

EXISTING CONDITIONS AND NEEDS ASSESSMENT

DEKALB COUNTY 2050 UNIFIED PLAN:

COMPREHENSIVE TRANSPORTATION PLAN AND COMPREHENSIVE PLAN UPDATE

MOBILITY

DRAFT

MOBILITY

Transportation is an important part of daily life and represents a crucial part of a region’s social fabric and manmade infrastructure. How and where DeKalb County residents get to work, play, learn, and live has implications on quality of life. Securing safe, efficient, and accessible transportation options is critical to providing equitable opportunities for all DeKalb residents. The Mobility sections will draw a connection between the *people* and *places* discussed in earlier chapters.

TRAVEL

WHERE RESIDENTS WORK

DeKalb County residents represent a diversity of incomes, educational backgrounds, and occupations. As one of the two core metro Atlanta counties, many DeKalb residents commute to traditional central business districts (within DeKalb or in neighboring Fulton) returning to DeKalb in the evening (**Figure 64**). Nevertheless, many nodal, and suburb-to-suburb trips to work throughout the day are a way of life for DeKalb residents as well.

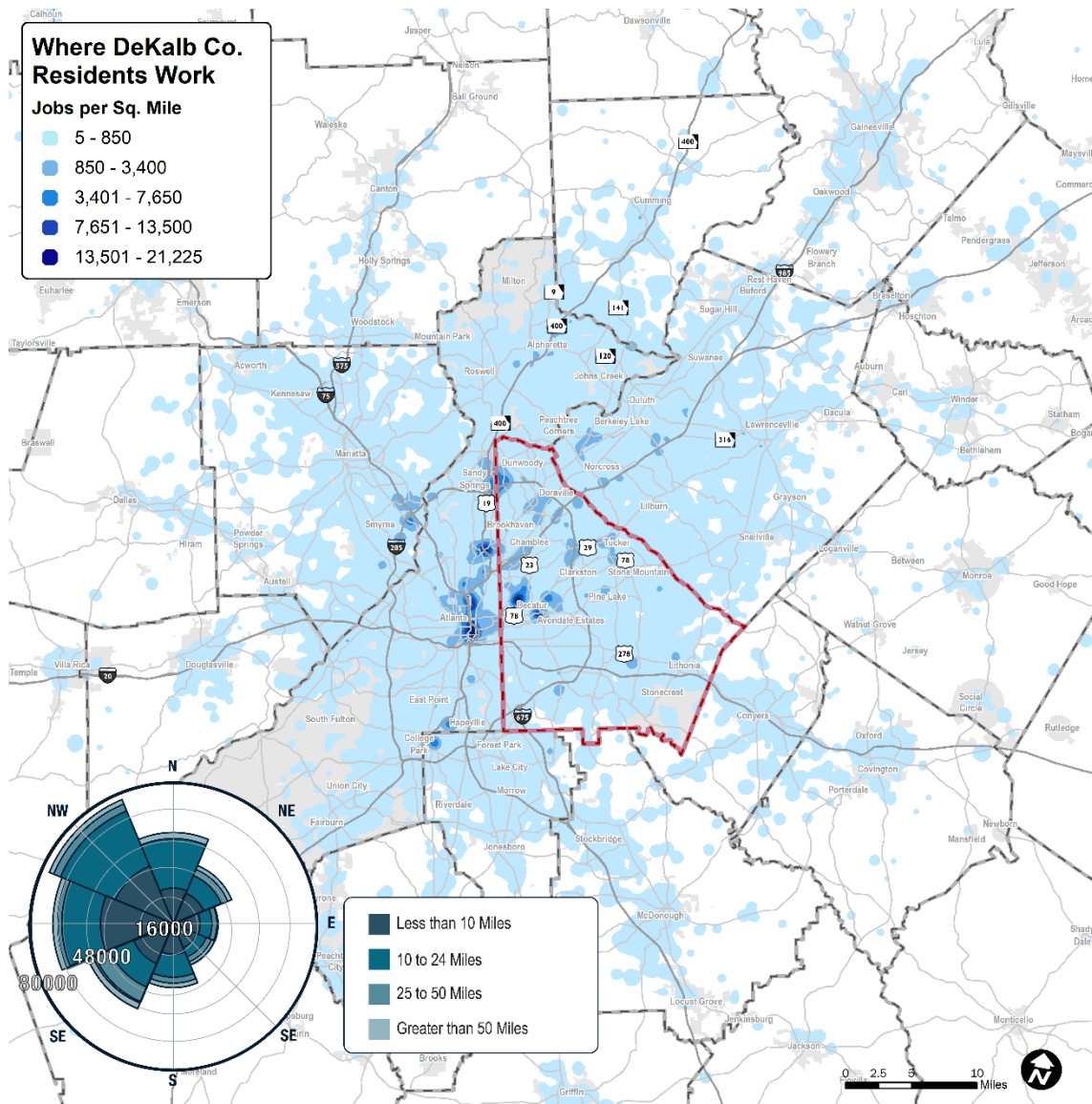


Figure 64. Where DeKalb County Residents Work

Just over 40 percent of DeKalb residents work outside of the County, but major regional employment centers exist within the County as well. The largest concentration of County residents work in Midtown, Downtown, and Buckhead (Atlanta); the Perimeter CID that straddles Dunwoody and Brookhaven; Sandy Springs (Fulton County); Emory University and the Centers for Disease Control (CDC) (DeKalb County); and Hartsfield-Jackson International Airport. Many DeKalb residents commute to Cumberland CID and points in Gwinnett County, such as Norcross, Duluth, and Lawrenceville. Concentrations of retail, and mixed-use industrial development can be seen in Chamblee-Doraville, as well as Tucker-Northlake. More local activity nodes are seen in Lithonia-Stonecrest and South DeKalb Mall.

WHERE EMPLOYEES LIVE

People from all over metro Atlanta travel to DeKalb County for employment. Some of DeKalb County’s major employers include Emory Hospital, the CDC, and portions of the Perimeter. The most significant flow of employees traveling into DeKalb County is from nearby Gwinnett County, where over 47,000 employees commute every day to DeKalb, shown in **Figure 65**.

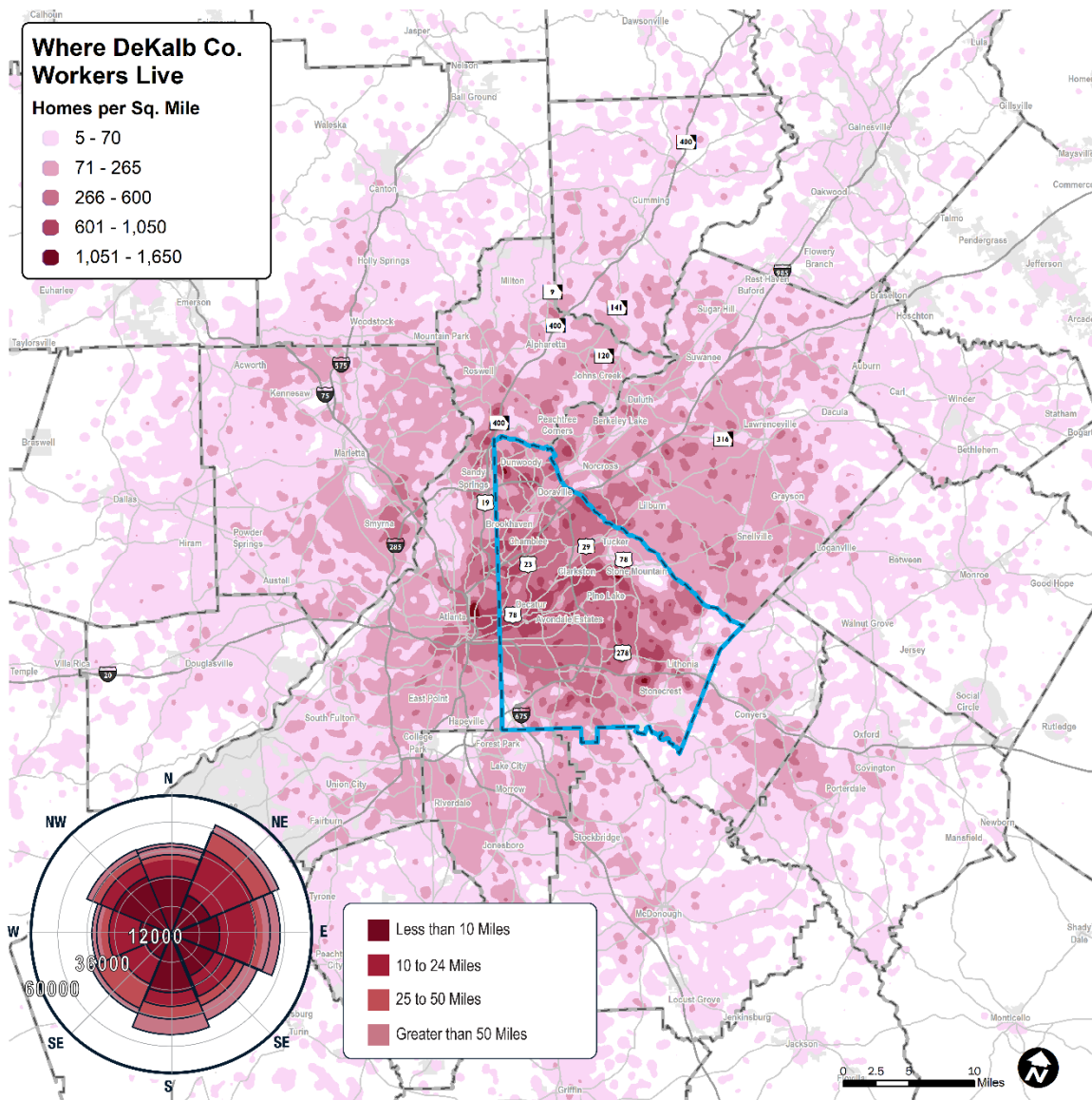


Figure 65. Where DeKalb County Workers Live

LIVE AND WORK TRAVEL FLOWS

Approximately 250,000 DeKalb County residents leave the County for work every day. Nearly the same amount of people travel into the County to fill jobs within DeKalb, upwards of 200,000 people. Just over 90,000 people both work and live in DeKalb County, as shown in **Figure 66**.

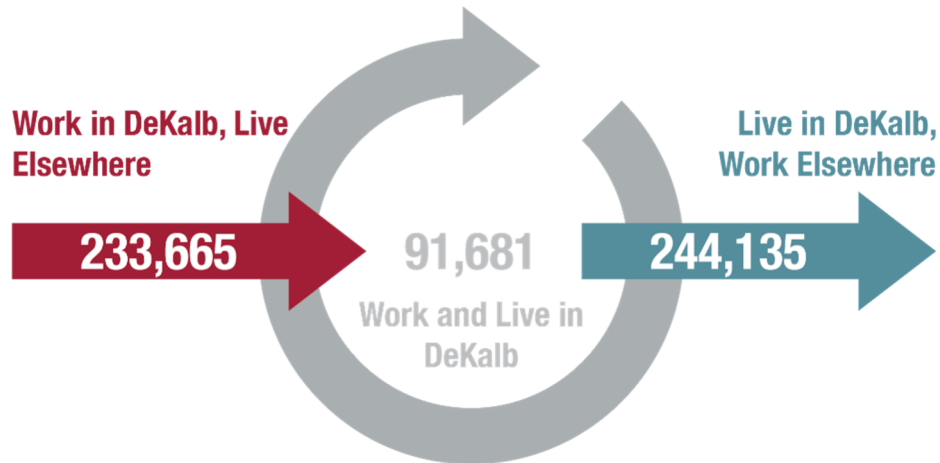


Figure 66. Flow of Workers in and out of County

TRIPS WITHIN DEKALB COUNTY

The Atlanta Regional Commission’s (ARC) activity-based model (ABM) is the region’s travel demand model (TDM). The TDM was calibrated and used to project travel patterns and traffic conditions for existing (2019) and future (2050) conditions models. More information on the model validation and adjustments that were made for the Unified Plan is provided in the later section on Traffic Growth.

Using the TDM to estimate origins and destinations of travel, approximately 4.28 million trips are predicted to be made within, into, or out of DeKalb County in 2050. Trips staying within DeKalb County make up about 48% of those total trips.

The TDM uses traffic analysis zones (TAZs) to determine travel patterns within DeKalb and the Atlanta region. In order to track trips between origin and destinations, the TAZs within DeKalb County were aggregated into 19 Travel Districts.

Figure 67 shows the DeKalb County activity centers overlaid on the Travel Districts illustrating daily trips projected in 2050. These trips have been normalized by dividing the total daily internal trips by the square mile area of the Travel District polygons. These internal district trips are trips that begin and end within the same Travel District.

Activity Centers

- | | | | | |
|---------------------------------|-------------------------------------|----------------------------------|-------------------------------------|---|
| 1 Northlake Mall | 12 I-20 & Gresham Rd | 23 Memorial Dr & Wilkinson Dr | 34 Deshon & Rockbridge Rd | 45 Doraville |
| 2 Kensington MARTA Station | 13 I-20 & Candler Rd | 24 East Lake Village | 35 Redan & Hairston Rd | 46 Atlanta - East Atlanta Village |
| 3 MARTA I-20 TOD | 14 I-20 & Wesley Chapel Rd | 25 Bouldercrest & I-285 | 36 Panola & Redan Rd | 47 Atlanta - Little 5 Points / Edgewood |
| 4 Clairmont & Briarcliff Rd | 15 Swift Creek | 26 Flat Shoals Pkwy & Clifton Dr | 37 Redan Rd | 48 Decatur |
| 5 Briarcliff & N Druid Hills Rd | 16 I-285 & Chamblee Tucker Rd | 27 Moreland Ave & Cedar Grove | 38 Covington Hwy & Panola Rd | 49 Avondale Estates |
| 6 Toco Hills | 17 LaVista Rd & Briarcliff Rd | 28 Cedar Grove | 39 Panola & Young Rd | 50 Clarkston |
| 7 Clifton Community | 18 Shallowford Rd & I-85 | 29 GSU/Georgia Piedmont | 40 Covington Hwy & DeKalb Medical | 51 Tucker |
| 8 N Decatur & Scott Blvd | 19 Oak Grove | 30 Hairston Rd & Central Dr | 41 Flat Shoals Pkwy & Wesley Chapel | 52 Stone Mountain |
| 9 North DeKalb Mall | 20 Lawrenceville Hwy & McLendon Dr | 31 Village Square/Value Mall | 42 Chamblee | 53 Pine Lake |
| 10 Memorial Dr & Columbia Dr | 21 Emory Village | 32 Hairston Rd & Rockbridge Rd | 43 Brookhaven | 54 Lithonia |
| 11 Redan Rd & Indian Creek | 22 N Decatur Rd & Decatur Indst Way | 33 Panola & Rockbridge Rd | 44 Dunwoody | 55 Stonecrest |

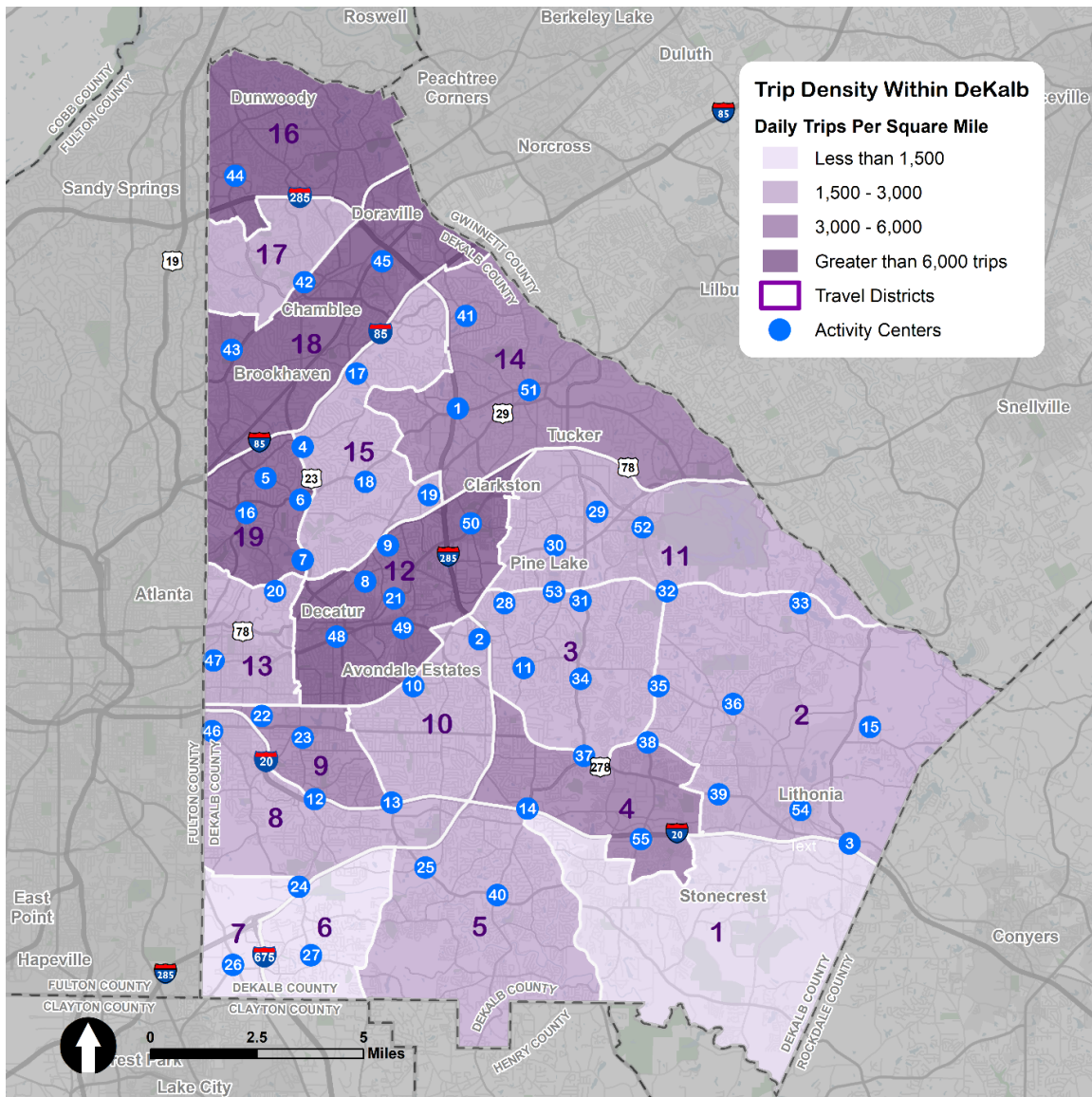


Figure 67. Daily Trip Density within DeKalb Travel Districts

As shown in **Figure 67**, Travel Districts 12, 16, 18, and 19 have the greatest concentration of trips per square mile. This includes a Travel District in Central DeKalb (12), comprised of the cities of Decatur, Clarkston, Avondale Estates and their unincorporated vicinities; two Travel Districts in North DeKalb which contain Dunwoody, Perimeter Center (16), Chamblee, Brookhaven, and Doraville along the I-85 corridor (18); and District 19, a West-Central DeKalb Travel District comprised of portions of Atlanta and the Clifton Corridor, Emory University, the CDC, and Toco Hills. Daily intracounty trips are shown in **Figure 68**. These are trips which begin and end within DeKalb County districts.

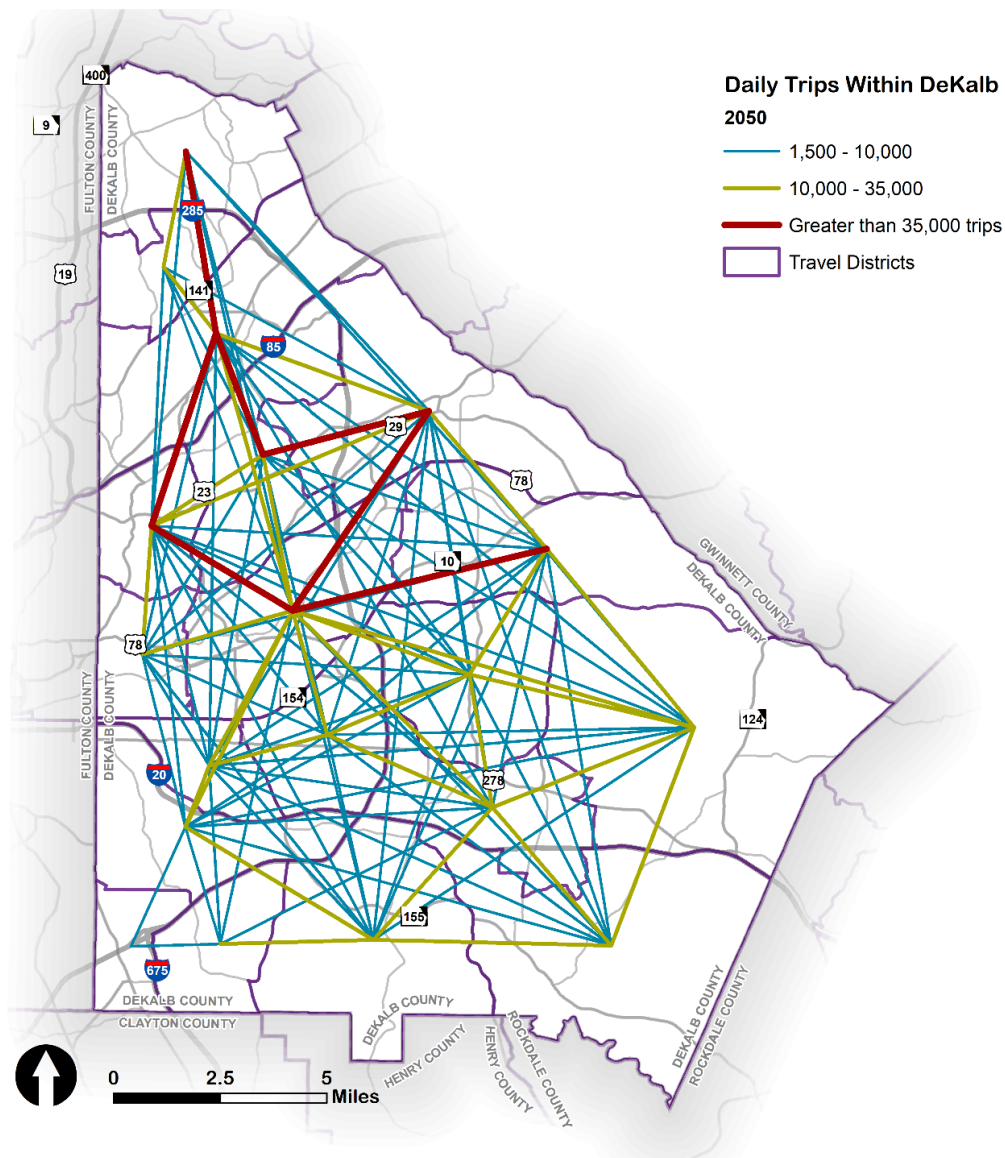


Figure 68. Daily Trips within DeKalb County

North DeKalb. For trips contained within DeKalb County, origins and destinations are centered toward the aforementioned Travel District 12 (Decatur, Clarkston, and Avondale Estates). The other North and Central DeKalb districts of 19, 15, 11, 14, 18 and 16 all serve as high volume nodes connected to County’s travel demand centroid at Travel District 12. The greatest east-west demand is seen from Travel District 12 to Travel District 11 and 14, and also from Travel District 14 to 15. The latter might include trips from Tucker-Northlake CID to residential areas south of I-85. Similarly, Travel District 18 (Chamblee, Brookhaven, Doraville) shows the second-highest volume with major ties to Dunwoody-Perimeter CID.

South DeKalb. Though the highest volume of trips is seen radiating from Travel District 12 northward, several mid-volume nodes and linkages are seen from Decatur to Travel Districts 1 through 4 in Southeast DeKalb, and Travel Districts 5, 8, 9, 10 and 13 in Southwest and West-Central DeKalb. Lower population and employment densities in this area explain lower trip volumes than to the north, but also a greater number of thoroughfares and routes dispersed through the Travel District boundaries can explain the predominance of midrange links (10,000 to 35,000 trips). Some of the longest, east-west trips are seen from unincorporated Redan and Lithonia-Stonecrest in Travel District 2 to DeKalb’s Atlanta portions in Travel

District 9. East-West mobility is further emphasized in South DeKalb though moderated volume links continuous from Travel Districts 6 and 8 through to Travel Districts 5 and 1 (Stonecrest).

ALL TRIPS

Like the methodology of the previous section, in order to track trips between origin and destinations to and from DeKalb and the greater Atlanta region, the TAZs for the region outside of DeKalb County were aggregated into ARC’s Super District areas. As shown in **Figure 69**, the highest volume of trips is seen entering and exiting DeKalb from points in North Fulton County, and along the I-85 Corridor in Gwinnett County to Dunwoody Perimeter CID (DeKalb Travel District 16), Tucker-Northlake (Travel District 14) and the urban areas of Brookhaven, Chamblee, and Doraville (Travel District 18). More dispersed, moderate travel flows are seen from Travel Districts in Downtown, Midtown, and Buckhead Atlanta to Travel Districts immediately east in DeKalb, connected by a continuous city street grid.

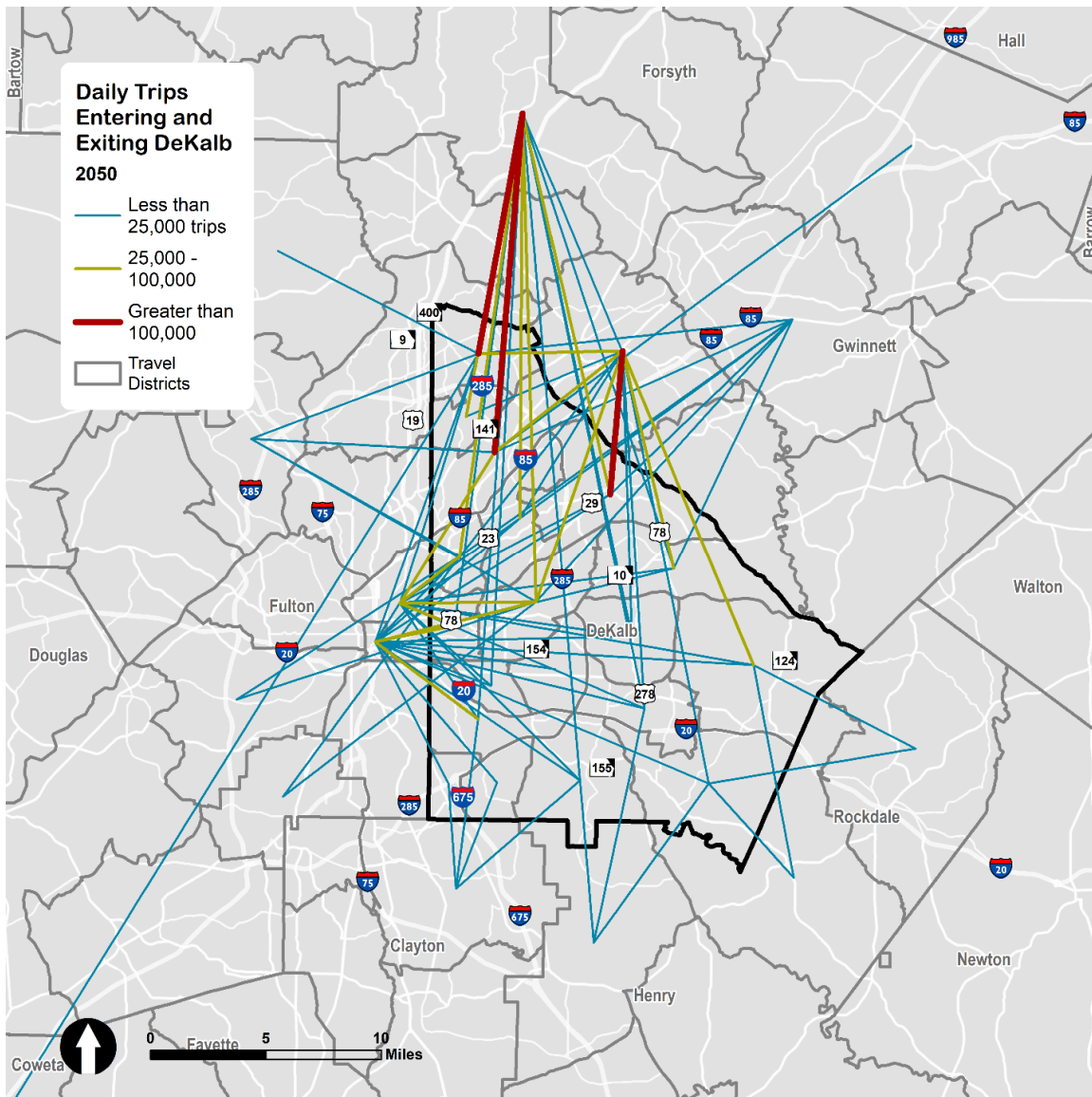


Figure 69. Daily Trips Entering and Exiting DeKalb County

Trips entering and exiting DeKalb County are strongly localized in the north-south direction to and from the Alpharetta Travel District area in north Fulton County to the Dunwoody and Perimeter Center (DeKalb Travel District 16) and the

Chamblee, Brookhaven, and Doraville Travel District (DeKalb Travel District 18). There is also significant trip demand to and from the Peachtree Corners and Norcross Travel District area in Gwinnett County to the Tucker, Northlake, and Mountain Industrial Travel District (DeKalb Travel District 14). These origin-destination travel flows have greater than 100,000 total daily trips.

More specific locations with localized trip demand external to DeKalb County include the east-west connection from Midtown Atlanta and, the north-south connection from Alpharetta to the Emory/CDC area (DeKalb Travel District 19). These origin-destination travel flows have greater than 50,000 total daily trips.

TRIPS BY TIME OF DAY

In DeKalb County, trips are dispersed throughout the daylight hours with the majority of trips occurring in the morning (6AM – 10AM) and afternoon (3PM – 7PM) peak. Morning trips are mostly destined for work and afternoon trips are mostly destined for home. Trips by time of day are shown in **Figure 70**.

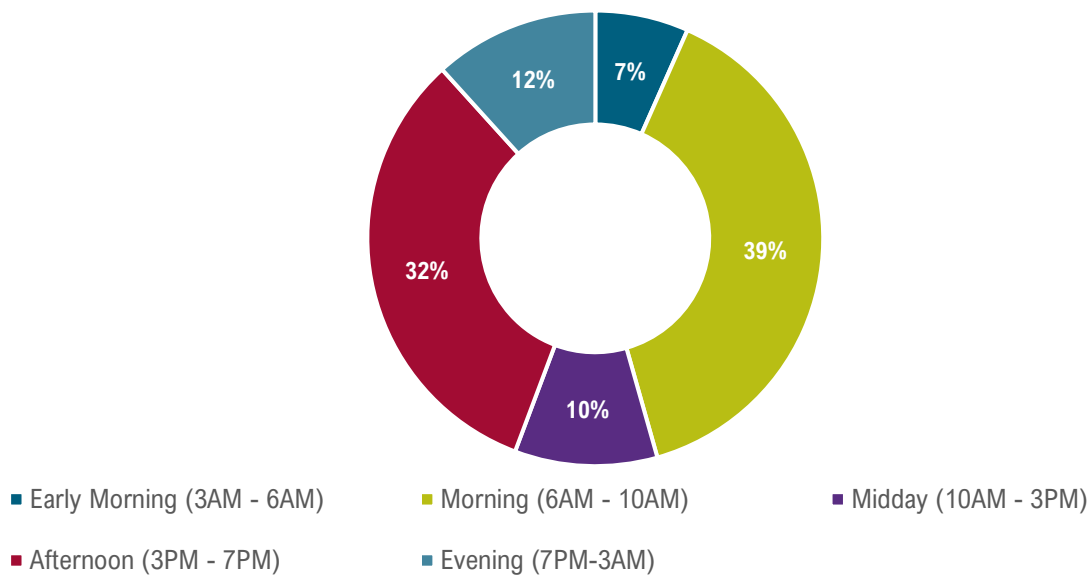


Figure 70. Trips by Time of Day (2050)

TAKEAWAYS

For trips within DeKalb County, north-south mobility needs are emphasized for communities in North DeKalb, while east-west mobility needs are emphasized for communities in South DeKalb. I-20 serves as crucial to supporting east-west mobility demands, while I-285 is the primary north-south thoroughfare.

For trips external to DeKalb, the I-85 corridor and employment centers along I-285’s Top End pull disproportionately high travel volume to the County. Dunwoody-Perimeter is established as a regional destination and this trend will continue through to 2050, with an increasing volume of trips coming northward from areas like Milton and Alpharetta.

Long suburb-to-nodal trips, (such as North Fulton/Gwinnett/Forsyth to Dunwoody-Perimeter/Brookhaven-Chamblee/Tucker-Northlake) and suburb-to-core trips (East DeKalb/Rockdale to Downtown/Midtown Atlanta/Decatur) will

continue to burden the County. Mid-length journeys from Atlanta’s Downtown and Midtown to dense areas within western and central DeKalb will continue to be supported by a robust and redundant street network and travel options.

TRANSPORTATION MODES

The previous section focused on general travel patterns, absent of mode. The following section will focus on specifics around individual modes including roadway, freight, bicycle and pedestrian, and transit. This section attempts to capture not only existing conditions as of the time of the document but also includes an assessment of need both today and looking forward to 2050. The identification of needs in this document, in combination with input from the public, can help to identify possible project recommendations.

MODE SHARE

DeKalb County residents and workers today depend heavily on vehicular travel to make trips to and from the County. According to TDM data, approximately 54.1% of trips in 2019 were single-occupancy vehicle (SOV) trips (i.e., one driver per automobile) and approximately 39.1% were high-occupancy vehicle (HOV) trips (i.e., carpool or rideshare). These numbers are expected to decrease slightly in 2050, to approximately 53.2% and 38.2%, respectively.

Other modes of travel, including transit and active transportation, are expected to increase slightly between 2019 and 2050 (**Figure 71**). Approximately 2.9% of trips to or from DeKalb were made using transit in 2019, and this number is expected to increase to 4.2% in 2050. For active transportation trips, approximately 3.9% of total trips to or from the County were made using active transportation in 2019, and that number is expected to increase to 4.4% in 2050.

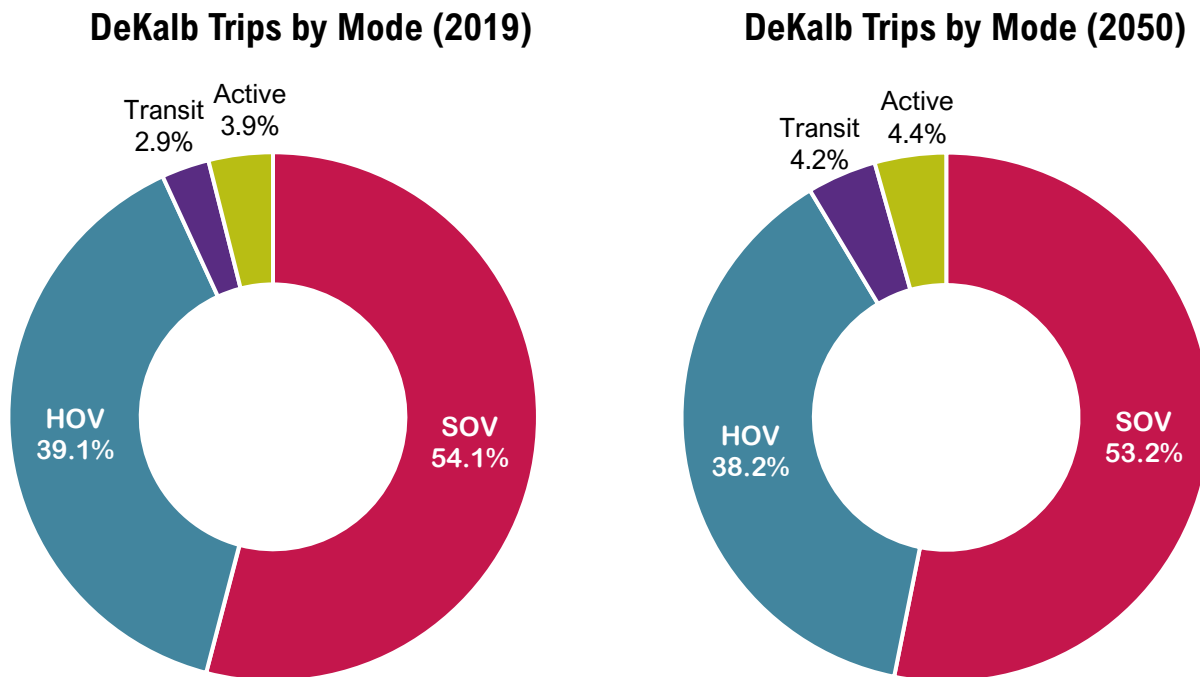


Figure 71. DeKalb Trips by Mode (2019 and 2050)

ROADWAY

The transportation network in DeKalb County evolved over time to serve single occupancy vehicle (SOV) travel. The County is traversed by a hierarchy of roadways ranging from local roads to interstate highways. However, much of this study focuses on a subset of the County’s roadway network which was defined as the Study Network by the project team. The Study Network is comprised of approximately 850 centerline miles of local, County, and state-owned roadway facilities. The following sections consists of infrastructure, traffic growth, safety, causes of congestion, and maintenance as they relate to the County’s roadway system.

INFRASTRUCTURE

Functional Classification

Functional Classification categorizes roads along a hierarchy that accounts for the inverse relationship between access and mobility. Roadways that prioritize moving higher volumes of vehicles at higher speeds provide less access, while streets that accommodate greater access to local properties sacrifice the ability to move higher volumes and experience slower speeds. GDOT and DeKalb County have slightly different classifications for the roadway network in DeKalb County.

GDOT classifies the existing roadway network in DeKalb County as one of the following: Interstate, Freeway, Principal Arterial, Minor Arterial, Collector, and Local (**Figure 72**).

DeKalb County leverages its functional classification system to help to determine internal decisions that pertain to elements such as zoning, ordinance, funding, and roadway design. DeKalb County classifies the existing roadway network in DeKalb County as one of the following: Freeway, Major Arterial, Minor Arterial, Collector, and Local (**Figure 73**). While DeKalb County may use GDOT’s functional classification system to fund larger roadway projects, the County uses its own functional classification when determining design for roadways that impact local developments.

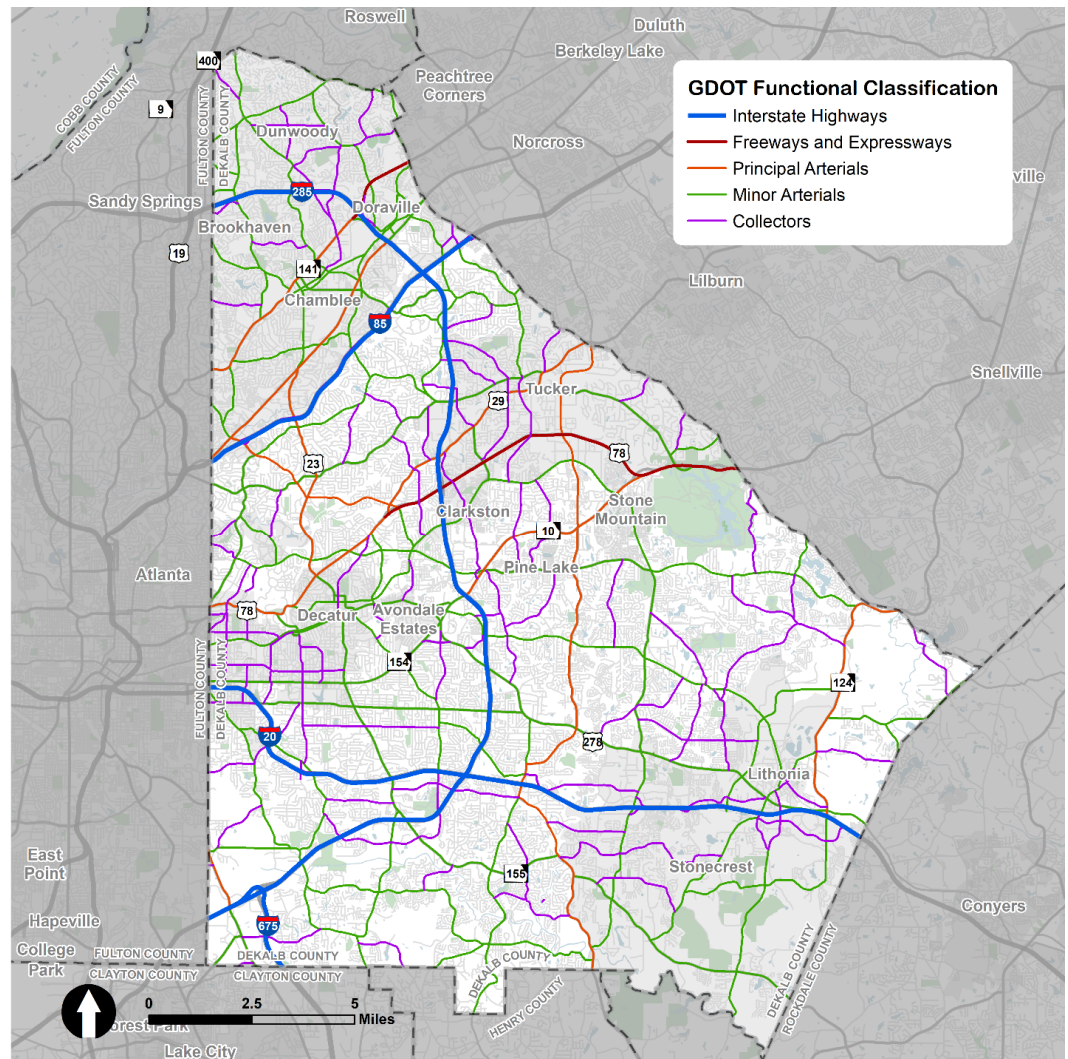


Figure 72. GDOT Functional Classification

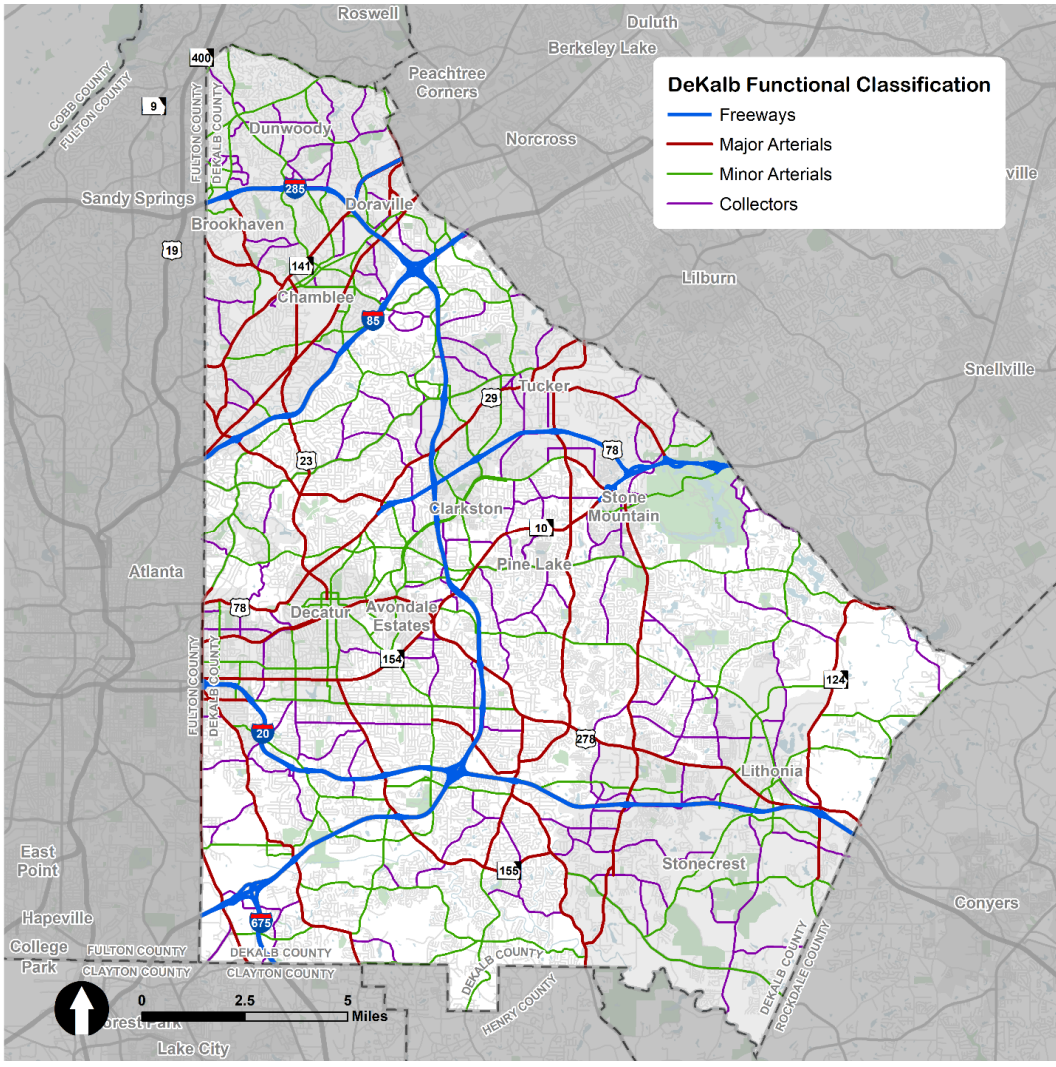


Figure 73. DeKalb Functional Classification

For both functional classification systems, similar roadways identify as a higher classification such as: I-285, I-85, I-20, I-675, US 78 and US 278. These roadways help with moving a large number of vehicles, not only supporting internal circulation but through movements for vehicles passing by DeKalb. Beyond the interstates and US highways, north-south circulation is supported primarily by several collector streets and minor arterials. East-west movements beyond higher classification roadways are more limited and often leaves gaps in providing adequate options.

Furthermore, functional classification often is directly related to facility ownership, or which jurisdiction is responsible for maintaining and developing a roadway, as discussed in the following section.

Facility Ownership

Facility ownership determines DeKalb County’s role in terms of ongoing maintenance as well as future funding commitments, design, and implementation of potential improvements. The Unified Plan will receive input on all facilities within DeKalb County including state-, county-, and city-owned roadways. Facility ownership is shown below in **Figure 74**.

- **State-owned roadways** – State and federally-owned roadways include most of the arterial roadways in the County. DeKalb County has limited influence over the design elements of state roadways; however, DeKalb County can partner with GDOT on relevant projects. These roadways can leverage additional state and federal funding sources for improvements, particularly those on the National Highway System (principal arterials).
- **County-owned roadways** – DeKalb owns and maintains any of the roadways that fall within unincorporated County land that are not state route facilities. DeKalb is responsible for recommended upgrades and can explore state/federal funding matches for projects.
- **City-owned roadways** – City-owned roadways make up nearly 32% of the classified study network roadways within DeKalb. For these roadways, the municipalities are largely responsible to make improvements and can often seek state/federal funding matches. When improvements are occurring along state routes or arterials that provide cross-County trips, GDOT and DeKalb County coordinate improvements with the cities to ensure consistent design across jurisdictional boundaries.

Recommendations for the Unified Plan may include projects on all three roadway types. State route recommendations will be vetted with GDOT, and city-specific projects will require the buy-in and support of the relevant local government. For further detail on how facility ownership affects maintenance, see the Maintenance section.

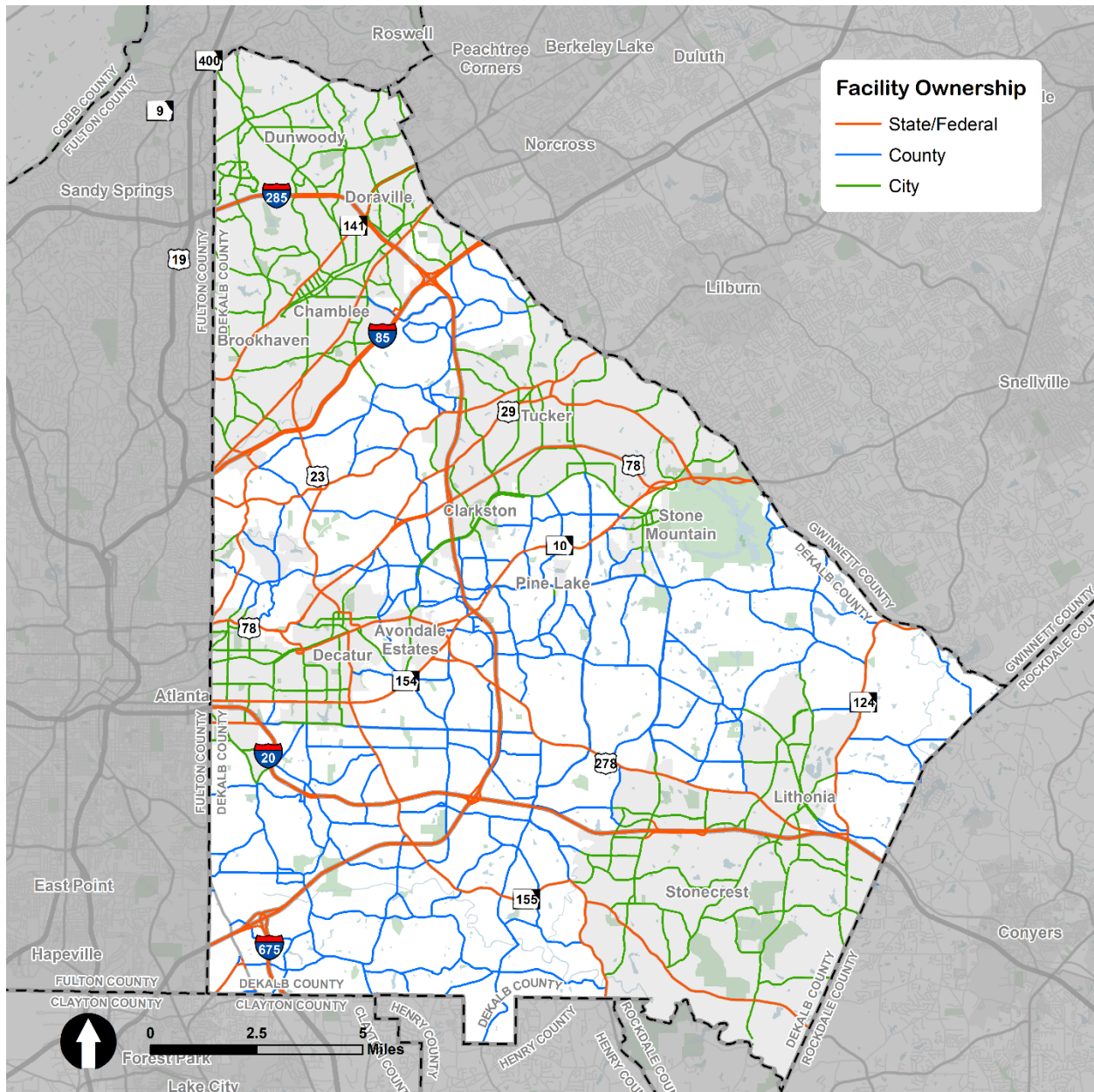


Figure 74. Facility Ownership

Laneage

The number of lanes of a roadway is a primary factor that determines its capacity. Laneage can also offer insight into congestion, particularly potential bottlenecks in the system. Laneage data was obtained from the 2014 Transportation Plan Existing Conditions and Needs Assessment Report and cross referenced with laneage data in ARC's TDM. Of the 850 miles of roadway in the DeKalb study network, 525 miles (62%) are 1- to 3-lane roads, 175 miles (20%) are 4- to 5-lane roads, and 150 miles (18%) of roadway are greater than 5 lanes (**Figure 75**). This equates to a Study Network of approximately 3,000 lane miles in DeKalb County, not including local roads that provide access to small communities and subdivisions. As expected, the corridors with the most lanes include the interstate facilities, especially I-85 and the top end of I-285. Many mid-sized corridors like Buford Highway and Moreland Ave have wide six-plus lane cross-sections. Laneage is often fluid on any given roadway and right-of-way constraints, design and topographical limitations, as well as general piecemeal investment can cause some corridors to transition from one laneage to another several times on a corridor. This can result in inconsistency of speeds, changes in land use, traffic bottlenecks, safety, accessibility, and walkability concerns.

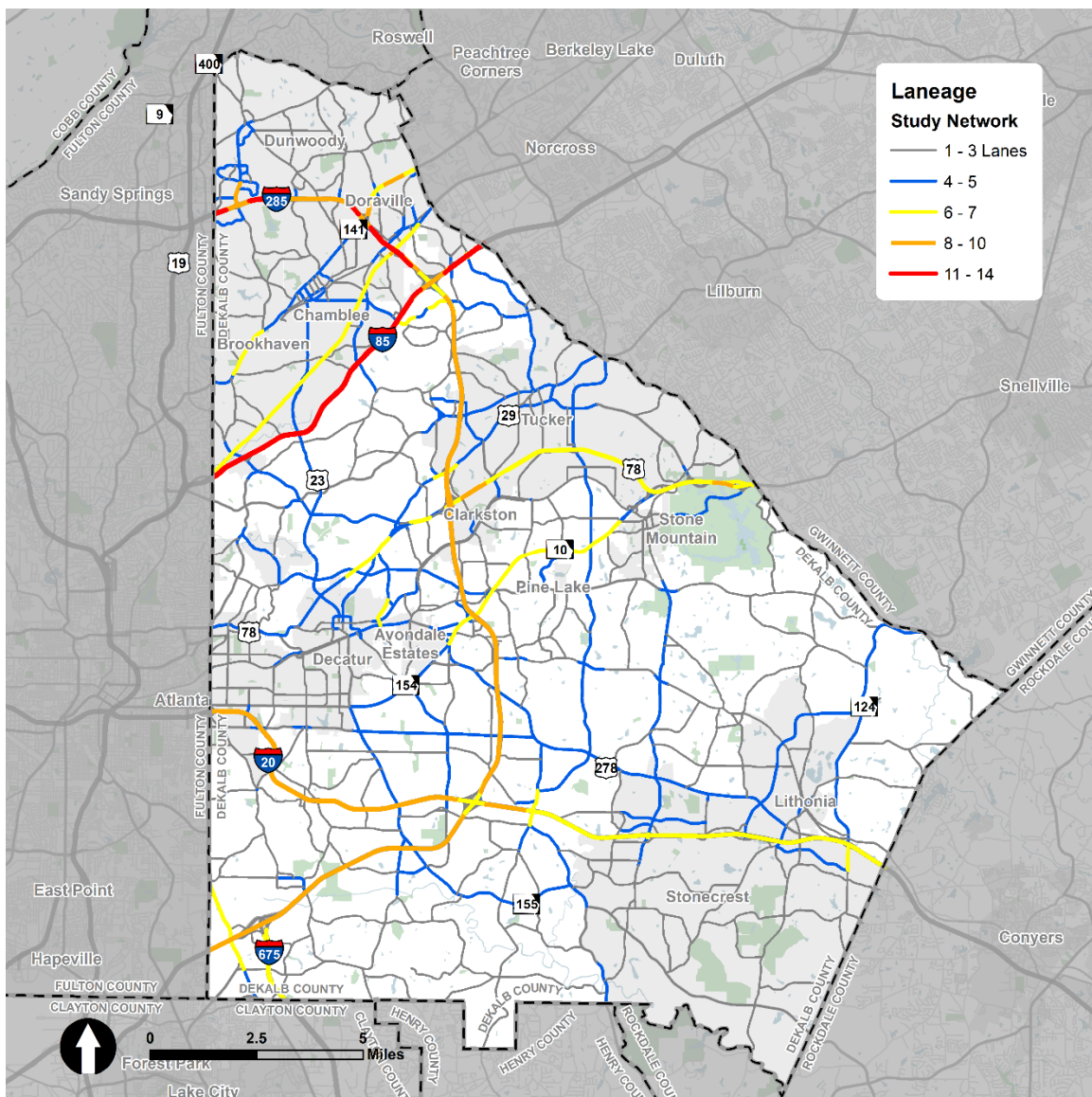


Figure 75. Laneage

Bridges

Bridges in DeKalb County are inspected by GDOT every two years as required by the Federal Highway Administration (FHWA). GDOT's web based GeoPI platform provides GIS data and fact sheets summarizing the characteristics and condition rating of non-GDOT bridges in DeKalb County. The data provides a condition rating for the deck, superstructure, and substructure as well as weight limit restrictions. Rating information was provided for 169 bridges of which 161 received a condition rating of "Satisfactory" or better for all structural components (i.e., deck, substructure, or superstructure) as shown in **Figure 76**. The following eight bridges received a condition rating of "Fair" or worse for one or more structural components.

- The Cedar Grove Road bridge over the NS railroad (Structure Number 089-5082-0) received a condition rating of "Imminent Failure" for its superstructure. This bridge was built in 1965 and has an average daily traffic of 9,560 vehicles. This bridge is currently closed to traffic.
- The Houston Mill Road bridge over the South Fork Peachtree Creek (Structure Number 089-0177-0) received a condition rating of "Fair" for its deck and "Poor" for its superstructure. This bridge was built in 1958 and has an average daily traffic of 18,960 vehicles.
- The Presidential Drive bridge over the North Fork Peachtree Creek (Structure Number 089-5072-0) received a condition rating of "Poor" for its superstructure. This bridge was built in 1967 and has an average daily traffic of 2,202 vehicles.
- The Park Drive bridge over the Snapfinger Creek (Structure Number 089-5153-0) received a condition rating of "Fair" for its deck. This bridge was built in 1950 and has an average daily traffic of 2,202 vehicles.
- The Creekdale Drive bridge over the South Fork Peachtree Creek (Structure Number 089-5061-0) received a condition rating of "Fair" for its deck. This bridge was built in 1956 and has an average daily traffic of 2,202 vehicles.
- The North Decatur Drive bridge over the CSX railroad (Structure Number 089-0134-0) received a condition rating of "Fair" for its superstructure. This bridge was built in 1958 and has an average daily traffic of 16,130 vehicles.
- The River Road bridge over the Conley Creek (Structure Number 089-5003-0) received a condition rating of "Fair" for its substructure. This bridge was built in 1958 and has an average daily traffic of 7,760 vehicles.
- The North Druid Hills Road bridge over the NS railroad (Structure Number 089-0175-0) received a condition rating of "Fair" for its superstructure. This bridge was built in 1963 and has an average daily traffic of 30,260 vehicles. This bridge has a weight limit restriction and is located along a DeKalb County truck route.

The following nine non-GDOT bridges in DeKalb County are equipped with signage for weight limit restrictions:

- The Nancy Creek Road bridge over the Nancy Creek Tributary (Structure Number 089-5059-0).
- The Hearn Road bridge over the Corn Creek (Structure Number 089-5012-0).
- The Casa Drive bridge over the South Fork Peachtree Creek (Structure Number 089-5066-0).
- The Lullwater Parkway bridge over the Lullwater Creek (Structure Number 089-5039-0).
- The Lullwater Parkway bridge over the Lullwater Creek (Structure Number 089-5040-0).
- The North DeKalb Mall Access bridge over the South Fork Peachtree Creek (Structure Number 089-5063-0).
- The RT Frontage Road bridge over the South Fork Peachtree Creek (Structure Number 089-5068-0).
- The Hairston Road bridge over the CSX railroad (Structure Number 089-0144-0). This bridge exists along a DeKalb County truck route.
- The Key Road bridge over the Entrenchment Creek (Structure Number 089-0151-0).

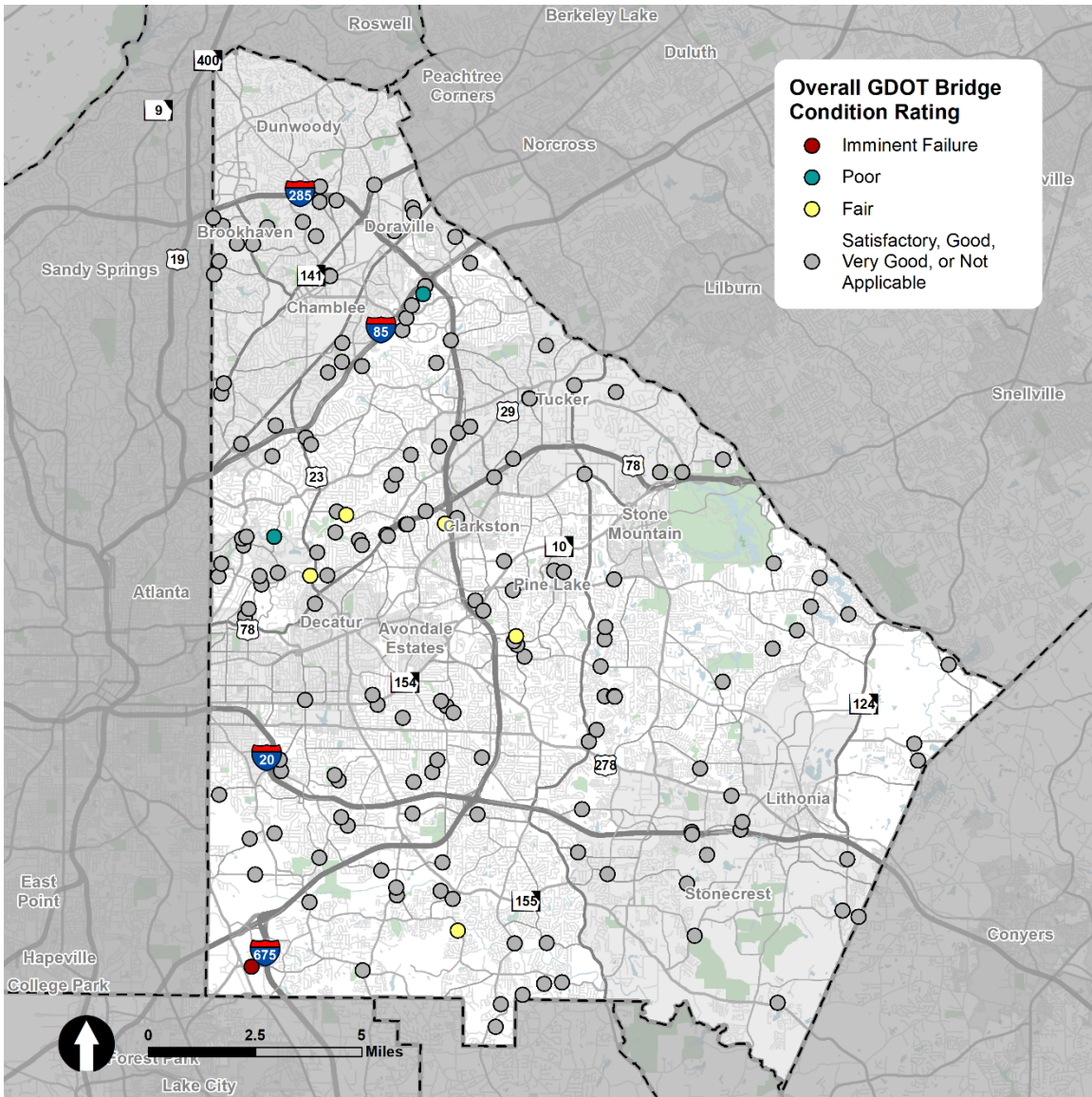


Figure 76. Bridges Inventory and Condition Class

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) is a subset of Transportation System Management and Operations (TSMO) which involves integrating diverse transportation strategies and focuses on optimizing the performance of the existing transportation network. ITS involves implementing technology to get the highest operational performance of the existing transportation infrastructure. ITS strategies can include traffic signal management, work zone management, and transit signal priority (TSP). Many aspects of DeKalb County’s multimodal transportation system can benefit from implementing ITS solutions including enhanced traffic flow, improved safety, reduced congestion, positive environmental impacts through reduced fuel consumption, and a more efficient use of resources. ITS can also facilitate the movement of active modes of transportation through strategies like bicycle detection and signaling at intersections.

TRAFFIC SIGNAL SYSTEM AND DETECTION

DeKalb County’s traffic signal system promotes safe and efficient travel throughout the County, while allowing the County to manage real-time traffic conditions. **Figure 77** provides a summary of the County’s intersection control system. There are 822 traffic signals within DeKalb County’s study network and multiple agencies, or contracts are responsible for their maintenance and operations: GDOT’s SigOps (formerly Regional Traffic Operations Program, or RTOP), GDOT District 7, City of Atlanta, City of Brookhaven, City of Chamblee, City of Dunwoody, and DeKalb County.

RTOP was a GDOT-funded project where consultant-led teams assisted the County in traffic signal maintenance and operations such as active traffic management, traffic equipment maintenance, ITS technology improvements, traffic signal design, and traffic signal timing operations. Whereas RTOP traditionally controlled various signal corridors within Metro Atlanta (Zones, 1, 5, 6 and 8 falling within DeKalb County), starting in 2021, SigOps will replace corridor-based management with regional traffic management subdivisions. SigOps includes 6 Metro Atlanta regional subdivisions, two of which are in DeKalb County.

New SigOps Divisions within DeKalb County

Central Metro

261 signals

Atlanta, Brookhaven, Chamblee, Dunwoody, Doraville

East Metro

563 signals

All other cities and unincorporated portions of DeKalb

Former RTOP Corridors within DeKalb County

SR 13	Buford Highway
SR 141	Peachtree Road
SR 155	Clairmont Road
SR 42	North Druid Hills Road
SR 8W	Ponce de Leon Avenue
SR 154	Memorial Drive
SR 12	Covington Highway
SR 155S	Candler Road
SR 42	Moreland Avenue

Through SigOps/RTOP, traffic responsive plans are created and maintained for DeKalb County. Traffic Responsive Plans allow a group of signalized intersections to operate using a dynamic time of day schedule. By using real-time data from in-field detection, the active signal plan can change in response to changes in traffic conditions. This improves upon typical operations where plans are scheduled to run during certain periods of the day, regardless of the traffic conditions. SigOps/RTOP collects and archives performance metrics for all corridors in the program. Data such as traffic volumes, operational metrics, and equipment uptimes are tracked. These metrics allowed engineers to identify and address issues at the intersection and corridor levels via RTOP and can address issues at the regional level using SigOps. Trends are monitored monthly to evaluate changes in the system and the success of retiming projects or other efforts. Much of this effort is possible due to the software put in place for engineers to interact remotely with the signals through MaxTime and MaxView. MaxTime is the firmware that operates in the traffic signal controllers and communicates with the MaxView central system. In MaxTime, engineers can access and adjust the signal timing parameters at an intersection.

Intersection Control

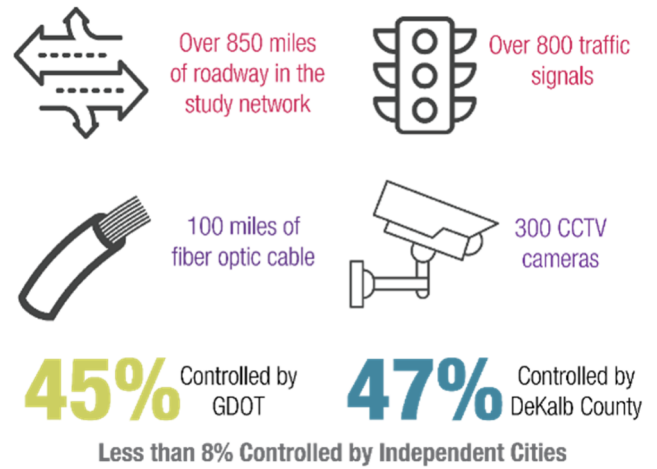


Figure 77. Intersection Control

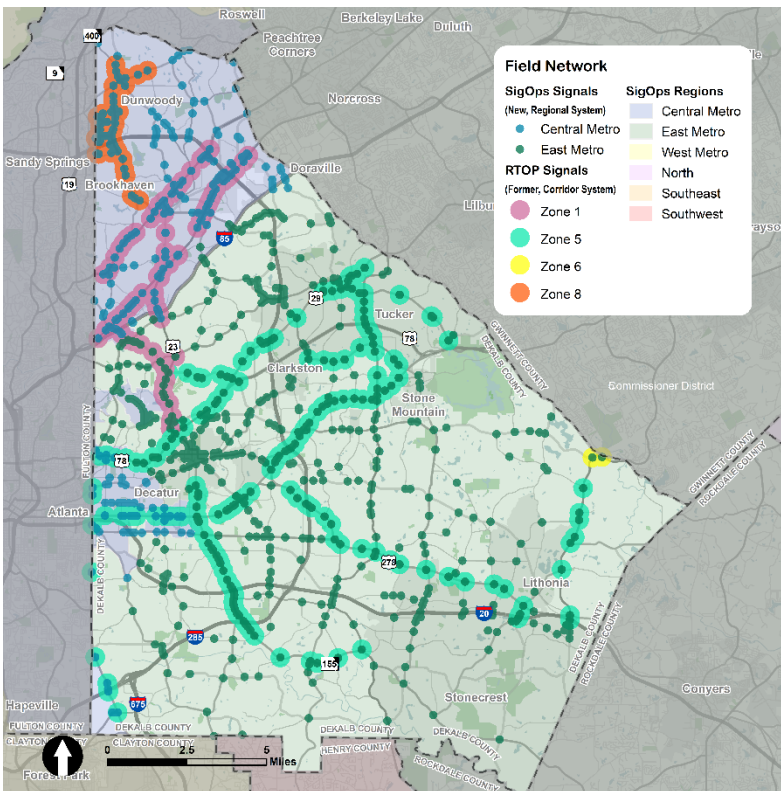


Figure 78. Traffic Signal Control

GDOT District 7 performs maintenance, traffic operations, and permitting for seven counties in the Atlanta Metro region, including DeKalb County, where a local municipality (City or County) does not take ownership. For traffic operations, the District is responsible for signal maintenance, equipment procurement, project management, and ensuring GDOT standards are met for every signal. **DeKalb County** currently operates and maintains 378 signals in both incorporated and unincorporated areas outside of the City of Atlanta, City of Brookhaven, City of Chamblee, and City of Dunwoody (Figure 78 and Figure 79).

Services provided by the County include but are not limited to the following: troubleshooting traffic signal equipment, vehicle detection installation, active traffic management, ITS device management, and coordinating with GDOT project management.

FIELD NETWORK COMMUNICATIONS

Redundancy in the DeKalb communication network helps to minimize the number of failures in the system. Communication between devices is constructed such that when there is a failure (fiber break, switch outage, etc.), there are multiple means to maintain communication. This can be achieved through physically diverse fiber installation paths, back-up cellular or wireless communications, field routers, communications configurations, etc. Redundancy, in general, provides scalability for growth in the system and opportunities for added bandwidth capacity. DeKalb County leverages existing transportation infrastructure to promote safe and efficient travel throughout the County.

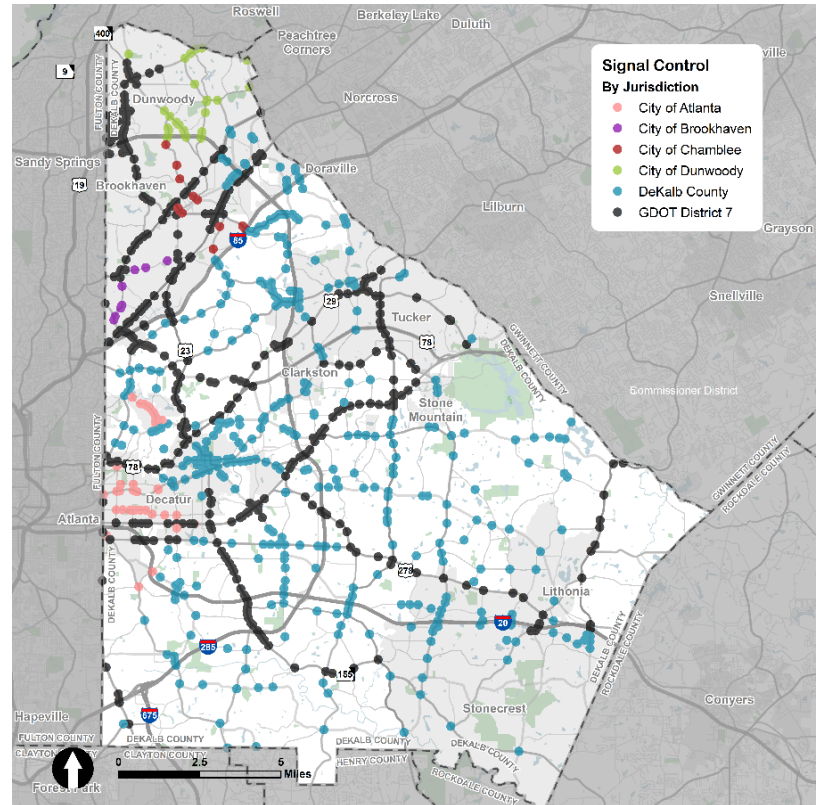


Figure 79: Signal Control by Jurisdiction

In addition to traffic signals, this infrastructure consists of closed-circuit televisions (CCTVs), fiber optic communication systems, traffic collection units (TCUs), and a Traffic Control Center (**Figure 80**).

Approximately 300 CCTVs exist on GDOT-maintained state routes in DeKalb and help measure traffic volume and communicate with GDOT’s travel management center. Similarly, 29 traffic collection units exist on GDOT roads in the County, as a permanent physical traffic volume measurement relay. Data from CCTVs and TCUs are relayed centrally to DeKalb’s Traffic Control facility, which is located centrally in the County on Camp Road. The facility helps GDOT’s traffic network connect and communicate with local DeKalb’s network. Using the 100+ miles of fiber optic connection, DeKalb’s Traffic Control Center (TCC) can relay back timing adjustments to signals to keep up with real-time changing traffic volume. Thus, state signals are in constant communication with County-level signals via the DeKalb TCC and its fiber optic network, informed by sensory equipment such as TCUs and CCTVs.

As information technology develops in the transportation sector, better fiber optic communications will be critical in setting DeKalb up for the future. An extended fiber system along the existing study network can ensure all of DeKalb’s arterials, collectors and local streets are connected to the region’s greater ITS protocols. An expanded network provides opportunity for emerging Intelligent Vehicle and Intelligent Roadway communications as a major coordination tool in transportation infrastructure and traffic operations.

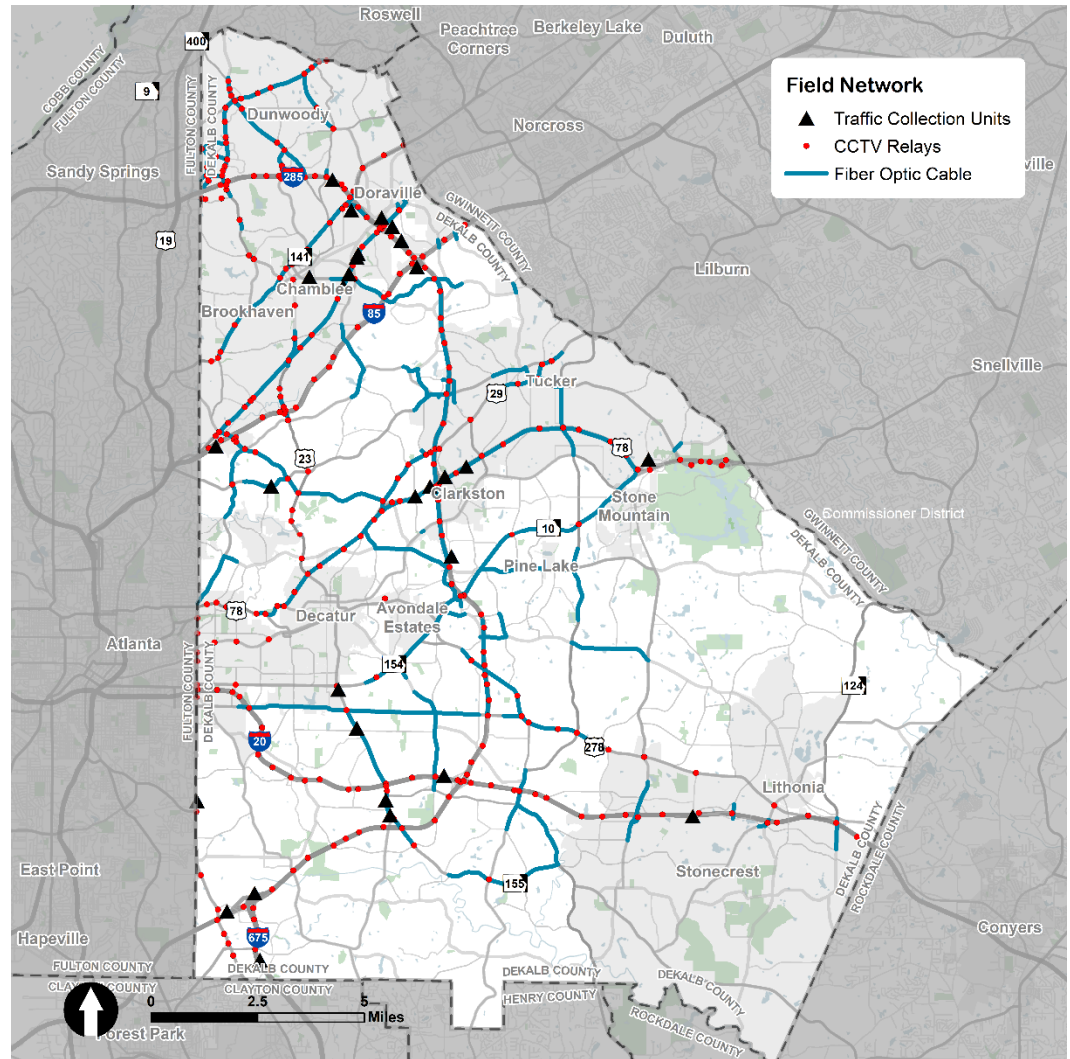


Figure 80. Field Network

ITS STRATEGIES

ARC developed the TSMO Local Agency Deployment Guide in 2020 to provide agencies with guidance on deploying several TSMO and ITS strategies. DeKalb County should regularly evaluate these ITS strategies for implementation along highly congested corridors that are unable to be widened but may benefit from operational improvements. The following strategies are applicable to DeKalb's transportation system:

- **Traffic Signal Management** involves signal phasing and timing optimization and often results in less delay on the transportation network. DeKalb County should work in close partnership with other adjacent signal maintaining agencies like several incorporated cities (i.e., Atlanta, Brookhaven, Chamblee, Clarkston, and Dunwoody), adjacent cities/counties, and GDOT to ensure that there is progression and continuity for implemented traffic signal management strategies at multijurisdictional interfaces.
- **Emergency Vehicle Preemption (EVP)** strategies involve equipment at signalized intersections and connectivity with fire, police, and emergency services agencies allowing more green time and special signal phases for emergency vehicles. EVP can improve safety at intersections and reduce travel time for emergency vehicles. GDOT has installed roadside units (RSU) at some state-maintained intersections in DeKalb County for future efforts related to connected vehicles (CV) technology. EVP could be enabled for intersections equipped with GDOT RSUs but would require further interagency coordination and additional equipment on-board emergency vehicle fleets. DeKalb County should continue to coordinate with GDOT, other signal maintaining agencies, and emergency services agencies to explore region-wide solutions for EVP. Furthermore, EVP can be achieved through simpler means (e.g., physical connection to traffic controller) at targeted locations such as signalized intersections near fire stations.
- **Work Zone Management** strategies involve equipment at work zones and systems to inform motorists of travel conditions along active work zones in real time through Dynamic Message System (DMS) signs and web-based data notifications (e.g., Waze or Google Maps). Work zone management strategies can improve safety for construction workers in the field and can reduce delay for motorists. DeKalb County should collaborate with GDOT on ways to integrate planned work zones and lane closures into GDOT's database. These data are published in real time on platforms such as GDOT's 511 and can also be promoted on DeKalb County social media accounts.
- **Traffic Incident Management** strategies are essential to DeKalb as many interstates traverse the County. These involve devices like CCTV, systems like automated incident video detection, and special signal timing plans for detoured traffic. They are mostly implemented along freeways, thus would require interagency coordination with GDOT. These strategies can optimize safety for motorists and help reroute traffic to reduce delay due to unprecedented incidents.
- **Vehicle Detection** strategies involve in-pavement inductive loops, video, or radar equipment used for optimal traffic signal coordination and data collection. Detection systems can also obtain traffic data such as traffic counts, speed, and vehicle classification. Faulty vehicle detection equipment causes poor calibration for traffic signal timing plans resulting in additional delay and congestion. Sophisticated signal timing strategies like adaptive signal systems rely on accurate vehicle detection data. It is recommended that DeKalb County include vehicle detection systems in future efforts to inventory transportation system assets.
- **Transit Signal Priority (TSP)** strategies involve equipment and systems along key transit-oriented roadway corridors to give additional green time in the direction of travel so that transit vehicles may progress through intersections with minimal stops. It is recommended that DeKalb County work with partner agencies like MARTA to ensure that future premium-transit efforts along key corridors include TSP treatments.

TRAFFIC GROWTH

Annual Average Daily Traffic (AADT)

Annual average daily traffic (AADT) is a measure of the average daily traffic passing through a specific location along a roadway. Traffic volumes typically correspond to the function, design, and location of the roadway where larger roadways serving long-distance travel generally have higher traffic volumes. The percent change in AADT from 2014-2019 is indicated by the range of colors from blue to red, shown in **Figure 81**. Locations that experienced a decrease in volume over the period are represented in blue, while locations that experienced an increase in volume are represented in orange and red. The size of the dot represents the numeric value of the overall volume for that specific location - larger dots signify higher volumes, and smaller dots signify lower volumes.

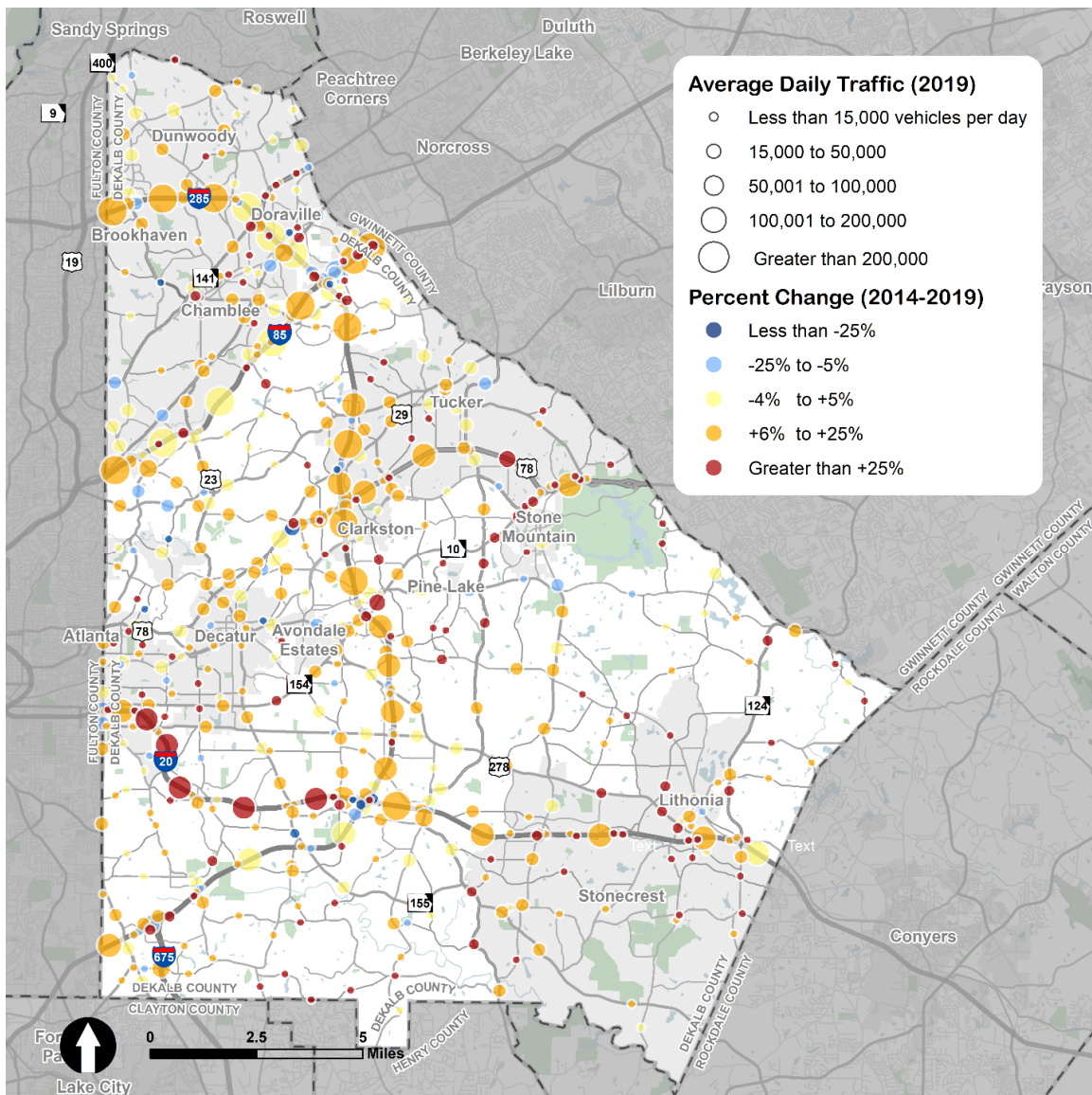


Figure 81. Average Daily Traffic

Average Daily traffic steadily increased across the County from 2014-2019. A marked increase in traffic volume is seen at the I-675 interchange, and follows north up I-285, indicating an increase in demand for travel from points south of DeKalb in Henry and Clayton Counties. Many of those commuters do not have a direct critical connection into employment

centers such as Downtown or Midtown Atlanta but traverse I-285 instead (see Functional Class Map, and Level-of-Service Maps). Such commute patterns burden the I-20 corridor as the main east-west throughfare from Atlanta through DeKalb and points eastward in Rockdale County. The most traffic growth and volume are seen along I-20, especially inside The Perimeter, suggesting limited route options in South DeKalb, and for East-West mobility in general.

Travel Demand Model

The ARC 2020 travel demand model was used as the base model for the DeKalb Unified Plan existing conditions model. The number of lanes and facility type classifications were validated in comparison to aerial imagery and data provided by GDOT and ARC. Edits were made to calibrate the regional travel demand model to DeKalb County by modifying roadway characteristics, such as facility type/functional classification and speeds. The model was calibrated to annual average daily traffic (AADT) count data provided by GDOT from 2019.

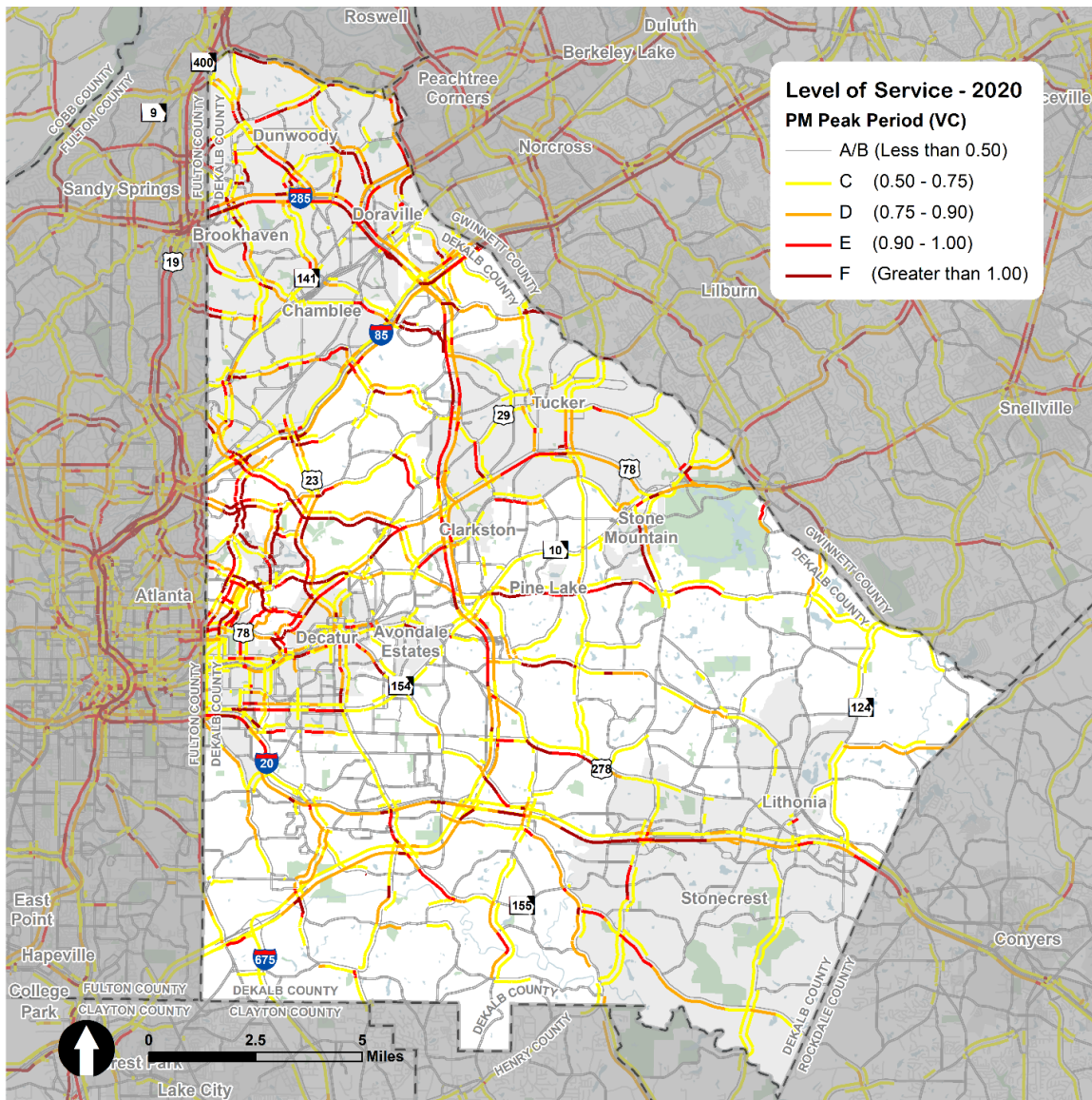


Figure 82. Level-of-Service (2020)

Future travel patterns can also be predicted using the ARC’s Activity-Based TDM future 2050 model. The 2050 model incorporates ARC’s programmed projects up until 2050 to the 2020 TDM base model. These programmed projects are in the ARC’s Transportation Improvement Program (six fiscal years) and have funding allocated for the project completion. The future model identifies major travel patterns and future congestion areas with the existing network integrated with the programmed projects, and it can be used to identify potential projects in DeKalb County.

The existing (2020) and future (2050) Level-of-Service (LOS) projections for DeKalb roadways based on the DeKalb County 2020 and 2050 TDM are shown in **Figure 82** and **Figure 83**. Roadways with LOS D are considered congested and roadways with LOS E or F are considered to have poor Level-of-Service. It is likely that the level of congestion perceived on roadways during peak hours of the day is not fully depicted in these exhibits as the TDM does not fully capture the impact of intersection delay on travel time through the roadway system. Additionally, LOS is developed for the entirety of the four-hour peak modeling periods and not a single peak-hour.

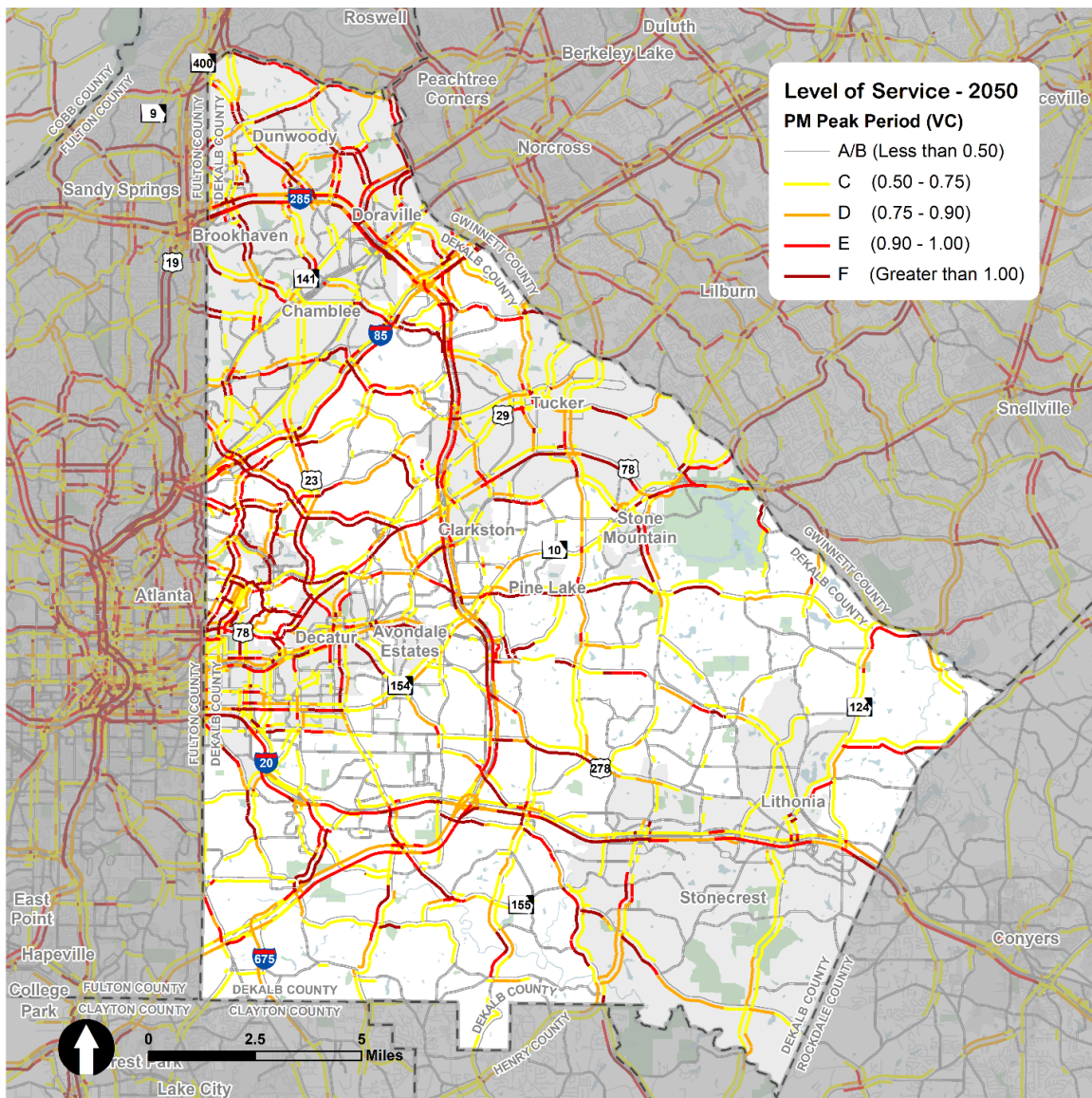


Figure 83. Level-of-Service (2050)

RITIS Data

The Regional Integrated Transportation System (RITIS) is a web-based platform that ingests and aggregates data from several transportation public and private systems including probe data sources (e.g., HERE Technologies, INRIX, and TomTom). Probe data is generated by observing the position of individual vehicles, or mobile devices, over space and time. RITIS provides a suite of data analytics tools for evaluating traffic operations along the roadway network.

Bottleneck Ranking is one of the tools available in RITIS for analyzing traffic conditions. A bottleneck is a term used in transportation to describe when there are too many vehicles wanting to travel through a point already at maximum capacity. Said differently, bottlenecks are locations along roadways where traffic conditions have fallen below a certain percent of the reference speed for an extended period. Reference speed is the calculated average “free flow” speed for a roadway segment in miles per hour (MPH). The duration and location of bottlenecks can be used to identify roadway facilities where mobility is affected for the traveling public.

The Bottleneck Ranking tool was used to identify the top 1,000 bottlenecks in DeKalb County in October 2019 based on an array of data including HERE Technologies probe data. A bottleneck is identified when the reported speed for a single time period on a segment is less than 60% of the free-flow speed. The results include information about where the bottlenecks begin, their direction, duration, length, and general frequency of occurrence.

The results presented in the following sections were conducted using RITIS Bottleneck Ranking data. The data represents the top 1,000 bottlenecks observed during October 2019 in DeKalb County. The bottlenecks were related to nearby intersections along the study network in order to summarize the number of bottlenecks, average daily duration (hours), and average bottleneck queue length (miles) at the intersection level.

NUMBER OF BOTTLENECKS AT INTERSECTIONS

The RITIS Bottleneck Ranking data includes information about the intersection and approach direction. The results can include more than one bottleneck per approach since superimposed bottlenecks can originate at adjacent locations in the same direction of travel. The sum of bottlenecks approaching an intersection indicates if congestion is occurring as an isolated incident or if the congestion is impacting the overall roadway network. The following **Figure 84** illustrates the number of bottlenecks at intersections using Bottleneck Ranking HERE data during October 2019.

The four following locations experience a significant number of bottlenecks. Note, the symbol circles in the map represent intersections along the study network:

- The intersections of Hairston Road at Covington Highway and Hairston Road at Redan Road each experience four bottlenecks, while the intersection of Hairston Road at Fieldgreen Drive experiences two bottlenecks.
- Six major intersections along the Commerce Drive, East Ponce de Leon Avenue, and West Trinity Place corridors experience two or more bottlenecks in the Decatur area.
- Five intersections along the SR 141/Peachtree Boulevard corridor from Ashford Dunwoody Road to Chamblee Dunwoody Road experience four bottlenecks.
- Four intersections along SR 154/Memorial Drive experience two to four bottlenecks each.

intersection of Trinity Place and Candler Street is closely spaced to another signal and is in the influence area of a fire station and an at-grade rail crossing. This intersection experiences five bottlenecks of which the most significant one is along Trinity Place approaching College Avenue in the southbound direction (10 hours).

- The intersection of Main Street and James B Rivers Memorial Drive in Stone Mountain is a five-legged signalized intersection and experiences five bottlenecks of which the most significant one is along E Ponce de Leon Avenue approaching James B Rivers Memorial Drive in the eastbound direction (10 hours).
- Intersections along Flat Shoals Road SE between Fayetteville Road SE and I-20 experience bottlenecks with significant duration. The intersection of Flat Shoals Road SE experiences two bottlenecks of which the one with the most duration is in the eastbound direction approaching I-20 (12 hours).
- Intersections along Rockbridge Road SW between I-285 and the Gwinnett County line experience several bottlenecks with moderate duration. The intersection of Rockbridge Road SW and Memorial Drive experiences three bottlenecks of which the one with the most duration is in the eastbound direction approaching Memorial Drive (6 hours).

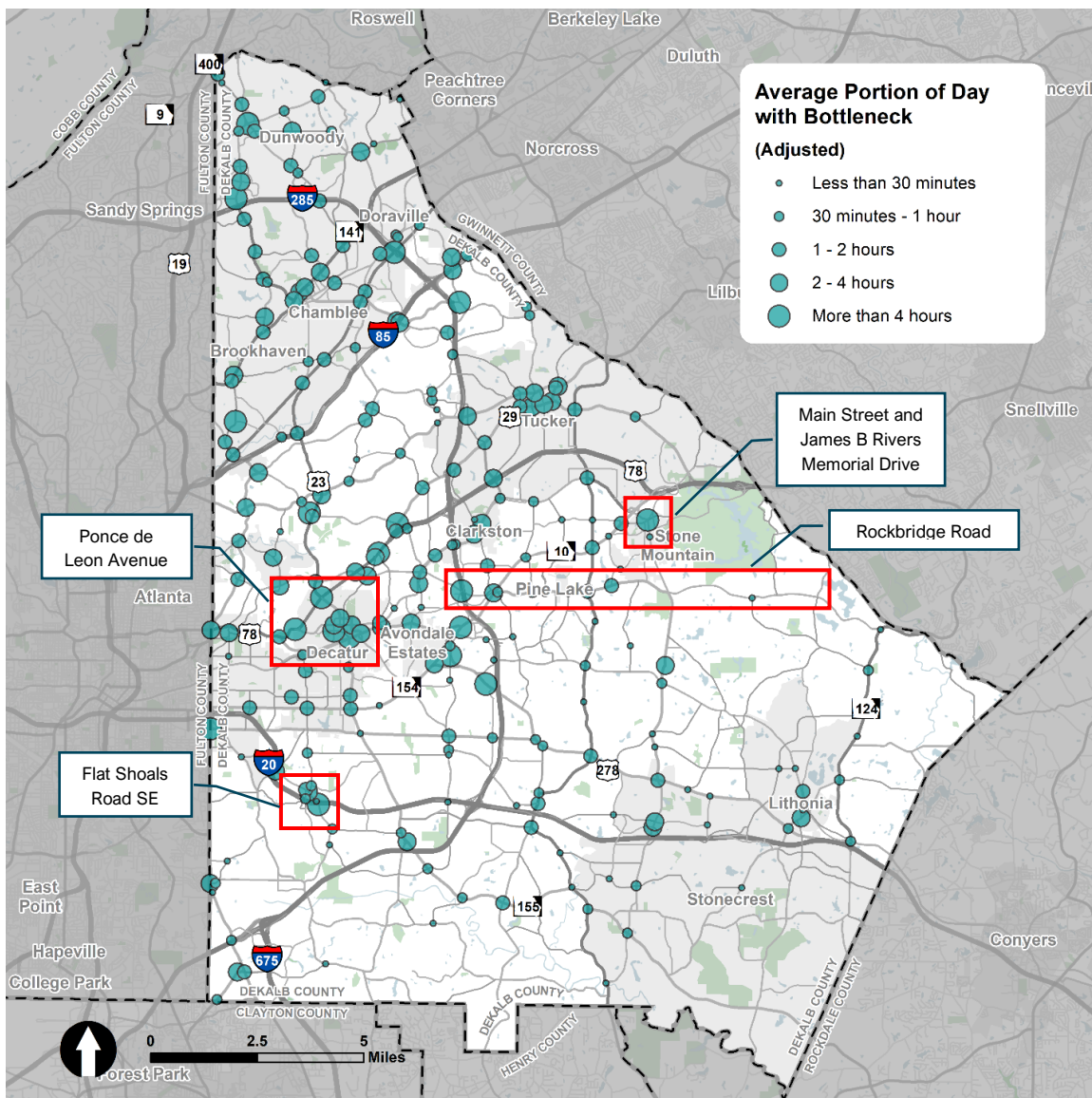


Figure 85. Average Portion of Day with Bottleneck

AVERAGE BOTTLENECK QUEUE LENGTH

The average bottleneck queue length is represented by the Average Max Length (miles) value provided in the HERE data observed during October 2019. The average queue length is summarized at the intersection level for bottlenecks within 300 feet of intersections. **Figure 86** illustrates average bottleneck queue length at the intersection level for intersections with more than one bottleneck.

The following are three example areas with intersections experiencing significant bottleneck queue lengths:

- Intersections along the Covington Highway corridor from Wesley Chapel Road to Panola Road experience bottlenecks with significant queue lengths. The intersection of Covington Highway and Panola Road experiences four bottlenecks of which the most significant one is along Covington Highway approaching Panola Road in the westbound direction (4 miles)
- Intersections along the Rock Chapel Road corridor between Union Grove Road and Rockbridge Road experience significant bottleneck queue lengths. The intersection of Rockbridge Road and Rock Chapel Road experiences two bottlenecks along both approaches of Rock Chapel Road with an average max length between 2 and 3 miles.
- Intersections along the Flat Shoals Road corridor between Clifton Springs Road and Warren Road experience bottlenecks with significant queue lengths. The intersection of Clifton Springs Road and Flat Shoals Road experiences four bottlenecks of which the most significant one is along Columbia Drive/Clifton Spring Road in the westbound direction (2 miles).

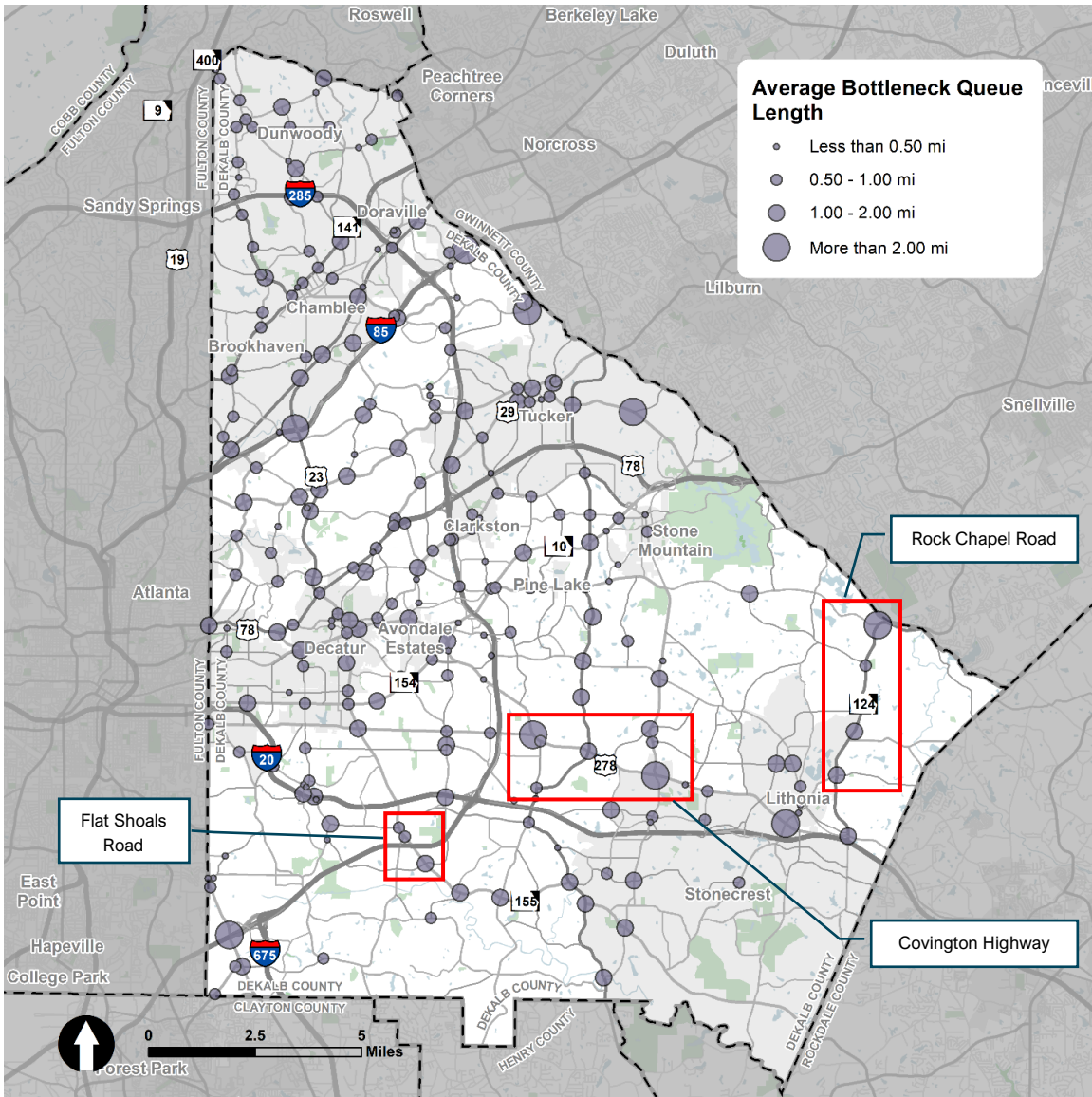


Figure 86. Average Bottleneck Queue Length

COVID-19 PANDEMIC SEASONAL COMPARISON

The RITIS bottlenecks for data during October 2019 and April 2021 are summarized at the intersection level and provide a comparison of traffic conditions before the COVID-19 pandemic and in 2021, as travel behaviors began to return to pre-COVID conditions. Like the previous analyses, bottleneck points are related to nearby intersections (within a 300 feet). RITIS provides a congestion index, Average Total Delay, which accounts for the change in speed and the vehicular volume of a bottleneck. The sum of Average Total Delay is calculated at the intersection level for intersections with more than one bottleneck to rank intersections during October 2019 and April 2021.

Figure 87 and **Table 9** provide a summary of the intersections that ranked in the top 30 intersections during October 2019 and April 2021. There were 15 intersections that ranked in the top 30 during both study periods indicating that congestion continues to affect these corridors despite reduced/different traffic conditions due to the COVID-19 pandemic. Further study of these locations is recommended as it would identify potential operational and geometric issues affecting these corridors and the overall roadway network.

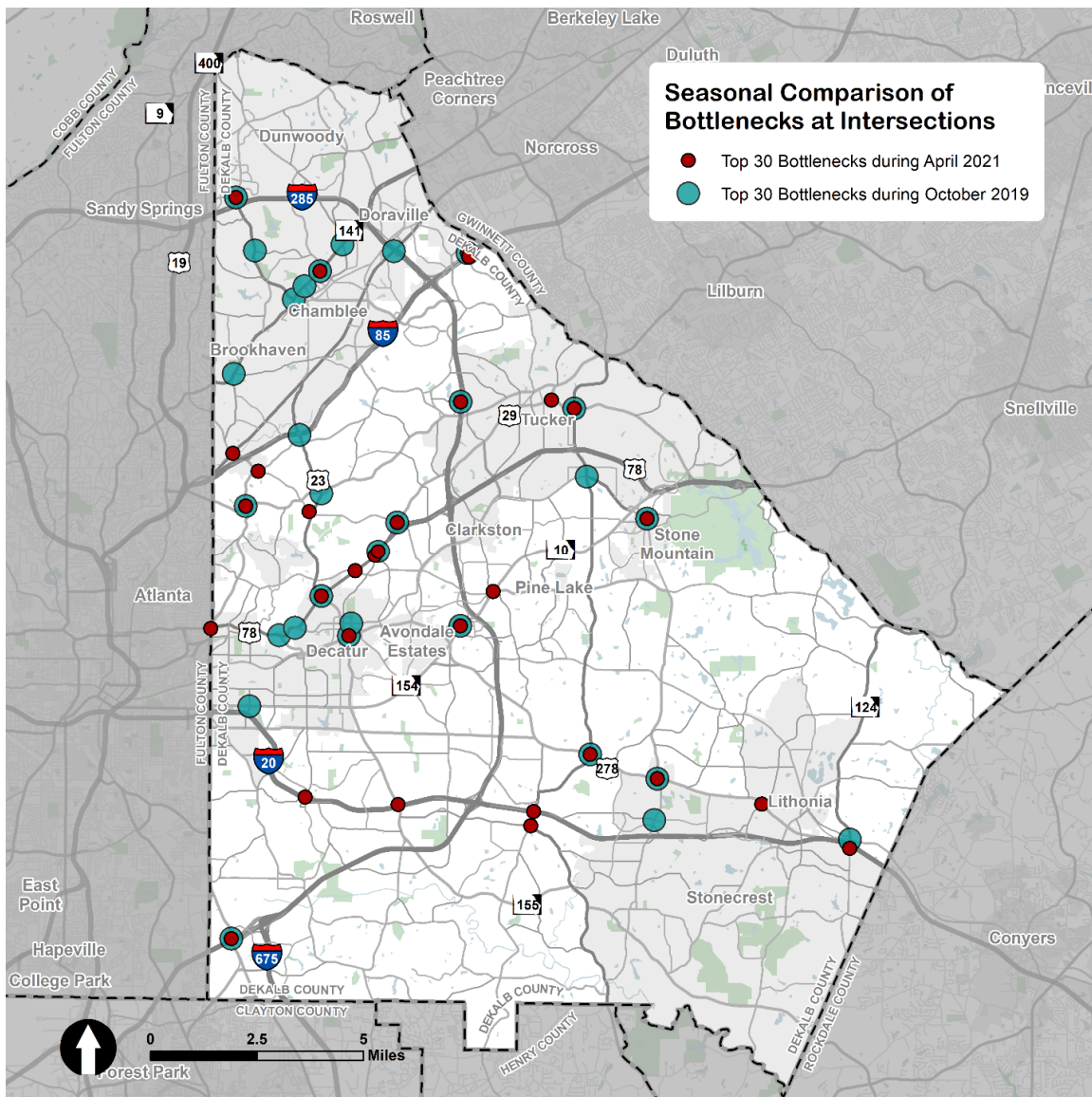


Figure 87. Seasonal Comparison of Bottlenecks at Intersections

Table 9. Bottleneck Rankings

Top 30 Rank during October 2019	Top 30 Rank during April 2021	Intersection
1	1	I-85 SB Exit Ramp @ Pleasantdale Road
2	6	Scott Boulevard @ US 23/Clairmont Avenue
5	4	SR 12/US 278/Covington Highway @ S Hairston Road
7	2	I-285 CW Exit Ramp @ Northlake Parkway NE
8	16	Chamblee Dunwoody Road @ SR 141/Peachtree Boulevard
10	26	SR 12/US 278/Covington Highway @ Panola Road
11	24	E Howard Avenue @ SR 155/S Candler Street/E Trinity Place
12	7	SR 236/Hugh Howell Road @ Mountain Industrial Boulevard
13	29	Hammond Drive @ Ashford Dunwoody Road
16	5	DeKalb Industrial Way @ SR 8/US 29/Lawrenceville Highway
19	3	N Druid Hills Road @ SR 8/US 29/Lawrenceville Highway
20	12	James B Rivers Memorial Drive @ Main Street/E Ponce de Leon Avenue
23	14	SR 236/Lavista Road NE @ SR 42/Briarcliff Road NE
25	22	SR 10/Mountain Drive @ SR 154/Memorial Drive
27	9	I-285 CW Exit Ramp @ SR 42/US 23/Moreland Avenue

SAFETY

Transportation safety involves the study of historical crash data to better guide data-driven decision making for transportation improvements. Historical crash data was obtained from Numetric for crashes occurring in DeKalb County from 2015 to 2019. **Table 10** provides a summary of crash severity and frequency.

Table 10: Crash Severity by Year

Crash Severity	2015	2016	2017	2018	2019	Total	Percent
Fatal	75	74	91	97	74	411	0.2%
Injury	1,522	1,663	1,811	1,977	2,034	9,007	5%
Possible Injury	7,547	8,103	8,349	8,557	8,785	41,341	22%
Property Damage Only	23,833	26,589	28,398	26,866	26,372	132,058	72%
Unknown	117	152	193	210	658	1,330	0.8%
Total	33,094	36,581	38,842	37,707	37,923	184,147	100%

Table 11 provides a summary of crash types by year. The following are notable observations from the crash data:

- A total of 184,147 crashes were reported of which 411 (0.2%) involved fatalities, 9,007 (5%) involved injuries, 41,341 (22%) involved possible injuries, 132,058 (72%) were property damage only (PDO), and 1,330 (0.8%) were unknown.
- The predominant crash types observed in the County from 2015-2019 were rear end (45%), sideswipe (18%), and angle (15%)
- 51,245 (28%) of crashes occurred during non-daylight conditions (includes dark, dawn, and dusk conditions)
- 32,321 (18%) of crashes occurred during wet pavement conditions
- 87,931 (48%) of crashes occurred within 300 feet of an intersection
- 15,158 (8%) of crashes involved a single vehicle

- 2,634 (1.4%) of crashes across the entire County were pedestrian-related; 1,013 (0.5%) were observed on the Study Network. Furthermore, 336 Crashes on the Study Network were bicycle-related, consistent with reports of bicycle crashes that were inclusive of local roads.

Table 11. Crash Types by Year

Crash Type	2015	2016	2017	2018	2019	Total	Percent
Rear End	15,423	16,904	17,554	16,769	16,701	83,351	45%
Sideswipe (Same Direction)	4,651	5,636	6,203	6,002	6,147	28,639	16%
Angle	4,473	5,299	5,649	5,742	5,636	26,799	15%
Left Turn	3,244	3,547	3,705	3,504	3,708	17,708	10%
Head On	673	699	795	711	762	3,640	2%
Right Turn	586	613	627	629	738	3,193	2%
Sideswipe (Opposite Direction)	552	565	586	554	614	2,871	2%
All Others	3,492	3,318	3,723	3,796	3,617	17,946	10%
Total	33,094	36,581	38,842	37,707	37,923	184,147	100%

All Crashes – Density

Crash density can be used to identify roadway segments and intersections that experience a disproportionate share of total crashes. The following are notable observations related to crash density calculated along the County’s roadway study network:

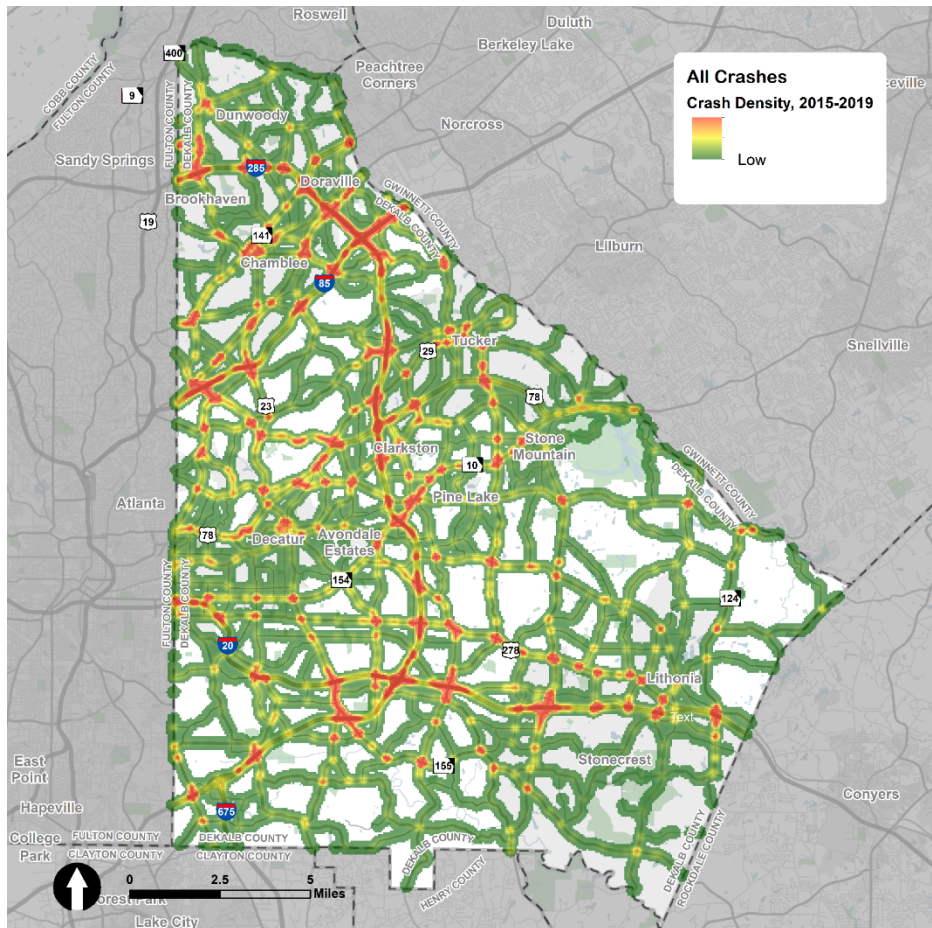


Figure 88. Crash Density

network:

Although the highest crash density occurred along interstate highways such as I-285 Perimeter and I-20, notable hot spots also occurred on surface roadways like SR 141/Peachtree Boulevard, Buford Highway, and US 278/Covington Highway. Other major high-crash areas include North Druid Hills Road, especially at large intersections such as Buford Highway NE and I-85. Crash density is shown in **Figure 88**.

Crash Rates

Crash rates were calculated at intersections along the County’s study network using available data from the travel demand model (TDM) and historical crashes from Numetric between 2015 to 2019. The resulting crash rates are expressed as crashes per 1 million entering vehicles. **Table 12** provides a summary of the five intersections in the County with the highest crash rates.

Table 12. Intersections by Crash Rate

Rank	Intersection	Municipality	Crashes per Million Entering Vehicles
1	Henrico Road and West Side Place / Moore Road	Southwest DeKalb	32.1
2	Peachtree Road and Pierce Drive	Chamblee	16.6
3	Peachtree Road and North Peachtree Road	Chamblee	15.6
4	Peachtree Road and Miller Drive	Chamblee	11.3
5	East Mountain Street and 4 th Street	Stone Mountain	9.5

Intersections with significantly high crash rates occur in Chamblee, Dunwoody-Perimeter, and Decatur. Moderate to high crash rates occur at intersections throughout suburban intersections in Western DeKalb (Table 12 provides a summary indicating three of the highest-rate intersections are within the City of Chamblee, where rapid mixed-use development and construction have transformed the area. Figure 89 shows that the three Chamblee intersections all occur along Peachtree Road, within a few city blocks from each other.

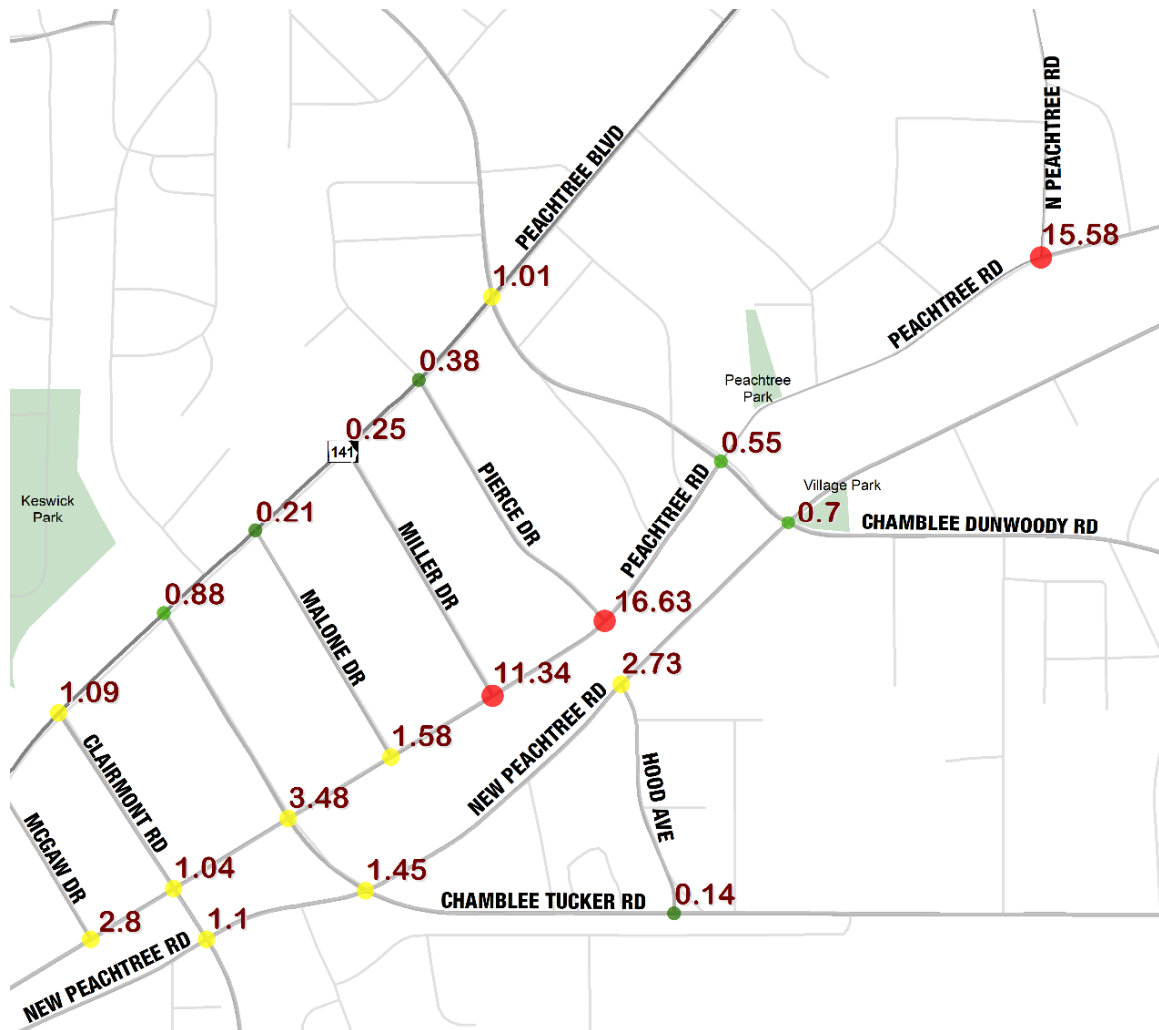


Figure 89. Intersection Crash Rates in Chamblee

The crash rates in Chamblee point to how new construction can stress an existing road network, and how proper transportation investment must keep up with land use changes. Conversely, Henrico Road and West Side Place in Southwestern DeKalb - where over 32 crashes per million entering vehicles occur - emphasize a case of high crash rates in a relatively undeveloped area. Situated at a three-legged intersection with only one stop sign, Henrico Road connects a heavy industrial neighborhood to the west with Moore Road, a feeder to Bouldercrest Road and ultimately one of the few access routes to I-285. The line of sight from West Side Place is obstructed by vegetation and the lack of traffic control from the North-South approach is problematic for cars traveling on an otherwise uninterrupted moderate-speed corridor. Using **Figure 90**, we find that truck crashes are statistically significant at the intersection as well.

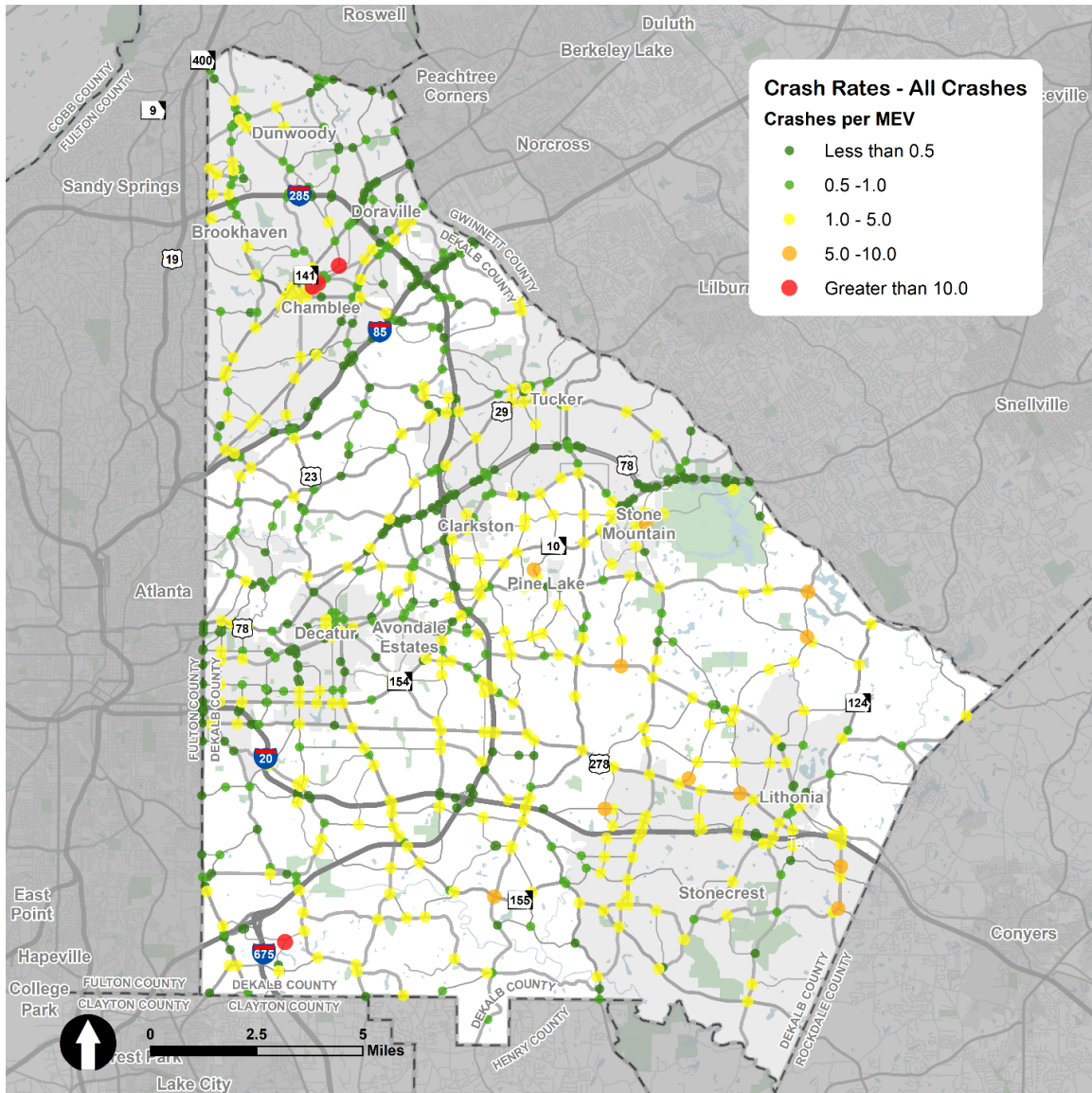


Figure 90. Crash Rates

Fixed-Object Crashes

Fixed-Object Crashes are defined by collisions whose most harmful event includes an impact with a guard rail, curb, center median, light pole, a tree, and other non-movable roadway features. Fixed-object crashes can indicate deficiencies in roadway infrastructure, incompatible speed limits, among other design and policy deficiencies. Fixed-object crashes do not include impacts with temporary construction materials or parked vehicles. Run-off-the-road incidents most often result in fixed-object crashes and can be addressed by evaluating roadway geometry and roadside features).

Figure 91 illustrates that many fixed-object crashes occur near interstate interchanges as high-speed zones transition into arterial and local roadways. Such crashes were prevalent near the following major interstate interchanges: I-285 and I-85; I-20 and I-285; SR 78 and I-285. Hotspots along non-interstate roadways include: Ponce de Leon Avenue NE and East Lake Road in Decatur; Ponce de Leon Avenue and Memorial Drive in Stone Mountain; and Rockland Road and Turner Road in Stonecrest.

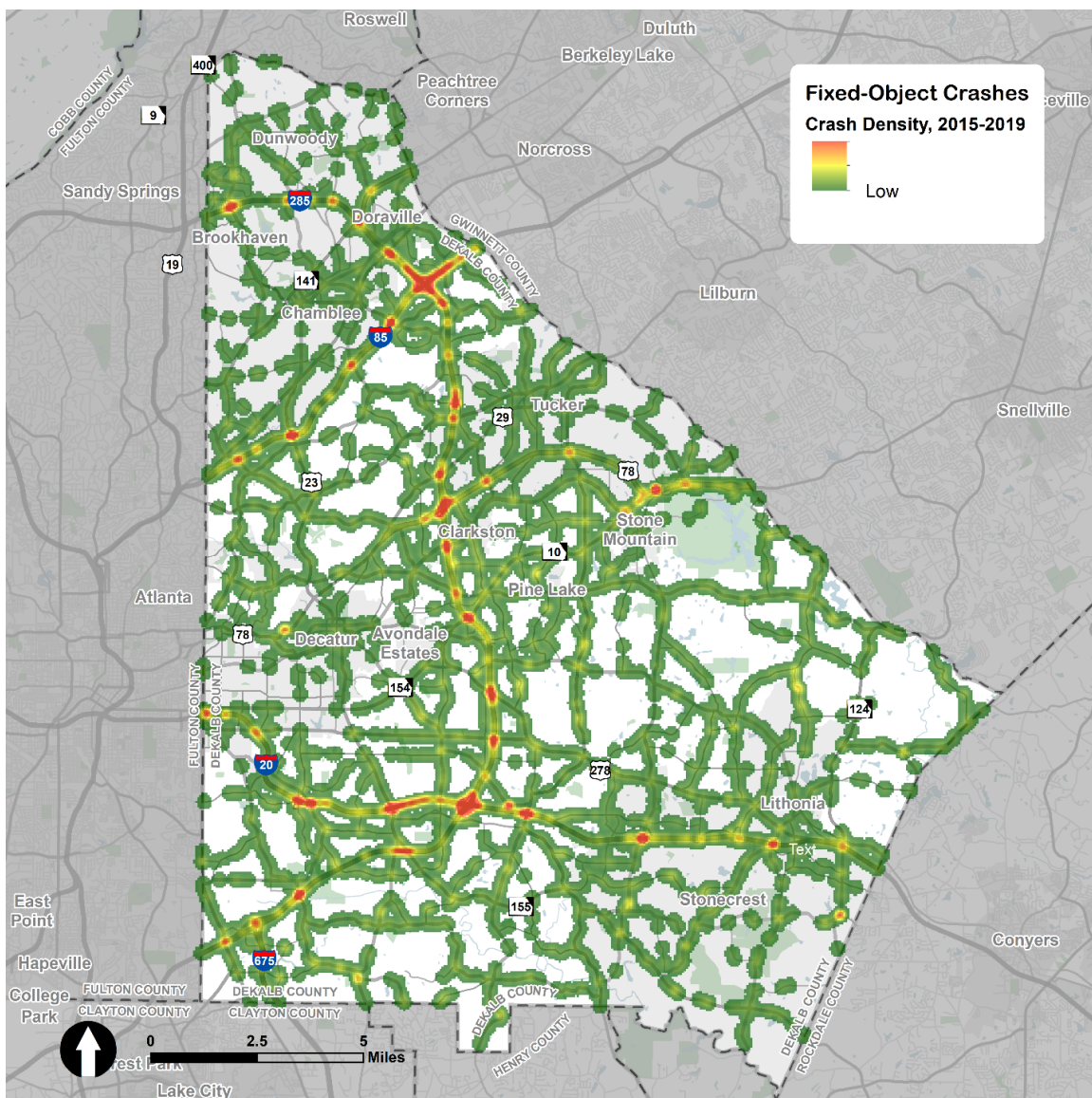


Figure 91. Fixed-Object Crashes

CAUSES OF CONGESTION

Rear end (45%) and sideswipe crashes (18%) were among the predominant crash types observed in DeKalb County between 2015 and 2019. Rear end crashes are an indication of heavy congestion and can be attributed to distracted driving, following too closely, and abrupt stopping. Sideswipe crashes can be attributed to distracted driving, abrupt changing of lanes, and reactions to poor roadway conditions such as potholes in the pavement or hazardous conditions. These crash types are especially common along congested corridors.

The results from different data analyses are compared along three example corridors to gain insight into potential causes of congestion. The combination of the following data analysis results can highlight opportunities for identifying corridor and intersection improvements:

- Number of bottlenecks at intersections (RITIS bottlenecks during October 2019)
- Crashes per 100 million entering vehicles
- Level-of-Service, PM peak period (VC) during 2020
- Overview of land uses and access management along corridor

Covington Highway from Glenwood Road to Miller Road

Covington Highway is a key corridor parallel to I-20 providing DeKalb County and Metro Atlanta east-west access. Covington Highway between Glenwood Road to Miller Road operates over capacity during the p.m. peak hour, as shown in **Figure 92**.

There are significant bottlenecks and crash rates along Covington Highway at the intersections of Glenwood Road, Wesley Chapel Road, and S Hairston Road. The three most common crashes along this segment were rear end (47%), angle (33%), and sideswipe (12%). Covington Highway is a four-lane undivided roadway in this area. An initial recommendation is to evaluate access management and TSMO (signal retiming) strategies, especially along retail and commercial land uses. Access management strategies, such as installing a median, can potentially reduce angle crashes and increase operational efficiency.

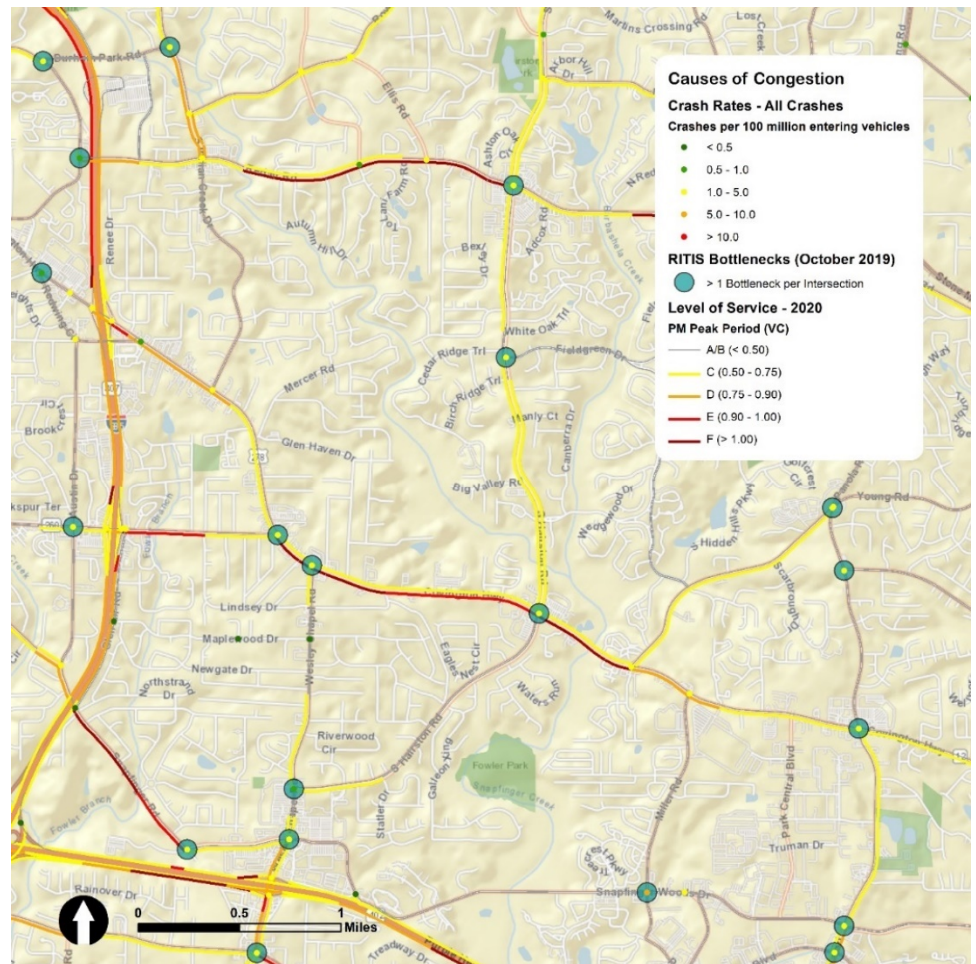


Figure 92. Causes of Congestion (Covington Highway)

Rockbridge Road from Memorial Drive to Stone Mountain Lithonia Road

The Decatur Road/Rockbridge Road corridor provides uninterrupted east-west access and connectivity in DeKalb County. Rockbridge Road from Memorial Drive to Stone Mountain Lithonia Road operates over capacity during the p.m. peak hour. The three most common crashes along this segment were rear end (48%), angle (27%), and sideswipe (15%), shown in **Figure 93**. The typical section in this area is two-lane undivided roadway and the land uses are primarily single family residential with some retail. Several intersections along this study segment experience significant bottlenecks and high crash rates. The intersections of Rockbridge Road at Rays Road and Rockbridge Road at Hambrick Road experienced significant bottlenecks and crash rates although they are not large intersections. Safety and traffic operations along this corridor may improve by evaluating increasing turn lane storage lengths and evaluating MARTA bus stops configuration and amenity improvements.

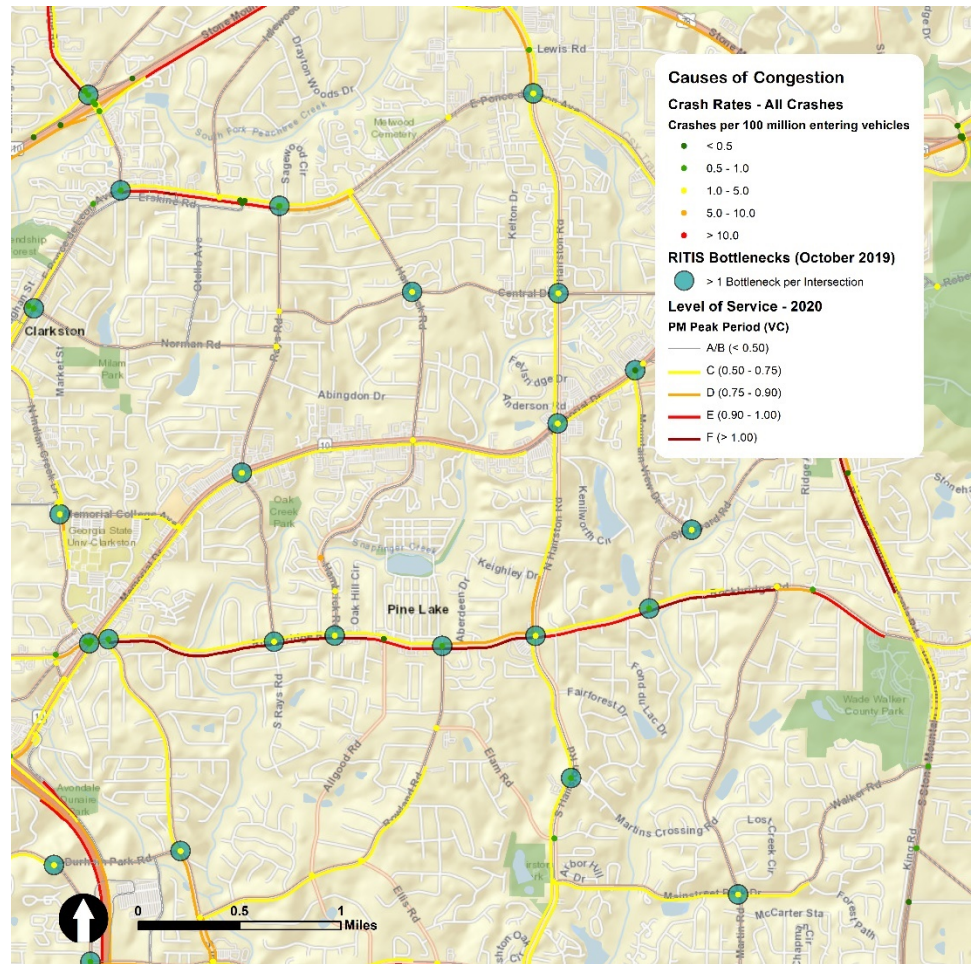


Figure 93. Causes of Congestion (Rockbridge Rd)

Scott Boulevard/Lawrenceville Highway from Ponce de Leon Avenue to Cooledge Road

The Scott Boulevard corridor provides east-west connectivity for the County. Traffic from neighborhood local roadways, US 78, and I-285 converges into Scott Boulevard providing access into Atlanta. This study segment operates over capacity in both directions during the p.m. peak hour west of the US 29/US 78 interchange (North DeKalb Mall). Several intersections along Scott Boulevard experience significant bottlenecks and crash rates including N Decatur Road, DeKalb Industrial Way, and N Druid Hills Road. The three most common crashes along this segment were rear end (46%), angle (28%), and sideswipe (19%). The causes of congestion are shown in **Figure 94**. The typical section varies along the study limits and includes four-lane undivided (west of N Decatur Road), six-lane divided (from N Decatur Road to N DeKalb Mall), to four-lane with a center turn lane (east of N DeKalb Mall). Access management features are not as common between Ponce de Leon Avenue and N Decatur Road compared to east of N Decatur Road.

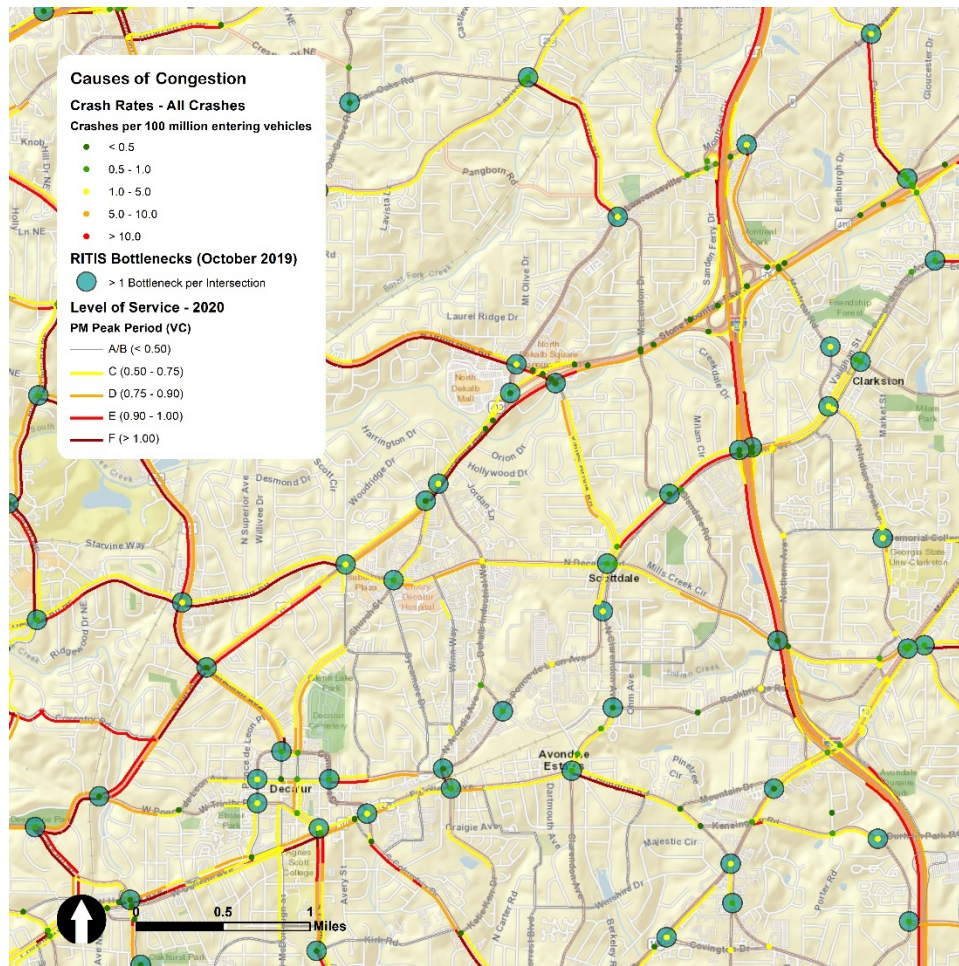


Figure 94. Causes of Congestion (Scott Boulevard)

MAINTENANCE

The DeKalb County Public Works, Roads and Drainage Division is responsible for maintenance and operations of street signage, pavement markings, and traffic signals in the County. They maintain and operate transportation infrastructure along approximately 2,280 miles of roads in the County including access roads alongside interstates, as indicated in the County’s Roads and Drainage department webpage. The County is also responsible for operations and maintenance of bridges, drainage structures, and traffic control devices in unincorporated areas and in some municipalities. **Table 13** provides a summary of the County’s service delivery strategy for the operations and maintenance of streets and traffic signals. The latest DeKalb County service delivery strategy document is included in Appendix A.

Because funding is limited, critical needs may be addressed each year while preventative maintenance may not. DeKalb County currently allocates most available funding to critical needs. Specifically, to pavement repairs. Identifying preventative maintenance projects in a programmatic way will assist with sustainable preservation of transportation infrastructure in the County.

Some municipalities such as the Cities of Atlanta and Brookhaven operate and maintain streets, traffic signaling, and street signage within their jurisdictions. Meanwhile, other municipalities such as Avondale Estates and City of Decatur, partner with the County in sharing responsibility for the maintenance and operations of streets, traffic signals, and street signage.

DeKalb County oversees the maintenance and operations of transportation infrastructure for the third category of municipalities which includes the cities of Tucker and Stonecrest. Furthermore, GDOT maintains and operates several state-maintained roadways within unincorporated DeKalb County and within municipalities. The GDOT maintenance office oversees bridge and sign maintenance, roadway striping, and routine maintenance of state highways.

Table 13. Transportation Maintenance in DeKalb County

Municipality	Agency Responsible for Street Maintenance	Agency Responsible for Traffic Signals
Atlanta	City	City
Avondale Estates	City	County
Brookhaven	City	City
Chamblee	City	City
Clarkston	City	City
Decatur	City	County
Doraville	City	County
Dunwoody	City	City
Lithonia	City	County
Pine Lake	City	County
Stone Mountain	City	County
Tucker	County	County
Stonecrest	County	County
Unincorporated	County	County

Source: DeKalb County Service Delivery Strategy (2019)

Pavement Condition

The goal of agencies overseeing roadway pavement maintenance is to conduct regular pavement resurfacing to stay ahead of pavement condition deterioration. The cost of rehabilitating completely deteriorated roads without regular maintenance far exceeds the expenditures associated with a periodic pavement resurfacing maintenance program.

DeKalb County Public Works, Roads and Drainage Division performs annual inspection of approximately 2,280 miles of roadways in the County as part of its pavement management system, as indicated in the County’s Roads and Drainage department webpage. The County’s inspection system is adapted from GDOT’s Computerized Pavement Condition Evaluation Survey (COPACES) pavement condition rating system. The County evaluates pavements and assigns them with a composite score which accounts for transverse and longitudinal cracking, alligator (fatigue) cracking, potholes, patching, rutting, edge raveling, depressions, oxidation, missing stone, and bleeding. Each of these elements receives a score from zero to 12 points where higher points indicate poorer pavement conditions. A pavement is considered to require major reconstruction with a composite score of 30 or more points.

A community survey conducted in the 2014 CTP indicated pavement resurfacing was the greatest need for the County’s transportation system. DeKalb County has access to pavement maintenance funding through state and local sources. The County identifies locations for pavement resurfacing each year using the pavement scores and develops a resurfacing plan with GDOT through the Local Maintenance Improvement Grants (LMIG). Furthermore, the County’s Special Purpose Local Options Sales Tax (SPLOST) currently allows for funding to be allocated towards roadway maintenance. Previous funding and programming challenges prior to securing the SPLOST led to the County falling behind on pavement

maintenance. The County was approximately \$175 million behind on pavement resurfacing as of the end of the most recent 2014 CTP.

Asset Management Inventory

While DeKalb County has focused on addressing pressing repair needs, it is important that County resources be allocated towards developing a system/process for developing a robust asset management inventory. The FHWA states that when maintaining agencies implement adequate pavement preservation measures, they minimize roadway pavement deterioration, extend service life, and improve functionality in a cost-effective manner. To develop a prioritized work program for repairs and minimize deferred maintenance, the County should first focus on developing an inventory. Having a detailed inventory providing a quantitative and qualitative assessment of County assets will facilitate project programming and identifying priorities for maintenance efforts.

The County will need to determine a cadence for the data collection of pavement condition inspections. For example, some agencies inspect half of the roadway network per year so that the entire network is evaluated in two-year cycles. After completing more than once cycle of pavement inspections, the County will then be able to compare the data for locations historically to forecast future pavement conditions (i.e., remaining service life). Maintaining agencies nationwide use pavement condition data to create long-term strategies and program projects.

ITS/Traffic Signals

DeKalb County operates and maintains 47% of traffic signals across both unincorporated DeKalb County roadways, and in the cities of Avondale Estates, Clarkston, Decatur, Doraville, Pine Lake, Lithonia, Stonecrest and Stone Mountain. Over 100 miles of fiber are used to connect DeKalb County traffic signals to GDOT-coordinated relays. DeKalb County's annual expenditure for the operations and maintenance of ITS and traffic signals is approximately \$0.75 million to \$1 million.

Maintenance of ITS for the County can be a challenge due to budget/funding constraints and lack of specialized training for staff. Conducting detailed inventory of ITS equipment and systems will facilitate programmatic end-of-life replacement.

A successful countywide ITS will require regular coordination between the County and adjacent partner agencies to ensure that there is continuity across jurisdictional lines for roadway corridors equipped with devices and systems.

A challenge with ITS equipment maintenance is that many devices are not eligible for SPLOST funding because their expected end-of-life is often less than 20 years.

Public Input Data

DeKalb County currently gathers complaints from the public for maintenance requests via phone call, email, and an online Roads & Drainage - Request for Assistance form. There are limitations with gathering maintenance requests from multiple sources as this results in significant data processing and digitizing by County staff. It is recommended that DeKalb County evaluate partnering with a web-based public service software platform like SeeClickFix which is used by several counties in the region.