Current and Future Needs Summary

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Summary of Current and Future Needs

This section summarizes the information presented in greater detail in the separate Current and Future Needs Assessment Report.

Population

From its 2015 population of 218,659, Henry County is projected to grow by 83 percent to 399,790 by 2040. The needs for the transportation system are two-fold based on the current and forecasted population growth. The first is to be reactive in responding to demands on the infrastructure system that have resulted from high growth patterns, and the second is to be proactive in developing infrastructure that can support an 83 percent increase in population over the next 25 years.

Over the next 25 years, the relatively densely populated areas around Stockbridge and McDonough are expected to intensify, and less developed areas of the county are anticipated to grow as well. **Figure 13** illustrates population density in 2040. Intensification of development in these areas, and particularly along the SR 81 corridor represents a need for improvements to the changing travel demands in this part of the county.

Employment Growth

Henry County's employment centers are predominantly within the cities of Stockbridge and McDonough, with connections to the I-75 corridor.

The majority of the employment outside of the county is in downtown and midtown Atlanta. The strong commuting patterns outside the county to targeted areas in the region along with the traffic congestion occurring along the I-75 corridor suggest a need for commuter-supportive transportation investment. There is a need to move more people more efficiently from their homes in Henry County to jobs in Atlanta.

Henry County employment is anticipated to grow by 85 percent by 2040, from 67,395 jobs to 124,894 jobs. Access to the primary employment centers is needed to support this growth and make Henry County an attractive employment location. The densest employment areas are and will continue to be in Stockbridge and McDonough with adjacencies to the I-75 corridor. This trend supports a need for transportation choices that are a viable alternative to travelling on I-75 to maintain or improve mobility to and around these employment centers. The high number of commuters using I-75 to access jobs in other parts of the region also support the need to relieve interstate travel.

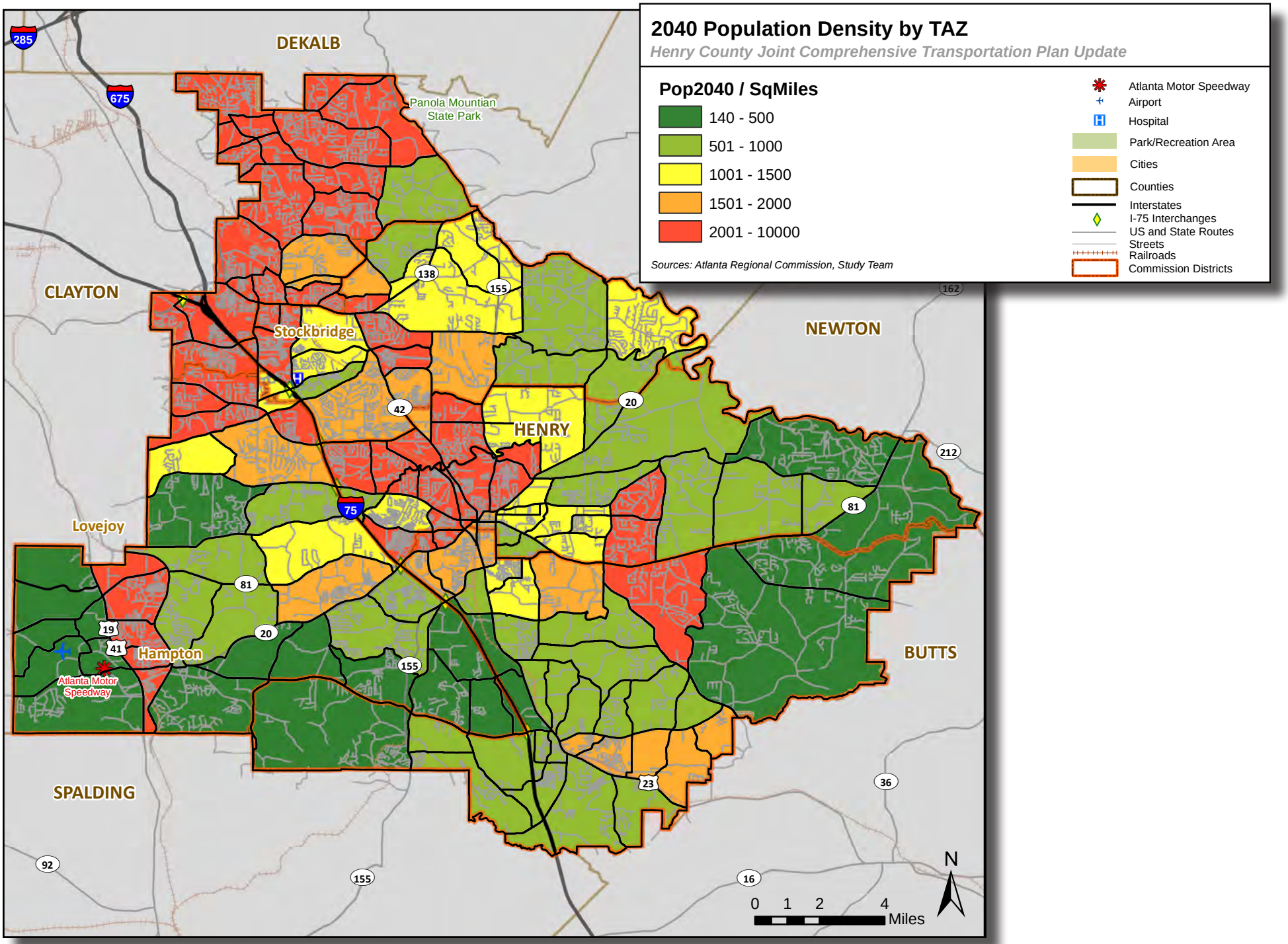
Future Land Use Needs

Existing land uses were compared to the county's adopted Future Land Use Plan to identify areas of planned land use change that would warrant additional bicycle and pedestrian, roadway or transit investments.

Bicycle and pedestrian improvements are most needed in areas planned for compact nodal development and in areas with planned high-density residential and mixed-use development. These investments are needed to promote active transportation (walking, biking) in these areas and permit residents the ability to access basic needs without reliance on an automobile.

Transit-supportive future land uses were identified and include commercial, public-institutional, office, high-density residential and mixed-use categories, as well as larger-scale activity centers, such as Suburban Employment Centers, Specialty Use Centers and Village Centers.

Figure 13: Henry County 2040 Population Density



Roads and Intersections Needs

Current and future needs of Henry County's roads and intersections were assessed by analyzing future travel patterns, the resultant traffic congestion, specific existing operational problems, and the connectivity of the network.

Future Travel Patterns

In 2015, major trip flows occur between Henry County and portions of Clayton, south DeKalb, and Newton Counties. Forecasts for 2040 indicate that there may be a 56 percent increase in travel from Henry County to Fulton County. Simultaneously reflecting the increasing development of the suburban areas of the region, heavy flows appear to develop between Henry and Fayette, Spalding, and Rockdale Counties by 2040.

The two major routes carrying traffic through Henry County are the north-south routes of I-75 and US 19/41. About half of the southbound morning peak period volume on I-75 at I-675 are through trips. Fifty-four percent of trips are destined to Henry County, while 46 percent proceed through Henry County to locations southeast of Henry County and the Atlanta region.

About 20 percent of trips originate north of the Atlanta region and are traveling south along I-75 from the northwest and pass through Henry County exiting the region into Butts County and locations within Georgia and Florida. These large numbers of "pass through" trips reflect the regional and national significance of the I-75 corridor.

For northbound morning peak travel along I-75, 71 percent of traffic entering Henry County from Spalding and Butts Counties are through trips (29 percent have Henry County destinations). Just over half (55 percent) of these through trips are destined for other ARC counties. The remaining 45 percent are destined for locations outside of the ARC region.

Another major route through Henry County is US 19/41. Three quarters of the morning peak northbound trips on US 19/41 that enter Henry County from Spalding County are through trips. These through trips are destined for locations within Clayton County, the vicinity of Hartfield-Jackson Atlanta International Airport, downtown and midtown Atlanta. Thirty-one percent of southbound morning peak trips on US 19/41 entering Henry County from Clayton County are destined for Henry County, reflecting 69 percent through trips in that direction.

Internal Routes

Sixty percent of trips flowing from I-75 east toward McDonough on Jonesboro Road, SR 20/81, and SR 155 originate outside Henry County.

Eighty-five percent of trips on the three routes that link I-75 and Henry County are destined for Henry County, with only 15 percent passing through to Rockdale, Newton, and DeKalb. Eagles Landing Parkway eastbound just east of I-75 also carries 49 percent external trips.

Together, these patterns reflect the large degree of dissipation occurring as traffic from I-75 distributes to employment and activity locations along the various routes. By the time trips reach McDonough Square, 75 percent of the trips have a Henry County origin or destination. These internal flows indicate a primary need is to maintain capacity and performance of these linkages between McDonough and I-75.

Future Roadway Congestion

Analysis of future roadway congestion is based on 2040 Henry County projected future forecast traffic volumes and LOS. Congestion needs are illustrated in (**Figure 14**).

Volume

Traffic volumes are projected to increase substantially between 2015 and 2040. Northbound traffic coming into Henry County on I-75 is projected to experience a 40 percent increase from about 41,500 daily trips in 2015 to about 58,500 in 2040. Growth in volumes is particularly apparent on the following Rd. corridors:

- SR 42 from McDonough to SR 138,
- Jonesboro Rd. from I-75 to Clayton County
- US 19/41
- SR 20 between I-75 and US 19/41

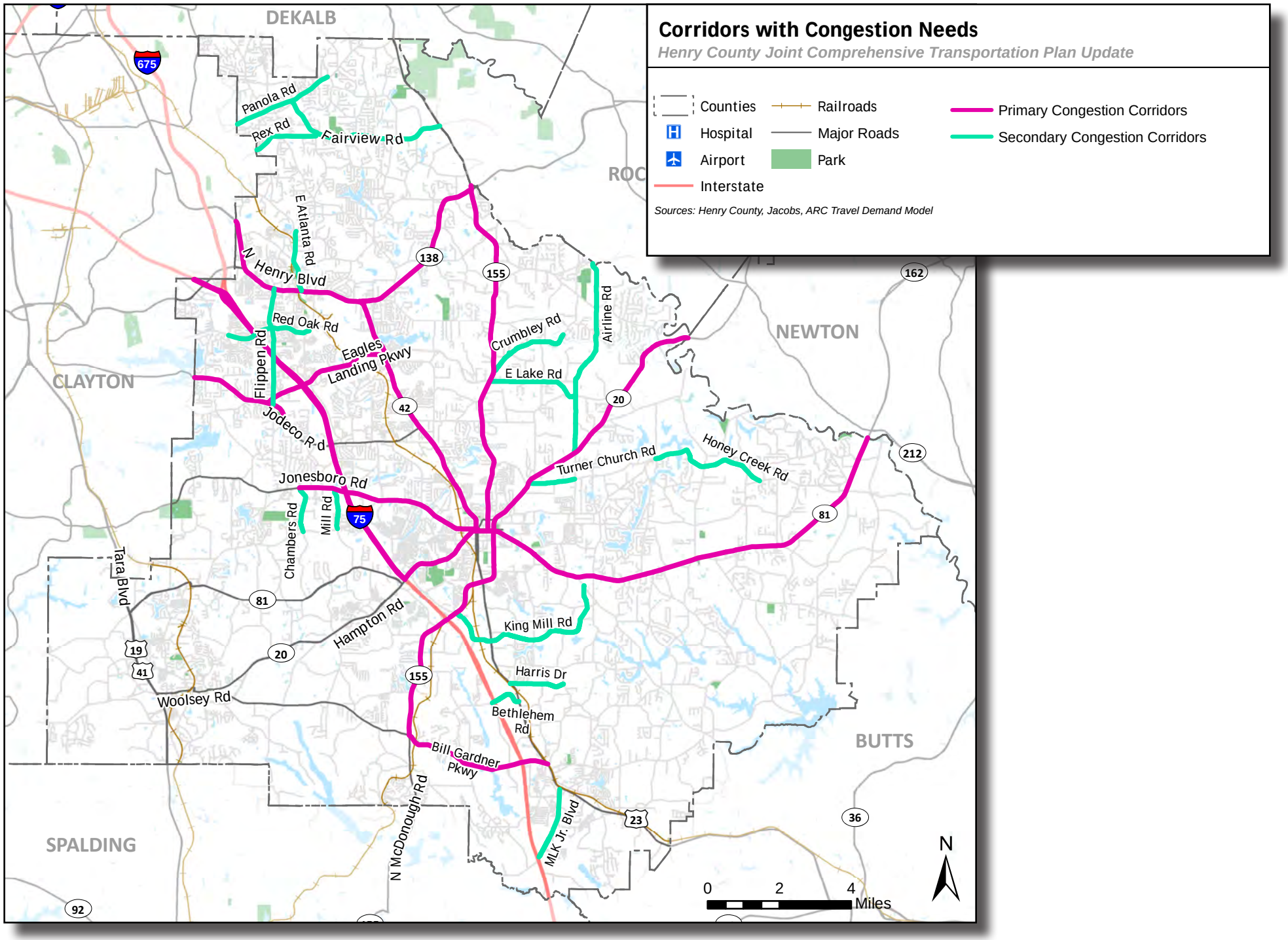
The increased volumes on the first two of these roads will likely be accommodated by future programmed widening projects. Current capacity on US 19/41 and SR 20 between I-75 and US 19/41 will be able to carry the additional projected volume.

Level of Service

The performance metric used for the future congestion level of service (LOS) is the modeled volume-to-capacity ratio (V/C). Additional traffic volume in 2040 results in more roadway segments experiencing LOS E and F in both AM and PM peak periods than under current conditions. Major Roadway Segments with Projected LOS F in 2040 are:

- SR 42
- SR 155
- SR 20
- SR 81 East from McDonough to Newton County Boundary
- SR 138
- Jonesboro Rd.

Figure 14: Congestion Needs



- Hampton Locust Grove Rd./Bill Gardner Pkwy. from SR 20 to SR 42/ US 23
- Eagles Landing Pkwy. from I-75 to SR 42
- Jodeco Rd. from Hudson Bridge west to Clayton County

Express Lanes Access and Jonesboro Road Operations

The I-75 South Metro Express Lanes project will improve traffic flow and provide reliable trips on I-75. Traffic will enter and exit the express lanes at the northern edge of Henry County via slip ramps on I-75 and a dedicated flyover bridge to I-675 at the interchange. There will be additional slip ramps on I-75 just north of SR 20 and just north of SR 155 to allow express lane traffic to enter and exit the general purpose lanes.

The managed lanes will impact local roadway operations via a new access point at Jonesboro Road. A new road will be constructed to the east of I-75 that intersects Jonesboro Road at Foster Drive. It will feed the managed lanes by way of a new bridge over the northbound lanes of I-75. The section of Jonesboro Road between I-75 and the intersection at Foster Drive is already four lanes and currently operates at an acceptable LOS D or better. An early layout had dual right turn lanes coming off the ramp to turn right onto Jonesboro Road toward McDonough. Removing these trips from the Jonesboro Road interchange with the I-75 general purpose lanes could help improve interchange operations.

Intersection Needs

The analysis of roadway needs under current conditions consulted HERE data and INRIX data, both provided by ARC, as well as crash data and previously identified projects from the 2007 JCTP. Bridges were considered as part of this intersection analysis.

HERE Data and Delay-Based Level of Service

In addition to assessing capacity needs through modeled LOS, roadway operational needs can be identified by observing current operational conditions. Measured travel time data provides another data source to crosscheck the existing conditions of the county's roads. ARC provided data from HERE, which collects anonymized speed data from cellphones traveling throughout the roadway network. The HERE LOS is based on the travel time index, which compares average travel time along a link with the congested travel time.

Travel Time Reliability and the Buffer Time Index (BTI)

Travel time reliability refers to how consistent travel conditions are from day to day. To account for variations in travel time, people build a buffer into their trip planning. Drivers end up devoting that "buffer time" to their trip even if traffic is light, when it could be used for things besides commuting. Reliability is measured by comparing congested travel time with average travel time. INRIX provides such a measure in the form of buffer time index (BTI).

The BTI enables the identification of roads that have reduced reliability. It represents the extra time that travelers must add to their travel time when planning a trip to ensure on-time arrival. For example, a BTI of 0.4 means that for a trip that usually takes 30 minutes a traveler must allow for an additional twelve minutes to ensure on-time arrival 95 percent of the time. The extra twelve minutes is called the buffer time. Intersection needs can be evaluated by overlaying previously identified, unconstructed projects with the HERE travel time index (TTI), level of service (LOS), INRIX-identified bottlenecks, and intersection crash data. Crash data is shown in detail in the Existing Conditions Report.

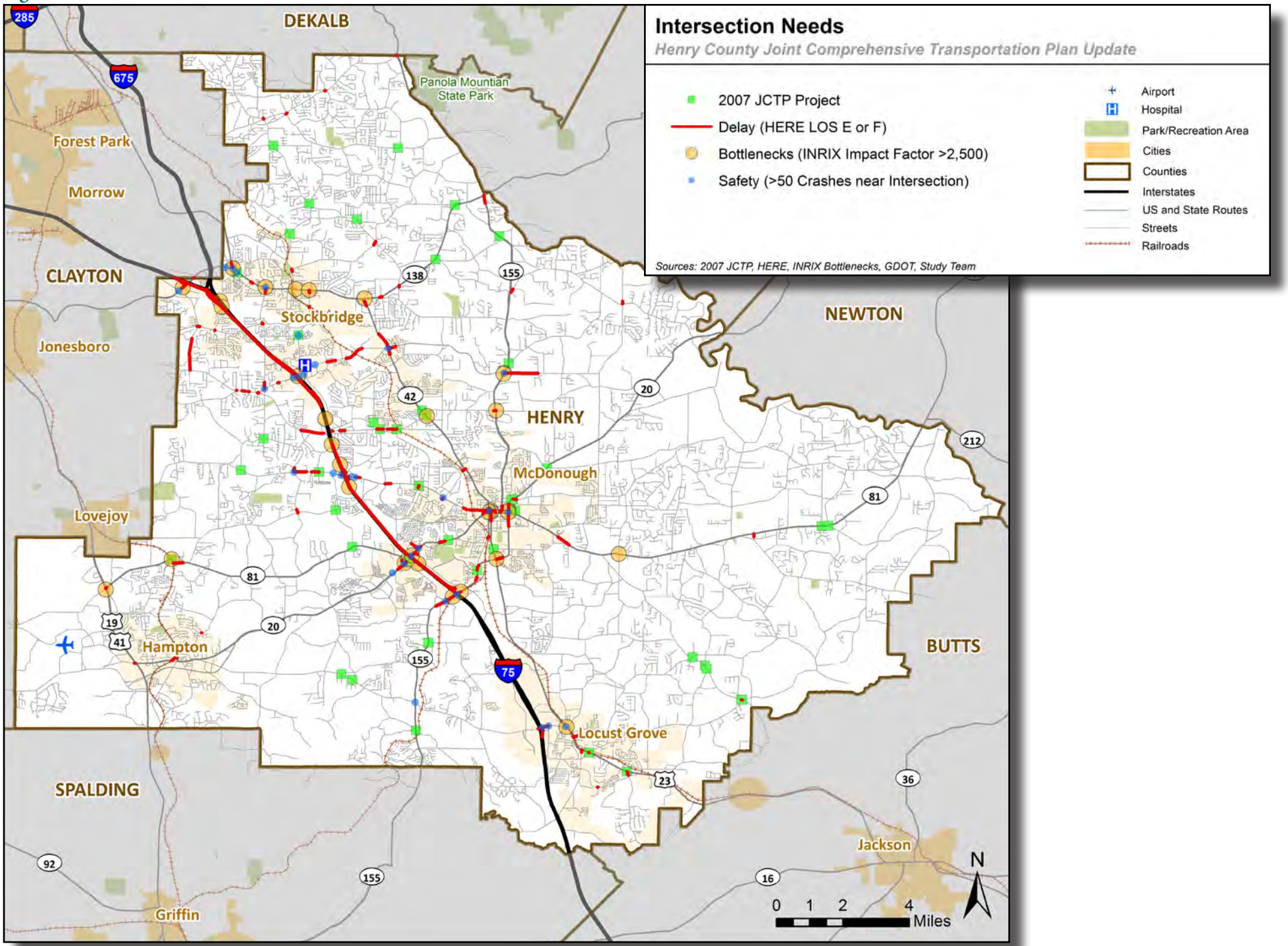
High Crash Intersections

The top crash intersections were identified by allocating crashes to the nearest intersection. Any intersection with 50 or more crashes was identified as a safety needs location.

Intersection Needs Identification

Intersection needs were evaluated by overlaying previously identified, unconstructed projects with the HERE travel time index (TTI), level of service (LOS), INRIX-identified bottlenecks, and intersection crash data (**Figure 15**).

Figure 15: Intersection Needs



Access Management Corridors

Access management is a technique employed for the effective management of roadway access to adjacent development. The goal of access management is to provide adequate access to surrounding land uses, while simultaneously enhancing the flow of traffic on a primary roadway in regards to speed, safety, and capacity. Common access management techniques include requiring inter-parcel access between developments, consolidated driveways for adjacent businesses, raised center medians and frontage/backage roads.

Some roads are built with the primary purpose of mobility. The top of this category would be interstate highways. Access on these roads is highly restricted and is of secondary concern to the flow of traffic. Some roads are built with the primary purpose of accessing land uses, such as local subdivision roads, which prioritize access to land over traffic flow. Problems arise, however, when one road attempts to simultaneously move large amounts of traffic and provide access to land uses.

Henry County currently has the following access management regulations in its existing zoning codes:

- The Bruton Smith Parkway (SR 20) Overlay District requires interparcel access between developments in the form of joint driveways, cross access drives, and pedestrian connectivity between developments. It also requires the construction of stub-out streets to connect future developments and encourages access roads in specific locations.
- The Fairview Road Overlay District requires access easements between adjacent properties. It also discourages new curb cuts and requires a connected road network with no cul-de-sacs or dead end streets.
- Section 8 of the Unified Land Development Code requires all proposed developments to provide a street system that is connected to the existing or planned street system. Stub streets are required to undeveloped neighboring properties. Section 8 provides guidance on access point spacing based on the posted speed limits on roadways, and limits the number of access points to development based upon street frontage lengths. It requires joint access driveways and cross access easements in corridor overlay districts, IAC zoning districts, and rural neighborhood commercial development areas.

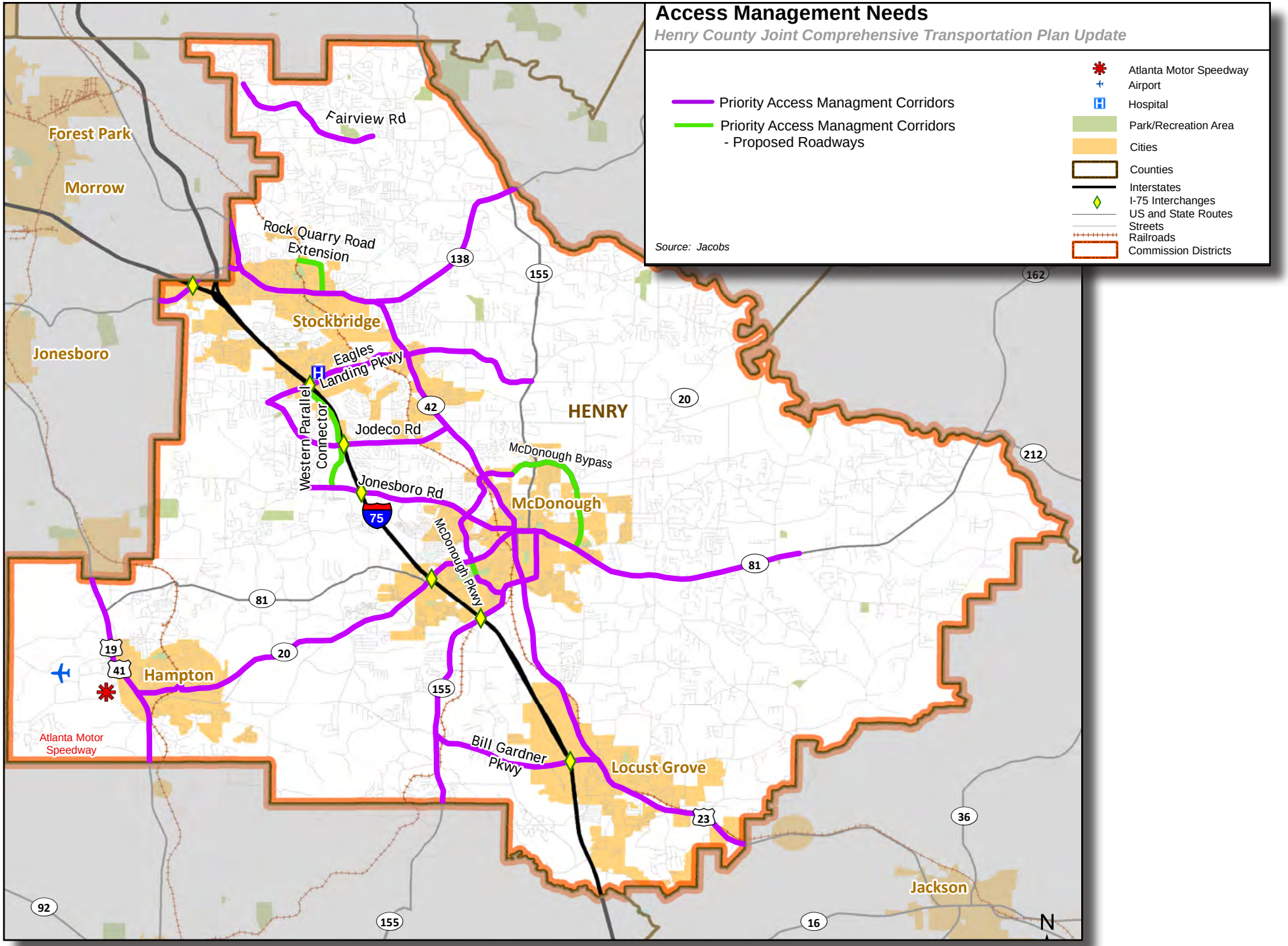
Identification of Access Management Corridors

Access management is most needed in commercial and industrial corridors where unmanaged access to local land uses can generate significant traffic congestion and safety concerns. **Table 2** identifies priority access management corridors within Henry County along with an assessment of access management factors. These corridors are mapped in **Figure 16** and include existing facilities as well as proposed new roadways.

Table 2: Corridors with Access Management Needs

Corridor	To	From	Existing Land Use	Future Land Use	High Crash Location	Existing Congestion
Existing Roadways						
US 19/41	Clayton Co. Line	Spalding Co. Line	X	X	X	
SR 155	Spalding Co. Line	SR 20	X	X	X	X
US 23/SR 42	Butts Co. Line	SR 20	X	X	X	
Bill Gardner Pkwy.	From US/SR 42	SR 155	X	X	X	
US 23/SR 42	SR 20	Clayton Co. Line	X	X	X	X
SR 138	US 23/SR 42	Clayton Co. Line	X	X	X	X
SR 138	Rockdale Co. Line	US 23/SR 42				
SR 20	US 19/41	SR 155	X	X	X	X
Jodeco Rd.	US 23/SR 42	Hudson Bridge Rd.	X	X	X	X
Hudson Bridge Rd./Eagles Landing Pkwy./ East Lake Pkwy.	SR 155	Jodeco Rd.	X	X	X	X
Jonesboro Rd .	US 23/SR 42	Chambers Rd.	X	X	X	X
SR 81	SR 155	Keys Ferry Rd.		X	X	X
Henry Pkwy.	SR 155	Proposed McDonough Plwy. Ext.: Phase III	X	X	X	
McDonough Pkwy.	SR 20	Proposed McDonough Pkwy. Ext.: Phase II	X	X	X	
Turner Church Rd.	Proposed McDonough Pkwy. Ext.: Phase II	SR 20		X		
Fairview Rd.	Cook Dr,	Hearn Rd.	X	X		X
Proposed Roadways						
McDonough Pkwy. Ext.: Phase III	SR 155	SR 20		X	X	na
McDonough Pkwy. Ext.: Phase II	US 23/SR 43	SR 155		X	na	na
McDonough Pkwy. Ext.: Phase IV	SR 20	SR 81		X	na	na
Western Parallel Conn.	Jonesboro Rd.	Hudson Bridge Rd.	X	X	na	na
Rock Quarry Rd. Ext.	SR 138/US 23	East Atlanta Rd. at Valley Hill Rd.	X	X	X	na

Figure 16: Access Management Needs



Roadway Connectivity Needs

Henry County is in need of additional roadway connectivity to provide route options to drivers traversing the county. Considering the peak period congestion on I-75, additional routes are needed for shorter-distance trips, especially those traveling between interchanges in Henry County. In the rapidly growing eastern part of the county, additional options to SR 81 will be needed. SR 81 currently has multiple bottlenecks and has been identified by stakeholders a problem route, and is projected to operate at LOS F in 2040.

The greatest connectivity need in Henry County is for additional north-south routes. Two additional arterial corridors were identified as needs east of SR 155. Three additional corridors were identified as needs west of I-75.

There is a lesser need for east-west connectivity. Additional routes are concentrated on the eastern part of the county, mainly east of SR 155 from Millers Mill Road south to Coan Drive near Locust Grove. Results of the connectivity analysis are described in detail below. Corridor connectivity needs are displayed in **Figure 17** and summarized in **Table 3**.

General Connectivity Results - North-South

I-75 plays a dominant role in north-south travel in the county. Additional north-south options could take local trips off the interstate thus freeing up regional mobility.

- **Chambers Road Corridor** - This corridor acts as an alternate to I-75 between Jodeco Road and SR 81. A new connector road between SR 81 and Simpson Mill would provide further connectivity south to Hampton Locust Grove Road. The corridor also needs operational upgrades.
- **Flippen Road Extension** - The JCTP Update analysis shows that the need for Flippen Road Extension remains as there currently is no viable north-south corridor west of I-75.
- **I-75 Frontage Roads, Collector-Distributor Lanes, and the Western Parallel Connector** - Frontage roads along I-75 would provide important connectivity and relief for development occurring in the corridor.
- **Western Parallel Connector (HE-179)** - This programmed project will provide connectivity along the west side of I-75 between Jonesboro Road and Hudson Bridge Road.
- **Airline Road Extension** - Extending Airline Road from its southern terminus at Rodgers Road south to Old Jackson Road would provide continuous connectivity between Rockdale County in the north and Butts County in the south.

General Connectivity Results - East-West

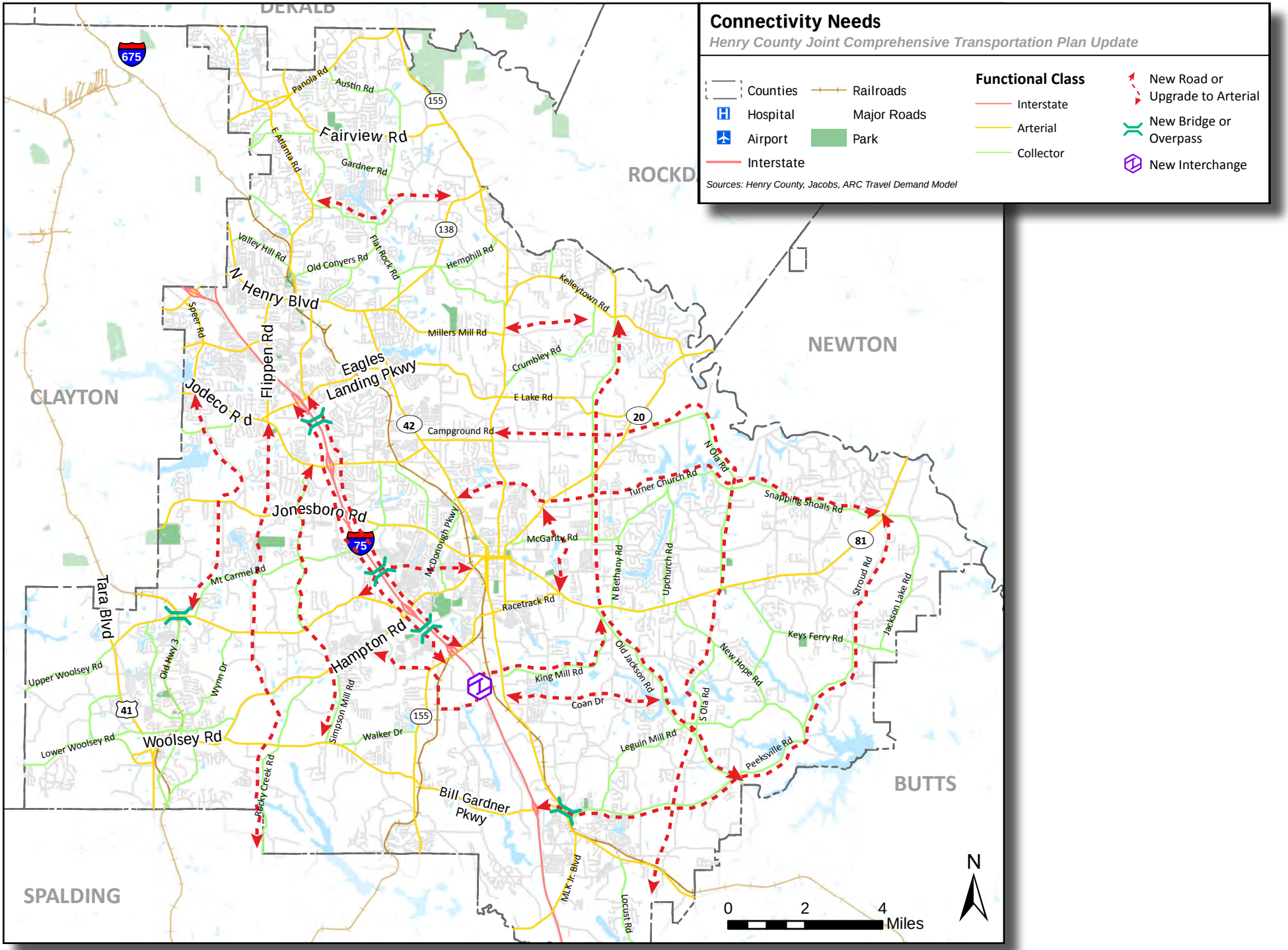
In general, there is better east-west connectivity than north-south in Henry County. Currently, SR 81 is the only viable east-west connection, but it has been identified by stakeholders, the public, and through quantitative analysis as an extremely congested corridor.

- **Turner Church/Honey Creek/Snapping Shoals Road Upgrades** - Improving this corridor to arterial standards would provide an additional corridor to take the pressure off of SR 81. This corridor would also connect with the future McDonough Bypass making another option around downtown McDonough.
- **McDonough Bypass** - The McDonough Bypass has long been envisioned to carry traffic among the various radial major routes relieving traffic in downtown McDonough. The 2007 JCTP identified the bypass as a high priority. Sections of the bypass have started to manifest, including in the northwest between Jonesboro Road and SR 42. Phase II (HE-118B) between SR 42 and SR 155 is in the TIP and scheduled for construction in 2016. Phase III (HE-118C) on the northeast continuing from SR 155 to SR 20 and Phase IV (HE-118D) on the east side between SR 20 and SR 81 are scheduled for long range 2020-2030 in the RTP.
- **Westridge Road** - As the county is currently pursuing a new freight interchange between SR 155 and Bill Gardner Parkway, an additional recommendation is to extend Westridge Parkway to the east of SR 155 to connect to Thoroughbred Rd. This corridor would connect, via the new interchange, to King Mill Road providing a southern corridor bypassing downtown McDonough.

Table 3: Roadway Connectivity Needs

Corridor	Orientation	Improvement Type(s)
I-75 Collector Distributor Lanes	North-South	New Auxiliary Lanes
Western Parallel Connector	North-South	New Roadway (Construction scheduled for 2017)
Flippen Road Extension	North-South	New Roadway/Realignment/Upgrade
Airline Road Extension	North-South	New Roadway/Upgrade
Chambers Road Corridor	North-South	Realignment/Upgrade
North Ola/South Ola Extension	North-South	Realignment/New Roadway/Upgrade
McDonough Bypass	North-South/East-West	New Roadway
Turner Church/Honey Creek/Snapping Shoals	East-West	Upgrade
Flat Rock/Flakes/Old Conyers	East-West	Upgrade
Millers Mill/Selfridge Extension	East-West	New Roadway/Upgrade
Campground Road Extension	East-West	New Roadway/Upgrade
John Williams/Coan Drive	East-West	Upgrade
Westridge Pkwy/King Mil	East-West	New Roadway/Upgrade

Figure 17: Connectivity Needs in Henry County



Current and Future Needs

Freight

Due in part to Henry County's ease of access to I-75, freight is an important component of the county's economy.

SR 155 Warehousing and Distribution Cluster

There are 24 million square feet of industrial buildings clustered around SR 155 on both sides of I-75. The area is particularly suited for warehousing development with excellent access to I-75 via Exit 216. The land is currently zoned for industrial land use or designated for such in the future land use plan.

Given the constraints of trucking regulations, the SR 155 warehousing and distribution cluster is a natural turning point for drayage trips from the Port of Savannah to the Atlanta region. The SR 155 Warehousing and Distribution Center's location allows the driver to make a return trip the same day.

The area is expected to continue to grow, as demonstrated by a cluster of four proposed industrial Developments of Regional Impact (DRIs) south of McDonough along US 23/SR 42, adjacent to existing industrial development and the Norfolk Southern rail line. However, this warehousing cluster will remain viable only as long as trucks can access it efficiently. Freight mobility to this area depends upon easy access to I-75, as well as reliable mobility north- and southbound on I-75.

New Interchange between SR 155 and Bill Gardner Parkway

A new interchange has been proposed in an effort to address the current and projected issues (see Future Roadway Congestion section above) for trucks accessing I-75 from the SR 155 warehousing cluster. An interchange justification report (IJR) must still be completed and approved by FHWA before the project can officially move forward. The IJR was included in the transportation element (RTP) of The Atlanta Region's Plan adopted in February 2016. It is funded through a $5 million commitment from Henry County SPLOST IV.

New connections and/or upgrades of existing roads in the vicinity of the new interchange will be needed to fully integrate it into the transportation system. A potential new connection would be to extend Westridge Parkway across SR 155 to Thoroughbred Road. This would provide a continuous corridor south of McDonough between SR 20 south and SR 81 east.

Airport Industrial Zone

The county hopes to capitalize on the airport to attract high end manufacturing development to the area, which was designated for industrial uses by the county's Future Land Use Plan. The major freight routes serving the area are US 19/41 and SR 20. Both roads are expected to operate with an average LOS of D or less in 2040. Current and future roadway capacity is projected to be able to handle traffic growth in the area.

Interstate 75 Truck Mobility

I-75 is the most important infrastructure for freight mobility in Henry County and the State of Georgia. I-75 connects Henry County to the Port of Savannah, markets in Florida, and population centers in the Midwest. It is also vital for intra-regional goods movement. Congestion analysis shows prevalent LOS F on I-75 between SR 155 and Eagles Landing Parkway to the north in 2040. Even with the implementation of the I-75 south managed lanes there are significant remaining congestion needs.

Truck-only lanes between SR 155 and Macon

Truck-only lanes have been proposed by the governor as part of the spending plan for HB 170. The proposed lanes for trucks would extend from SR 155 south to Macon. This project could potentially help freight mobility in Georgia. This project would support continued freight mobility to the SR 155 Warehousing and Distribution Cluster described above, but would not improve conditions in the most congested portion of I-75 in Henry County, which is north of SR 155.

Collector-Distributor Lanes

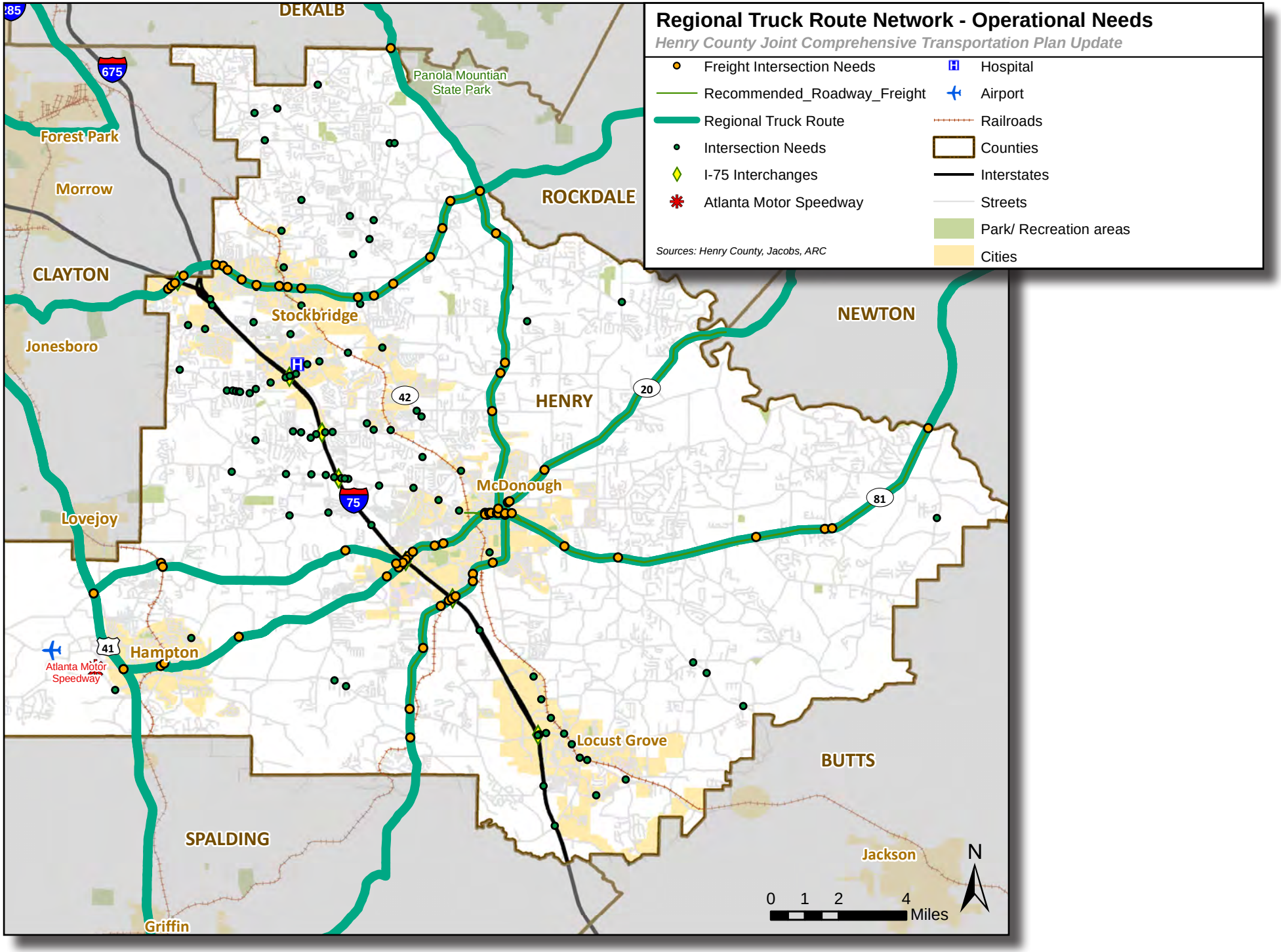
I-75 in Henry County carries many local trips. More than 50 percent of the southbound traffic volume in the mornings has destinations in Henry County. The local demand for I-75 is exacerbated by limited north-south alternatives and by major commercial and employment development at Hudson Bridge Road (Walmart Supercenter - Piedmont Henry Hospital), Jonesboro Road (Henry Town Center), SR 20 (South Point Shopping Center), and Bill Gardner Parkway (Tanger Outlets).

One option to accommodate local trips on the interstate is collector-distributor (C-D) lanes. C-D lanes are lanes that run adjacent to, but separate from, the mainline of an interstate. They provide connectivity between the interstate mainline and another roadway and between access points on the interstate. By implementing a C-D system, local interchange to interchange trips could be accommodated without adding traffic to the mainline.

ASTRoMaP Routes and Truck Operations

The Atlanta Regional Commission has identified a series of regional truck routes. These corridors are considered the most important freight mobility corridors in the region. Any needs identified on these corridors can and should be considered freight needs as well. **Figure 18** displays the subset of operational needs that occur on the freight network.

Figure 18: Operational Needs on the ARC Regional Truck Route Network



Interchange Area Development Plans (IADPs)

The purpose of the Interchange Area Development Plans (IADPs) is to develop templates by interchange type for implementation at other similar county locations. The analysis considered three types of interchanges (**Figure 19**):

- The *Emerging Commercial* interchange types include those interchanges with substantial available land within approximately one-half mile of the interchange ramps, as at the Jonesboro Road interchange.
- The *Freight* interchange types include those interchanges with freight activity in close proximity of the interchange ramps, as at the SR 155 interchange.
- The *Established Commercial* interchange types include those interchanges with commercial land use within approximately one-half mile of the interchange ramps, as at the Bill Gardner Parkway interchange where the Tanger Outlet complex is located.

One common theme resonating for all three interchange types is the continued need for improved access management near the interchanges. There may be opportunities to reduce certain safety and congestion issues with the implementation of corridor level access management techniques that should be designed to fit the needs of the specific interchange type. This includes driveway and median break spacing – both in relation to the interchange ramps as well as along the corridor to one another.

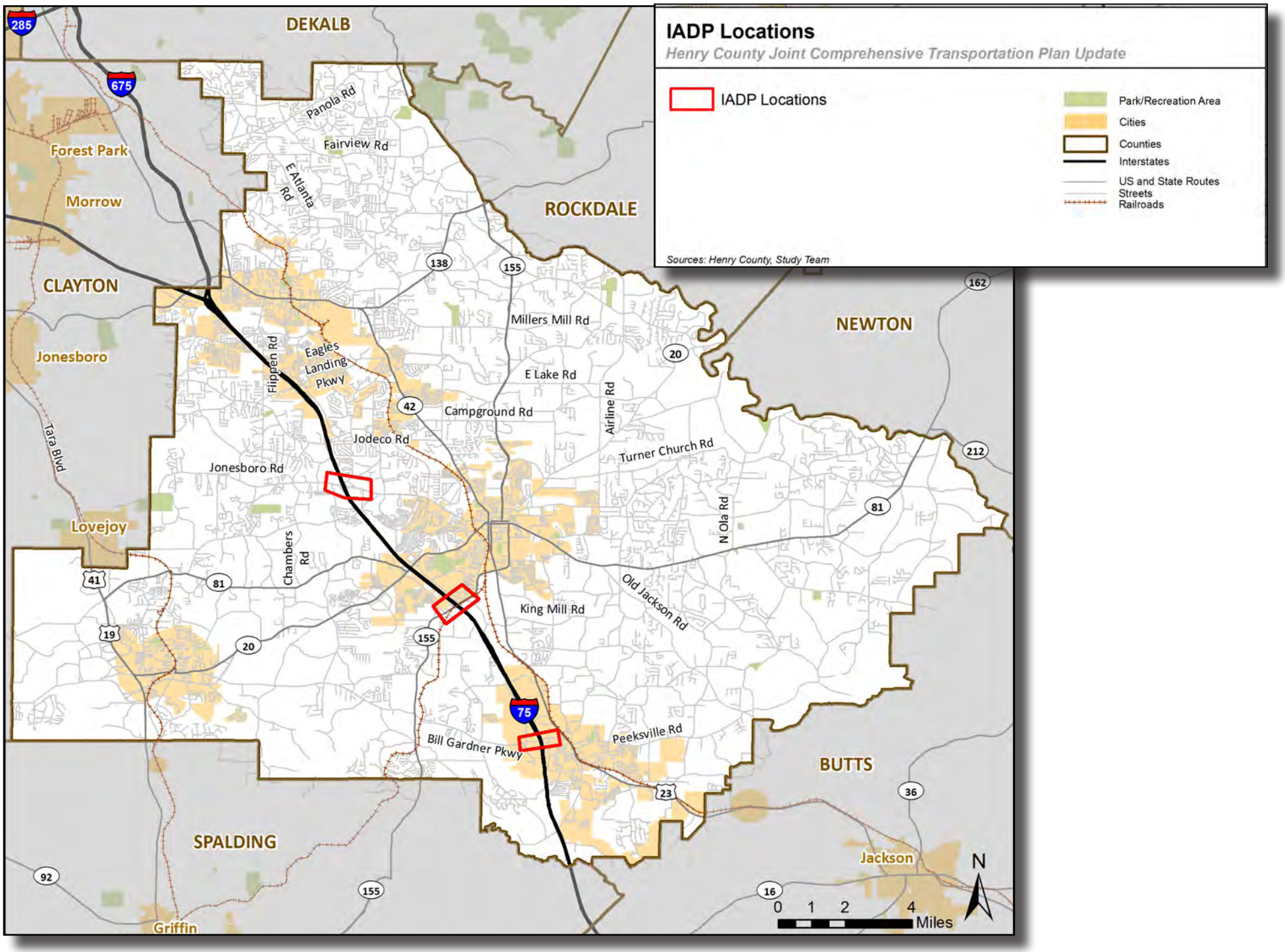
For the Emerging Commercial and Existing Commercial interchange types, there is also a need for improved mobility through improved access and transportation options. Access may be improved with improved inter-parcel connections and potential improved and/or new connections creating more of a grid-type road layout. Alternative transportation options including transit and non-motorized facilities to encourage walking and cycling would also help to reduce vehicular congestion to/from and within the interchange areas as they develop and increase in density.

General needs for freight interchanges also include similar access management improvements mentioned previously, in addition to application of geometric improvements that account for not only horizontal but vertical alignment/grade issues for large trucks. Similarly, site development regulations for freight intensive land uses need to be integrated and designed ensuring mobility is not restricted along adjacent roadway facilities. Separation of uses to prevent certain land use conflicts should also be incorporated, such as the siting of freight intensive uses adjacent to residential developments. These overall needs will improve not only mobility, but quality of life for Henry County residents. Findings from the IADP analysis are presented in **Table 4**.

Table 4: IADP Characteristics

	Access Control and Driveway Spacing	Planned and Programmed Projects	Land Use Analysis	Safety Analysis
Emerging Commercial – Jonesboro Road	Jonesboro Road in the vicinity of the I-75 interchange: four lanes, with raised median. Majority of driveways near the interchange are below the recommended standards, with the worst locations east of I-75.	**Jonesboro Road Widening** (HE-920B) would widen and reconstruct Jonesboro Road from two to four lanes with a 20-foot raised median and 12-foot outside shoulders from I-75 west to US 19/41. **Western Parallel Connector** (HE-179) is a new alignment from Jonesboro Road north to Hudson Bridge Road	Existing land uses: commercial or transitional west of the interchange, and predominantly undeveloped east of the interchange. Future land uses: commercial area to expand. Commercial and high density development west of the interchange.	Crash patterns consistent with the expectation that high volumes of traffic alongside major commercial developments with multiple ingress and egress points, as well as the presence of a high-speed freeway, creates a crash-generating environment. The number and type of crashes at and around the interchange appears largely typical for a major highway interchange with congestion issues and a large number of adjacent commercial developments and driveways.
Freight Interchange – State Route 155	SR 155 in the vicinity of the I-75 interchange: two lanes with a continuous center turn lane. Many driveways near the SR 155 interchange are greatly below the minimum standards for interchange spacing.	**SR 115 Widening** (HE-113) would widen SR 155 from two to four lanes from I-75 to US 23 / SR 42, which would relieve some congestion associated with heavy truck traffic in the area.	Existing land uses: developed and designated as commercial / industrial and/or urban-other. There are also a few small remaining pockets of transitional and/or undeveloped land both east and west of the SR 155 interchange. Future land uses: For the area south of SR/155, projected to transition to industrial. For the area north of SR 155, projected to transition to medium or high density residential or commercial.	Crash patterns are consistent with the expectation that high volumes of traffic alongside major commercial and warehousing developments with multiple ingress and egress points, as well as the presence of a high-speed freeway, creates a crash-generating environment. The presence of a large number of freight vehicles is also a concern. The number and type of crashes at and around the SR 155 interchange appears largely typical for a major highway interchange with congestion issues and a large number of adjacent industrial and commercial developments and driveways.
Established Commercial – Bill Gardner Parkway	Bill Gardner Parkway in the vicinity of the I-75 interchange: two lanes to the west and four lanes to the east, with continuous center turn lane. Majority of driveways on Bill Gardner Parkway east of the interchange, and one to its west, are below the recommended standards.	**Bill Gardner Parkway Widening** (HE -179) would widen Bill Gardner Parkway from 2 to 6 lanes from I-75 to Lester Mill Road and from 2 to 4 lanes from Lester Mill Road. An Interchange Modification Report that evaluated potential improvements to the interchange was completed in 2011. The recommended alternative was the construction of a triple-left turn lane on the southbound off ramp and receiving lanes under the bridge structure.	Existing land uses: Developed as commercial east and to the northwest of the interchange. Elsewhere, undeveloped or residential. Future land uses: projected to transition to commercial, medium-high density residential or high density residential development over time.	The number and type of crashes at and around the Bill Gardner interchange appears largely typical for a major highway interchange with congestion issues and a large number of adjacent commercial developments and driveways.

Figure 19: IADP Locations



Active Transportation

Healthy Henry

Centers for Disease Control and Prevention (CDC) 2013 data indicate a relatively large portion of Georgia's population is overweight or obese. Of Georgia adults, 35.4 percent are overweight, and 30.3 percent are obese. Of Georgia high school students, 17.1 percent are overweight, and 12.7 percent are considered obese.

Local governments can institute various healthy programs and provide healthy infrastructure to counteract the trend toward obesity. Henry County has opportunity to improve parklands and access to parks. Greenway trails can be an important aspect of such increased park infrastructure. Greenway trail opportunities in Henry County (see **Figure 20**) include along creeks, rivers, utility easements, and railroad corridors, to connect to neighboring county trail systems, and to provide school access and connectivity. Even as Henry County has crossed the threshold of an urban county, much undeveloped land remains. Opportunities for greenway trails are ripe in these areas. Utilization of waterways such as creeks and rivers can allow development of greenway trails even in established residential areas like northern Henry County. **Table 5** lists beneficial infrastructure that can create a healthy community. As long as the places listed above are safe, appealing, and publically accessible they can become the infrastructure of a healthy community.

As of 2015, Henry County has about 1,262 acres of parks located in the cities and unincorporated areas of the county. The National Recreation and Park Association (NRPA) recommends 10 acres of parkland per 1000 residents, and Henry County has 5.9 acres of park land per 1000 residents. Henry County needs to almost double its current amount of park acres to serve its current population to meet the NRPA metric. To keep up with population growth through the year 2040, Henry County would need to nearly double parklands again to about 4,000 park acres.

Additional park acreage has been identified as a strong need. Park acres can be developed in a traditional manner by purchasing land and developing as a park. Greenway trails are another way of expanding parks through synergy with transportation. Greenway trails can act as both transportation and linear parks that connect communities to quality of life facilities.

Enhanced Mobility

Active transportation also provides an alternative means of transportation to the automobile. Although such travel active transportation work trips are not likely or feasible for a substantial portion of the population of Henry County in the near term, as urbanization continues there may be more demand for active transportation options in the future. Beginning to implement the groundwork for such an alternative transportation system now preserves the opportunity for such enhanced mobility later.

Economic Benefits

Developing a trail system produces economic benefits as individual locations are connected and united together under a unified vision and identity, attracting additional customers and business. The Silver Comet Trail Economic Impact Analysis and Planning Study (July 2013), completed for the Northwest Georgia Regional Commission with partners ARC and GDOT, produced the following impact data for the Silver Comet Trail:

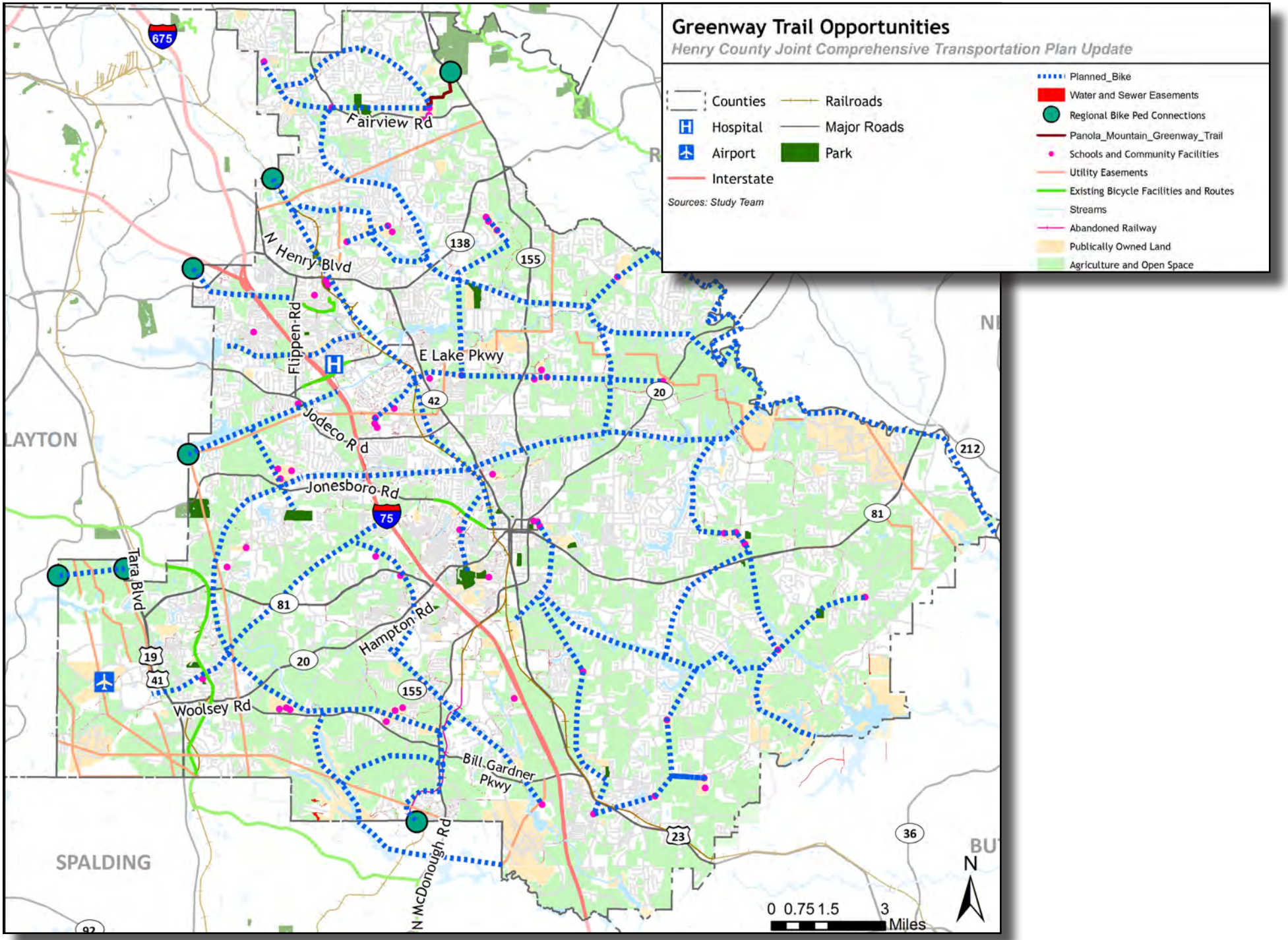
- 1.9 million Annual Users
- $461 million Economic Impact with Potential for $735 with Expansion
- $1 to $4 Return-on-Investment With Expansion

Several regional trails are currently being planned throughout the Atlanta region, including Path 400 and the Chattahoochee Hill Country Trail, which will be 90 miles long once built-out.

Table 5: Types of Healthy Infrastructure

Infrastructure Type	Description
Greenway Trails	This is the highest quality, safest, most comfortable and most accessible type of healthy transportation infrastructure. These are off-road trails such as the Silver Comet Trail, Atlanta BeltLine, or Arabia Mountain trails. They are paved and accessible to all types of users from children to the elderly.
Sidepaths	Also known as multi-use paths, sidepaths run along roadways. They are similar to sidewalks, but are wider and can accommodate both pedestrians and bicyclists. Sidepaths are generally high quality active transportation infrastructure. They are more comfortable and safer to use than on-road bicycle lanes. However, they have more interactions with automobile traffic at intersections and driveways than greenway trails.
Sidewalks	Sidewalks run alongside the roadway. They are important especially in areas dense with origins and destinations. The level of comfort and safety of sidewalks varies greatly depending on the design and construction. The wider the sidewalk and more separation from automobile traffic, the more comfortable it will be.
Bicycle Lanes	Bike lanes are used to create on-street separated lanes for cyclists. Bike lanes are usually between four and six feet wide. The level of comfort and safety of bike lanes also varies depending on design and construction. For example, buffered (via paint, barriers, or raised bikeway) bike lanes can provide an extra level of separation from automobiles and sense of comfort.
Nature Trails	Nature trails are unpaved off-road trails through natural areas.
Sports Complexes	These are places where formal sports can be played such as soccer, baseball, football, or basketball facilities. They can be publically or privately maintained.
Parks	A public area, typically incorporating open space in a natural, setting used for recreational purposes.
Forest Preserves	A forest preserve is area of forested land set aside and managed for preservation. Often forest preserves provide recreational facilities such as nature trails or greenway trails as well as educational facilities.
Open Space	Open space is any open piece of land that is undeveloped and is accessible to the public. This is an umbrella term that incorporates parks, greenspace, public plazas, etc.

Figure 20: Greenway Trail Opportunities in Henry County



Walking Propensity Analysis

As a rapidly growing and urbanizing region, Henry County must address increasing needs for pedestrian and bicycle facilities. Most local and arterial roadways throughout the county lack sidewalks, and no large-scale, connected multi-use trail network exists. These facilities, when implemented as a connected network, are valuable assets to the community, allowing residents to use non-automobile modes for their local trips and promoting healthy transportation alternatives. Due to limited funds and the varied character of Henry County, target areas must be designated to ensure that sidewalks are built first where they are most needed. The following analysis uses existing land use, street network, community facility, and crash data to predict where demand for walking is the greatest. The identified areas can then be investigated for gaps in the existing sidewalk network and targeted for investment.

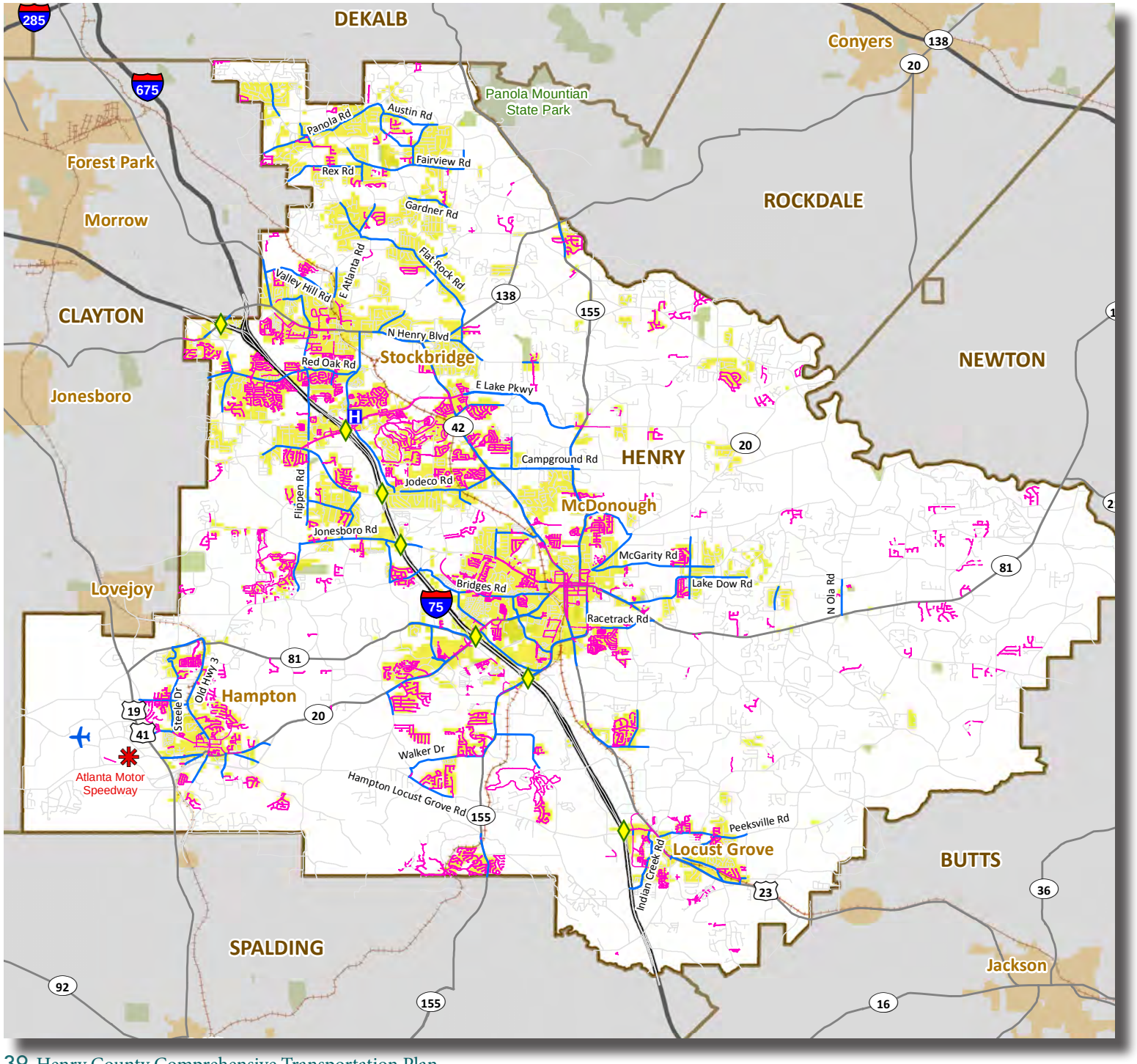
This walking propensity analysis uses four primary elements to generate an image which predicts where walking activity is most likely to occur in Henry County (in order of their relative weight in the analysis):

- **Intersection density** - Intersection density is a measure of how closely grouped roadway intersections are. The denser the intersections, the more connection opportunities exist and the shorter blocks become, allowing pedestrians to more easily navigate an area. Four-leg intersections were weighted more highly than three- or two-leg intersections, as these intersections offer the greatest connectivity. This weighting also helps to avoid overly targeting suburban style neighborhoods that may be fairly dense, but rely on cul-de-sacs and loops and, therefore, are not highly walkable.
- **Land use** - Land uses are a significant factor in walking demand. High density residential and commercial areas, parks, and other major pedestrian activity centers generate more walking demand than low density, rural, agricultural, and industrial land uses. This analysis ranks existing land uses throughout Henry County with a one to ten points system, where ten is the most likely to generate walking demand, and one is the least likely.
- **School zones** - As presented in the existing conditions document, Henry County follows Georgia State law allowing local public school districts to only provide transportation to children living more than a mile from each school. School zones were established as one mile radius buffers around all school locations in Henry County. All areas within these buffer zones were weighted towards increased pedestrian activity. As children and young students often lack access to vehicles and rely on bicycle and walking as primary transportation modes, it is critical to provide walking facilities within these areas.
- **Pedestrian crashes** - Locations where pedestrian crashes occur are important target areas for new pedestrian facilities. These crash sites also provide clues as to where individuals are walking. Due to the low total number of pedestrian crash points in the GDOT crash data used for this analysis, pedestrian crashes were not heavily weighted in the final analysis. However, they add an additional level of accuracy and detail to the final model. The raw crash points were analyzed using a kernel density analysis, which was used to create an image that predicts where pedestrian crashes are most likely to occur. This image was then layered into the final spatial model.

The highest pedestrian priority areas were identified in downtown McDonough and west of downtown McDonough throughout the residential areas along Bridges Road and McDonough Parkway. Other high priority areas are along North Henry Boulevard, Flippen Road, Eagle's Landing Parkway, and Jodeco Road. These areas are rapidly developing with commercial and residential uses. Finally, the area north of Woolsey Road near the Atlanta Motor Speedway is a high priority area, with several dense residential developments located in the vicinity. These priority areas should serve as a baseline for sidewalk improvements in Henry County due to their likelihood of generating pedestrian activity.

The walking propensity analysis was overlaid with existing sidewalks to identify gaps in the sidewalk network. Gaps were assessed on roadways classified as collectors or above to prioritize pedestrian mobility. The results of the sidewalk gap analysis are displayed in **Figure 21**. The gap analysis is considered the highest priority pedestrian sidewalk needs in the county.

Figure 21: Sidewalk Gap Analysis



Safety Needs Analysis

Safety is a critical issue for transportation across all modes, particularly in rapidly growing areas such as Henry County. As density and development increase, various transportation modes are brought into conflict and congestion is increased, creating more opportunities for harmful crashes to occur. Given the ongoing populations growth of Henry County and projections of increased commuter, commercial, and freight traffic in the future, the County must strive to target problem safety areas before conditions worsen or become more difficult to alleviate.

High Crash Intersections

High-crash intersections are clustered near I-75 interchanges and major commercial developments associated with these interchanges. There are also multiple high crash intersections along SR 81. The high volume of traffic at I-75 interchanges mixed with the presence of many driveways and shopping center access points creates a large number of potential crash points. North Henry Boulevard (SR 138/SR 42), with its high traffic and large number of driveways, also displays this trend. Increased access management policies and driveway consolidation, as well as reduced speeds and improved signage, are necessary to alleviate crash rates in these highly developed areas. High speeds along SR 81 through developing residential areas in eastern Henry County may also need to be reduced in order to allow longer response times to avoid crashes with vehicles crossing the roadway or stopping at intersections.

Severe Crashes

A crash severity analysis found that crashes were more likely to result in injury or death on North Henry Boulevard and SR 81 than on other roadways in the county (**Figure 22**). Both of these corridors experienced multiple fatal crashes throughout the study period. I-75 interchanges also have significant potential to create severe crashes, which is due to the large volumes of traffic associated with such areas.

SR 81 is a high-speed, relatively rural roadway that will require increased traffic calming measures and improved signage as density increases. Reduced speeds on this roadway will also help lower the likelihood of fatalities and injuries when crashes do occur. North Henry Boulevard is a rapidly developing area with many driveways, commercial developments, and greater pedestrian activity than most of the County. This corridor will require significant access management improvements, traffic calming, and improved pedestrian facilities to reduce the rate of severe and deadly crashes. Eagle's Landing Parkway may also benefit greatly from these safety measures as development continues.

Pedestrian Safety

While most Henry County trips are taken by car, there are a growing number of pedestrians. Given that the county's existing transportation network is highly automobile focused, significant advances in pedestrian facilities and safety measures will be needed in coming decades.

The majority of pedestrian crashes are clustered in higher density activity corridors where pedestrian activity is more frequent (**Figure X**). The most prominent areas include North Henry Boulevard, Flippen Road, Eagle's Landing Parkway, and Hampton Road leading to downtown McDonough. These areas contain the highest density residential developments in the county, generate the most pedestrian traffic, and require the greatest amount of pedestrian facilities and safety measures.

Safety Needs Summary

Henry County displays a variety of transportation safety needs for vehicular, pedestrian, and bicycle modes. These needs are concentrated at I-75 interchanges and shopping centers, high density residential and commercial corridors, and high speed roadways. As the County continues to grow it must work to implement safety enhancements that will prevent existing conditions from worsening due to higher density, increased congestion, increased pedestrian activity, and increased freight traffic. **Table 6** displays the primary needs identified by this safety analysis, not in order of importance.

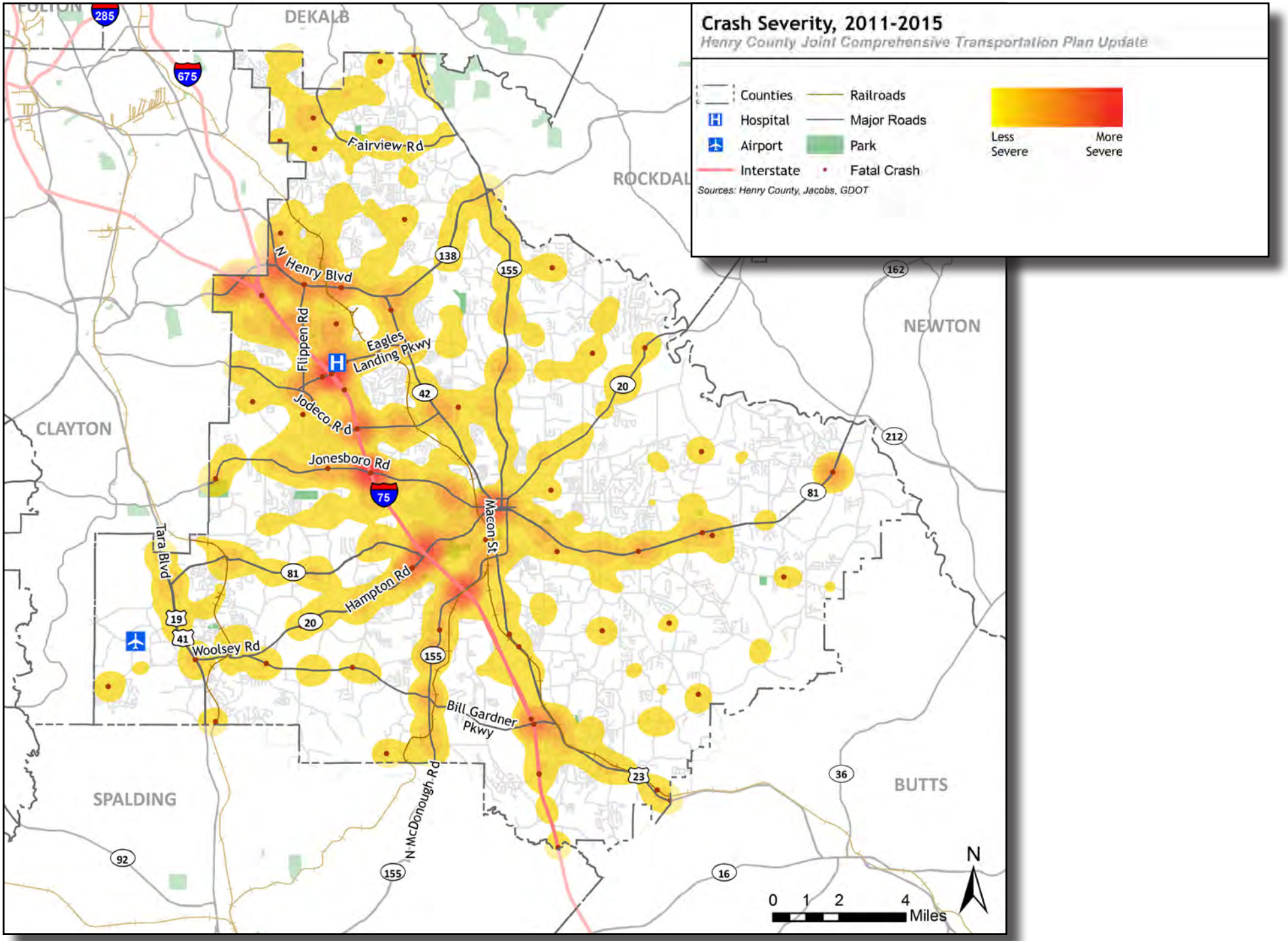
The County should pursue improvements to the above listed areas. General strategies for improvements include:

- Traffic calming measures including narrower lanes, bicycle lanes, signal retiming, reduced speeds, and implementation of roundabouts.
- Pedestrian improvements including more visible and frequent crosswalks, wider and more frequent sidewalks, and pedestrian warning signage.
- Improved shoulders on rural routes, reduced speeds on rural routes, and roundabouts where feasible.
- Access management throughout the County where commercial development is present, especially the consolidation of driveways.

Table 6: Henry County Safety Needs

Location	Need
North Henry Boulevard	Traffic calming, pedestrian improvements, reduced speeds, access management, improved signage
Eagle's Landing Parkway	Access management, traffic calming, improved signage, operational improvements
SR 81	Reduced speeds, improved signage, roundabouts
Hampton Road	Access management, traffic calming, improved signage, operational improvements
Jonesboro Road	Access management, traffic calming, improved signage, operational improvements

Figure 22: Crash Severity



Transit Needs

Demographic Transit Propensity

Transit propensity is a measure of the likelihood that a person will take transit. Certain demographic populations have been demonstrated to take transit at higher than average rates, such as the disabled, elderly, minority, low income, and/or those who do not have access to a vehicle. Measuring transit propensity helps to identify local transit needs based on demographics and geographic area characteristics. The results of the Transit Propensity Analysis are displayed in **Figure 23**. McDonough and Stockbridge stand out as the areas with the highest relative transit propensity.

Land Use and Activity Center Connectivity in Henry County

Generally, transit service performs better the more origins and destinations there are in close proximity to one another. An origin is where a transit journey begins, usually a residence, and a destination is where it ends, such as at work. For example, a bus route that serves people living in apartments and office workers in high-rises would likely have higher ridership than a route that travels through rural residential area and industrial areas.

The mixture of land uses and medium/high density is planned generally around the cities, and along the I-75, US 19/US 41, and SR 42 corridors, which are high capacity roadways that access downtown Atlanta and the region's core. To the northwest of Henry County is the Hartsfield-Jackson Atlanta International Airport (H-JAIA), a major employment hub and trip generator for those traveling from Henry County. These areas are generally consistent with the transit propensity analysis, with the mixture of land uses and densities particularly high around McDonough and Stockbridge where there is a greater number of activity centers close to the planned high- and medium-density residential areas.

It is also important to consider activity centers that generate a high number of daily trips. ARC has designated the town centers of Hampton, Stockbridge, McDonough, and Locust Grove as activity centers in the region. Hampton is home to the Atlanta Motor Speedway, McDonough and Stockbridge both have received Livable Centers Initiatives grants, and Locust Grove is home to the Tanger Outlets. Additional activity centers are those that are frequented by current HCT riders. For medical trips, the Henry Medical Center and surrounding doctors' offices as well as dialysis centers in the County are important destinations that require accessibility for health and quality of life.

Based on the preliminary analysis of county demographics, land uses, activity centers, current and projected travel patterns, and an initial funding assessment, the following preliminary transit needs have been identified for Henry County:

The need for connections to local activity centers for local, non-work trips. Transit planning often prioritizes home-based trips to work, such as commutes to high-density city centers. In Henry County, based on the demographic propensity, the HCT trip purposes, and the spatial organization of land uses and activity centers, it is important to address the need for mobility for non-work trips. Local connections and short trips are important to those who are unable to drive themselves, or do not have access to a vehicle. As Henry County continues to work towards its planned future land uses and increasing density near activity centers, the need for local mobility for transit-dependent populations will continue to grow in these areas.

The need to plan for future regional connections. As stated, there are a significant number of trips that cross the Henry County border for all trip purposes, particularly into Clayton and Fulton Counties, particularly during non-peak commuting hours. As HCT looks to enhance mobility and accessibility for its growing population, it will be critical to consider regional connections. This could include, but is not limited to, circulators feeding the GRTA Xpress routes, additional park and ride lots for GRTA Xpress access, connections to MARTA in DeKalb County, and/or future connections to MARTA in Clayton County.

The need for alternative mode options for trips between McDonough and Stockbridge. While there is a need for local mobility, particularly within the four cities of Henry County, it is also important to address the major movement of current HCT trips and overall trips between McDonough and Stockbridge. There is a potential for connections between the array of land uses and high scores for transit propensities in these two parts of the county.

The need for an alternative operations funding plan incorporating future eligibility and maximizing federal funds. The urbanization of Henry County will affect its award of FTA Section 5311 funds for operations within the next fiscal year. It is critical for HCT to evaluate current operations and identify potential alternative operations funding sources. This could include new funding streams locally, or tapping into other FTA programs that provide operations funds for agencies that meet certain criteria.

The need to prioritize pedestrian and ADA accommodations along future proposed transit routes. Most fixed transit routes begin and end with a walking trip. Therefore any future proposed fixed transit routes should be considered when making pedestrian recommendations.

Figure 23: Transit Propensity by Census Tract