Intersection LOS

		AM Peak Hour				PM Peak Hour			
Intersection	Approach	Demand Volume	Model Volume	Delay (sec)	LOS	Demand Volume	Model Volume	Delay (sec)	LOS
SR 52/MMP at SR 60/S. Chestatee St	NB	385	369	22.8	C	568	543	51.9	D
	SB	534	532	10.4	B	736	654	32.9	C
	EB	314	304	16.9	B	508	494	43.8	D
	WB	694	692	14.4	B	805	795	14.8	B
	Intersection	***1927***	***1897***	***15.3***	***B***	***2617***	***2486***	***33.4***	***C***
SR 52/MMP at Riley Rd (Unsignalized)	NB	538	538	0.3	A	874	860	7.5	A
	SB	553	555	1.4	A	741	614	7.7	A
	EB	14	18	0.1	A	29	20	4.4	A
	WB	62	62	1.3	A	68	67	17.4	B
	Intersection	***1167***	***1173***	***1.0***	***A***	***1712***	***1561***	***11.7***	***B***
SR 52/MMP at Pinetree Way/Memorial Dr	NB	473	471	2.7	A	787	774	4.0	A
	SB	661	642	3.2	A	708	581	25.8	C
	EB	82	90	20.5	C	118	117	67.6	E
	WB	19	21	10.9	B	127	122	18.2	B
	Intersection	***1235***	***1224***	***4.4***	***A***	***1740***	***1594***	***17.7***	***B***
SR 52/MMP at E Main St	NB	376	367	2.4	A	751	735	12.3	B
	SB	688	686	3.5	A	700	598	34.1	C
	EB	268	264	10.9	B	462	453	6.9	A
	WB	163	161	23.0	C	574	484	36.9	D
	Intersection	***1495***	***1478***	***6.6***	***A***	***2487***	***2270***	***22.2***	***C***
E Main St at N Grove St	NB	54	52	16.0	B	72	73	12.7	B
	SB	573	562	19.1	B	576	566	22.2	C
	EB	385	371	11.7	B	359	345	12.9	B
	WB	427	426	5.3	A	400	351	5.4	A
	Intersection	***1439***	***1411***	***12.9***	***B***	***1407***	***1335***	***14.8***	***B***
SR 52/MMP at W Main St	NB	35	34	25.9	C	58	58	22.7	C
	SB	282	281	4.5	A	253	250	10.2	B
	EB	716	698	21.8	C	750	760	18.1	B
	WB	260	247	27.8	C	336	322	29.1	C
	Intersection	***1293***	***1260***	***19.2***	***B***	***1397***	***1390***	***19.4***	***B***
W Main St at Sunset Dr/NGCU Entrance	NB	458	433	0.5	A	359	365	1.4	A
	SB	379	380	3.7	A	337	324	13.4	B
	EB	76	84	18.2	B	62	73	5.8	A
	WB	91	83	16.7	B	250	209	6.8	A
	Intersection	***1004***	***980***	***4.6***	***A***	***1008***	***971***	***6.9***	***A***
SR 52/MMP at SR 60/Clarkesville St	NB	348	338	5.6	A	728	683	8.8	A
	SB	240	233	15.2	B	321	309	27.9	C
	WB	470	479	5.2	A	424	369	22.6	C
	Intersection	***1058***	***1050***	***7.5***	***A***	***1473***	***1361***	***16.9***	***B***

Note: Peak-period turning movements counted at the following intersections were used to calibrate the model: SR 52/MMP and SR 60/South Chestatee Street; SR 52/MMP and Riley Road; SR 52/MMP and Memorial Drive/Pinetree Way; SR 52/MMP and East Main Street; and East Main Street and North Grove Street.

Table 6-2: 2035 Peak-Hour Intersection LOS

		AM Peak Hour				PM Peak Hour			
Intersection	Approach	Demand Volume	Model Volume	Delay (sec)	LOS	Demand Volume	Model Volume	Delay (sec)	LOS
SR 52/MMP at SR 60/S. Chestatee St	NB	730	519	27.9	C	825	517	41.8	D
	SB	818	563	36.2	D	1005	513	39.4	D
	EB	601	471	71.3	E	711	432	64.8	E
	WB	1023	654	40.2	D	931	578	33.9	C
	Intersection	***3172***	***2207***	***42.9***	***D***	***3472***	***2040***	***43.8***	***D***
SR 52/MMP at Riley Rd (Unsignalized)	NB	1019	716	6.3	A	1151	764	4.6	A
	SB	832	537	15.6	B	937	311	49.4	D
	EB	212	192	4.2	A	252	193	25.4	C
	WB	148	106	15.1	B	152	138	96.3	F
	Intersection	***2211***	***1551***	***8.5***	***A***	***2492***	***1406***	***40.6***	***D***
SR 52/MMP at Pinetree Way/Memorial Dr	NB	895	620	5.2	A	994	721	5.8	A
	SB	905	567	16.3	B	989	266	116.8	F
	EB	262	179	72.5	E	318	113	174.1	F
	WB	81	78	24.0	C	164	140	50.2	D
	Intersection	***2143***	***1444***	***18.9***	***B***	***2465***	***1240***	***50.0***	***D***
SR 52/MMP at E Main St	NB	630	467	4.1	A	756	556	13.6	B
	SB	1032	697	12.2	B	806	203	282.1	F
	EB	399	356	13.0	B	582	328	42.7	D
	WB	275	215	31.6	C	505	160	276.5	F
	Intersection	***2336***	***1735***	***12.6***	***B***	***2649***	***1247***	***98.7***	***F***
E Main St at N Grove St	NB	119	113	26.3	C	131	68	136.9	F
	SB	683	362	68.3	E	617	242	73.3	E
	EB	579	454	5.4	A	484	192	19.6	B
	WB	640	366	36.3	D	542	259	6.1	A
	Intersection	***2021***	***1295***	***33.5***	***C***	***1774***	***761***	***42.6***	***D***
SR 52/MMP at W Main St	NB	147	146	43.8	D	179	127	48.4	D
	SB	339	226	29.5	C	230	141	22.6	C
	EB	982	718	48.3	D	943	524	33.2	C
	WB	692	476	71.0	E	806	420	42.1	D
	Intersection	***2160***	***1566***	***52.1***	***D***	***2158***	***1212***	***36.6***	***D***
W Main St at Sunset Dr/NGCU Entrance	NB	479	321	57.4	E	367	143	12.4	B
	SB	459	298	4.4	A	335	173	9.2	A
	EB	149	135	69.9	E	157	73	34.7	C
	WB	91	82	25.4	C	204	106	13.7	B
	Intersection	***1178***	***836***	***37.4***	***D***	***1063***	***495***	***14.8***	***B***
SR 52/MMP at SR 60/Clarkesville St	NB	728	572	5.2	A	805	525	5.3	A
	SB	521	400	13.0	B	567	165	291.5	F
	WB	610	422	49.8	D	458	172	294.2	F
	Intersection	***1859***	***1394***	***20.9***	***C***	***1830***	***862***	***117.8***	***F***

6.2 Key Findings

- According to the assessment of travel conditions, there were approximately 86,000 daily trips throughout the subarea in 2010. By 2035, this number is expected to increase to 150,000 trips, an increase of 73 percent. This anticipated trip growth is consistent with the population and employment projected for the City of Dahlonega and the greater Lumpkin County area.

- Currently, portions of SR 52/MMP north of SR 60/South Chestatee Street exhibit the worst congestion in the subarea. By 2035, all the major roadways are expected to exceed capacity and operate at failing LOS E or F. However, if right of way is unavailable, or resources are limited, capacity improvements may be focused on key parts of the system. To identify priority improvements, the analysis has identified those that are most cost-effective and with the highest community support. Furthermore, although facilitating efficient vehicular travel is one of the priorities of the study, it also prioritizes safe access for all users to the developments along SR 52/MMP.

- By 2035, analysis results indicated the need for capacity and operating improvements at all the major intersections in the subarea. Potential needs include extending or adding turning lanes, adding thru capacity and signalization. These needs were explored in further detail during the project development and evaluation process.

SR 52/MORRISON MOORE PARKWAY SUBAREA STUDY

FINAL RECOMMENDATIONS REPORT

Prepared for:

Georgia Department of Transportation

Prepared by:

JACOBS™

Atlanta, GA

7.0 INTRODUCTION

The Georgia Department of Transportation (GDOT), in partnership with the City of Dahlonega, has undertaken the SR 52/Morrison Moore Parkway (SR 52/MMP) Subarea Study to analyze solutions to address the mobility and accessibility needs along the SR 52/MMP Corridor and other major roadways in the subarea. As illustrated in **Figure 1-2** (page 1-4), the SR 52/MMP Subarea is located wholly within the City of Dahlonega. The subarea consists of Downtown Dahlonega, North Georgia College and State University (NGCSU), and areas east of the SR 52/MMP bypass that include major institutions such as the Chestatee Regional Hospital, new Judicial Center, City Hall, and Wal-mart. Major roadways included in the subarea are the SR 52/MMP Bypass, US 19/SR 60/South Chestatee Street, East Main Street and West Main Street. Potential impacts to these major facilities are the focus of this study.

The purpose of this study is to identify and recommend transportation improvements necessary to meet existing and future transportation needs through the year 2035. To this end, a SR 52/MMP Subarea Travel Demand Model (TDM) has been developed to assess travel trends and assist in the evaluation of potential improvements. Transportation projects considered in this study were identified based on the existing and modeled future travel needs, crash analysis, relevant previous studies, as well as public and stakeholder input. A Stakeholder Advisory Committee (SAC) made up of key local officials, planning staff and community representatives was established to provide guidance on technical and policy issues. This group was engaged at key milestones over the course of the study.

This study is organized into seven tasks. The study process is non-linear and interactive, with each task providing feedback into the overall analysis. Details on each task in the study process can be found in the *Baseline Conditions/Needs Assessment Report* completed in March 2011. This report provides an inventory of the factors that influence the transportation system in the subarea. These factors include the demographics, community facilities, the natural environment, land uses and development patterns in the subarea. Travel demand and system performance models were calibrated to current conditions and projected for future forecasts. The major findings from this report constitute the basis for potential transportation recommendations and associated land use policies intended to improve the mobility and accessibility of the subarea. Stakeholder and Public input informed the evaluation of alternatives, and yielded final recommendations.

7.1 Public Involvement

Stakeholder and community input were sought throughout the study process to identify needs and potential solutions. This study reflects the priorities of the stakeholders and previous planning efforts. Efforts for engaging the public included coordination with the Stakeholder Advisory Committee (SAC), corridor residents and employees, elected officials, and partnering agencies. A project website was widely publicized and used as the main avenue for providing status updates and an opportunity for electronic input via an online survey. Additionally, three fact sheets were published to inform the community on major milestones. This section provides a summary of the extensive outreach activities efforts to solicit community input on the travel needs of the study area and potential recommendations. All relevant material from the public involvement including the summaries of SAC meetings, interviews, briefings and fact sheets are included in the appendices.

7.1.1 SAC Coordination

The SAC convened four times over the course of the study to provide guidance on technical and policy issues. Early on, this committee was instrumental in identifying travel needs in the study area. Subsequent meetings were held to discuss the major findings from the assessment of existing conditions and to understand local priorities. It was the general consensus of the SAC that the improvements along the SR 52/MMP Corridor avoid disruption of current activities in surrounding communities and support the City's development strategies. The final meeting confirmed the goals and objectives of the study and to present the final recommendations. All meetings were advertised and open to the general public.

7.1.2 Stakeholder Interviews and Community Briefings

A total of 18 stakeholder interviews were completed as part of the outreach efforts. In order to provide a greater opportunity for participation, interviews were also conducted with those who did not participate as a formal SAC member. Furthermore, a number of community briefings were provided for key organizations and groups including the Rotary Club, Chamber of Commerce, Ministerial Association, Leadership Lumpkin Class, Crown Mountain (office) Condo Association. These briefings provided great opportunities to spread the word about the study and to receive additional public input.

8.0 MAJOR FINDINGS FROM NEEDS ASSESSMENT

The *Baseline Conditions/Needs Assessment Report* provides a comprehensive inventory of the factors that may justify and influence the types of transportation investment in the subarea. The following discussion provides the highlights and major findings from the assessment of baseline conditions and needs of the study area. These findings provide the basis for transportation project recommendations and associated land use strategies. The factors that influenced the project development process are categorized by major themes.

8.1 Demographics

- Lumpkin County experienced 44.2 percent population growth between 1990 and 2000. Future population growth projections indicate that current trend will intensify over the years to come, with the county expected to grow at a much higher rate than the city. The significant countywide growth indicates the need for the major study area roadways to be analyzed within the context of the regional transportation system, as well as their efficiency within the study area.

- By 2035, Dahlonega's population is projected to grow to approximately 9,700 based on the growth rate provided in the City's Comprehensive Plan. The Comprehensive Plan calls the increasing population at NGCSU the primary source of future population growth in the city. The needs of the university residents as well as the role of the university as a regional activity center should be taken into account in planning transportation improvements in the study area.

- NGCSU is the only Lumpkin County employer to rank among the top ten in the region. The other nine are found in neighboring Hall County. Commuting statistics from Georgia Department of Labor (GDOL) indicate that only half of employed county residents work in Lumpkin County. Therefore, the travel patterns within the study area and the SR 52/MMP Corridor must take into account cross-regional commuter trips as well as local trips.

8.2 Community Resources and Natural Systems

- Expansions plans of NGCSU, as described in its Master Plan (2009), will likely have significant impacts to the study area. The Master Plan envisions a more walkable campus. Pedestrian traffic is therefore expected to increase in the vicinity of campus, placing new emphasis on safe, visible crosswalks on West Main Street and on sidewalk connections from the SR 52/MMP Connector to downtown.

- Dahlonega's historic characteristics and hilly topography are major environmental constraints to implementing transportation improvements. Impacts to parklands and historic sites immediately adjacent to the

SR 52/MMP should be avoided in the development of transportation improvements.

8.3 LAND USE AND DEVELOPMENT CHARACTERISTICS

- The most prominent existing category of land use is the Public and Institutional sector, which makes up over one-third of total land use. Primary among these land uses is the NGCSU campus, which takes up the majority of the study area's southern end. The new Judicial Center, Dahlonega's City Hall and Chestatee Regional Hospital are also major components of this land use category. These locations are particularly relevant since they have implications for the local and regional transportation network.

- Since the study area overlaps with downtown Dahlonega, commercial land uses are the second most prevalent in the study area. Downtown Dahlonega is characterized by many smaller commercial lots typical for a traditional downtown. As such, providing a safe pedestrian environment with contiguous sidewalks, pedestrian crossings and streetscapes are particularly applicable to this area.

- Residential uses account for 12.8 percent of land uses. Historic neighborhoods from Park Street to Mechanic Street make up a large portion of the residential uses and may require further consideration when evaluating potential impacts of transportation improvements. Many other residential uses are also found outside of the study area, particularly to the northwest and south. As such, new local routes may be considered to enhance roadway connectivity and the grid network in the study area.

- Vacant lands account for nearly ten percent of land uses, which signals that there is some land available for infill and other development within the study area into the future. In fact, the City has an aggressive future land use plan in which almost all its land will be developed by 2025, leaving only one percent of its land vacant. The development of vacant land and potential redevelopment of other, underused properties, as described in the City's Master Plan (2008), will have impacts to the transportation system in the study area.

- The City of Dahlonega states in its Comprehensive Plan (2005) that it intends to prioritize commercial development over residential development over the next twenty years. Accordingly, new commercial development is projected to replace residential land uses along SR 52/MMP from SR 60N to East Main Street in the northern portion of the study area, and replace vacant land uses along SR 52/MMP in the vicinity of the university in the southern portion of the study area. These shifts in land uses are likely to translate to higher number of trips to account for employees, customers, vendors and others associated with commercial uses.

8.4 Transportation System

- All the roadways in the subarea are narrow two-lane facilities and may not have the capacity to support the future growth planned by the City.

- Heavy through-traffic, particularly trucks, in Downtown Dahlonega was a major community concern in the past. Since then, the state highway designation has been removed for the segments of SR 60/South Chestatee Street north of SR 52/MMP and West Main Street to discourage truck usage of these corridors.

- SR 52/MMP serves as a bypass around the city and is the most traveled corridor in the subarea. The northeastern segment of SR 52/MMP carries almost 14,000 vehicles per day. It is the main corridor in the study area, serving both local and through trips, and travel demand is projected to increase with the additional commercial developments planned along the corridor. Capacity and operational improvements may be needed to provide a functional bypass.

- As another measure to reduce congestion along SR 52/MMP, inter-parcel connectivity and promotion of the grid network on the eastern side of SR 52/MMP should be considered to enhance mobility and connectivity in the subarea.

- As the main entry point to GA 400, the intersection of SR 52/MMP and SR 60/South Chestatee Street is the heaviest utilized intersection in the subarea. The southbound left-turning movement frequently experiences excessive queuing during peak periods.

- With the completion of the Downtown Master Plan, Complete Streets principles have been emphasized in the redevelopment of downtown. To this end, the City has recently received $720,000 in Federal Tiger II Grant help pay for design and engineering of sidewalks, bicycle lanes, on-street parking and streetscapes along South Chestatee Street and West Main Street. The implementation of this project may lead to a reduction in vehicular lane capacity in some locations. As such, there is a need to investigate SR 60/South Chestatee Street's capacity to operate efficiently into the future.

- Riley Road is home to the new Lumpkin County Judicial Center and Dahlonega's City Hall. There are plans in place to expand this site into a County Government Services Complex, which would have significant traffic impacts on the surrounding roadways. There is a need to examine various opportunities to improve the intersection of SR 52/MMP and Riley Road. This could mean signalization and/or addition of turn lanes, or even the consolidation with the Mechanicsville Road intersection to accommodate the additional demand.

- Providing safe pedestrian connections to schools along North Grove Street is a key element in this study and is an integral part of Georgia's Safe Routes to Schools initiative.

- The six intersections in the subarea with the highest crash frequencies are located along SR 52/MMP including the top three at SR 60/South Chestatee Street, East Main Street and Crown Mountain Place. The high number of accidents associated with the intersections of SR 52/MMP at SR 60/South Chestatee Street and East Main Street is likely a function of the high vehicular volume and capacity constraints. However, the intersection of SR 52/MMP and Crown Mountain Place may be in need of realignment and upgrades to the current design to ensure safety and alleviate the conflict between drivers from Crown Mountain Place and those on SR 52/MMP trying to get on the right-turning bay. Enhancing intersection operations and design should be a major consideration in improving the overall travel environment in the subarea. To this end, intersection realignment and/or providing additional access to this commercial area may better facilitate the movement of traffic and to ensure safety.

- Adequate and convenient parking for visitors in the downtown area, as well as NGCSU students, is a great concern in light of the anticipated growth in the subarea. To this end, providing safe pedestrian connections to and from the proposed parking areas is a key element in this study.

- Currently, no fixed route transit service is available in Dahlonega. Lumpkin County Dial-A-Bus system is a demand-response service through the GDOT public rural system that provides curb-to-curb transportation service for the county residents. However, future satellite parking at NGCSU and the needs of students, visitors, residents and the businesses in Downtown Dahlonega could support a shuttle as a safe and effective mobility alternative.

8.5 Trip Making and Travel Conditions

- According to the assessment of travel conditions, there were approximately 86,000 daily trips throughout the subarea in 2010. By 2035, this number is expected to increase to 150,000 trips, an increase of 73 percent. This anticipated trip growth is consistent with the population and employment projected for the City of Dahlonega and the greater Lumpkin County area.

- Currently, portions of SR 52/MMP north of SR 60/South Chestatee Street exhibit the worst congestion in the subarea. By 2035, all the major roadways are expected to exceed capacity and operate at failing LOS E or F. However, if right of way is unavailable, or resources are limited, capacity improvements may be focused on key parts of the system. To identify priority improvements, the analysis has identified those that are

most cost-effective and with the highest community support. Furthermore, although facilitating efficient vehicular travel is one of the priorities of the study, it also prioritizes safe access for all users to the developments along SR 52/MMP.

- By 2035, analysis results indicated the need for capacity and operating improvements at all the major intersections in the subarea. Potential needs include extending or adding turning lanes, adding thru capacity and signalization. These needs were explored in further detail during the project development and evaluation process.

9.0 PROJECT IDENTIFICATION AND EVALUATION

This section documents the steps taken to identify the candidate transportation projects for consideration in this study. This section also includes the details in the approach used in project evaluation as well as the results that led to the final recommendations.

9.1 Project Identification

Potential solutions identified in this report are designed to accommodate development as well as maintain mobility along SR 52/MMP. More than 23 potential projects, including roadway, traffic operations, bike/pedestrian and transit improvements, were identified during the study process based a review of previous studies, analyses of traffic conditions and safety as well as community input. **Table 9-1** shows the major elements considered when identifying potential projects for consideration in this study.

Table 9-1: Elements Considered in Project Identification

Review of Previous Studies	• Access management and traffic improvements are needed on SR 52/MMP, SR 60/South Chestatee Street and Main Street • Take advantage of redevelopment /infill opportunities in downtown • NGCSU has an aggressive facilities plan to accommodate the anticipated population growth
Level of Service Analysis	• By 2035 all major roadways are projected to operate at LOS E/F • Operational deficiencies are anticipated at all the major intersections
Safety Analysis	• Safety improvements are needed at SR 52/MMP and S. Chestatee St, SR 52/MMP and East Main St and SR 52/MMP and Crown Mountain Pl
Stakeholder Interviews and Community Briefings	• Importance of SR 52/MMP in its ability to move traffic and provide commercial access • Peak hour traffic is a major concern for the subarea • Need for improved bicycle and pedestrian facilities in downtown • Need for preservation of historic characteristic of downtown

Many of the improvements to the existing transportation system were identified based on the current operating conditions and anticipated future travel demand. For each candidate project, logical termini as well as purpose and need statements were developed and refined as the study progressed. Logical termini is the term used to describe the preferred beginning and ending points of a

proposed transportation improvement. The selection of these points must have a rational basis when viewed from an environmental perspective and they must have independent utility. **Tables 9-2 and 9-3** present the complete list of projects subcategorized by two major project types – Roadway Improvements and Multi-modal Projects. **Figure 9-1** illustrates the project locations and extents within the study area. The IDs shown on the map correspond to the Project IDs in the tables.

9.1.1 Roadway Improvements

Roadway improvements include *general capacity improvements* such as widenings or construction of a new roadway and *traffic operational projects*, which also involve intersection upgrades and signalization projects. Capacity improvements are necessary to increase throughput and relieve congestion. However, these projects require additional rights of way and can have significant impacts to the surrounding communities. Approximately $63.1 million in capacity improvements were identified as part of this study. Traffic operational improvements can increase throughput capacity especially in recurring congestion conditions. Bottlenecks typically occur at intersections with high share of left-turning traffic, particularly those operating without improvements. Providing additional turn lanes and/or signalization are among the ways to improve the flow of traffic without acquiring a significant amount of right of way.

9.1.2 Multi-modal Improvements

Multi-modal projects consist of enhancements to the pedestrian and bicycle network, including the application of Complete Streets principles for all new construction. Complete streets are those that allow safe movement and crossing opportunities for all users: automobiles, pedestrians, bicyclists, and transit riders. Because of the sub area's urban character, this concept should be applied on every major transportation project. . The Downtown Master Plan recommends a network of complete streets especially along Main Street and South Chestatee Street to promote a safe walking environment for the University students and tourists to the downtown. The bicycle and pedestrian projects identified in this study support the recommendations in the Master Plan.

Review of local and institutional plans, demographic projections, and economic development strategies all indicate a growing emphasis on urbanization as a means of attracting and accommodating growth in the subarea. This urbanization, combined with Dahlonega's continuing role as Lumpkin County's market center, will provide the ridership base for a small specialized shuttle transit system operating in the subarea. Ridership and ongoing support for such a system can be derived from diverse sources, strengthening its base. As such, a flexible shuttle system that could serve both the students and tourists was also identified as a potential multi-modal project. This system could potentially build on the existing Lumpkin County demand-response system (Dial-a-Ride) and would have the following objectives:

- Implement the City's downtown parking strategy by centralizing parking in downtown

- Support the safe and efficient implementation of NGCSU satellite parking strategy by providing daytime shuttle from lots south of SR 52/MMP to a single distribution point on campus during hours of school operation

- Provide flex-time shuttle service along the Main Street corridor to serve community and resident student needs during off-peak hours – weekday afternoon/evenings

Dahlonega's linear business district and compact urban form along Main Street also offer the opportunity for an efficient shuttle system that links parking and campus housing along West Main Street to dining and entertainment in downtown, and retail and housing on East Main Street. Such service could be offered after hours, again maximizing the use of the shuttle equipment. Service could grow in each niche as demand and resources dictate.

Figure 9-1: Draft Projects Map

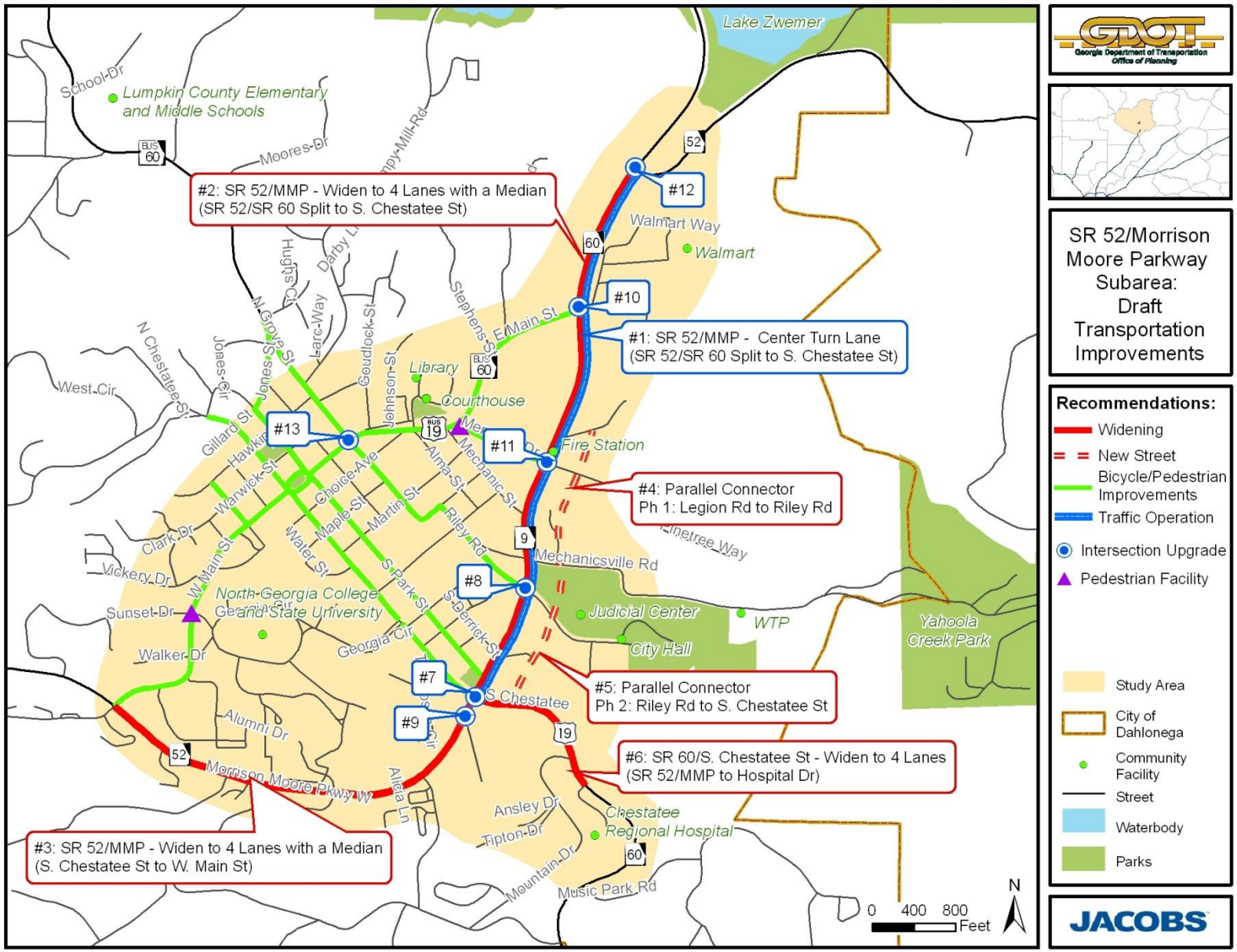


Table 9-2: Candidate Roadway Projects

ID	Project Name	Project Type	Project Description	Logical Termini	Purpose and Need	PE	ROW	Utility	CST	Preliminary Total Cost
1	SR 52/MMP - Center Turn Lane	Traffic Operation	Add a center turn lane from SR 60/S. Chestatee St to SR 52/SR 60 split. (1.0 mile)	Northern terminus is where SR 52 splits to the east as over half of the trips on Morison Moore Pkwy diverges at this intersection. Southern terminus is at the SR 60/S. Chestatee St. intersection as the majority of trips follow SR 60/S. Chestatee St east to access GA 400.	SR 52/MMP is the most traveled corridor in the subarea, and thus, safety and congestion are major issues to consider. This segment of SR 52/MMP currently experiences delay and high v/c ratio during the peak periods and this condition is expected to worsen significantly by 2035. Long queues occur at unsignalized intersections as a result of left-turning traffic. As such, a center turn lane is needed on SR 52/MMP to maximize throughput by removing left-turning vehicles from the thru traffic.	$559,272	$837,818	$1,342,200	$6,990,906	$9,730,197
2	SR 52/MMP - Widening to 4 Lanes with a Median (East)	Capacity	Widen to 4 lanes with a raised center median from SR 60/S. Chestatee St to SR 52/SR 60 split. (1.0 mile)	Northern terminus is where SR 52 splits to the east as over half of the trips on Morison Moore Pkwy diverges at this intersection. Southern terminus is at the SR 60/S. Chestatee St. intersection as the majority of trips follow SR 60/S. Chestatee St east to access GA 400.	SR 52/MMP is the most traveled corridor in the subarea, and thus, safety and congestion are major issues to consider. This segment of SR 52/MMP currently experiences delay and high v/c ratio and this condition is expected to worsen significantly by 2035. Widening to 4 lanes will provide significant congestion relief.	$835,533	$9,935,127	$1,342,200	$10,444,163	$22,557,024
3	SR 52/MMP - Widening to 4 Lanes with a Median (West)	Capacity	Widen to 4 lanes with a raised center median W. Main St/Barlow Rd to SR 60/ S. Chestatee St (0.78 mile)	Western terminus is at the W. Main St/Barlow Rd intersection as approximately half of the trips on SR 52/MMP are headed to downtown via W. Main St. Eastern terminus is at the SR 60/S. Chestatee St. intersection as the majority of trips follow SR 60/S. Chestatee St east to access GA 400.	SR 52/MMP is the most traveled corridor in the subarea, and thus, safety and congestion are major issues to consider. This segment of SR 52/MMP is anticipated to experience significant growth partly due to the expansion plans of NGCSU and thus result in high v/c ratio by 2035. Widening to 4 lanes will provide significant congestion relief.	$645,886	$6,534,982	$1,075,860	$8,073,582	$16,330,310
4	New SR 52/MMP Parallel Connector - (Phase 1)	Capacity	Construct a new parallel connector on the east side of SR 52/MMP from Legion Rd to Riley Rd. The new connector will be constructed based on 'complete streets' concept with sidewalks and bicycle lanes. (0.36 mile)	Northern terminus at Legion Rd provides access to existing and proposed commercial development. Southern terminus is at Riley Rd which	The new parallel route (Phase 1) will be designed to provide congestion relief in addition to the much needed inter-parcel connectivity for the commercial and institutional uses on the east side of SR 52/MMP. Although facilitating efficient vehicular travel is one of the priorities of the study, it is also equally important to provide safe access for pedestrians and bicyclists to the developments along SR 52/MMP. Note that all areas between Mechanicsville Rd and Riley Rd along the SR 52/MMP frontage are publicly owned, and may offer the opportunity to consolidate these entry roads as the first phase.	$721,871	$168,541	$0	$9,023,390	$9,913,803

Table 9-2: Candidate Roadway Projects (Continued)

ID	Project Name	Project Type	Project Description	Logical Termini	Purpose and Need	PE	ROW	Utility	CST	Preliminary Total Cost
5	New SR 52/ MMP Parallel Connector - (Phase 2)	Capacity	Construct a new parallel connector on the east side of SR 52/MMP from Riley Rd to SR 60/ S. Chestatee St. The new connector will be constructed based on 'complete streets' concept with sidewalks and bicycle lanes. (0.18 mile)	Northern terminus at Riley Road is the southern terminus to Phase 1. Southern terminus is at SR 60/ S. Chestatee St as majority of trips follow SR 60/S. Chestatee St east to access GA 400.	Phase 2 will extend the new parallel route south to tie in with SR 60/S. Chestatee St. If implemented, this facility will provide congestion relief on SR 52/MMP as well as the intersection at SR 60/S. Chestatee St.	$550,000	$85,457	$244,875	$6,875,006	$7,755,339
6	SR 60/S. Chestatee St - Widening to 4 Lanes	Capacity	Widen to 4 lanes from SR 52/ MMP to Hospital Dr (0.29 mile)	Northern terminus is at SR 52/MMP where a significant share of trips utilize SR 52/MMP to bypss the downtown. Southern terminus is at Hospital Dr which provides access to the Chestatee Regional Hospital.	SR 60/S. Chestatee St provides direct access to GA 400 and is the second most traveled corridor in the subarea. It is anticipated to experience significant growth and thus result in high v/c ratio by 2035. Widening to 4 travel lanes will provide significant congestion relief. Majority of this segment of SR 60/S. Chestatee St has 3 existing lanes (2 lanes southbound/1 lane northbound) and thus right of way impacts will likely be minimal.	$289,000	$2,345,891	$372,795	$3,616,055	$6,624,025
7	SR 52/MMP and SR 60/S. Chestatee St	Intersection Improvement	Upgrade intersection by providing double left turn lanes on SR 52/ MMP southbound and construct double receiving lanes on SR 60/S. Chestatee St eastbound. (SR 60/S. Chestatee St has 2 eastbound travel lanes 300 ft from the intersection) Add pedestrian improvements such as sidewalks, pedestrian signals and crosswalks.	N/A	SR 52/MMP and SR 60/S. Chestatee St intersection carries the highest vehicular volume in the subarea. Additional left-turning lane capacity is needed to accommodate the expected traffic growth in the study area.	$30,424	$352,721	$166,568	$380,306	$930,019
8	SR 52/MMP and Riley Rd/ Mechanicsville Rd	Signalization/ Intersection Improvement	Signalize and provide adequate turn lane capacity to accommodate left turning movement on all approaches. (Signal warrant analysis is needed to determine a need for a signal with associated operational improvements) Add pedestrian improvements such as sidewalks, pedestrian signals and crosswalks.	N/A	Severe delays occur at this intersection from left-turning traffic on SR 52/MMP as well as on Riley Rd during peak periods. Riley Rd is heavily utilized by travelers associated with the new judicial center, city hall and the recreational center. The government complex has expansion plans which could have significant implications to traffic circulation in the surrounding streets.	$44,991	$345,628	$357,000	$562,395	$1,310,015

Table 9-2: Candidate Roadway Projects (Continued)

ID	Project Name	Project Type	Project Description	Logical Termini	Purpose and Need	PE	ROW	Utility	CST	Preliminary Total Cost
9	SR 52/MMP and Crown Mountain Pl	Intersection Improvement	Realign Crown Mountain Pl to perpendicular intersection to SR 52/MMP	N/A	Crown Mountain Pl intersects SR 52/MMP in the middle of northbound right-turn storage lane, creating conflict between drivers entering SR 52/MMP from Crown Mountain Pl and those on SR 52/MMP trying to get on the right-turning bay. With an average of 11 crashes per year, the intersections has the highest volume-adjusted crash rate in the study area. The traffic island installed to deter drivers from prematurely entering the right turn lane has been ineffective. Intersection realignment and/or additional access to this commercial area will better facilitate the traffic movement and ensure safety.	$51,065	$41,891	$0	$638,319	$731,276
10	SR 52/MMP and E. Main St	Signal Upgrade/ Intersection Improvement	Upgrade intersection by realigning Wal-Mart Wy approach and providing additional storage space for turning movements. Add protected left-turn phase on SR 52/MMP.	N/A	SR 52/MMP at E. Main St has the second highest number of accidents in the study area. Due to the skewed design, sight distance is an issue for the vehicles on Wal-Mart Wy turning onto SR 52/MMP. Intersection improvements are needed to provide additional thru capacity on SR 52/MMP and westbound left turn approach. The improvements should also include the addition of a left-turn phase to better facilitate turning traffic and clear the intersection.	$24,628	$156,393	$158,063	$307,860	$646,945
11	SR 52/MMP at Pinetree Wy/Memorial Dr	Intersection Improvement	Add right turning lane on Memorial Dr approach. Add left turning lane on Pinetree Wy approach. Implement pedestrian upgrades such as sidewalks and countdown pedestrian signals.	N/A	This intersection serves as access to downtown to the west and the industrial and commercial uses to the east. Intersection improvements are needed to provide sufficient left turning capacity on eastbound approach.	$36,478	$154,307	$158,063	$455,981	$804,830
12	E. Main St at N. Grove St	Intersection Improvement	Provide left turn lane on the southbound approach	N/A	Providing safe connections to schools along North Grove St is a key element in this study Additional turning capacity on the southbound approach would alleviate the long queues particularly associated with school traffic.	$18,747	$2,780,160	$91,875	$234,349	$3,125,132
13	SR 52/MMP at SR 60	Intersection Improvement	Lengthen left turn lane on westbound approach to provide additional storage for turning traffic.	N/A	This intersection serves as the main access to downtown Dahlonega (as well as the bypass around the city) from northern Lumpkin County.	$8,747	$36,864	$91,875	$109,349	$246,836

Table 9-3: Candidate Multi-modal Projects

ID	Project Name	Project Type	From/To	Project Description	Length (Feet)	Source	Preliminary Total Cost
M01	Memorial Dr	Pedestrian Facility	E. Main St to SR 52/MMP	Sidewalks, parking, streetscape	920	Downtown Master Plan (2008)	$672,750
M02	Church St	Pedestrian Facility	Hawkins St to W. Main St	Wide sidewalks, parking, textured crosswalks, themed	530	Downtown Master Plan (2008)	$388,125
M03	N. Chestatee St	Pedestrian Facility	N. Park St to W. Main St	Sidewalks, parking, planting strip, curb and gutter	1,100	Downtown Master Plan (2008)	$741,750
M04	S. Chestatee St	Pedestrian Facility	W. Main St to SR/60 S. Chestatee St	Wide sidewalks, parking, textured crosswalks, themed landscape	2,610	Downtown Master Plan (2008)	$2,403,500
M05	S. Grove St/ Riley Rd	Pedestrian Facility	Choice Ave to SR 52/MMP	Sidewalk, parking, rustic fencing	2,130	Downtown Master Plan (2008)	$1,121,250
M06	N. Grove St	Pedestrian Facility	Woodward Wy to Choice Ave	Sidewalks, planting strips, trees, curb and gutter	1,700	Downtown Master Plan (2008)	$667,000
M07	S. Park St/ N. Park St/ Jones St	Pedestrian Facility	N. Grove St to SR 52/MMP	Sidewalk, parking, planting strip with trees	4,130	Downtown Master Plan (2008)	$2,783,000
M08	E. Main St/W. Main St (including Public Square)	Pedestrian Facility	College Ln to N. Grove St	Sidewalks, parking, textured crosswalks, pedestrian bulbouts	1,950	Downtown Master Plan (2008)	$1,536,975
M09	W. Main St	Complete Streets	SR 52/MMP to Church St	Complete Streets principle with sidewalk, bike lanes, planting strip with trees	2,400	Downtown Master Plan (2008)	$1,656,000
M10	E. Main St	Complete Streets	N. Grove St to SR 52/MMP	Complete Streets principle with sidewalk, bike lanes, planting strip with trees	2,780	Downtown Master Plan (2008)	$1,932,000
M11	W. Main St and Sunset	Pedestrian Facility	N/A	Pedestrian upgrades such as countdown pedestrian signals, textured crosswalks and streetscapes are planned by NGCSU to improve the safety of this intersection. (Construction is already underway and scheduled to be completed by the fall semester)	N/A	SR 52/MMP Subarea Study	N/A
M12	E. Main St and Memorial Dr	Pedestrian Facility	N/A	Construct a pedestrian refuge on the south side of the intersection as a safe means to protect from the wide radius right turn from E Main St to Memorial Dr	N/A	SR 52/MMP Subarea Study	< $5,000
M13	Downtown/NGCSU Shuttle	Transit	N/A	Mitigate commuter and tourism related congestion on SR52/MMP and S. Chestatee St and support tourism development in downtown Dahlonega by providing a flexible shuttle service.	N/A	SR 52/MMP Subarea Study	$300,000 (Capital) $1.1M (O&M)

9.2 Evaluation Framework

A combination of technical assessment and community input was used to evaluate and prioritize the transportation projects identified in this study. GDOT's Project Prioritization Plan (PrPP) is a technical tool that place emphasis on project performance to help determine statewide transportation priorities. As such, the PrPP was used as one of the tools to evaluate potential capacity improvements and some traffic operational projects. Quantitative performance measures such as forecast reduction in vehicle hours of travel (VHT) and vehicle miles of travel (VMT); improved levels of service (LOS) as measured in volume to capacity ratio (v/c); and estimated project costs were applied in the project evaluation. The subarea travel demand model (TDM) was utilized to calculate the changes in VHT, VMT and LOS under the No-Build and the Build Scenarios. VISSIM modeling was applied to evaluate the performance of intersection improvements. Refer to the *Baseline Conditions/Needs Assessment Report* for additional details on the assumptions and approach used in the modeling analysis.

Construction cost estimations were conducted using GDOT's cost estimation software (CES) and right of way cost estimations were conducted using the ROW and Utility Estimation Tool (RUCEST). These tools were developed to ensure that planning level cost estimates (in today's dollars) are reliable and based on the latest project information.

The guidelines for PrPP state that when quantifiable data is used, the local needs and priorities must be also considered. Consistency with local plans is a qualitative measure that recognizes the importance of being consistent with the recommendations of other related plans in the county. Projects that have been included in previous studies are indicative of having endorsement from the local and regional stakeholders. To this end, the candidate projects were prioritized based on community input and consistency with the following reoccurring themes identified from locally adopted plans:

- Improve accessibility and mobility of people and goods
- Reduce crash frequencies at major intersections
- Increase opportunity for multi-modal transportation corridors by expanding the bicycle and pedestrian network
- Preserve and improve the existing system, environment, and quality of life
- Coordinate land use and transportation

9.3 Evaluation Results

The subarea travel demand model was used to compare the anticipated network performances of the No-Build Condition against the Build Condition which includes all the roadway improvements identified in **Table 9-2**. Ideally, the Build

Condition would yield in a lower overall VMT and/or VHT because the additional capacity improvements would result in travel time savings for drivers. The model results showed that by 2035, the subarea is anticipated to acquire 287,000 VMT and 16,550 VHT under the No-Build. When the capacity improvements were modeled, the subarea is anticipated to experience 4.3% and 26.8% reductions in VMT and VHT, respectively. The significant reduction in VHT is indicative of how much the transportation network in the subarea will benefit from the additional capacity improvements in the future.

Figure 9-2 presents the LOS analysis results of the Build Condition. The widening of SR 52/MMP to four lanes with a median is anticipated to significantly improve the general traffic flow on the highly congested corridor. However, some bottleneck conditions are still expected along the busier sections of SR 52/MMP between SR 60/South Chestatee Street and Memorial Drive and north of East Main Street during the peak periods. These findings support the need for capacity improvement along SR 52/MMP to accommodate the anticipated traffic growth in the future.

The intersection upgrades described previously have been modeled and the anticipated LOS for the major intersections under the Build Condition are also illustrated on **Figure 9-2** and presented in **Table 9-4**. The results of the intersection upgrades show a significant improvement in the LOS for all the intersections. With the exception of the intersection of SR 52/MMP at SR 60/South Chestatee Street, all the intersections are anticipated to operated at LOS C or better under the improved conditions. Although the application of dual left turn lanes on the SR 52/MMP southbound approach significantly improved the operations of the north-south movement, the east-west movement will need to be further examined to determine the feasibility of an extended right-turn lane on SR 60/South Chestatee Street. Right of way may be a major issue as the northeast corner is constrained by a significant drop in elevation.

Figure 9-2: 2035 Build Scenario LOS

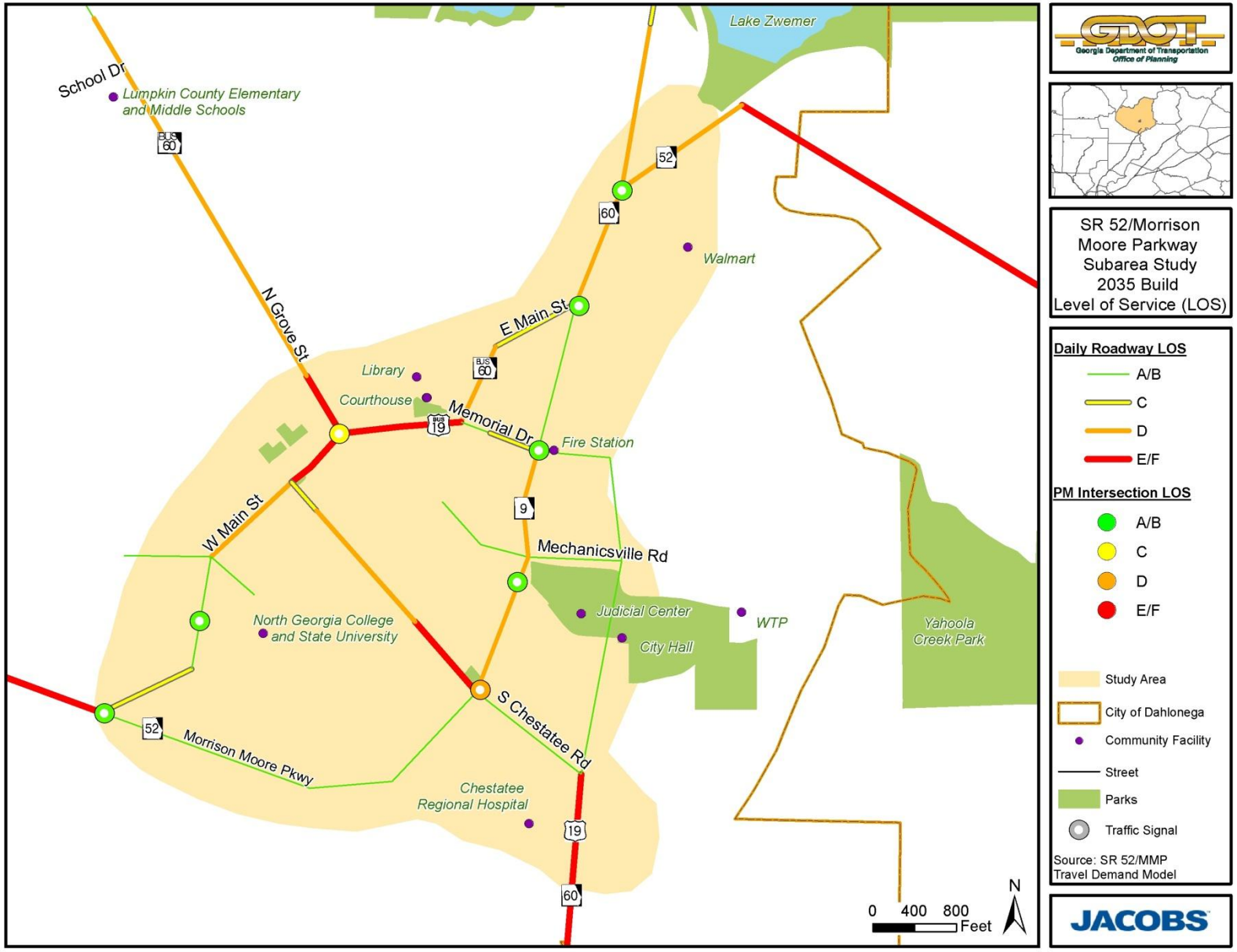


Table 9-4: 2035 Build Scenario Peak-Hour Intersection LOS

		AM Peak Hour				PM Peak Hour			
Intersection	Approach	Demand Volume	Model Volume	Delay (sec)	LOS	Demand Volume	Model Volume	Delay (sec)	LOS
SR 52/MMP at SR 60/S. Chestatee St	NB	687	687	11.1	B	824	726	14.2	B
	SB	827	793	16.8	B	868	845	16.2	B
	EB	552	529	72.9	E	695	568	62.3	E
	WB	771	764	77.0	E	714	717	65.0	E
	Intersection	***2859***	***2773***	***42.7***	***D***	***3101***	***2856***	***37.1***	***D***
SR 52/MMP at Riley Rd (Signalized)	NB	814	817	11.4	B	970	916	9.8	A
	SB	854	830	6.1	A	926	866	5.9	A
	EB	219	226	7.1	A	243	247	5.7	A
	WB	373	204	3.8	A	338	206	3.6	A
	Intersection	***2260***	***2077***	***7.2***	***A***	***2477***	***2235***	***6.4***	***A***
SR 52/MMP at Pinetree Way/Memorial Dr	NB	941	824	3.9	A	1041	847	6.0	A
	SB	949	956	4.6	A	1000	954	5.1	A
	EB	293	272	6.9	A	388	317	11.7	B
	WB	53	70	15.3	B	127	139	9.4	A
	Intersection	***2236***	***2122***	***5.0***	***A***	***2556***	***2257***	***6.6***	***A***
SR 52/MMP at E Main St	NB	667	642	2.9	A	868	773	9.2	A
	SB	1024	1014	2.6	A	923	907	9.0	A
	EB	388	376	12.4	B	503	456	8.4	A
	WB	282	284	12.4	B	619	612	11.1	B
	Intersection	***2361***	***2316***	***5.5***	***A***	***2913***	***2748***	***9.4***	***A***
E Main St at N Grove St	NB	119	113	16.2	B	130	123	20.2	C
	SB	700	530	32.5	C	629	461	55.9	E
	EB	564	544	8.7	A	449	364	7.5	A
	WB	641	567	6.7	A	587	381	7.0	A
	Intersection	***2024***	***1754***	***15.7***	***B***	***1795***	***1329***	***25.3***	***C***
SR 52/MMP at W Main St	NB	149	147	17.8	B	180	158	15.7	B
	SB	303	274	60.0	E	230	180	24.8	C
	EB	986	896	25.6	C	977	742	30.7	C
	WB	766	685	4.2	A	814	761	4.6	A
	Intersection	***2204***	***2002***	***22.4***	***C***	***2201***	***1841***	***18.0***	***B***
W Main St at Sunset Dr/NGCU Entrance	NB	490	438	4.1	A	382	247	24.0	C
	SB	395	360	5.0	A	315	257	8.3	A
	EB	144	149	15.3	B	153	125	39.2	D
	WB	82	83	15.4	B	107	81	38.2	D
	Intersection	***1111***	***1030***	***7.0***	***A***	***957***	***710***	***22.6***	***C***
SR 52/MMP at SR 60/Clarkesville St	NB	741	715	6.8	A	936	837	5.1	A
	SB	517	474	7.5	A	561	513	8.6	A
	WB	606	642	11.9	B	486	525	11.3	B
	Intersection	***1864***	***1831***	***8.8***	***A***	***1983***	***1875***	***7.8***	***A***

9.3.1 Potential Fatal Flaws

In addition to the modeling analysis, a fatal flaw analysis or a high-level technical assessment based on environmental and engineering constraints as well as community input were considered in the project evaluation. During the project evaluation process, the following potential fatal flaws were identified:

- Many stakeholders opposed the widening of SR 52/MMP to four lanes due to the significant right of way and community impacts along the corridor. Furthermore, the stakeholders believed that a four-lane arterial would not be consistent with the City's plans to create and maintain a walkable environment. The stakeholders recognized that wider arterials become much more difficult for traffic and pedestrians to get across, creating a "river" of traffic. Traffic congestion also begins to devalue an area if it is perceived to be too difficult or crowded to attempt to reach nearby businesses.

- The City and County have plans to improve and build upon the new Judicial Complex, including a proposal for a new library, which may constrain development of a parallel road. The design of that road should be done in coordination with the master plans for the area.

- The parallel connector road between Riley Road and SR 60/South Chestatee Street could have major environmental and topographical issues at the South Chestatee intersection. These include utilities, sharp horizontal curve, right of way, and the crossing of Tanyard Branch. Detailed analysis is required to evaluate the feasibility of this project.

- Any major roadway improvement that could result in an adverse impact to the historic character of the downtown should be avoided. Severe queuing occurs at the intersection of East Main Street at North Grove Street. Although additional turning-lane storage could greatly improve its operations, especially on the southbound approach at this intersection, the intersection's proximity to historic buildings poses limitations.

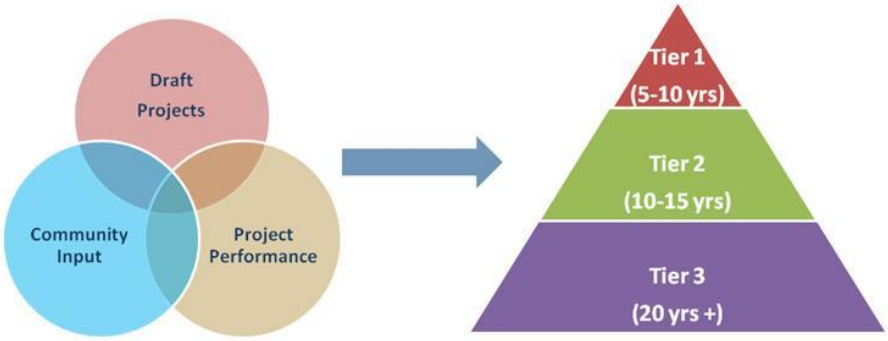
10.0 RECOMMENDED PROJECTS AND POLICIES

This chapter presents a list of recommended projects based on the evaluation methodology described in the previous chapter. The baseline conditions, relevant studies, and stakeholder input provided a basis for the identification of potential projects considered for evaluation. In addition to the project list, a number of associated policies have been developed in order to foster an environment that will support the project recommendations from this study. It is important to keep in mind that the improvements recommended in this study serve to not only address specific travel needs but also to improve the overall transportation system in the subarea.

10.1 Tiered Implementation Plan

Three tiers of recommendations have been developed based on project performance and community input **(Figure 10-1)**.

Figure 10-1: Tiered Implementation Plan



10.1.1 Tier 1 Recommendations

Tier 1 projects have the highest community support and are recommended due to their low cost and ability to maximize the effectiveness of the existing system. A traditional highway engineering approach to address traffic congestion has been to add more capacity to existing roadways by widening them. However, as traffic volumes have continued to increase exponentially over time, traditional approaches to solving congestion should be reevaluated as limits to capacity additions are reached.

Consistent with local priorities to preserve the existing businesses along SR 52/MMP, Tier 1 recommendations include mostly operational improvements to SR 52/MMP which are designed to allow more effective management of the supply and use of existing roadway. Projects in Tier 1 cost roughly $22 million and are proposed to be implemented within the next 10 years. As described below and illustrated in **Figure 10-2**:

- Project #1: Implement center turn lane on SR 52/MMP from SR 60/S. Chestatee St to SR 52/SR 60 split to maximize throughput by removing left-turning vehicles from through traffic. (Total Cost: $9.7 million)

- Project #7: Upgrade intersection of SR 52/MMP at SR 60/South Chestatee Street by providing double left turn lanes on SR 52/MMP southbound and construct double receiving lanes on SR 60/S. Chestatee St eastbound. Add pedestrian improvements such as sidewalks, pedestrian signals and crosswalks. (Total Cost: $930,000)

- Project #8: Upgrade intersections of SR 52/MMP at Riley Rd and/or Mechanicsville Road by installing a signal and providing adequate turn lane capacity to accommodate left turning movement on all approaches. Add pedestrian improvements such as sidewalks, pedestrian signals and crosswalks. Inter-parcel connection to Mechanicsville Road and/or consolidation of driveways will also be considered. A signal warrant analysis will need to be conducted to determine the actual need for a traffic signal at this location. (Total Cost: $1.3 million)

- Project #9: Realign Crown Mountain Place to intersect SR 52/MMP at a right angle with left and right turn bays to better facilitate the movement of traffic and ensure safety. (Total Cost: $730,000)

- Project #10: Upgrade intersection of SR 52/MMP at East Main Street realigning Wal-Mart Way approach and providing additional storage space for turning movements. Add protected left-turn phase on SR 52/MMP and add sidewalks (GDOT Concept Plans already underway). (Total Cost: $650,000)

- Project #11: Upgrade intersection of SR 52/MMP at Pinetree Way/Memorial Drive by adding a right turn lane on Memorial Drive and a left turn lane on Pinetree Way. Implement pedestrian improvements such as sidewalks and countdown pedestrian signals. (Total Cost: $800,000)

- Project #12: Upgrade intersections of SR 52/MMP at SR 60/SR 52 by providing a longer left turn storage bay on the westbound approach. (Total Cost: $250,000)

- Projects M04, M08, M09 & M10: Implement the following bicycle and pedestrian improvements along East/West Main Street and South Chestatee Street. (Total Cost: $7.5 million)

    - Sidewalks, parking, textured crosswalks, and pedestrian bulbouts along South Chestatee Street

    - Complete streets with sidewalk, bike lanes, and planting strip with trees along East/West Main Street

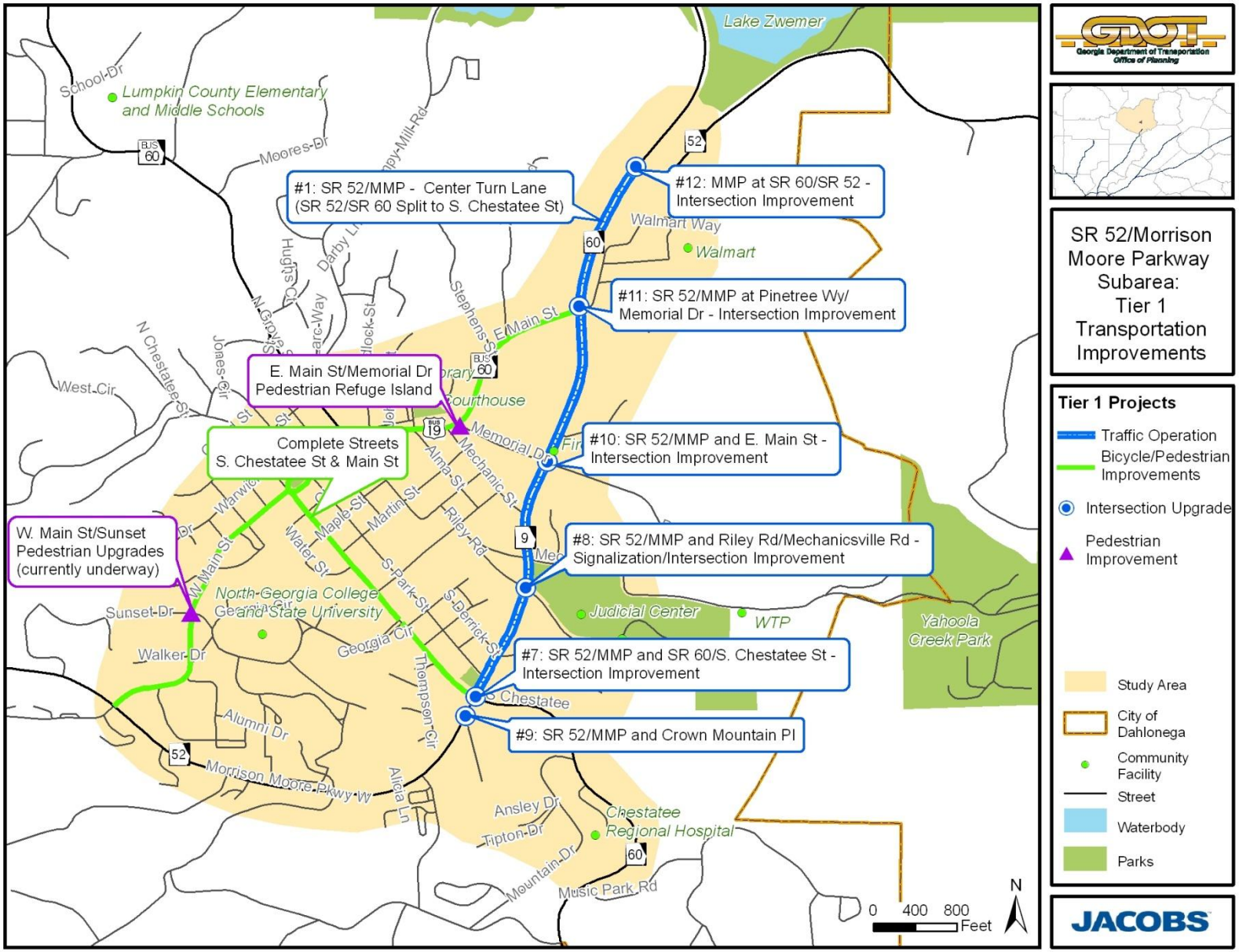
- Projects M11 & M12: Implement the following pedestrian Improvements (Total Cost: Less than $5,000)

    - West Main Street and Sunset Drive: Pedestrian upgrades such as countdown pedestrian signals, textured crosswalks and

streetscapes (Construction is already underway and scheduled to be completed by the fall semester).

- East Main Street and Memorial Drive: Construct a pedestrian refuge on the south side of the intersection as a safe means to protect from the wide radius right turn from East Main Street to Memorial Drive.

Figure 10-2: Tier 1 Recommendations



10.1.2 Tier 2 Recommendations

Approximately $28 million worth of transportation improvements are included in Tier 2. These projects have community support and will improve mobility and connectivity in the subarea. Tier 2 projects are proposed in the 10 to 20 year time frame and should be considered as funding becomes available. Refer to **Figure 9.1** in the previous chapter for the location and extent of the Tier 2 and Tier 3 projects.

- Projects #4 and 5: Construct a new SR 52/MMP Parallel Connector on the east side of SR 52/MMP from Legion Road to Riley Road (Phase 1) and then extend to South Chestatee Street (Phase 2). (Total Cost: $17.7 million)

- Project #6: Widen SR 60/South Chestatee Street to four Lanes from SR 52/MMP to Hospital Drive. (Total Cost: $6.6 million)

- Project #13: Improve intersection of East Main Street at North Grove Street to include additional turn lane capacity on the southbound approach. (Total Cost: $3.1 million)

- Implement remaining bicycle and pedestrian Improvements from the Master Plan. (Total Cost: $6.4 million)

10.1.3 Tier 3 Recommendations

Findings from the technical assessment showed a need for additional throughput capacity along SR 52/MMP corridor. As such, Tier 3 projects include large capacity improvements which are necessary to increase throughput and relieve congestion, but require additional rights of way and can have significant impacts to the surrounding communities. As such, these projects are potential long-term solutions (beyond 20 years) that should be explored in greater detail as the community prepares and plans for future growth.

- Projects #2 and 3: Widen SR 52/MMP to four lanes with a center median.
    - Eastern Segment: from SR 60/South Chestatee Street to SR 52/SR 60 split. (Total Cost: $22.6 million)
    - Western Segment: from West Main Street/Barlow Road to SR 60/South Chestatee Street. (Total Cost: $16.3 million)

- Project #M13: Provide flex-time shuttle service along the Main Street corridor to serve community and resident student needs during off-peak hours – weekday afternoon/evenings. (Capital Cost: $300,000; Operating and Maintenance Cost: $1.1 million)

10.2 Recommended Policies

Within the hierarchy of community development, plans yield policies and are implemented by regulations. Dahlonega and its stakeholders have built a strong

planning foundation at the County, City and institutional level, and are moving toward implementation. This section suggests policies that should be considered to reconcile local plans to conditions identified in the subarea study.

10.2.1 Access Management Strategies

The findings from the *Baseline Conditions/Needs Assessment Report* confirm that Dahlonega will remain the focus of regional trip making into the future, both for travelers destined elsewhere and a growing population and tourist trade. This traffic supports the subarea's economy, but also threatens to overwhelm transportation system capacity. Vehicular capacity improvements to accommodate projected travel demand risk disrupting local community character and accessibility.

To mitigate the impact of vehicular traffic on the community and the transportation system, Dahlonega should consider action to revise and strengthen access management regulations in its critical corridors, including SR 52/ MMP and Main Street. For SR 52/MMP and other high capacity arterials, the effort should supplement existing requirements for inter-parcel access, and prioritize consolidation of driveways over direct access to the highway. Lot and Block Standards should also be reviewed to maximize the elaboration of the street network in these corridors, and to shift access to lower level streets and away from arterials, where possible.

For urban thoroughfares like Main Street and South Chestatee Street, the regulatory framework should focus on improving the pedestrian and non-motorized travel experience, closing curb cuts and reducing front yard vehicular accommodations. Implementing "build to" lines instead of mandatory setbacks, providing on street parking, and public or private parking behind structures manages access in favor of travelers unburdened by their vehicles.

10.2.2 Recommendations from Downtown Master Plan and Parking Plan

Dahlonega invested in these groundbreaking planning efforts, and has already realized benefit through the award of the TIGER 2 streetscape design grant. But many of the recommendations of these plans are currently impermissible or poorly accommodated in the 1991 Zoning Ordinance. While some mechanisms in the Zoning Ordinance may be employed to achieve some plan recommendations, other restrictions or omissions may yield development that fails to achieve or conflicts with the prescriptions of these plans.

A better approach may be to establish a "zoning overlay" that would specifically implement these plans in the areas of the city where they are focused. By codifying the plan recommendations in the zoning code and allowing for the more intensive improvement of property envisioned in the plans, Dahlonega can be better assured that the policy objectives of these plans will be achieved, largely through private investment.

The October 2010 Downtown Parking Study recommends the development of additional parking capacity on North Chestatee Street to supplement existing facilities on Warwick and Choice Streets, and suggests a fee system that would generate net income of over $700,000 over a ten-year period. The study also recommends a Payment in Lieu of Parking (PILOP) option for new development that could generate approximately $15,000 per space required of development, but not supplied. The benefits of the Parking Plan include reduced vehicle congestion, more foot traffic, and a market for transit. Such a program would also free valuable land in central Dahlonega for revenue-producing development.

10.3 Financial Resources

This study has been developed to address the SR 52/MMP subarea's transportation needs through 2035. To support implementation of this plan, the following discussions provide a general overview of funding programs potentially available to help advance project recommendations.

10.3.1 Federal and State Funds

Surface Transportation Program (STP)

The STP provides flexible funding that may be used by Georgia and localities for projects on any Federal-aid highway (non-interstate highway), bridge projects and transit capital projects. Improvements on SR 52 and SR 60 could qualify for STP funding. 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. The remaining ten percent is used for Transportation Enhancement (TE) projects.

Transportation Enhancement (TE)

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. Pedestrian and bicycle improvements along Main Street and South Chestatee Street are eligible for TE funding.

Safe Routes to School (SRTS)

SRTS funds are 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. Given that the recommended bicycle and pedestrian projects have an emphasis in providing safe connections to schools, the SRTS program has been identified as an appropriate federal funding source for these projects. Specific recommendations eligible for the SRTS funds include sidewalks on Main Street and North Grove Street.

10.3.2 Local Funds

Local governments receive revenues from a number of sources to support the public facilities and services they provide to citizens. These sources include federal and state funds, "own source" funds, such as property tax revenues and other monies, and discretionary grant funds from federal and/or state agencies.

SPLOST

As such that state funding often lags behind the need, Lumpkin County should consider placing a focus on generating greater local revenues through Special Local Option Sales Tax (SPLOST) and other potential mechanisms. The current six-year SPLOST cycle is scheduled to run through April 2014 and included the Justice Center as the number one priority. In February 2012, Lumpkin County voters will be asked to continue the current SPLOST program with an estimated $16.4 million in revenue over six years. Traditionally, SPLOST money has been used in the past for paving and bridge upgrades.

Potential Parking Revenues

As recommended from the Downtown Parking Study, an additional parking lot with a fee system could be used to generate revenues that could help pay for transportation improvements in the downtown. The proposed parking facility could potentially generate net income of over $700,000 over a ten-year period. The study also recommends a Payment in Lieu of Parking (PILOP) option for new development that could generate approximately $15,000 per space required of development.

Tax Allocation District (TAD)

TAD is a mechanism that allows a local government to capture increases in local property revenues within a specific area (designated as a TAD or also called Tax Increment Financing (TIF) districts), while using the revenue to finance projects within a specified time period. Once the TAD district is established, a base year and tax rate are established in which the tax increment is then collected over a specified period of time and used to meet the debt service payments. TAD funds could be used to pay for various roadway improvements, transit, or specific transportation services targeted for tourism or economic development purposes.

Community Improvement District (CID)

A CID is a means for property owners within commercial areas of Georgia to establish a special tax district to fund infrastructure improvements in their area. CIDs are mechanisms to supplement existing funding streams and can be used to fund roadway improvements, various bike and pedestrian facilities, water and sewage systems, parking, and parks and recreational facilities. CIDs are constitutionally established local governments entirely run by district leaders (typically business/property owners). CIDs assess themselves, but are also able to leverage large sums of state and federal funds. One consideration of CIDs is that their autonomous legal framework and ability to leverage state and federal monies requires the need for accountability to local governments and the general public.

10.3.3 Transportation Investment Act 2010

As part of the Transportation Investment Act of 2010 (TIA2010), local governments have been engaged in developing projects to be potentially funded by a one percent sales tax. The City of Dahlonega and Lumpkin County recommended mobility improvements to SR 52/MMP in addition to the widening of SR 60 from SR 400 to the Hall County Line for inclusion on the Financially Constrained Project List for the Georgia Mountains Region. If the final project list is approved by the Regional Transportation Roundtable (made up of local representatives) in October 2011, it will be voted upon by the citizens in 2012.

If passed, all the roadway improvements under Tier 1 recommendations from this study could be funded and implemented by year 2022. It is also important to note that that 25% of the overall TIA funds, called discretionary funds, will be available to local governments for projects not on the final list. Dahlonega is expected to receive $113,350 annually and Lumpkin County is expected to receive $1.3 million in discretionary funds annually.

10.3.4 Transit

There is a broad range of local and state-managed funding sources to fund a flexible shuttle system recommended in this study. Although a high level estimate is provided in this study, a detailed operation plan based on potential demand would be needed as a next step.

Initially, the Lumpkin County's Dial-a-Bus operation could serve as an organizational home for a coordinated effort. This service, currently funded with assistance from the federal government and the state through GDOT, provides demand responsive service to county residents. Expansion of the service to include the Dahlonega Shuttle could compete for grants administered by GDOT through the FTA Section 5311 program, supplemented by local funds such as a paid parking program discussed in the Parking Study to help pay for shuttle operations. Additionally, Hotel/Motel Tax revenues could be allocated to support service to the tourism industry, either from an allocation of existing levies, or an increase. NGCSU could also find the coordinated effort to be a cost effective provider of transportation services to meet its satellite parking needs. Funding could be allocated from student transportation assessments, or derived from parking permit revenues.