

CAT

ORIGIN & DESTINATION



Chatham Area Transit Regional Service Assessment



CAT

Technical Memorandum

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Background

In recent years, “regionalism” has become a key buzzword in the transit industry. With significant growth in the metropolitan regions of Georgia and traditionally exurban and suburban areas preparing to “trend urban” during the 2020 Census, the need for alternatives to single occupancy vehicular travel has reached a critical impasse. In response to the growing need for transit solutions throughout the state, and disproportionately low state appropriated funding, the Georgia House of Representatives passed legislation forming the House Commission on Transit Governance and Funding.

Speaker of the Georgia House of Representatives David Ralston stated that the Commission will lead an initiative to develop actionable and meaningful solutions to advance Georgia’s transit future. The first product of the Commission, HB 930, established a unified transit governance and funding structure for the Metro Atlanta region, creating the ATL as the new designated recipient for funding. The Commission has now turned its focus to the remainder of the State. In anticipation of the move towards regionalism in public transportation, Chatham Area Transit (CAT) has partnered with surrounding Counties to perform planning level technical assessments to define the potential market and service models to support regional transit services.

Over the last decade, CAT has worked to expand its role in mobility in the Savannah area, including assuming management and operations of the Belle’s Ferry Service, implementation of the CAT Bike Share program, and expansion of the free downtown DOT Shuttle. As transportation demands have changed, CAT has engaged in planning activities to better understand their role in regional transportation. The recently completed Origin and Destination Analysis demonstrated strong regional travel behaviors among neighboring counties, with high rates of commuter trips originating in Liberty and Bryan Counties. This new understanding of travel behaviors, coupled with growing congestion and delay, has initiated the need for additional analysis of regional transit service feasibility.

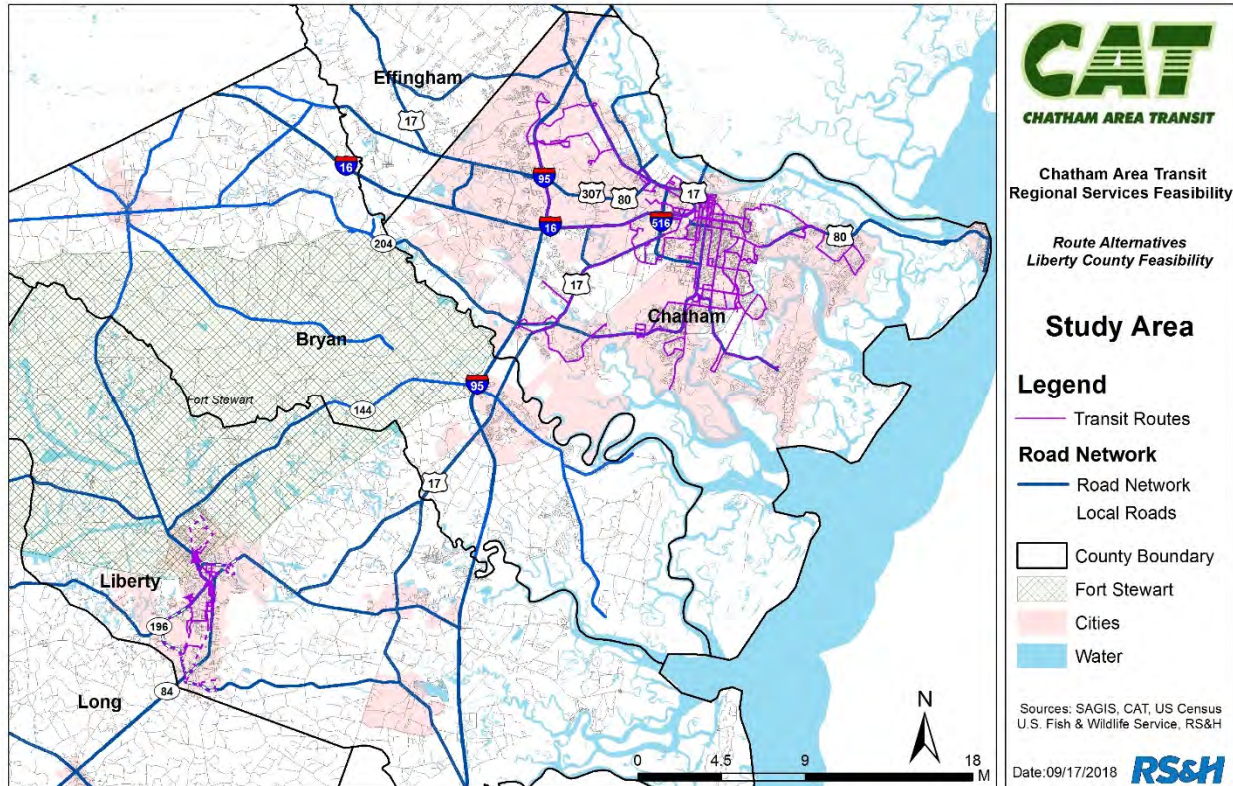
Study Overview

This technical assessment provides a high-level evaluation of potential regional public transit service between Chatham County, Bryan County, and Liberty County. The assessment focused on service to the urbanized areas of these counties, which includes the cities of Hinesville, Flemington, Richmond Hill, Savannah, and urbanized Chatham County.

This assessment is a technical screening, building on the previous CAT Origin and Destination Analysis, the CORE Park-and-Ride Lot Study, the Liberty Transit and CAT Transit Development Plans, and the CAT Strategic Plan. The results of the effort provide a preliminary assessment of the feasibility of regional transit service between the urbanized Chatham County, Bryan County, and Liberty County. The assessment screens regional travel behaviors, Federal and State roadway facilities, potential ridership markets, planning level costs, and program partnership opportunities.

The following figure is a map of the study area.

Figure 1. Study Area Map



Goals and Objectives

The goals and objectives of regional transit service between Chatham County, Liberty County, and Bryan County are multifaceted as described in the following table. These goals, shown in no priority order, support the Liberty and CAT TDP goals and objectives, as well as the CAT Strategic Plan.

Regional Transit Service Goals
Provide reliable and affordable transit service between urbanized areas in the region.
Reduce vehicular congestion and delay on State Highways and Federal Interstate network.
Reduce emissions associated with vehicular delay, by reducing the number of single occupancy vehicles operating in the region.
Support economic growth associated with regional mobility.
Access State transit funding available to regional transit service providers.
Eliminate service gaps associated with urbanized and rural transit grant funding regulations that prohibits urban to urban passenger trips.

Service Models

A key element of this assessment is the identification of a preferred service model that best suits the anticipated travel demands of the region. Public transit service models vary significantly depending on the target market(s), environmental factors such as roadway delay, length of trip, and accessibility. This assessment provides an overview of two (2) service models including Regional Express Service / Commuter Service and Dial-a-Ride Service. An overview is also provided for Supplemental Services that complement traditional public transit services.

Commuter Service / Regional Express Service

According to 49 CFR 37.3, commuter bus service is “fixed route bus service, characterized by service predominantly in one direction during peak periods, limited stops, use of multi-ride tickets, and routes of extended length, usually between the central business district and outlying suburbs. Commuter bus service may also include other service, characterized by a limited route structure, limited stops, and a coordinated relationship to another mode of transportation.”

By definition, commuter bus service is not operated as a demand responsive service, but rather operates following a published time point schedule, stopping only at designated stops along a defined service route. In addition to the Federal definition of commuter service, the National Transit Database (NTD) further defines commuter service as a fixed route service, operating for greater than five miles between stops.

For the purposes of this analysis, “Regional Express Bus Service” is synonymous with Commuter Service. Express bus service operates on a fixed route that typically operates between park-and-ride lots in suburban areas and a central urban location. Similar to commuter routes, express service typically has limited stops, travels non-stop on highways, utilizes any available HOV lanes to improve travel times, and terminates at a central business district.

Fares for commuter/express services are typically higher than local fixed route service fares.

Dial-a-ride

Demand response transit, often referred to as dial-a-ride, are transportation services in which individual passengers can request a ride from one specific location to another specific location at a certain time. Many rural and suburban counties offer demand response service where population and employment densities are not sufficient to support fixed route services.

While demand responsive services do offer more direct point to point service, the cost per passenger and cost per service mile are typically exponentially higher than fixed route services. Additional mobility limitations associated with demand response transit is that these systems typically require advanced trip scheduling that limits accessibility and trip flexibility for passengers.

Dial-a-ride service is currently operated in the rural areas of Chatham, Liberty and Bryan Counties by the Coastal Regional Coaches (CRC). Due to funding regulations, the CRC is prohibited from offering trips that originate and end within urbanized areas. Because the services identified for screening in this analysis originate and end in urbanized areas, Coastal Regional Coaches dial-a-ride rural services will not be considered as a viable service alternative. Additionally, dial-a-ride service models are not typically promoted as an optimum mode for daily trips for employment.

Transit Service Supplements

When planning for regional commuter transit service, connectivity from park-n-ride locations must be considered. For employment based commuters, the initial mode connecting home to bus is typically a personally owned vehicle. This planning assumption allows for a greater catchment area for potential users of up to 20 miles from the park-n-ride location. However, when assessing potential markets of disadvantaged populations and zero car households, the catchment area becomes constrained to a 2 mile maximum. Additional consideration can be made in areas that also have fixed route transit systems that offer connections to the regional service park-n-ride location.

Another key service mode that must be considered are Transportation Network Companies (TNCs) such as Uber and Lyft. These private providers function as “last mile” connection options for individuals that do not have a vehicle, or access to public transportation, and begin their trip in areas outside the feasible catchment area for regional service. For the purposes of this analysis, TNCs will not be explored in detail as an element of a proposed regional commuter service, however it is a factor that should be explored as a potential partnership opportunity. These supplements to the public transit services can provide greater accessibility and enhance the ridership potential for the service area.

Other service supplements that can be considered during route design includes electric scooters, car share programs, and bike share programs. Combinations of these possible modes creates a multimodal network of trip options that work together to enhance options for riders, particularly in areas that are not accessible or appropriate for fixed route transit services.

It is critical to recognize that Liberty County and Bryan County do not currently have car share, electric scooter, or bike-share programs in operation.



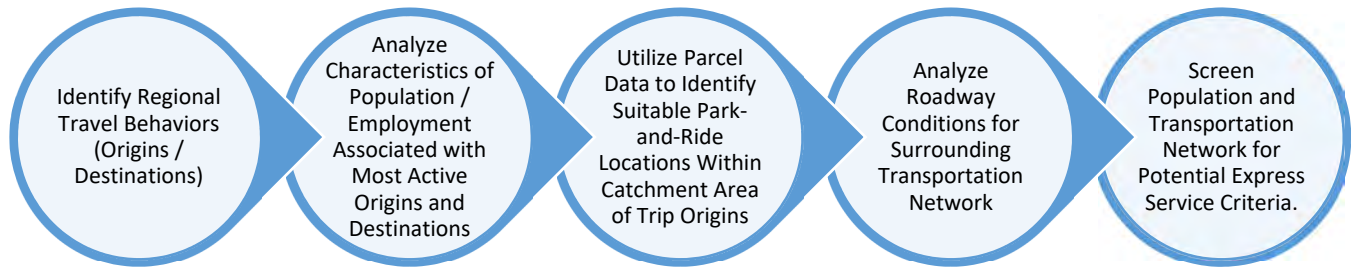
Electric Scooter, Source: USA Today

Alternatives Analysis

The technical screening utilizes the framework and service profile characteristics which include the presence of adequate population densities and the presence of routing alternatives that make the service competitive to personal automobile usage. Data used for the technical screening includes:

- U.S. Census data
- Longitudinal Employer-Household Dynamics (LEHD) data
- AirSage mobile device data
- National Performance Management Research Data Set (NPMRDS)

The following figure depicts the technical screening process.



Service Markets

The study area for this assessment incorporates a broad cross section of demographics and trip attractors that contribute to potential ridership for a regional transit system. The service market has been grouped into two general categories for the purpose of this analysis which include “Commuters” and “Transit Dependent”. These two service markets were analyzed independently, as well as aggregated, to determine what type of service is most feasible and beneficial for the region.

Commuters

The primary target market for commuter bus services is employed persons that are longer-distance commuters, traveling 10 miles or more, from suburban areas to reach their place of employment. In addition, factors that can increase the likelihood that a long distance commuter will elect alternative transportation options includes:

- Travel time delay associated with traffic congestion
- Lack of affordable parking options at their destination
- Cost of long distance travel and vehicle ownership

Choice riders are also included in this market and are characterized as individuals with access to a vehicle but choose to ride public transportation as a preferred mode. Reasons for selecting public transportation vary, and commonly include a focus on environmental stewardship and/or health benefits associated with using public transportation.

Another subset of the commuter market is regional trips not associated with employment. These trips include education, shopping, medical, services, and entertainment/leisure. While these trips are included in the commuter market assessment, the characteristics of these trips can be quite unique. Non-employment based regional trips operate on less regular schedules and require consistent service throughout the day, as opposed to service hours that support typical employment schedules.

In order to understand the travel behaviors occurring between Liberty County, Bryan County, and Chatham County, US Census LEHD Origin-Destination Employment Statistics (LODES)¹ Data was

¹ <https://lehd.ces.census.gov/data/#lodes>

analyzed. The following maps show the employment travel sheds from all three counties, as well as a refined screening of employment sheds originating in the Cities of Hinesville, Richmond Hill, and Savannah. The data were analyzed and mapped independently to determine which connections in the three county region experience the most significant employment based commuter trips.

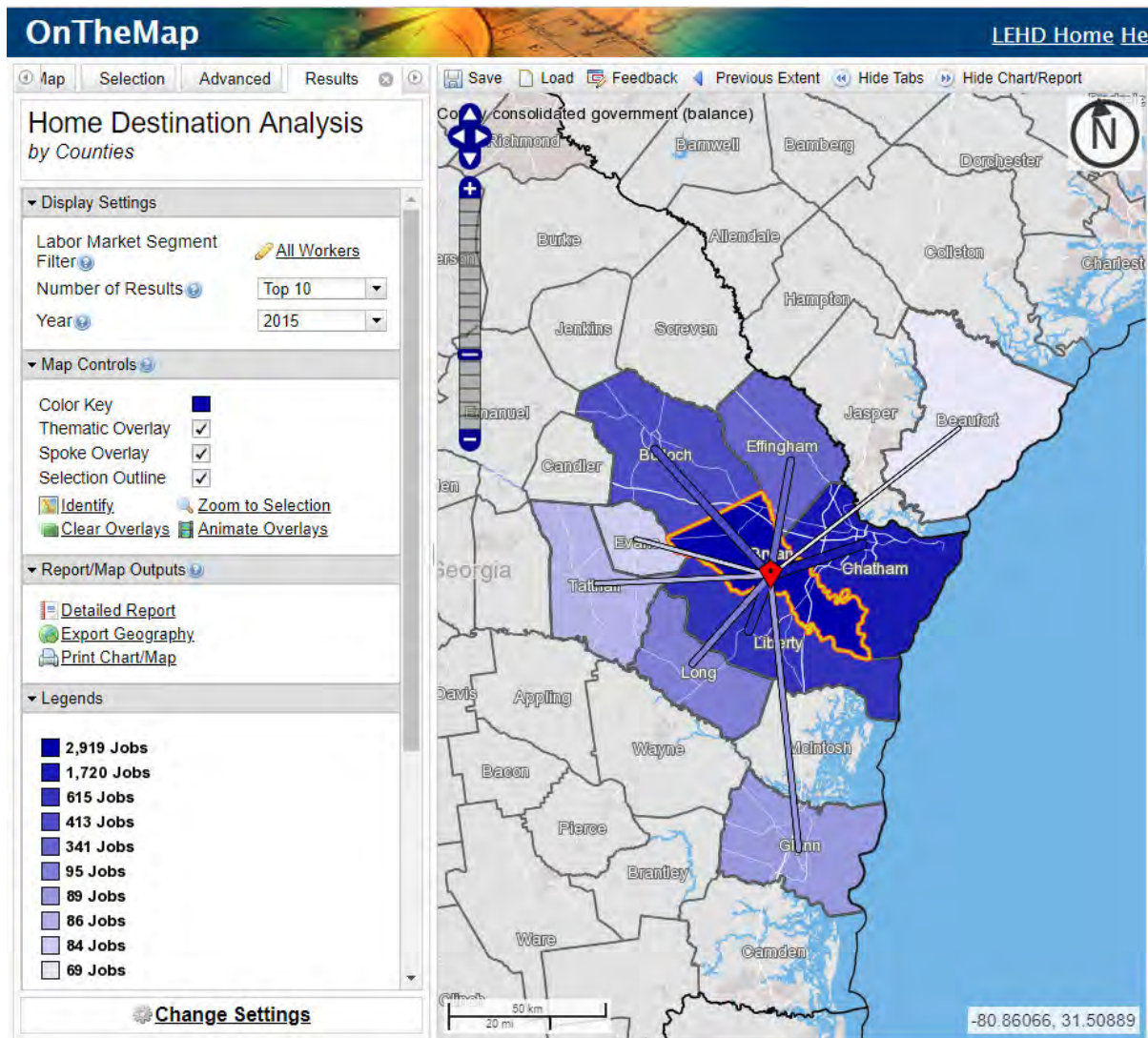
The following employment matrix table and maps show the commuter travel sheds for the region at the County level.

Table 1: 2015 Regional Travel to Work Matrix

		Work Locations		
		Bryan County	Chatham County	Liberty County
Home Locations	Bryan County	2,919 (40.2%)	1,720 (23.7%)	617 (8.5%)
	Chatham County	6,794 (4.8%)	89,095 (62.3%)	3,774 (2.6%)
	Liberty County	769 (5.6%)	1,380 (10%)	6,098 (44.3%)

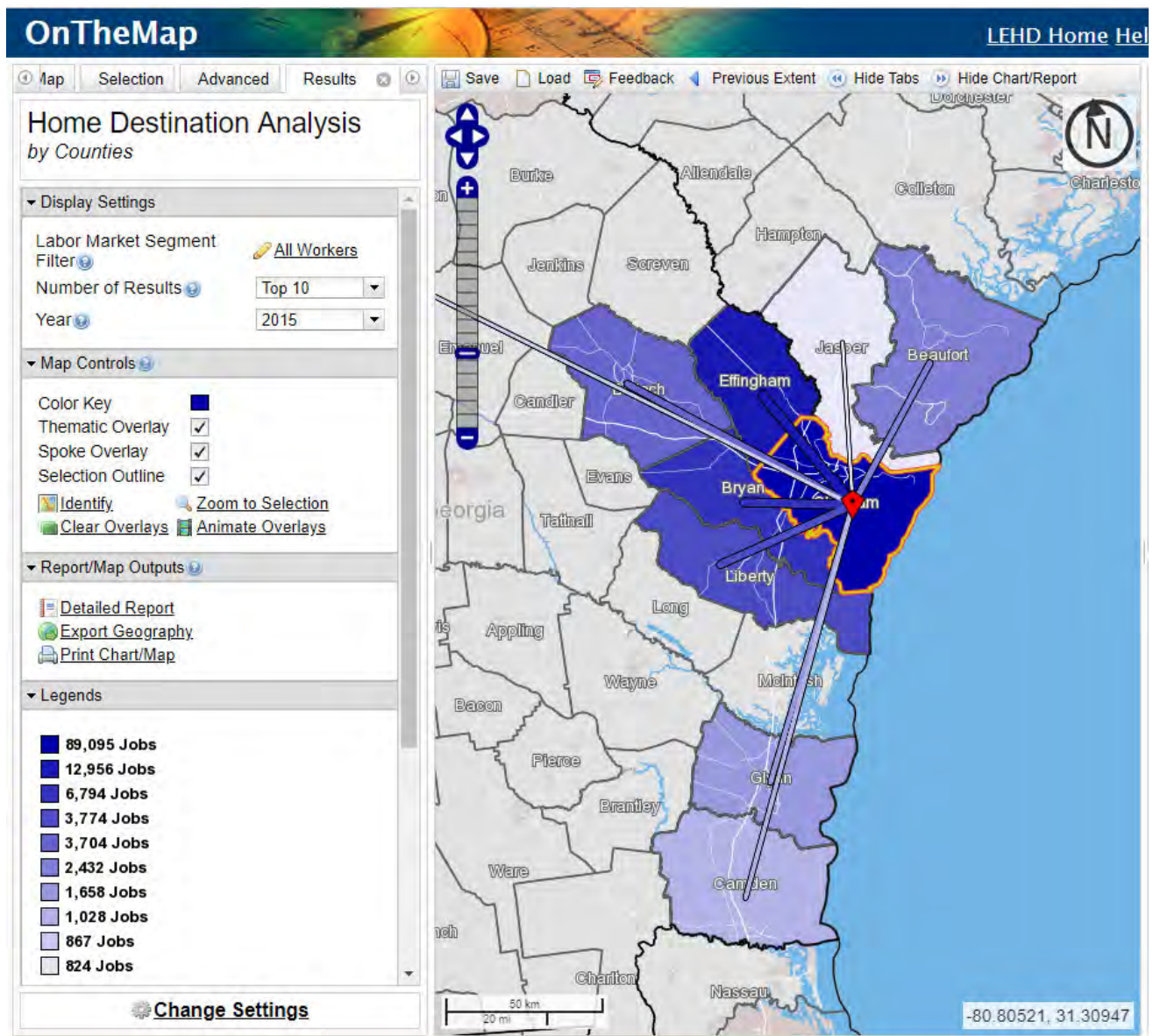
The first series of maps developed, using the LEHD “OnTheMap” tool, show employment originating in each of the three counties and the distribution of the jobs to surrounding counties.

Figure 2: 2015 Bryan County Employment Destinations, All Job Types



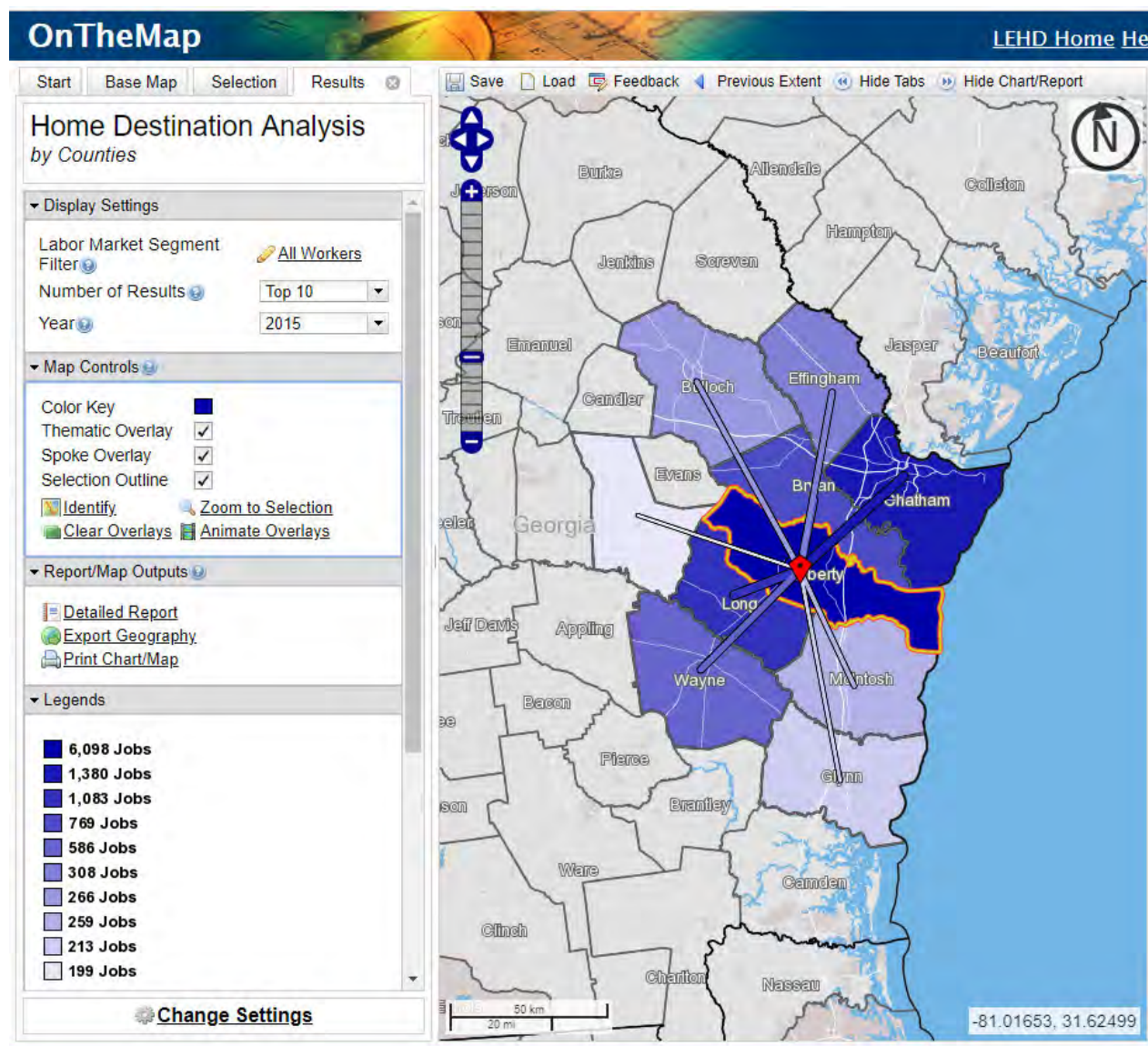
Source: US Census LEHD Origin-Destination Employment Statistics (LODES)

Figure 3: 2015 Chatham County Employment Destinations, All Job Types



Source: US Census LEHD Origin-Destination Employment Statistics (LODES)

Figure 4: 2015 Liberty County Employment Destinations, All Job Types



Source: US Census LEHD Origin-Destination Employment Statistics (LODES)

The travel sheds between the three Counties show that the largest majority of employment based commuters are destined for Chatham County. The collective number of commuters entering Chatham County from Liberty and Long Counties is relatively low at 3,100 total trips.

The next series of maps provides a refined level of detail, showing the employment based commuter trips occurring between the Cities of Hinesville, Richmond Hill, and Savannah. This screening allows a more focused view of potential trips that could be offered between the most densely populated areas of the three counties.

Figure 5: 2015 Commuter Trips Originating in Hinesville

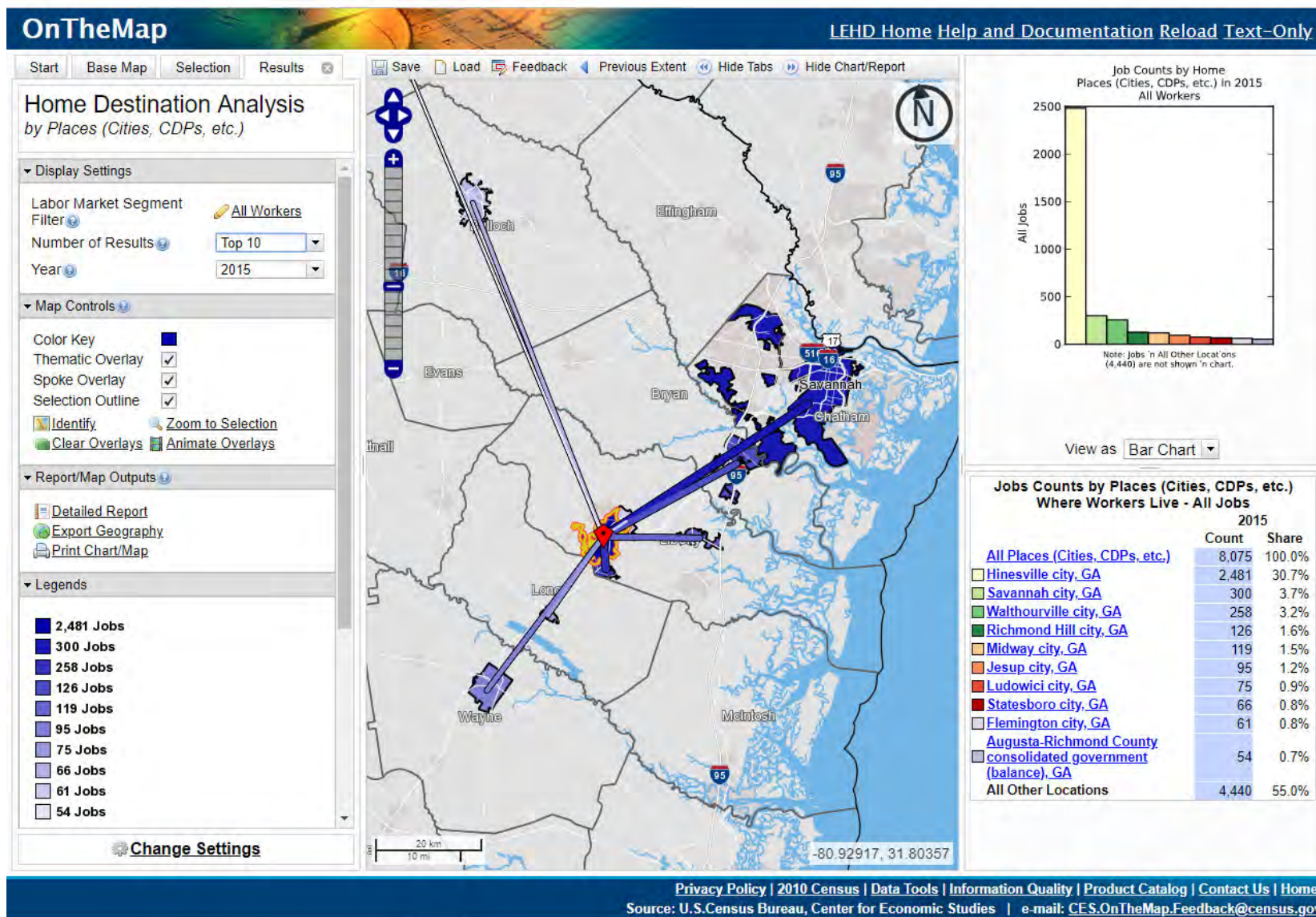


Figure 6: 2015 Commuter Trips Originating in Richmond Hill

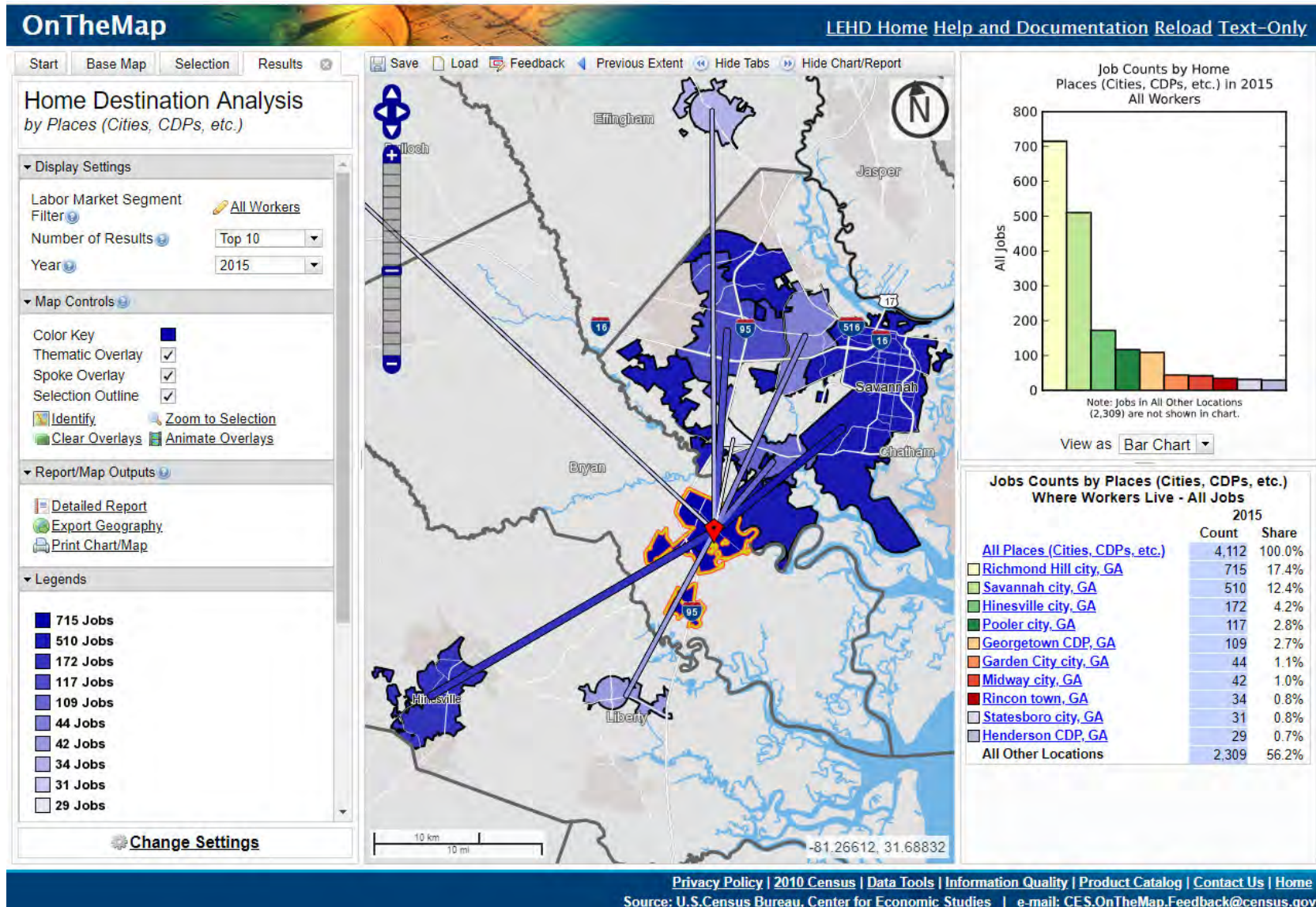
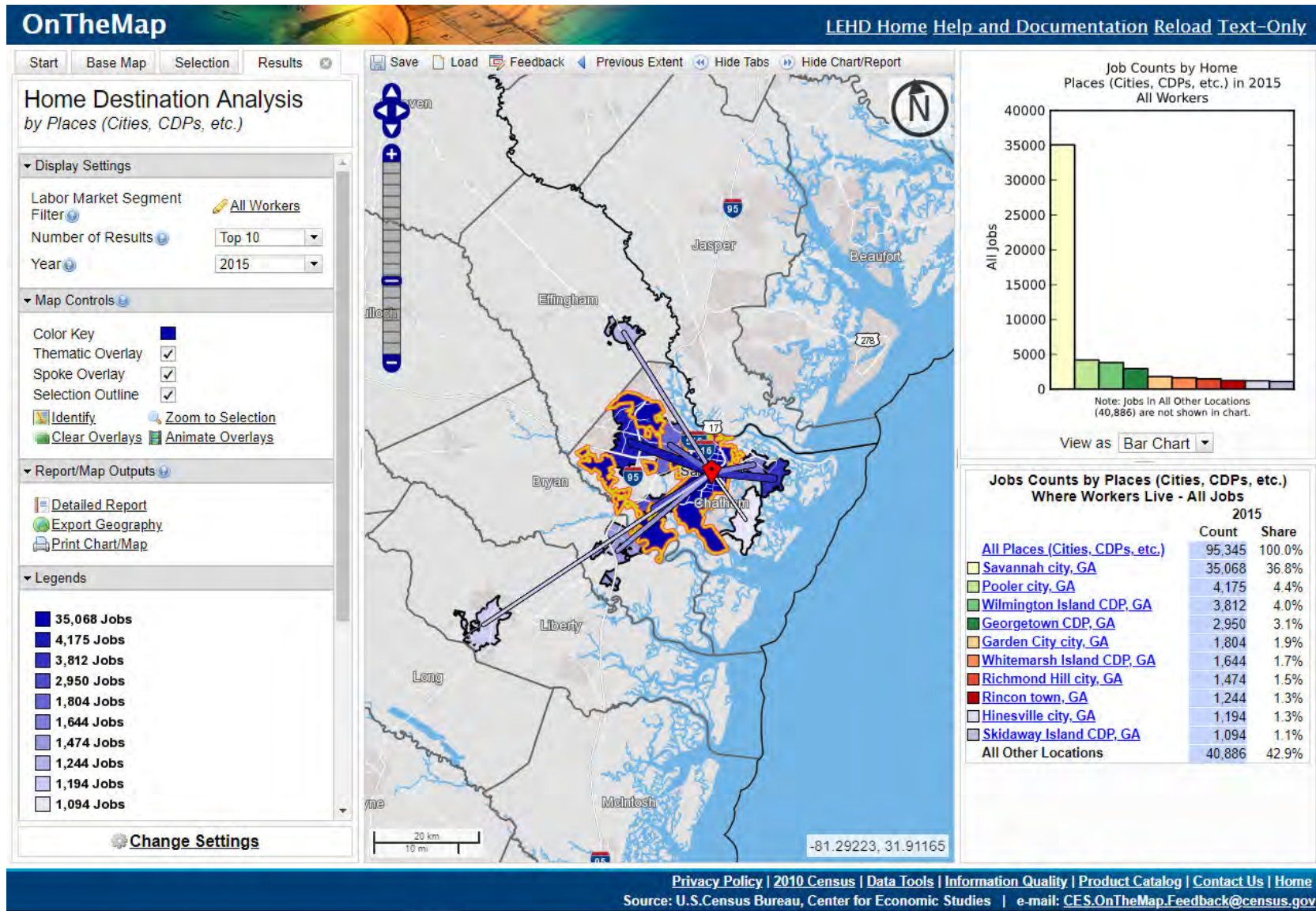


Figure 7: 2015 Commuter Trips Originating in Savannah



In addition to the maps, a trip matrix was developed to provide an overview of the number and percentage of trips occurring between the cities.

Table 2: City Level Travel to Work Matrix

		Work Locations		
		Richmond Hill	Savannah	Hinesville
Home Locations	Richmond Hill	715 (17.4%)	510 (12.4%)	172 (4.2%)
	Savannah	1,474 (1.5%)	35,068 (36.8%)	1,194 (1.3%)
	Hinesville	2,481 (30.7%)	300 (3.7%)	2,481 (30.7%)

The next iterations of the travel to work data maps show another level of refined data, demonstrating point locations of employment for each County.

Figure 8: Chatham County Resident's Work Locations

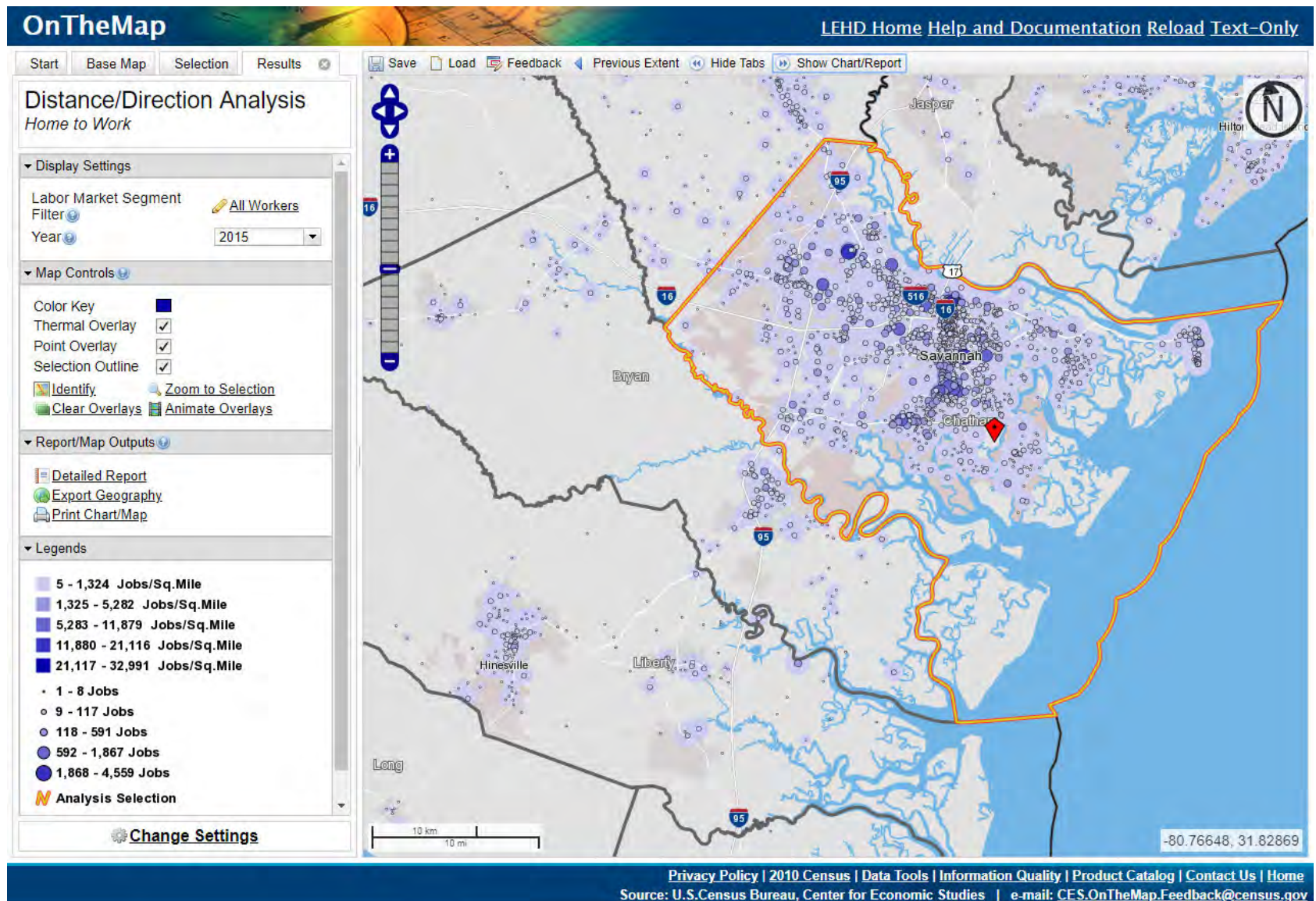


Figure 9: Bryan County Resident's Work Locations

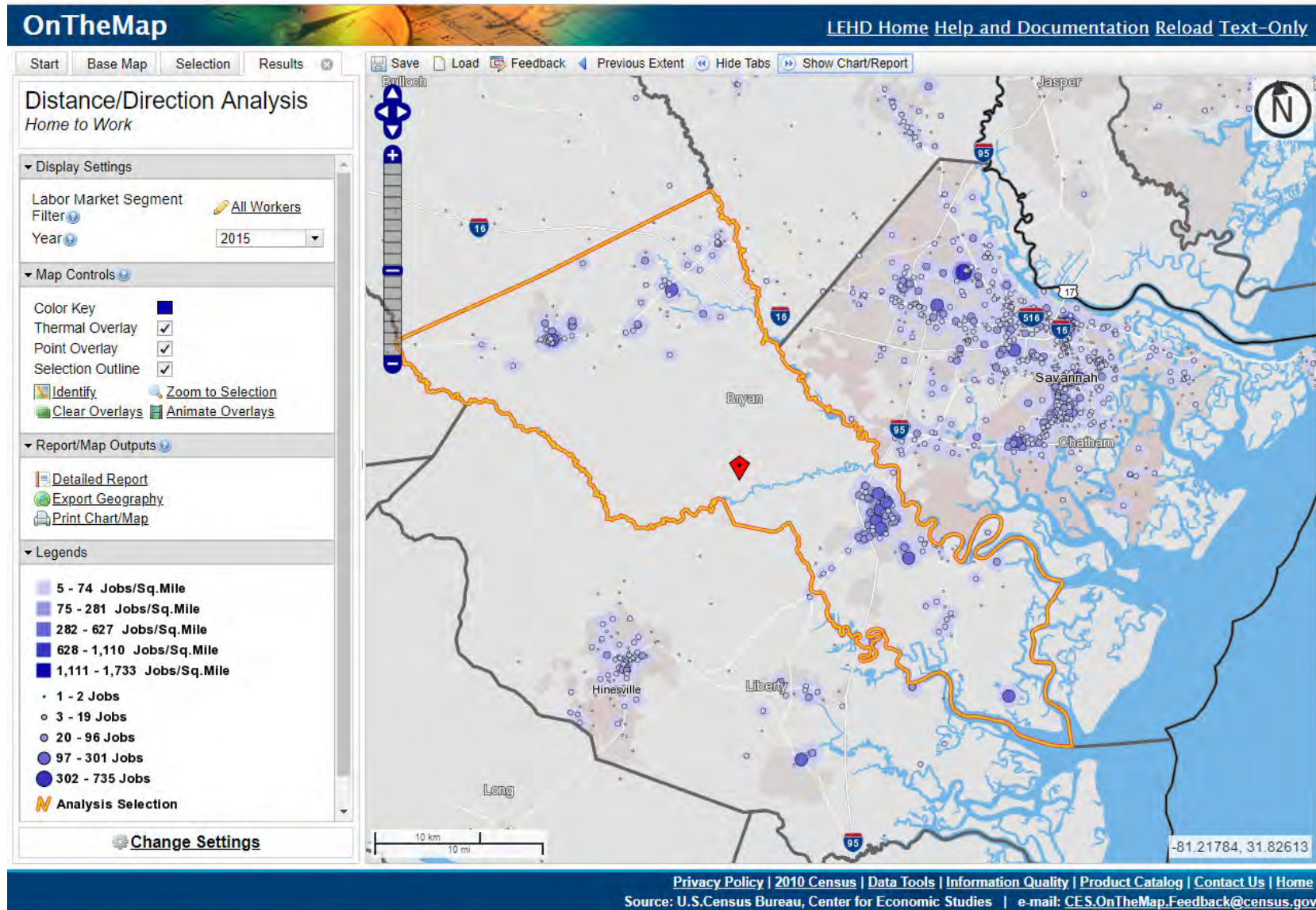
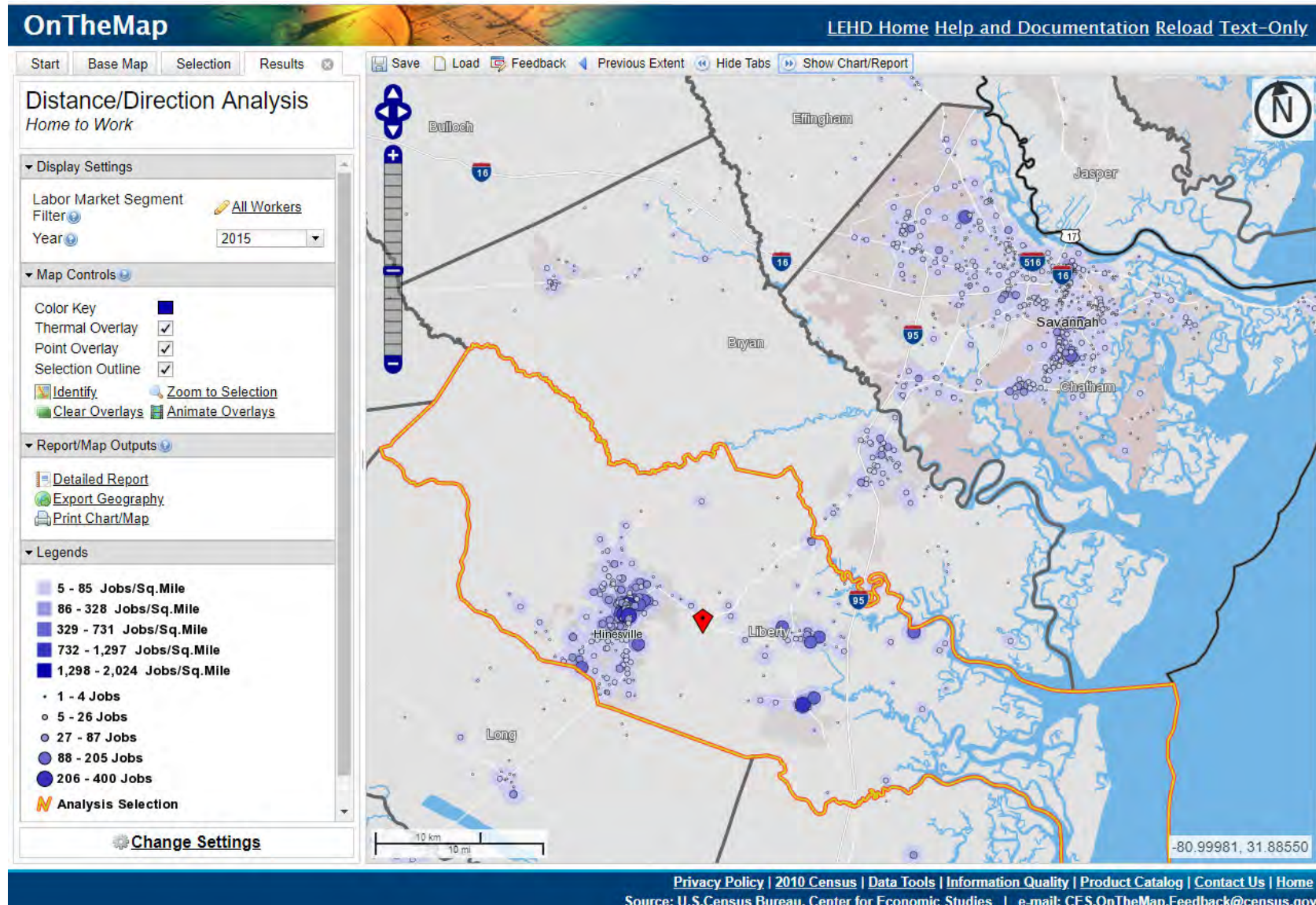


Figure 10: Liberty County Resident's Work Locations



These maps show that the majority of Chatham County residents work in Savannah and Pooler, with a smaller margin of employment in Richmond Hill and Hinesville. Bryan County residents work primarily in surrounding communities with concentrations in Pooler, Savannah, Richmond Hill, and Hinesville. The travel sheds of Bryan County are far more distributed than Chatham.

Liberty County employment is primarily concentrated in the City of Hinesville, Midway, and Riceboro. Smaller concentrations of commuters can be seen in Midtown Savannah near Memorial and Candler-St. Josephs Hospitals, West Chatham, and Richmond Hill.

The final iteration of maps show the work locations of people that reside in the Cities of Savannah, Richmond Hill, Hinesville, and Pooler. These Cities were selected based on the results of the previous map screenings and relative population and employment densities. Narrowing the view of commuter trips to the City level allows for a more accurate assessment of the potential market that could be served by regional express bus service.

Figure 11: Richmond Hill Residents' Work Locations

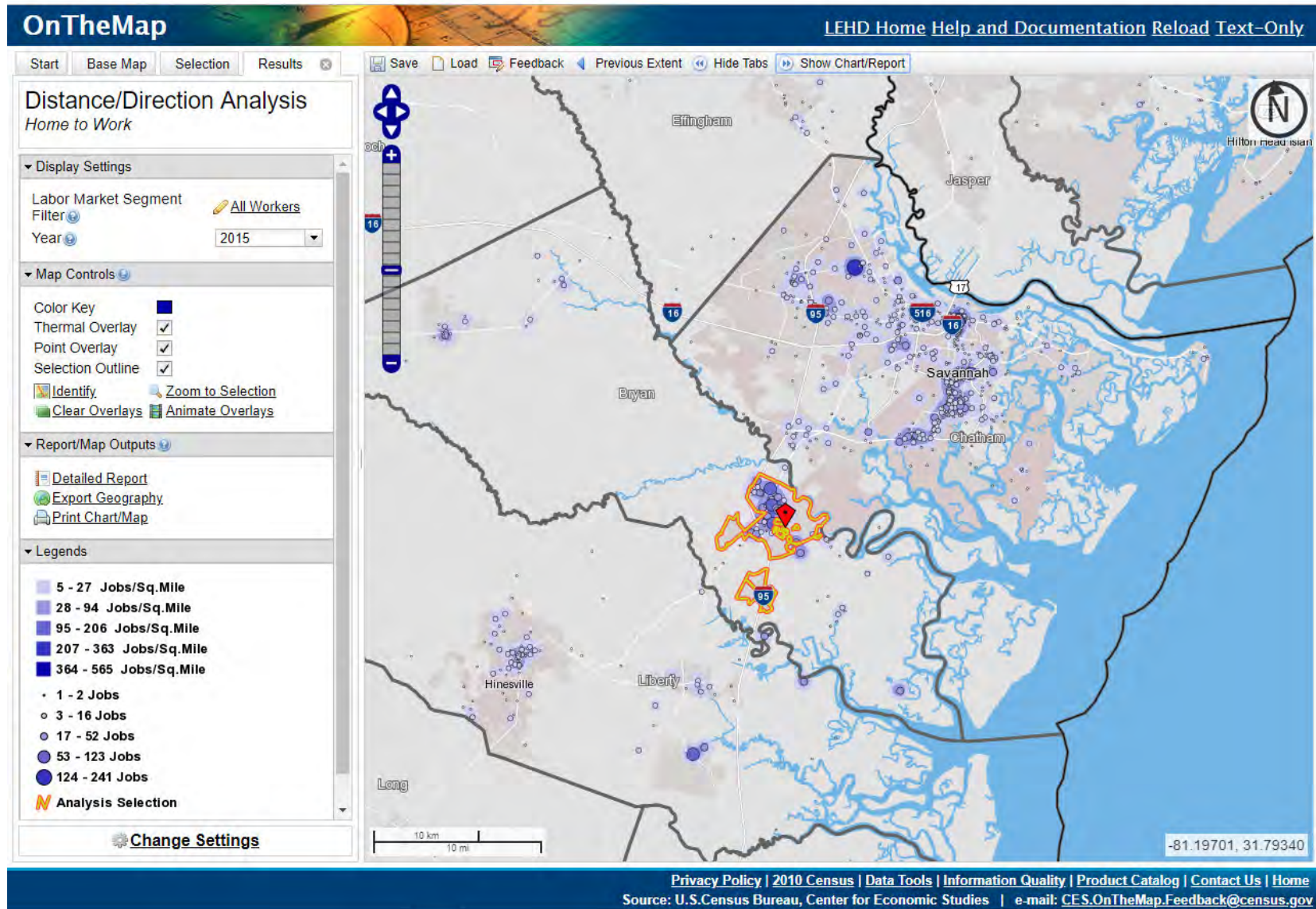


Figure 12: Hinesville Residents' Work Locations

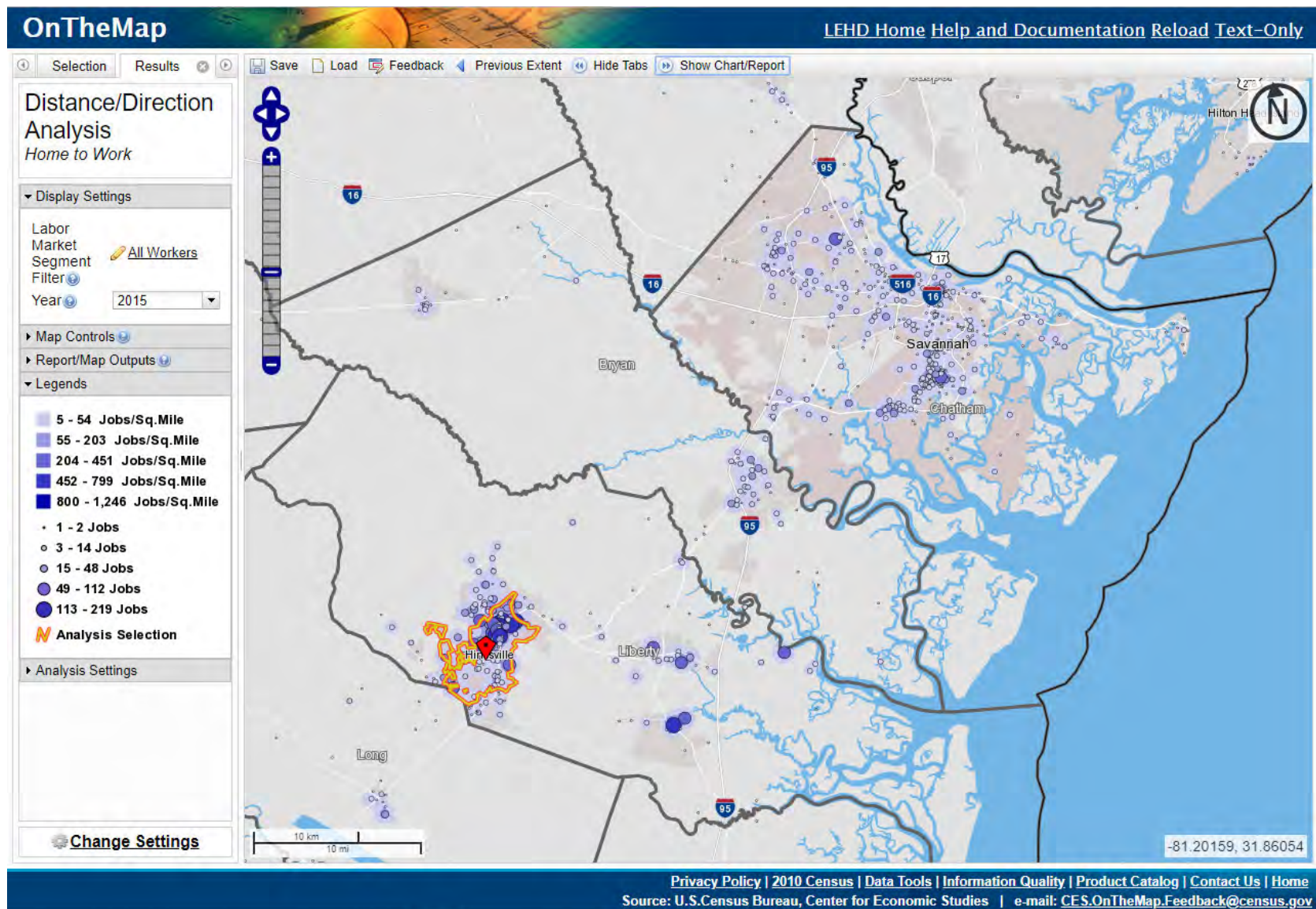
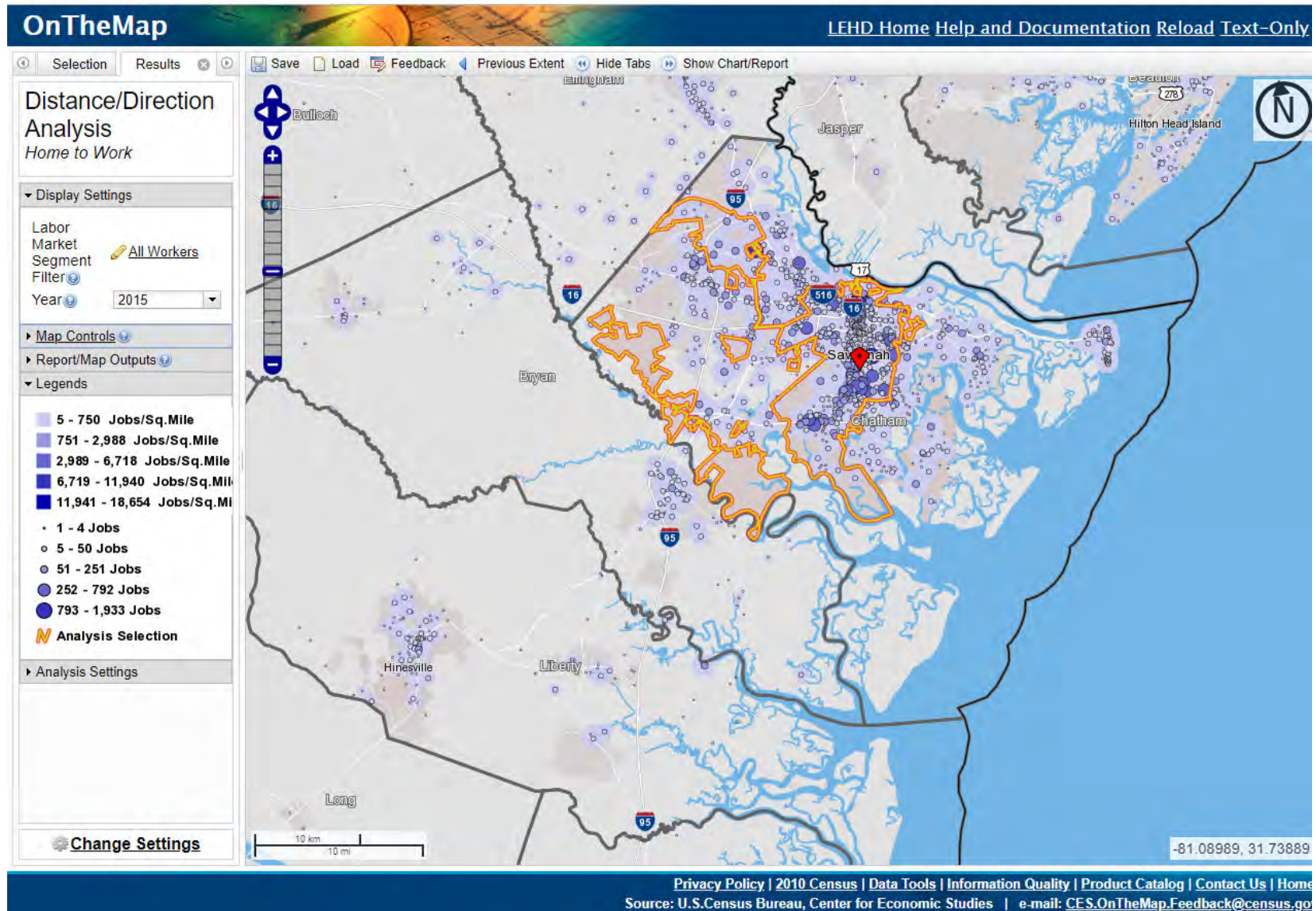


Figure 13: Savannah Residents' Work Locations



Transit Dependent

Transit dependent populations are individuals that rely on transit services instead of private automobiles to meet their travel needs. Due to the service model of connecting park-and-ride lots to activity centers, the transit dependent market is not synonymous with the commuter market and is analyzed as a separate potential market for services. Transit dependent populations are not presently included in the travel to work and mobile device data sets, as these trips would be considered induced trips and only possible after regional service is established. The transit dependent market is multifaceted and includes a broad cross section of a community comprised primarily of disadvantaged, aging, youth, and disabled populations.

The transit dependent market is further defined based upon Transit Cooperative Research Program (TCRP) “Report 28: Transit Markets of the Future” to weight demographic characteristics. This approach highlights the relative “need” for transit service within the service area. The demographic factors of individuals that are statistically most likely to ride public transportation includes:

FACTORS: BLOCK GROUP LEVEL

- Households without Cars: Census Table B25044 Tenure by Vehicles Available contains the total number of occupied housing units and households with no vehicle available (owner occupied and renter occupied)
- Poverty: Census Table B17017 Poverty Status in the Past 12 Months by Household Type by Age of Householder contains the data of total households and income in the past 12 months below poverty level
- Minority: Census Table B03002 Hispanic or Latino Origin by Race contains the data of total population and population white alone, not Hispanic or Latino The percentage of population not “white alone, not Hispanic or Latino” was calculated.
- Female: Census Table B01001 Sex by Age contains the data of total population and female population

FACTORS: TRACT LEVEL

- Disability: Census Table C18120 Employment Status by Disability Status contains total population and population with a disability (by “employed in the labor force”, “unemployed in the labor force”, and “not in the labor force”)
- Mobility Limitation: Census Table B18105 Sex by Age by Ambulatory Difficulty contains total civilian noninstitutionalized population five years old and over and “with an ambulatory difficulty” by age cohort
- Workers 65 Years Old and Older: Census table B23004 Work Status in the Past 12 Months by Age by Employment Status for the Civilian Population 65 Years and Over contains “worked in the past 12 months, 65 to 74 years” and “worked in the past 12 months, 75 years and over” Because

the universe for this table is civilian population 65 years and over, the number of other workers was borrowed from Census table C18129. The percentage of workers that are 65 years old or over was calculated.

Transit propensity screenings were performed for Chatham County during the development of the 2017 Origin and Destination Study and for Liberty County during the 2018 Liberty Transit Development Plan update. The analysis findings demonstrated that the highest concentrations of transit dependent populations, i.e. those most likely to utilized public transportation as a primary mode of transportation, are concentrated in the following locations:

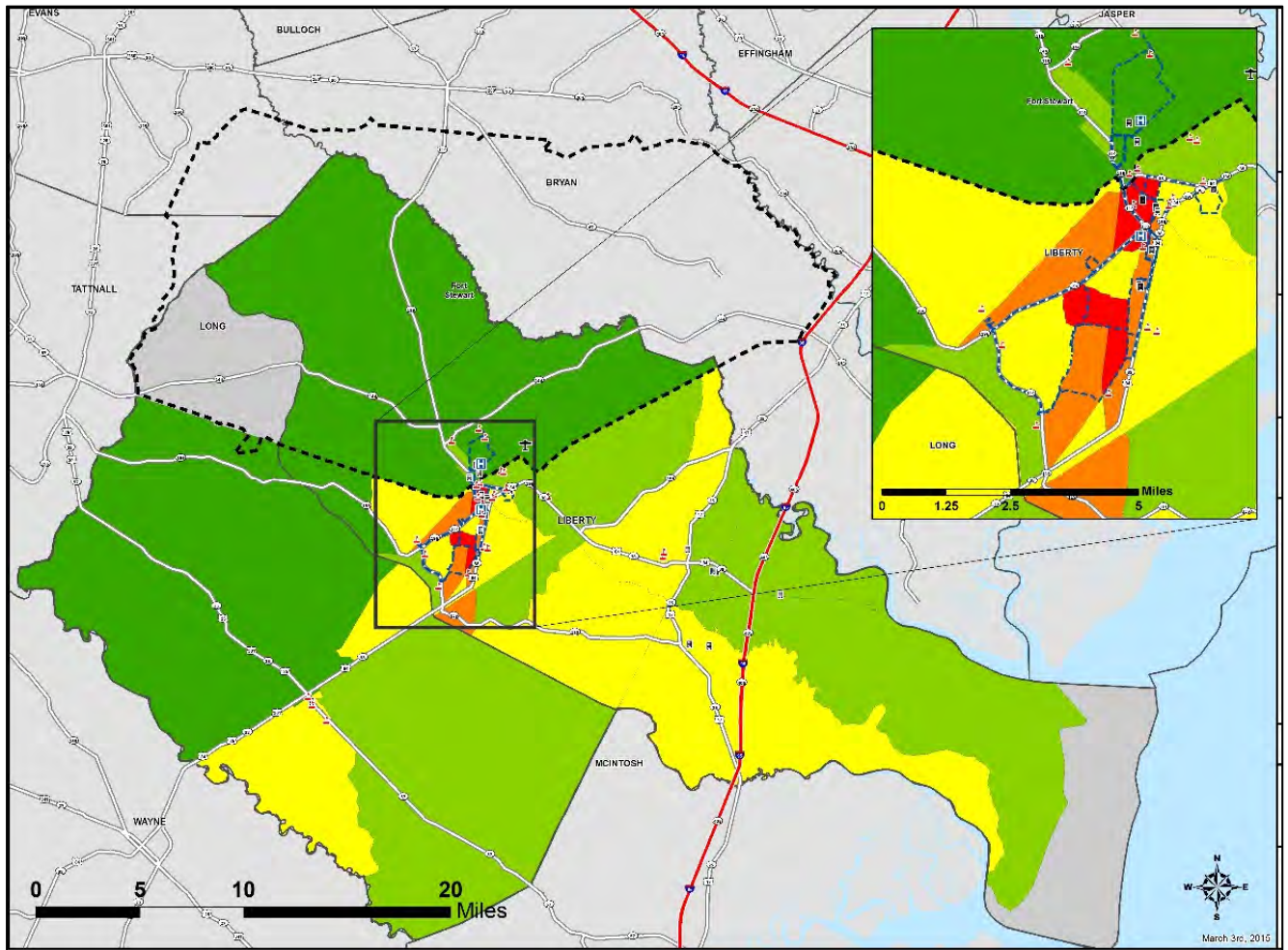
Liberty County:

- Downtown Hinesville: Adjacent to Fort Stewart Gate 1, between General Stewart Way and Veterans Parkway.
- Hinesville Commercial: Residential areas adjacent to Walmart Super Center and Oglethorpe Plaza, bound by US 84/Oglethorpe Highway, and Elma G. Miles Parkway.

Areas in the City of Hinesville, City of Flemington and Fort Stewart military installation with density sufficient to support hourly bus service are all served by the current bus system. The following map shows concentrations of population most likely to ride transit and with sufficient density to support fixed route hourly services highlighted in red.

The propensity analysis further demonstrates that there is not sufficient population, employment, or other activity to support fixed route transit service to outlying areas in Liberty County, including areas adjacent to I-95. Although major employers are located in these areas, previous efforts by the Coastal Regional Commission to form vanpools or provide carpool matching have been unsuccessful, suggesting that there is not a sufficient level of interest in alternative commuting options.

Figure 14: Liberty County Transit Propensity Analysis

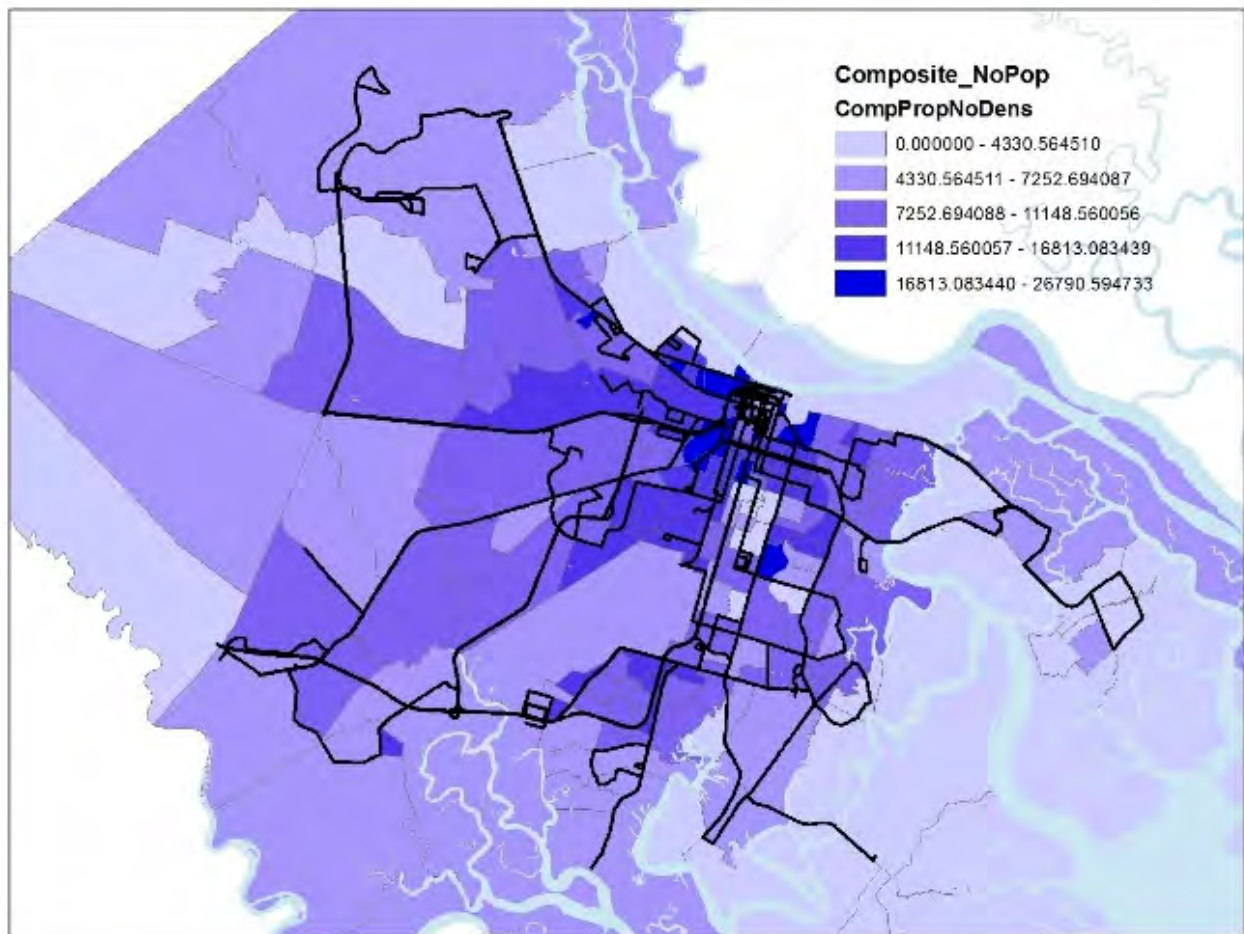


Chatham County

The following map shows the results of the Chatham County Transit Propensity analysis. Deeper shades of purple represent higher transit propensity. Population density is a factor typically included in transit propensity. However, in Chatham County population density overpowered other factors and was isolated from transit propensity.

While there are a significant number of areas in Chatham County that demonstrate a relatively high level of transit propensity, the highest concentrations are seen directly adjacent to the Historic Downtown district, and adjacent to Memorial Hospital in the Midtown area. CAT currently offers fixed route bus services to all of the areas that display high concentrations of transit propensity populations.

Figure 15: Chatham County Transit Propensity Analysis



The regional view of transit propensity shows that there are significant concentrations of populations, in both metropolitan areas, that could benefit from dependable and affordable transportation options. Connections between these areas allows for greater access to jobs and services, as well as expanded opportunities for training and workforce development.

A transit propensity analysis was not performed for Bryan County and is therefore unavailable for this assessment.

Origin and Destination / Travel Sheds

In an effort to examine the overall system and routes in depth to identify opportunities to improve operational efficiency, CAT undertook an Origin and Destination analysis in 2016. The analysis utilized a number of data sources, including AirSage data, which is based on cellular network information. The analysis of this data provided the information needed to



determine the travel patterns within the area. The study area was initially identified as Chatham County and all incorporated municipalities within the County.

Concurrent with the CAT effort, the Coastal Region Metropolitan Planning Organization (CORE MPO) was undertaking the federally required update of their process for managing congestion. The CORE MPO planning area encompasses all of Chatham County, the City of Richmond Hill in Bryan County and a small portion of Effingham County.

Recognizing the synergies of a coordinated effort, CAT and the CORE MPO partnered together to fully understand the mobility needs of the MPO region and jointly purchased the AirSage data. Through this partnership, the agencies were able to purchase additional data for use in both efforts, as well as allowing for an expanded geographic area of coverage with data from surrounding counties, including:

- Screven County
- Effingham County
- Bulloch County
- Bryan County
- Liberty/Long Counties
- McIntosh County
- Jasper/Beaufort Counties, SC

The major elements of the CAT effort included the review, processing and analysis of the AirSage data, a transit suitability or propensity analysis, and the development of recommendations to improve the operational efficiency of the CAT system. Recommendations were designed to enhance the operational efficiency of the transit system, determine under-or over-served areas, and identify potential expansion opportunities, while providing CORE MPO with the analysis of travel patterns needed for congestion management.

The analysis provided insights into areas where transit service could be considered, as well as areas for streamlining service. The data analysis also provided confirmation of underperforming routes and the identification of the critical destinations for local travel. These primary destinations included the Downtown area, the hospitals located in the Midtown area, and the Oglethorpe Mall area. In addition, the analysis showed a large amount of travel occurs intra-regionally. Recommendations were stratified into three tiers and included the recommendation that regional transit services be studied for travel sheds originating in adjoining counties.

Mobile device data also provides an understanding of the potential market for commuter bus service and provides information to determine the most common points of trip origin and destination. The AirSage data was utilized to understand the trip flows between various traffic zones throughout the region. One limitation of the data is that Bryan County and Liberty County are represented by a single zone, therefore the points of trip origin were not available at a high level of granularity.

The following figures, sourced from the CAT Origin and Destination Study, provide a regional overview of trips originating in surrounding counties and terminating within Chatham County. The figures provide insights into travel sheds from different subscriber types, such as morning commuters vs non-work related trips described as “other”.

Figure 16: OD Analysis – Regional Travel Sheds

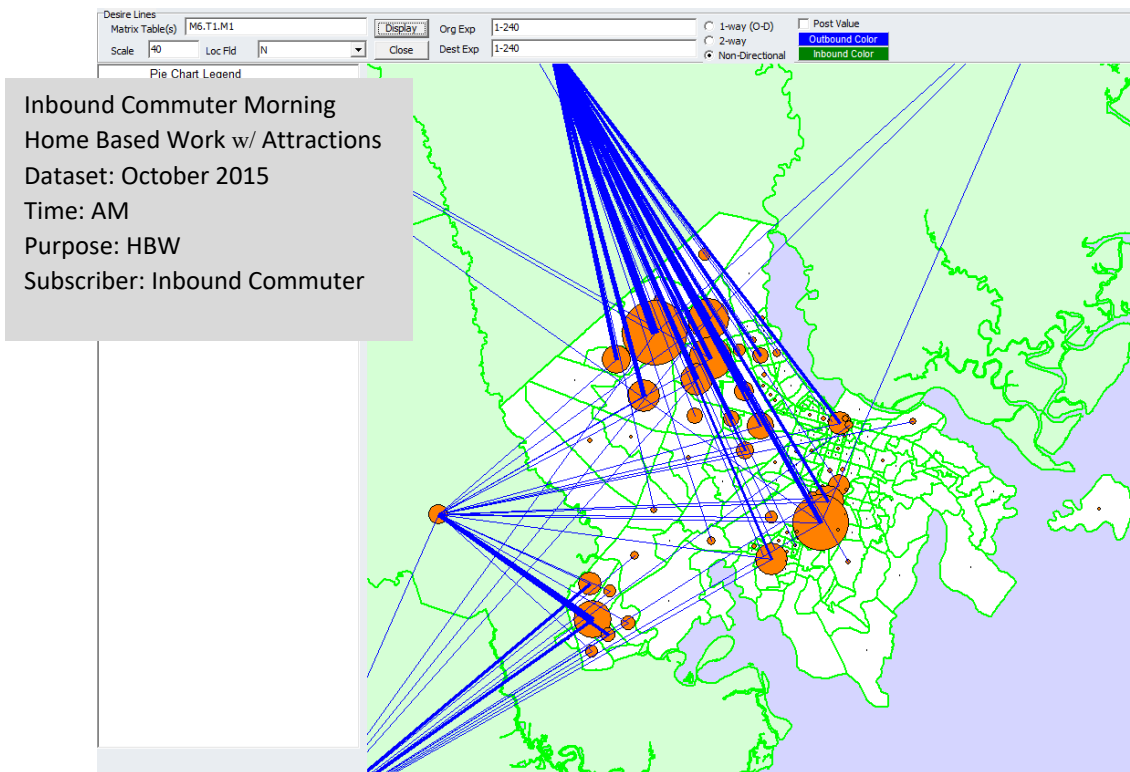
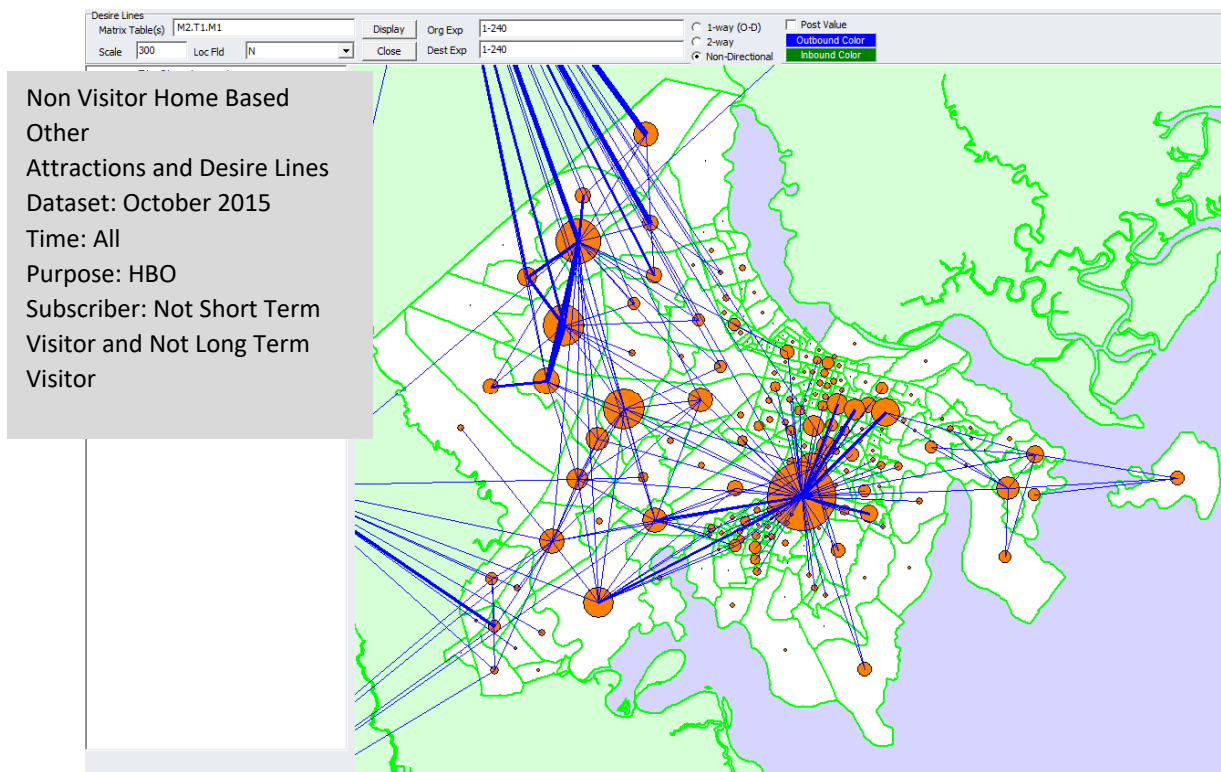


Figure 17: OD Analysis – Regional Travel Sheds



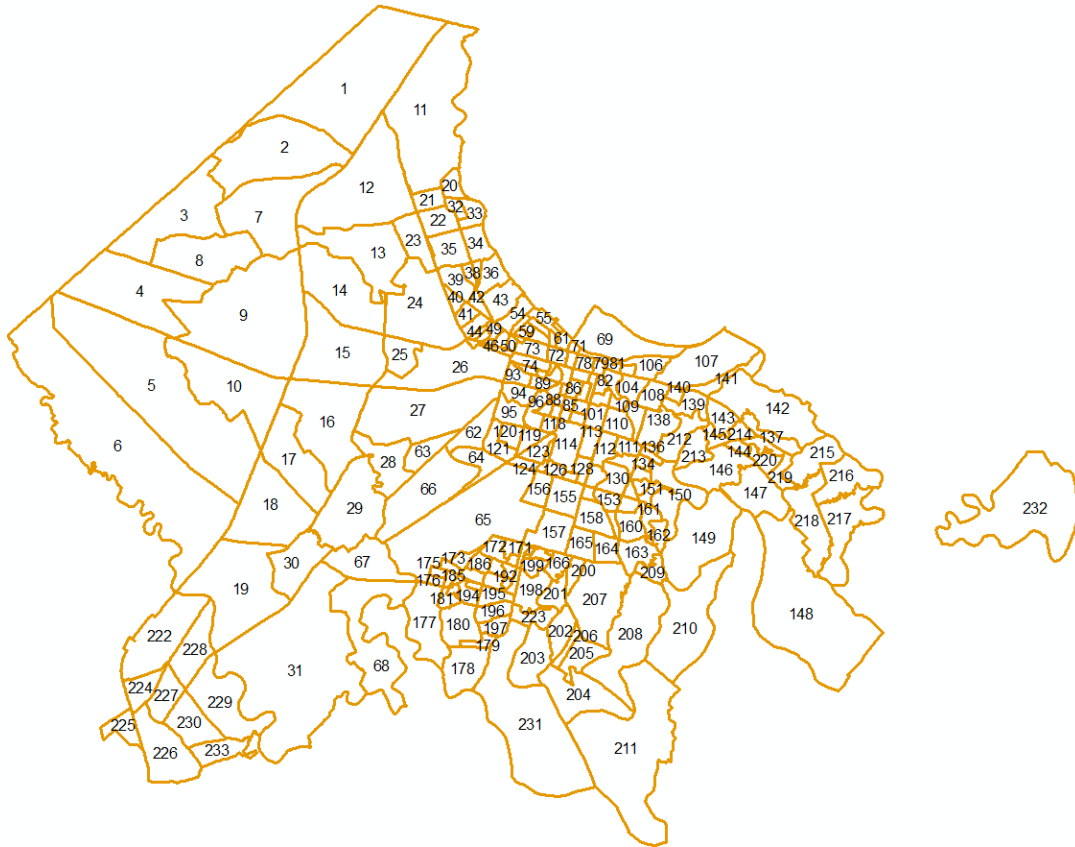
Using the AirSage data, a more focused analysis of the trip relationships between Hinesville, Richmond Hill, and Chatham County was also performed. Again, it is critical to note that the origin points for Liberty County and Long County were presented as single centroids, so the granularity of origins will remain at a high level.

The results of this analysis show that the Destination Zones with the highest number of trips include Richmond Hill, Pooler, Southwest of the Savannah Hilton-Head International Airport, Midtown Savannah, and the Oglethorpe Mall zone. The following table and map shows the Origin and Destination trip matrix for these trips. Zones receiving fewer than ten trips were not included in the table and can be found in the appendix of this report.

Table 3: OD Analysis – Liberty AM Peak Commuter Trips and Destinations

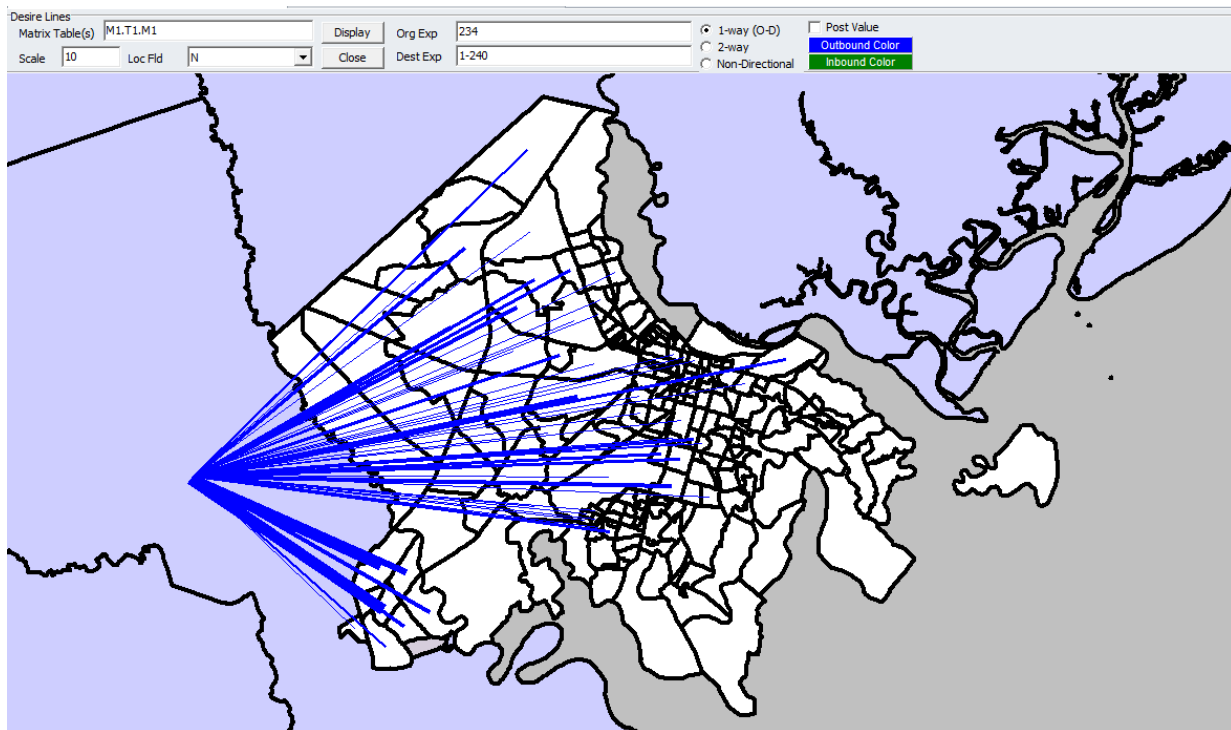
Destination Zones	*Generalized Description	Number of Trips
227	Richmond Hill	99
222	Richmond Hill	91
27	Chatham Center	50
228	Richmond Hill	48
9	Pooler	35
157	Oglethorpe Mall Zone	34
14	Southwest of Airport	32
229	Richmond Hill	31
7	Pooler Commercial	31
230	Richmond Hill	30
107	Hutchinson Island	22
155	Midtown Savannah: Commercial	22
224	Richmond Hill	21
13	Savannah Hilton Head International Airport	21
194	Southside Savannah: University	20
226	Richmond Hill	18
23	West Chatham: Industrial/Prison	17
128	Midtown Savannah: Medical District	17
25	Dean Forest Commercial / Service	16
156	Midtown Savannah: University	16
1	West Chatham	15
24	Garden City	14
26	Garden City / Savannah	13
67	Southside Savannah: University / Commercial	12
65	Midtown Savannah: Hunter Army Airfield	12
182	Southside Savannah: Commercial	11
78	Downtown Savannah Zone	10

**All zone descriptions are generalized and do not include a comprehensive listing of all land-uses included in each zone. These are provided as wayfinding points and do not indicate that that the zones are comprised only of the uses listed in the table.*



The following map shows the travel sheds for home-based-work commuter trips that originate in Liberty County, occurring in the AM Peak with destinations in Richmond Hill and Chatham County. This map provides a visual representation of the data listed in Table 4. The goal of this analysis it to identify the potential market of trips from Liberty and Bryan Counties that would utilize transit service to Chatham County. The following map provides a visual representation of the combined trips that originate in Liberty County and Bryan County that are destined for Chatham County.

Figure 18: OD Analysis – Liberty and Bryan County combined Travel Sheds, AM Peak Commuter



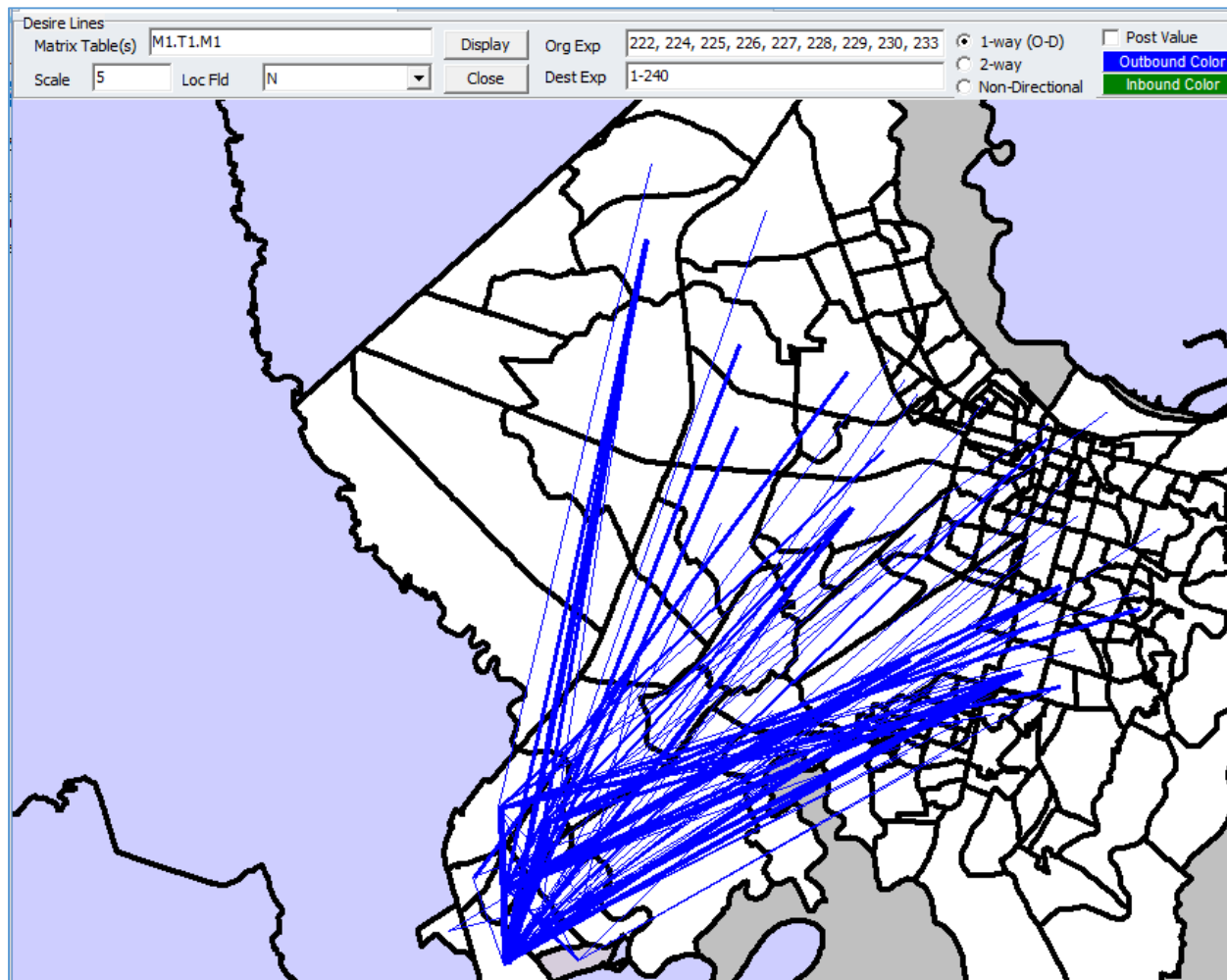
In order to gain more understanding regarding trip patterns originating in Richmond Hill, a second analysis was performed. AM Peak Commuter trips originating in Richmond Hill with destinations in Chatham County were isolated and mapped. The following table and figure shows that a significant number of trips originating in Richmond Hill are destined for West Chatham, Midtown Savannah, Hunter Army Airfield, and to zones that follow the SR 204 / Abercorn corridor. The trips that originate in Richmond Hill are destined for a fairly dispersed number of zones in Chatham County.

Table 4: OD Analysis – Bryan County AM Trips and Destinations

Richmond Hill Zone	Highest Destination Zone - *Generalized Descriptions	Total Trips to Chatham
222	Zone 26: Garden City/Savannah (12 Trips)	126
224	Zone 24: Garden City (8 Trips)	23
225	Zone 65: Hunter Army Airfield (3 Trips)	7
226	Zone 228: Internal/Richmond Hill (28 Trips)	258
227	Zone 65: Hunter Army Airfield (24 Trips)	159
228	Zones 157: Abercorn/Derenne Commercial (10 Trips) and 27: Chatham Center (10 Trips)	93
229	Zone 65: Hunter Army Airfield (5 Trips)	32
230	Zone 157: Midtown Savannah Commercial (13 Trips)	67
233	Zone 227: Internal / Richmond Hill (13 Trips)	44

**All zone descriptions are generalized and do not include a comprehensive listing of all land-uses included in each zone. These are provided as wayfinding points and do not indicate that the zones are comprised only of the uses listed in the table.*

Figure 19: OD Analysis – Travel Sheds from Richmond Hill to Chatham County



Due to the small number of trips identified as “AM Peak Commuter”, the analysis screening was expanded to include all trip types for the AM Peak. This screening resulted in a broader cross section of the traveling public and offers a more comprehensive view of travel sheds from Liberty and Bryan Counties into Chatham County. The most notable travel sheds occur between Liberty County and Richmond Hill, Pooler Commercial, and I-95/SR 204/US 17.

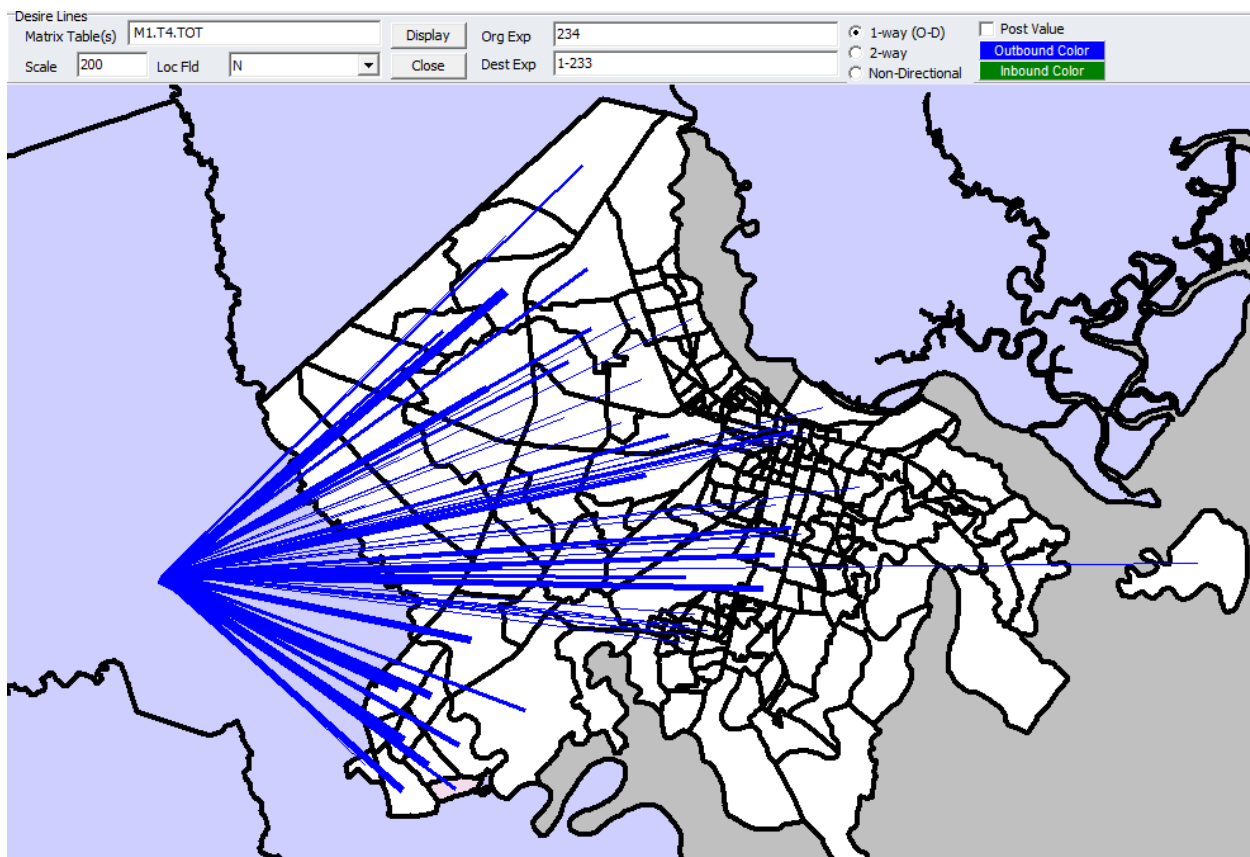
Table 5: OD Analysis – Liberty AM Trips and Destinations

Destination Zones	*Generalized Description of Destination Zones	Number of Trips
222	Richmond Hill	1,847
227	Richmond Hill	1,494
7	Pooler commercial	1,461
226	Richmond Hill	1,089

228	Richmond Hill	1,080
9	Pooler	959
19	I-95/SR 204/ US 17 south	900
157	Oglethorpe Mall Zone	813
230	Richmond Hill	802
229	Richmond Hill	739
18	I-95/SR 204/ US 17 North	722
27	Chatham Center	598
155	Adjacent to Oglethorpe Mall Zone	514
233	Richmond Hill	433
128	Medical District (not including Memorial/St Joseph's)	412
31	Georgetown	403
12	Airport	399
65	Jimmy DeLoach/Crossroads	398
13	Airport	384

**All zone descriptions are generalized and do not include a comprehensive listing of all land-uses included in each zone. These are provided as wayfinding points and do not indicate that the zones are comprised only of the uses listed in the table.*

Figure 20: OD Analysis – Bryan County AM Trip Origin Travel Sheds, All Subscriber Types



Trips originating in Richmond Hill were also expanded to include all subscriber types. In contrast with the Liberty County trip origin results, travel sheds for trips originating in Richmond Hill shifted when the subscriber type was expanded. When isolating the “AM Peak Commuter” trips, the travel sheds along the Abercorn corridor were more pronounced, whereas the expanded data set shows significantly more internal Richmond Hill trips and maintains the strong connection with Pooler.

Figure 21: OD Analysis – Richmond Hill AM Trip Origin Travel Sheds, All Subscriber Types

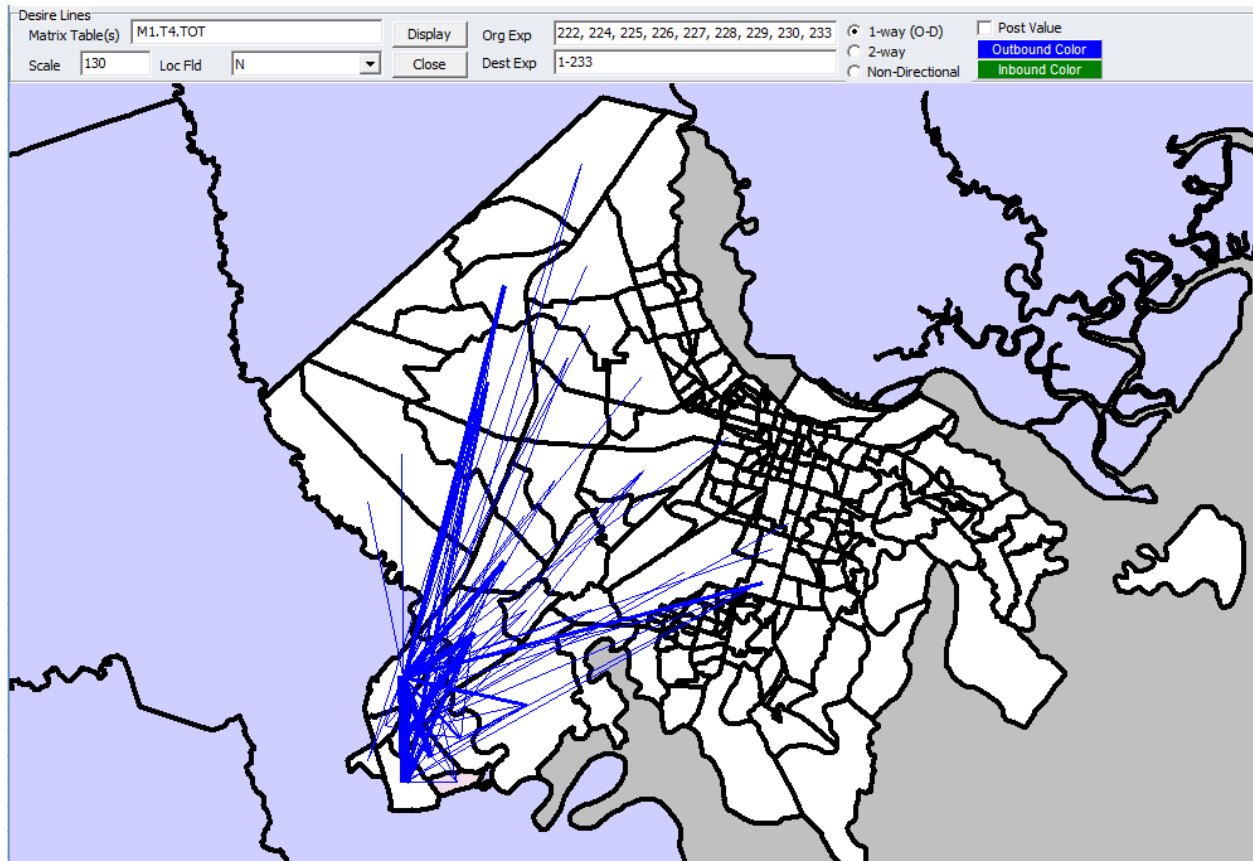


Table 6: OD Analysis – Richmond Hill AM Trips, All Subscriber Types

Richmond Hill Zone	*Highest Destination Zone - Generalized Descriptions	Total Trips
222	Zone 19: I-95/SR 204/ US 17 (585 Trips)	16,148
224	Zone 19: I-95/SR 204/ US 17 (142 Trips)	2,969
225	Zone 9: Pooler (67 Trips)	2,946
226	Zone 9: Pooler (224 Trips)	8,571
227	Zone 19: I-95/SR 204/ US 17 (352 Trips)	9,841
228	Zones 19: I-95/SR 204/ US 17 (305 Trips)	6,287
229	Zone 19: I-95/SR 204/ US 17 (121 Trips)	3,646
230	Zone 19: I-95/SR 204/ US 17 (163 Trips)	4,064
233	Zone 31: Georgetown (50 Trips)	2,105

*Internal trips with Origins and Destinations in Richmond Hill were removed, as the service is not intended to operate as a local fixed route circulator. *All zone descriptions are generalized and do not include a comprehensive listing of all land-uses included in each zone. These are provided as wayfinding points and do not indicate that the zones are comprised only of the uses listed in the table.

Potential Service Corridors

Based on the insights gained through the existing conditions screening and review of past studies, potential service corridors were identified. The City of Hinesville was selected as the origin for trips traveling from Liberty County to Bryan and Chatham Counties. This location is the most densely populated area in the County, and demonstrates a high concentration of transit propensity. Downtown Hinesville was then screened for parcels best suited for park-n-ride services.

The Paul R. Smith Education Center was selected as the most suitable location due to the following factors:

- Proximity to Fort Stewart military base
- Proximity to Georgia Southern University – Armstrong Campus
- Proximity to low income multifamily housing
- Location serviced by two Liberty Transit routes
- Presence of parking facilities and supporting infrastructure
- Accessible by both Fort Stewart and civilian residents

Bryan County was also screened for potential stop locations and resulted in a number of potential locations. The candidates for park-n-ride services included the Kroger Shopping Plaza at SR 144, Goodwill Shopping Plaza at the corner of US 17 and SR 144, and the Food Lion Plaza at US 17 (Northeast of I-95). The Food Lion Plaza was ranked as the least desirable location due to the size of the parking facilities. The Kroger and Goodwill locations were both advanced as options for additional analysis. These locations were considered most suitable due to the following factors:

- Proximity to residential developments
- Accessibility of site
- Presence of parking facilities
- Central location

The final element of the site selection screening was conducted for Chatham County. The Origin and Destination data was the primary factor considered in this process. The most concentrated travel sheds identified during the technical screening were destined for Pooler, I-95/US 17/ SR 204 zone, and along the Abercorn Corridor with concentrations at the Oglethorpe Mall and Medical District zones. Potential stop locations identified as destinations for commuter service to Chatham County includes Walmart shopping Plaza on US 17, Savannah Festival Outlets Shopping Plaza at I-95 and SR 204, Pooler Commercial, and Gulfstream on Airways Avenue. These potential stop locations were advanced for further analysis.

The criteria used to identify the most appropriate facilities for regional service includes:

- Functional Classification of Primary Arterial or higher
- Most direct route between identified stop locations

- Length in miles
- Cursory screening of travel time at peak hour

The corridors selected for assessment includes the following:

- 38C / General Stewart Way – Hinesville
- US 84 / Oglethorpe Highway – Hinesville/Flemington/Liberty County
- SR 196 / Leroy Coffey Highway – Liberty County
- US 17 / Coastal Highway – Liberty County, Bryan County, Richmond Hill, Savannah
- SR 144 - Fort Stewart, Liberty County, Bryan County, Richmond Hill
- Fort Stewart Road / Old Sunbury Road – Flemington, Fort Stewart
- I-95 - Richmond Hill, Savannah, Pooler
- SR 204 / Abercorn – Savannah
- Canebrake Road – Savannah
- Airways Avenue – Savannah

Various combinations of the identified corridors were paired and screened, in order to select the most appropriate route for further analysis. The following table provides an overview of the initial corridor pairings identified for cursory level screening. The table is organized into color bands that indicate routes with the same origin and destination locations, but that have variations in path of travel.

Table 7: Route Corridor Analysis Screening

	Route Description	Origin	Destination	Routing Corridors	Waypoints	Distance (Miles)
1a	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	US 17: Walmart	38C, US 84, SR 196, US 17	Richmond Hill Goodwill	26.7
1b	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	US 17: Walmart	38C, US 84, Fort Stewart Road, SR 144, US 17	Richmond Hill Goodwill	29.9
1c	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	US 17: Walmart	38C, US 84, Fort Stewart Rd, SR 144, I-95, SR 204, US 17	Richmond Hill Kroger	30.8
2a	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	SR 204: Festival Plaza	38C, US 84, SR 196, US 17, I-95, SR 204	Richmond Hill Goodwill	27.1
2b	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	SR 204: Festival Plaza	38C, US 84, Fort Stewart Rd., SR 144, I-95	Richmond Hill Kroger	27.9
2c	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	SR 204: Festival Plaza	38C, US 84, SR 196, US 17, Canebrake Rd.	Richmond Hill Goodwill Plaza	26.9
2d	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	SR 204: Festival Plaza	38C, US 84, Fort Stewart Rd, SR	Richmond Hill Goodwill Plaza	30.1

				144, US 17, Canebrake Rd.		
2e	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	SR 204: Festival Plaza	38C, General Screven, SR 119, SR 144, US 17, Canebrake Rd.	Richmond Hill Kroger or Goodwill	30.4
2f	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	SR 204: Festival Plaza	38C, General Screven, SR 119, SR 144, I-95	Richmond Hill Kroger	27.8
3a	Richmond Hill to Savannah	Kroger Shopping Plaza	Gulfstream on Airways Avenue	SR 144, I-95, Airways Avenue	N/A	18.3
3b	Richmond Hill to Pooler	Kroger Shopping Plaza	Pooler Commercial	SR 144, I-95, Pooler Parkway	N/A	16
4	Richmond Hill to Savannah	Kroger Shopping Plaza	Downtown Savannah	SR 144, I-95, I-16, MLK Jr. Blvd	N/A	20

The initial assessment shows that the majority of the corridors between origin, destination, and waypoints are relatively similar in route miles. The assessment also revealed that the estimated travel time for each of the routes had marginal differences. NPMRDS data was used to review potential State Routes, US Highways, and Interstates identified for preliminary screening. The CORE MPO used NPMRDS data in the development of the Congestion Management Process (CMP) report adopted in 2017. The alternative corridors speed indices are as follows:

TRAVEL SPEED OF 0 – 15 MPH

- Coastal Highway / US 17 in Richmond Hill, South of SR 144
- SR 144 in Richmond Hill, West of Coastal Highway

TRAVEL SPEED OF 16 – 25 MPH

- Abercorn / SR 204

TRAVEL SPEED OF 26 – 35 MPH

- Coastal Highway / US 17 from Richmond Hill to Savannah
- I-95 @ I-16 Interchange

TRAVEL SPEED OF 36 – 45 MPH

- N/A

TRAVEL SPEED OF 46 – 70+ MPH

- I-95 from Richmond Hill to Savannah (delays at interchanges)

The following exhibit provides an overview of the average travel speeds during afternoon peak from 4:00 PM – 7:00 PM and the individual NPMRDS congestion scan exhibits show the travel time for weekdays in April of 2018, by time of day and by direction of travel.

Figure 22: CORE CMP Travel Speeds

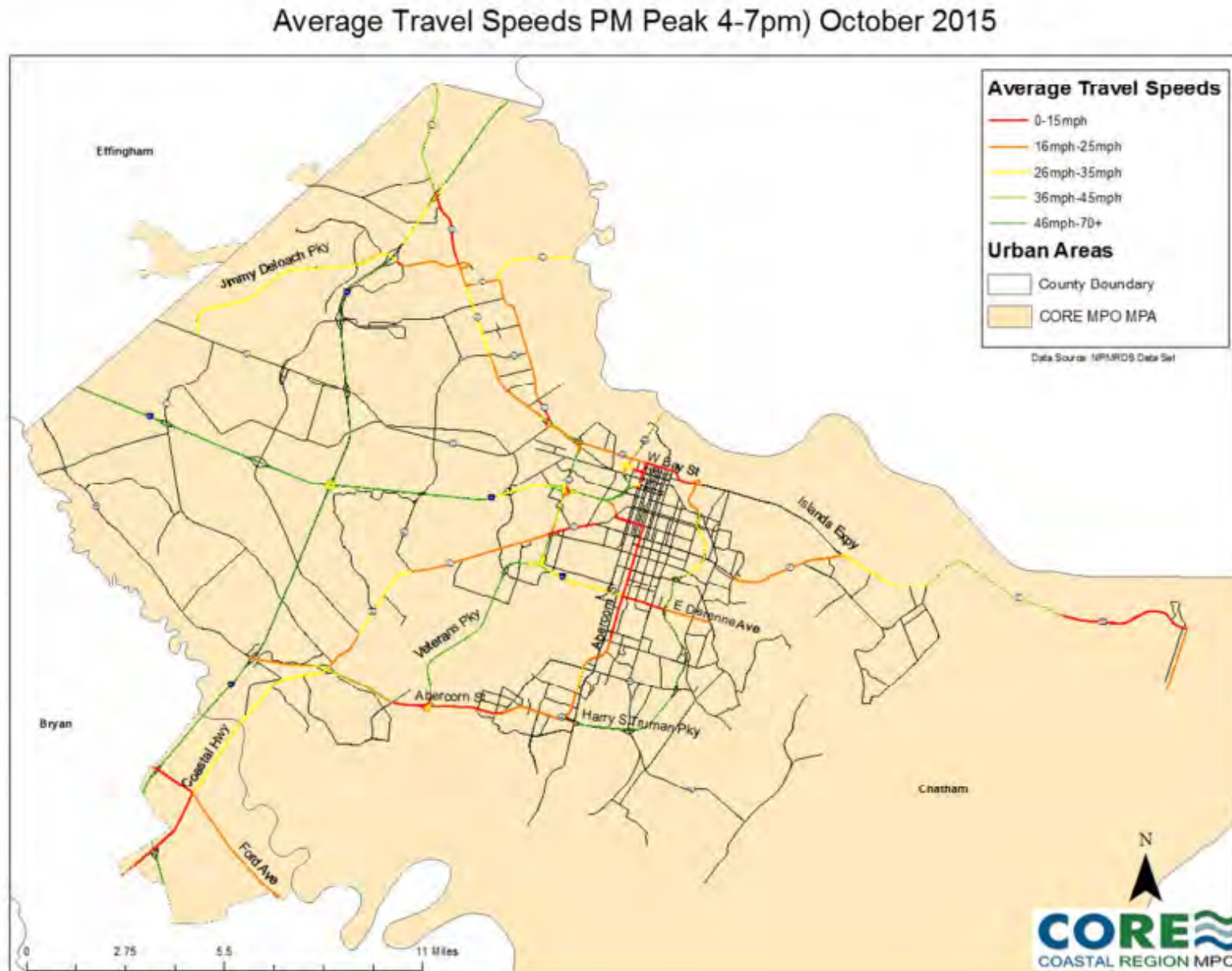


Figure 23: NPMRDS Speed Index for US 17 from GA-196

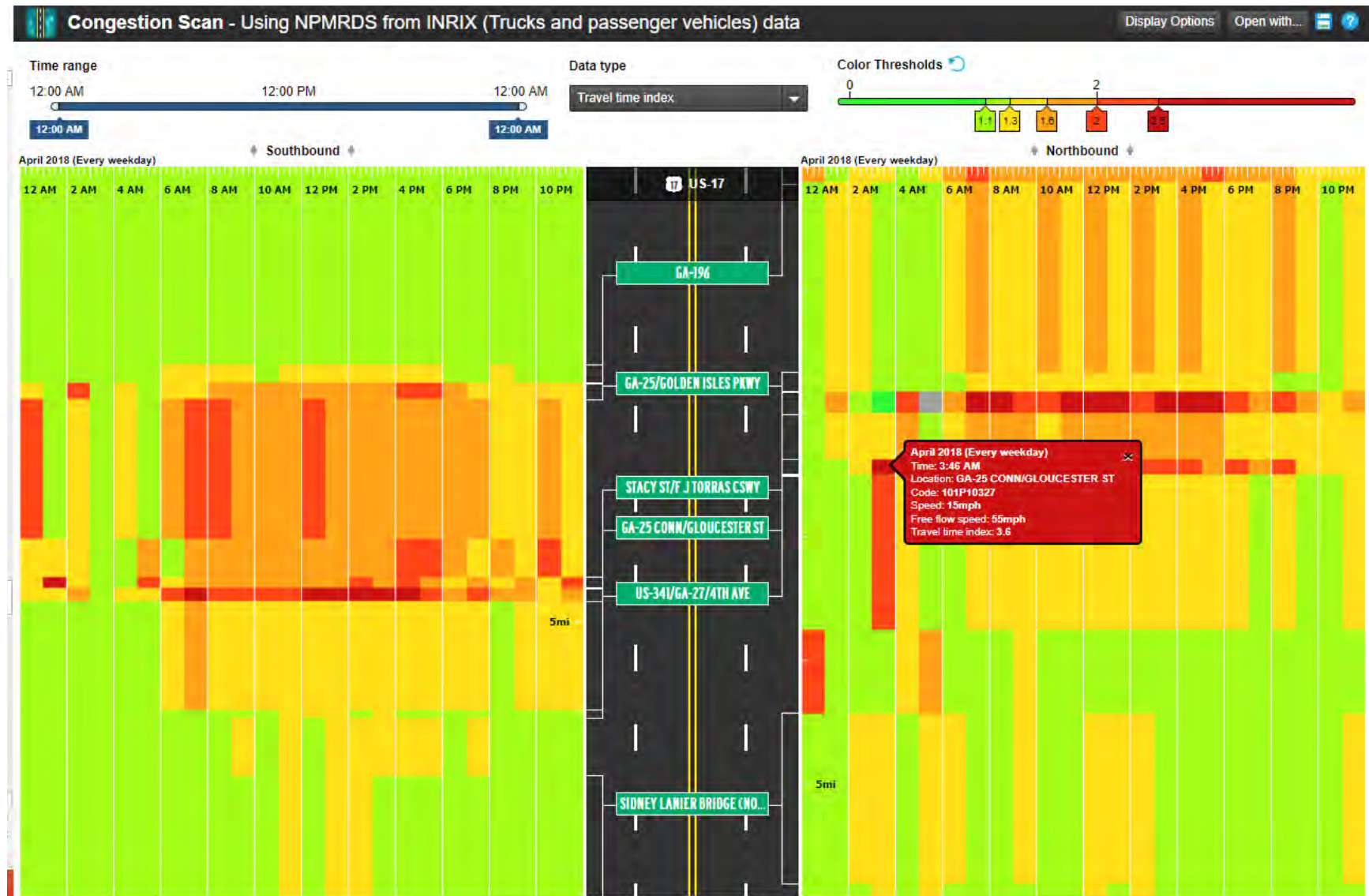


Figure 24: NPMRDS Speed Index for GA SR 144 from Fort Stewart to Bryan County

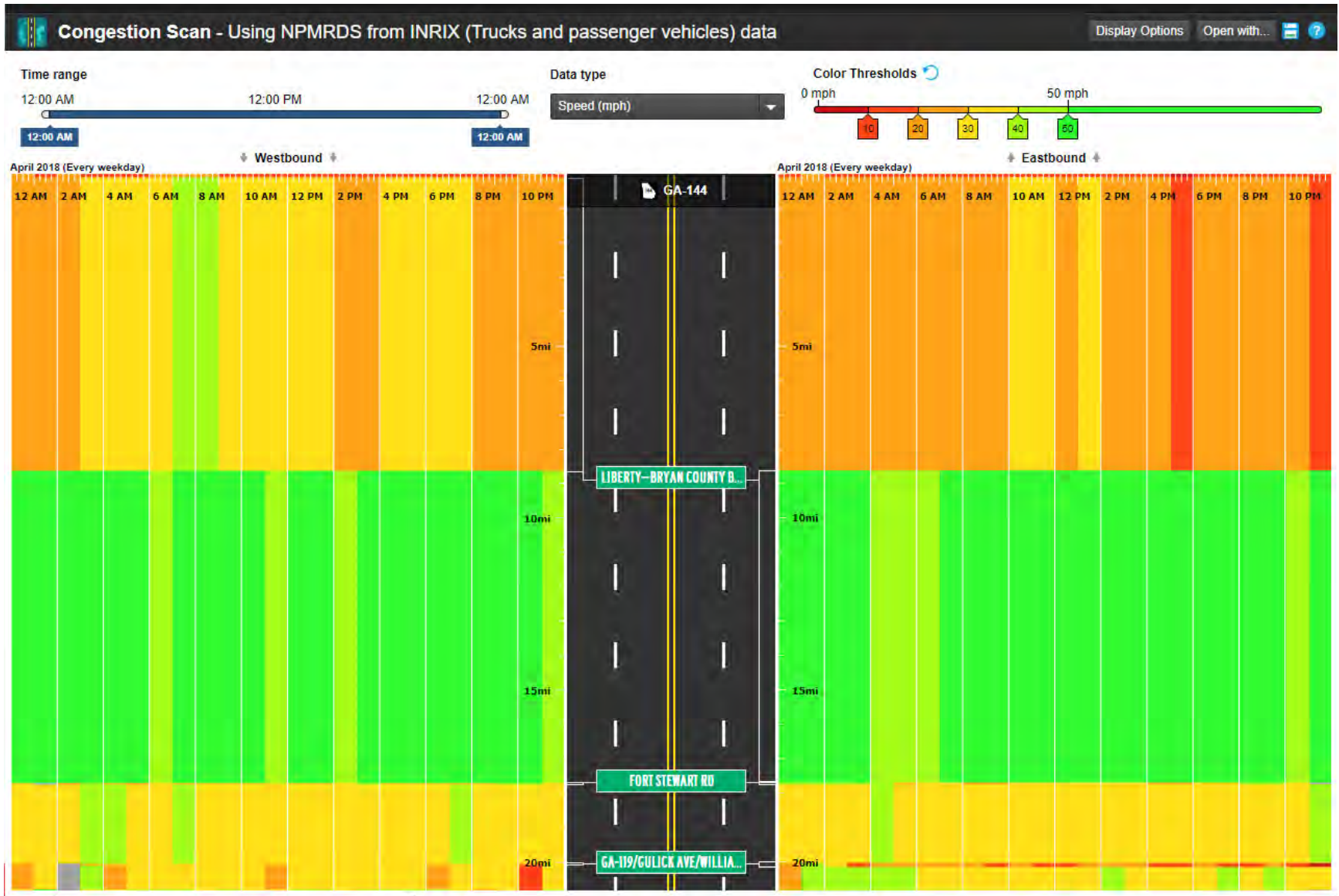


Figure 25: NPMRDS Speed Index for GA SR 144 from Bryan County

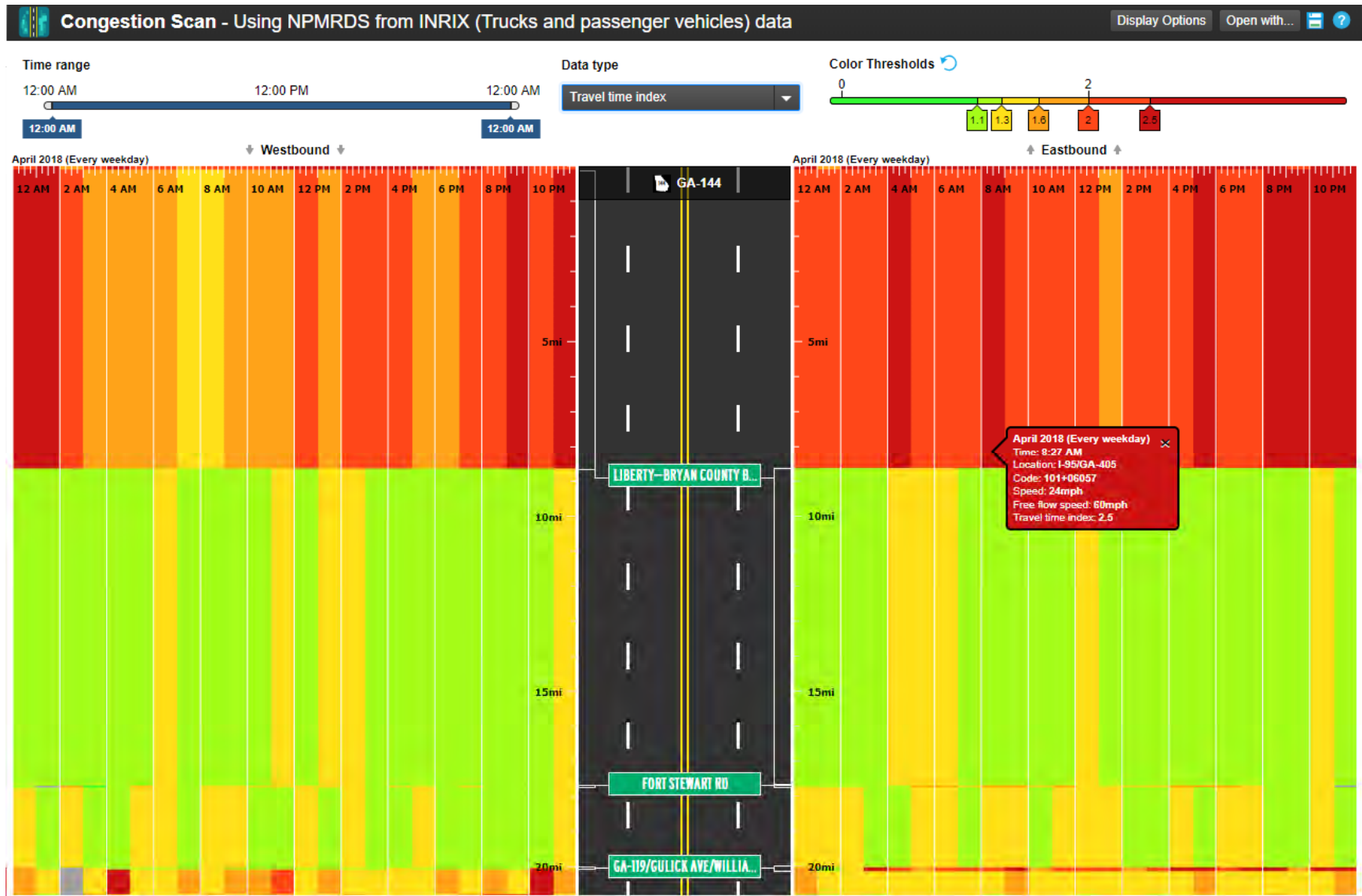


Figure 26: NPMRDS Speed Index for I-95 from Liberty County to SR 21

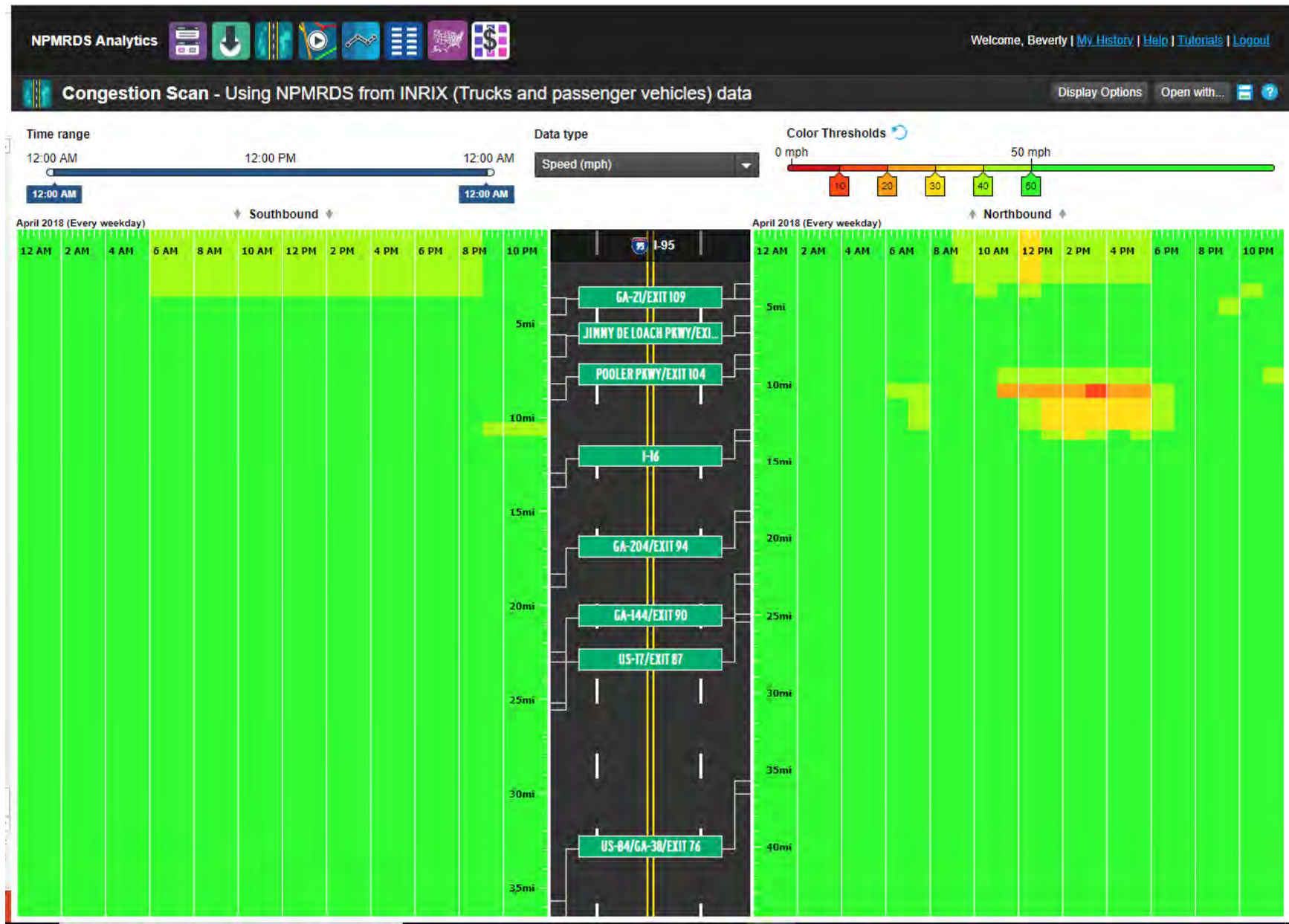


Figure 27: NPMRDS Travel Time Index for I-95 from Liberty County to SR 21



Using all available data from the screening, the routes were narrowed down based on incremental time savings, directness of route, potential barriers, and accessibility. The following map shows the corridors selected for additional analysis.

Figure 28: Corridor Alternatives for Additional Analysis

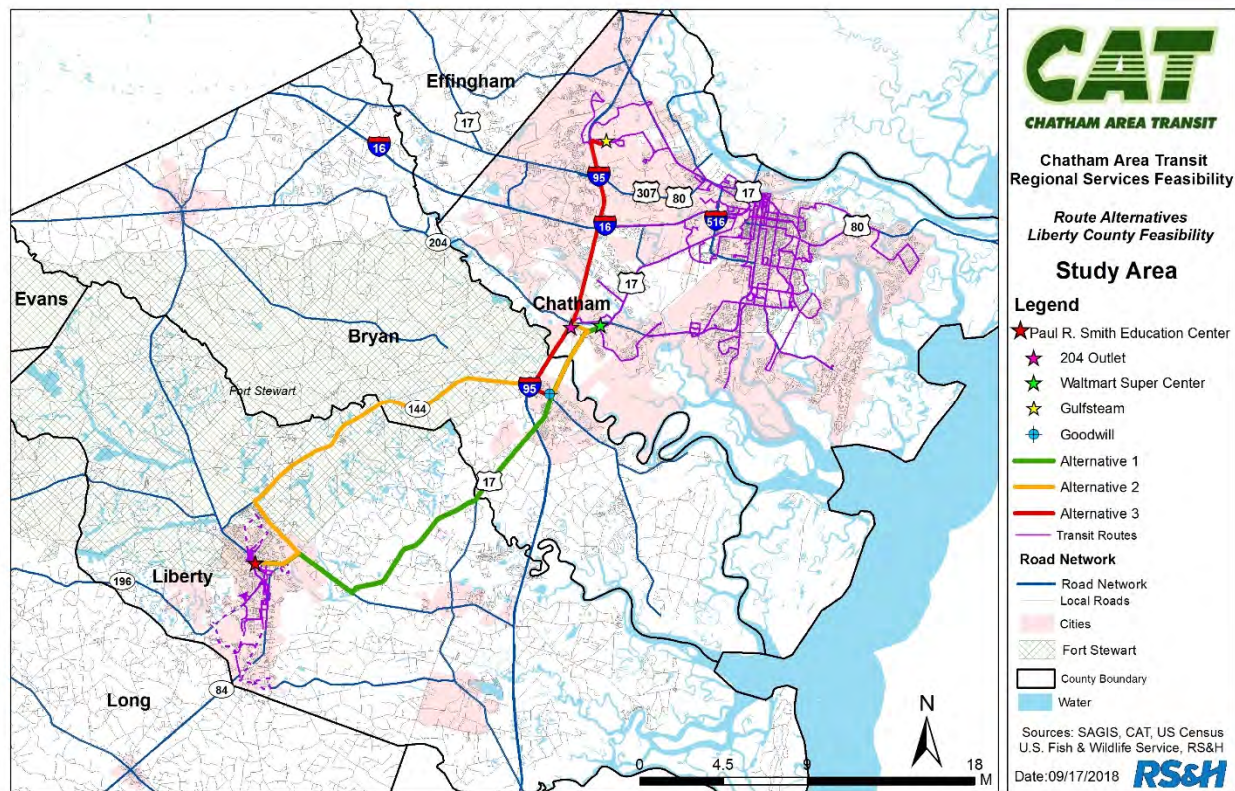


Table 8: Corridor Alternatives for Additional Analysis

	Route Description	Origin	Destination	Routing Corridors	Waypoints	Distance (Miles)	Run time Estimates
1a	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	US 17: Walmart	38C, US 84, SR 196, US 17	Richmond Hill Goodwill	26.7	35
2d	Hinesville to Southside Savannah via Richmond Hill	Paul R. Smith Education Center	SR 204: Festival Plaza	38C, US 84, Fort Stewart Rd, SR 144, US 17, Canebrake Rd.	Richmond Hill Goodwill	30.1	41
3a	Richmond Hill to Savannah	Kroger Shopping Plaza	Gulfstream on Airways Avenue	SR 144, I-95, Airways Avenue	N/A	18.3	25
3b	Richmond Hill to Pooler	Kroger Shopping Plaza	Pooler Commercial	SR 144, I-95, Pooler Parkway	N/A	16	27
4	Richmond Hill to Savannah	Kroger Shopping Plaza	Downtown Savannah	SR 144, I-95, I-16, MLK Jr. Blvd	N/A	20	30

These corridors were selected to limit the one-way travel time to one hour and to avoid redundancy of services with CAT fixed routes. Two alternatives are shown for Liberty to Richmond Hill to demonstrate options for proposed stops located at private businesses. The performance of these corridors were comparable and the dual routing offers options to avoid delays associated with non-standard traffic delays. Due to congestion, delay, and lack of bus priority infrastructure, Liberty to Richmond Hill to Downtown Savannah is not shown in the alternatives map. However, if bus on shoulder or express lanes were implemented on I-16, this route alternative would be considered feasible.

Accessibility

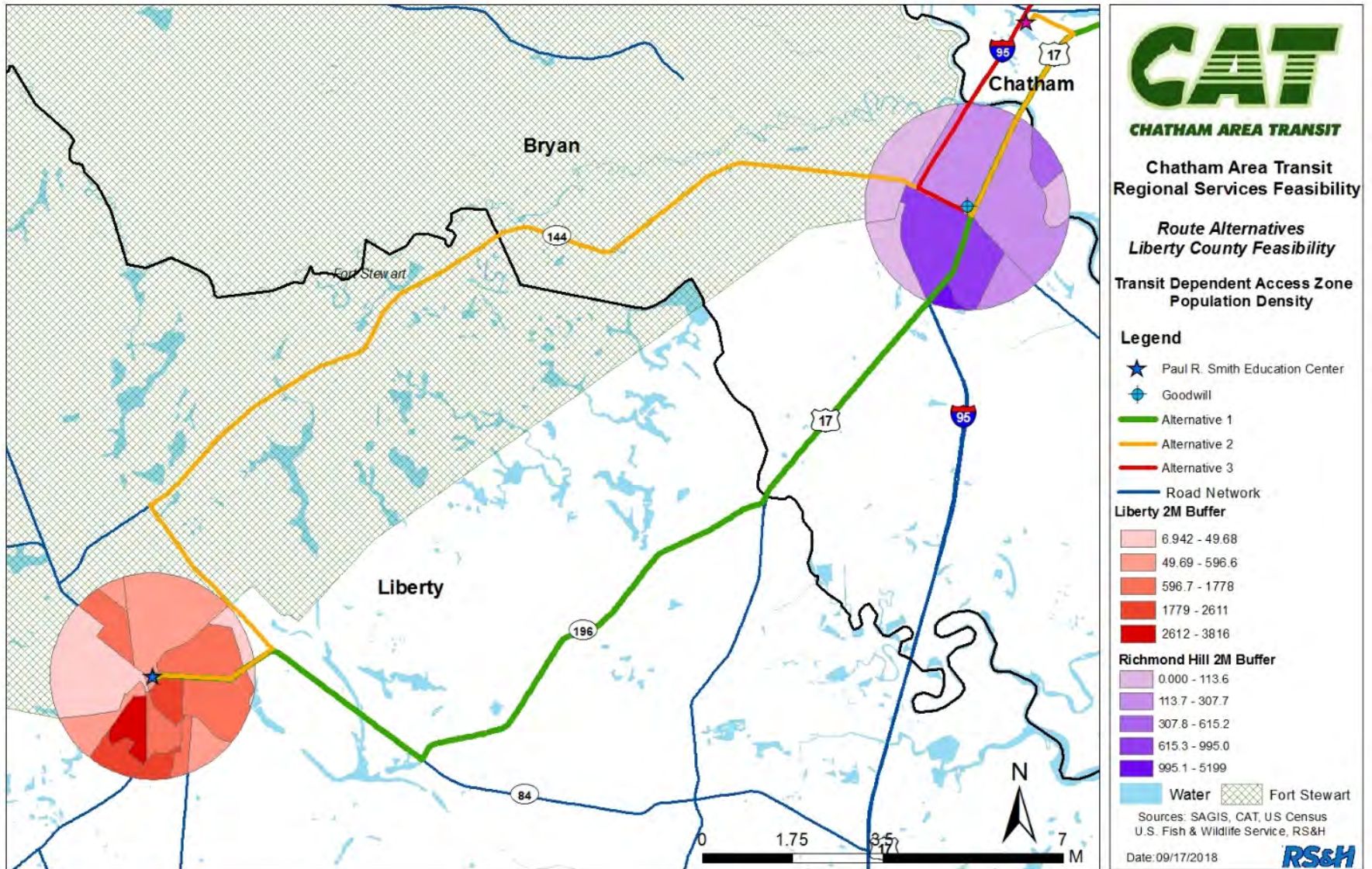
A key element of this analysis is the accessibility of the service for those most likely to utilize public transportation. The following section identifies the population densities and demographic characteristics found within a 2 mile radius of the park-n-ride lot locations proposed for Hinesville and Richmond Hill. A 1 mile buffer was also applied to each side of the Liberty Transit routes to demonstrate the expanded population that is reached via chaining of trips between fixed route local service and regional express service.

The first pair of maps shows the population densities within a two mile radius of the Paul R. Smith Education Center in Hinesville, and the Richmond Hill Goodwill/Kroger, and a buffer of one mile on each side of the Liberty Transit routes. Note that the total population for Hinesville and Richmond Hill differ significantly, so the densities are shown as population per square mile and in a scale relative to each city.

The following table provides the density and demographic population totals found within the 2 mile buffer of the proposed park-n-ride lots in Hinesville and Richmond Hill. These values can be used to understand the relative market for transit dependent populations within walking distance of the proposed service.

Table 9: Density and Demographics within Two Mile Buffer from Proposed Park-n-Rides					
Locations	County	Minority	Zero Car Household	Poverty	Population
Paul R. Smith Education Center	Liberty	17,940	604	10,579	29,118
Richmond Hill Goodwill	Bryan County	6,573	250	5,098	19,087

Figure 29: Population Density within Two Mile Radius of Park-n-Ride Lots



CAT
CHATHAM AREA TRANSIT

**Chatham Area Transit
Regional Services Feasibility**

**Route Alternatives
Liberty County Feasibility**

**Transit Dependent Access Zone
Population Density**

Legend

- ★ Paul R. Smith Education Center
- ◆ Goodwill
- Alternative 1
- Alternative 2
- Alternative 3
- Road Network

LT Routes 2M Buffer

- < 124
- 124 - 500
- 501- 962
- 963- 1864
- >1864

Fort Stewart

Water

County Boundary

Sources: SAGIS, CAT, US Census
U.S. Fish & Wildlife Service, RS&H
US census ACS 2016 5YR

Date: 10/20/2018

RS&H

Figures 31 and 32 shows the percentage of minority population that reside within a two mile radius of the proposed Park-n-Ride lots, and within a two mile buffer of Liberty Transit routes. Both Richmond Hill and Hinesville have significant concentrations of minority populations with access to the proposed service. Hinesville's minority population is between 32% - 66% for all census blocks surrounding the proposed lot location, while Richmond Hill is between 15% - 42%.

Liberty Transit expands the accessibility of the proposed service into areas of Liberty County that are made up of 89% – 100% minorities.

Figure 31: Percentage Minority within Two Mile Radius of Park-n-Ride Lots

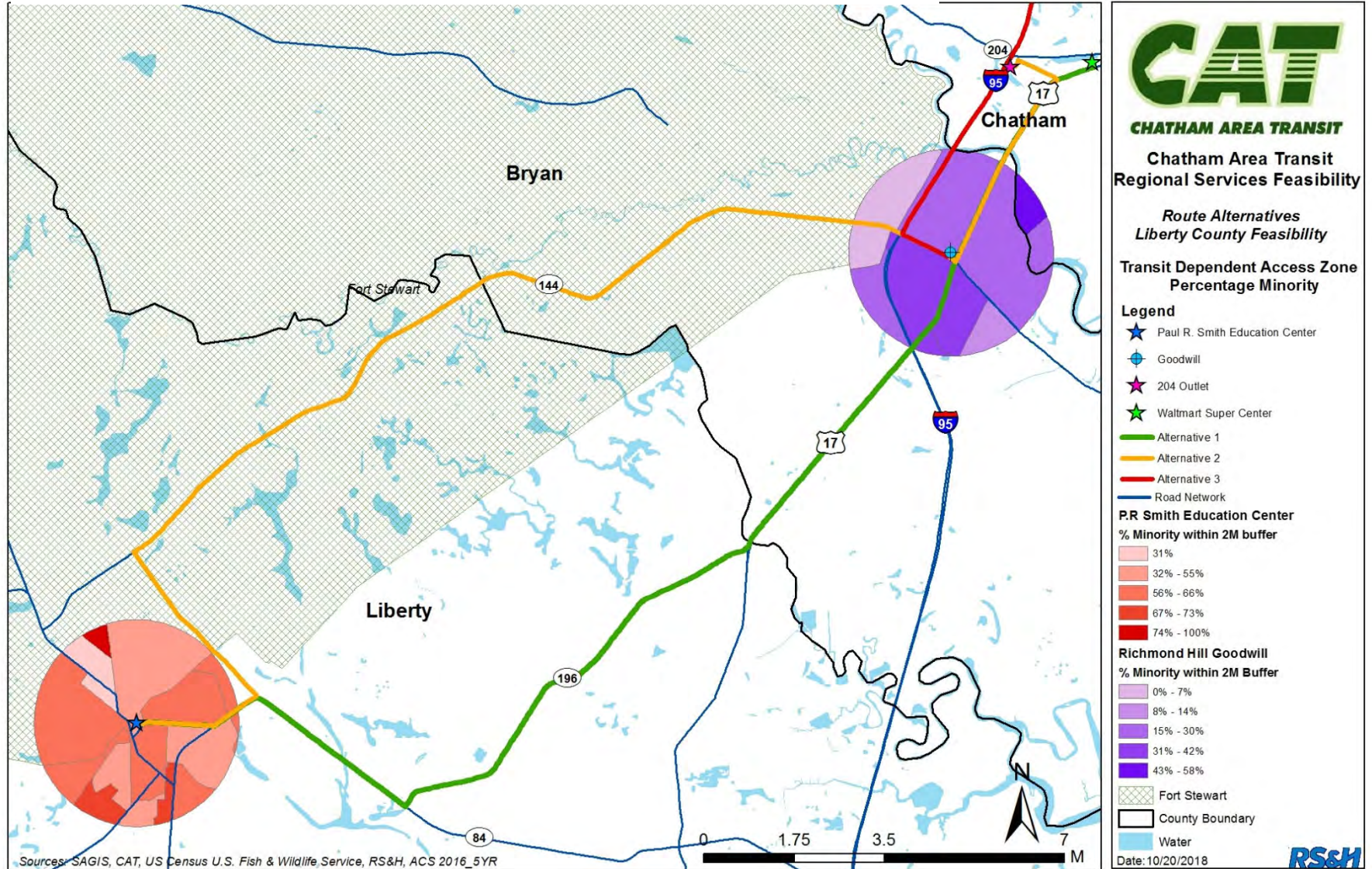
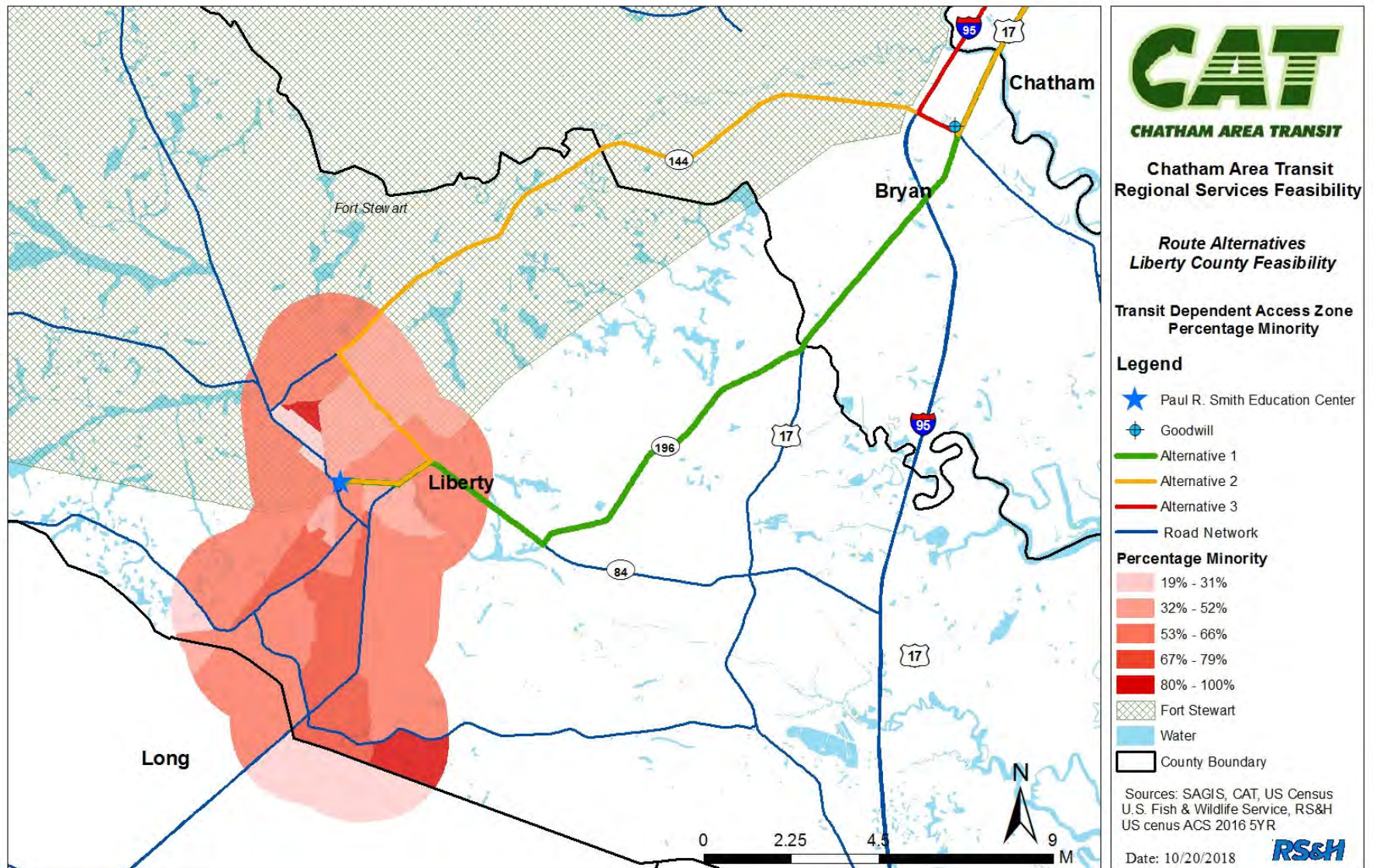


Figure 32: Percentage Minority within Two Mile Buffer of Liberty Transit Routes



Figures 33 and 34 show the percentage of population that fall below the federal poverty threshold and are thus categorized as disadvantaged. These populations are concentrated in the City of Hinesville, with significant concentrations surrounding the Fort Stewart enlisted soldier barracks, and Veterans Parkway south of Gate 8. Richmond Hill has lower concentrations of disadvantaged populations, with the majority of the buffer comprised of less than 17% falling below the poverty level.

Figures 35 and 36 show concentrations of zero car households within the service area. These areas coincide with the disadvantaged and minority population maps, and indicate that the selected park-n-ride lot locations maximize the accessibility of transit services to populations that are statistically most likely to need and to ride public transportation. However, in Richmond Hill the number of disadvantaged and minority populations, and households without vehicles is significantly lower. This indicates that the service design for trips originating in Richmond Hill should be focused on choice ridership, rather than transit dependent ridership.

Figure 33: Percentage Poverty within Two Mile Radius of Park-n-Ride Lots

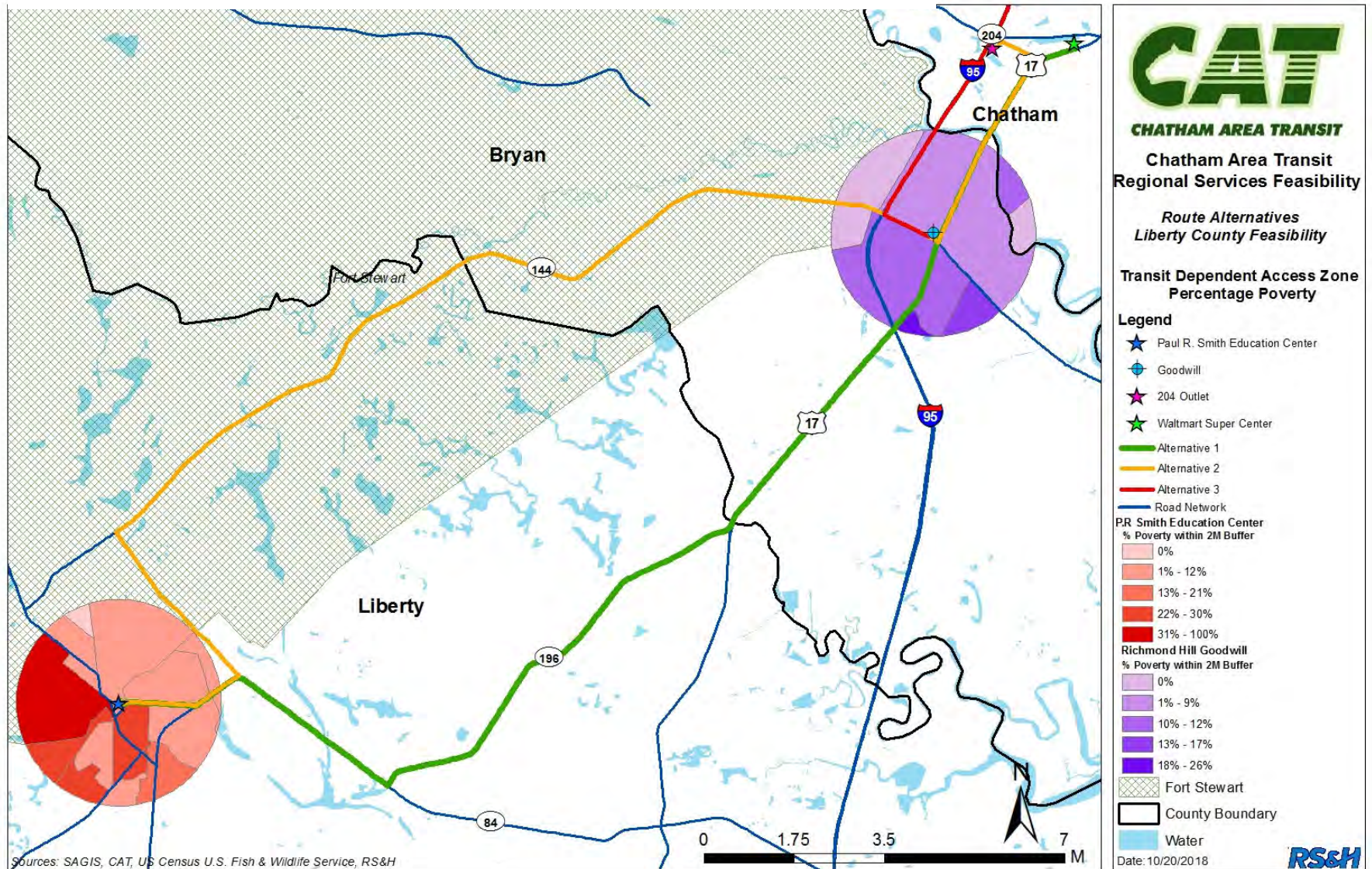


Figure 34: Percentage Poverty within Two Mile Buffer of Liberty Transit Routes

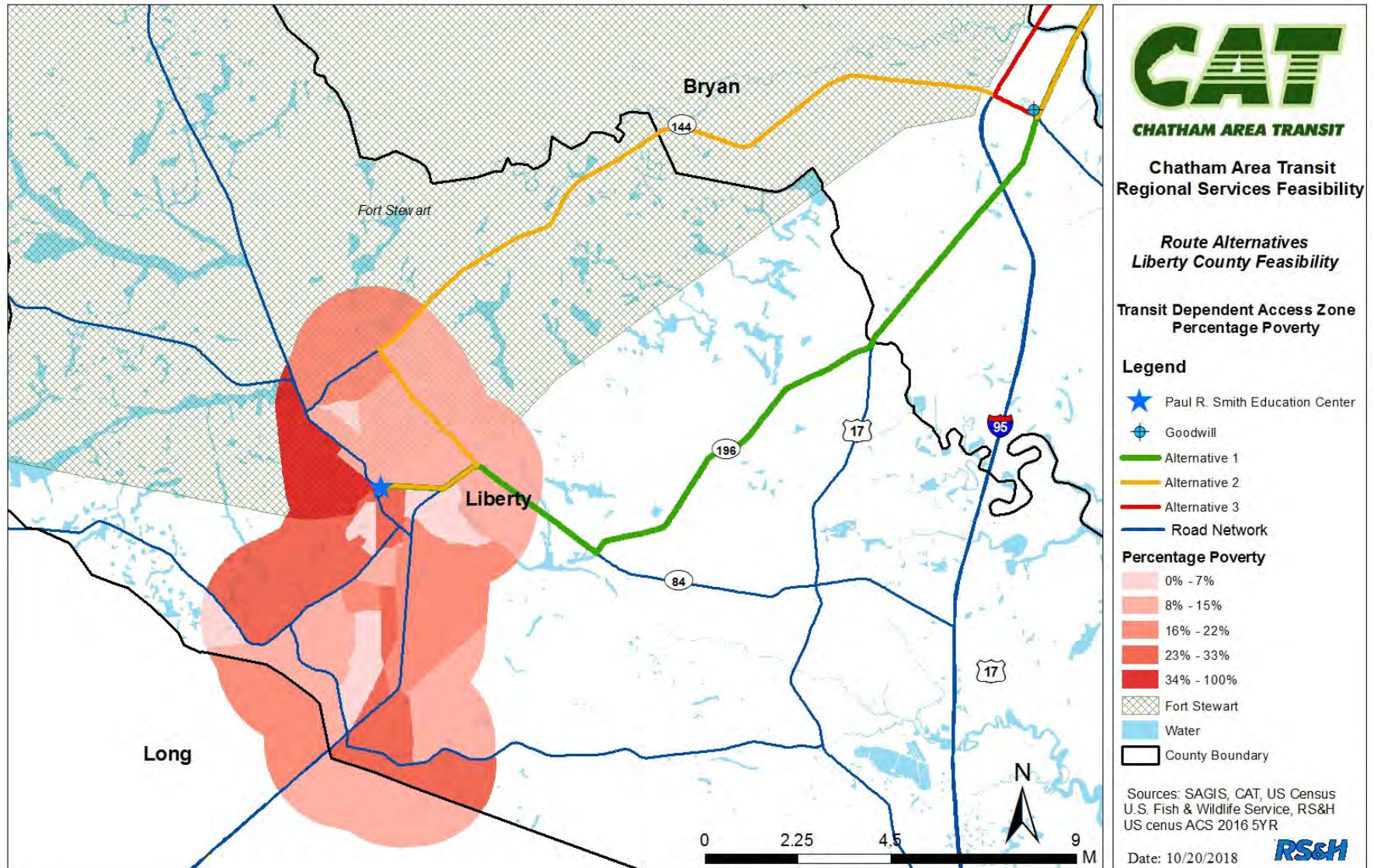


Figure 35: Percentage Zero Car Households within Two Mile Radius of Park-n-Ride Lots

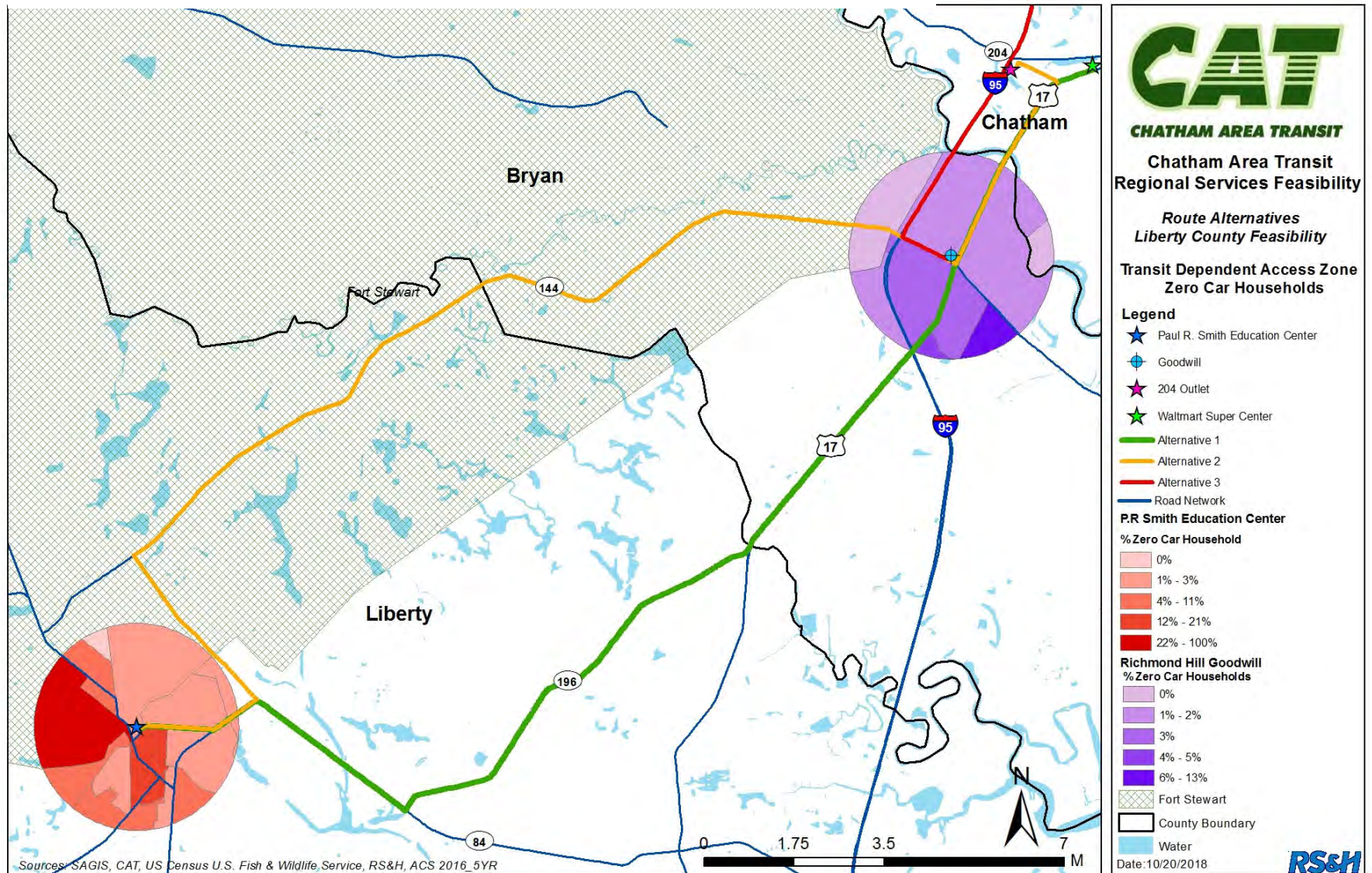
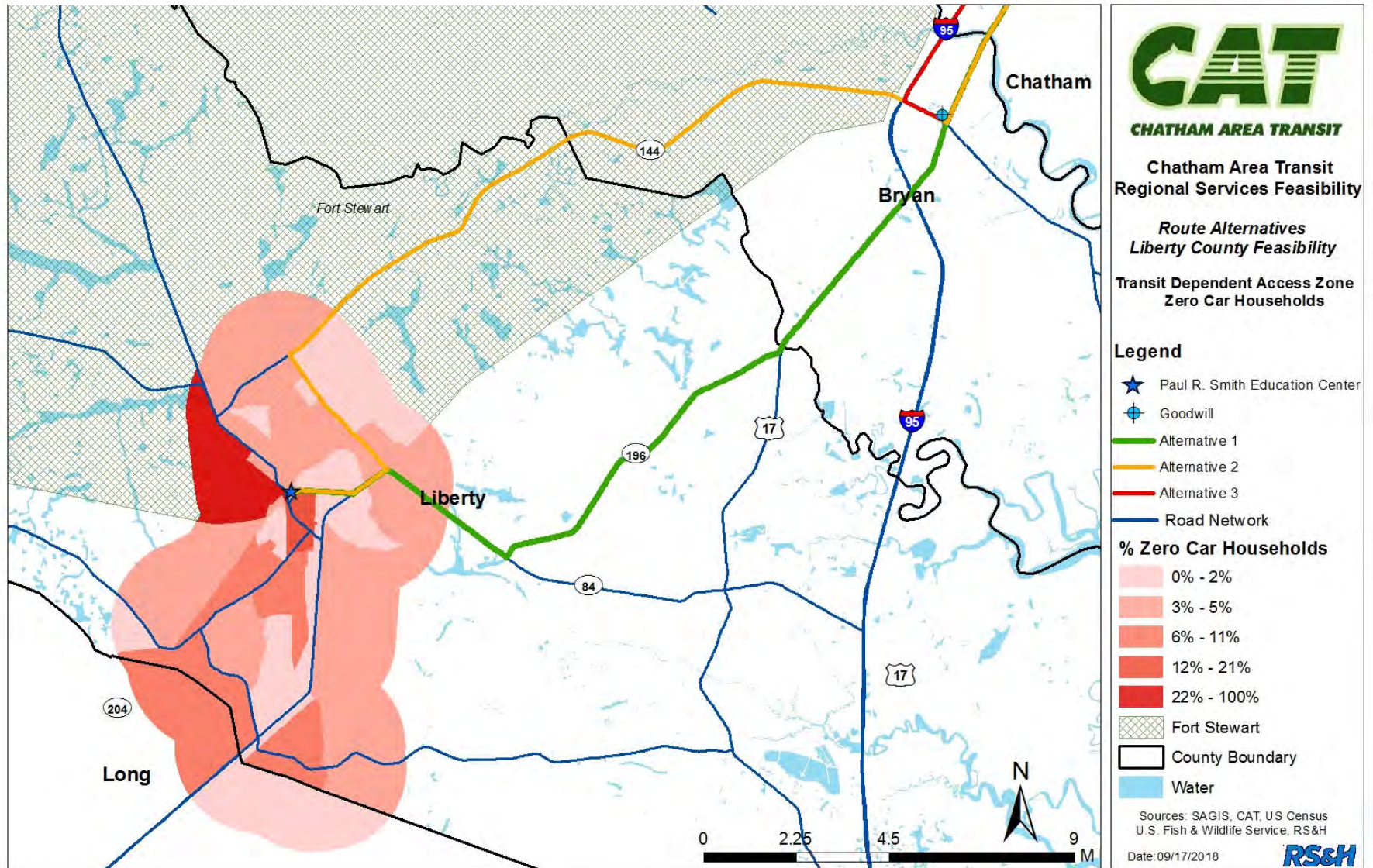


Figure 36: Percentage Zero Car Households within Two Mile Buffer of Liberty Transit Routes



Cost Estimation

In order to gain a better understanding regarding cost vs benefit of Express service between Liberty, Bryan, and Chatham Counties, planning level cost estimates were developed. Service hours for the estimates were developed based on commuter travel peaks including Morning (5:00 AM – 8:00 AM), Midday (12:00 PM – 1:00 PM), and Afternoon (4:00 PM – 8:00 PM). In addition, service hours (5:00 AM – 8:00 PM) were also developed for continuous service to accommodate transit dependent ridership market.

The base level service is one hour with an average run-time of 108 minutes. The estimate utilizes the standard 2018 loaded CAT hourly rate of \$78/hr. excluding capital depreciation of the vehicles. In order to provide the greatest flexibility for additional planning efforts, and/or service implementation, the cost estimates were developed based on route segments. The hourly rate was applied to the service segments, including:

- Segment 1: 38C > US 84 > Fort Stewart Rd/Old Sunbury > SR 144 > Kroger Richmond Hill
- Segment 2: 38C > US 84 > SR 196 / Leroy Coffey Hwy > US 17 > Goodwill Richmond Hill
- Segment 3: Goodwill Richmond Hill > US 17 > Walmart Savannah
- Segment 4: Kroger Richmond Hill > SR 144 > I-95 > Festival Outlet Plaza Savannah
- Segment 5: Kroger Richmond Hill > SR 144 > I-95 > Airways Ave > Gulfstream/Pooler Commercial
- Segment 6: Kroger Richmond Hill > SR 144 > I-95 > I-16 > ML King Jr. Blvd @ Liberty St.

The following table demonstrates the estimated annual operating cost for each routing segment, including a per-segment cost for peak service and for continuous service. These estimates exclude capital procurement and depreciation.

Table 10: Estimated Cost per Service Segment for Peak and Continuous Service Scenarios

	Weekday Service Hours (Peak Service)	Annual Service Hours (Peak Service)	Estimated Annual Operating Cost
Per Segment Cost	8	2,056	\$160,368
	Weekday Service Hours (Continuous Service)	Annual Service Hours (Continuous Service)	Estimated Annual Operating Cost
Per Segment Cost	15	3,855	\$300,690

For base level service with frequencies of approximately one hour, one vehicle would be required for each segment of service plus one spare, in order to ensure reliability of service and to accommodate repairs and routine maintenance. Capital cost estimates for rolling stock were obtained from historical CAT vehicle procurement data, which includes all standard CAT fleet features. The following table provides a range of capital costs for vehicle procurement based on the three vehicle types.

Table 11: Estimated Vehicle Cost

Vehicle Type	Cost Per Vehicle
Coach	\$1,150,000
Gillig Commuter	\$955,000
Low-Floor Cutaway	\$145,000

Liberty Transit maintains ownership of federally funded rolling stock vehicles procured using American Recovery and Reinvestment Act (ARRA) stimulus funding. These vehicles are maintained in a state of good repair and may present an opportunity to implement a pilot service without incurring additional expenses associated with capital bus procurement. The vehicles are 30' Glaval Apollo buses with diesel engines. The passenger capacity for each vehicle is 24 seated, and each is equipped with wheelchair lifts and bicycle racks.



In addition to vehicle procurement, start-up costs may also include the following:

- Bus stop infrastructure/site improvements such as signage, shelters/seating, trash receptacles, lighting, and ADA accessibility improvements
- Targeted multi-county advertisement and marketing campaigns

Planning level cost estimates for supporting capital infrastructure and marketing can range dramatically, but typically fall within a threshold of 20% - 30% of the annual operating expenses of the new route. Policy decisions regarding the goals and objectives for capital investment and marketing should be established to assist in the development of a refined budget for these supporting elements of service start-up.

Summary

The primary focus for the technical screening was to analyze the potential market for regional express and commuter service between Liberty County, Bryan County, and Chatham County. The target market for this assessment consisted of both employment based commuters and transit dependent commuters. Due to the varying target market, two primary screening techniques were used to perform the assessment, including industry design criteria for employment based commuter services and TCRP Transit Propensity analysis for disadvantaged populations.

Data used to perform the analysis includes:

- U.S. Census data: Population Densities and Demographics
- Longitudinal Employer-Household Dynamics (LEHD) data: Travel to Work Assessments
- AirSage mobile device based origin and destination data: Travel sheds
- National Performance Management Research Data Set (NPMRDS)

These assessments, combined with the mobile device based Origin and Destination analysis from a previous CAT study targeted the service areas of “Downtown Hinesville”, “Richmond Hill”, “Southside Savannah”, “Midtown Savannah”, “Downtown Savannah”, and “West Chatham / Pooler”. These areas were further analyzed to determine feasibility of service including factors such as travel time, accessibility, concentration of destinations, walkability, existing/planned roadway features, and existing public transit connections. The maximum travel time for each route was limited to one hour with a preferred route headway of 30 minutes for employment based commuters.

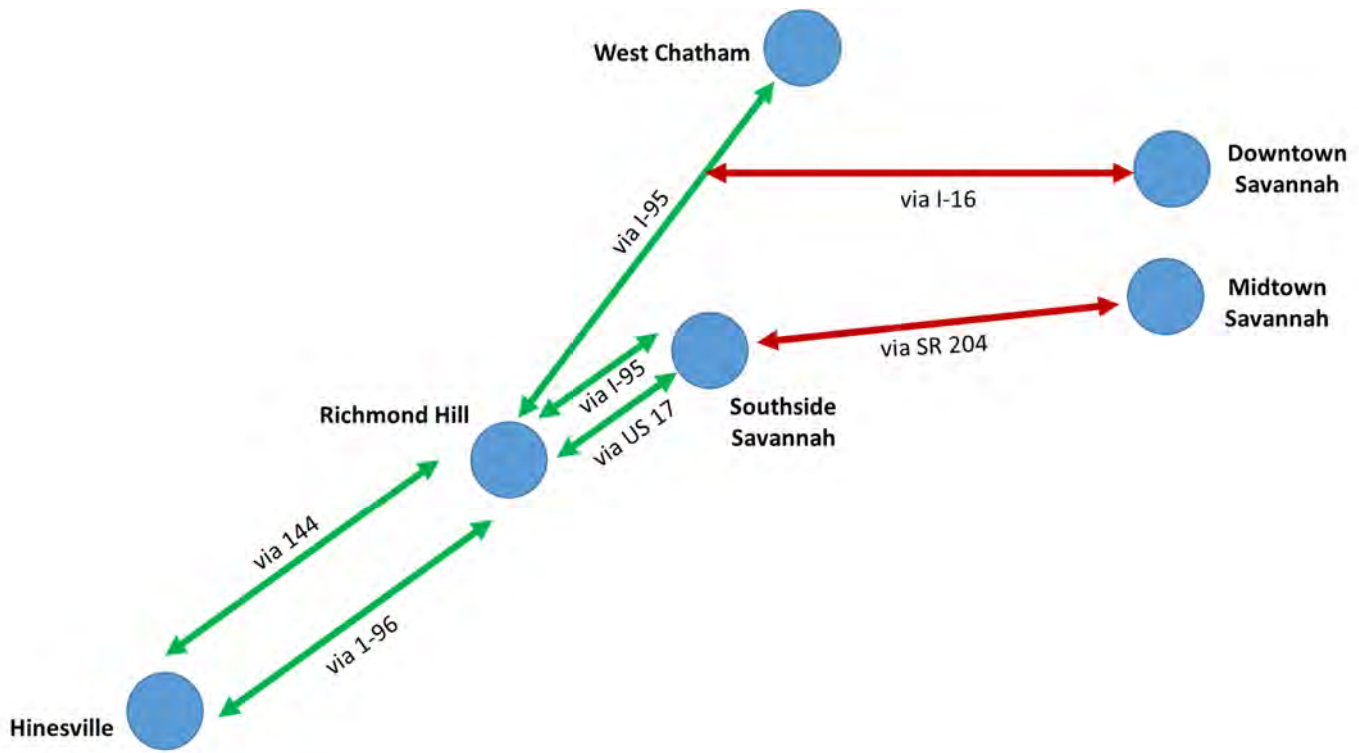
These factors resulted in a refined list of potential service areas including:

- Paul R. Smith Education Center - Hinesville
- Savannah Festival Outlet Shopping Plaza – Southside Savannah
- Super Walmart Plaza – Southside Savannah / US 17
- Gulfstream on Airways Avenue – West Chatham/Savannah
- Pooler Commercial on Pooler Pkwy – West Chatham

Due to vehicular congestion on all potential routes, Downtown Savannah and Midtown Savannah were not considered viable on the existing transportation network facilities.

The following diagram demonstrates the possible route segments that could be offered for regional service between these identified service areas. It is important to note that flexibility and options are paramount when planning regional commuter service that depends on gaining access to private property.

Figure 29: Route Segment Options Diagram



Three service options have been identified that demonstrate the most potential. The primary factors impacting the route alternatives is the number of routes and vehicles needed to operate the service. The bulleted list below provides a summary of these factors.

- Alternative 1: 1 Route, 1 bus at peak service
 - Hinesville > Richmond Hill > Southside Savannah
- Alternative 2: 2 Routes, 2 buses at peak service
 - Hinesville > Richmond Hill > Southside Savannah, and
 - Richmond Hill > West Chatham
- Alternative 3: 3 Routes, 4 buses at peak service
 - Hinesville > Richmond Hill, and
 - Richmond Hill > Southside Savannah > Midtown Savannah, and
 - Richmond Hill > West Chatham

The following tables provide a summary of the estimated operating and capital cost for each of the alternatives. Note that the capital rolling stock cost estimates do not include options for utilizing existing Liberty Transit and CAT surplus vehicles, or lease of service vehicles. These alternatives should be considered during final service design and implementation efforts.

Table 12: Corridor Alternatives Estimated Operating Cost Summary

	Weekday Service Hours (Peak Service)	Annual Service Hours (Peak Service)	Estimated Annual Operating Cost
Alternative 1	8	2,056	\$ 160,368
Alternative 2	16	4,112	\$ 320,736
Alternative 3	24	6,168	\$ 481,104
	Weekday Service Hours (Continuous Service)	Annual Service Hours (Continuous Service)	Estimated Annual Operating Cost
Alternative 1	15	3,855	\$300,690
Alternative 2	30	7,710	\$601,380
Alternative 3	45	11,565	\$902,070

As described previously in this report, CAT and Liberty Transit have spare buses that may be suitable for use in a pilot service project, however if/when vehicles are procured for this service the following table provides capital estimates for three vehicle types.

Table 13: Estimated Capital Vehicle Cost Summary

Coach	Gillig	Low-Floor Cutaway
\$1,150,000	\$ 955,000	\$145,000

These alternatives were identified based on available data and do not reflect market analysis to determine the consumer demand for service. In order to select an alternative for more detailed analysis and subsequently implementation, the following factors should be considered:

- US 17 experiences AM and PM peak delays and has no opportunities for bus on shoulder or express service lanes.

- SR 144 experiences AM and PM peak delays associated with Fort Stewart commuting and no bus on shoulder opportunities.
- I-95 does not experience significant delay and is therefore not considered highly competitive with vehicular travel. Amenities offered to passengers would be a key factor in incentivizing routes utilizing this corridor.
- Travel times will limit ability to reach Downtown without modifications to existing infrastructure on I-16 and I-95 at SR 204 and I-16 Interchanges.
- No direct connections are proposed to Hunter Army Air Field, Oglethorpe Mall Area, or Downtown. Transfers would be required to access these areas which would limit the competitiveness to vehicular travel for choice riders and employment based commuters.
- Hinesville presents the greatest opportunity for transit propensity trips due to the significant concentration of disadvantaged population within close proximity to the proposed park-n-ride lot.
- For transit depended commuters, existing travel to work and mobile device data does not demonstrate the need or desire for regional service. These trips would be considered “induced” and could not be fully assessed as a part of this analysis.

The findings of this analysis indicates that service between Hinesville, Richmond Hill, and Chatham County **is viable**, with transit dependent riders as the primary market. Due to traffic delays and a lack of roadway options to facilitate express bus service, the commuter based employment trips for choice riders is not considered a primary target market. The population densities found within the catchment areas is sufficient to warrant hourly service, however it is recommended that the pilot program deploy lower capacity rolling stock until a baseline ridership is proven to exceed the available capacity. Key next steps are outlined below.

- Coordinate with Georgia Department of Transportation Intermodal Division and Federal Transit Administration to identify issues and opportunities associated with regional service between two metropolitan areas.

- Identify strategies regarding project sponsorship and cost sharing to leverage available resources and limit costs.
- Perform outreach and surveys for residents within the service catchment areas to gauge potential ridership and increase awareness of the potential service.
- Utilize survey and outreach response to guide the decision making process surrounding fleet type and number. If ridership is anticipated to exceed the capacity of a single cut-away vehicle, size and quantity must be adjusted to accommodate the ridership.

Appendix A: Existing Studies and Plans Summary

2014 CORE MPO Park and Ride Lot Study

Overview

In 2004, the Coastal Regional Metropolitan Planning Organization (CORE MPO) completed a Park-and-Ride Lot Study. The intent of this study was to evaluate the feasibility of implementing a regional park-and-ride lot program for the Coastal Savannah region. The study analyzed the greater Savannah region to determine if there was a need or demand for expanded park-and-ride facilities. The primary objectives of the Park-and-Ride Lot Study included:

- Identifying major travel shed corridors and trip volumes based on current and anticipated future commuting patterns.
- Identifying and evaluate potential park-and-ride lot locations within those corridors.
- Developing regional bus service plans that serve the commute corridors and park-and-ride lot locations, with service plans tailored to meet anticipated demand.
- Determining likely costs, revenues and potential funding sources.
- Identifying implementation strategies for advancing study recommendations.
- Engaging stakeholders through all phases of the project.

At the time of the study, a significant number of informal park-and-ride lots were observed at commercial businesses around the study areas of Chatham County, Bryan County, Effingham County, Bulloch County, and Liberty County in Georgia, as well as Jasper County and Beaufort County in South Carolina.

Proposed Park and Ride Locations

I-16 & US 280/SR 30 is an existing park-and-ride lot located in Bryan County. It did not score as well as the US 80 and Bloomingdale Road location in the suitability analysis. The stakeholder committee noted that this site seemed too far away from the corridor's commuter travel shed, which was verified in the travel market analysis. However, since the lot presently exists, and travel demand is expected to continue to grow in this corridor, it is recommended that it continue to be a part of the regional park-and-ride lot system.

South (I-95 and US 17) Corridor

It is recommended that travel in this corridor be supported by the following two park-and-ride lot locations.

US 17 in the vicinity of Wal-Mart in Chatham County achieved a high suitability score. This location also had the highest number of work trips in its catchment area of the seven south corridor sites that were evaluated. It was the preferred location by stakeholders, noting it is in a location that captures demand from both the SR 204 and US 17 corridors and is located before peak period traffic congestion on SR 204 occurs. This area is also presently served by Chatham Area Transit (CAT). A potential new lot could be

constructed along this US 17 segment, or a joint-use location with an existing commercial use could be utilized. CAT is presently in the process of securing park-and-ride spaces at the Savannah Mall to address near-term park-and-ride needs. Longer-term, however, this study identified US 17 near Wal-Mart as the desired location for a park-and-ride lot for the South Corridor.

A second location is also recommended for this corridor, either at **US 17 & SR 144** or **I-95 & SR 144** in Bryan County. The US 17 & SR 144 site scored better from a suitability standpoint. The I-95 & SR 144 location, however, had a higher number of trips in its catchment area (second highest number of work trips in its catchment area of the seven sites that were evaluated for this corridor). There are potential shared use opportunities at the US 17 & SR 144 location. New park-and-ride lot construction would likely be required at the I-95 & SR 144 location.

Regional Commuter Transit Service Implementation

The 2004 CORE Park-and-Ride study reported that regional commuter transit service is likely viable for Downtown Savannah and the Gulfstream/Airport/Crossroads area. The study also highlighted that regional transit service may also be viable longer-term for other major employment areas. For example, there appeared to be a strong travel demand to Hunter Army Airfield in the South I-95/US 17 corridor during the period the study was being conducted.

The planning document outlines that the provision of a regional commuter transit service would be the most challenging of the recommendations to implement and was envisioned as a longer-term recommendation. Because of the high on-going annual cost for transit service operations and maintenance, it requires sustainable funding sources. At the time of the study there were no mechanisms in place for the greater Savannah region to fund a regional commuter transit service that would be multi-jurisdictional. The Chatham Area Transit (CAT) and the Coastal Regional Commission (CRC) are the two public transit service providers in the Savannah region. The plan outlines that both agencies could be the service provider for regional commuter transit service, however, both have funding restrictions.

2013 – 2018 CAT Transit Development Plan

In 2013, the Chatham Area Transit (CAT) developed a Transportation Development Plan (TDP). The TDP is a required document with a 10-year planning horizon that is intended to chart the course for the transit system in the future. The TDP identifies the public transportation needs and defines the action steps to address those needs. The TDP is developed in close coordination with agency partners, community goals and values and incorporates public and stakeholder input throughout the process.

The TDP includes the identification of existing conditions within the community, defines the existing transit services and performance evaluation of those services, documents a review of peer systems, incorporates a situational appraisal of the community demographics, transit services and opportunities, identifies the goals and objectives of the system, and outlines alternatives and improvements to meet the public transportation needs of the community,

The TDP also included an overview of existing commuter services. According to the CAT 2013-2018 TDP there are several organizations in the Chatham region that administer or provide commuter assistance services. The plan document outlines that, the Coastal Regional Commission, in partnership with a private vanpool service provider, introduced the Coastal Georgia Vanpool Program in 2010. The program provided vehicles and comprehensive maintenance and insurance services for groups of individuals sharing a similar commute, particularly those traveling longer distances or where public transportation options are not available.

The Coastal Vanpool Program was supported with state and federal funds, and employer and rider contributions. In mid-2011, as a result of lower than anticipated demands, the program was suspended while the Commission determined it would take steps to evaluate and reassess future vanpool program options.

It was also stated in the planning document that in 2005, the CORE MPO approved the Connecting Savannah Action Plan, which outlined recommendations from the community's 6-month, consensus-building process for transportation planning. One of the recommendations in the Action Plan was for MPO staff to coordinate with the hospitals along DeRenne Avenue to encourage their employees to carpool or use public transit for their commutes. This resulted in the CORE MPO coordinating regional commuter assistance and employer based programs to promote alternatives to automobile travel.

The study outlined that the "CORE MPO offers a free computer based ride matching system to help individuals identify others who have similar travel patterns for the purpose of organizing carpools or finding bicycle/walking partners. Everyone is eligible to enroll in the system, but for larger employers or groups of smaller employers who provide financial support for program administration or offer transportation related employee benefits, the MPO also administers an emergency ride home program and an employer/participant tracking program."

CAT works with area employers to coordinate and promote Commuter Choice, a federal tax program which allows employers to pay up to \$245 per month in 2013 for an employee's cost of commuting via transit or vanpool. Commuter Choice incentivizes the use of high occupancy vehicle travel by offsetting the associated costs without increasing the employee's taxable income. Employers reap the benefits of increased employee satisfaction.

[Categorization of Service Alternatives](#)

The 2013-2021 TDP provides a consensus that improvements to CAT entails a Family of Service designed to appeal to different markets and market segments throughout the savannah region. One of which included:

- **Regional Commuter express service** to enhance mobility for Chatham, Effingham, and Bryan county residents working in the primary Savannah employment market.



The current TDP outlines that “in the charter that created the current Chatham Area Transit Authority, there is an option for Effingham and Bryan Counties to join the Authority and have service within their own counties if they desire and regional commuter express services to and from Downtown Savannah. This will become important moving ahead as the Savannah Urbanized Area is no longer contained within Chatham County and extends in to surrounding counties. Although no specific routing was developed for this TDP, CAT should continue its outreach efforts to Effingham and Bryan Counties to address the need and market demand for regional connections for Inter-County travel and support access to growing employment centers. The adjacent figure shows the conceptual patterns of express bus service in the region.

In addition to meeting the demand for services in Savannah, CAT will also need to develop urban and rural mobility service appropriate for the entire region. The TDP highlight that based on anticipated development in the central and northern areas of the County, as well as existing and potential growth in inter-county, commuter trips may be better served with a mix of service types. These could include:

- Express service from Park-and Ride facilities as suggested in the Effingham County Multi-Modal Transportation Study.
- Other specialized service types, such as shuttle service to employment sites (Tricentennial Plan),
- Carpool/vanpool services recommended in the Step Up Economic Impact Study and the Connecting Savannah Action Plan,
- Transportation Demand Management Strategies included in the Fort Stewart/HAAF Regional Growth Plan could be used to effectively meet regional demand.

The plan observations highlighted that CAT should pursue additional opportunities to coordinate and collaborate with local and regional planning activities including those of neighboring counties and municipalities that are not yet members of CAT. This suggestion was intended to help ensure that transit is given appropriate consideration in the comprehensive planning process in terms of land use development supportive of public transportation access and related amenities. Active involvement in planning activities could take the form of service development proposals and technical assistance for local and regional governments, and could also help to identify opportunities for joint public/private partnerships to enhance mobility.

[Chatham Area Transit Strategic Plan FY 2018 - 2022](#)

The following goals were established and adopted by the CAT Board to guide policies and investments through 2022.

- Provide innovative service solutions.
- Enhance community engagement through advocacy, marketing and outreach.
- Maximize staff potential through workforce development.
- Achieve excellence through high quality service delivery.
- Maintain financial stability.

To meet the future needs of the growing community, Chatham Area Transit must look beyond the 5-year planning horizon to identify projects and innovations that will provide access and opportunity for all. Some of these long-term projects include:

- Establish region-wide park and ride network
- Work with local partners on projects that incorporate Transit Oriented Development (TOD) principles
- Explore partnerships with fixed route cost benefits while serving private industry needs for transportation
- Coordinate with state and local government agencies to implement commuter services through dedicated or limited public access lanes for transit vehicles
- Work with surrounding county agencies to streamline passenger experience across multiple service alternatives
- Complete fleet conversion to low-no emissions vehicles
- Funding for bus replacements secured and incorporated into planning process
- Work with housing and other community partners to develop joint FTA/HUD grant funded projects
- Leverage improved cash position by becoming stronger financial partner for public/private ventures with focus on long term revenue producing opportunities
- Identify and develop satellite facilities to accommodate system growth
- Work with the agency partners to implement fixed guideway services

[Liberty Transit 2018 – 2021 Transit Development Plan](#)

Liberty Transit carried out a transit development plan update in 2018. The plan document highlights that the Liberty Transit System (LTS) currently provides fixed route serves, as well as paratransit service for ADA eligible riders the metropolitan population within:

- The City of Hinesville
- The City of Flemington

- The City of Walthourville
- Fort Stewart military installation

Liberty Transit has operated as a department of the City of Hinesville since October 2010 service five days per week.

Transportation Service Providers

Liberty County is currently served by a variety of public and private transportation providers. The primary transportation service providers include:

- Regional demand response rural transit service – Coastal Regional Coaches
- Fixed route urban public transportation – Liberty Transit
- Intercity transit service – Greyhound

The plan document highlights that these primary service providers are supplemented by private transport companies that provide purchase of service and non-emergency human service trips. While there are a significant number of private car services operating in Liberty County, the following list captures a cross section of the most highly utilized services.

- Private car share services – Uber and Lyft
- Taxi Providers
- Medical and Non-Emergency Human Service Transport

Regional Service Partnerships

The Liberty TDP's public and stakeholder engagement, elected officials interviews, major employer's interviews/survey, operator interviews, and technical analysis all indicated that a fixed route bus service connection between Hinesville and Savannah was desirable and a key initiative for the service. The various sectors interviewed expressed that the existing rural demand response service was not a viable service model to meet the travel needs, due to the required 24 hour reservation system, inability to provide urban to urban trips, and inconsistency in trip pick-up/drop-off performance that makes it unreliable for employment, school, and medical appointment trip purposes.



PO Box 9118
Savannah, GA 31412
(912) 233-5767
www.catchacat.org

