I-20 @ SR 5/Bright Star Road Transportation Study: Technical Memo

- **Existing Conditions Inventory**
- **Environmental Screening**
- **Land-Use and Economic Analysis**

City of Douglasville

June 2014

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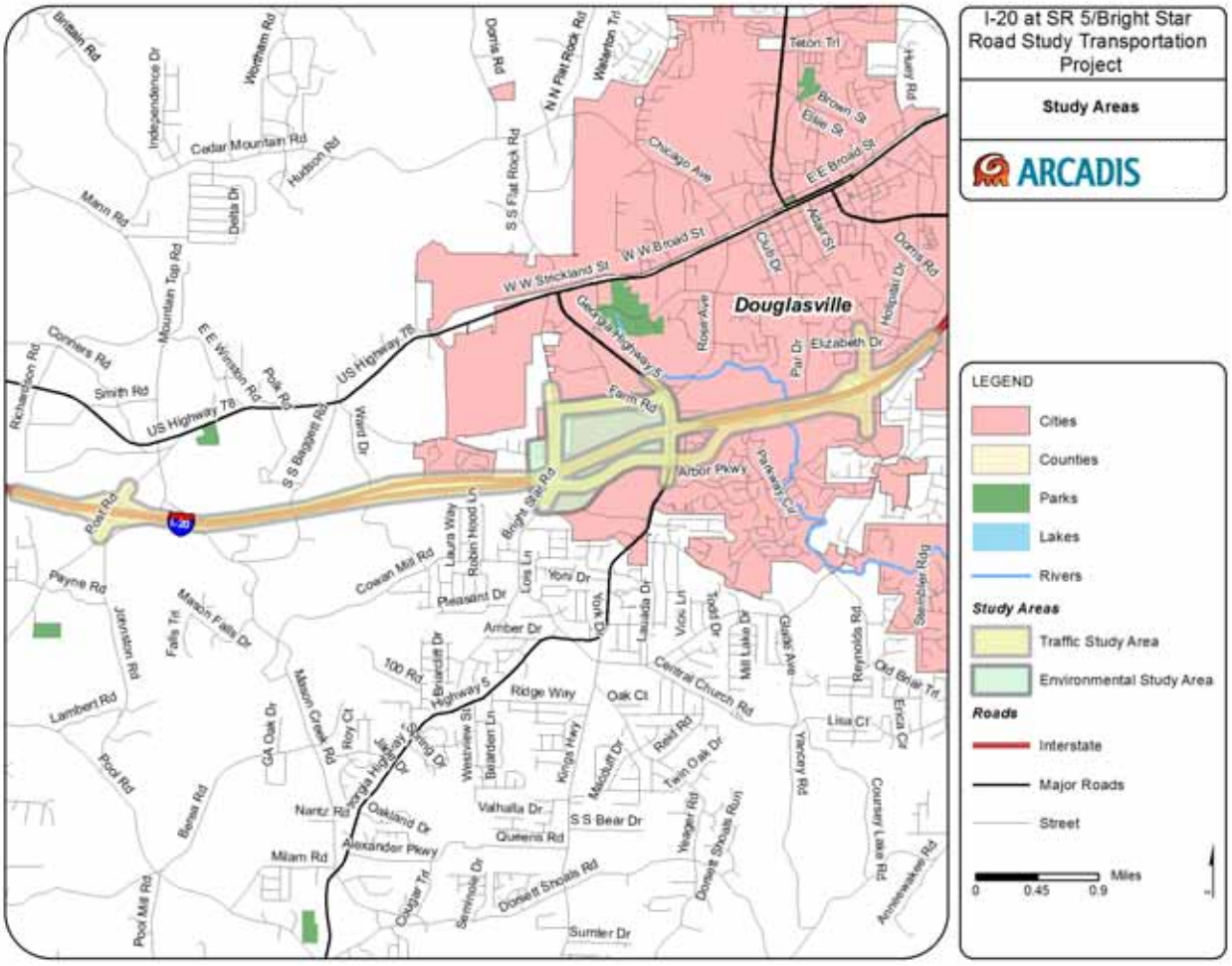
Introduction

Need and Purpose

The purpose of this Alternatives Analyses study is to determine the improvements that can be implemented not only at the I-20 and SR 5 (Bill Arp Road) interchange, but along the interstate corridor to the adjacent interchanges to improve safety, relieve congestion, and support economic development. The SR 5 interchange is one of two primary access points from I-20 to Arbor Place Mall and also provides access to downtown Douglasville and several nearby communities. The Comprehensive Transportation Plans (CTP) of both the City of Douglasville and Douglas County has identified this interchange in need of improvement. One potential alternative includes an interchange at Bright Star Road and a collector-distributor from west of Bright Star Road to east of Chapel Hill Road. This configuration would provide an additional access point into and out of the area, separate the weaving access maneuvers from the through trips, and eliminate the impacts caused by residents using the interstate for local trips.

Study Areas

There are multiple study areas for this transportation study. In the figure below, Study Areas, the environmental study area and the traffic study area boundaries are shown. In addition to these two areas for data collection, the demographic and land use data uses block group, city, county, and other boundaries. Each section in this memo describes the study area used for that section.



Demographic Data

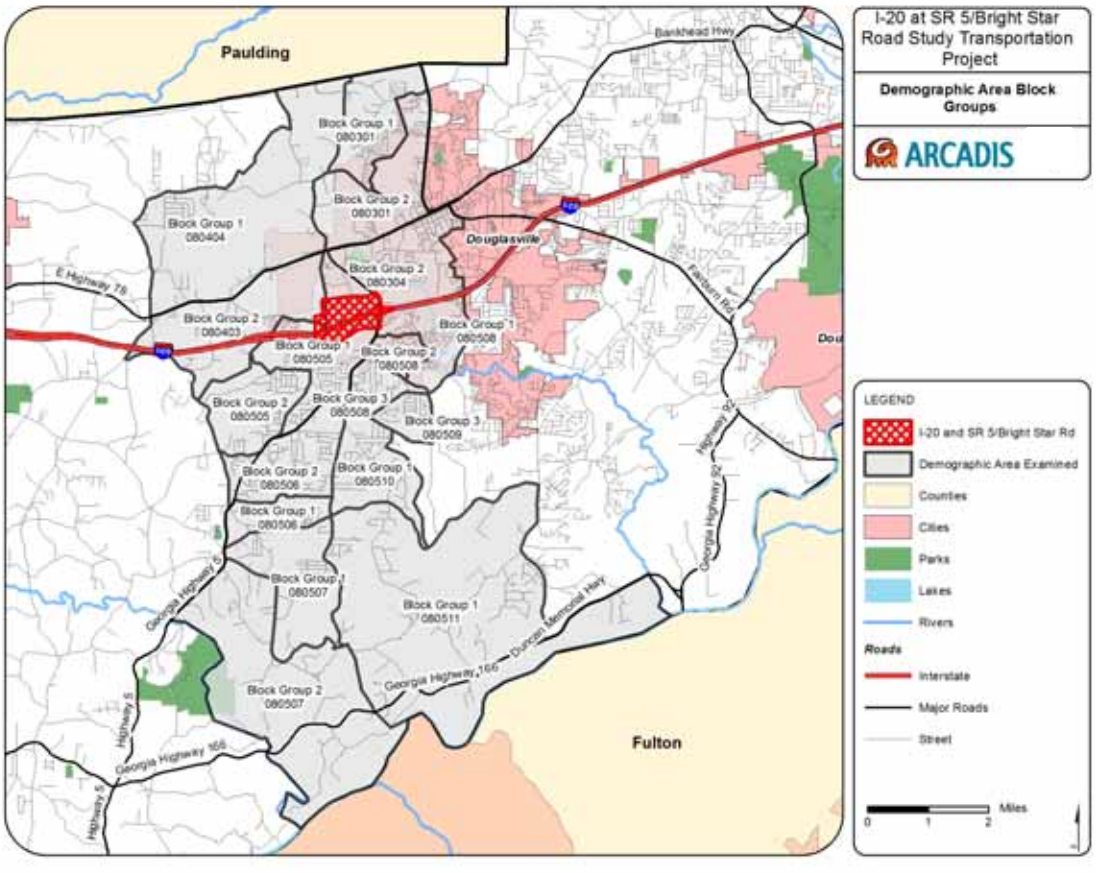
In this analysis, the demographics of the study area and surrounding area were examined. Population, employment, poverty, age, race, and transportation statistics of residents in the area were analyzed. Studies have shown that the size, age, and societal factors of the population have an impact on transportation behavior.

The analysis shows that the study areas has a rapidly growing population where the majority of the employed population commutes outside of the county for work. The study area needs to adapt to the changing demographics by implementing innovative transportation strategies and projects.

Data Sources

The data used in this report compares Census 2000 data to Census 2008-2012 American Community Survey (ACS) 5-year estimates. The ACS gathers data every year, which gives the most current information on specific populations. ACS 5-year estimates were used in this report because block groups were examined for the study area and the only available data at block group level comes from the ACS 5-year estimates. The data was examined at the county, city, and block group level.

There are 17 block groups that likely utilize the interchange at I-20 and SR 5 in the I-20 and SR 5/Bright Star Road study area. To determine which block groups likely utilize this interchange, a network analysis was performed using Geographic Information Systems (GIS) to calculate the roads in Douglas County closest to the interchange at I-20 and SR 5. Block groups were selected based on the roads shown in the analysis. The block groups are shown in the figure below.



Population

In the 2008-2012 ACS 5-year estimates, the current population of Douglas County was estimated to be 132,124, a 43.3 percent increase from 2000. The population is expected to reach 256,493 by 2040, based on the 2040 Atlanta Regional Commission (ARC) Forecast, a 94 percent increase from the 2008-2012 estimates. The most populated areas of the county are the northwest, southwest, south central and eastern regions of the county. Douglasville has also experienced rapid growth from 2000 to the 2008-2012 estimates. The 2008-2012 population estimate for Douglasville is 30,748, a 53 percent increase from the 2000 population of 20,065. Douglasville represents 23.3 percent of the population of Douglas County.

The 2008-2012 population estimate for the aforementioned 17 block groups is 39,535 which represents 30 percent of the county population. The most populated of those 17 block groups are three block groups located north of I-20. Another heavily populated block group is in southern Douglas County along SR 166.

Table 1: Population

Location	2000 Population	2008-2012 Population	Percent Change*	Percent of Total Population of County
Douglas County	92,174	132,124	43.3%	
Douglasville	20,065	30,748	53.2%	23.3%
17 Block Groups		39,535		30.0%

* Percent change could not be calculated from 2000 to the current 5-year estimates due to boundary changes of block groups from 2000 to 2010.

Employment

Douglas County's unemployment rate, according to the 2008-2012 estimates, was approximately 13 percent. This includes an estimated 68,424 people in the labor force and 59,497 employed. The ARC 2040 Employment Forecast estimates there will be 75,000 jobs in Douglas County by 2040, a 27 percent increase. The Douglasville employment 2008-2012 estimates show 1,700 are unemployed, approximately an 11 percent unemployment rate, based on a labor force of 15,917.

The 17 block groups showed an unemployment rate of 13.6 percent. The block groups with the lowest unemployment rate are the two block groups just north of I-20, which include the study area, and several block groups south of I-20 surrounding Arbor Place Mall.

Table 2: Employment

	Douglas County		Douglasville		17 Block Groups	
	2000	2008-2012	2000	2008-2012	2000	2008-2012
Population > 16	69,334	99,435	14,867	23,001		30,220
In Labor Force	48,921	68,424	10,096	15,917		19,793
Employed	46,944	59,497	9,526	14,170		17,079
Unemployed	1,878	8,830	545	1,731		2,688
Unemployment Rate	3.8%	12.9%	5.4%	10.8%		13.6%

Poverty

The percentage of households below the poverty level in Douglas County in the 2008-2012 ACS was approximately 12 percent, roughly 2 percent below the national average. Douglasville has a much higher percentage than the county with 15 percent of households in the city below the poverty level. The 17 block groups have 13 percent of households below poverty level. Of those, the three block groups in the immediate vicinity of the study area have an estimated 12 percent of households below the poverty level.

Table 3: Poverty

Location	Total Households	Income in the past 12 months below poverty level	Percent of households below poverty level
Douglas County	45,905	5,492	12.0%
Douglasville	11,601	1,779	15.3%
Block Group 2, Census Tract 803.04	1,286	169	13.1%
Block Group 1, Census Tract 805.05	994	128	12.9%
Block Group 1, Census Tract 805.08	584	63	10.8%
3 Block Groups Combined	2,864	360	12.6%
17 Block Groups	13,926	1,744	13.0%

Age and Race

The 2008-2012 ACS estimates show that the 17 block groups, the City of Douglasville and Douglas County have similar age statistics. Approximately 43 percent of the population in these areas is below the age of 30, and approximately 20 percent of the population is over the age of 55.

The majority race in the 17 block groups is white at 63 percent, followed by African American at 31 percent. Douglas County has a majority white population at 55.3 percent and an African American population at 39 percent. In the city of Douglasville, the African American population is the majority at 57.3 percent and the white population is 38.3 percent. The data shows that there has been a significant increase in the black population since 2000, with Douglas County increasing by 205 percent and Douglasville increasing by 190 percent.

Commuting

The table below shows the employment location of residents in Douglas County, Douglasville and the 17 block groups. The majority of workers (between 58-60 percent) leave the county to work. This data shows how significant highway infrastructure is to Douglas County and Douglasville.

Table 4: Commuting

	Douglas County		Douglasville		17 Block Groups	
	2008-2012 Population	Percent of Total	2008-2012 Population	Percent of Total	2008-2012 Population	Percent of Total
Total	57,717		13,938		17,961	
Worked in state of residence	56,584	98.0%	13,776	98.8%	17,671	98.4%
Worked in county of residence	20,795	36.0%	5,092	36.5%	7,007	39.0%
Worked outside county of residence	35,789	62.0%	8,684	62.3%	10,664	59.4%
Worked outside state of residence	1,133	2.0%	162	1.2%	290	1.6%

Means of Transportation

Table 5: Means of Transportation						
	Douglas County		Douglasville		17 Block Groups	
	2008-2012 Population Estimate	Percent of Total	2008-2012 Population Estimate	Percent of Total	2008-2012 Population Estimate	Percent of Total
Total	57,717		13,938		16,733	
Car, truck, van	53,458	92.6%	12,900	92.6%	15,405	92.1%
Drove alone	46,329	80.3%	11,624	83.4%	13,749	82.2%
Carpooled	7,129	12.4%	1,276	9.2%	1,656	9.9%
In 2-person carpool	5,203	9.0%	790	5.7%	1,091	6.5%
In 3 or more person carpool	1,926	3.3%	486	3.5%	565	3.4%
Public transportation (excluding taxi)	792	1.4%	146	1.0%	258	1.5%
Bus or trolley	723	1.3%	122	0.9%	258	1.5%
Motorcycle	138	0.2%	33	0.2%	111	0.7%
Walked	410	0.7%	137	1.0%	137	0.8%
Other means	275	0.5%	99	0.7%	12	0.1%
Worked at home	2,634	4.6%	622	4.5%	809	4.8%

Travel Time

This data correlates with Table 5, showing that it takes the majority of residents more than 30 minutes to drive to work. The range of residents who drive more than 30 minutes to work is 54 to 58 percent of the total population in the examined geographic areas.

Table 6: Travel Time						
	Douglas County		Douglasville		17 Block Groups	
	2008-2012 Population	Percent of Total	2008-2012 Population	Percent of Total	2008-2012 Population	Percent of Total
Total:	55,083		13,316		15,924	
Less than 5 minutes	1,392	2.5%	460	3.5%	162	1.0%
5 to 9 minutes	3,502	6.4%	929	7.0%	1,032	6.5%
10 to 14 minutes	5,571	10.1%	1,469	11.0%	1,539	9.7%
15 to 19 minutes	6,287	11.4%	1,039	7.8%	1,755	11.0%
20 to 24 minutes	5,578	10.1%	1,312	9.9%	1,537	9.7%
25 to 29 minutes	2,826	5.1%	670	5.0%	663	4.2%
30 to 34 minutes	9,032	16.4%	2,694	20.2%	2,553	16.0%
35 to 39 minutes	2,548	4.6%	667	5.0%	572	3.6%
40 to 44 minutes	3,203	5.8%	831	6.2%	878	5.5%
45 to 59 minutes	7,478	13.6%	1,654	12.4%	2,654	16.7%
60 to 89 minutes	6,086	11.0%	1,327	10.0%	2,092	13.1%
90 or more minutes	1,580	2.9%	264	2.0%	487	3.1%
More than 30 minutes	29,927	54.3%	7,437	55.9%	9,236	58.0%

Existing Studies and Plans

There have been a number of transportation and land-use studies for the City of Douglasville and for Douglas County. This overview provides brief descriptions of the studies in recent years, and includes specific references to the study area at I-20 and SR 5/Bright Star Road.

Douglasville Comprehensive Plan (2013)

The Douglasville Comprehensive Plan was prepared by ARC for the City of Douglasville with funds from the Georgia Department of Community Affairs (DCA). The 2013 plan is an update of the 2004 Comprehensive Plan and contains three components required by the State of Georgia: Community Vision, Community Issues and Opportunities, and Community Work Program. This plan requires development of a Future Land Use Plan, and it requires the city to maintain a Transportation Plan.

- During an open house on August 14, 2013, over 30 residents shared feedback on their ideas for the future of their city. Residents highlighted that places that need improvements included traffic concerns on SR 5 at Douglas Boulevard, and a need for upscale retail on the Bright Star Road Connector.
- In the section titled "Key Areas of Attention," the plan notes, "The area between Highway 5 and the Western City boundary was added in the 2010 update since there are large parcels of undeveloped land close to I-20 which are ripe to be developed as potential activity centers."
- Douglasville Future Land Uses: The Future Land Use Map is a tool to implement the City of Douglasville's vision and to address the challenges and improve the assets of the city.
    - The immediate area surrounding the I-20 at SR 5/Bright Star Road study area is classified as "Regional Activity Center". Regional Activity Centers are defined as, "areas that can support a high intensity of development that serves a regional market. Typical land uses in these areas include high-rise office buildings, regional malls, and varying densities of residential development." This classification stretches along the I-20 corridor from Bright Star Road past Prestley Mill Road, approximately three miles.
    - Other areas surrounding the study area are classified as "Mixed-Use Design" and "Medium Density Residential". Mixed-Use Design is classified as encouraging the best possible plan and building arrangements under a unified development plan. The classification benefits from better land utilization, economy in the provision of roads, utilities, and flexibility in design. Medium-Density Residential is classified as protecting and promoting a suitable environment for family life. It discourages any use which would generate other than normal residential area traffic on minor streets, to meet the needs and demands of single-, two-, three-, and four-family residences, and it protects the orderly future development of land in accordance with the land use plan at a density of not more than four units per acre.

Douglas County Adopted Comprehensive Plan (2013)

The Douglas County Comprehensive Plan was prepared by the ARC for Douglas County with funds from Georgia DCA. The Douglas County Comprehensive Plan contains three components required by the State of Georgia: Community Vision, Community Issues and Opportunities, and Community Work Program. This plan requires the development of a Future Land Use Plan, and requires the county to maintain a Transportation Plan.

- Douglas County is served by one interstate: I-20. I-20 spans the entire east-west length of the County, approximately 18 miles, with access at seven interchanges. The exits include: Exit 44 – SR 6 (Thornton Road); Exit 41 – Lee Road; Exit 37 – SR 92 (Fairburn Road); Exit 36 Chapel Hill Road/Campbellton Street; Exit 34 – SR 5 (Bill Arp Road); Exit 30 – Post Road; and Exit 26 – Liberty Road. SR 5 provides additional regional access with connections to the surrounding counties and employment centers.
- Douglas County Future Land Uses: A future land use map is required by state mandate. The Future Land Use Map is a representation of the plan's goals and policies and indicates where various land uses are permitted. South of the Douglasville City limits, Douglas County has future land use classifications along the SR 5 Corridor. These land use classifications are "Community Village," "Suburban Living," "Transitional Center," and "Public/Institutional."
  - Community Village Center – Higher intensity of commercial activity that serves more than one neighborhood, such as retail, office and services.
  - Suburban Living – Areas outside identified centers that are experiencing a high volume of residential growth, primarily single-family houses.
  - Transitional Center –Allows for transition from residential uses along major arterials or along roadways where major transportation improvements are planned.
  - Public/Institutional –Sites and facilities in public ownership including medical, educational, cultural, governmental, administrative and protective services, and cemeteries.
- 2009-2013 Short Term Work Program Update: The Community Work Program lists all proposed projects, along with their status.
  - SR 5 at Douglas Blvd Interim Intersection Improvement Project. Status: Ongoing. Explanation: Project scope and improvements to be determined from I-20 at SR 5 interchange modification/ redesign study.
  - The Bright Star Road at Douglas Boulevard intersection improvement project has been postponed due to lack of funding.
- 2014-2018 Community Work Program: The Community Work Program (CWP) is a new feature of the Comprehensive Plan. It is a to-do-list of projects needed for the plan to accomplish the Community Vision.
  - SR 5 Advanced Traffic Management System Expansion will be funded by local and federal dollars at a cost of $70,000 during 2014 and 2015. GDOT is the responsible party for the project.
  - The SR 5 at I-20/Bright Star Road interchange modification and re-designation study will be funded by local dollars at a cost of $400,000 during 2014 and 2015. The responsible parties are GDOT and the City of Douglasville.

City of Douglasville Livable Centers Initiative 10 Year Update (2011)

The Douglasville Livable Centers Initiative (LCI) is a plan for refurbishing downtown Douglasville and its surrounding areas. The LCI plan is part of the LCI program administered by ARC. The program promotes livable and healthy communities. Douglasville conducted the original LCI study in 2001. The purpose of the 10 year update was to reevaluate the needs of the community based on current conditions. The update provides recommendations for areas near the I-20 and SR 5/Bright Star Road study area:

- Undeveloped land along the Bright Star Road Connector should be developed as a mixed-use activity center with retail, restaurants, office, and housing at a higher density than the rest of the area.
- Develop a pedestrian friendly commercial village with retail, entertainment, restaurant, service and office uses

along Highway 5 at Rose Avenue.

- Implement a shuttle bus system if feasible to connect to various parts of the area. The route includes parts of SR 5 in the I-20 and SR 5/Bright Star Road study area.

Atlanta Regional Managed Lane System Plan (2010)

Atlanta Regional Managed Lane System Plan (MLSP) is a comprehensive plan for managed lanes in Metro Atlanta and was developed by the Georgia Department of Transportation (GDOT). Managed lanes are highway lanes where operational strategies are implemented in order to support changing conditions. The MLSP lists goals, objectives, benefits and an implementation plan. I-20 and SR 5/Bright Star Road study area is included in the implementation plan, which ranked projects into five tiers (Tier 1 was the easiest to implement and Tier 5 the most difficult).

- I-20 West from I-285 to west of Bright Star Road was ranked as Tier 3. The scope of the project is to build 2 HOT3+ lanes (high occupancy vehicles with 3 or more occupants are allowed to drive in the lane at no charge) in each direction from I-285 to Mt. Vernon Road, and build 1 HOT3+ lane in each direction form Mt. Vernon Road to Bright Star Road. Estimated cost was $589 million.

Development of Regional Impact: Douglas Place (2009)

This Douglas Place Development of Regional Impact (DRI) analyzed future transportation needs for a proposed mixed-use development in Douglasville at the I-20 and SR 5 (Bill Arp Road) interchange. The following summarizes the DRI's findings:

- The I-20 WB on ramp at Chapel Hill Road would not meet Level of Service (LOS), a measurement of traffic quality, standards in the year 2014 and would require improvement even without the traffic the Douglas Place multi-use development would bring to the area.
- The SR 5 and Douglas Boulevard intersection would not meet LOS standards in the year 2014 and would require improvement even without the traffic the Douglas Place multi-use development would bring to the area.
- The Bright Star Road and Bright Star Road Connector intersection would not meet LOS standards with the addition of the Douglas Place multi-use development traffic to the network.
- The Bright Star Road and John West Road would not meet LOS standards after Douglas Place traffic is introduced to the network.
- The DRI study also includes four more intersection modifications within the proposed construction limits for the interchange project at SR 5 and I-20: SR 5 at Rose Avenue/Bright Star Road Connector, SR 5 at Concourse Parkway, SR 5 at I-20 Westbound Ramps, and SR 5 at I-20 Eastbound Ramps.

City of Douglasville Transportation Plan (2008)

The City of Douglasville Transportation Plan aims to improve the ability of Douglasville residents to move around the city and county. It addresses improvements needed to reduce congestion and provide movability throughout the area for existing and new infrastructure. The following roadway and intersection projects in the I-20 at SR 5/Bright Star Road study area are listed in priority order:

- Bright Star Road Connector from Bright Star Road to Bill Arp Road (SR 5) (completed).

- Intersection alignment at Rose Avenue
- I-20 HOV lanes, from Thornton Road (SR 6) to Bright Star Road
- Douglas Boulevard west extension, from Bright Star Road to Post Road

Douglas County Comprehensive Transportation Plan (2008)

The Douglas County Comprehensive Transportation Plan (CTP) provided recommendations for transportation projects that will promote the Douglas County Comprehensive Plan's land use policy and plans. The following summarizes the study's findings and recommendations in the I-20 at SR 5/Bright Star Road study area.

- Three study areas were identified in the plan: Arbor Place Mall, Downtown/Government Center, and the SR 6 Industrial Center.
- The Arbor Place Mall subarea is bordered by SR 5 to the west and I-20 to the north. Douglas Boulevard at SR 5 serves as one of two gateways to the Arbor Place Mall. It is the only sub-area in the Douglas County Comprehensive Transportation Plan that includes projects located in the I-20 at SR 5/Bright Star Road study area.
- Locations that were identified as high accident locations: SR 5 and I-20, and SR 5 and Douglas Boulevard.
- The following are the CTP Project Recommendations:
  - I-20 West at SR 5 interchange modification and collector-distributor (CD) system concept (CTP-6A)
  - I-20 West and Bright Star Road interchange modification and CD system concept (CTP-6B)
  - Relocated SR 5 to Post Road (CTP-9A)
  - SR 5 Bill Arp Road (CTP-21)
  - I-20 West, Managed Lanes (SR 6 to Bright Star) (AR-H-201)
- Projects identified for the Arbor Place Mall sub-area:
  - SR 5 at I-20 west bound ramp
  - SR 5 at I-20 east bound ramp
  - Douglas Boulevard new mall entrance
  - SR 5 at Arbor Parkway
- Primary truck routes identified:
  - I-20 – carries an estimated 120,000 vehicles per day through Douglas County
  - SR 5 – carries over 30,000 vehicles per day
- Secondary truck routes were identified:
  - Douglas Boulevard
- The recommended projects were separated into three phases. Phase 1 is the Constrained Project Action Plan, it includes:
  - SR 5/Bill Arp Road (CTP-21)
- The second phase was short-term projects. No short-term projects were recommended for the study area.
- The following are included in the third phase, long range need:
  - I-20 West at SR 5, interchange modification and CD system concept (CTP-6A)

- I-20 West and Bright Star Road, interchange modification and CD system concept (CTP-6B)
- I-20 West, Managed Lanes (SR 6 to Bright Star) (AR-H-201)

Chapel Hill Road and Stewart Mill Road Transportation Corridor Study (2005)

The purpose of this study was to identify areas with transportation issues along the corridor and to recommend short-term and long-term recommendations. The following are recommendations from the study involving areas near the I-20 at SR 5/Bright Star Road study area:

- Chapel Hill Road – Section A of the Chapel Hill Road Corridor starts at I-20 EB and extends south to the intersection of Stewart Mill Road. The recommendations for Section A are:
  - Laneage improvements at Douglas Boulevard/Timber Ridge Drive
  - Signal Coordination
- There was also a land use and zoning study conducted for the intersection of Chapel Hill Road and Stewarts Mill in 1999.

Plans Prior to 2005

The City of Douglasville conducted the City of Douglasville Transportation Study in 2000, which provided a basis for prioritizing potential SPLOST projects for the city.

In 1998, Douglasville conducted a Downtown Transportation Study and Arbor Place Mall Transportation Study that provided transportation planning and engineering services.

Environmental Screening

In this screening, the existing environmental conditions of the established environmental study area and surrounding area were examined. The social, cultural, natural, and physical environments were observed, described, and analyzed. Known constraints are discussed and will later be used by designers as a guide in locating potential alignments.

Social Environment

Churches and Institutions

Based on a windshield survey, two churches/religious facilities occur within the study area. These include Elizabeth Baptist Church, located at 2990 Bright Star Road just north of the I-20 overpass, and Douglasville Seventh Day Adventist Church and School, located at 2838 Bright Star Road. No other institutions or public buildings are located within the study area boundary, and no cemeteries are located within the study area.

Several additional institutions are located just outside the study area boundary. These include:

- Bright Star Elementary, located at 6300 John West Road, just west of the study area;
- ITT Technical Institute and Georgia Highlands College, located in the Douglasville Town Center Shopping Center on Stewart Parkway, just south of the study area boundary;
- U.S. Postal Service Office, located at 6000 Stewart Parkway immediately adjacent to the study area boundary.

Parklands and Public Recreation Areas

There are no public parks or recreation areas located within the study area.

Environmental Justice/Title VI

U.S. Census data was reviewed to determine the potential for low-income or minority populations within the study area. Although one of the census block groups comprising the study area (Census Tract 803.04, Block Group 2), which comprises the entire study area on the north side of I-20) has a higher percentage of African American persons than Douglas County as a whole (45 percent compared to 39 percent), this percentage is less than that for the City of Douglasville as a whole (57 percent).

Additionally, Census Tract 805.05, Block Group 1 (which encompasses the portion of the study area located south of I-20, west of SR 5) has a higher percentage of Asian persons (4.9 percent) than Douglas County and the City of Douglasville as a whole (both 1.6 percent). Very few residences are located within this portion of the study area. Since a door to door survey was not completed, it is not possible to determine if these residents are minorities. However, the windshield survey of the study area did not note any Asian-specific businesses in the immediate area.

Cultural Environment

Historic Markers and Historic Structures

No historic markers were noted along the corridor during a windshield survey.

Georgia's Natural, Archaeological, and Historic Resources Geographic Information System (NAHRGIS) database was queried to determine if there are any known or listed resources eligible for the National Register of Historic Places (NRHP) within the study area. No NRHP-listed or eligible properties were identified on NAHRGIS within the study area boundary. However, the NAHRGIS database did note two resources located north of the study area along Bright Star

Road, as well as one resource located south of the study area at the intersection of Bright Star Road and Central Church Road. These resources include:

- Residence located at 2620 Bright Star Road
- Residence located at 2621 Bright Star Road
- Residence located at 6299 Central Church Road

Additional resources potentially eligible for listing on the NRHP were identified from within the study area during the windshield survey. These include single-family residences located along both sides of Bright Star Road south of its intersection with Douglas Boulevard, as well as the Country Corner Food Market located in this area. The Douglas County Tax Assessor's website was queried to verify the construction date of these structures and it was found that they were constructed in the late 1950s to early 1960s. While these structures are 50 years old or older, their eligibility for listing on the NRHP would need to be determined by a qualified historian.

Because state and/or federal funding is anticipated for the proposed improvements within the study area, compliance with Section 106 of the National Historic Preservation Act would be required. The project corridor would need to be surveyed by a qualified historian to locate any resources that may be 50 years old or older and analyze them in compliance with guidelines that have been established by GDOT, Federal Highway Administration (FHWA), and the Georgia State Historic Preservation Officer (SHPO).

Archaeological Resources

Archaeological sites are typically considered environmentally sensitive areas and the location of such sites is not disclosed publicly, but is made available through coordination and permission from the SHPO. According to publicly available data in the NAHRGIS database, the entire study area is located within an area of medium potential for archaeological resources. The portion of the study area with the greatest potential for buried archaeological resources is the undeveloped area on the north side of I-20 between Bright Star Road and SR 5/Bill Arp Road. During the site visit, there appeared to be scattered evidence of 19th-20th century occupation/farmstead in this area. Rock piles, white stoneware, and glass, along with non-energized, overhead electric distribution lines were observed in the forest in this area.

In accordance with federal regulations, a field survey for archaeological sites would be conducted for any proposed improvements within the study area, and a report of findings would be prepared and concurred upon by the Georgia SHPO. Should any artifacts eligible for the NRHP be found, coordination with Georgia DOT and the SHPO would be conducted and a recovery plan and curation plan would be developed.

Photo 1. Unnamed Perennial Tributary to Anneewakee Creek between SR 5 and Bright Star Road.

Natural Environment

Water Resources and Water Quality

A review of the *State of Georgia Hydrologic Map Cataloging Unit* (HUC) indicates that the entire study area is located within the Middle

Chattahoochee – Lake Harding Watershed (HUC 03130002). Between SR 5 and Bright Star Road, I-20 crosses an unnamed perennial tributary stream to Anneewakee Creek (see Photo 1). The stream is formed by the confluence of four smaller headwater tributaries that emanate from the land bounded by I-20 to the south, Bright Star Road to the west, Bright Star Connector to the north, and SR 5 to the east. These streams converge in a localized, forested floodplain wetland immediately north of I-20, before entering a concrete box culvert beneath the westbound roadway embankment (see Photo 2). A fifth headwater tributary, entering the project study area from the southwest, flows parallel to the south side of Douglas Boulevard, to the northeast, until its confluence with the Anneewakee tributary approximately 2,100 feet east of Bright Star Road (see Photo 3).

Photo 2. Unnamed Perennial Tributary to Anneewakee Creek under I-20 in Study Area

None of the waters within the environmental study boundary are found on the Approved Georgia 2012 305(b)/303(d) List Documents (dated May 2013). However, the main tributary stream is located upstream of a 303(d) listed segment of Anneewakee Creek. From its confluence with the unnamed tributary to a downstream point at Monroe Lake, Anneewakee Creek is listed on the 2012 305(b)/303(d) list for failure to support its designated use of fishing because of biota impacted fish communities due to urban runoff. The affected segment of Anneewakee Creek is located within one mile of the project's environmental study area.

The Georgia Department of Natural Resources (DNR) annually issues Guidelines for Eating Fish from Georgia Waters, which prescribe safe human consumption limits of certain fish species, as well as information about the handling and preparation of all fish from listed and non-listed waters in the state. In its 2013 Update to the Guidelines for Eating Fish from Georgia Waters, the Georgia DNR has not issued fish consumption guidance for Anneewakee Creek.

Photo 3. Unnamed Tributary to Anneewakee Creek Parallel to the South Side of Douglas Boulevard in Study Area

There are no known drinking water intakes on Anneewakee Creek and one permitted municipal intake by the Douglas County Water and Sewer Authority (authorized withdrawal up to 1.49 million gallons per day according to the 1997 Georgia DNR, Environmental Protection Division's (EPD) *Chattahoochee River Basin Management Plan*. No active or abandoned private or public wells were identified in the project area.

Streams and Wetlands/Waters of the United States

A preliminary and informal investigation for areas that are likely to contain wetlands and/or non-wetland waters (i.e., streams, rivers, and areas of open water) was conducted within the environmental study area. This investigation consisted of background research; a review of existing topographic, National Wetlands Inventory (NWI), and county soil maps; and a limited pedestrian survey. The following areas were identified. All streams, wetlands, and open waters associated with the project area drain via unnamed, headwater tributaries to Anneewakee Creek, which is located approximately one mile east of the existing SR 5/I-20 interchange (outside the environmental study area).

- Four unnamed tributaries (two U.S. Geological Survey [USGS] blue-line streams and two unmapped) to Anneewakee Creek flow in a southeasterly direction from the north side of I-20 and converge in a single channel that flows through a single-barrel box culvert under the interstate. A fifth unnamed tributary (another USGS blue-line stream) flows roughly-parallel to the south side of Douglas Boulevard until its confluence with the aforementioned tributary, approximately 2,200 feet east of the Bright Star Road bridge over I-20. On the north side of I-20, the streams flow through open channels across relic pasture and mixed hardwood and pine timberland, until their confluence at I-20. On the south side of I-20, all tributaries flow through culvert crossings beneath several local roadways and driveways of parking lots associated with commercial development, before exiting the project study area.
- Wetlands in the project area are generally confined to areas of groundwater seepage abutting and adjacent to the four, aforementioned tributaries on the north side of I-20 (Photo 4). At least two of these wetland areas are associated with small, relic ponds or stormwater detention structures along the south side of the Bright Star Connector (Photo 5). One small wetland was identified from a groundwater discharge along the north side of the third blue-line tributary located behind the Arbor Connection commercial development, on the south side of Douglas Boulevard, east of Stewart Parkway. Three additional stormwater runoff detention basins were identified along the south side of Bright Star Connector (Photo 6). However, none

Photo 4. Study Area Wetland

Photo 5. Wetland Associated with a Stormwater Detention Structure in Project Study Area

of these features bore characteristics of jurisdictional waters or indicators of continuous flow from their outlet control structures (weirs).

- A single open water habitat was identified in a runoff detention basin adjacent to the south side of I-20, behind a now-defunct automobile dealership (KIA) and adjacent to the west side of the mainstem blue-line stream where it emerges from the culvert under I-20 (Photo 7). No other detention structures identified on the south side of I-20 contained jurisdictional characteristics of wetlands or open waters.
- An additional potential aquatic resource was observed in a small pond, associated with the Arbor Terrace Apartments in the northwest quadrant of the SR 5/Bright Star Connector intersection.

Photo 6. Stormwater Runoff Detention Basin Along South Side of Bright Star Connector within Study Area

Photo 7. Open Water Habitat on the South Side of I-20 in Study Area

Additional wetland and non-wetland water resources could exist within the project study area. A full delineation for waters of the United States would be required as part of the environmental compliance process for the proposed improvements.

Improvements within the project area that would result in construction activities in these aquatic environments would require authorization of a permit pursuant to Section 404 of the Clean Water Act. Throughout Georgia, permitting under this program is administered by the U.S. Army Corps of Engineers (USACE), Savannah Regulatory District. In Georgia, there are three levels of permitting under the USACE program: Regional, Nationwide, and Individual Permits. The type of permit coordination and authorization involved depends on the extent of proposed impacts on wetlands/waters of the United States, the type of project, and the level of environmental documentation needed for the project, as follows.

- Regional Permit (RP) 96, *Regional Permit for Maintenance, Widening, and Improvement of Existing Roads and Replacement of Bridges and Culverts within the Geographic Limits of Georgia*, authorizes a maximum impact resulting in a cumulative loss of up to 10 acres of wetlands and 2,000 linear feet of streams within a single 8-digit HUC. No more than 3 acres of wetlands, 1,500 linear feet of intermittent stream, and /or 1,000 linear feet of perennial

stream may be impacted at any one crossing/site. Following submittal of a completed Pre-Construction Notification (PCN) to USACE, use of RP 96 can be authorized after as little as a 30-day review by cooperating resource agencies, but its use is subject to the approval of USACE.

- RP 1, *Regional Permit for Minor Discharges for the Construction of Roads and Bridges within the Geographic Limits of Georgia*, authorizes a maximum impact resulting in a loss of not more than 1 acre of wetlands, and/or 300 linear feet of stream per crossing. There is no cumulative limit for multiple crossings that comprise a single and complete project. Following submittal of a completed PCN to the USACE, use of RP 1 can be authorized after as little as a 30-day review by cooperating resource agencies.
- Nationwide Permit 14 (NWP 14), *Linear Transportation Projects*, is regionally conditioned by USACE to authorize individual roadway projects in Georgia with cumulative impacts to a maximum of 10 acres of wetland and/or 1,500 linear feet of stream within a HUC. However, these regional conditions also limit impacts at each individual crossing not to exceed 0.5 acre of wetlands or 300 linear feet of stream. NWP 14 is generally authorized after a 45-day review, following submittal of a completed PCN to USACE.
- NWP 23, *Approved Categorical Exclusions*, is regionally conditioned by USACE to authorize individual roadway projects in Georgia with cumulative impacts to a maximum of 10 acres of wetland and/or 1,500 linear feet of stream within each HUC. However, these regional conditions also limit impacts at each individual crossing not to exceed 1.5 acres of wetlands or 500 linear feet of stream. NWP 23 is generally authorized after a 45-day review, following submittal of a completed PCN to USACE.
- For any impacts that exceed the thresholds for an RP or NWP, authorization of an Individual Permit (IP) must be sought. An IP is only issued after a full public interest review, which may be conducted concurrently with other public involvement procedures. Anticipated time to authorization of impacts under an IP generally ranges from 9 to 12 months. Based on preliminary designs, it is unlikely that implementation of this project would require an IP.

For all permits, cumulative project impacts greater than 1/10 of an acre of wetlands and/or 100 linear feet of stream require compensatory mitigation. Permit applications are not considered complete and therefore are not subject to prescribed review time frames without inclusion of a compensatory mitigation plan.

In addition, considering the proximity of waters to the project, it is possible that any proposed improvements would result in encroachments to the 25-foot state stream buffer, potentially necessitating a Stream Buffer Variance (SBV) from Georgia EPD. Stream buffers are measured perpendicularly to the channel flow direction from the top-of-bank of the stream channel at the point of wrested vegetation. Any potential mitigation for loss of buffers would be determined on a case by case basis. Final approval of an SBV, if required, could take approximately 6 to 9 months.

Endangered/Threatened Species

Under the provisions of the Endangered Species Act of 1973, as amended, federal law requires that actions likely to adversely affect a species classified as federally protected be subject to review by U.S. Fish and Wildlife Service (USFWS). In addition, the Georgia Endangered Wildlife Act of 1973 and Georgia Wildflower Preservation Act provide for the identification and protection on public lands of plant and animal species that are rare, unusual, or in danger of extinction.

Lists of federally and state-listed protected species potentially occurring in Douglas County were obtained from the Georgia DNR Natural Heritage Program (updated October 2011) and the USFWS' online Information, Planning, and Conservation (IPaC) System (accessed May 5, 2014). Table 7 lists these species, their federal and state status, their preferred habitat, and whether their preferred habitat is present within the study area based on a windshield survey conducted in May 2014.

Table 7: Federal- and State-Listed Species in Douglas County

Common Name	Scientific Name	Federal Status	State Status	Preferred Habitat	Presence of Habitat within the Study Area?
FAUNA					
northern long-eared bat	*Myotis septentrionalis*	PE	NL	Hibernation occurs from October to April in caves or abandoned mines. Summer roosting occurs singly or in small groups underneath bark, in cavities, or crevices of live or dead trees. Roosting may also occur in caves, mines, dry wells, and man-made structures, such as buildings, barns, sheds, or behind window shutters. Foraging typically occurs in the understory near roosting sites between 3 and 10 feet above the ground in mature, upland forest hillsides and ridges.	Maybe
highscale shiner	*Notropis hypsilepis*	NL	R	Tributary streams, often near stream confluences with larger rivers; runs and pools over sand and bedrock substrates	No
Chattahoochee crayfish	*Cambarus howardi*	NL	T	Clear, free-flowing waters, often in riffle habitat	No
FLORA					
yellow ladyslipper	*Cypripedium parviflorum*	NL	R	Rich, cove hardwood forests	No
pink ladyslipper	*Cypripedium acaule*	NL	U	Upland pine and mixed pine-hardwood forests with acidic soils; in the mountains, near edges of rhododendron thickets and mountain bogs	Yes
bay starvine	*Schisandra glabra*	NL	T	Moist, deciduous hardwood forests, often with beech, usually on lower slopes, stream terraces, and floodplains	No
little amphianthus	*Amphianthus pusillus*	T	T	Eroded depressions or quarry pools (rarely) formed on flat to doming granitic (either granite or granite-gneiss) outcrops with water depth varying from approximately 1.25 to 4 inches. They may be dry much of the summer, except during rainy periods.	No
barren strawberry	*Waldsteinia lobata*	NL	R	Stream terraces, floodplain forests, and rocky, lower slopes with oak-hickory-pine forest; often with mountain laurel	No

Legend: E= Endangered; T= Threatened; PE= Proposed Endangered; C= Candidate; NL= Not Listed; R= Rare; U= Unusual

Sources: USFWS IPaC System, unofficial species list generated on May 5, 2014; Georgia DNR, Wildlife Resources Division, Natural Heritage Program, Locations of Special Concern Animals, Plants, and Natural Communities in Douglas County (updated October 2011).

Because improvements within the study area are anticipated to have a state and/or federal funding component, compliance with the Endangered Species Act would be required and the potential impacts on any federally listed threatened or endangered species or their habitats would need to be identified and documented. Field investigations for state-listed species would also be required for those species identified by Georgia DNR as having known occurrences within three miles of the proposed project area. Field investigations for protected species would need to be conducted by carefully surveying the entire project corridor and potential impacts to these species would be documented once the project progresses to preliminary engineering. Should a species or its suitable habitat be identified, USFWS would provide a concurrence on effects to that species under formal or informal Section 7 Consultation.

Based on background research, as well as a preliminary walk through/windshield survey of the study area, it is unlikely that any currently federally listed species occur in the project vicinity. However, project-area mixed pine and hardwood forested habitats, particularly along the north side of I-20, were identified that could provide suitable summer roosting habitat for the federally proposed endangered northern long-eared bat (*Myotis septentrionalis*). USFWS 2014 *Interim Conference and Planning Guidance* for the northern long-eared bat indicates the use of 2014 federally endangered Indiana bat (*Myotis sodalis*) survey guidance as a surrogate for formal survey guidance for the northern long-eared bat. With at least 33 species of tree documented as providing roosts for female bats and their young, with conifer snags providing important summer roost habitat for Indiana bat in the southeast, the potential exists for project area forests to support summer roosting by the northern long-eared bat.

In addition, during the preliminary field investigation on May 7th, 2014, a small colony (approximately 24 stems) of state-listed pink ladyslipper orchid (*Cypripedium acaule*) (see Photo 8) was found near the southwest corner of the intersection formed by Douglas Boulevard and Stewart Parkway. The habitat appears to have been historically used as a source to excavate fill-dirt and dispose of waste concrete, rock, and asphalt rubble, but is now dominated by a dense stand of up to 30-year loblolly pines. While more pristine pine and mixed pine/hardwood habitat is available within the study area, the pink ladyslipper orchid was not found in these areas.

Photo 8. State-listed Pink Ladyslipper Orchid (*Cypripedium acaule*) in Project Study Area

No other federally or state-listed species known to occur in Douglas County, or their associated habitats, were identified within the study area. However, while not listed on the USFWS IPaC list as occurring in Douglas County, suitable habitat for the federal candidate species Georgia aster (*Symphyotrichum georgianum*) is present in forest-edges within the study area, particularly south of I-20 along Stewart Parkway.

Floodplains

Douglas County participates in the National Flood Insurance Program. A review of the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Map (FIRM) for the study area (FIRM Panel 13097C0132D, dated March 4, 2013) and GIS flood zone data indicate that the project corridor encounters Special Flood Hazard Areas subject to

inundation by 100-year flood events and two regulatory floodways. These areas include:

- Regulatory floodway and special flood hazard area associated with Arbor Branch Tributary A, which perpendicularly crosses I-20 approximately 1,750 feet east of the Bright Star Road crossing over I-20. In this area, the base flood elevation ranges from 1,094 feet to 1,114 feet above mean sea level (MSL).
- Regulator floodway and special flood hazard area associated with Arbor Branch, which runs roughly parallel to and to the south of Douglas Boulevard in the vicinity of the study area. In this area, the base flood elevation ranges from 1,084 feet to 1,095 feet above MSL.

Floodway: The floodway is a channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the one percent annual chance flood can be carried without substantial increases in flood heights.

Special Flood Hazard Area: The area subject to flooding by the one percent annual chance flood (100-year flood, also known as the base flood).

Compliance with FHWA's Procedures for Coordinating Highway Encroachments on Floodplains would be required for any proposed improvements. If it is determined that the proposed improvements would require placement of fill in the 100-year floodplain, a no rise certification and coordination with the Community would likely be required. In addition, coordination with FEMA in compliance with Executive Order 11988 for Floodplain Management and relevant federal statutes would be required.

Invasive Species

It was noted during the windshield survey that several Georgia Exotic Pest Plant Council-designated "Category One" invasive species, including Chinese privet *(Ligustrum sinense*), Japanese honeysuckle (*Lonicera japonica*), kudzu (*Pueraria montana*), Chinese wisteria (*Wisteria sinensis*), multi-flora rose (*Rosa multiflora*), and Nepalese browntop (*Microstegium vimineum*) occur within the study area. Although not a Category One species, a heavy infestation of Callery (Bradford) pear (*Pyrus calleryana*) was dispersed throughout the project study area with a profusion of fertile saplings documented across approximately 60 acres of relic pasture along the study-area segment of the Bright Star Connector. Compliance with Executive Order 13112 would be required for the proposed project to limit the spread or propagation of these species.

Wildlife Habitats

Several types of habitats were observed within the study area during preliminary field visits:

Developed/Landscaped: This habitat consists of mostly commercial, institutional, and residential development, as well as existing highways, roads, and adjacent maintained rights-of-way. The amount of impervious surface associated with this land use varies throughout the study area with a large concentration along the I-20, Douglas Boulevard, and Bright Star Road corridors, as well as abutting the I-20/SR 5 interchange. Landscaped/maintained areas are dominated by turf-type grasses, including fescue (*Festuca* spp.), zoysia (*Zoysia* spp.), and Bermuda grass (*Cynodon dactylon*), with cultivated varieties of ornamental flowers, shrubs, and trees. This land use also contains scattered mature tree species that are typical of forested habitats in the project study area.

Secondary Successional Mixed Pine/Hardwood Forest: This habitat type consists of mixed pine/hardwood forest ranging in age from 20 to 60 years. Except for vestigial 25- to 75-foot-wide buffers along slopes adjacent to streams on the south side of I-20, this habitat type is mostly concentrated along upland slopes within the contiguous forested tract

along the north side of I-20 and bounded by Bright Star Road to the west and relic pasture and scrub-lands to the north. Dominant tree species within this habitat include tulip poplar (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), loblolly pine (*Pinus taeda*), American beech (*Fagus grandifolia*), red maple (*Acer rubrum*), water oak (*Quercus nigra*), white oak (*Q. alba*), southern red oak (*Q. falcata*), blackjack oak (*Q. marilandica*), northern red oak (*Q. rubra*), pignut hickory (*Carya glabra*), flowering dogwood (*Cornus florida*), black cherry (*Prunus serotina*), persimmon (*Diospyros virginiana*), and red mulberry (*Morus rubra*). Dominant shrub species include Chinese privet (*Ligustrum sinense*), American holly (*Ilex opaca*), piedmont azalea (*Rhododendron canescens*), and highbush blueberry (*Vaccinium corymbosum*).

Bottomland Hardwoods: Bottomland hardwood forest habitat is limited to floodplain and wetland areas abutting perennial tributaries located on the forested areas on north side of I-20 and immediately adjacent to streams on the south side of I-20. This forest habitat is estimated to be in excess of 75 years in age with a majority of the area containing an open understory characterized by occasional thickets of shrubs and vines. Dominant tree species observed include black gum (*Nyssa sylvatica*), sweetgum, American elm (*Ulmus americana*), red maple, and tulip poplar. Dominant shrub species observed includes possumhaw (*Viburnum nudum*) and deciduous holly (*Ilex decidua*) and Chinese privet.

Planted and Recruited Pine Forest: This habitat was observed in a few locations in the project area and was dominated by planted and/or recruited loblolly pine with scattered shrubs, saplings, and vines. Additional species observed in these areas include sweetgum, red maple, black cherry, tulip poplar, pignut hickory, Chinese privet, Japanese honeysuckle, greenbrier, poison ivy, and blackberry. This habitat type represents the dominant forest cover. Mostly recruited pines occur on the north side of I-20 slope embankment, adjacent to the interstate right-of-way. Also on the north side of I-20, a combination of planted and recruited pines occur on low upland ridges and terraces inside the mixed forested tract located south of the Colonial Pipeline easement, in each quadrant adjacent to the Bright Star Road/Bright Star Connector intersection, and in the southwest quadrant formed by the Bright Star Road/John West Road intersection bounded by I-20 to the south and Bright Star Elementary School to the west. On the south side of I-20, a combination of planted and recruited pines occur on the I-20 slope embankment, as well as in the southwest corner of the study area in a small timber tract located to the west of business that front on Bright Star Road and in a forested tract bounded on the north by Douglas Boulevard, on the east by Stewart Parkway, and on the west by Bright Star Road.

Old Field/Pasture, Early Successional/Shrub, and Ruderal: This habitat type is associated with abandoned fields and pasture, as well as properties cleared for development prior to 2008, but where construction did not commence. Dominant vegetation consist of early successional herbaceous, shrub, sapling, and vine species including Callery pear, loblolly pine, sweetgum, winged sumac (*Rhus copallina*) and smooth sumac (*Rhus glabra*), Chinese privet, blackberry, Japanese honeysuckle, and Bermuda grass.

Physical Environment

Air Quality

Douglas County is located in the Atlanta Non-Attainment area for ozone and particulate matter 2.5 (PM 2.5). An Air Quality Impact Assessment addressing project-related carbon monoxide (CO), ozone, PM 2.5, and mobile source air toxics (MSATs) emissions in accordance with Georgia DOT and FHWA guidelines would be required for the proposed improvements.

Noise Sensitive Receptors

Several noise sensitive receptors were identified in the study area during the windshield survey. These include:

- One church and one combined church and school located along the east side of Bright Star Road, north of I-20 (Elizabeth Baptist Church and the Douglasville Seventh Day Adventist Church and School)
- Single-family residences located along both sides of Bright Star Road north of I-20;
- Single-family residences located along both sides of Bright Star Road south of its intersection with Douglas Boulevard; and
- The Arbor Terrace Apartments complex located on the north side of the Bright Star Connector (entrance off SR 5 north of the project area).

Since federal funding is anticipated to be sought for the proposed improvements, the improvements would require evaluation in accordance with the Georgia DOT noise policy (Highway Noise Abatement Policy for Federal-Aid Projects) and FHWA's Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772).

Utilities

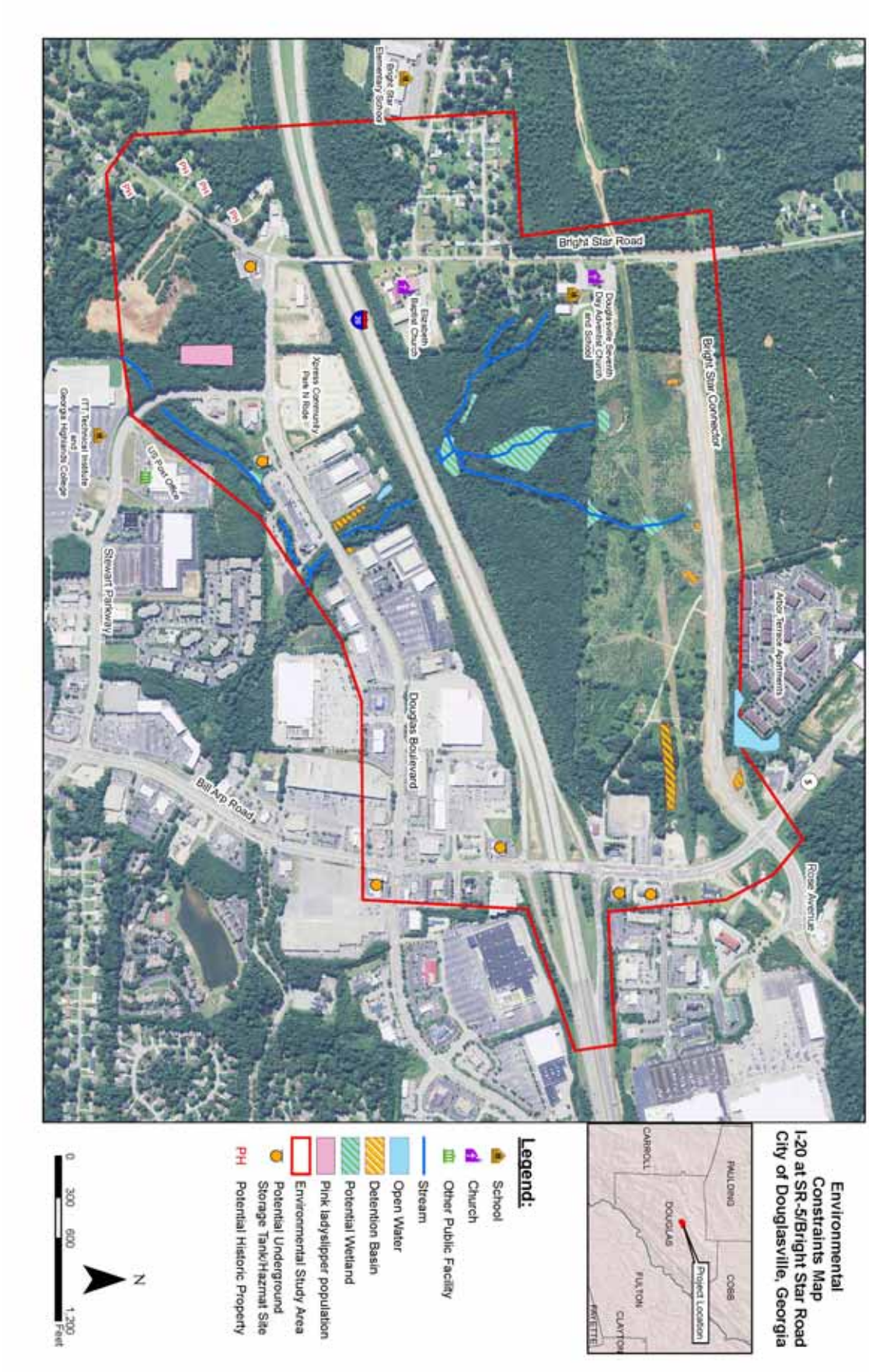
Above-ground utilities (e.g., power lines, telephone, etc.) were observed along both sides of SR 5, Douglas Boulevard, and Bright Star Road within the study area. In addition, there is a large petroleum pipeline easement that runs east-west through the study area north of I-20, south of and paralleling the Bright Star Connector.

Underground Storage Tanks (USTs)/Hazardous Materials Sites

Several sites potentially containing underground storage tanks (USTs) and/or hazardous materials or waste were identified within the study area during the windshield survey. These sites include:

- Two gas stations located in the northeast quadrant of the SR 5/I-20 interchange;
- One gas station located in the southwest quadrant of the SR 5/I-20 interchange;
- One gas station located in the southeast quadrant of the SR 5/Douglas Boulevard intersection;
- An automobile care/maintenance business (Meineke) located on Douglas Boulevard; and
- A gas station located in the southeast quadrant of the Douglas Boulevard/Bright Star Road intersection.

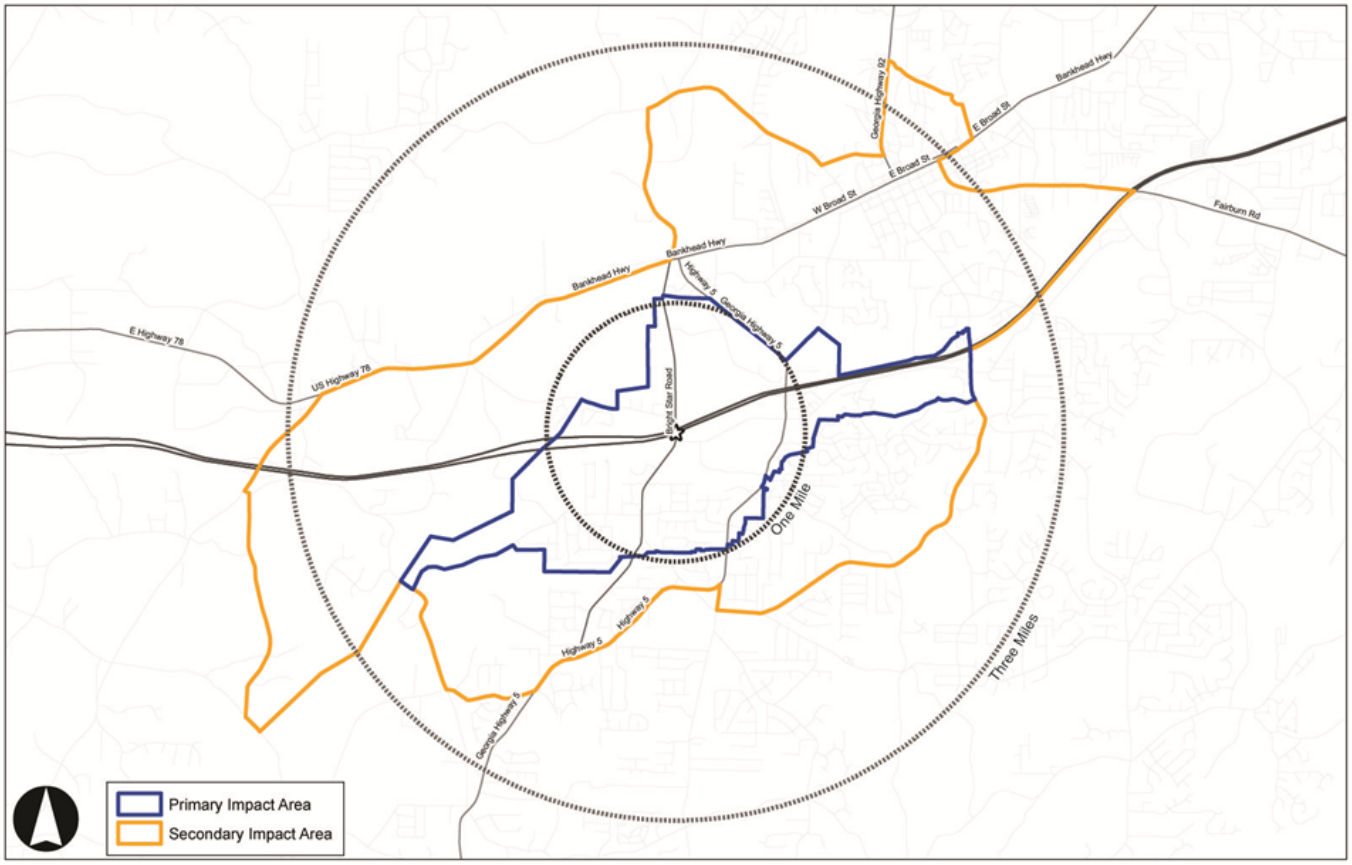
If right-of-way (ROW) acquisition is needed from these properties to implement any proposed improvements, Phase I and Phase II Environmental Site Assessments (ESAs) would be required to determine if soil and/or water contamination has occurred.


Environmental Constraints Map
I-20 at SR-5/Bright Star Road
City of Douglasville, Georgia
Legend:
School
Church
Other Public Facility
Stream
Open Water
Detention Basin
Potential Wetland
Pink ladyslipper population
Environmental Study Area
Potential Underground Storage Tank/Hazmat Site
PH Potential Historic Property
Project Location
CARROLL
PAULDING
COBB
DOUGLAS
FULTON
CLAYTON
FAYETTE
Bright Star Road
Bright Star Connector
Douglas Boulevard
Bill Arp Road
Stewart Parkway
Rose Avenue
Bright Star Elementary School
Elizabeth Baptist Church
Douglasville Seventh Day Adventist Church and School
Arbor Terrace Apartments
Xpress Community Park N Ride
ITT Technical Institute and Georgia Highlands College
US Post Office
0
300
600
1,200
Feet
N

Land Use and Economic Impact Analysis

Impact Areas

The traffic study area for the I-20/Bright Star Road analysis is within the boundaries of both the City of Douglasville and Douglas County and extends from Post Road on the western edge to Chapel Hill Road toward the east. For the purposes of the Land Use and Market Area analysis, two impact areas were identified. The primary target area is centered at the proposed Bright Star Road/I-20 interchange and follows the Transportation Analysis Zone (TAZ) boundaries to the immediate north, south, east and west. A larger, secondary area of impact extends from Post Road eastward to US 92, and it includes downtown Douglasville and area immediately north and south of US 78 (Bankhead Highway). Since market conditions and ultimately market demand are influenced primarily by drive time and accessibility, market areas include: one-mile radius representing neighborhood market area; three-mile radius representing the greater market area; and ten-mile radius representing an area that residents from surrounding jurisdictions will travel for regional shopping, dining, entertainment and employment destinations.



Trends are analyzed for the 2000 to 2018 time period and comparisons to the City of Douglasville, Douglas County and Atlanta Metropolitan Statistical Area (MSA) are made where appropriate. In summary, since 2000, The City has grown 3.5 percent to a population of 31,568 by 2013. The City household income follows slightly behind the greater Atlanta MSA, at approximately $46,000 per year.

Table 8: Demographic Trends						
Demographic Indicator	1-mile Radius	3-Mile Radius	10-Mile Radius	City of Douglasville	Douglas County	Atlanta MSA
Population						
2013	3424	30,489	205,776	31,568	135,740	5,420,859
2018 (forecast)	3433	31,297	213,939	32,935	141,317	5,736,389
Avg. Ann. % Change ('00-'13)	2.7%	1.6%	3.9%	3.5%	3.6%	2.1%
Avg. Ann. % Change ('13-'18)	0.1%	0.5%	0.8%	0.9%	0.8%	1.2%
Households						
2013	1381	10,952	70,634	11,861	47,723	1,991,823
2018 (forecast)	1390	11,255	73,355	12,407	49,625	2,112,918
Avg. Ann. % Change ('00-'13)	3.7%	1.8%	3.8%	3.9%	3.5%	2.2%
Avg. Ann. % Change ('13-'18)	0.1%	0.6%	0.8%	0.9%	0.8%	1.2%
Average Household Size	2.38	2.68	2.89	2.58	2.82	2.68
Median Household Income	41,726	48,495	54,790	46,169	53,488	54,635
Median Age (Years)	34.8	36.1	35.2	33.6	35.4	35.4
Race						
Percent White Alone	57.9%	56.9%	55.8%	38.8%	51.7%	55.0%
Percent Black Alone	32.4%	34.3%	35.9%	51.8%	38.8%	32.0%
Percent Hispanic	9.1%	9.2%	8.9%	9.4%	10.5%	12.0%
Educational Attainment						
No High School Degree	13.7%	12.7%	12.9%	12.2%	13.3%	14.0%
High School degree	60.4%	58.9%	56.2%	53.4%	54.7%	46.0%
Associate Degree	7.2%	6.9%	7.2%	7.6%	7.5%	6.0%
Four Year degree or More	18.7%	21.6%	23.7%	26.9%	24.6%	34.0%
Source: 2000 and 2010 U.S. Census, ESRI Business Analyst						

The residential market area, a larger geography than the retail market areas, has an estimated population of 205,776. It added 69,390 residents since 2000 for an average annual growth rate of 3.91 percent. By comparison, the Atlanta MSA grew at an average annual rate of 2.12 percent from 2000 to 2013.

- Population and household growth is projected to increase in both the retail and residential market areas over the next five years. The greater retail market area is expected to add approximately 1,000 persons and the residential market area to add 8,200 persons.

In all market areas, household growth rates will likely outpace population growth rates as household sizes continue to fall.

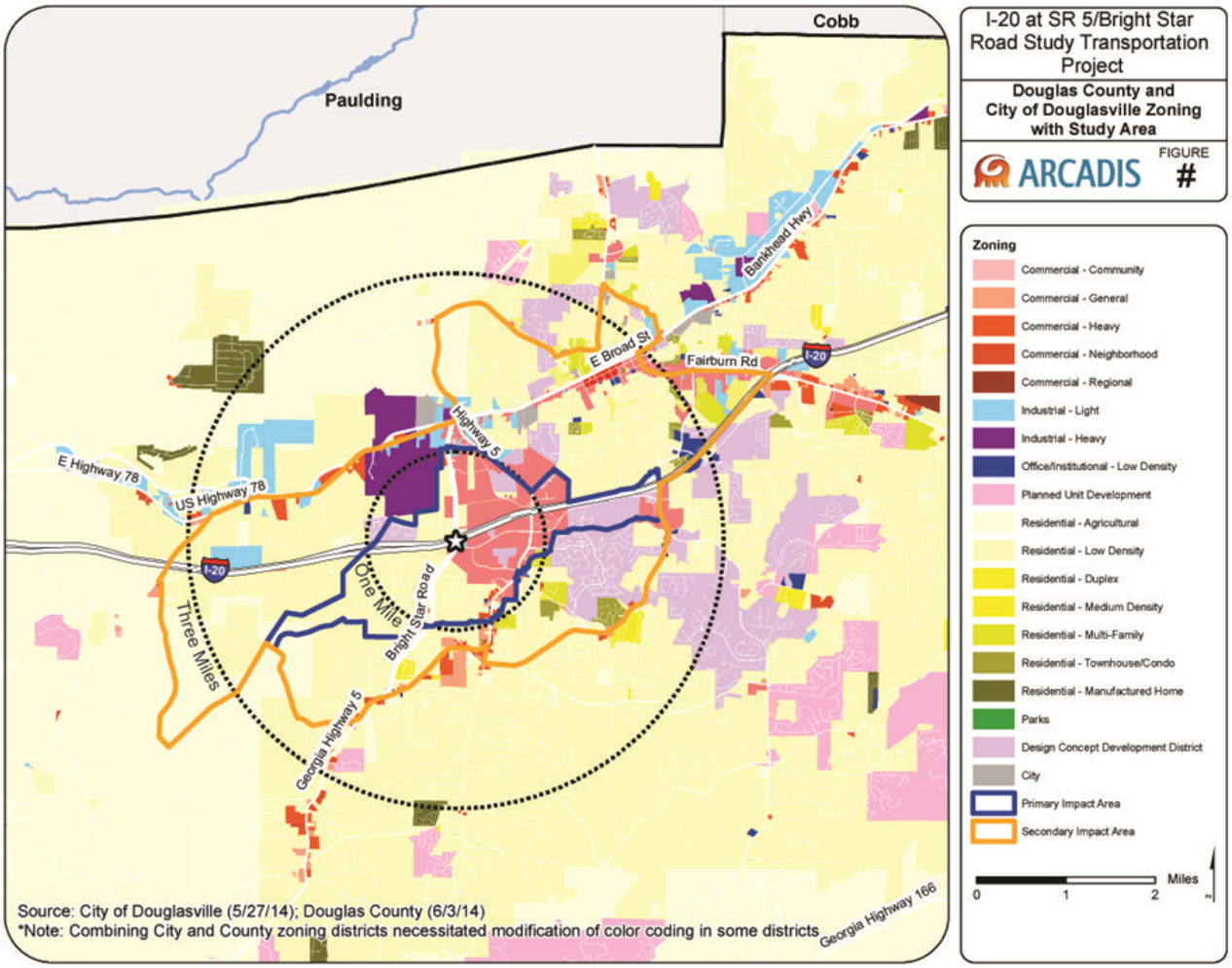
- Median household incomes in the market areas range from $41,726 in the local retail market area to $54,790 in the residential market area. All, except the larger residential market area, are below the MSA median of $54,635. Households with incomes above $100,000 make up one-sixth of greater retail area households (16.3 percent) and one-fifth of residential market area households (19 percent).
- Age trends are similar across the retail and residential market areas and metro Atlanta. Median ages range from 34.8 years in the local market area to 36.1 years in the greater retail area. In each geography, seniors (age 65 and

up) constitute between 9-11.5 percent of the population and children (under age 20) make up 29-32.5 percent.

- Nationally, aging baby boomers are projected to fuel increases in the senior population over the next few decades. Strong growth in the metro Atlanta senior population is also expected. According to the ARC, Douglas County's 55 plus population is anticipated to increase by 235 percent from 2000 to 2030, which translates to an additional 58,496 residents over the age of 55. As Douglas County's older adult population grows, Downtown Douglasville's town center atmosphere and the ultimate development of the Douglas Place area are likely to be increasingly attractive locations for seniors and retirees.

Existing Land Use and Development Patterns

Two areas, Primary and Secondary, were identified for the purpose of this analysis. They primarily follow TAZs, but deviate to account for areas of undeveloped land and/or residential properties unlikely to change. Neither Douglas County nor the City of Douglasville maintain Existing Land Use maps; therefore Existing Land Use within both areas was identified using zoning maps and aerial imagery.



Land uses and the relationship between them impact the quality of life in a community. Different land uses have varying impacts on transportation, accessibility and infrastructure. The arrangement of land uses and their proximity also

support or discourage different modes of transportation. This can directly impact the vehicular system by reducing or increasing traffic. This, in turn, can have a direct impact on the quality and value of property in an area, and ultimately on its development potential and economic viability.

Approximately half of both the Primary and Secondary impact areas are in the City of Douglasville with the remaining half in unincorporated Douglas County. In general, land uses in the Primary impact area are primarily commercial/retail to the east and low density residential to the west, where the new Bright Star Road/I-20 interchange is being discussed. In the Secondary area, the predominant land use is low density residential, with a fair amount of general commercial along Bankhead Highway, SR 92 and Downtown Douglasville.

It is important to note the availability of several large tracts of undeveloped property on both sides of I-20 from Post Road to Bright Star Road and in the area bound by the Bright Star Connector, Wood Road and Rose Avenue. The tracts proximate to Bright Star Road and Rose Avenue are particularly significant as they fill in the gaps connecting Downtown Douglasville to I-20. These areas need to be strategically planned to provide maximum economic impact and community character to both areas.

The variety of land uses and zoning categories in the study area are shown in Table 9.

Table 9: Land Uses in Study Area

	Secondary Impact Area		Primary Impact Area	
	Acres	Percentage	Acres	Percentage
Residential - Low Density	6,292.8	65.6%	1,023.4	49.6%
Residential - Medium Density	152.9	1.6%	0.0	0.0%
Residential - Multifamily	279.4	2.9%	6.5	0.3%
Commercial - Low	1,100.7	11.5%	733.4	35.5%
Commercial - High	105.3	1.1%	21.2	1.0%
Industrial - Light	276.1	2.9%	13.6	0.7%
Industrial - Heavy	369.4	3.8%	0.0	0.0%
Design Concept Development District	888.3	9.3%	257.3	12.5%
Right of Way	9.0	0.1%	0.0	0.0%
City/Public	54.8	0.6%	0.0	0.0%
Office	67.2	0.7%	8.0	0.4%
Total	9,596.0		2,063.3	

Single Family Residential

- Almost the entire western side of the study area is single family residential
- The area between I-20 and Bankhead Highway is largely single family residential
- The Secondary impact area in both Douglasville and Douglas County is primarily single family residential

Attached and Multifamily Residential

- The Immediate study area contains no identified multifamily
- North of Downtown Douglasville, along Bankhead Highway, are concentrations of apartment development
- The area along Campbellton Street continuing south to I-20 contains a pocket of multifamily

Commercial

- The Douglasville section surrounding I-20 is primarily general commercial

- The eastern side of the Primary study area is comprised mainly of big-box retail and highway-oriented commercial development. The concentration and configuration of this development has exacerbated most of the traffic congestion experienced in the area
- The design is auto-oriented and offers little safety to navigate by any other mode
- The Arbor Place Mall and surrounding commercial development is a successful regional attraction and has high lease rates and the lowest vacancy rate of metro area malls
- Downtown Douglasville includes a reinvigorated concentration of neighborhood commercial and restaurants at a scale more conducive for cycling and walking.

Industrial

- There is very little industrial existing in the study area
- Most of the industrial uses are along SR5, north of I-20, and adjacent to Bankhead Highway and Bright Star Road

Vacant/Undeveloped

- The availability of undeveloped land with direct or indirect access to I-20 should be a focal point of joint planning with property owners and developers as the opportunity exists to develop signature, catalytic projects that can be good for improving the vitality of Downtown Douglasville as well as attracting residents and employees to the area
- Large tracts of undeveloped, prime mixed use property are around Bright Star Rd and Bright Star Rd Connector

Future Land Use Policy

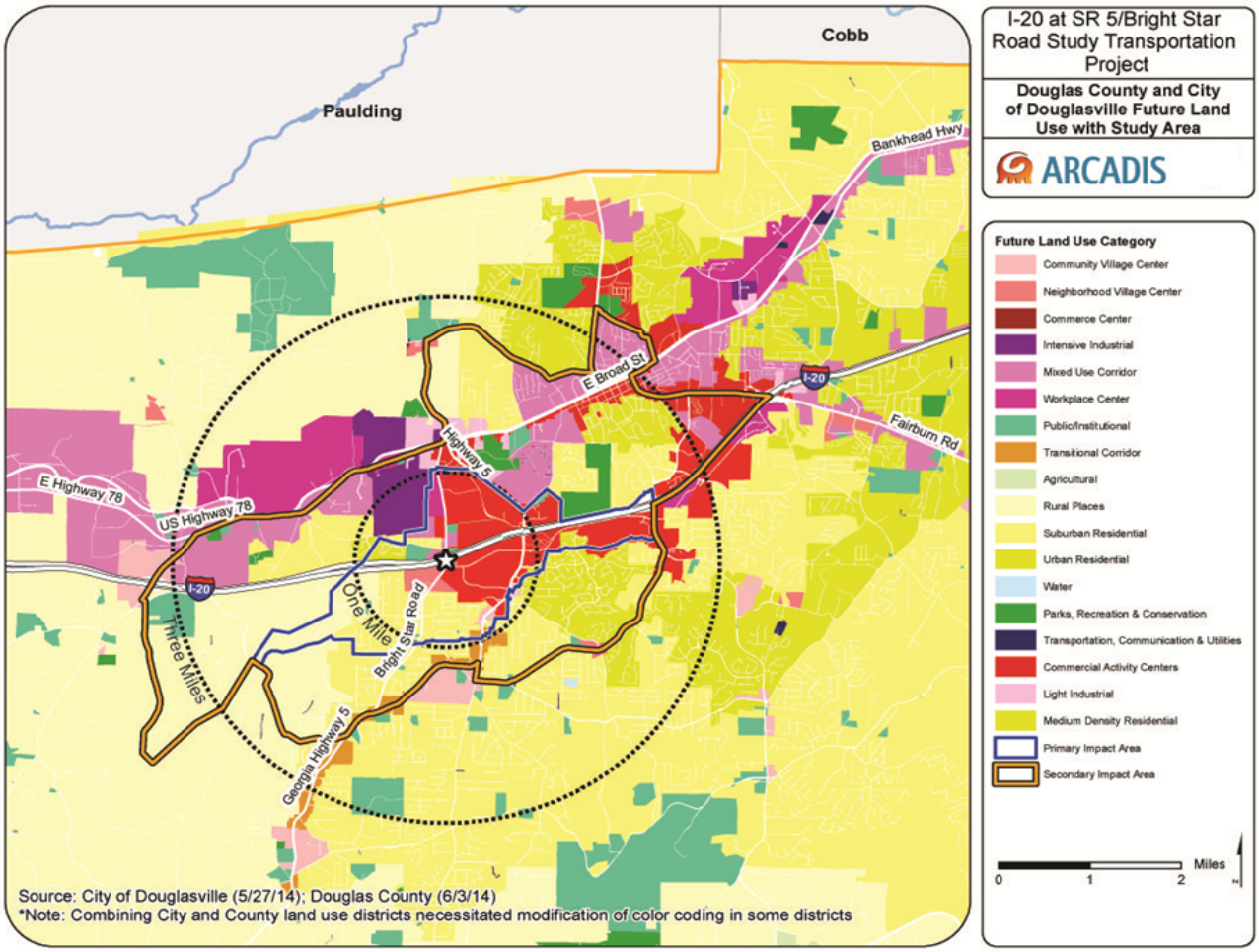


Table 10: Future Land Uses in the Study Area				
	Secondary Impact Area		Primary Impact Area	
	Acres	Percentage	Acres	Percentage
Mixed Use	1,353.2	14.1%	51.6	2.5%
Commercial - Local	147.8	1.5%	104.9	5.1%
Commercial - Regional*	1,415.8	14.8%	910.0	44.2%
Industrial - Light	127.5	1.3%	0.0	0.0%
Industrial - Heavy	298.1	3.1%	0.0	0.0%
Residential - Low	4,548.9	47.4%	779.0	37.8%
Residential - Multi-Family	959.5	10.0%	88.4	4.3%
Public Institutional	252.5	2.6%	57.4	2.8%
Parks and Rec	274.3	2.9%	0.4	0.0%
ROW/TCU	11.7	0.1%	0.0	0.0%
Transitional Corridor	136.9	1.4%	11.8	0.6%
Workplace Center	70.0	0.7%	55.9	2.7%
Total	9,596.2		2,059.3	

Douglas County

The 2013 Douglas County Comprehensive Plan organizes future land uses throughout the county into Community Character Areas which are intended to ensure compatible and unified development within specified areas of the county. Each character area identifies associated zoning districts for each character area. Character area designations and characteristics are designed to guide zoning decisions.

Nearly all of the study area in the unincorporated county falls within the Suburban Living, Rural Places, Mixed Use Corridor and Workplace Center Character Areas, which are defined below.

- Suburban Living: A majority of the southern portion of the study area is designated as Suburban Living or “SL”. Areas located outside identified centers that are experiencing a high volume of residential growth, primarily single-family houses. All non-residential development will be within designated corridors or master planned developments. Commercial Activity Centers will be designated as or Neighborhood Village Centers.
- Rural Places: The area south of I-20 and west of Cowan Mill Road is primarily identified as Rural Places or “RP”. Outlying rural areas with active farming and scattered single-family housing on large lots. Preservation of sensitive natural resources. Commercial Activity Centers within this area will be designated as Crossroads Village Centers. Commercial development should only be developed as designated on the FLUM and within master planned developments.
- Mixed Use Corridor: A large area bounded by Bankhead Highway to the north, Post Road to the west and Baggett Road to the east is identified at MUC. It is designed as a redevelopment corridor for existing commercial/light industrial corridors, or new emerging corridors. Light industrial and heavy highway commercial uses are allowed only within the Bankhead Highway Redevelopment Area.
- Workplace Center: A node on Bright Star Road north of the Bright Star Road Connector is designated as Workplace Center or “WC”. WC means intensive commercial retail and services, office and high tech development along ma-

jor highway corridors that are considered major employment generators with an emphasis on landscaping and aesthetics. Integrated office parks are highly encouraged. Residential developments are also encouraged to be integrated into the overall design.

City of Douglasville

The 2013 Douglasville Comprehensive Plan's Future Land Use Map is a tool to implement the City of Douglasville's vision and to address the challenges and improve the assets of the city. Future land use is organized into seven categories that define the character for new growth and development. The majority of the study area within the Douglasville City limits is classified as Regional Activity Center, Mixed Use Development, Commercial Activity Centers, Heavy Industrial, and Medium Density Residential, which are defined below:

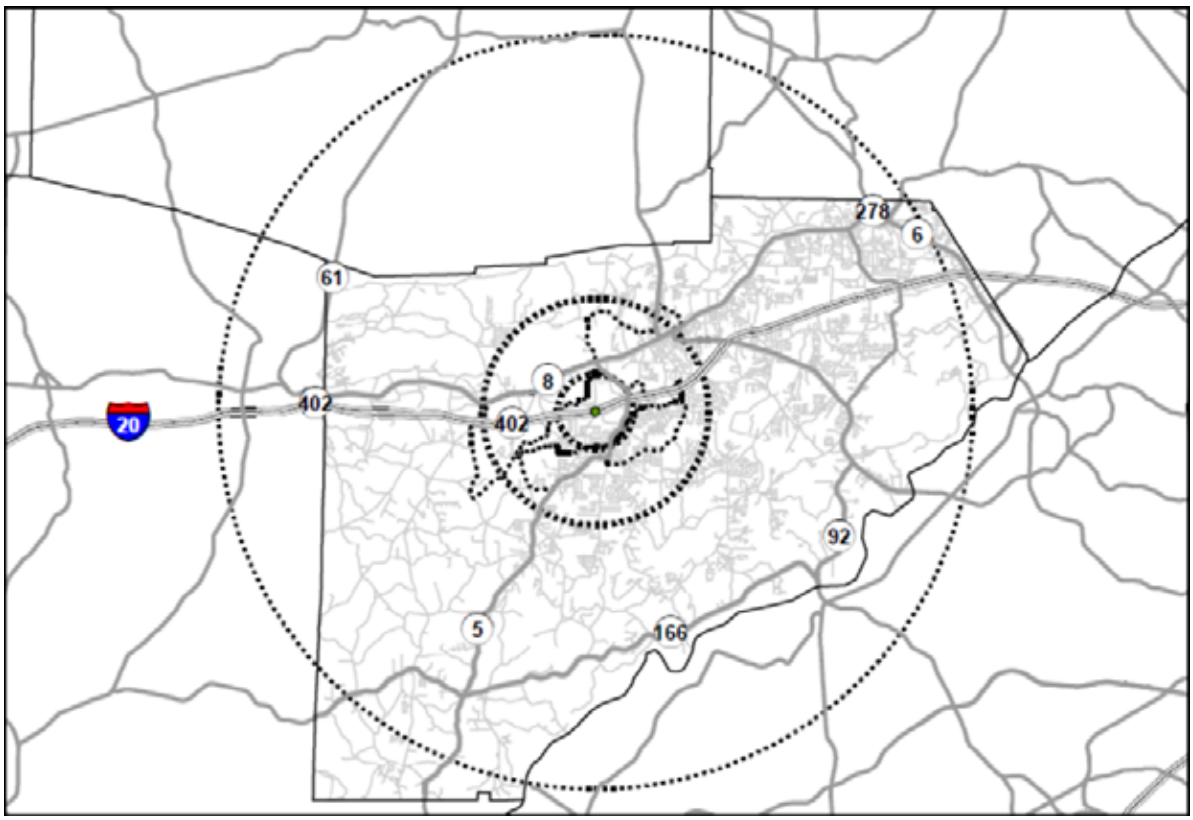
- Regional Activity Center: The entire Immediate study area west of Bright Star Road is designated as RAC. The purpose of the Regional Activity Center (RAC) category is to provide for areas that can support a high intensity of development which serves a regional market. Typical land uses in these areas include high-rise office buildings, regional malls, and varying densities of residential development.
- Mixed Use Development: Much of the area north of Downtown Douglasville and along SR5 north of I-20 is identified as Mixed Use Development, or "MXD". The purpose of a mixed-use design concept is to encourage the best possible site plan and building arrangement under a unified plan of development. The concept benefits from better land utilization, economy in the provision of roads, utilities and flexibility in design. Approval of an overall concept plan provides an opportunity to assure that the new growth will be in accordance with the character of the neighborhood in which the development is located. The mixed-use design concept is intended to encourage ingenuity and resourcefulness in land planning, to assure the provision of park and recreation land, and facilities for the use of the occupants of the development. A mixed use design concept is required to include at least two types of land use that are not otherwise allowed together or at least two types of residential density, in order to promote unique solutions to growth issues. A mixed-use design concept is intended to be a relatively large-scale project on a site of ten acres or more, except when contained entirely within a historic site or historic district may be located on a site of not less than five acres. The mixed-use design concept may include: commercial, residential, schools, recreation, open space, office and institutional.
- Commercial Activity Centers: The majority of land surrounding Downtown Douglasville and extending south on SR92 to I-20 is designated as Commercial Activity Center or "CAC". The purpose of the CAC category is to provide for areas that can meet the immediate needs of several neighborhoods or communities. Typical land uses for these areas might include low to mid-rise office buildings and department stores. Low to medium intensity office, retail and commercial service uses should be encouraged to locate in CACs.
- Heavy Industrial: A large tract south of Bankhead Highway and west of Bright Star Road is classified as Heavy Industrial. All light and heavy industrial uses to include but not limited to warehouse, distribution, manufacturing, wholesale, transportation, terminals, processing plants, workshops, greenhouses, research, development, markets, auctions, junkyards, lumberyards, building supplies, and other ancillary uses.
- Medium Density Residential: All of the residential within the City limits of the study area is identified as MDR. It is scattered throughout, but larger concentrations are immediately south of the mall area and north of I-20, between

SR5 and SR92. This category would be established to protect and promote a suitable environment for family life, to discourage any use which would generate other than residential traffic on minor streets, to meet the needs and demands of single-, two-, three-, and four-family residences and to protect the orderly future development of land, all in accordance with the land use plan for the city at a density of not more than four units per acre. A minimum development site size of three acres and a minimum requirement that 50 percent of the units in the development be in single-family detached dwellings is intended to ensure compatibility with surrounding residential uses.

- Recreation: The purpose of a recreation designation is to acknowledge the need to preserve open space and land that will encourage the best possible environment for family use of passive and active recreational opportunities. This designation will also provide opportunities to enjoy and appreciate the performing arts and related activities that help to define our quality of life.

Target Market Profile

The economic and market analysis for the I-20 and Bright Star Road/SR5 impact area examined the potential market depth for new residential, retail, and office space in the study area and determined how this potential could be most realistically achieved. For the purpose of housing demand, a 10-mile radius was used. For other projections, a 3-mile radius was analyzed. The map below shows one-, three- and ten-mile radii shown from the proposed new interchange.



Overall, the market study identified demand for 3,500 residential units, 468,405 square feet of retail, and 249,196 square feet of office space in the 3-mile impact area over the next ten years. It should be noted that the availability of large tracts of undeveloped commercial property with immediate access to I-20 and surrounding neighborhoods factored heavily in the analysis, in addition to traditional forecasting variables.

Table 11: Potential Market Demand		
	10-Year Study Area Potential Demand	Product Type
For Sale Product	1,680 units	Condominiums, townhomes, and small-lot single-family homes
Rental Product	1,820 units	One, two, and three-bedroom apartments
Retail Space	55,520 sq ft	Grocery
	18,992 sq ft	Health & Personal Care
	17,955 sq ft	Personal Services
	32,340 sq ft	Apparel
	51,754 sq ft	Home Furnishings
	47,688 sq ft	Home Improvement
	14,588 sq ft	Electronics
	162,557 sq ft	General Retail Specialty
	49,220 sq ft	Restaurants
	17,791 sq ft	Entertainment
	468,405 sq ft	TOTAL
Office Space	1831 sq ft	Construction
	317 sq ft	Manufacturing
	5483 sq ft	Transportation, Comm., Utilities
	1388 sq ft	Wholesale Trade
	1327 sq ft	Retail Trade
	71,750 sq ft	Finance, Insurance, Real Estate
	155,937 sq ft	Services
	11,163 sq ft	Government
	249,196 sq ft	TOTAL
Note: Because demand for Convenience Goods and Personal Service businesses is derived primarily from nearby residents, captures are based predominately on Local Retail Market Area demand. Grocery demand includes spending by potential residents of new Study Area housing.		
Source: ESRI; Census of Retail Trade; U.S. Consumer Expenditure Survey		

Residential Markets

The retail and residential market areas around I-20/Bright Star/SR5 are the geographic areas from which the large majority of potential retail customers and residents of new housing will emanate. They are based on drive time estimates, geographic and man-made boundaries and the location of existing competitive supply. The market areas include:

- Local Retail Market Area: A 1-mile radius, or less than 5-minute drive from the intersection of Bright Star Road and I-20. Residents and employees will visit the Study Area for convenience- related goods and services (such as groceries, dry cleaning, etc.), as well as for specialty shopping, dining and entertainment.
- Greater Retail Market Area: A 3-mile radius, or approximately a 12- to 15-minute drive from the intersection of Bright Star Road and I-20. Residents, employees and visitors will visit the study area for destination shopping, dining and entertainment.
- Residential Market Area: A 10-mile radius from the intersection of Bright Star Road and I-20. The majority of new Study Area residents will move from within this area.

Demographic trends are analyzed for the 2000 to 2018 time period and comparisons to the City of Douglasville, Douglas County and the Atlanta Metropolitan Statistical Area are made where appropriate.

The 1-mile, local retail market area has an estimated population of 3,424 in 2013, and the greater retail market area (3-mile radius) had a population of 30,489. Slow population growth within the market areas reflect the impact of the slowed economy, but run counter to the relatively robust growth experienced countywide. From 2000-2013, the population of Douglas County increased by 47%, one of the highest growth rates in metro-Atlanta.

Employment

Table 12: Employment by Industry

Industry	Local Retail (1-mile)	Greater Retail Area (3-mile)	Residential Market Area (10-mile)
Total Employment	1,423	13,047	90,888
Agriculture & Mining	0.7%	0.3%	0.3%
Construction	6.7%	6.7%	6.0%
Manufacturing	7.6%	10.1%	9.9%
Communication	1.5%	1.9%	2.1%
Utilities	7.5%	6.8%	8.9%
Wholesale Trade	5.3%	4.3%	3.8%
Retail Trade	13.8%	14.8%	12.5%
Financial/Insurance/Real Estate	6.2%	5.1%	5.7%
Services	44.8%	44.0%	45.3%
Public Administration	6.1%	6.1%	5.6%

Source: 2000 and 2010 U.S. Census, ESRI Business Analyst

An estimated 1,423 employees operate within the small, Local Retail Area. Within a five- 10 minute drive, there are an additional 13,047 jobs. Services (including professional, administrative, education, health care and social assistance, and food services and accommodation services) make up 45.3 percent of employment in the 3-mile area. Other key sectors include retail trade (12.5%), manufacturing (9.9%) and transportation/utilities (8.9%).

Residential Market Analysis

National Trends

Beginning in the spring and early summer of 2013, there was a widespread surge in home appreciation nationally ending several years of declining home prices. However, the overall picture of the for-sale housing market is still mixed. Housing prices are rising nationally, but a slowdown is expected as rising mortgage rates cut into demand due to an increase in the cost of borrowing. A modest increase in inventory levels is expected, as well as a slowdown in investor activity in the dwindling distressed market.

On average, buying is still cheaper than renting and will remain so until mortgage rates reach 10.5 percent, a level we have not seen since 1990 and may not see again. Renting a home means greater mobility than owning a home, and younger consumers, the ones most likely to add to housing demand, seem more inclined to live in urban areas where apartments and condominiums are concentrated. An apparent shift toward renting in some areas is likely not permanent; however, the tight lending environment and unresolved issues relating to foreclosures and distressed sales are a source of continuing demand for rental units.

Local Existing Housing Profile

Table 13: Existing Housing Supply summarizes the characteristics of the existing housing supply in the Residential Market Area, City of Douglasville, Douglas County and the Atlanta MSA.

Table 13: Existing Housing Supply				
Housing Characteristic	Residential Market Area	Douglasville	Douglas County	Atlanta MSA
Housing Units (2013)	77,802	13,299	52,786	1,991,823
Owner occupied	65.4%	45.8%	60.6%	63.2%
Renter occupied	25.4%	43.4%	29.8%	36.8%
Vacancy Rate	9.2%	10.8%	9.6%	10.0%
Median Value	$114,428	$115,449	$114,897	$158,071
Median Rent	$703	$676	$701	$733
Single Family Detached	68.7%	59.5%	78.2%	67.0%
Single Family Attached	2.2%	4.8%	1.9%	5.0%
Other	29.1%	35.7%	19.9%	27.0%
Median Year Structure Built	1991	1993	1992	1987
Source: 2010 U.S. Census, ESRI Business Information Solutions				

In Douglas County, home sales are gradually increasing, but nowhere near the pace seen in the late 1990s-2008. The starter home and lower end of the move-up market are providing the most opportunities for homebuilders. The 50+ market has outperformed the overall market since the housing downturn began and continued vibrancy is anticipated going forward. There is a huge wave of baby boomers who no longer want a 4,000 square foot house: this active-adult market segment is looking for a smaller, attractive, one-story home convenient to a variety of amenities including golf courses, community centers, etc.

The multifamily rental market in metro Atlanta is strengthening daily, although at a slow pace. One of the main factors contributing to local rental market strength is demand created by former homeowners who are renting following having faced a foreclosure experience. While this situation is expected to ease as the economy improves, it is likely to continue influencing the rental market in the near future.

Housing Demand

A statistical demand analysis was performed for the residential market area to estimate the potential market depth for for-sale and rental product in the 1-mile and 3-mile study areas. Even though the analysis uses finite numbers, the end result (i.e. potential market support) should be interpreted as an approximation of market depth that is balanced with the characteristics of the competitive supply.

Table 14: Summary of Potential New Residential Units, Greater Retail Study Area				
	10-Year Residential Market Area (10-mile) Potential Demand	Study Area Capture	10-Year Study Area (3-mile) Potential Demand	Product Types
For Sale Product	48,000	3.5%	1,680	Condominiums, townhomes, small-lot single-family homes
Rental Product	70,000	2.6%	1,820	One, two, and three-bedroom apartments

Retail Market Analysis

Market Overview

The national commercial real estate market is recovering slowly after experiencing declines in consumer spending and tightening lending markets. In Atlanta, the retail sector is improving as vacancy rates edge downward and absorption increases in response to lower lease rates. The Atlanta market has worked its way through an oversupply of mid-sized and larger boxes, especially since 2012, but there is still concern in the outlying markets.

It is estimated that in metro Atlanta, over 900,000 square feet of retail space will come online in 2014, compared to 615,000 square feet in 2012. Strong demand, however, should cause vacancy rates to continue to fall (to about 10.7 percent) and asking rents to rise (to $14.40 per square foot).

The table below summarizes retail/service space in the Study Area, showing that services make up the largest share of businesses (47.9% and 50.5% respectively). Financial/Real Estate make up the second largest share at 9.2 and 8.1 percent respectively. Although there is a large concentration of big box, power center retail in and around the Arbor Place mall area, the data show that there is more diversification in the area than might be immediately apparent.

Table 15: Area Retail Businesses

Business Type	Local Retail Area (1-mile)	Greater Retail Area (3-mile)
Apparel	1.0%	2.3%
Home Goods/Furniture	2.7%	2.7%
Eating/Drinking	6.3%	4.8%
Grocery	2.2%	1.6%
Misc. Retail	8.3%	6.8%
Services/Hotel/Health/Auto	47.9%	50.5%
Finance/Insurance/Real Estate	9.2%	8.1%
Other	32.4%	33.0%

Source: 2010 U.S. Census, ESRI Business Information Solutions

Retail Demand

Data from ESRI Business Analyst, Census of Retail Trade and the U.S. Consumer Expenditure Survey were reviewed against local knowledge and awareness of development potential within and immediately surrounding the study area to gauge spending patterns and retail “leakage” - the dollars leaving a community and being spent in other markets for goods and services. Leakage analysis is a snapshot for evaluating the retail gaps that exist in the community and is the starting point for developing a retail market strategy.

The share of potential supportable space that the Study Areas can ultimately support will depend on the success of implementing a comprehensive development program that includes a wide variety of retail, entertainment, housing and office uses. A passive or segmented approach to development would likely result in the Study Areas achieving only a fraction of its estimated potential.

Based on the assumption that a comprehensive business development program is underway, the preliminary market analysis estimates that over the next ten years, the 3-mile market area around the I-20 Bright Star Road/SR5 intersection has the potential to capture 20-30 percent of new market area demand and 5-10 percent of existing market area

demand. Combined, these form potential for 468,405 square feet of retail space and 249,196 square feet of office space in the Greater Retail (3-mile) Area over the next ten years.

As shown in Table 11, the unmet current and future demand for retail square footage will be in the General Retail Specialty, Grocery/Food and Home-related industries. In the office sector, demand will be in the Services and Finance/ Insurance and Real Estate Sectors, which bodes well for higher wage future employment options in the study area. Economic growth of a place is inherently linked to educational attainment and median income. Increasing the number of, and accessibility to, higher wage jobs should be a key economic development strategy guiding future development.

Traffic Data

Roadway and Intersection Geometry

Post Road at Mason Creek Road: This intersection is signalized. The southbound approach has one through lane and one protected permitted left turn lane. The westbound approach has one protected left turn lane and one right turn lane. The southbound approach has one right turn lane and one through lane. There is no eastbound approach. Post Road's function class is major collector with a speed limit of 45mph. Mason Creek Rd's function class is local road with a speed limit of 40mph.

Post Road at I-20 Eastbound: This intersection is unsignalized, but it is controlled with stop signs. The northbound and southbound approaches are free from stop signs. The southbound approach has one through lane and one left turn lane. There is no westbound approach. The northbound approach has one through lane with a channelized right turn option. The eastbound approach is one lane with the option to either turn left or to take a channelized right turn. The eastbound approach is controlled by a stop sign. Post Road's function class is major collector with a speed limit of 45mph. The on and off ramp's function class is interstate.

Post Road at I-20 Westbound: This intersection is signalized. The southbound approach is one lane from which there is the option to right turn. The westbound approach is one lane with the option to take channelized right turn or to take a protected left turn. The northbound approach has one through lane and one protected permitted left turn lane. There is no eastbound approach. Post Road's function class is major collector with a speed limit of 45mph. The on and off ramp's function class is interstate. Pedestrian crossings are available for the southbound and westbound approach.

Bright Star Road at Bright Star Connector: This intersection is unsignalized, but it is controlled with stop signs. From the southbound approach, there is one left turn lane and one through lane. There are no stop signs for the southbound or northbound approaches. From the westbound approach, there is one channelized right turn lane and one left turn lane controlled by stop signs. From the northbound approach, there is one through lane and one channelized right turn lane. There is no eastbound approach. Bright Star Connector has a function class of local road with a speed limit of 35mph. Bright Star Rd's function class is major collector road with a speed limit of 40mph. Pedestrian crossings are present for the westbound approach only.

Bright Star Road at Cherry Lane: This intersection is unsignalized, but stop signs are present. The northbound and southbound approaches are only one lane each, and are free from any stop signs. There is no westbound approach. The eastbound approach has only one lane from which a person can either turn left or right. The eastbound approach is controlled by a stop sign. Bright Star Rd is classified as a major collector road with a speed limit of 40mph. Cheery Lane is classified as a local road with a speed limit of 25mph.

Bright Star Road at John West Road: This intersection is unsignalized, but stop signs are present. The northbound and southbound approaches are only one lane each, and are free from any stop signs. There is no westbound approach. The eastbound approach has only one lane from which a person can either turn left of right. The eastbound approach is controlled by a stop sign. Bright Star Rd is classified as a major collector road with a speed limit of 40mph. John West Road is classified as a local road with a speed limit of 35mph.

Bright Star Road at Douglas Boulevard: This intersection is signalized with split phasing. The southbound approach has one through lane with the optional left turn. The westbound approach has a channelized right turn lane and one pro-

tected left turn lane. The southbound approach has one through lane and one channelized right turn lane. The eastbound approach has one lane from which one can turn left, turn right, or go through the intersection. Bright Star Rd is classified as a major collector road with a speed limit of 40mph. Douglas Blvd is classified as a minor arterial with a speed limit of 45mph. There is one pedestrian crossing for the westbound approach.

Douglas Boulevard at Stewart Parkway: This intersection is signalized. The southbound approach has one through lane, one protected permitted left turn lane, and one channelized right turn lane. The westbound approach has one channelized right turn lane, two through lanes, and one permitted left turn lane. The northbound approach has one through lane, one right turn lane, and one protected permitted left turn lane. The eastbound approach has two through lanes with the right turn option and one permitted left turn lane. Douglas Blvd is classified as a minor arterial with a speed limit of 45mph. Stewart Parkway is classified as a local road with a speed limit of 45mph. Pedestrian crossings are present for all sides except the eastbound approach.

Douglas Boulevard at Home Depot: This intersection is signalized. From the southbound approach there is one lane from which one can turn right, go through the intersection, or turn left. The westbound approach has one protected permitted left turn lane and two through lanes with the optional right turn for the right through lane. The northbound approach has one through lane with the optional left turn and one right turn lane. The eastbound approach has one permitted left turn lane, and two through lanes with the optional right turn lane for the right through lane. Douglas Blvd is classified as a minor arterial with a speed limit of 45mph. The Home Depot and Garden Ridge access roads are classified as local roads and have a speed limit of 25mph. Pedestrian crossings are present for all approaches.

Douglas Boulevard at Bill Arp Road: This intersection is signalized. The southbound approach has one protected left turn lane and two through lanes with the optional right turn for the right through lane. The westbound approach has one channelized right turn lane, one through lane, and one protected permitted left turn lane. The northbound approach has the same lane configuration as the southbound approach. The eastbound approach has one protected permitted left turn lane and two through lanes with the optional right turn for the right through lane. Douglas Blvd has a function classification of minor arterial with a speed limit of 45mph. Bill Arp road is classified as other principle arterials with a speed limit of 45mph. Pedestrian crossings are present for all approaches except for the southbound approach.

Bill Arp Road at I-20 Eastbound: This intersection is signalized. The southbound approach has one protected permitted left turn and two though lanes. There is no westbound approach. The northbound approach has two through lanes and one channelized right turn lane. The eastbound approach has one channelized right turn lane and one protected left turn lane. Bill Arp Road is classified as other principle arterial with a speed limit of 45mph. The on and off ramps are classified as interstate. Pedestrian crossings are present at all approaches except for the southbound approach.

Bill Arp Road at I-20 Westbound: This intersection is signalized. The southbound approach has two through lanes and one channelized right turn lane. The westbound approach has one channelized right turn lane and two protected left turn lanes. The northbound approach has two through lanes and one protected permitted left turn lane. There is no eastbound approach. Bill Arp Rad is classified as a minor arterial road with a speed limit of 45mph. The on and off ramps are classified as interstate. There are pedestrian crossings for the southbound and westbound approaches.

Bill Arp Road at Concourse Parkway: This intersection is signalized with split phasing. From the southbound approach, there are two through lanes with the option to turn right for the right through lane and one protected permitted left turn lane. From the westbound approach, there is one right turn lane, one through lane with the optional left turn, and

one protected left turn lane. From the northbound approach, there is one right turn lane, two through lanes, and one protected permitted left turn lane. From the eastbound approach, there is one protected left turn lane and one through lane with an optional right turn. Bill Arp Road is classified as a minor arterial road with a speed limit of 45mph. Concourse Parkway is classified as a local road with a speed limit of 35mph. There are pedestrian crossings at all approaches.

Bill Arp Road at Bright Star Connector: This intersection is signalized. The southbound approach has one channelized right turn lane, one through lane, and one protected left turn lane. The westbound approach has one channelized right turn lane, one through lane, and two protected left turn lanes. The northbound approach has one channelized right turn lane, one through lane, and one protected left turn with the U-turn option. The eastbound approach has one protected left turn and two through lanes with the channelized right turn option for the right through lane. Bill Arp Road is classified as a minor arterial road with a speed limit of 45mph. Bright Star Connector is classified as a local road with a speed limit of 35mph. There are pedestrian crossings at all approaches.

Douglas Boulevard at Yale Circle: This intersection is signalized. The southbound approach from Yale Circle has one channelized right turn and one through lane with an optional left turn. The westbound approach from Douglas Blvd has one protected permitted left turn lane and one through lane with an optional right turn.
The northbound approach has the same lane configuration as the southbound approach. The eastbound approach has the same lane configuration as the westbound approach. Douglas Blvd is classified as a minor arterial road with a speed limit of 45mph. Yale Circle is classified as a local road with a speed limit of 25mph. Pedestrian crossings is present for all approaches.

Douglas Boulevard at Arbor Place Mall West: This intersection is signalized. There is no southbound approach. In the westbound approach, there are two through lanes and one protected permitted left turn lane. From the northbound approach, there are two protected left turn lanes and one channelized right turn. In the eastbound approach, there are through lanes and one channelized right turn lane. Douglas Blvd is classified as a minor arterial road with a speed limit of 45mph. Arbor Place Mall West is classified as a local road with a speed limit of 35mph. There are pedestrian crossings for the northbound and westbound approaches.

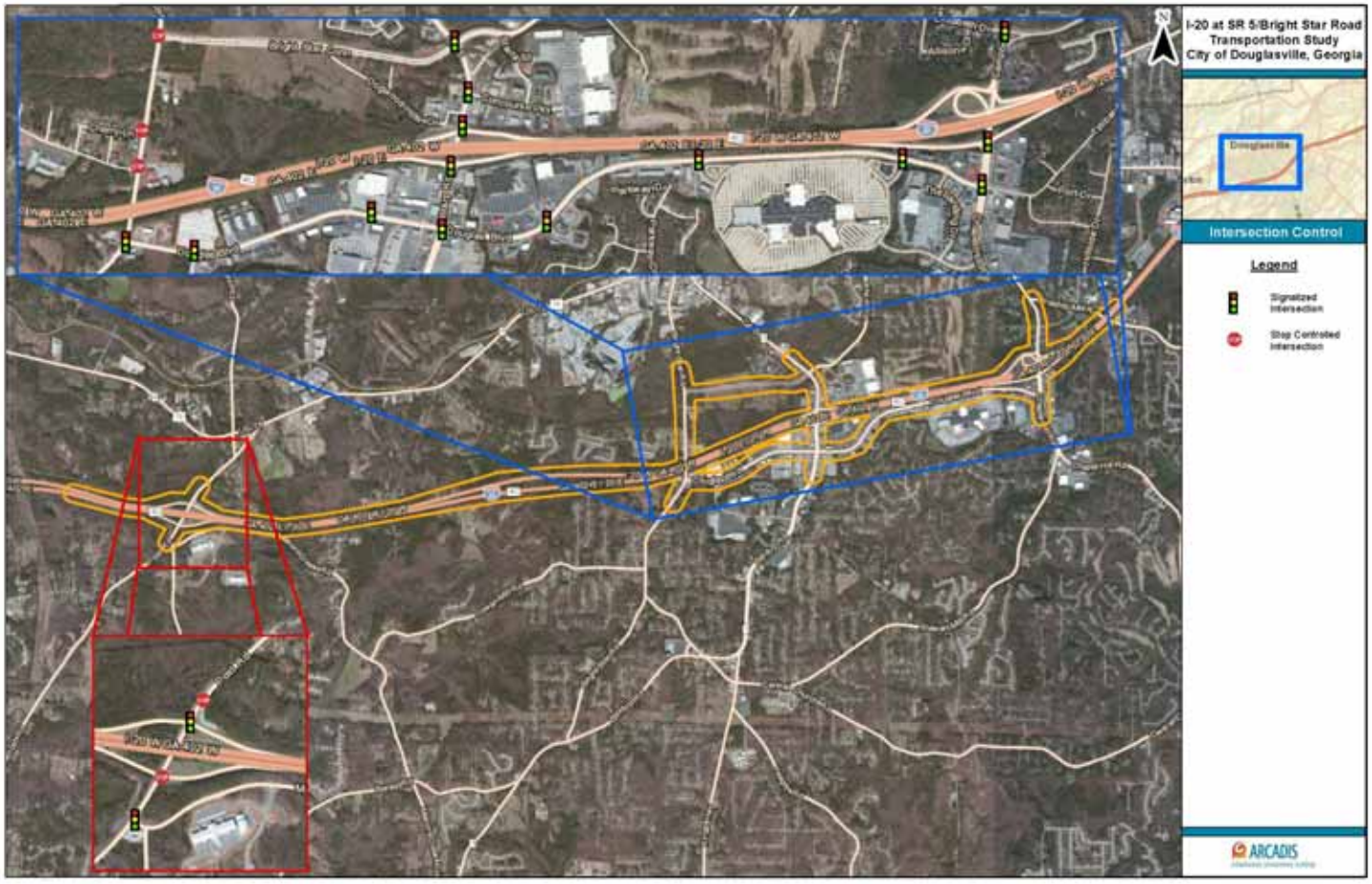
Douglas Boulevard at Arbor Place Mall East: This intersection is signalized. There is no southbound approach. In the westbound approach, there are two through lanes, and one protected permitted left turn lane. Northbound there are two protected left turns and one channelized right turn lane. In the eastbound approach, there are two through lanes and one channelized right turn lane. There are pedestrian crossings for the northbound and eastbound approaches. Douglas Blvd is classified as a minor arterial road with a speed limit of 45mph. Arbor Place Mall East is classified as a local road with a speed limit of 35mph.

Chapel Hill Road at Douglas Boulevard: This intersection is signalized. From the southbound approach, there are two through lanes, one protected permitted left turn lane, and two protected channelized right turn lanes. The westbound approach has two through lanes, one right turn lane, and two protected left turn lanes. The northbound approach has two through lanes, one right turn lane, and one protected left turn lane. The eastbound approach has one through lane, two protected left turn lanes and one channelized right turn lane. Chapel Hill Rd is classified as a minor arterial road with a speed limit of 35mph. Timber Ridge Drive is classified as a local road with a speed limit of 35mph. Douglas Blvd is classified as a minor arterial with a speed limit of 45mph. There are pedestrian crossings present for all approaches.

Chapel Hill Road at I-20 Eastbound: This intersection is signalized. In the southbound approach, there are three through lanes, one protected permitted left turn lane, and no right turns are allowed from this approach. There is no approaching traffic in the westbound direction. In the northbound approach, there are two through lanes and a channelized right turn lane. In the eastbound approach, there is a protected left turn lane and a channelized right turn lane. Pedestrian crossings are present for the northbound approach, the eastbound approach, and the on ramp. Chapel Hill Road is classified as a minor arterial street with a spend limit of 35mph. The on and off ramps are classified as a part of the interstate.

Chapel Hill Road (Campbellton St.) at Hospital Drive: This intersection is split phase signalized. In the southbound approach, there are two through lines and one protected permitted left turn lane. In the westbound approach, there is one channelized right turn, one protected left turn lane, and one through or left turn lane. In the northbound approach, there is one through lane and one protected permitted left turn lane. To make a right turn onto Hospital Drive in the northbound approach, there are two channelized right turn lanes before the signalized intersection. In the eastbound approach, there is one lane from which one can go through the intersection, make a right turn, or make a protected left turn. The speed limit on Campbellton St. is 35mph for both the northbound and southbound approaches. The speed limit on the Elizabeth Drive is 25mph. The speed limit on Hospital Drive is 45mph. Campbellton is classified as a minor arterial. Hospital Drive and Elizabeth Drive are classified as local roads. Pedestrian crossings are present for all approaches.

Signalized Intersections



SR 5 is part of the Regional Traffic Operations Program (RTOP). RTOP is a multi-jurisdictional, cutting-edge signal timing GDOT program with the goal of improving traffic flow and reducing vehicle emissions through improved signal timing. SR 5 traffic signals are therefore, coordinated and actively managed. Additionally, Douglas County actively manages Douglas Boulevard signals during the holidays. The figure on the previous page, Intersection Control, displays the intersections that are signalized and unsignalized.

Existing Volume Development

Existing, no-build, and build volumes will be developed for the study area, including Post Road and Chapel Hill Road. Peak hour turning movement and daily classification counts were obtained on May 14, 2014. Turning movement counts were collected at 20 intersections in the area while classification counts were collected at 22 locations including along I-20. The locations are shown in the figure below, Traffic Count Locations.

Volume development will follow GDOT guidelines which require submittal of existing daily and peak hour volumes along with a memo discussing the proposed volume development methodology. Once the memo has been approved, future year volumes will be developed. The interchanges of Post Road and Chapel Hill Road were included for future Interchange Justification or Interchange Modification needs.

Observed Congestion

Traffic observations were gathered from a series of videos taken from the study area. The videos show traffic during AM and PM peak periods of the day through the various intersections and corridors of the study area. The AM videos

were taken on May 5, 2014, between 6:36am and 7:43am. The PM videos were taken on May 1, 2014, between 5:12pm and 8:45pm.

AM Traffic Observations

The intersection and corridor with the highest level of traffic and congestion during the AM peak period was the intersection of Bill Arp (SR 5) and the I-20 eastbound ramp. The intersection of Bill Arp (SR 5) and the I-20 eastbound ramp had the highest level of congestion during the AM peak period traffic videos. Traffic from this intersection would back up past Concourse Parkway, approximately 1,000 feet north of the intersection. All other intersections and corridors in the study area operated at a free flow pace without any congestion.

PM Traffic Observations

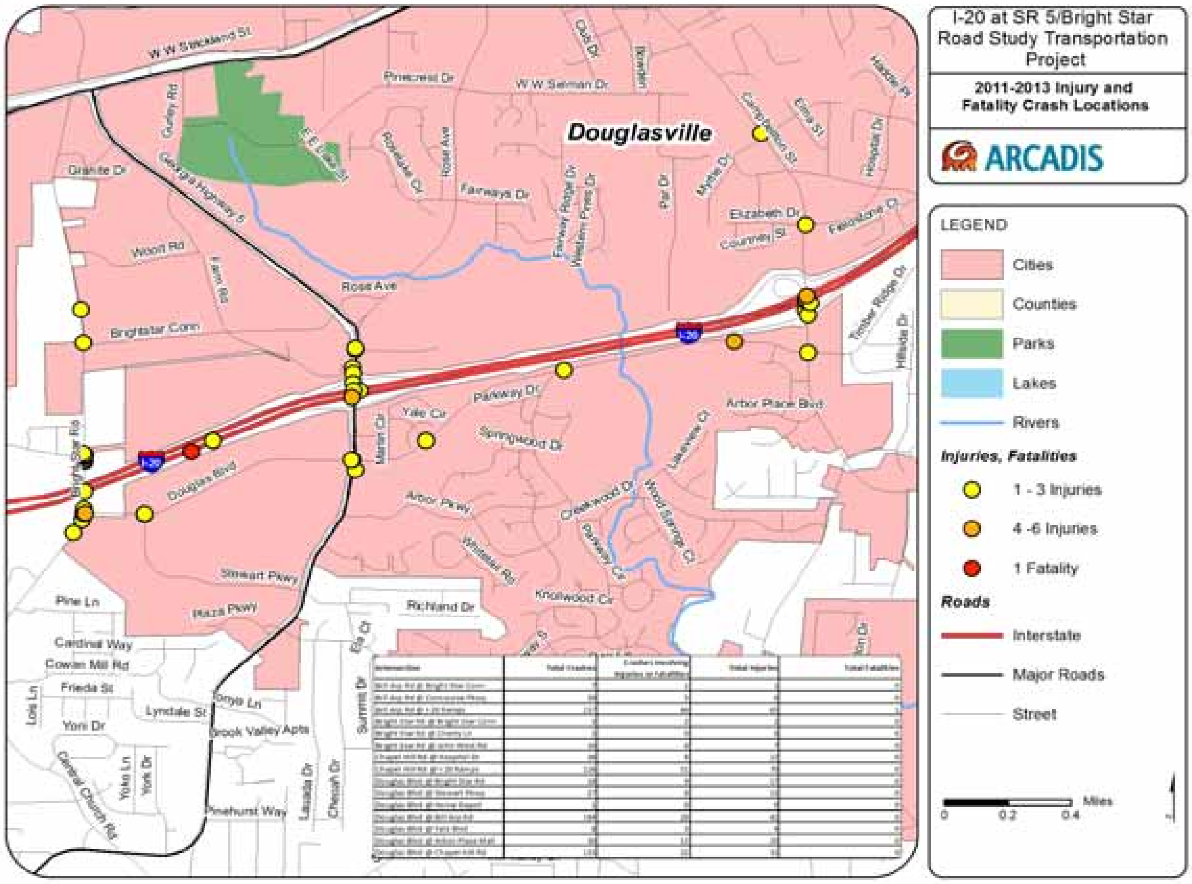
The intersections and corridors with the highest level of traffic and congestion during the PM peak period were Bill Arp Road (SR 5) at the intersections of: Douglas Boulevard, I-20 east bound Ramp, I-20 west bound ramp, and Concourse Parkway; Chapel Hill Road at the intersections of Douglas Boulevard, and I-20 eastbound ramp; and sections of Douglas Boulevard. Bill Arp Road (SR 5) was the most congested corridor during the PM traffic observations. North bound and south bound travelers would have wait times at the I-20 interchange sometimes exceed two minutes, with south bound traffic backing up past Concourse Parkway. North bound traffic on Bill Arp (SR 5) would back up past the Douglas Boulevard intersection. The intersection of Chapel Hill Road and Douglas Boulevard also had high congestion during the PM peak. South bound traffic would back up past the east bound I-20 ramps. Douglas Boulevard traffic would build up at the intersections of Bill Arp Road (SR 5) and Chapel Hill Road. All other corridors and intersections in the study area were relatively uncongested.

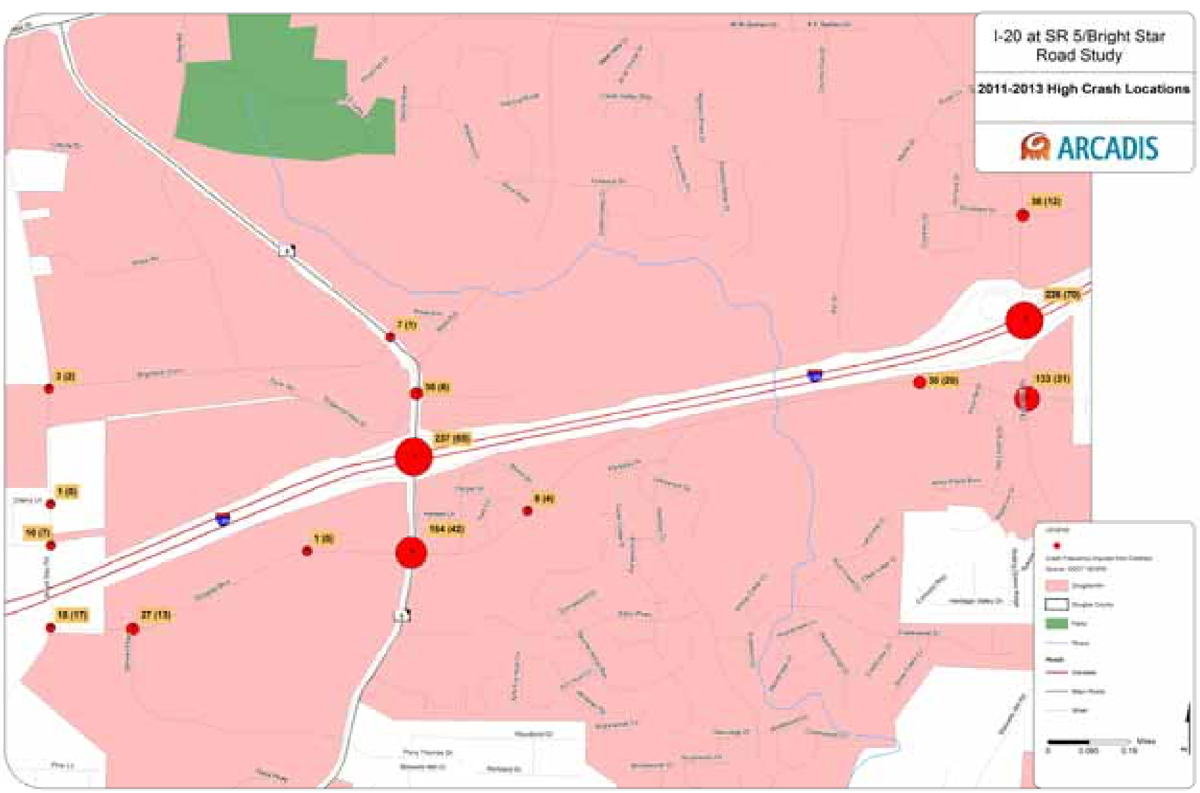
Safety

Table 17: Crash Data 2011-2013

Intersection	Total Crashes	Crashes Involving Injuries or Fatalities	Total Injuries	Total Fatalities
Bill Arp Rd @ Bright Star Conn	7	1	1	0
Bill Arp Rd @ Concourse Pkwy	38	5	6	0
Bill Arp Rd @ I-20 Ramps	237	46	65	1
Bright Star Rd @ Bright Star Conn	3	2	2	0
Bright Star Rd @ Cherry Ln	1	0	0	0
Bright Star Rd @ John West Rd	10	6	7	0
Chapel Hill Rd @ Hospital Dr	36	8	12	0
Chapel Hill Rd @ I-20 Ramps	226	51	70	0
Douglas Blvd @ Bright Star Rd	18	9	17	0
Douglas Blvd @ Stewart Pkwy	27	8	13	0
Douglas Blvd @ Home Depot	1	0	0	0
Douglas Blvd @ Bill Arp Rd	184	28	42	0
Douglas Blvd @ Yale Blvd	8	3	4	0
Douglas Blvd @ Arbor Place Mall	30	12	20	0
Douglas Blvd @ Chapel Hill Rd	133	22	31	0

Source: GDOT *GEARS Database*

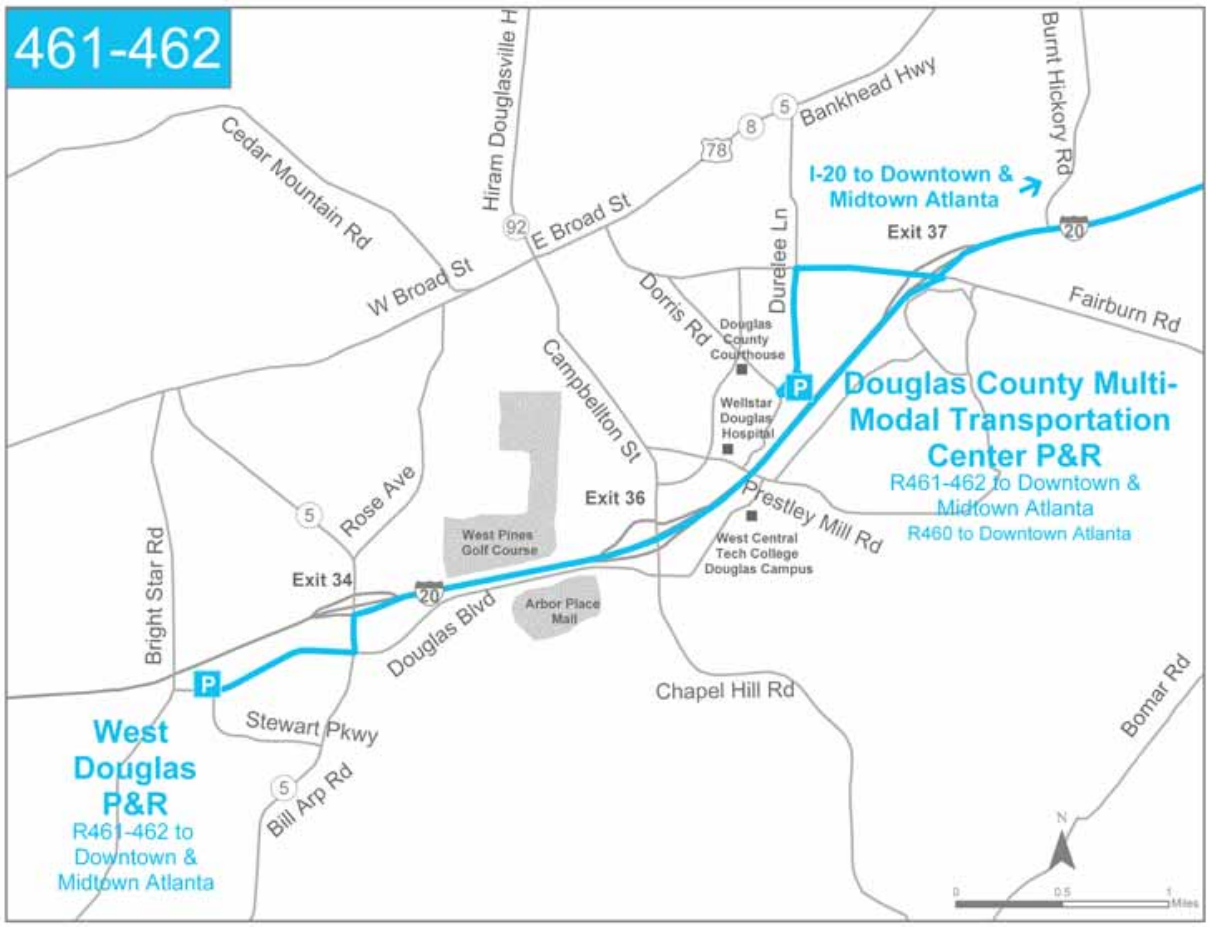

I-20 at SR 5/Bright Star Road Study Transportation Project
2011-2013 Injury and Fatality Crash Locations
ARCADIS
LEGEND
Cities
Counties
Parks
Lakes
Rivers
Injuries, Fatalities
1 - 3 Injuries
4 -6 Injuries
1 Fatality
Roads
Interstate
Major Roads
Street
Miles
0
0.2
0.4
Douglasville
W W Stockland St
Pinecrest Dr
W W Selman Dr
Club Dr
Granite Dr
Georgia Highway 5
Fairways Dr
Elizabeth Dr
Courtney St
Wood Rd
Rose Ave
Brightstar Conn
Parkway Dr
Yale Cir
Springwood Dr
Arbor Place Blvd
Douglas Blvd
Arbor Pkwy
Creekwood Dr
Wood Springs Ct
Stewart Pkwy
Pine Ln
Plaza Pkwy
Richland Dr
Knollwood Cir
Cardinal Way
Cowan Mill Rd
Frieda St
Lyndale St
Yoni Dr
Brook Valley Apts
Pinehurst Way
Central Church Rd
Timber Ridge Dr
Hillside Dr


I-20 at SR 5/Bright Star Road Study
2011-2013 High Crash Locations
ARCADIS
38 (12)
226 (70)
7 (1)
3 (2)
56 (6)
36 (20)
133 (31)
237 (88)
8 (4)
1 (0)
10 (7)
1 (0)
104 (42)
18 (17)
27 (13)

Transit

Express Bus

The study area is served by Georgia Regional Transportation Authority (GRTA) Xpress route 461-462 at the West Douglas Park & Ride lot located at 7500 Douglas Boulevard. Route 461-462 operates Monday-Friday from the West Douglas and Douglasville Park & Ride lots to Downtown and Midtown Atlanta. The route provides six trips in the morning, circulating first in Downtown and then Midtown, and five return trips in the afternoon, circulating first in Midtown and then Downtown. In addition, the route provides two "reverse commute" trips (travelling in the opposite direction to Douglasville) in the morning and one trip in the afternoon. Exiting and entering the West Douglas Park & Ride lot, route 461-462 travels along Douglas Boulevard and SR 5 in order to access I-20.



In 2013, the West Douglas Park & Ride lot had a utilization rate of 12 percent which is down from 21 percent in 2012.

Douglas County Rideshare

The West Douglas Park & Ride lot is also utilized as an origination point for several vanpools operated by the Douglas County Rideshare program, which is a commuter-oriented program that operates work trip vanpools to various destinations throughout metro Atlanta. Vanpool riders utilize the West Douglas Park & Ride lot as a meeting point for their vanpools.