TECHNICAL REPORT 2

Existing Conditions Analysis

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Solutions you can build upon

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1.0 Introduction

This report identifies the conditions and characteristics of the existing transportation system in the Auburn-Opelika Metropolitan Planning Area (MPA) for the base year, 2015. Where required by the Fixing America's Surface Transportation (FAST) Act, it provides the data for the most recent year available.

For each mode of transportation, the report focuses on the following information:

- Network facilities and assets
- Maintenance
- Safety and security
- Traffic and demand

Detailed information for federally required performance measures and targets are discussed in a separate document, the Transportation Performance Management Report.

> Planning for the future transportation system and its improvements begins with evaluating the existing transportation system.

2.0 Roadways and Bridges

The region's roadways and bridges are used by personal motor vehicles, public and private transportation providers, bicyclists, and freight trucks. These roadways can also be used to provide access to other transportation modes. This section discusses the general use of the MPA's roadways and bridges. The existing conditions for biking, walking, public transit, and freight will be further discussed in greater detail later in this report.

84.7%

Of workers commute by motor vehicle and drive alone

For households in urbanized areas, like Auburn-Opelika, traveling by motor vehicle is the primary means of transportation. The most recent American Community Survey (ACS) 5-year estimates show that commuting by motor vehicle without carpooling is the most common method of commuting within the MPA. This means the overwhelming majority of household travel is affected by the condition of the MPA's roadways and bridges.

2.1 The Roadway Network

Several federal and state highways serve the planning area. The most significant of these facilities are shown below:

- I-85 begins at an intersection with I-65 in Montgomery, AL and travels northeast to I-95 in Petersburg, VA. It travels through the study area from southwest to northeast, proceeding along the southern end of Auburn and Opelika.

- US 280 begins in Birmingham, AL at its intersection with I-20/I-59, proceeding southeast to Auburn, and ending near Savannah, GA at US 80. US 280 proceeds through the study area from northwest to southeast. East of the study area, US 280 is concurrent with US 431. Within the state of Alabama, US 280 has the unsigned designation of SR 38.

- US 431 begins in Dothan, AL at US 231 and ends in Owensboro, KY at US 60. East of the study area, US 431 is concurrent with US 280. Within the state of Alabama, US 431 has the unsigned designation of SR 1.

- US 29 parallels, or is concurrent with, I-85 through the study area, and this highway connects the study area with Montgomery (via US 80) and West Point, GA. Within the state of Alabama, US 29 has the unsigned designation of SR 15.

- SR 14 begins at an intersection with US 80 and ends at US 280 in Auburn, AL, Martin Luther King Dr carries the roadway into Downtown Auburn.

- SR 147 connects I-85 southwest of Auburn with US 280 northwest of Auburn. This highway is also known as North College Street and Shug Jordan Parkway.

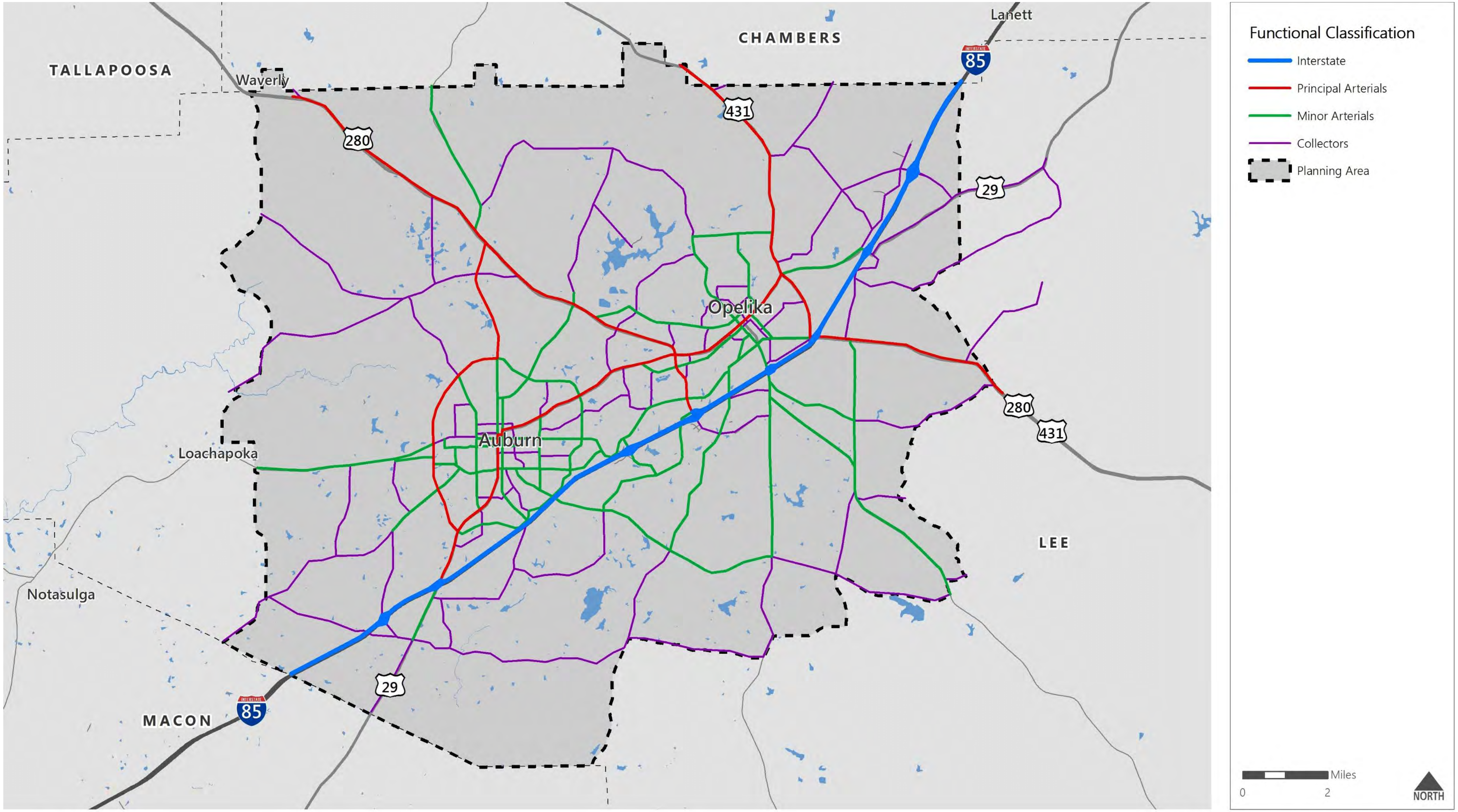
Roadways by Functional Classification

Each type of roadway serves a function in the overall roadway network. Roadways are divided into functional classes based on their intended balance of mobility (speed) and access to adjacent land. Their designs vary in accordance with this functional classification.

Figure 2.1 illustrates the functional classification of the Auburn-Opelika MPA's roadways. Table 2.1 summarizes this information by centerline miles and lane miles.

Interstates	• Divided highways with full control of access and grade separations at all intersections. • The controlled access character results in high lane capacities, three times greater than the individual lane capacities of urban arterials.
Expressways	• Provides for movement of large volumes of traffic at relatively high speed, and are primarily intended to serve long trips. • Have some grade separated intersections, while the majority of the intersections are widely spaced and signalized.
Arterials	• Serve both as feeders to interstates and expressways, and as principal travel ways between major land use concentrations within the study area. • Typically divided facilities (undivided where right-of-way limitations exist) with relatively high traffic volumes and traffic signals at major intersections. • The primary function of arterials is to move traffic; they are the main means of local travel, with a secondary function of land access.
Collectors	• Provide both land service and traffic movement functions. • Serve as intermediate feeders between arterials and local streets and primarily accommodate short distance trips. • Generally not continuous for any great length since they serve few through trips.
Local Streets	• Provide access to immediately adjacent land. • Within the local street classification, three subclasses are established to indicate the type of area served: residential, industrial, and commercial.

Figure 2.1: Functional Classification of Roadways



Data Sources: ALDOT

Disclaimer: This map is for planning purposes only.

Table 2.1: Roadway Model Network Lane Mileage by Functional Class

Functional Class	Centerline Miles		Lane Miles	
	Miles	Percent	Miles	Percent
Interstate	21.77	7.0%	87.08	20.3%
Principal Arterial	45.62	14.6%	79.49	18.5%
Minor Arterial	100.89	32.4%	117.81	27.5%
Collector	143.51	46.0%	144.18	33.6%
Total	311.79	100.0%	428.56	100.0%

Source: AOMPO Travel Demand Model

2.2 Traffic and Congestion

404,361

Daily trips within the MPA

The number of daily vehicle trips estimated by the Travel Demand Model, by trip purpose, in 2015 is summarized in the graph below. Nearly eight (8) percent of vehicle trips pass through the MPA, while taxi and truck trips account for nearly a tenth of the trips in the MPA.

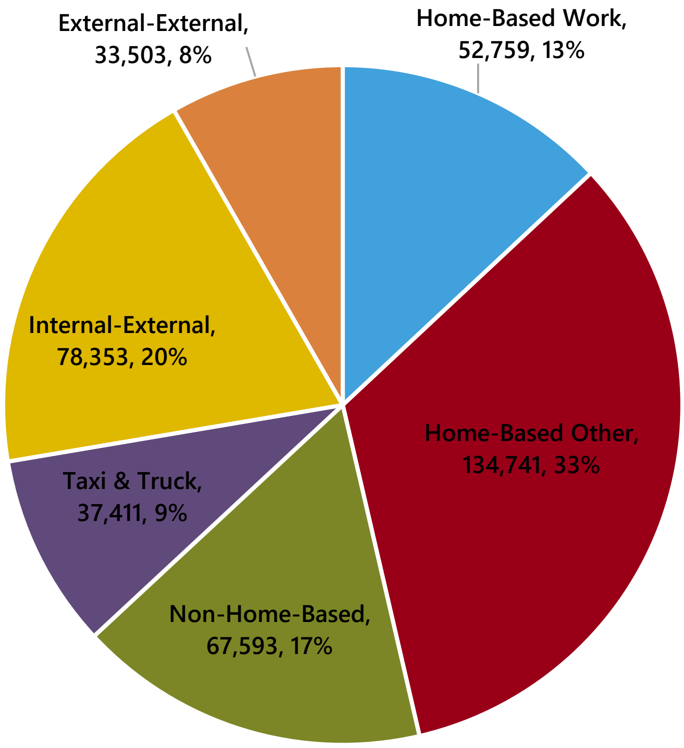


Table 2.2 displays how these trips are distributed onto the modeled transportation network. Most of the delay (just over 54 percent) is estimated to occur on the principal and minor arterials and along the interstate. This coincides with where the most vehicle miles travelled and vehicle hours travelled occur. There is comparatively little delay estimated to occur on collectors. This is in large part due to travel on these roadways accounting for less than 14 percent of vehicle miles traveled and 15 percent of vehicle hours traveled.

Table 2.2: Roadway System Travel Characteristics, 2015

Functional Class	Daily Vehicle Miles Travelled (VMT)		Daily Vehicle Hours Travelled (VHT)		Daily Vehicle Hours of Delay (VHD)	
	Number	Percent	Number	Percent	Number	Percent
Interstate	956,758	35.1%	17,249	28.7%	2,495	43.9%
Principal Arterial	666,542	24.4%	14,978	25.0%	1,923	33.9%
Minor Arterial	733,748	26.9%	18,814	31.3%	1,161	20.4%
Collector	369,977	13.6%	8,977	15.0%	100	1.8%
Total	2,727,024	100.0%	60,018	100.0%	5,679	100.0%

Source: AOMPO Travel Demand Model

Figure 2.2 displays the vehicular traffic in the MPA, which is greatest on I-85, US 280, SR-14, SR-147, Glenn Ave/Frederick Rd, and Gateway Drive. Figure 2.3 displays the volume to capacity (V/C) ratios for the major roadways in the MPA. Table 2.3 displays those segments that experience a V/C ratio of 1.0 or greater, representing congested segments. These segments are near the intersections of roadways with high traffic volumes in the MPA. This suggests that peak period congestion is currently an issue in the Auburn-Opelika MPA.

Table 2.3: Roadway Corridors with Volumes Exceeding Capacity, 2015

Roadway	Location	Length (miles)
Opelika Rd	E University Dr to 0.49 miles east	0.49
Opelika Rd	0.13 miles west of Veterans Pkwy to Veterans Pkwy	0.13
Frederick Rd	Old Opelika Rd to Cunningham Dr	0.08

Source: AOMPO Travel Demand Model

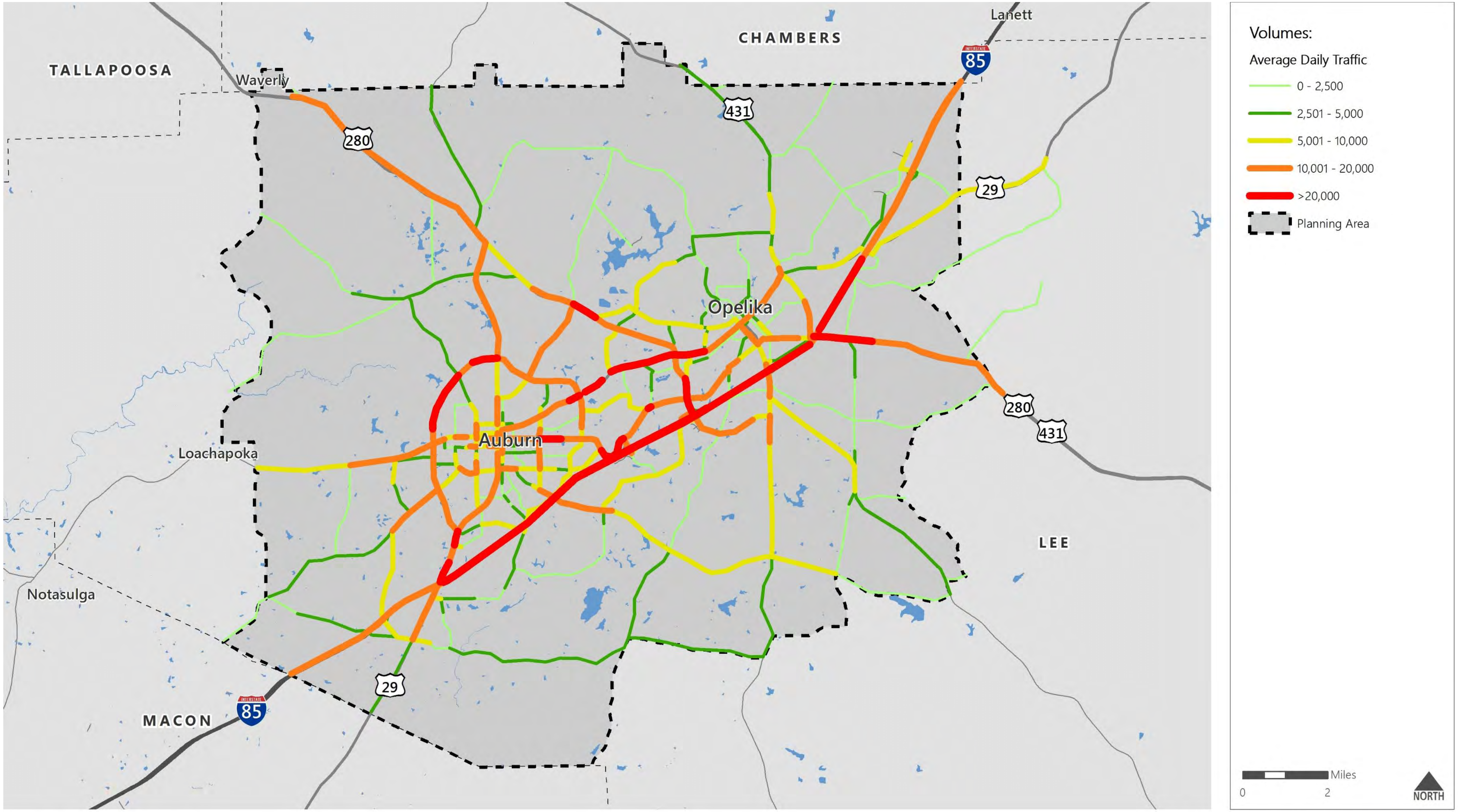
It should be noted that Opelika Road at E University Drive was cited as a "high-priority crash location" in the recently conducted City of Auburn comprehensive traffic study[1]. Crashes occurring within the intersection's area of influence will create additional, non-recurring congestion at the location, which is particularly problematic during peak periods. An in-depth safety study at this location can be used to develop location-specific crash countermeasures that would be expected to reduce the congestion experienced as a result of crashes.

Opelika Road has also been identified in the same study for a signal coordination project, with seven (7) signals on the corridor selected for coordination. The limits of the project include both of the congested Opelika Road segments listed in Table 2.3. The signal coordination would:

- Increase the effectiveness of traffic operations,
- Decrease recurring congestion without the need to physically increase the roadway capacity, and
- Be conducted at a low cost with quick implementation.

[1] https://www.auburnalabama.org/engineering-services/traffic-study/

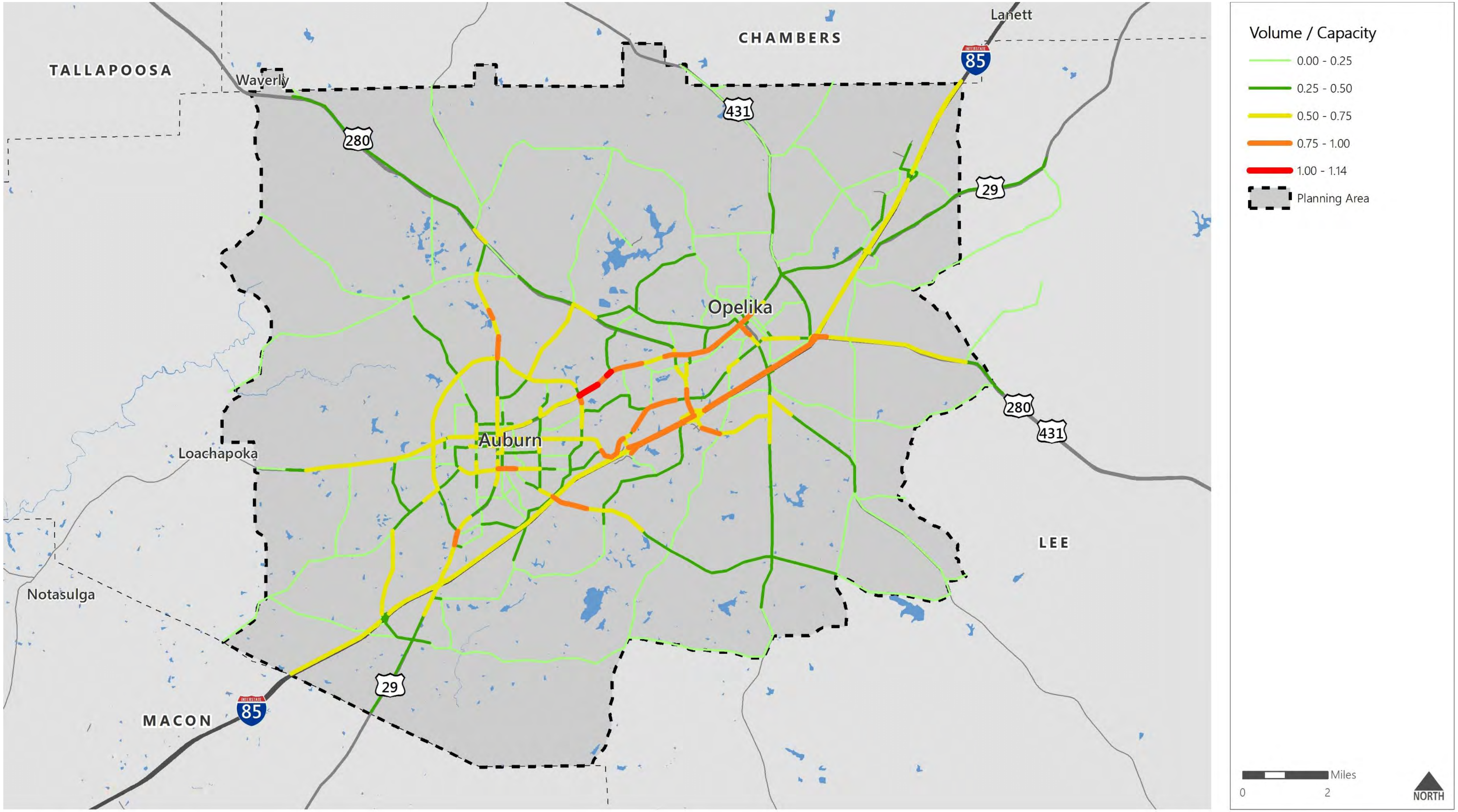
Figure 2.2: Average Daily Traffic on Roadways, 2015



Data Sources: Travel Demand Model

Disclaimer: This map is for planning purposes only.

Figure 2.3: Existing Roadway Congestion, 2015



Data Sources: Travel Demand Model

Disclaimer: This map is for planning purposes only.

2.3 Roadway Reliability

Most of the region's roadways do not have daily volumes that exceed their daily capacities. However, there may still be congestion issues at specific times, notably peak periods. Travel time reliability is a measure of how congested travel times compare to free-flow conditions. The Level of Travel Time Reliability (LOTTR) is defined as:

$$\text{Segment LOTTR} = \frac{\text{"Longer" 80th Percentile Travel Time}}{\text{"Normal" 50th Percentile Travel Time}}$$

The LOTTR of each roadway segment is calculated for four time periods (including AM and PM peaks), with the worst LOTTR being used to determine segment reliability. The most recent LOTTR data available, year 2018, was obtained from the FHWA's National Performance Management Research Data Set (NPMRDS). Roadway segments with an LOTTR less than 1.5 are defined by the FHWA as reliable. Figure 2.4 displays the LOTTR of the monitored segments within the MPA.

It should be noted that the current NPMRDS for the Auburn-Opelika MPA does not meet the full Enhanced NHS, which is reflected in this report. This is due to the reporting cycle of the NPMRDS data and recent updates to the Enhanced NHS by the FHWA. The Federal Register states that the MPO is only responsible for reporting what the NPMRDS displays.

100%

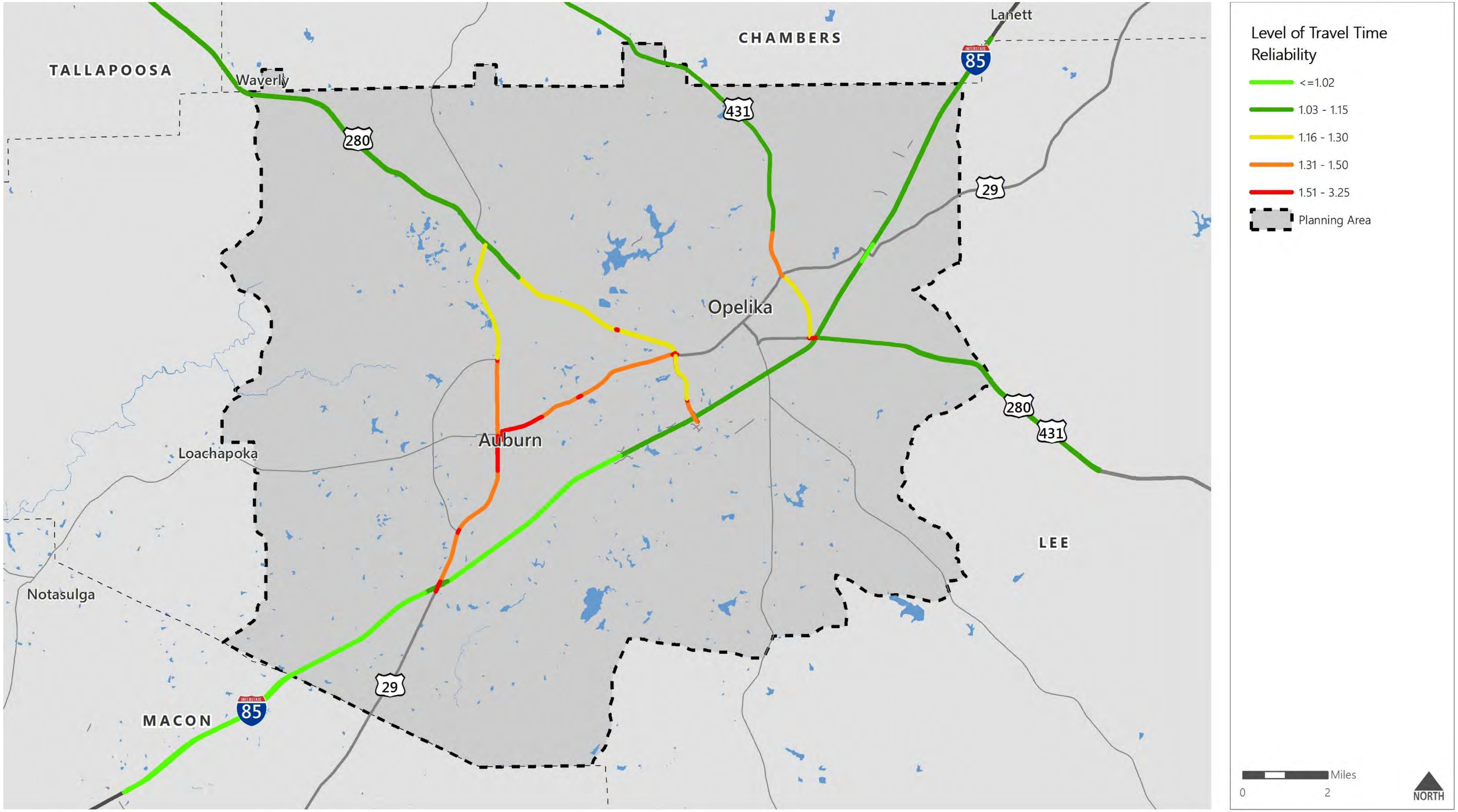
Interstate NHS person-miles travelled are reliable

91.8%

Non-Interstate NHS person-miles travelled are reliable

***Falls outside of ALDOT state target**

Figure 2.4: LOTTR on MPA NHS Routes



Data Sources: NPMRDS

Disclaimer: This map is for planning purposes only.

2.4 Pavement Conditions

Maintaining sufficient pavement conditions ensures that roadways operate at their full capacity. Good pavement conditions provide roadway users with safe, comfortable travel experiences, while minimizing vehicle wear and tear. Results from the public participation survey showed that road and bridge maintenance is one of the public's top priorities.

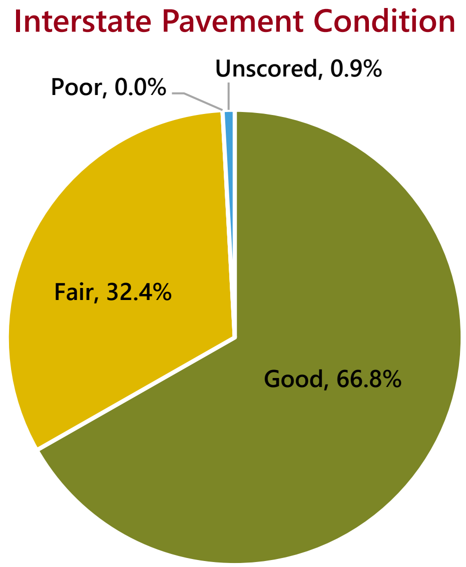
Pavement condition ratings for the MPA's roadways were obtained from data submitted by ALDOT and found in the Highway Performance Monitoring System (HPMS). The HPMS is a national level highway information system that includes data on the:

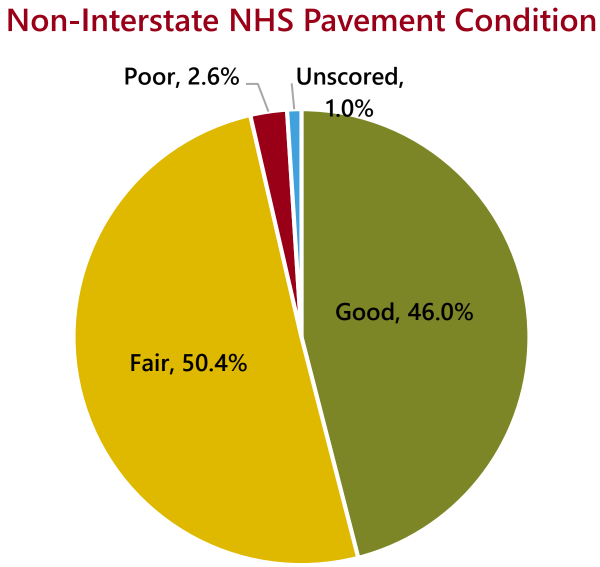
- extent,
- condition,
- performance, and
- use and operating characteristics of the nation's highways.

The HPMS data is a sample dataset collected across the entire federal-aid eligible system for interstate, arterial, and collector networks.

> The HPMS pavement condition is based on the International Roughness Index (IRI), cracking, rutting, and faulting.

The data displayed below matches the same extents as those found in the NPMRDS NHS coverage. There are no Interstate pavements within the MPA ranked as Poor, while fewer than three (3) percent of Non-Interstate NHS pavements in the MPA rank as Poor.



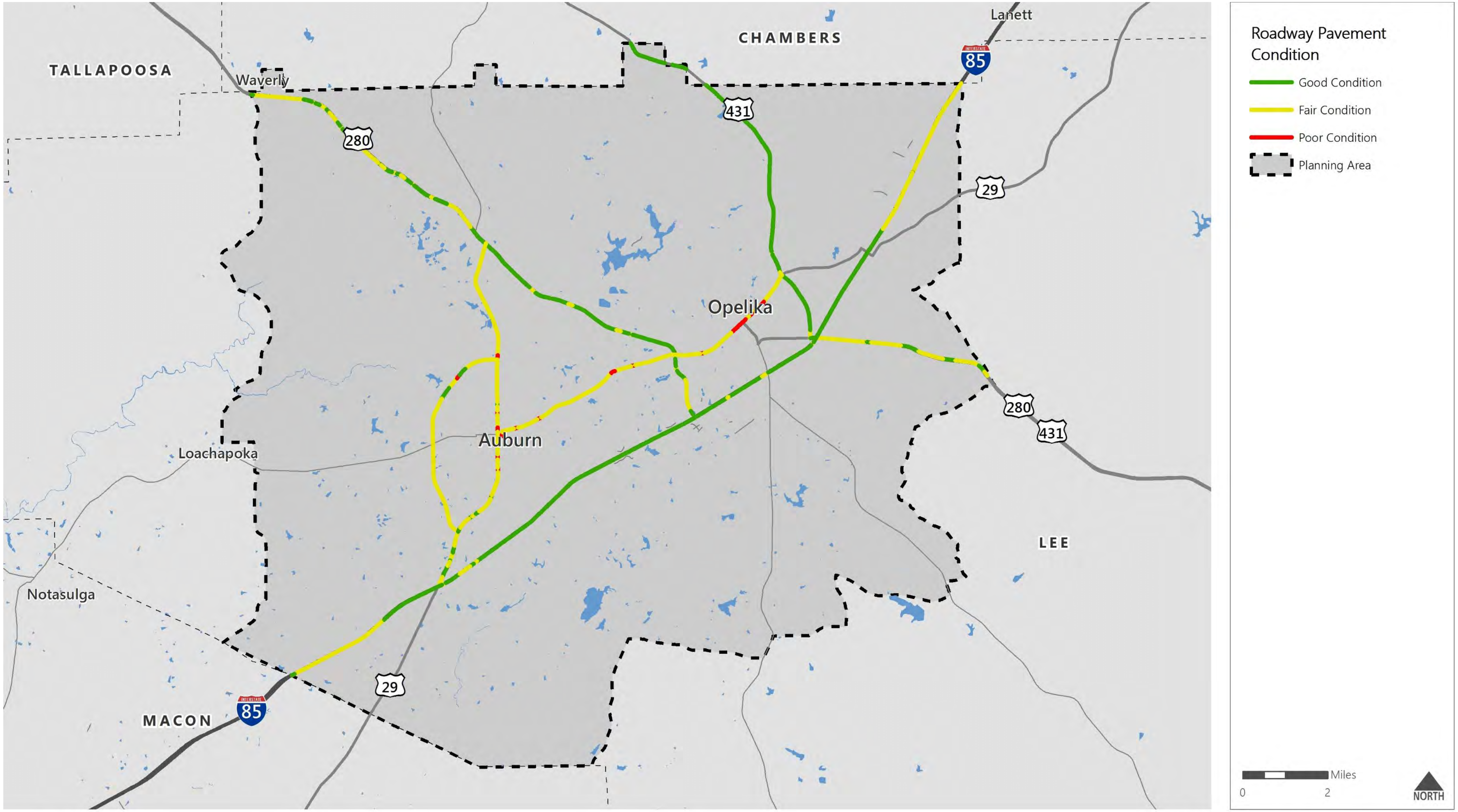


The locations of the poor pavement within the MPA occur at various points along:

- College Street from Samford Avenue to 0.2 miles north of E University Drive
- SR-14 from College Street to 0.1 miles west of Lowndes Street.

Figure 2.5 illustrates the most recent pavement condition data for the ALDOT monitored roadways within the MPA. Note that these pavements extend past the Enhanced NHS or the NPMRDS.

Figure 2.5: Roadway Pavement Conditions



Data Sources: ALDOT

Disclaimer: This map is for planning purposes only.

2.5 Bridge Conditions

Bridges are a critical part of the overall transportation network. They must be maintained and upgraded as needed to ensure that they are not safety or environmental hazards, bottlenecks, or limitations to freight movement.

Bridges serve as important connections over waterways, provide grade separation between roadways and other transportation facilities, and connect transportation facilities to each other.

As previously mentioned, results from the public outreach survey showed that the public places a high priority on maintaining the current transportation system and increasing its safety. There are 136 bridge structures within the Auburn-Opelika MPA. Most of the bridge structures within the MPA cross water features. However, bridges can also be structures that cross over other roadways and railroads.

Bridge Conditions and Scoring

The National Bridge Inventory (NBI) provides bridge conditions for all bridges in the United States with public roads passing above or below them. The NBI also defines bridges to include bridge-length culverts. The condition of the bridge is determined by the lowest rating of deck, superstructure, substructure, or culvert. If the lowest rating of these categories is greater than or equal to seven (7), the bridge is classified as good. If the score of the bridge is less than or equal to four (4), the classification is poor. Figure 2.6 displays the condition of each bridge within the MPA. While the bridges in the MPA are mostly in fair condition, efforts should be undertaken in the future to prioritize maintenance or replacement of these bridges so they do not worsen.

4.3%

NPMRDS defined NHS Bridges in Good Condition

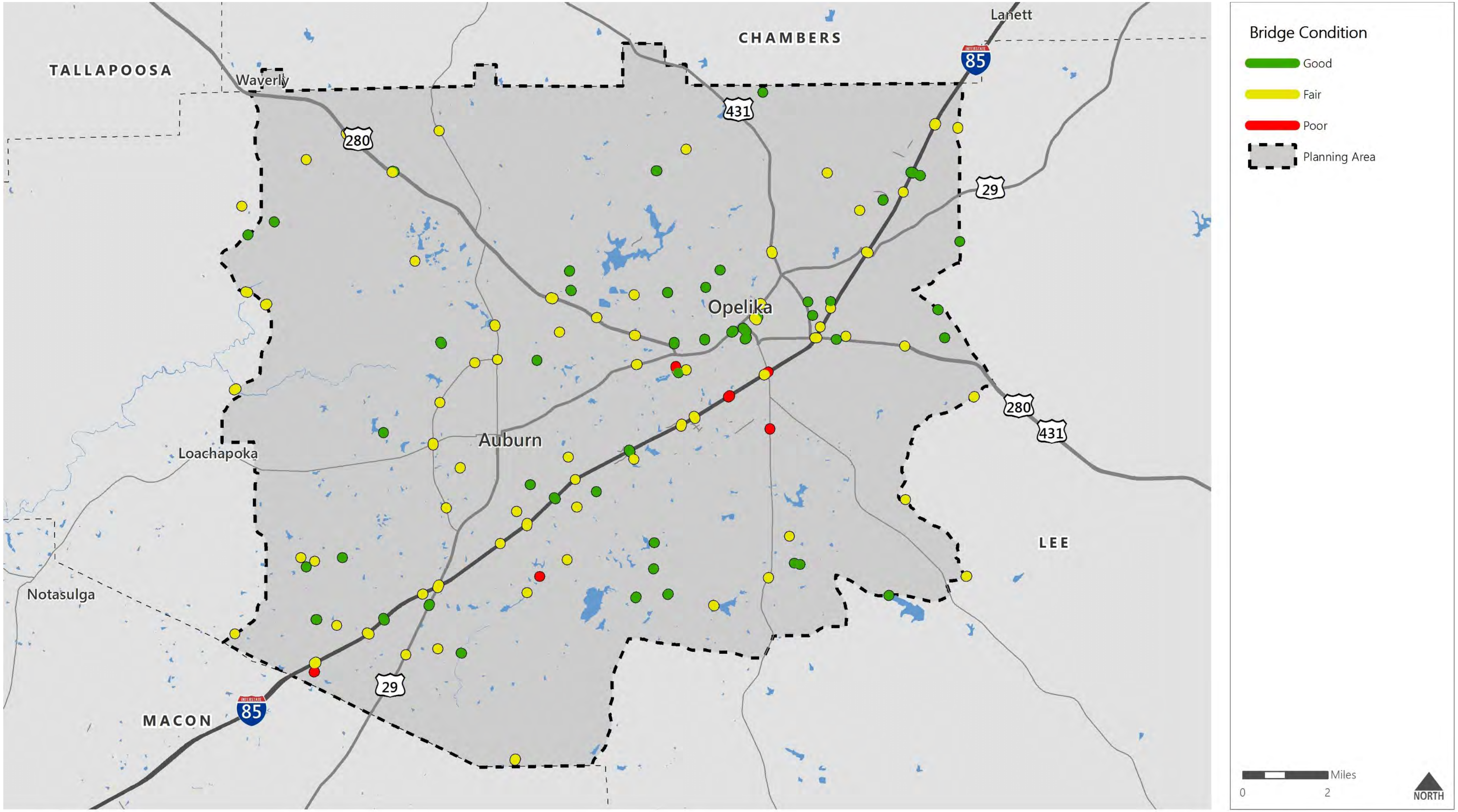
***Falls outside of ALDOT state target**

7.5%

NPMRDS defined NHS Bridges in Poor Condition

***Falls outside of ALDOT state target**

Figure 2.6: Bridge Conditions in the MPA



Data Sources: ALDOT

Disclaimer: This map is for planning purposes only.

Structurally Deficient Bridges

All bridges in the nation are evaluated to determine if they are "structurally deficient." Structural deficiency is characterized by deteriorated conditions of significant bridge elements and potentially reduced load-carrying capacity.

A structurally deficient bridge typically requires significant maintenance and repair to remain in service. These bridges would eventually require major rehabilitation or replacement to address the underlying deficiency. These bridges are those that are defined as having a score of four (4) or less on any of the scoring components described above.

There are seven (7) structurally deficient bridges in the MPA, four (4) of which are on the reported sections of the NHS.

2.6 Roadway Safety

The Long Range Transportation Plan (LRTP) safety analysis focused on gathering and analyzing available safety data and identifying hazardous locations. Due to the limited scope of this study, location-specific recommendations for the identified hazardous locations have not been developed.

"Disclaimer: This document and the information contained herein is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads which may be implemented utilizing federal aid highway funds; and is therefore exempt from discovery or admission into evidence pursuant to 23 U.S.C. 409."

Supporting Documents

Highway Safety Improvement Program (HSIP)

The FAST Act requires each state to maintain an annually updated Highway Safety Improvement Program (HSIP). The HSIP must include the FHWA performance measures for roadway safety and the development of a Strategic Highway Safety Plan (SHSP). The required safety performance measures, state targets, and the Metropolitan Planning Organization's (MPO) existing performance are discussed in the MPO's Performance Report.

Strategic Highway Safety Plan (SHSP)

A SHSP is a statewide, coordinated safety plan developed and maintained by each state to reduce fatalities along all state highways and public roads. The SHSP[2], developed by ALDOT, uses the 4Es of traffic safety: Engineering, Enforcement, Emergency Response, and Education. The SHSP also identifies strategies and emphasis areas for analysis and investment. The ALDOT SHSP emphasis areas are shown in Figure 2.7.

[2] https://www.dot.state.al.us/dsweb/divTed/TrafficSOS/pdf/Alabama_SHSP_081117.pdf

Figure 2.7: 2017 SHSP Emphasis Areas and Focus Areas

Crash Impacts

Every crash, regardless of the severity, costs money and time in damages, emergency services, and delays. These costs affect both governments and taxpayers. One of the goals of the LRTP process is to improve travel safety by reducing the risk of crashes on the roadways. This was accomplished by analyzing the data and determining the most hazardous locations in the MPA.

!

35,212

Persons killed in crashes nationwide from 2015 to 2017

Crash information was obtained from the Critical Analysis Reporting Environment (CARE), a data analysis software package that is maintained by the Center for Advanced Public Safety in Alabama. This study looked at all crashes within the MPO area from 2014 through 2018.

The crash records include the:

- severity
- location
- DUI involvement
- vehicle type
- time of day
- number of fatalities or severe injuries
- roadway surface condition
- collision type

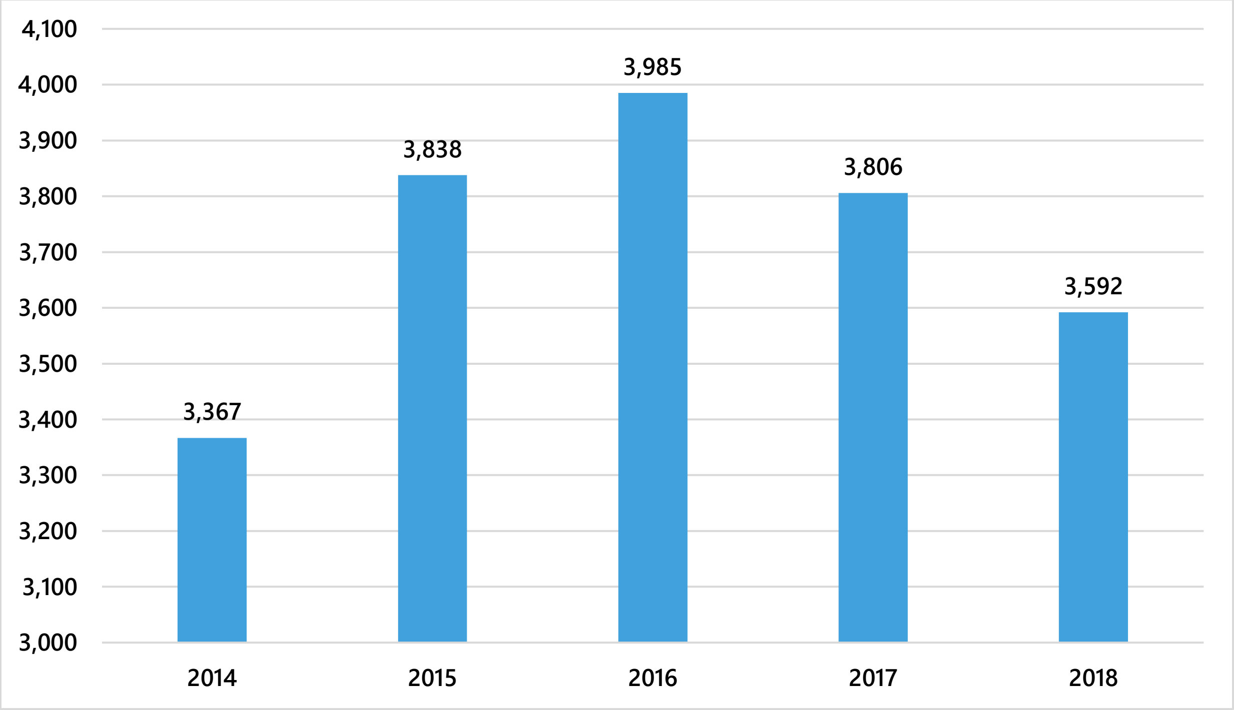
MPA Crash Trends

This section discusses the observed trends regarding all crashes that occurred within the MPA during the analysis period.

Crashes by Year

From 2014 through 2018, there were a total of 18,588 crashes within the MPA. Figure 2.8 displays the total number of crashes within the MPA by year.

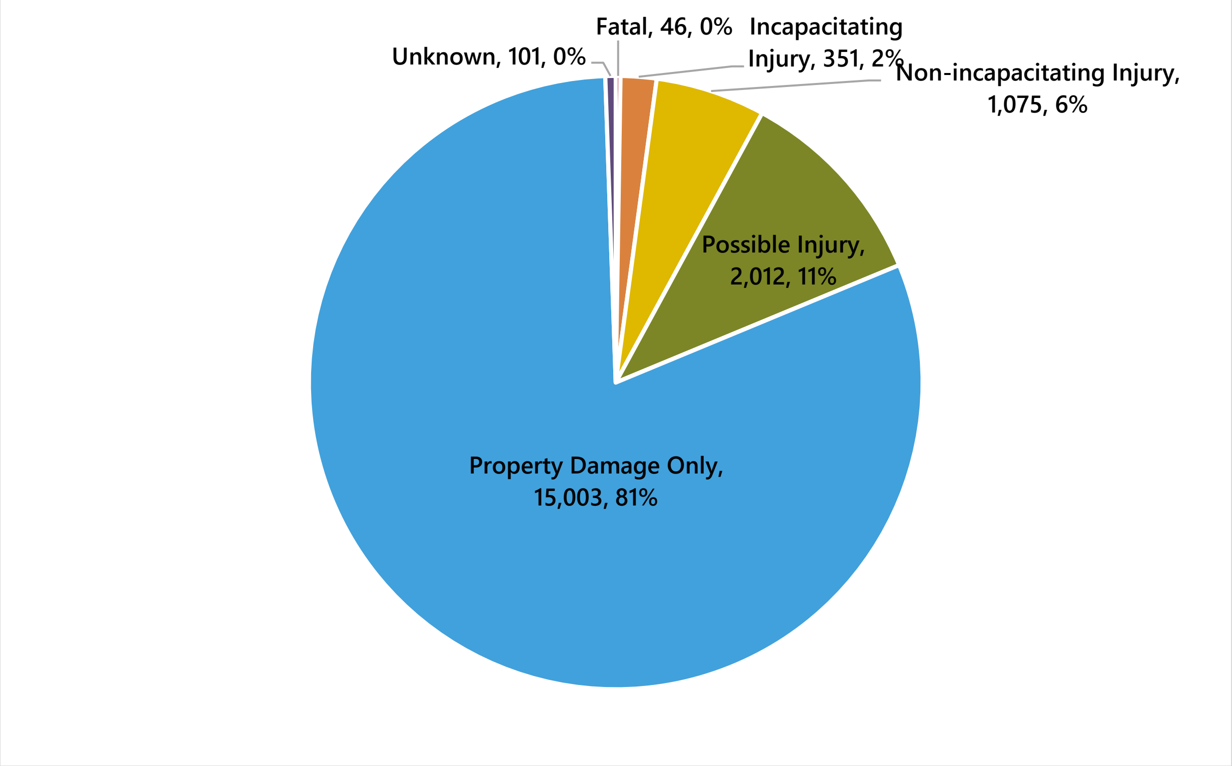
Figure 2.8: MPA Crashes by Year; 2014-2018



<u>Crash Severity</u>

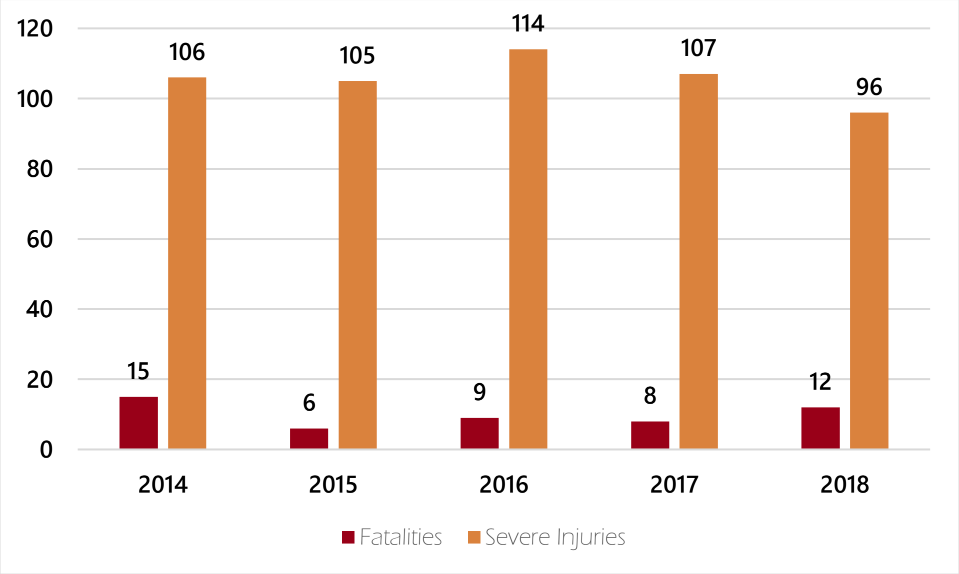
Crash severity reveals the extent to which crashes in the MPA pose a safety risk to roadway users. Within the MPA there were 46 fatal crashes and 351 incapacitating injury (severe injury) crashes during the analysis period. Less than three (3) percent of the total crashes resulted in a fatality or severe injury. Figure 2.9 displays the severity of the crashes within the MPA.

Figure 2.9: Severity of Crashes; 2014-2018



From 2014 through 2018, the fatal and incapacitating crashes resulted in 50 deaths and 528 severe injuries. The total fatalities and severe injuries, by year, during this time period are shown in Figure 2.10.

Figure 2.10: Fatalities and Severe Injuries; 2014-2018



Driving Under the Influence (DUI) Crashes

From 2014 through 2018, there were 560 crashes that involved drivers under the influence of one or more substances (alcohol, drugs, etc.) This means that just over three (3) percent of the crashes in the MPA were related to DUI. However, these crashes also resulted in one in every five of the fatalities within the area.

10

Fatalities from DUI crashes

Crash Times

Identifying when crashes occur can assist with developing countermeasures for crashes affected by lighting, congestion, or other factors. A significant number of crashes, nearly six (6) percent occurs during the morning commute from 7:00 AM to 8:00 AM. The lunch peak from 12:00 PM to 1:00 PM shows experiences just over seven (7) percent of the daily crashes. However, the highest crash peak of the day occurs during the evening commute from 5:00 PM to 6:00 PM, accounting for over ten percent of the crashes within the MPA. The hour in which the crashes occurred is displayed in Figure 2.11.

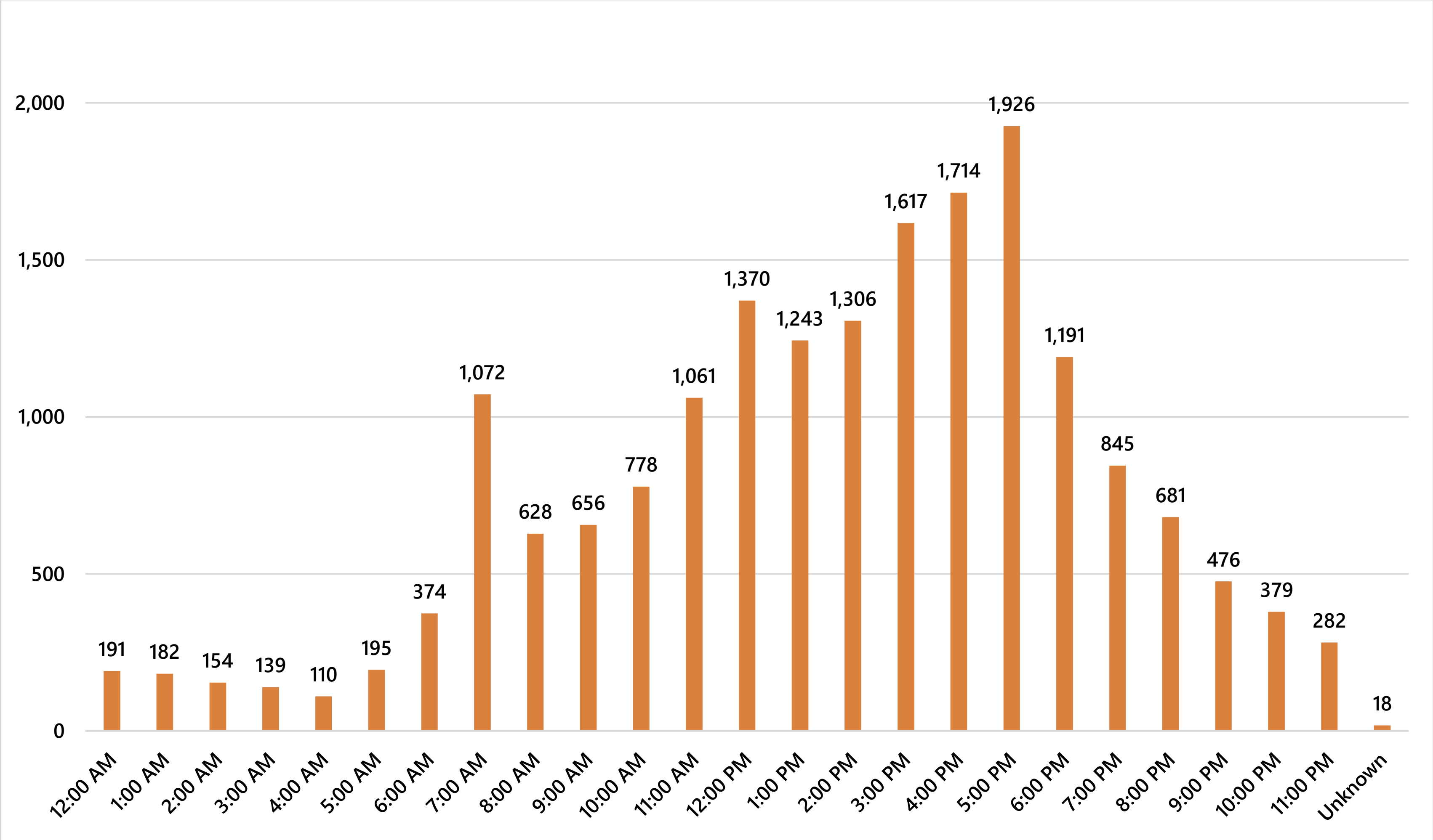
Roadway Surface Condition

13.8%

Crashes during wet pavement conditions

The roadway surface can also contribute to a crash through adverse conditions such as rain, oil, debris, or other sources. These conditions temporarily reduce the safety of the roadway and can lead to a crash. However, more than 78 percent of the crashes occurred during dry conditions. This means the roadway surface condition is not a contributing factor in the vast majority of crashes.

Figure 2.11: Crashes by Hour, 2014-2018



Collision Type

This study also considers collision types that occurred. Table 2.4 displays the crashes by collision type and county.

Table 2.4: Crashes by Collision Type, 2014-2018

Collision Type	Crashes	Percentage
Angle - Front to Side	1,130	6.08%
Angle - Oncoming	513	2.76%
Animal	328	1.76%
Backing	742	3.99%
Bicycle	4	0.02%
Fixed Object	1,212	6.52%
Head On	353	1.90%
Jackknife	9	0.05%
Other	527	2.84%
Overturn/Rollover	107	0.58%
Parked Vehicle	222	1.19%
Pedestrian	68	0.37%
Rear End - Front to rear	7,684	41.34%
Run Off Road - Left	171	0.92%
Run Off Road - Right	246	1.32%
Run Off Road - Straight	17	0.09%
Side Impact - 90 Degrees	1,857	9.99%
Side Impact - Angled	1,553	8.35%
Sideswipe - Opposite Direction	237	1.28%
Sideswipe - Same Direction	1,537	8.27%
Unknown	16	0.09%
Vehicle Defect	55	0.30%
Total	18,588	100.00%

Source: CARE, 2019; NSI, 2019

Rear End

Most common collision type

78.1%

Crashes that are Angle, Sideswipe, or Rear End types

Public Outreach and Safety

During the public outreach process, two intersections were commonly identified for safety concerns:

- North College Street and Farmville Road
- Frederick Road and Gateway Drive

Review of the crash data for the LRTP showed that the North College Street and Farmville Road intersection experienced few crashes between 2014 and 2018. However, due to its past crash history, a roundabout is being planned for this location.

The intersection of Frederick Road and Gateway Drive experienced significant crash activity and was identified as a hotspot for safety improvements in the recently completed Auburn comprehensive traffic study. It is recommended that the MPO work with ALDOT to conduct a safety analysis for this particular intersection to develop location-specific countermeasures.

The two primary corridors identified by the public for safety concerns were:

- Shug Jordan Parkway
- Glenn Avenue

Review of the crash data shows that these two corridors would be good candidates for safety studies and improvements.

City of Auburn Traffic Study

The City of Auburn and their partner consultants (Skipper Consulting, Inc., Alta Planning & Design, and Hydro Engineering Solutions) completed a comprehensive, city-wide traffic study in 2019. The study identified eleven corridors and thirteen high-priority crash locations. The analysis conducted as part of this LRTP concurs with the results of the analysis done in the traffic study. As a result, the LRTP recommends that the proposed improvements be implemented and that the City of Opelika conduct a similar study.

2.7 Roadway Security

While safety and security are closely related, they are differentiated by the cause of the harm from which the transportation system and its users are being protected.

Safety encompasses the prevention of unintentional harm to system users or their property. This includes vehicular crashes, train derailments, slope failures, sudden destruction of roadways, or non-motorized user injuries. Security involves the prevention, management, and response to intentional harm to the transportation system or its users. This includes:

- theft or dismemberment of elements of the transportation infrastructure,
- assault on users of the system, or
- large-scale attacks intended to completely disrupt the movement of people and goods.

Security concerns can include natural disasters, acts of violence, and terrorism.

MPO Role in Security

The MPO's main role in planning for security is to coordinate with relevant agencies, such as

- emergency management officials
- police and sheriff's departments
- fire departments
- rescue squads

MPOs can take certain measures to improve security prevention, protection, response, and recovery.

Prevention

When discussing security, prevention refers to efforts to limit access to resources that may be compromised or efforts to increase surveillance. Examples of prevention measures include:

- access control systems
- closed circuit television (CCTV) systems
- security alarms
- fencing
- locks
- architectural barriers

The design of facilities and public spaces can also incorporate features that deter security breaches.

Protection

High vulnerability risk facilities should have additional design measures considered. These measures would mitigate potential security risks, should they occur. Protection efforts could also include law enforcement where necessary.

Response

Redundancy of transportation facilities should be encouraged in capital project planning. These alternate routes assist in emergency evacuations or detours should a particular segment of the transportation network become unavailable. The use of Intelligent Transportation Systems (ITS) to control traffic signals and other traffic control devices also assists in responding to security risks.

Recovery

Transportation decision-makers should be familiar with both short-term and long-term recovery plans for the MPA. This includes everything from evacuations to restoring local businesses and neighborhoods. ALDOT has dedicated evacuation routes, some of which are in the MPA. Lee County, where the MPA is located, has its own emergency management body and hazard mitigation plans. More information can be found on the Lee County Emergency Management Agency website at http://leecoema.com/.

Key Security Participants

As stated previously, the MPO coordinates with relevant agencies and is in a support role when security issues arise. The MPO can serve as a medium of communication between the various agencies involved. Several key participants have been identified to the security management process.

<u>State and Local Governments</u>

ALDOT maintains an Emergency Call Center (ECC) which provides information to the traveling public during emergencies. The ECC's mission is:

"To provide accurate and time sensitive information to the traveling public and assist them in their personal response to States of Emergency incidents. Since 2005, the mission of the ECC expanded to include any State of Emergency, not just hurricanes. An annual training exercise is held to update/train new and existing operators and supervisors. Operators are equipped with Internet access and emergency information resources to effectively respond to callers' concerns. Supervisors work as a liaison to Administrators and oversee ECC operations."

Their website (https://miscwapps.dot.state.al.us/ECC/) contains links to several national and state emergency sites and other information.

Alabama Emergency Management Agency (AEMA)

An additional provider for emergency management in the state is AEMA, which coordinates with other state agencies and produces a variety of emergency management plans for several disaster types, including:

- earthquakes,
- flooding,
- hurricanes,
- tornadoes,
- and more.

The AEMA website (https://ema.alabama.gov/) provides information and planning to the public.

Auburn University

The University maintains several plans and contact data related to safety and security on campus. There are plans for several types of emergencies, including evacuations, fire, various weather disasters, and more.

More information can be found at:

https://cws.auburn.edu/emergencyguidelines/

Additional MPO Measures

Each MPO is ultimately responsible for crafting a security policy consistent with its goals, state guidance, and the FAST Act. Security must also be considered during the establishment of future MPO goals and the support for MPO funding priorities. The following presents potential areas of focus, recognizing that natural disaster evacuation is a primary concern within the Auburn-Opelika Urbanized Area.

Use of MPO Transportation Model to Assess Evacuation Plans

The TransCAD regional model can be modified to simulate evacuation events. This can be used to test the effectiveness of existing plans or to improve plans for routing traffic through the MPO region.

Use of Area Transit Systems to Support Evacuation Events

The MPO will work with local transit providers to investigate opportunities for the use of transit vehicles to provide for the evacuation of transit dependent populations.

Integration of Intelligent Transportation Systems (ITS) in Evacuation Planning

The MPO supports investment in ITS technologies. The MPO understands the need to study and assess how this technology can be used to assist evacuees in their decision-making and expedite their progress during evacuation events.

Integration of Hurricane Evacuation Purpose and Need in Planning for Future Roadway Improvements

As the LRTP projects are refined, project features will be reviewed for consistency with a hurricane evacuation purpose and need. Every hurricane produces a unique evacuation event. Evacuees are influenced by the amount of notice provided in advance of the storm's landfall, as well as the projected storm path and intensity. Information on hurricane evacuation routes and procedures can be found at:

https://miscwapps.dot.state.al.us/ECC/pdf/HurricaneBrochure.pdf

Strategic Highway Network (STRAHNET)

The STRAHNET is a portion of the NHS considered vital to the nation's strategic defense. The current STRAHNET is about 61,000 miles long and links military installations with roadways that provide for the mobility of strategic military assets. All Interstate highways, including I-85 within the MPA, are included as part of the STRAHNET. Another route within the MPA, US 280, serves as part of the STRAHNET.

The STRAHNET routes need additional considerations, which include maintenance of bridge capability, pavement conditions, and congestion management. The use of ITS along these corridors, particularly dynamic message signs, will allow for better management of the traffic related to military convoys.

3.0 Freight

3.1 Supporting Plans and Goals

ALDOT State Freight Plan

The ALDOT statewide comprehensive freight plan is the *Alabama Statewide Freight Plan*. This document establishes the freight planning and performance monitoring activities to be undertaken throughout the state by ALDOT.

Key plan elements include:

- An overview of relevant policy that influences freight planning at the statewide level.
- A discussion of existing and projected commodity flows and freight network characteristics, which provide the baseline for identifying needs statewide.
- A profile of the Interim National Multimodal Freight Network (NMFN) within the State of Alabama.
- A summary of freight improvements of statewide significance, which forms the basis for the overall Freight Investment Plan.
- A description of the measures and procedures that will be used by ALDOT to monitor transportation system performance with respect to freight mobility.

National Freight Goals

The current transportation legislation is the Fixing America's Surface Transportation Act (FAST Act). Per H.R. 22, 70101 (b) of the FAST Act, there are 10 National Freight Goals, which are to:

1. Identify infrastructure improvements, policies, and operational innovations that—

    a. Strengthen the contribution of the National Multimodal Freight Network to the economic competitiveness of the United States.

    b. Reduce congestion and eliminate bottlenecks on the National Multimodal Freight Network.

    c. Increase productivity, particularly for domestic industries and businesses that create high value jobs.

2. Improve the safety, security, efficiency, and resiliency of multimodal freight transportation.

3. Achieve and maintain a state of good repair on the National Multimodal Freight Network.

4. Use innovation and advanced technology to improve the safety, efficiency, and reliability of the National Multimodal Freight Network.

5. Improve the economic efficiency and productivity of the National Multimodal Freight Network.

6. Improve the reliability of freight transportation.

7. Improve the short- and long-distance movement of goods that—

   a. Travel across rural areas between population centers.

   b. Travel between rural areas and population centers.

   c. Travel from the Nation's ports, airports, and gateways to the National Multimodal Freight Network.

8. Improve the flexibility of States to support multi-State corridor planning and the creation of multi-State organizations to increase the ability of States to address multimodal freight connectivity.

9. Reduce the adverse environmental impacts of freight movement on the National Multimodal Freight Network.

10. Pursue the goals described in this subsection in a manner that is not burdensome to State and local governments.

The *Alabama Statewide Freight Plan*[3] describes how it improves the ability of the State of Alabama to meet the national freight goals described above.

MPO Freight Goals

Freight goals for the Auburn LRTP are currently in development. These goals, once established, will support the national goals outlined above, those of the *Alabama Statewide Freight Plan*, and the LRTP Goals and Objectives.

[3] https://www.dot.state.al.us/oeweb/pdf/freightPlanning/alabamaFreightPlan.pdf

3.2 Existing Freight Conditions

Freight Truck Network

Inventory

The MPA contains several roadways that serve freight. There are no intermodal connectors or intermodal terminal facilities within the MPA. Of note is that I-85 is part of both the National Primary Freight Network (NPFN)[4] and the National Multimodal Freight Network (NMFN)[5]. Within the MPA, the following roadways are part of the Alabama Statewide Primary Freight Network[6]:

- I-85
    - Connects Auburn and Opelika west to Montgomery and east to Atlanta, GA
    - Concurrent with US 29 and US 280 within a portion of the MPA
- US 280
    - Connects Auburn and Opelika northwest to Birmingham and east to Phenix City and Columbus, GA
    - Concurrent with I-85, US 29, and US 431 within portions of the MPA
- US 431
    - Connects Auburn/Opelika north to Anniston and east to Phenix City and Columbus, GA
    - Concurrent with US 280 to the east of the Auburn and Opelika MPA.

Figure 3.1 displays the ALDOT freight network within the MPA.

Volumes

The Annual Average Daily Truck Traffic (AADTT) for major roadways within the MPA for the year 2012, which was developed from the FHWA's Freight Analysis Framework (FAF), is shown in Figure 3.2. The FAF data shows that the highest truck traffic within the MPA is on I-85, and truck traffic was also relatively high on US 280 and US 431.

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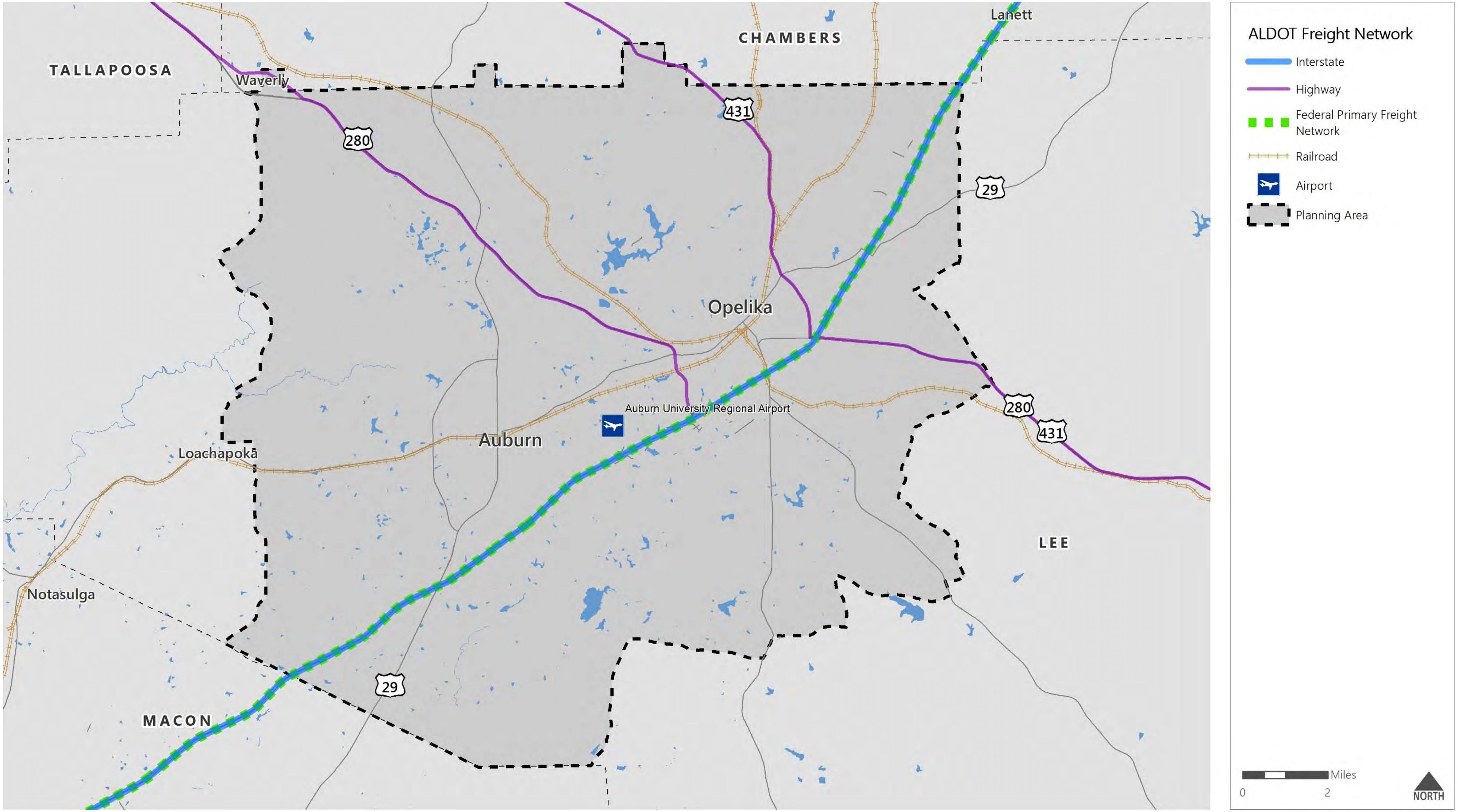
[4] https://ops.fhwa.dot.gov/freight/infrastructure/ismt/state_maps/states/alabama.htm
[5] https://www.transportation.gov/sites/dot.gov/files/docs/State_interimMFN_portrait_Alabama_alt_text_0.pdf
[6] https://www.dot.state.al.us/oeweb/pdf/freightPlanning/SWPrimFrtNet.pdf

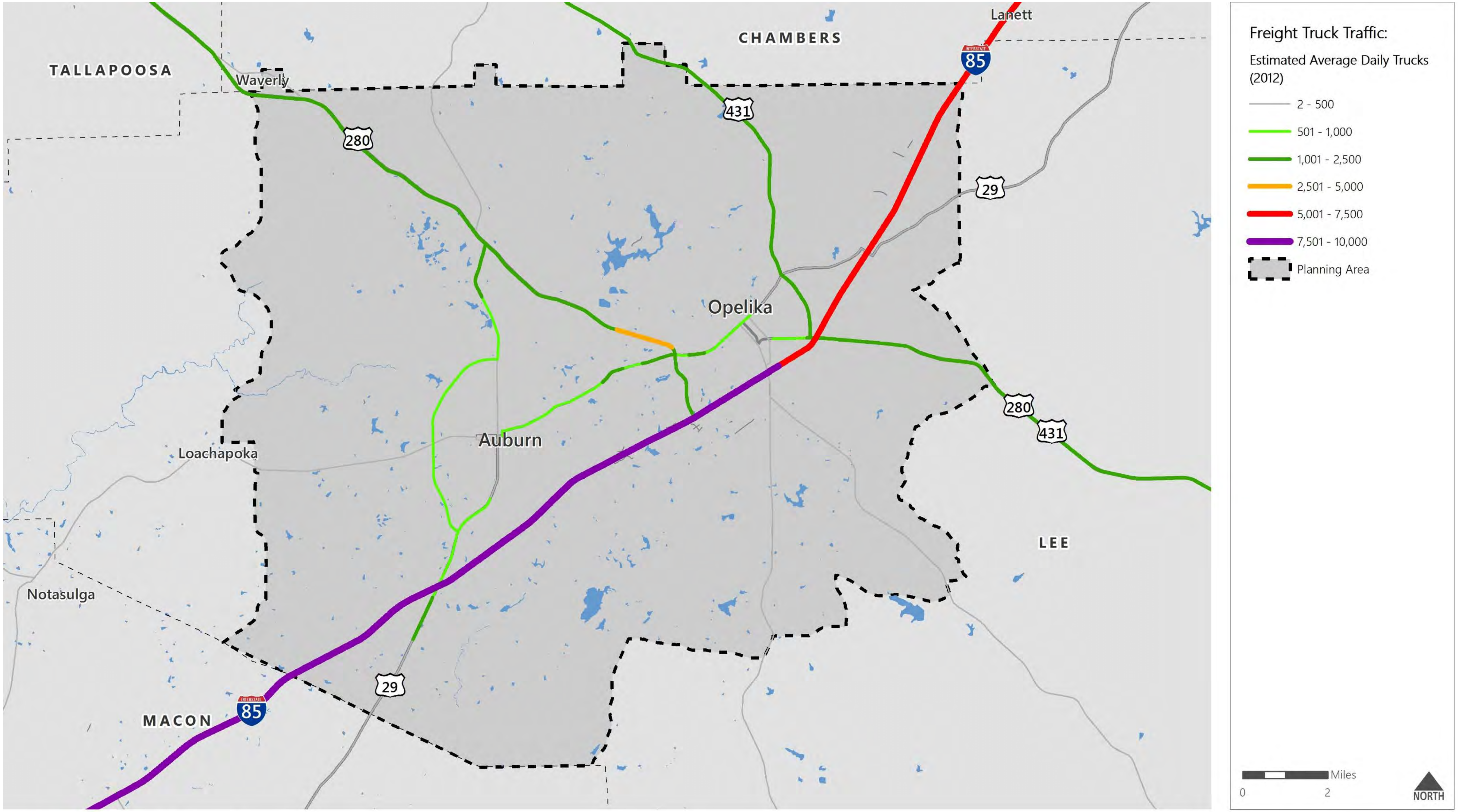
Figure 3.1: ALDOT Freight Network



Data Sources: ALDOT; FHWA

Disclaimer: This map is for planning purposes only.

Figure 3.2: FAF Freight Truck Traffic, 2012



Data Sources: Freight Analysis Framework

Disclaimer: This map is for planning purposes only.

Freight

There is no readily available data at the local level for the purpose of studying trends in freight movement. However, general trends in freight movement for the state of Alabama can be used to estimate the trends that would be observed within the MPA. This data was obtained from the most recently available FAF data.

Approximately 38 % of truck freight volume in Alabama is through traffic

In 2012, Lee County ranked 25th in Alabama for truck freight tonnage, which ranked lower than several other MPA and non-MPA counties. Figure 3.3 displays the freight truck movement in Alabama by direction and weight. The means of transporting freight originating in Alabama in 2012 for each mode, ranked by ton-mile, is shown in Figure 3.4.

Figure 3.3: Freight Truck Movement in Alabama by Direction and Weight, 2012

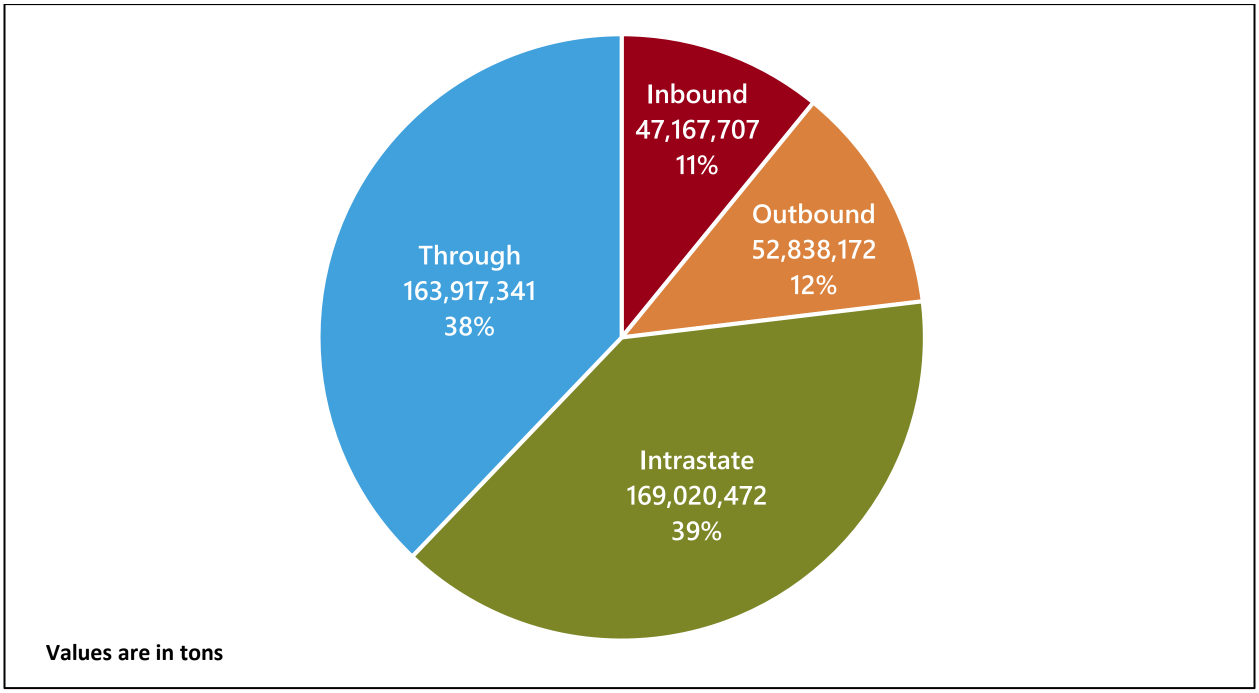
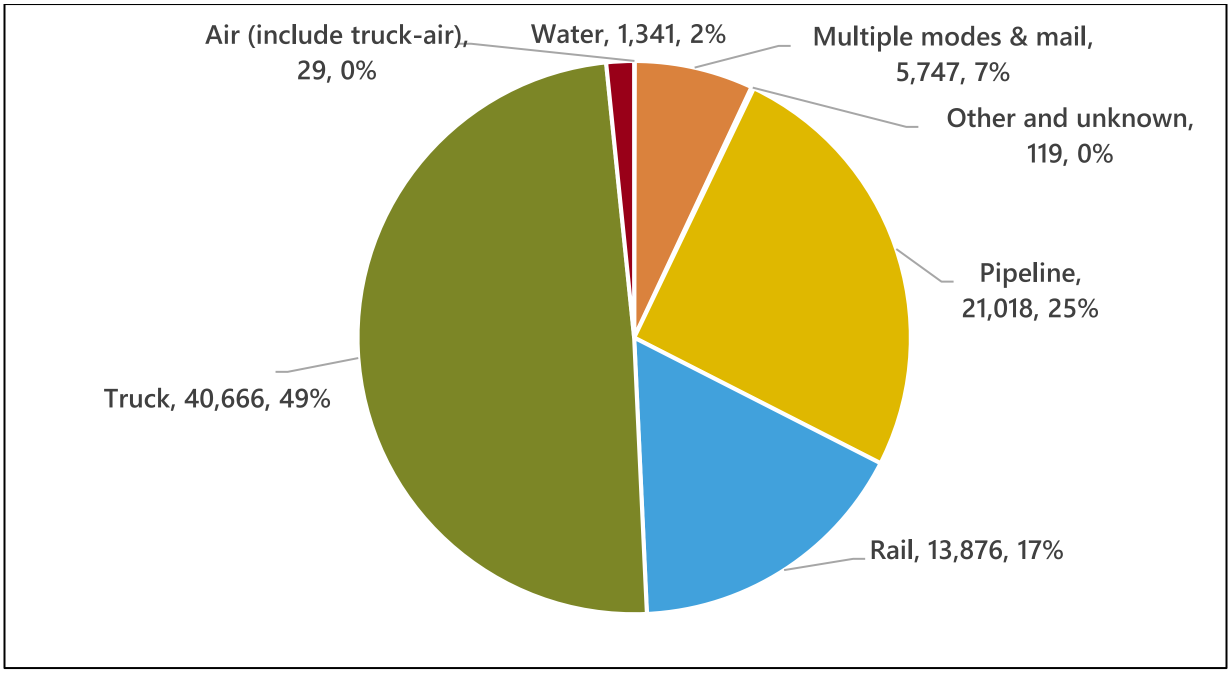


Figure 3.4: Means of Transporting Freight Originating in Alabama, 2012



<u>Commodity Flows</u>

Figures 3.5 and 3.6 display the top 10 commodities shipped by truck that originate and terminate in Alabama, respectively. These commodity flows and their tonnage are derived according to the FAF 4.5.

> The top 10 commodities shipped that originate or terminate in Alabama account for nearly 70 percent of the total weight shipped by truck, even though they represent less than a quarter of all commodities shipped by truck in Alabama.

Figure 3.5: Top 10 Commodity Flows for Trucks – Originating in Alabama, 2012

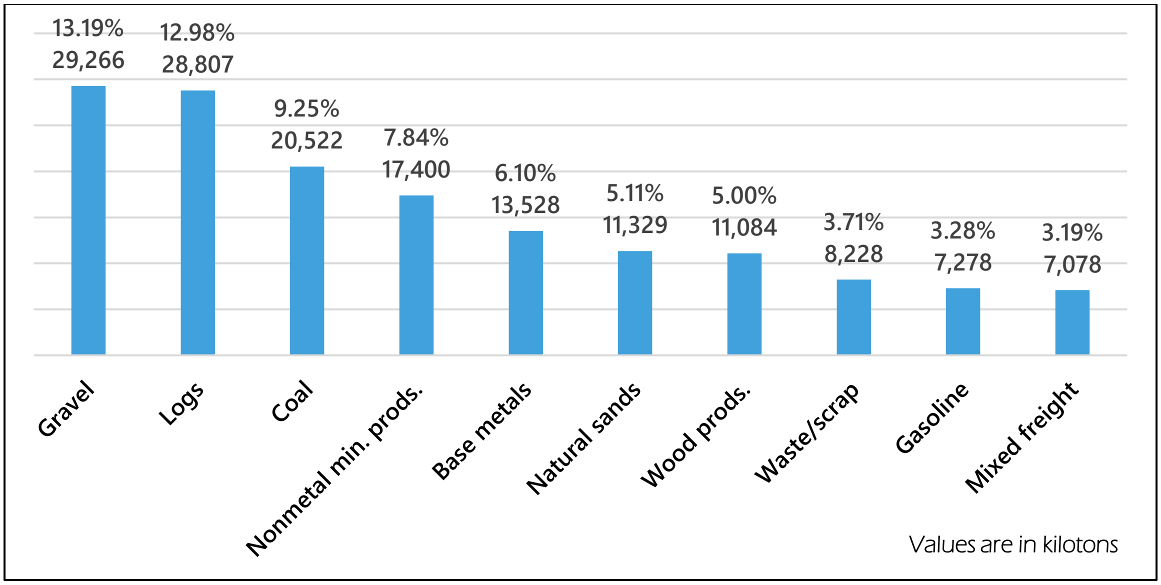
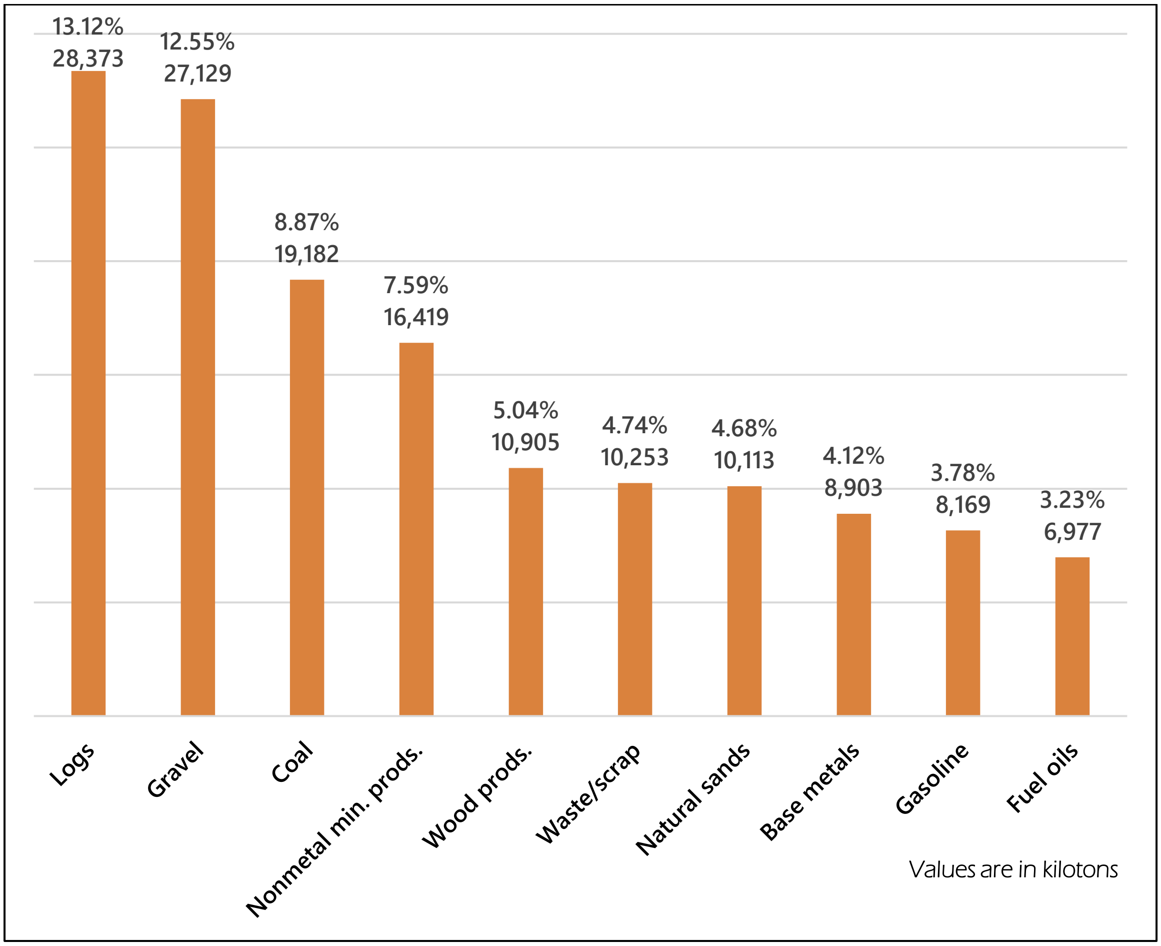


Figure 3.6: Top 10 Commodity Flows for Trucks – Terminating in Alabama, 2012



Congested Corridors with High Truck Volumes

The FHWA established one performance measure for freight: Truck Travel Time Reliability (TTTR) Index on the Interstate system.

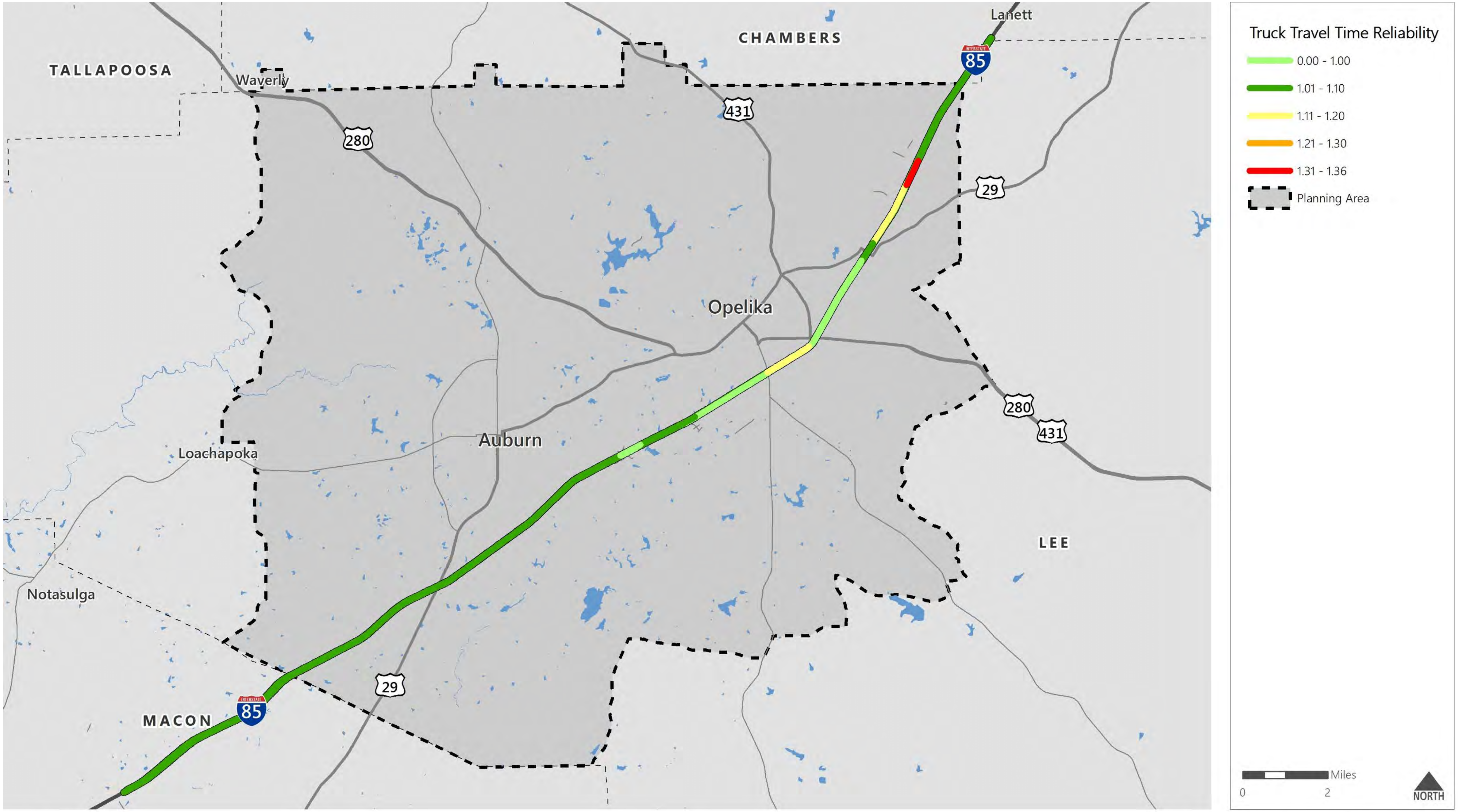
1.09

Overall MPA TTTR in 2018

The TTTR for each I-85 segment is shown in Figure 3.7. Of note is that the *Alabama Statewide Freight Plan* has designated I-85 in the Auburn-Opelika area as an existing freight bottleneck[7]. The state's freight performance measures, and the Metropolitan Planning Organization (MPO)'s progress towards them, are discussed in the MPO's Performance Report.

[7] https://www.dot.state.al.us/oeweb/pdf/freightPlanning/chokepoints/Auburn.pdf

Figure 3.7: Congested Freight Corridors (TTTR)



Data Sources: NPMRDS

Disclaimer: This map is for planning purposes only.

Safety

Crashes involving heavy vehicles were analyzed using crash records from 2014 to 2018 obtained from ALDOT. A total of 612 crashes involving heavy vehicles occurred within the Auburn MPA during the five-year study period. Between 2014 and 2018, fatal crashes involving heavy vehicles comprised less than one percent of heavy vehicle crashes. However, nearly seven (7) percent of all fatal crashes in the study area involved a heavy vehicle.

Freight Rail Network

Inventory

There are two Class I railroads in the MPA:

- The CSX Transportation (CSXT) Railroad, which roughly parallels I-85 between Montgomery and Atlanta, GA.
- The Norfolk Southern (NS) Railroad, which roughly parallels US 280 between Birmingham and Columbus, GA.

38

Miles of railroads in the MPA

The NPFN does not include railroads. However, both railroads in the MPA are part of the NMFN. The ALDOT website[8] displays a document that shows that, within the MPA, there are three known freight generators that have direct rail access.

Volumes

The most recent *Alabama Statewide Rail Plan* indicates that between 20 million and 40 million tons were moved on the CSXT line in 2011. During that same time, between 10 million and 20 million tons were moved on the NS line.

80%

Of rail freight weight comes from the top 10 commodities

Commodity Flows

Figures 3.8 and 3.9 show the top 10 commodities, and their tonnage, shipped by rail that originate and terminate in Alabama. The data in the figures was obtained using the FAF 4.5 data. As with truck flows, the top 10 commodities shipped, by weight, represent less than one-quarter of all commodities shipped by rail in Alabama.

[8] https://www.dot.state.al.us/oeweb/pdf/freightPlanning/DirectRailAndBargeAccess.pdf

Figure 3.8: Top 10 Commodity Flows for Rail – Originating in Alabama, 2012

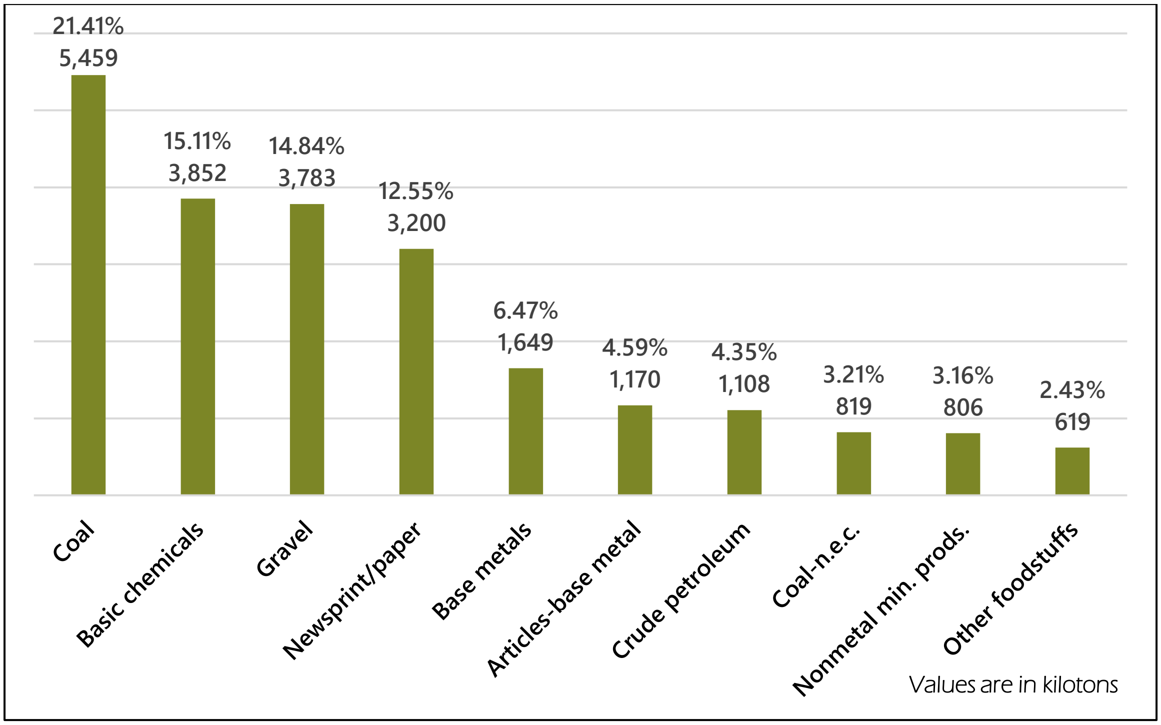
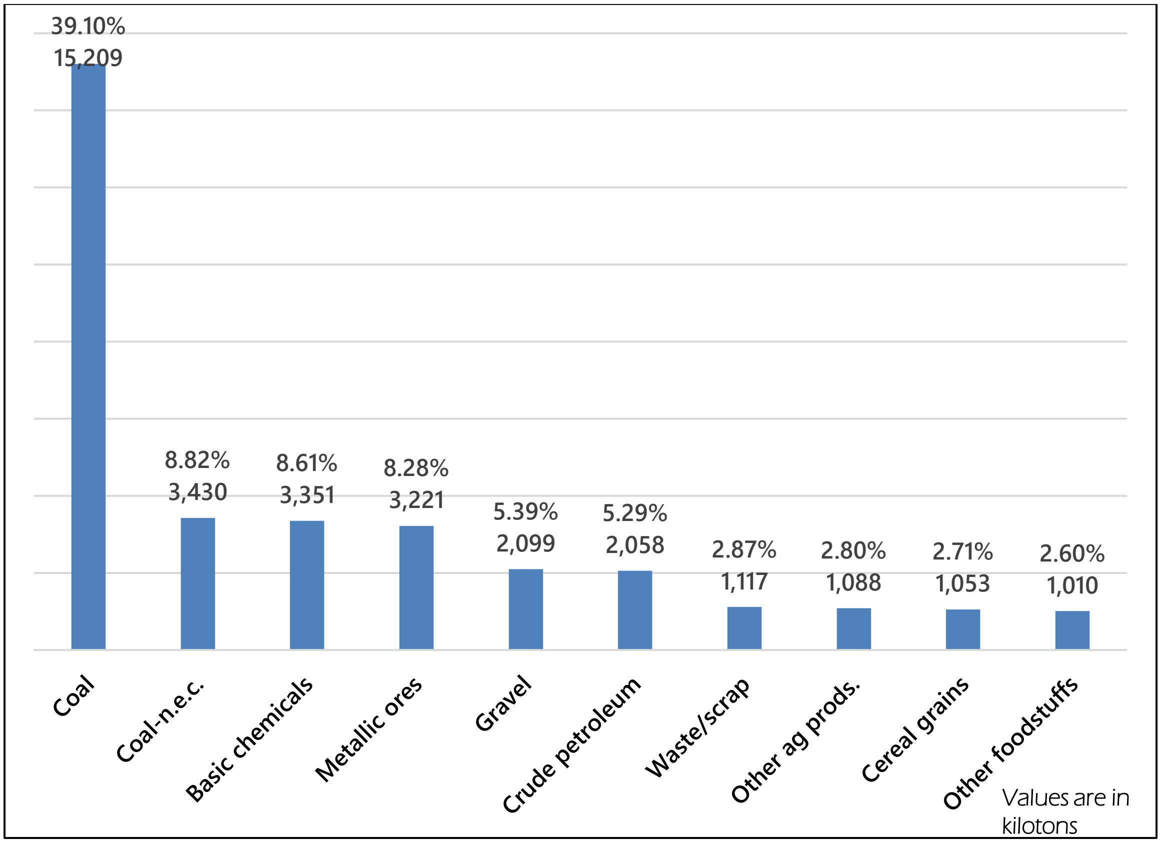


Figure 3.9: Top 10 Commodity Flows for Rail – Terminating in Alabama, 2012



Rail-Automobile Collisions

From 2014 through 2018, there were seven (7) crashes involving a vehicle and a train. However, of these seven crashes, none were fatal.

Derailments

According to the Federal Rail Administration, from 2014 to 2018, one (1) train derailment occurred within the Auburn MPA. The derailment occurred on April 1, 2016 on the NS Railroad near Opelika. The primary cause of the derailment was listed as "Washout/rail/slide/flood/snow/ice damage to track" and there were no injuries reported.

Railroad Crossings with Active Warning/Control Devices

Highway-rail crossing warning devices are classified as either passive or active. Passive warning devices typically consist of cross bucks, warning signs, regulatory signs, and pavement markings. Passive crossings refer to crossings without active warning devices. Active warning devices typically consist of automatic gates, and/or flashing lights and bells. Within the MPA, there are:

- 41 highway-rail grade crossings
- 35 of those crossings are public highway-rail grade crossings
    - 31 have active warning devices
        - 22 have automatic gates, flashing lights, and bells
        - 9 have flashing lights and bells only
    - 4 have passive warning devices
- No crossings listed above have passive warning devices and are classified as a minor arterial or above.

ALDOT has developed a state highway-rail grade crossing action plan, the *State Highway-Rail Grade Crossing Action Plan*[9], as required under 49 CFR 234.11.

[9] https://safety.fhwa.dot.gov/hsip/xings/docs/al-sap.pdf

Air Network

Inventory

> Historically, only a small amount of freight is typically shipped by air. However, the commodities transported this way tend to be high in value and areas around airports tend to serve as distribution and manufacturing hubs.

There is one public airport in the Auburn MPA: Auburn University Regional Airport in Auburn. Federal Aviation Administration (FAA) data shows that there are 68 aircraft based at the airport, with 179 daily aircraft operations.

Volumes

Cargo data is not publicly available for the Auburn University Regional Airport.

Commodity Flow

Figures 3.10 and 3.11 show the top 10 commodities, and their tonnage, shipped by air that originate and terminate in Alabama. The data was obtained using the FAF 4.5 data. Like truck and rail freight, the top 10 commodities make up a disproportionately high amount of freight weight shipped by air even though they make up less than a quarter of commodities shipped by air.

Figure 3.10: Top 10 Commodity Flows for Air – Originating in Alabama, 2012

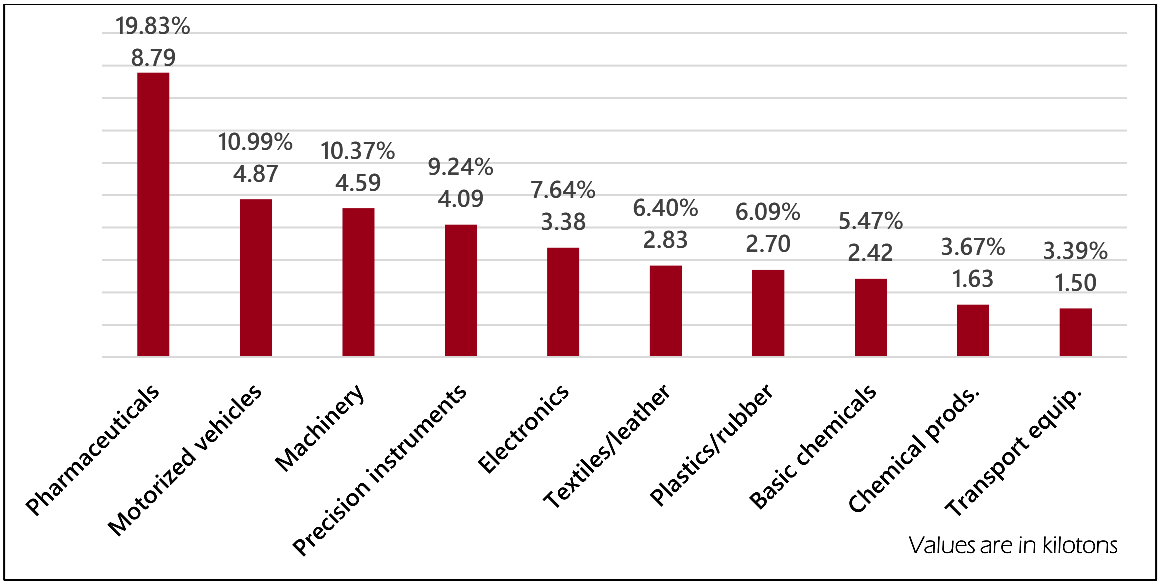
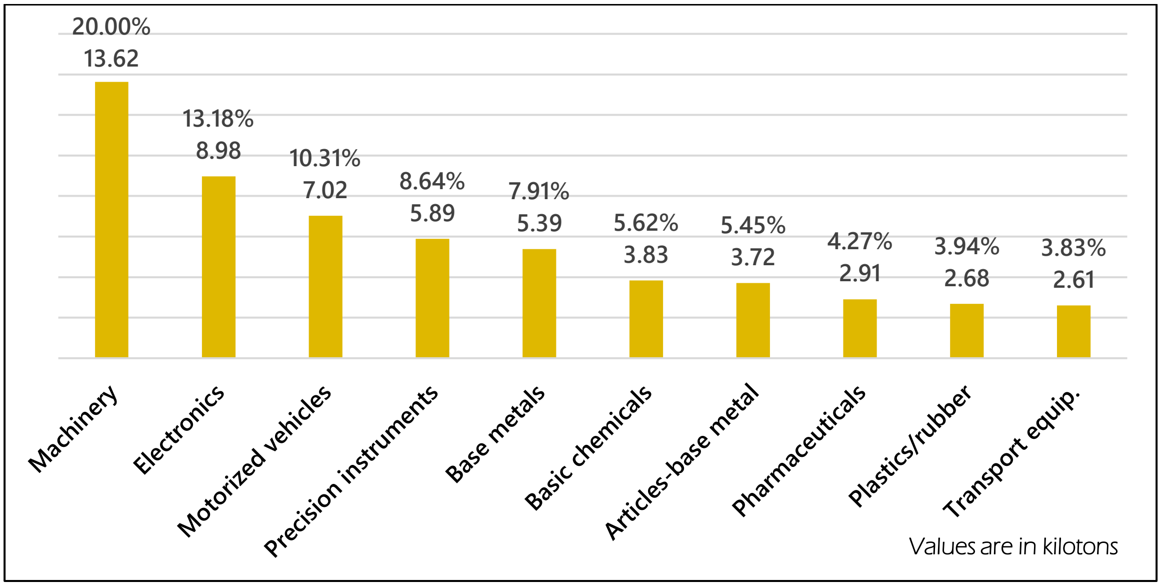


Figure 3.11: Top 10 Commodity Flows for Air – Terminating in Alabama, 2012



Waterway Network

Inventory

There are no port facilities within the MPA. The ports closest to the MPA are located in:

- Phenix City, approximately 30 miles east of Auburn along the Chattahoochee River at the Alabama-Georgia State Line
- Montgomery, approximately 50 miles west of Auburn along the Alabama River.

The closest waterways to the MPA that are part of the NMFN are the Chattahoochee River to the east of the MPA and the Alabama and Coosa Rivers, in Montgomery, to the west of the MPA.

Pipeline Network

Inventory

The MPA's pipeline network is shown in Figure 3.12. As shown previously in Figure 3.4, the pipeline mode of transportation accounts for nearly 25 percent of all ton-miles of freight that originates in the State of Alabama.

48

Miles of pipeline in the MPA

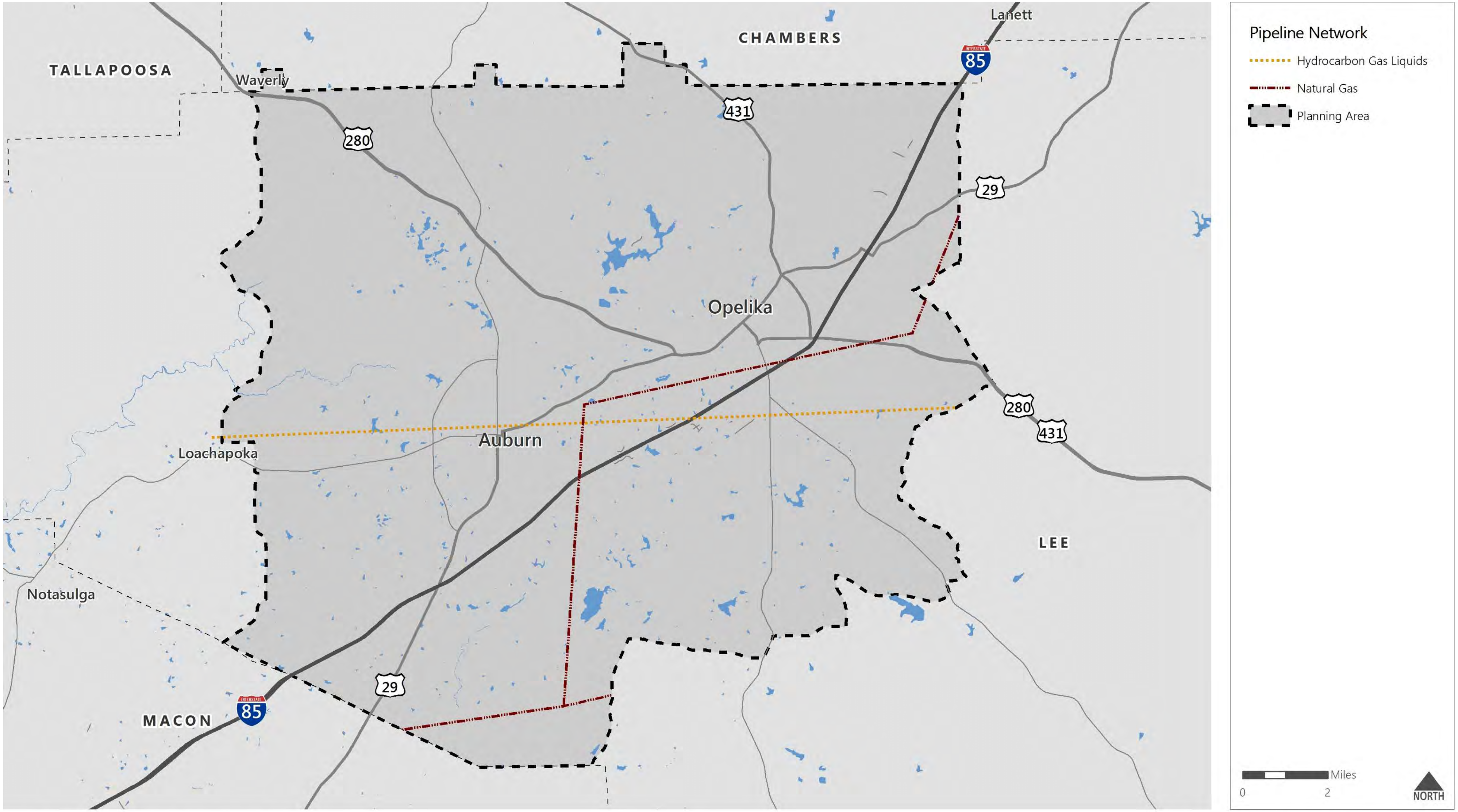
Commodity Flows

Within the MPA, pipelines carry hydrocarbon gas liquids and natural gas. According to the FAF 4.5, the State of Alabama pipelines carry only four commodities:

- Coal-n.e.c.
- Basic chemicals
- Crude petroleum
- Fuel oils

Over 99 percent of the weight in kilotons carried by pipeline in the state is Coal-n.e.c..

Figure 3.12: MPA Pipeline Network



Data Sources: Energy Information Administration

Disclaimer: This map is for planning purposes only.

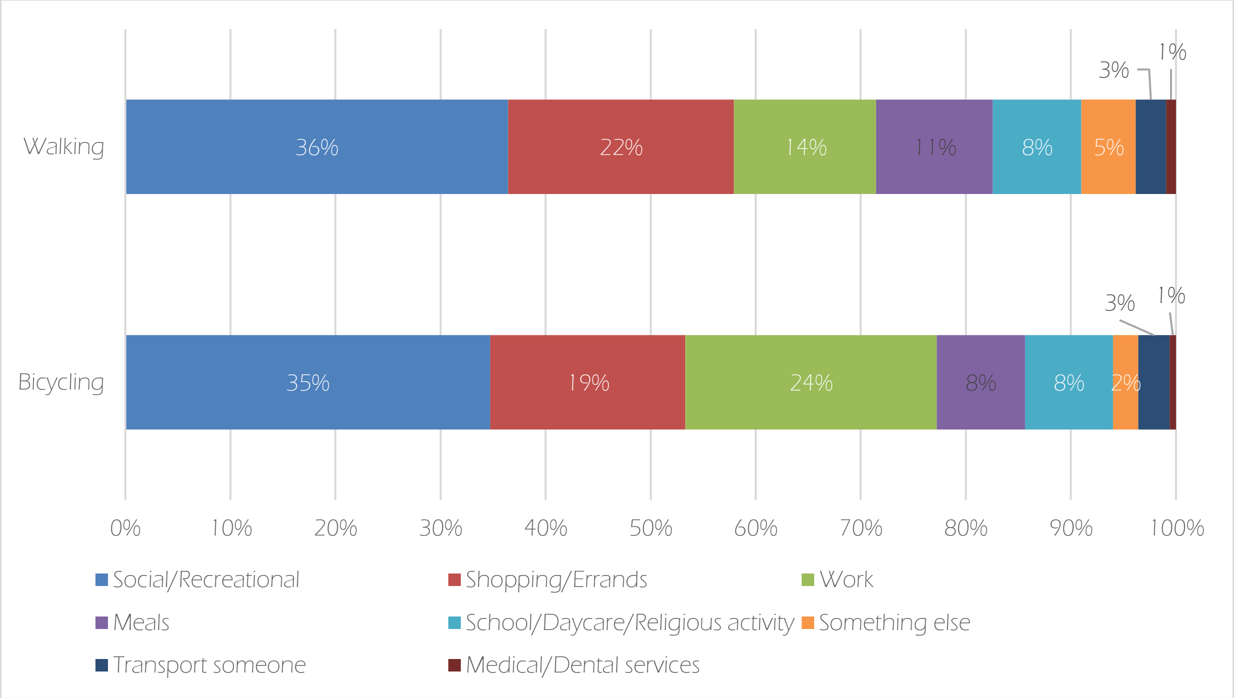
4.0 Bicycle and Pedestrian

Bicycle and pedestrian conditions are often discussed alongside each other. However, their role within the transportation system is very different. First, in small metro areas like the Auburn-Opelika area, the 2017 National Household Travel Survey (NHTS) indicates that walking accounts for 11 percent of all household trips while bicycling only accounts for one (1) percent. Pedestrian trips are not only more common, but they also are of critical importance for people with disabilities.

Walking and biking also differ somewhat in trip purposes. The primary purpose for both walking and biking in small metro areas is social or recreational, followed by shopping and errands. However, commuting to work constitutes 24 percent of bicycling trips compared to only 14 percent for walking trips.

It is important to note that these travel patterns are an average and that there is great variation within metropolitan areas and between metropolitan areas. Work-related and utilitarian trips by walking and biking will be more common in areas where walking and biking is more comfortable and in areas where access to cars is more limited.

Figure 4.1: Walking and Bicycling Trip Purposes in Small Metro Areas



Note: Small Metro Area = under 250,000 residents

Source: National Household Travel Survey, 2017

4.1 Bicycle and Pedestrian Facility Coverage

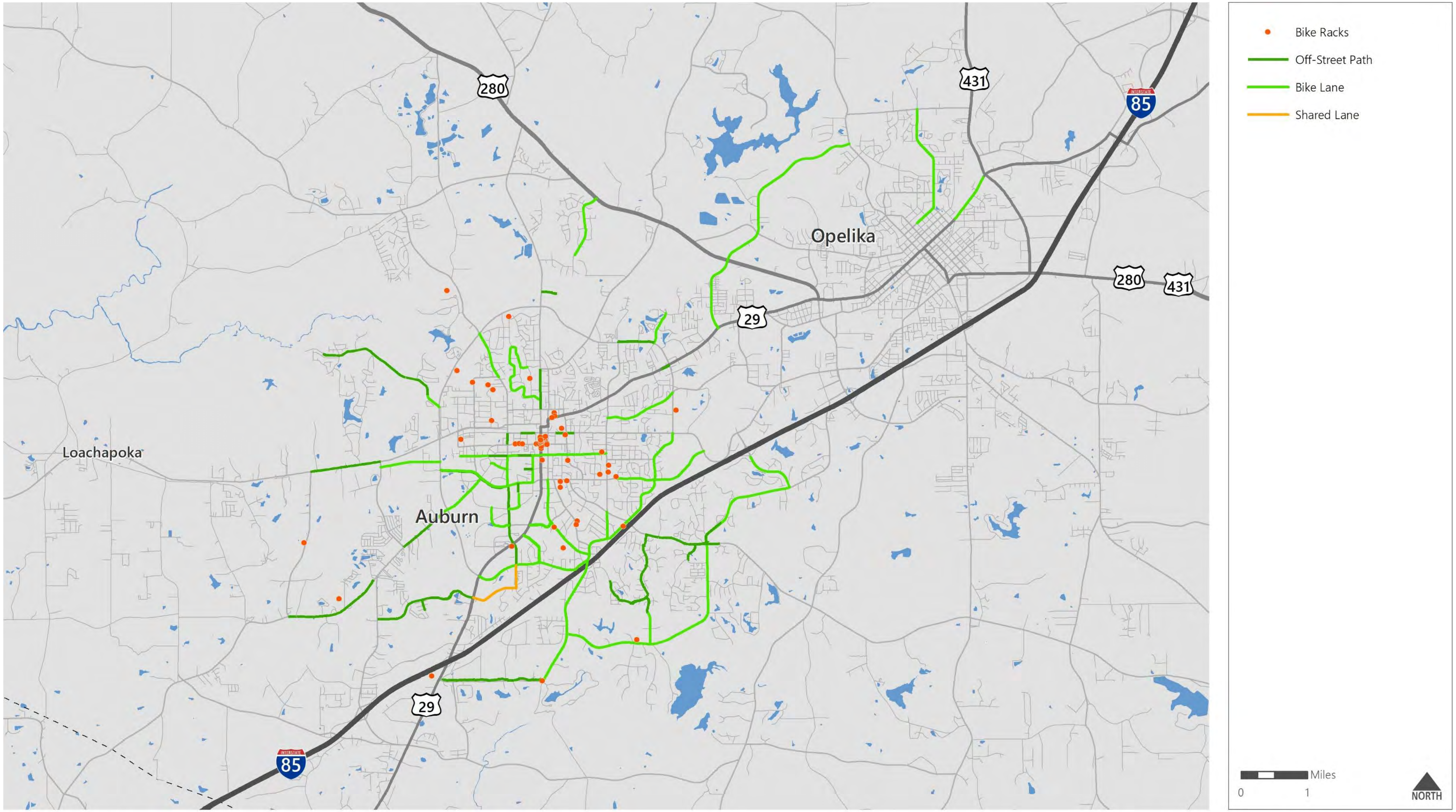
The MPO and the City of Auburn provided an inventory of existing bicycle and pedestrian facilities, shown in Figure. 4.2 for bicycle facilities and Figure 4.3 for pedestrian facilities.

For Auburn, there is widespread sidewalk coverage in downtown and many subdivisions. There is a robust supply of bicycle facilities, especially around the University. There are also several walking and bike paths, many connecting to parks.

For Opelika, most of downtown Opelika has sidewalk coverage, but largely lacks sidewalks outside downtown. Bicycle infrastructure in Opelika consists of a small number of bike lanes.

It is important to note that for both Auburn and Opelika, the inventory only notes existence of facilities and not the current condition or need for maintenance.

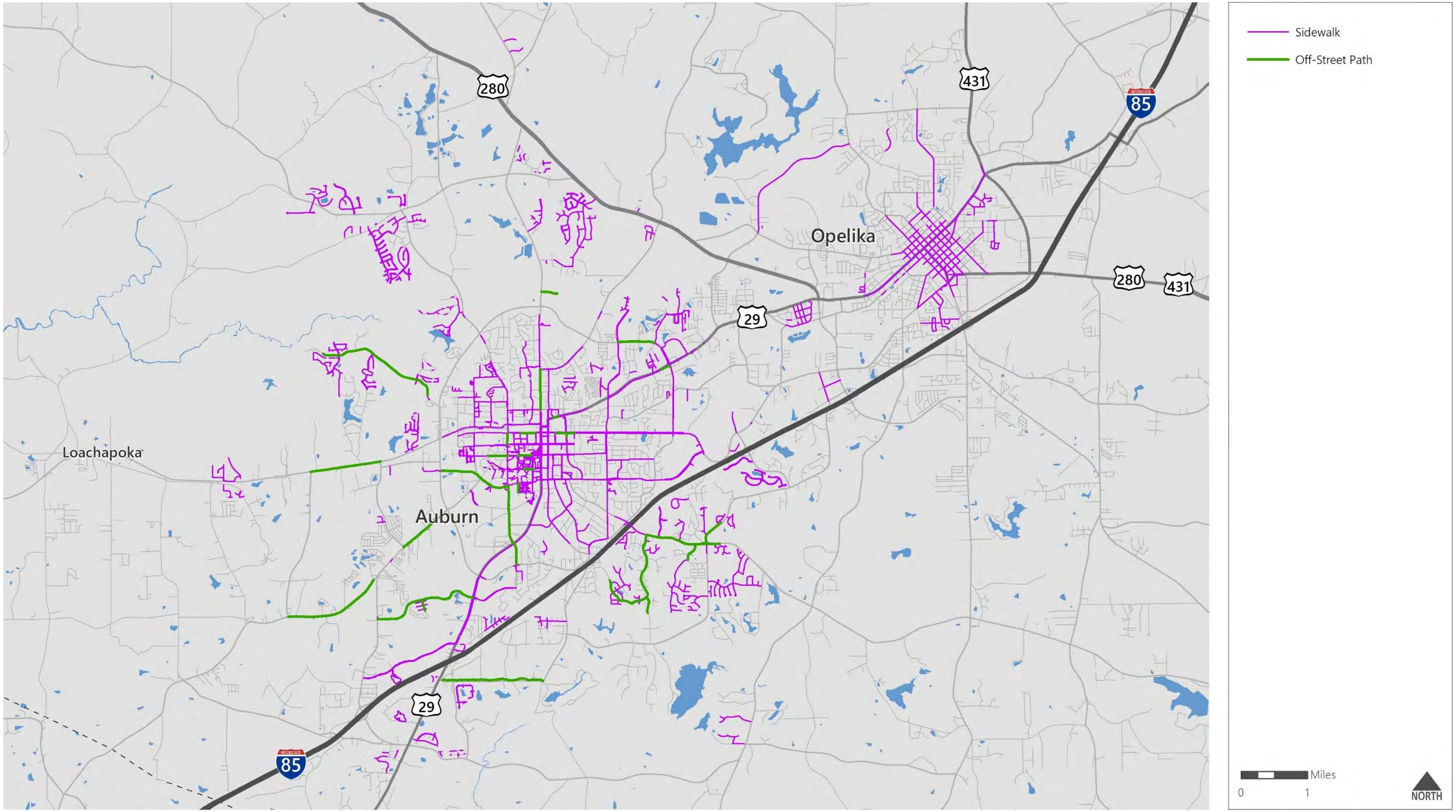
Figure 4.2: Existing Bicycle Facilities



Data Sources: LRCOG; City of Auburn; City of Opelika

Disclaimer: This map is for planning purposes only.

Figure 4.3: Existing Pedestrian Facilities



Data Sources: LRCOG; City of Auburn; City of Opelika

Disclaimer: This map is for planning purposes only.

4.2 Existing Traffic and Usage Patterns

In general, mode choice for both workers and students has dramatically changed since the mid-1900s; shifting from active modes like bicycling and walking to vehicles, either by driving alone or carpooling. The population movement from urban cores to suburbs increased distances between locations, making active transportation less attractive and less feasible.

Table 4.1 shows that the majority of workers in the U.S. drive to work and Figure 4.4 displays the decrease in walking to work over time.

Mode choice for students has also followed a similar pattern. According to a 2011 report from the National Center for Safe Routes to School, the percent of children five to fourteen years that usually walked or bicycled to school dropped from 48 percent to 13 percent. The study also found that from 1969 to 2009, the percent of children in grades K–8 that lived within one mile of school dropped from 41 percent to 31 percent. Distance from school greatly affects mode choice.

The 2017 National Household Travel Survey found that 80.9 percent of students who lived a quarter mile or closer to school walked or biked, while less than one percent of students walked or biked if they lived more than two miles from school.

Data from recent years suggests a small but important increase in active transportation. Figure 4.4 shows the small increase in walking to work in Auburn since 2000 to 4.8 percent, above the national average of 2.9 percent. Although there are no official bicycle and pedestrian traffic counts for the MPA, community activity and public input have demonstrated an increased interest in active transportation.

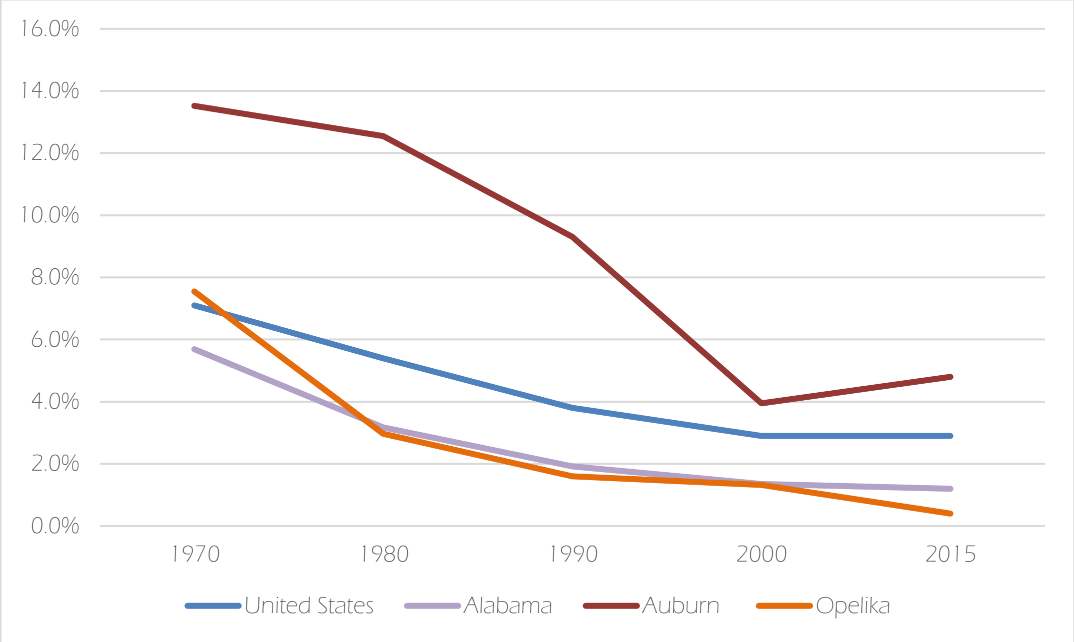
Table 4.1: Means of Transportation to Work

Mode	United States	Alabama	AOMPO	Auburn	Opelika
Drove Alone	80.2%	88.6%	85.9%	82.8%	89.3%
Carpooled	9.6%	8.8%	8.8%	9.1%	9.4%
Transit	5.4%	0.4%	1.1%	1.7%	0.1%
Walked	2.9%	1.2%	3.0%	4.8%	0.4%
Bicycle	0.6%	0.1%	0.4%	0.6%	0.1%
Other	1.3%	.9%	0.8%	0.9%	0.7%

Note: Excludes those who worked from home

Source: ACS 2013-2017

Figure 4.4: Percentage of People Walking to Work, 1970-2015



Source: National Historic Geographic Information Systems; ACS 2013-2017 5-Yr Estimates

Bike-Sharing

Since 2009, the City of Auburn has provided bikes to residents that can be rented for free for up to two weeks. Since the summer of 2017, the City of Auburn has partnered with Auburn University to provide public access to the War Eagle bikeshare program run by GotchaBike.

Bikeshare stations are located throughout the city, although concentrated downtown by the University and by the parks.

4.3 Bicycle and Pedestrian Crashes

Table 4.2 shows data on bicycle crashes in the MPO from 2014-2018. Crashes have slightly increased since 2016, although the number of severe injuries remains low and there have been no fatalities. Neither the bicycle nor pedestrian data notes whether the bicyclist or pedestrian was the person injured. Table 4.3 shows pedestrian crash data in the MPO from 2014-2018. 2018 had the least amount of crashes and injuries for pedestrians, down 11 crashes since 2016.

Table 4.4 summarizes the severity of all bicycle and pedestrian injuries from 2014-2018. During these years, 16 percent of bicycle crashes and 31 percent of pedestrian crashes resulted in an incapacitating injury or fatality. This is less than the Alabama average, for which almost 20 percent of bicycle crashes and 37 percent of pedestrian crashes resulted in an incapacitating injury or fatality.

Table 4.2: Bicycle Crashes in AOMPO (2014-2018)

Crash Type	2014	2015	2016	2017	2018	Total
Fatal	0	0	0	0	0	0
Non-Fatal	10	15	10	12	15	62
All Crashes	**10**	**15**	**10**	**12**	**15**	**62**

Source: CARE

Table 4.3: Pedestrian Crashes in AOMPO (2014-2018)

Crash Type	2014	2015	2016	2017	2018	Total
Fatal	3	1	3	1	0	8
Non-Fatal	15	16	19	16	11	77
All Crashes	**18**	**17**	**22**	**17**	**11**	**85**

Source: CARE

Table 4.4: Severity of Bicycle and Pedestrian Crashes in AOMPO (2014-2018)

Severity	Bicycle Crashes	Pedestrian Crashes	Percentage
Fatal	0	7	5%
Incapacitating Injury	10	19	20%
Non-incapacitating Injury	31	25	38%
Possible Injury	6	29	24%
Property Damage Only	15	4	13%
Unknown	0	1	1%
Total	**62**	**85**	**100%**

Source: CARE

4.4 Regional Bicycle and Pedestrian Demand Analysis

In order to better understand the existing potential demand for pedestrian and bicycle trips, a latent demand score analysis was conducted that attempts to illustrate potential demand based on characteristics of the built environment, location of major attractors, and demographics.

The demand analysis is the same for pedestrians and bicyclists. The mapping exercise used fine-grained information to assess an area's potential demand for pedestrian or bicycle trips based on a 0-100 scale. Points were awarded based on the factors summarized in Table 4.5.

Figure 4.5 shows the results of the latent demand score analysis. Again, this exercise reflects relative potential demand, not absolute demand. Simply put, it shows which areas are more likely to have high or low demand relative to all other areas within MPA. It does not attempt to quantify the actual number of bicycle or pedestrian trips occurring in these areas.

The analysis indicates that potential bicycle and pedestrian demand is greatest in the downtown cores of Auburn and Opelika. Demand is highest around Auburn University and in downtown Auburn between Opelika Road and S College Street. There is medium-high demand along AL-14 (Opelika Road and Pepperell Pkwy) with high demand by the East Alabama Medical Center and Gateway Drive. There is also medium-high demand in the Carter and Jeter neighborhoods of Opelika and in some of the subdivisions of Auburn. Demand decreases as distance from the urban cores increases.

Table 4.5: Bicycle and Pedestrian Demand Factors

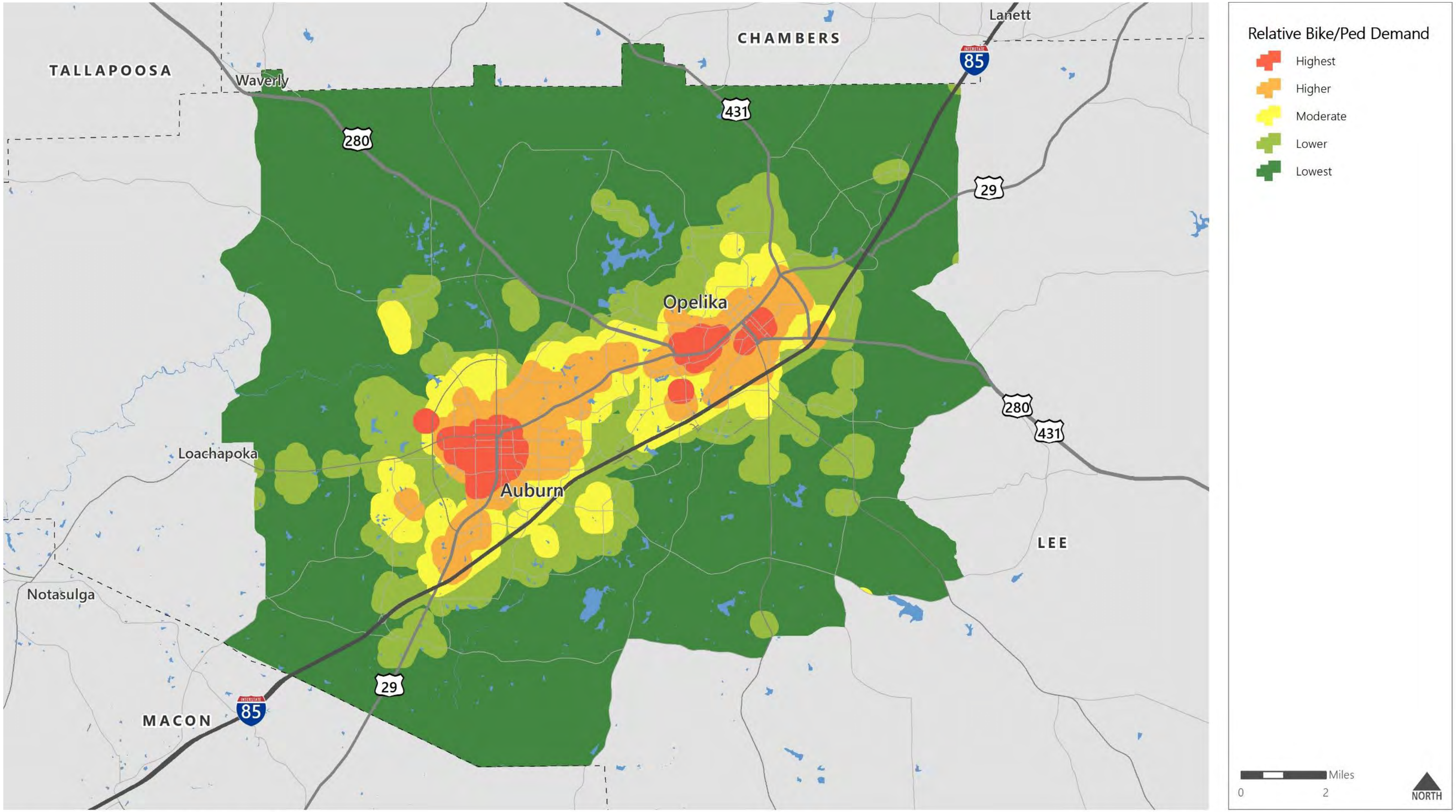
Factor	Measure	Maximum Points
Land Use	Population, jobs, and students per acre	30
	Within half mile of popular destination(s)[1]	15
Demographic	Senior (65+) and youth (<18) population per acre	10
	Households with no vehicle available or on-campus housing unit[2]	25
Travel Environment	Intersections per square mile[3]	20
	Total Possible Points	**100**

[1]Popular destinations are parks, major recreation centers, schools, libraries, hospitals, grocery stores, pharmacies, convenience stores, and eating and drinking places. Universities were weighted 10x, other schools and hospitals were weighted 5x. Grocery stores, pharmacies, convenience stores, dollar stores, and parks/rec centers/libraries were weighted 2x. Eating and drinking places were weighted 1x.

[2]On-campus housing units calculated by dividing group quarters dorm population by 2.2

[3]Intersections with at least 4 segments are weighted 2x

Figure 4.5: Existing Bicycle and Pedestrian Demand



Data Sources: Census Bureau, InfoGroup, Neel-Schaffer, Inc.

Disclaimer: This map is for planning purposes only.

4.5 Existing Plans

Statewide Plan

In 2017, ALDOT released the Alabama Statewide Bicycle and Pedestrian Plan. The plan noted increased interest in bike/ped facilities and performed its own demand analysis which showed similar hotspots of demand as Figure 4.5. The plan identified priority and vision corridors for a bicycle route. Three priority corridors cross the Auburn-Opelika MPA and would connect to Montgomery, Phenix City, and Wadley.

To implement these projects and strategies, the plan identifies performance measures and provides project prioritization criteria and design guidance.

The plan also provides three general strategies to guide bike/ped investments:

- Prioritize bike/ped safety programs and improvements,
- Increase access to bike/ped in traditionally underserved communities,
- Improve connections between bike/ped facilities on state highways, local greenways, and share use paths, as well as access to natural and scenic areas.

MPO Plan

In 2016, the MPO and Lee-Russell Council of Governments adopted the Auburn-Opelika Bicycle and Pedestrian Plan. The plan performed a Level of Service analysis of the bicycling and pedestrian conditions around Auburn and Opelika. The roadways earned an average Level C (on a scale of A-F, A being the best) for bicycling conditions and an average D for pedestrians. LOS, demand, and public input were then analyzed to decide which roadways needed either minor or major regrading for sidewalks and which roadways needed detailed corridor studies.

Estimated costs to address these improvements were $535 million dollars, well above available funding. The plan prioritized projects to aid in selection and provided a comprehensive toolbox with design tools and strategies to encourage and educate the community about active transportation.

City of Auburn

In 2018, the City of Auburn released its CompPlan 2030. This plan recognized the city's growing interest in active transportation and set a goal to expand their bicycle facility network from 49 miles to 150 miles. Currently, the city is planning Connect Auburn: A Plan for Auburn's Greenways and Bikeways.

City of Opelika

In 2014, the City of Opelika released the Carter-Jeter Revitalization Plan, which included plans for a new multi-use path connecting Pepperell Village to Fox Run Parkway. The city has also been working on a citywide bicycle plan.

5.0 Public Transit

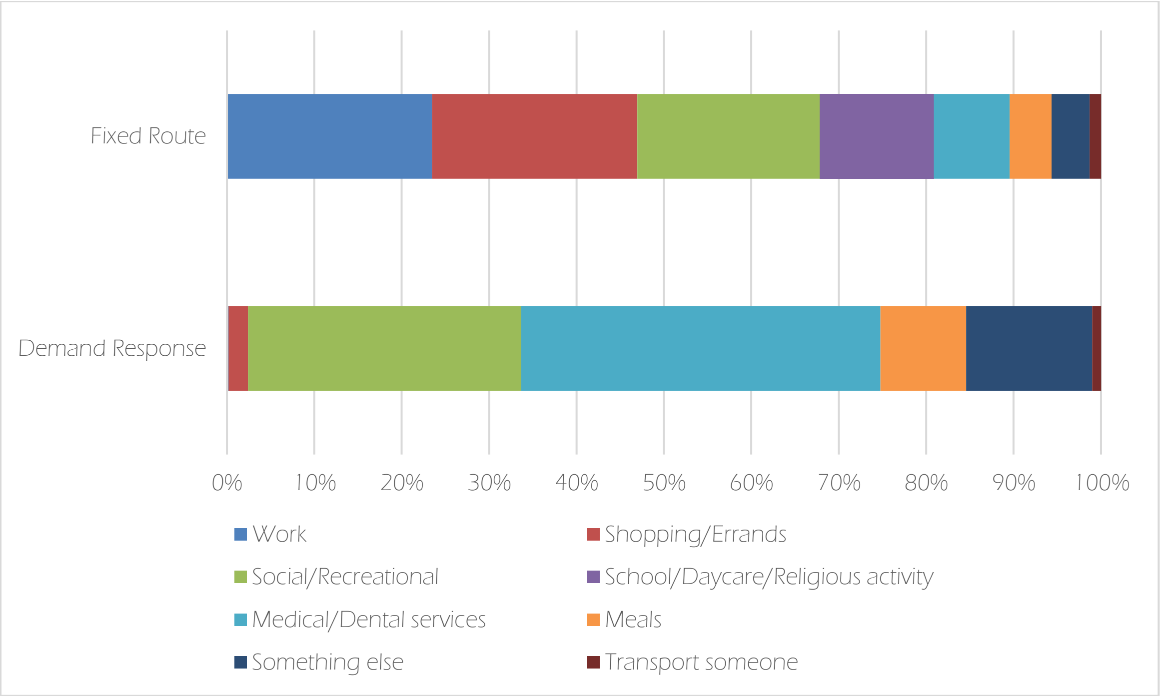
Public transit provides people with access to the places they need to go – work, school, grocery stores, medical facilities, and other destinations. For those that have no other choice, either because of economic or physical limitations, it is a lifeline service. For others, it reduces the burden of transportation costs and serves as a convenient alternative to driving.

Public transit also has significant benefits for the entire community as it can increase local business access to skilled workers, reduce congestion and emissions, reduce urban sprawl, and foster walkable communities.

Still, in small metropolitan areas like the Auburn-Opelika area, public transit accounts for a small percentage of all trips– 2.5% according to the 2017 National Household Travel Survey.

For those that do use public transit in these areas, trip purposes vary substantially. People riding fixed routes are primarily traveling for work, shopping, or social/recreational purposes. People using demand response services are overwhelmingly traveling for medical or social/recreational purposes. However, trip purpose patterns will ultimately depend on the availability of the service.

Figure 5.1: Trip Purposes for Transit Riders in Small Metro Areas



Note: Small Metro Area = under 250,000 residents

Source: 2017 National Household Travel Survey

5.1 Lee-Russell Public Transit

Services Provided

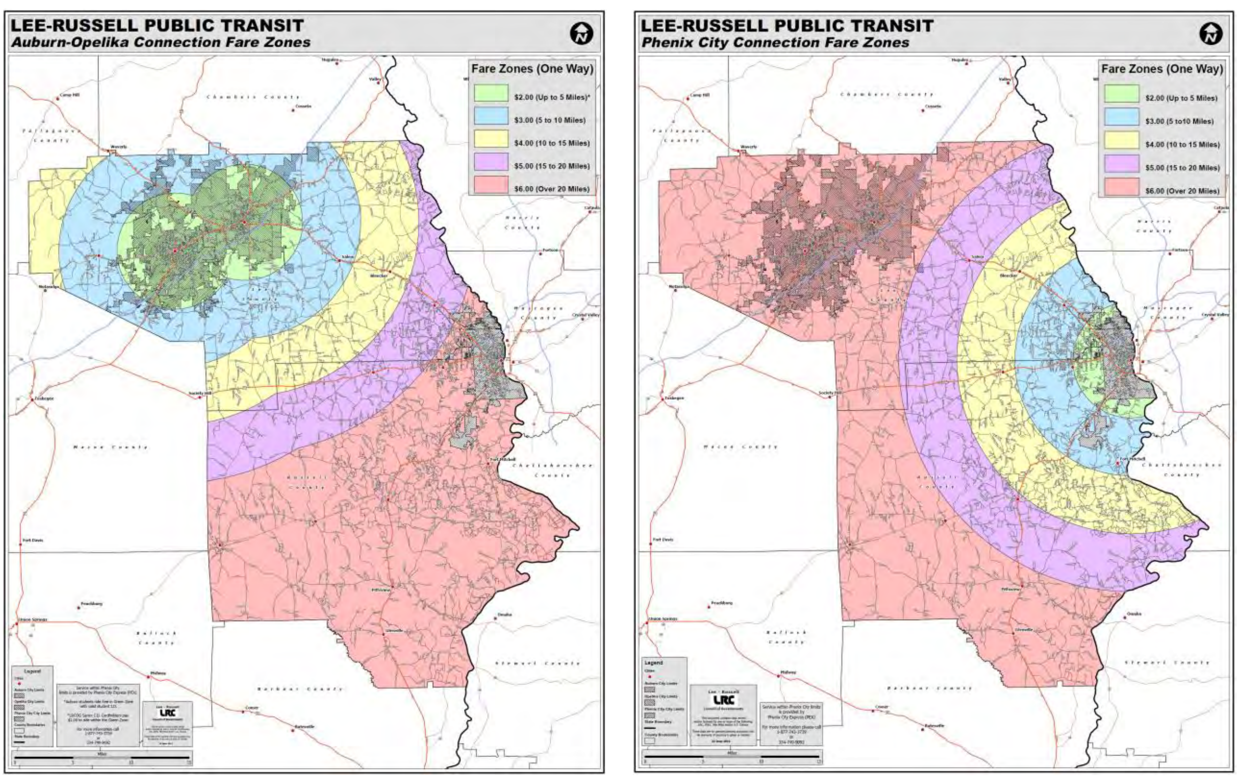
Lee-Russell Council of Governments provides public transit services in Lee and Russell counties and is the public transit provider in the Auburn-Opelika MPA. It provides fixed route service outside of the MPA (Phenix City Express), and demand response service in both counties through its dial-a-ride service, Lee-Russell Public Transit (LRPT)

LRPT's dial-a-ride service is a demand response service for the general public that is provided on a first-come, first-serve basis. Service is provided Monday through Friday from 6 AM to 6 PM. Fares are zone-based and range from $2.00 to $6.00. However, senior citizens can ride for $1.00 and Auburn University students and employees and children ride free with valid ID.

Anyone residing in Lee and Russell counties is eligible for LRPT's dial-a-ride service, but there are two distinct services available:

- **Auburn-Opelika Connection**: fares based on distance from Auburn City Hall and Opelika City Hall.
- **Phenix City Connection**: fares based on distance from Russell County Courthouse.

Figure 5.2: Fare Zones for LRPT Demand Response Services



Source: Lee-Russell Council of Governments

Ridership Trends

From 2013 to 2017, ridership on LRCOG's demand response services has been decreasing, while ridership on its fixed route service has remained relatively flat (see Figure 5.1).

LRCOG provides several demand response services, but the LRPT services (Auburn-Opelika Connection and Phenix City Connection) make up the overwhelming majority of all demand response trips (Figure 5.2). In 2018, the Auburn-Opelika Connection averaged 172 trips per day and the Phenix City Connection averaged 31 trips.

Ridership does not vary greatly throughout the year or by day of week, but it does drop off in the winter months (see Figure 5.3). During the day, ridership has two distinct peaks: the morning peak (6-9 AM) and the early afternoon peak (noon-1 PM) (see Figure 5.4).

Table 5.1: LRCOG Annual Ridership by Mode, 2013-2017

		2013	2014	2015	2016	2017
Trips	Demand Response	94,890	85,649	87,101	84,937	77,940
	Fixed Route	0	20,627	27,934	20,042	20,640
	Total	94,890	106,276	115,035	104,979	98,580

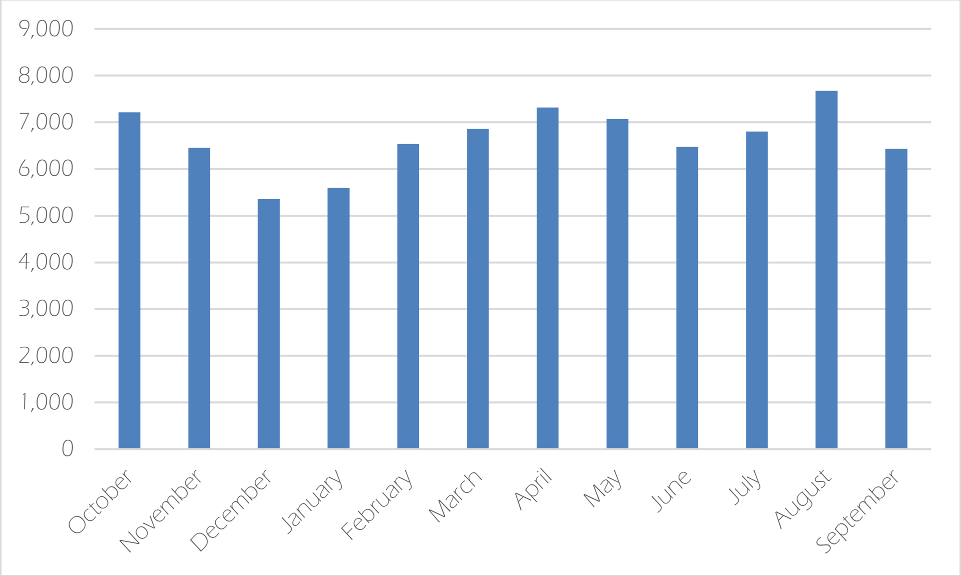
Source: National Transit Database

Table 5.2: LRCOG Average Daily Ridership by Demand Response Service, 2018

Service	Average Daily Ridership
Auburn-Opelika Connection	172
Phenix City Connection	31
Phenix City Express Complementary Paratransit	33
Other Services (e.g. senior centers)	86
Total	**322**

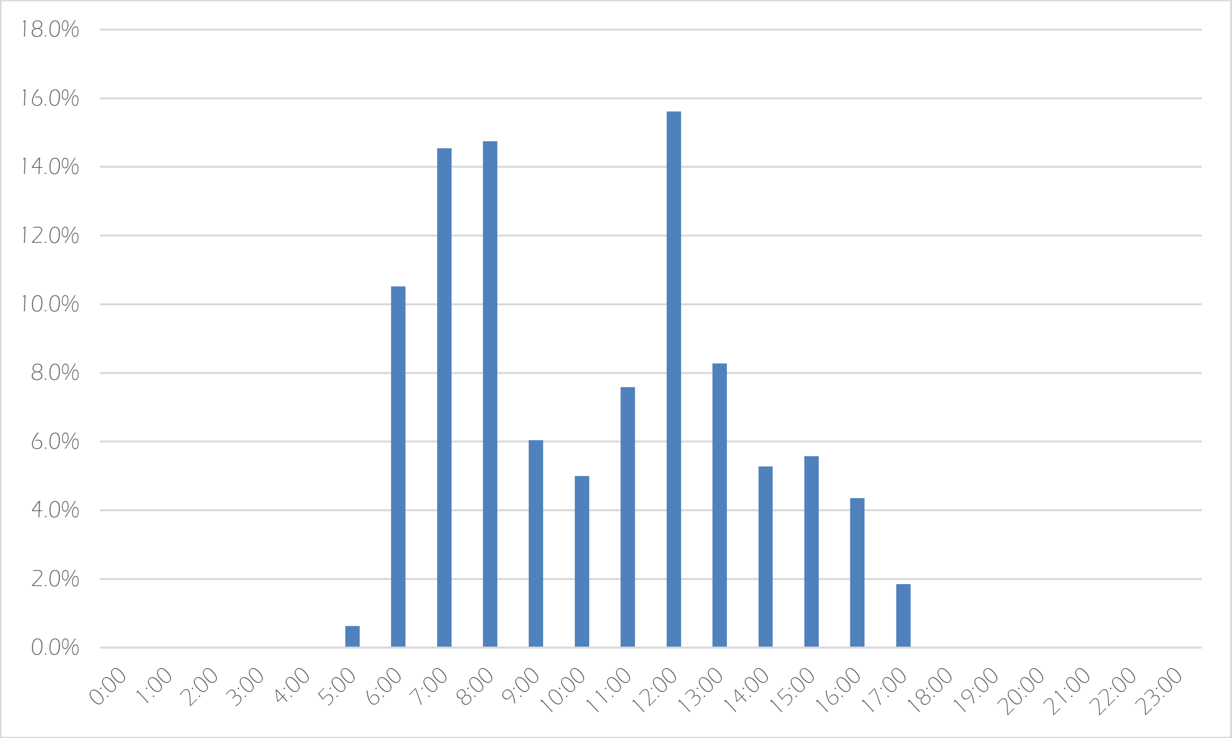
Note: Assumes 248 service days in a year based on schedules and holidays in passenger guide
Source: Lee-Russell Council of Governments, Fiscal Year 2018

Figure 5.3: LRCOG Demand Response Ridership by Month, 2018



Source: Lee-Russell Council of Governments, Fiscal Year 2018

Figure 5.4: LRCOG Demand Response Ridership by Time of Day, 2018

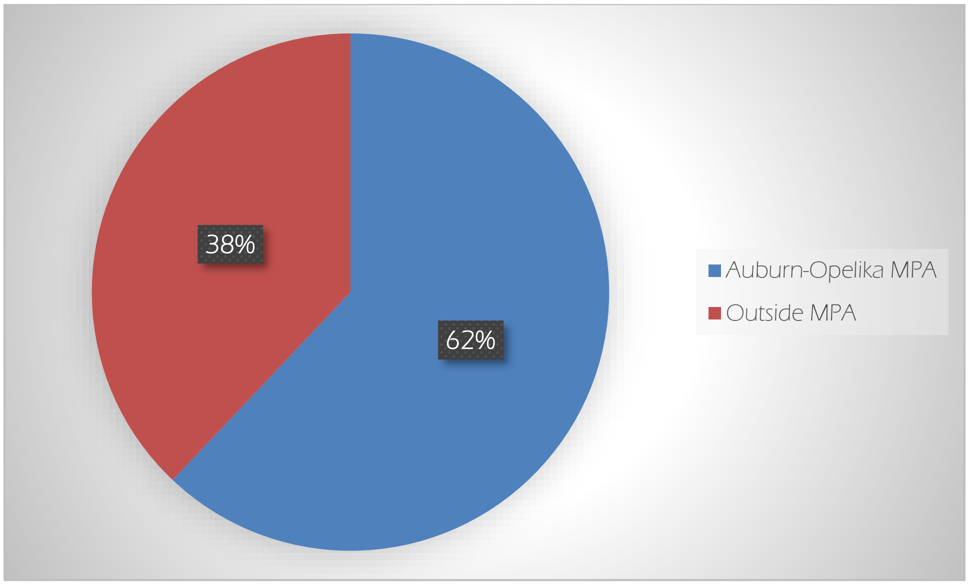


Source: Lee-Russell Council of Governments, Fiscal Year 2018

Origins and Destinations

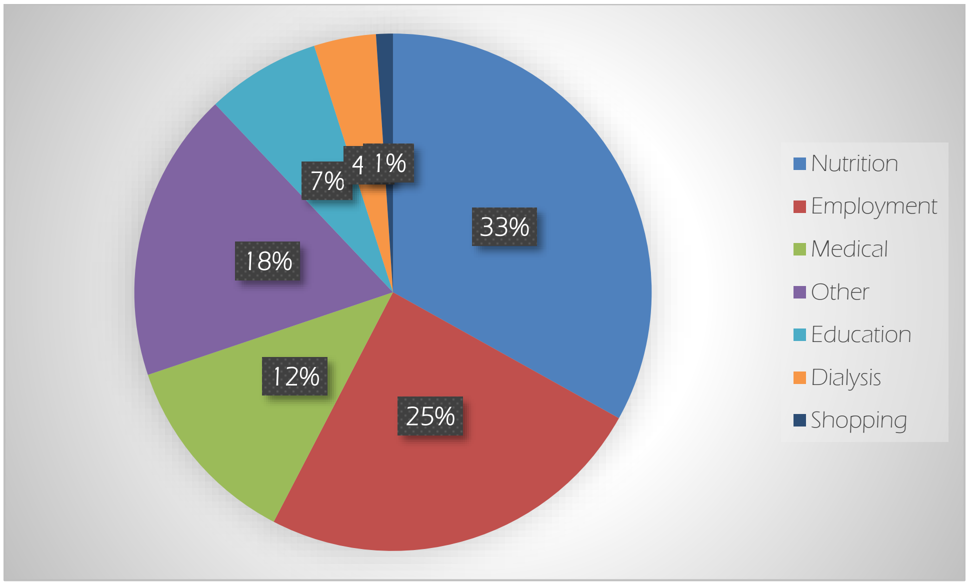
LRCOG provided origin and destination data for all demand response trips from Fiscal Year 2018. This data was geocoded and data within the Auburn-Opelika MPA (62% of all trips) was extracted for analysis. Figure 5.7 shows that the highest concentration of trips in the MPA are in low-income neighborhoods or near major shopping areas and medical facilities.

Figure 5.5: LRCOG Demand Response Trips in Auburn-Opelika MPA, 2018



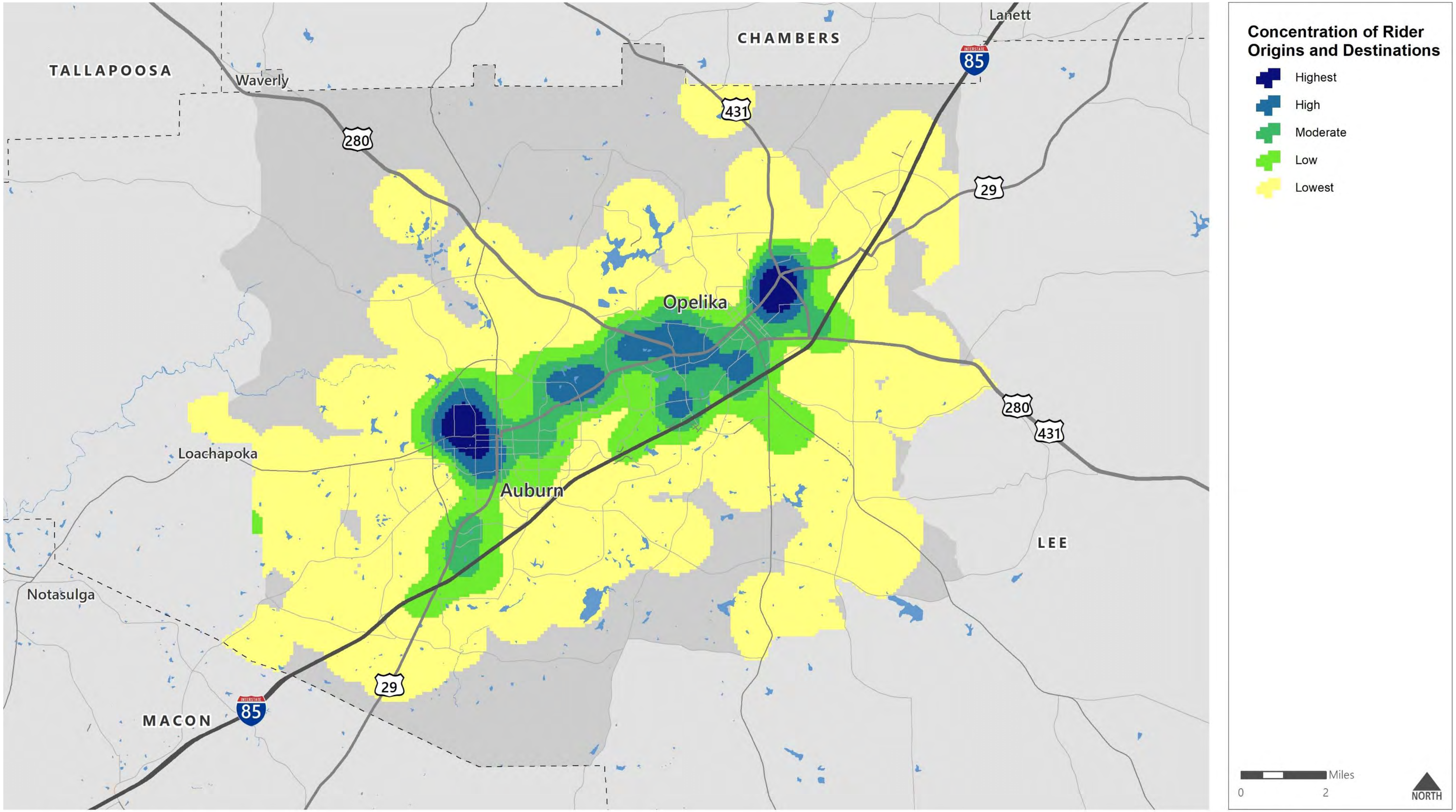
Source: Lee-Russell Council of Governments, Fiscal Year 2018

Figure 5.6: LRCOG Demand Response Trip Purposes, 2018



Source: Lee-Russell Council of Governments, Fiscal Year 2018

Figure 5.7: Origins and Destinations for LRCOG Demand Response Service, 2018



Data Sources: Lee Russell Council of Governments

Disclaimer: This map is for planning purposes only.

Operating Trends

LRCOG's demand response ridership has been decreasing in recent years, even as its number of vehicles operated in maximum service and its operating budget have remained consistent. Given the increase in vehicle hours and miles, the likely explanation is that trips are becoming longer, both in distance and travel time. This is consistent with national trends.

The system is not very productive or efficient, though this is typical for a demand response system covering a large geographic area. The system is heavily subsidized, with fares making up only 3 to 11 percent of operating costs.

Table 5.3: Recent Operating Characteristics for LRCOG Demand Response Service

General Performance	2014	2015	2016	2017
Service Area Population	213,756	215,846	217,505	218,669
Passenger Trips	85,649	87,101	84,937	77,940
Total Operating Expense	$1,587,115	$1,540,633	$1,597,301	$1,852,323
Service Supply and Quality				
Vehicles Operated in Maximum Service	26	27	28	27
Vehicle Revenue Miles	512,751	571,179	579,937	560,202
Vehicle Revenue Hours	30,754	37,061	41,465	42,051
Average Age of Fleet	5.4	10.7	7.1	8.0
Service Consumption				
Passenger Trips per Capita	0.40	0.40	0.39	0.36
Passenger Trips per Revenue Mile	0.17	0.15	0.15	0.14
Passenger Trips per Revenue Hour	2.78	2.35	2.05	1.85
Efficiency				
Operating Expense per Capita	$7.42	$7.14	$7.34	$8.47
Operating Expense per Passenger Trip	$18.53	$17.69	$18.81	$23.77
Operating Expense per Revenue Mile	$3.10	$2.70	$2.75	$3.31
Operating Expense per Revenue Hour	$51.61	$41.57	$38.52	$44.05
Farebox Recovery				
Fare Revenue	$168,080	$167,428	$123,389	$65,407
Farebox Recovery Ratio	10.6%	10.9%	7.7%	3.5%

Note: Service Area is Lee and Russell counties as of July 1 from Population Estimates Program
Source: National Transit Database

Safety and Security Trends

As a recipient of federal transportation funds, LRCOG is required to report safety and security events occurring on a transit right-of-way, in a transit revenue facility, in a transit maintenance facility, or involving a transit revenue vehicle.

Table 5.4 shows LRCOG's reported safety and security events from the last 5 years of available data and compares its incidence rates to the national and state average. While LRCOG has a higher rate of safety and security events than the state or nation as a whole, its incidence of events resulting in injuries or fatalities is below these averages.

Table 5.4: LRCOG Safety and Security Events, 2013-2017

	2013	2014	2015	2016	2017	Total
All Events	1	1	2	2	0	6
Fatalities	0	0	0	0	0	0
Injuries	0	0	1	0	0	1

Source: National Transit Database

Table 5.5: Safety and Security Events per 100 million Vehicle Revenue Miles, 2013-2017

	LRCOG	State Average	National Average
All Events	204.0	140.1	180.3
Fatalities	0.0	2.2	5.6
Injuries	34.0	141.2	235.2

Source: National Transit Database

Transit Asset Management

All transit agencies receiving federal funding are required to submit asset inventory data, condition assessments, performance targets, and a narrative report to the National Transit Database annually in addition to developing a Transit Asset Management (TAM) plan. LRCOG submits this information and has recently developed a group TAM plan with ALDOT and other transit agencies in Alabama.

Federal TAM regulations require transit agencies to address the four asset categories shown in Table 5.6, as appropriate. For LRCOG, only the rolling stock asset category is applicable. LRCOG does not report equipment, facilities, or infrastructure as defined in federal regulations and guidance.

Table 5.6: Transit Asset Management Performance Measures

Asset Category	FTA established Performance Measure	Reported by LRCOG
Rolling Stock	% of revenue vehicles exceeding ULB	Yes
Equipment	% of non-revenue service vehicles exceeding ULB	No
Facilities	% of facilities rated under 3.0 on the TERM scale	No
Infrastructure	% of track segments under performance restriction	No

Note: ULB = Useful Life Benchmark; TERM is software used to rate facility conditions
Source: Federal Transit Administration

Useful Life Benchmark: The expected lifecycle of a capital asset for a particular transit provider's operating environment, or the acceptable period of use in service for a particular transit provider's operating environment.

Note: ULB is distinct from the useful life definition used in FTA's grant programs

LRCOG currently has 35 vehicles in its rolling stock fleet (see Table 5.7). This fleet consists of four different types of vehicles, though most are vans or small buses. ALDOT and other transit providers throughout the state set performance targets for each vehicle type. For rolling stock, this performance measure is simply the percentage of revenue vehicles whose age exceeds the Useful Life Benchmark (ULB) established by the group. Each vehicle type has its own ULB target due to unique vehicle characteristics.

As shown in Table 5.7, LRCOG currently does not meet the performance target for any vehicle type in its fleet. A detailed vehicle inventory and condition assessment is provided in Table 5.8.

Table 5.7: Transit Asset Management 2018 Performance and Target

Vehicle Type	Total	ULB (years)	% Exceeding ULB	2017 Target	Status
Van	17	4	88%	70%	Target Not Met
Small Buses (17-21 passengers)	10	5	60%	56%	Target Not Met
Small Buses (24-27 passengers)	4	7	25%	19%	Target Not Met
Full Size Bus (28+ passengers)	4	10	100%	0%	Target Not Met
Overall	35	n/a	74%	55%	Target Not Met

Source: ALDOT Group-Sponsored Transit Asset Management Plan, 2018

Table 5.8: LRCOG Asset Inventory for Revenue Vehicles (Rolling Stock)

Asset Class	Make	Model	Count	ID/Serial No.	Acquisition Year	Vehicle Mileage	Replacement Cost/Value	Vehicle Age	ULB	Absolute UL Remaining
Van	FORD	E350	1	1FD3E35LV8DB47882	2007	200,245	$55,994	11	4	-7
Van	FORD	E350	1	1FDWE35L17DB13602	2007	195,290	$55,994	11	4	-7
Van	FORD	GOSHEN	1	1FDWE35L85HB48899	2007	206,848	$55,994	11	4	-7
Van	FORD	E350	1	1FDWE35L87DB13600	2007	181,300	$55,994	11	4	-7
Van	FORD	E350	1	1FDWE35LX7DB13601	2007	187,339	$55,994	11	4	-7
Van	FORD	E350	1	1FD3E35L18DB51593	2008	139,510	$55,994	10	4	-6
Van	FORD	E350	1	1FD3E35L48DB56772	2008	175,338	$55,994	10	4	-6
Van	FORD	E350	1	1FD3E35L58DB51595	2008	203,821	$55,994	10	4	-6
Van	FORD	E350	1	1FD3E35L78DB51601	2008	231,678	$55,994	10	4	-6
Van	STARCRAFT	E350	1	1FDEE3FL1BDA15303	2010	167,988	$55,994	8	4	-4
Van	STARCRAFT	E350	1	1FDEE3FL4BDA15294	2010	126,386	$55,994	8	4	-4
Van	STARCRAFT	E350	1	1FDEE3FL8BDA15301	2010	160,864	$55,994	8	4	-4
Van	STARCRAFT	E350	1	1FDEE3FL9BDA15288	2010	171,947	$55,994	8	4	-4
Van	FORD	E350	1	1FTDS3EL1BDA36209	2010	116,656	$55,994	8	4	-4
Van	FORD	GALVAL	1	1FTD53EL9BDB13778	2011	104,483	$55,994	7	4	-3
Van	STARCRAFT	E350	1	1FDEE3FL6EDA72858	2014	62,104	$55,994	4	4	0
Van	FORD	STARCRAFT	1	1FDFE4FS1EDA13475	2014	49,004	$55,994	4	4	0
Small Buses (17-21 passengers)	Freightliner	Goshen	1	4UZAABBW33CL69108	2003	139,994	$58,546	15	5	-10
Small Buses (17-21 passengers)	FREIGHTLINER	GOSHEN	1	4UZAABBW83CL64373	2003	210,020	$58,546	15	5	-10
Small Buses (17-21 passengers)	FREIGHTLINER	GOSHEN	1	4UZAACBW65CU57207	2005	122,206	$58,546	13	5	-8
Small Buses (17-21 passengers)	FREIGHTLINER	GOSHEN	1	4UZAACBW85CU57208	2005	223,980	$58,546	13	5	-8
Small Buses (17-21 passengers)	FREIGHTLINER	GOSHEN	1	4UZAACBWX5CU57209	2005	204,403	$58,546	13	5	-8
Small Buses (17-21 passengers)	CHEVROLET	E450	1	1GB6B5BL8B11015816	2010	217,690	$58,546	8	5	-3
Small Buses (17-21 passengers)	FORD	STARCRAFT	1	1FDFE4FS4EDA13518	2014	57,919	$58,546	4	5	1
Small Buses (17-21 passengers)	FORD	STARCRAFT	1	1FDFE4FS5FDA17658	2015	56,164	$58,546	3	5	2
Small Buses (17-21 passengers)	STARCRAFT	E450	1	1FDFE4FS5GDC13276	2015	26,113	$58,546	3	5	2
Small Buses (17-21 passengers)	STARCRAFT	E450	1	1FDFE4FS7GDC13277	2015	27,252	$58,546	3	5	2
Small Buses (24-27 passengers)	CHEVROLET	E450	1	1GB6G5BL5B1101062	2010	133,385	$61,833	8	7	-1
Small Buses (24-27 passengers)	STARCRAFT	E450	1	1FDFE3FS9CDB22005	2013	50,067	$61,833	5	7	2
Small Buses (24-27 passengers)	STARCRAFT	E350	1	1FDFE4FS5CDB21997	2013	125,550	$61,833	5	7	2
Small Buses (24-27 passengers)	STARCRAFT	E450	1	1FDFE4FS7FDA16009	2015	38,803	$61,833	3	7	4
Full Size Bus (28+ passengers)	FREIGHTLINER	GOSHEN	1	4UZAABBW73CL64168	2003	177,325	$90,088	15	10	-5
Full Size Bus (28+ passengers)	FREIGHTLINER	GOSHEN	1	4UZAACBW35CU57214	2005	78,335	$90,088	13	10	-3
Full Size Bus (28+ passengers)	FREIGHTLINER	GOSHEN	1	4UZAACBW55CU57215	2005	70,108	$90,088	13	10	-3
Full Size Bus (28+ passengers)	FREIGHTLINER	GOSHEN	1	4UZAACBW95CU57217	2005	74,956	$90,088	13	10	-3

Source: ALDOT Group-Sponsored Transit Asset Management Plan, 2018

5.2 Tiger Transit

Services Provided

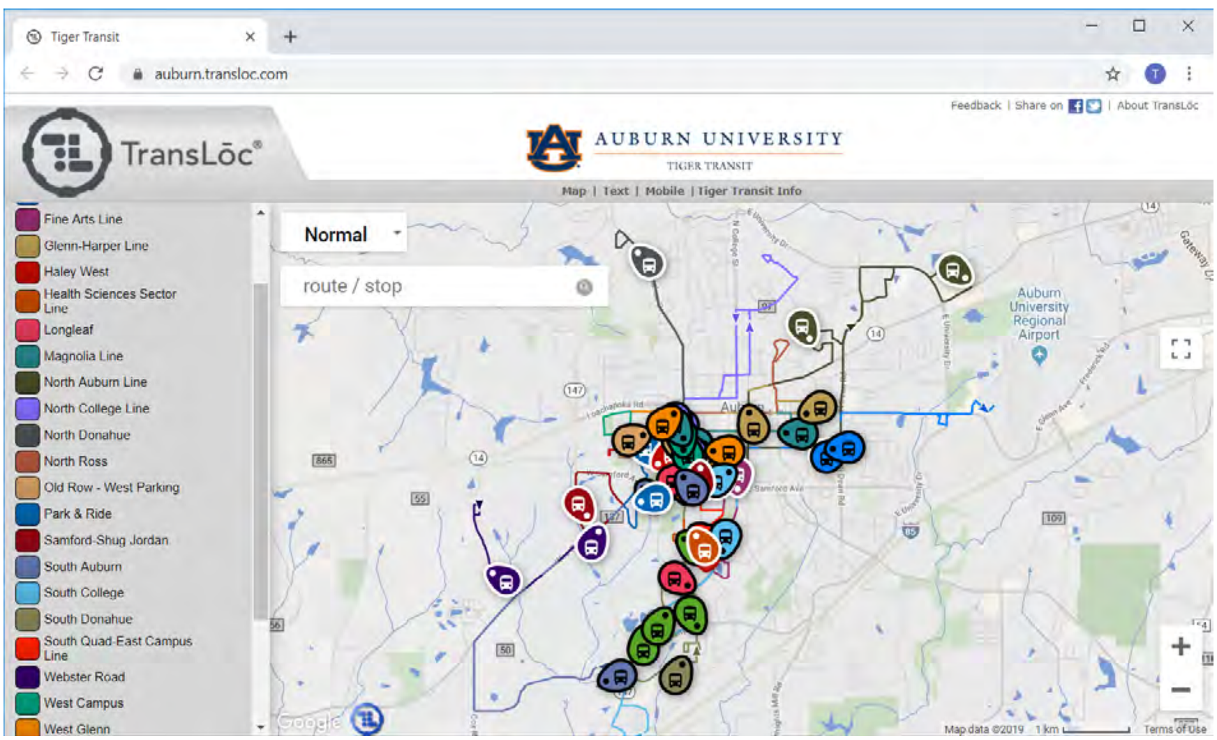
Tiger Transit is Auburn University's transit system for its students and employees – not the general public. It operates from Monday through Friday all year long except for holidays. Hours of operation are from 7 a.m. to 8 p.m. in the fall and spring semesters and from 7 a.m. to 5 p.m. in the summer semester. Special on-campus night transportation service is available from 6 p.m. to 7 a.m. via the Night Security Shuttle service and special weekend service is available on Friday and Saturday nights between 10:30 p.m. and 3 a.m. via the Tiger Ten service.

As of Fall 2019, Tiger Transit operates 26 fixed routes, serving both on-campus and off-campus locations near Auburn University. Frequencies generally range from 10 to 20 minutes, though several routes come less frequently (see Table 5.9). Riders can track buses online via the Transit Visualization System or on a smartphone using the Transloc Rider App.

Travel within the campus and off-campus housing is free (paid for by student fees) but a bus pass must be purchased to travel to or from off-campus, non-academic destinations.

Auburn University also operates Jaunt, a door-to-door golf cart service for students, faculty, staff, and visitors with a disability or limited mobility.

Figure 5.8: Tiger Transit Fixed Routes



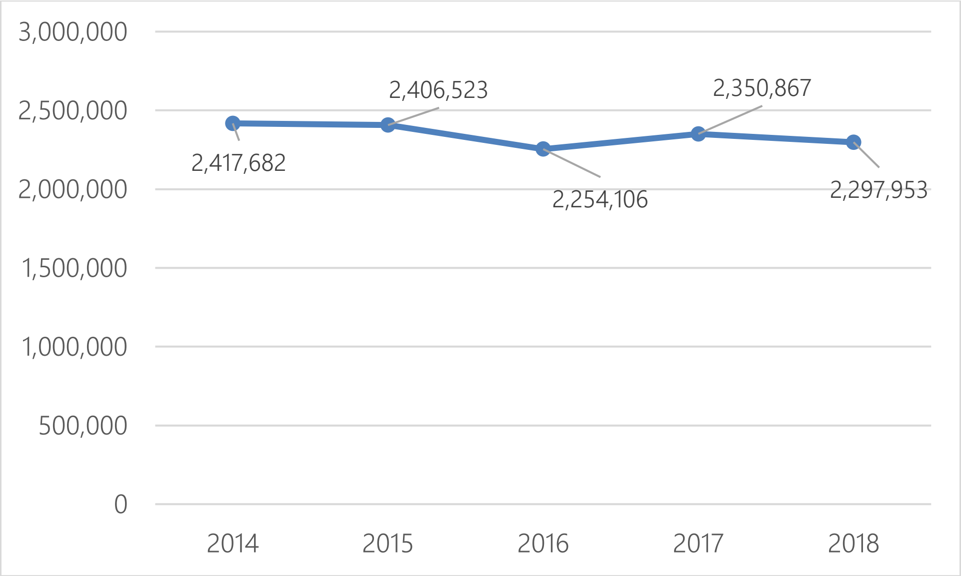
Source: Auburn University

Ridership Trends

Tiger Transit ridership has stayed consistent over the last five years, ranging from 2.25 million annual trips to 2.41 million annual trips. However, ridership varies greatly throughout the year, with ridership peaking in the fall semester and dropping considerably in the summer semester.

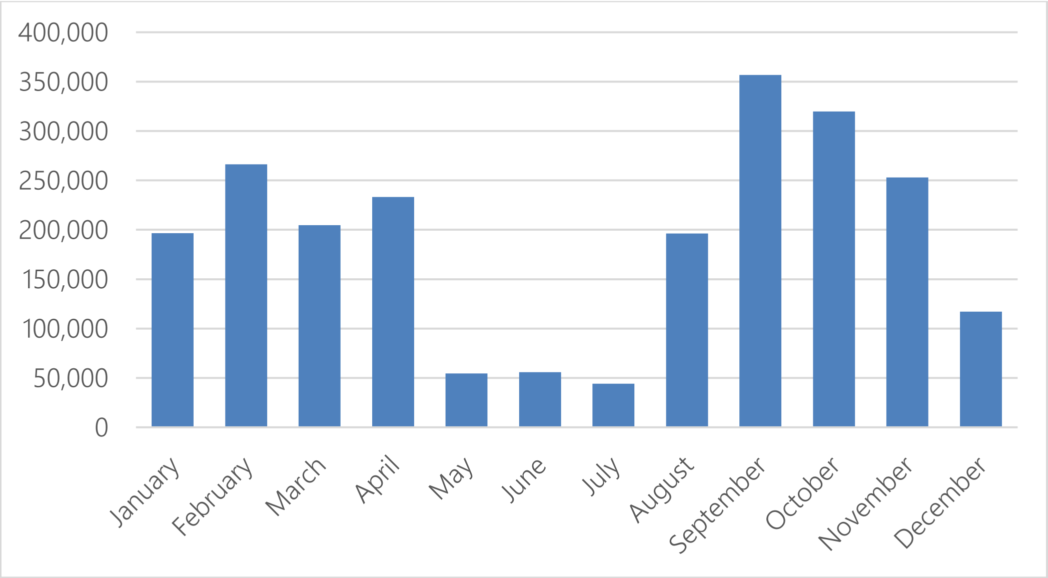
The highest ridership routes average between 1,000 and 2,000 riders a day (see Table 5.9).

Figure 5.9: Tiger Transit Ridership by Year, 2014-2018



Source: Tiger Transit

Figure 5.10: Tiger Transit Ridership by Month, 2018



Source: Tiger Transit

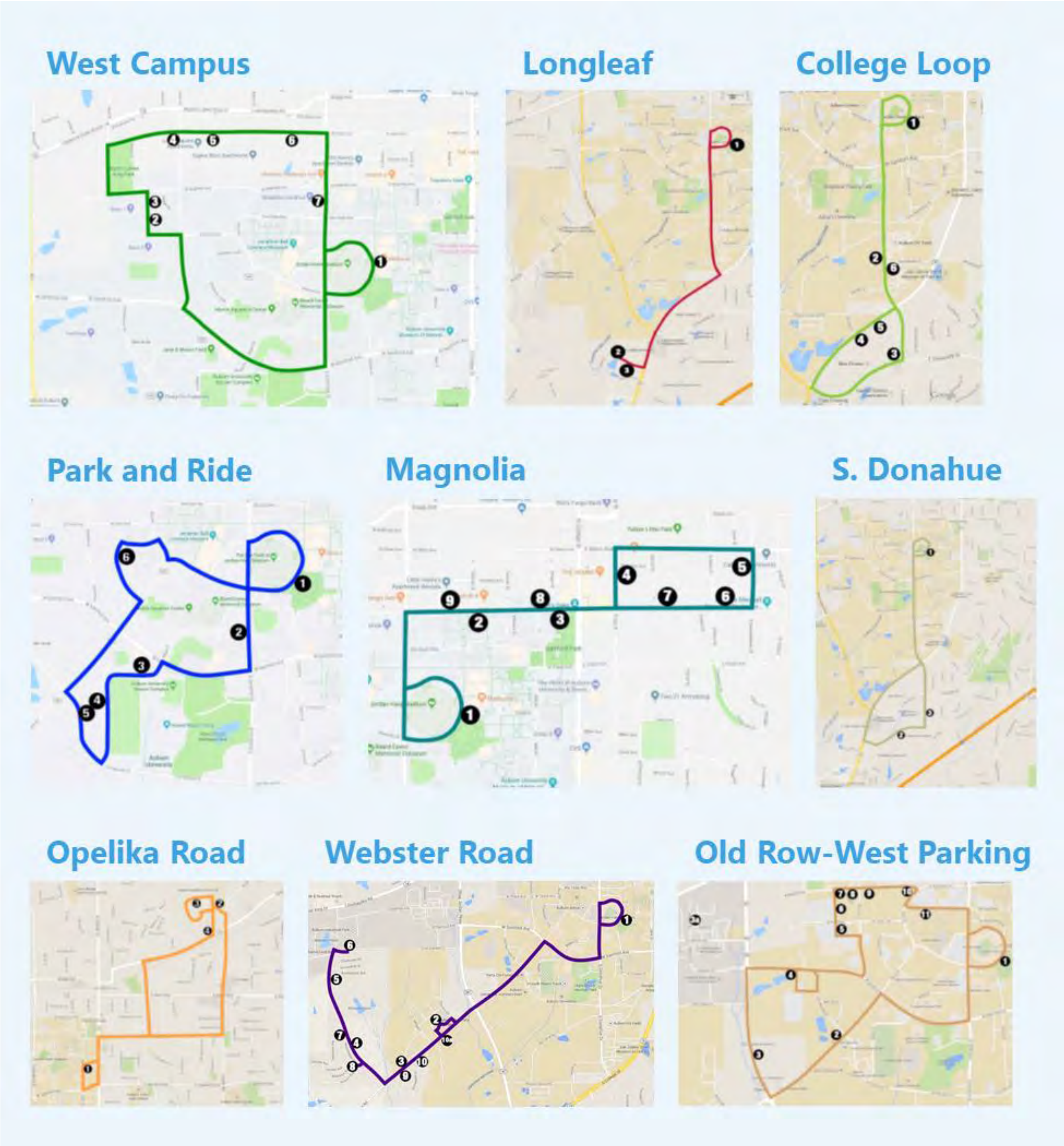
Table 5.9: Tiger Transit Ridership by Route, Fall 2018

Route	Frequency (minutes)	Average Daily Ridership	Percentage of Total Ridership
West Campus	5-10	2,001	12.3%
Football	n/a	1,405	8.6%
Longleaf	15-20	1,370	8.4%
College Loop	12-15	1,203	7.4%
Park and Ride	10-15	1,116	6.8%
Magnolia	18-20	1,021	6.3%
South Donahue	12-18	975	6.0%
Opelika Road	10-12	824	5.1%
Webster Road	15-18	772	4.7%
Old Row - West Parking	18-25	749	4.6%
East University	15-20	701	4.3%
South Auburn	15-20	670	4.1%
Haley- West	10-12	590	3.6%
North Ross	18-20	572	3.5%
North College	15-20	519	3.2%
Glenn - Harper	17-19	414	2.5%
North Donahue	18-20	337	2.1%
North Auburn	18-20	227	1.4%
South College	15-18	199	1.2%
Health Sciences Sector	20-25	132	0.8%
External Night Transit	n/a	114	0.7%
Wire Road	35-40	101	0.6%
Other Special Services	n/a	91	0.6%
Friday Evening Shopping Shuttle	n/a	48	0.3%
South Quad - East Campus	19-20	46	0.3%
Contractor and Employee Express Shuttle Service	n/a	37	0.2%
East Parking-AU Hotel	20-25	36	0.2%
Tiger Ten	n/a	34	0.2%
Total		**16,306**	**100.0%**

Note: Ridership from September to November only.

Source: Tiger Transit

Figure 5.11: Highest Ridership Tiger Transit Routes, Fall 2018



Note: Football route not shown
Source: Tiger Transit

5.3 Intercity Public Transit

The Auburn-Opelika MPA is served by two intercity transportation providers: Greyhound and Groome Transportation.

Greyhound – provides six daily trips in Opelika (300 Columbus Pkwy) to and from destinations like Atlanta, Houston, Mobile, Birmingham, New Orleans, and stations in between. Base fares are for adults. For more information, go to www.greyhound.com

Groome Transportation – provides 16 daily round trips at several stops in the MPA to and from the Hartsfield-Jackson International Airport in Atlanta seven days a week. Base fares are $43 one-way for adults. For more information, go to https://groometransportation.com/auburn/

While the MPA is not served by Amtrak or other intercity transportation providers like Megabus, nearby Montgomery is served by an Amtrak connector bus service and by Megabus.

5.4 Transportation Network Company Partnerships

A Transportation Network Company (TNC) is a private company that matches passengers with vehicles, via websites and mobile apps. These are also referred to as ride-hailing services and Uber and Lyft are the largest of these service providers. Currently, both Uber and Lyft serve the Auburn-Opelika area.

While these transportation services are not public transit, TNCs are increasingly partnering with the public sector to provide public transit pilot programs. While Uber and Lyft provide traditional ride-hailing services in the MPA, there are currently none of these public-private pilot programs in the MPA.

5.5 Coordination of Services

In 2017, publicly funded human services transportation programs in Lee and Russell counties updated their Human Services Coordinated Transportation Plan. This plan determines transit gaps and coordination opportunities amongst these transportation programs and develops strategies to rectify the identified shortfalls and coordination issues.

This plan identified the following key findings for existing conditions in Lee and Russell counties:

- There is a significant number of citizens who can be classified as having a higher need for transportation services, including individuals with disabilities, older adults, and persons living below the Federal Poverty Level.
- Transportation services are not adequately meeting the current transportation needs, especially in the rural areas of the region.
- Current funding for public transit is not adequate to meet the identified needs of the area as operating costs continue to rise.

5.6 Regional Transit Demand Analysis

Transit Demand Analysis

The regional demand analysis uses a GIS-based approach to identify the level of transit service supported throughout the Auburn-Opelika MPA. There are a number of factors that can be analyzed to evaluate and predict transit demand in an area. Given the availability of data and regional scope of the 2045 LRTP, the transit demand analysis focused on the following factors.

Household density – A higher concentration of population in an area creates more potential transit riders in an area. This is especially true of very dense areas, where other factors, such as parking availability or congestion, may influence demand.

Employment density – A higher concentration of employment in an area creates more potential transit riders in an area. This is especially true of very dense areas, where other factors, such as parking availability or congestion, may influence demand. Some studies argue that employment density is more important for predicting ridership than residential densities.

Activity density – In areas with both residential areas and employment, it is necessary to consider a combined density.

Low-income household density – Low-income persons are more likely to ride transit due to a greater likelihood that they do not have regular access to a vehicle or seek to minimize travel by automobile for economic reasons.

Low-income employment density – Low-income workers are more likely to ride transit due to a greater likelihood that they do not have regular access to a vehicle or seek to minimize travel by automobile for economic reasons.

Density of adults without a vehicle – Persons without access to a vehicle are more likely to ride transit due to a lack of other options. A person may lack a vehicle because of economic reasons, physical or mental ability, or because of a decision to live a car-free lifestyle.

Street connectivity – A well connected street network, assuming sufficient pedestrian infrastructure is provided, enables pedestrians to directly and conveniently access a transit stop or their destination. All things being equal, an area with better connectivity is more likely to attract a higher number of transit riders than an area with poor connectivity. Furthermore, connectivity increases the likelihood that a transit route will be able to serve an area in an efficient manner, with minimal deviations.

Table 5.10 shows the Transit Demand Analysis criteria and measurements. For each density criterion, an area's value is calculated. Before being assigned a level of service tier, all criteria values are multiplied by an area's street connectivity factor. Based on these adjusted values, level of service tiers are then assigned, based on industry standard thresholds.

Figure 5.12 illustrates the results of this analysis and the distribution of transit demand throughout the region.

Based upon Figure 5.12, there are several areas within the Auburn-Opelika that could support fixed route service with frequencies of 60 minutes or better. These areas are concentrated around the urban cores of Auburn and Opelika and along major corridors and activity centers. The areas of highest demand are near Auburn University, East Alabama Medical Center, Southern Union State Community College, and Tiger Town.

The overall feasibility of implementing a fixed route system in the Auburn-Opelika MPA needs to be further studied, but from a demand perspective, the area could support such a system.

Table 5.10: Transit Demand Analysis Criteria and Level of Service Thresholds

Criteria	Measurement	Transit Level of Service				
		On-Demand	Flexible	60 min.	30 min.	15 min.
Residential Density	Households per acre	0 to 1	1 to 2	2 to 4	4 to 7	7+
Employment Density	Employment and college enrollment per acre	0 to 5	5 to 10	10 to 25	25 to 50	50+
Low-Income Residential Density	Households using food stamps per acre	0 to 0.33	0.33 to 0.66	0.66 to 1.33	1.33 to 2.33	2.33+
Transit Supportive Employment Density	Employment per acre for industries with high percentage of workers riding transit	0 to 2.5	2.5 to 5	5 to 12.5	12.5 to 25	25+
Residential Vehicle Availability	Households without vehicle per acre	0 to 0.25	0.25 to 0.5	0.5 to 1	1 to 1.75	1.75+
Activity Density	Sum of highest residential and employment density value	0 to 3.75	3.75 to 7.5	7.5 to 18.75	18.75 to 37.5	37.5+
Street Connectivity	Percentage of intersections that are four-way	33%-50%, multiply values by 1.25; >50%, multiply values by 1.5				

Note 1: Dorms were converted to households assuming an average of 2.5 people per dorm and assumed to be twice as likely to receive food stamps or lack a car as the regional average.
Note 2: Industries with high percentage of workers riding transit included NAICS codes: 44-45, 61, 62, 71, and 72

Transit-Dependent Populations

In order to ensure that the needs of the transit-dependent population are being addressed by the transit demand analysis, the concentration of various transit-dependent populations were mapped.

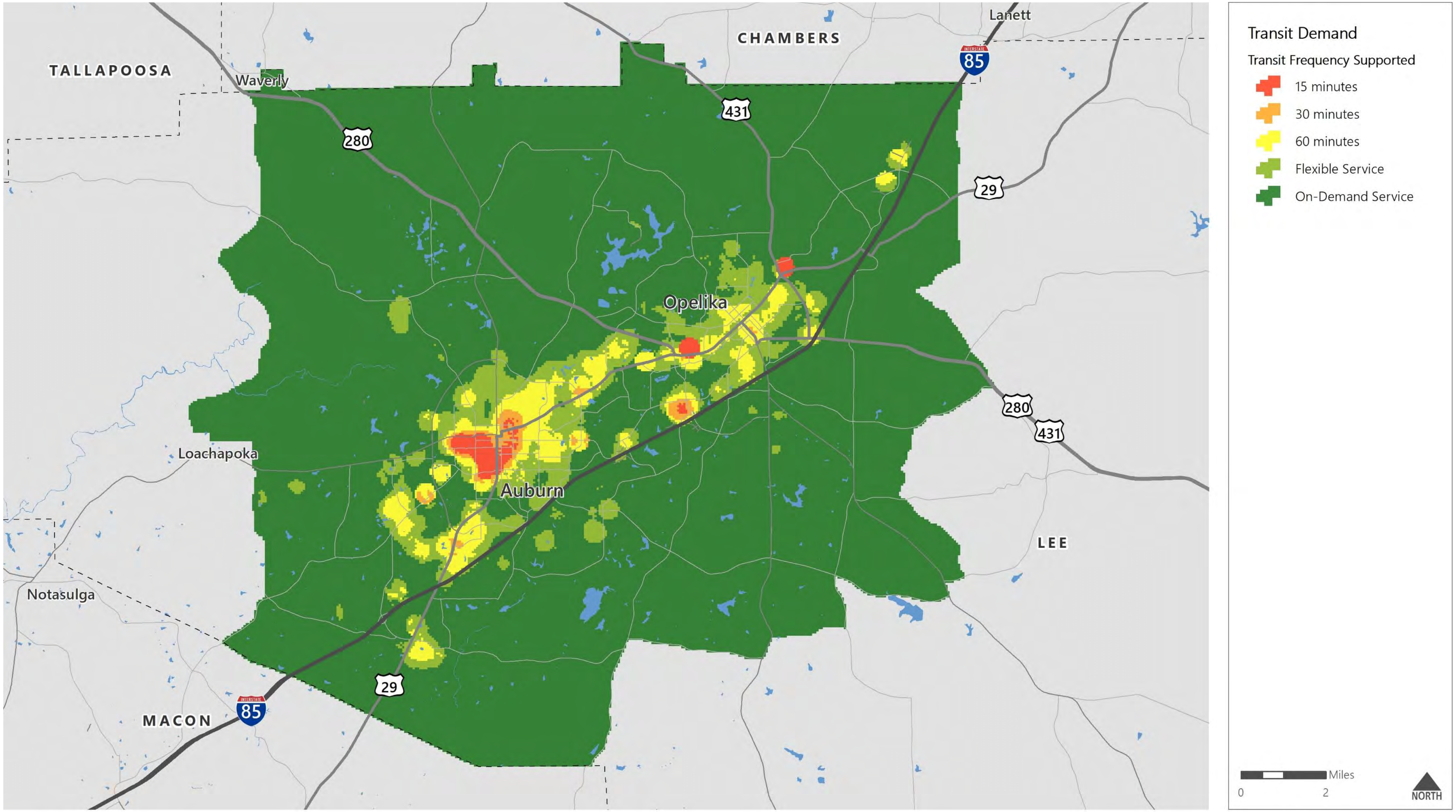
Figure 5.13 illustrates the concentration of households without regular access to a vehicle. The highest concentration is near Auburn University and Carver-Jeter area in Opelika.

Figure 5.14 depicts the concentration of low-income households. These households may have access to a car but due to economic reasons are more likely to rely on transit. The distribution of high-density clusters of low-income households is similar to that of households without access to a vehicle.

Figure 5.15 shows the concentration of households that include people with disabilities. These households rely on transit because of physical or mental limitations. The highest concentrations are around the Carver-Jeter area and urban core of Opelika as well as in northeastern Auburn, between Downtown and the Auburn Mall.

Figure 5.16 shows the concentration of persons aged 65 or older. Similar to people with disabilities, this population is more likely to rely on transit because of physical or mental limitations. The highest concentrations of senior residents are very similar to the concentrations for households that include people with disabilities, with one exception. There is a large concentration of senior residents in southeastern Auburn.

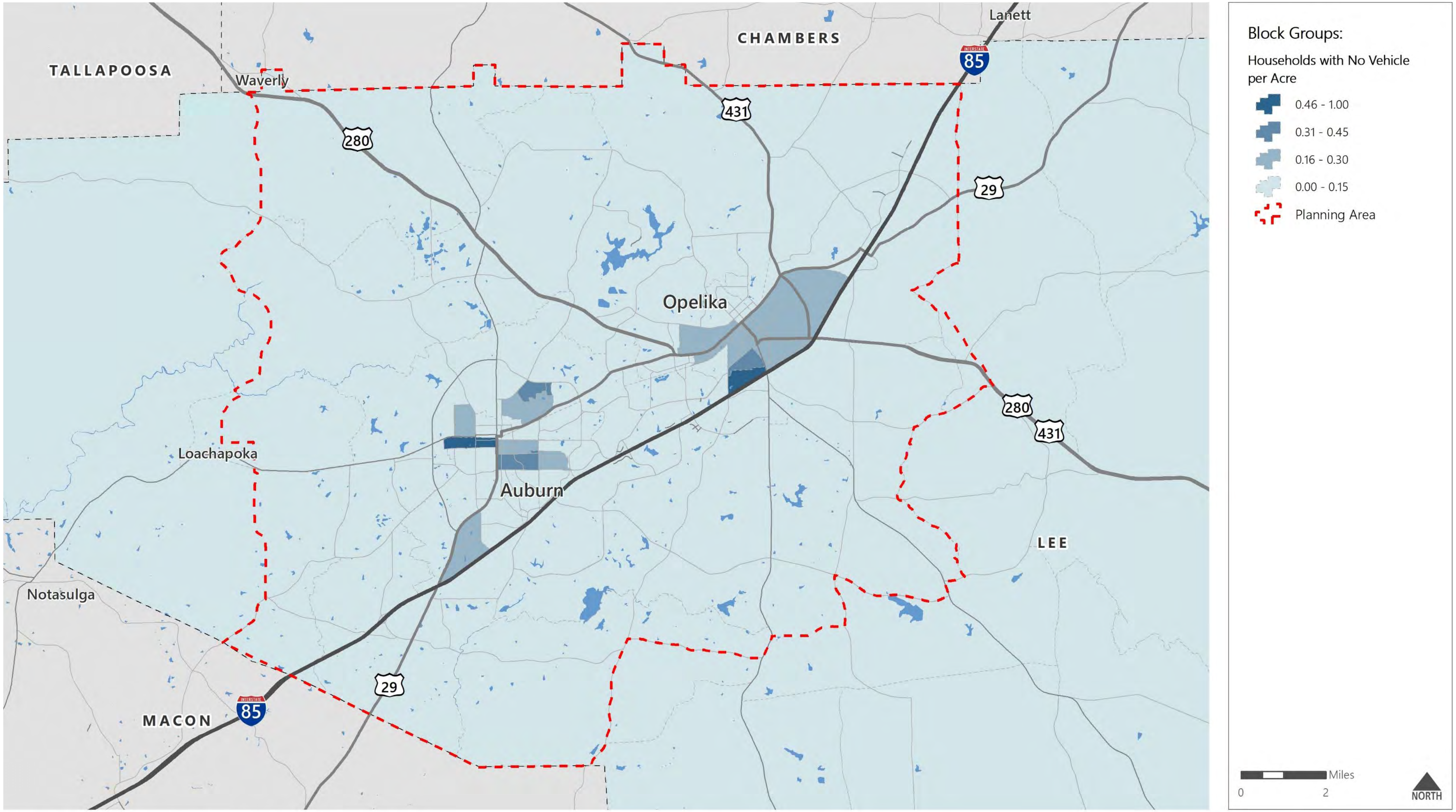
Figure 5.12: Regional Transit Demand Analysis



Data Sources: Neel-Schaffer, Inc.

Disclaimer: This map is for planning purposes only.

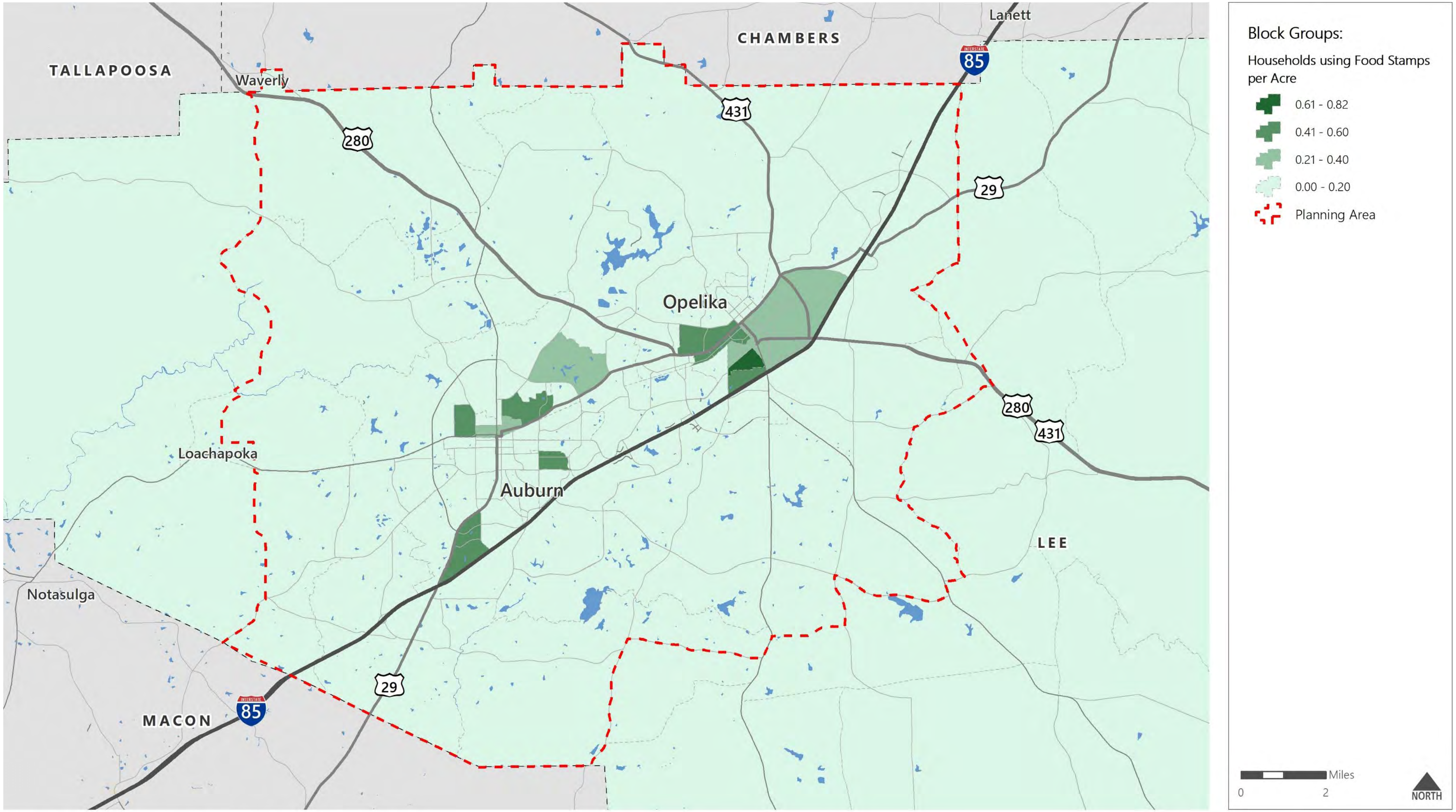
Figure 5.13: Concentration of Households with No Vehicle



Data Sources: Census Bureau, 2017 American Community Survey (5-year)

Disclaimer: This map is for planning purposes only.

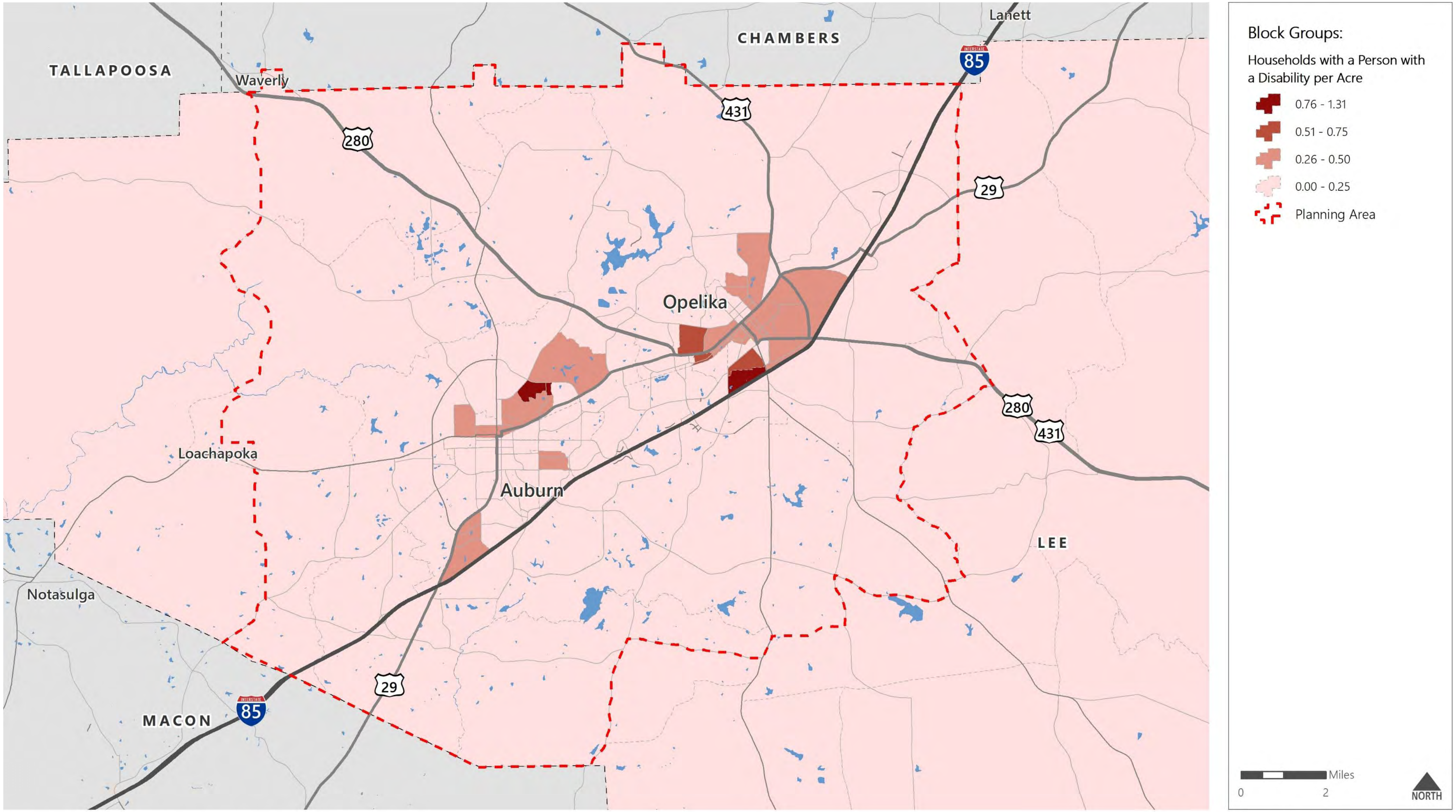
Figure 5.14: Concentration of Low-Income Households



Data Sources: Census Bureau, 2017 American Community Survey (5-year)

Disclaimer: This map is for planning purposes only.

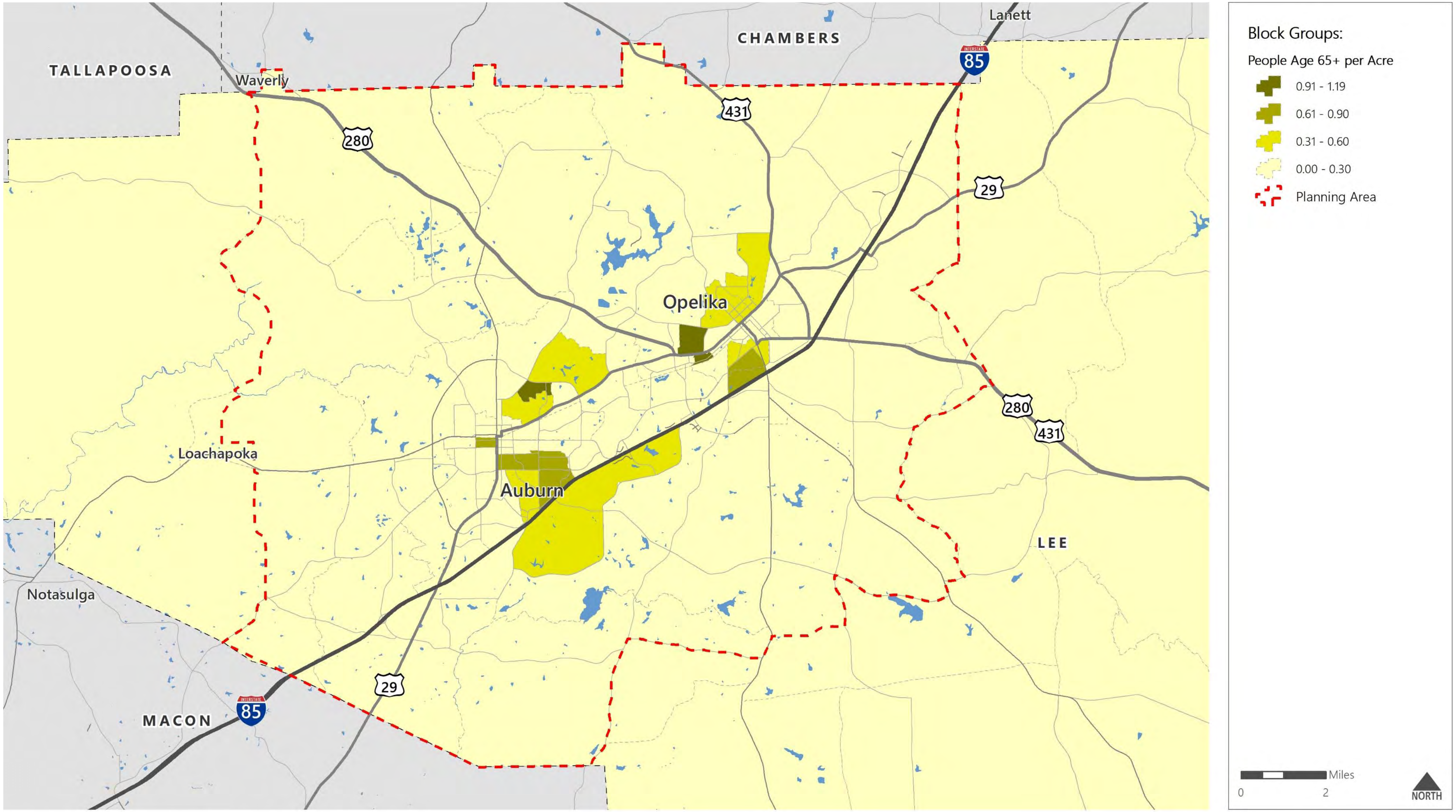
Figure 5.15: Concentrations of People with Disabilities



Data Sources: Census Bureau, 2017 American Community Survey (5-year)

Disclaimer: This map is for planning purposes only.

Figure 5.16: Concentrations of Senior Population



Data Sources: Census Bureau, 2017 American Community Survey (5-year)

Disclaimer: This map is for planning purposes only.

5.7 Peer Region Comparison

A peer comparison analysis is a benchmarking tool that allows an area to compare itself to other areas with similar conditions. This analysis focuses on the region (urbanized area) as a whole, not a particular transit provider or agency.

The purpose of this analysis is to better understand how transit service provided in the Auburn-Opelika region compares to similar regions – regardless of the number of transit providers or types of services available.

Selection Criteria

Selection criteria are intended to highlight urban areas that are very similar to the Auburn, AL urbanized area in terms of urban structure, land use patterns, and demographics. These three factors, outside of the type and level of transit service provided, are the primary drivers of transit demand and barriers. By selecting peer areas similar in these regards, we can highlight areas that are operating under similar constraints yet producing different results. This is a beginning step that may involve further exploring transit service in other areas and learning from their decisions.

The selection criteria include location in the south, urbanized area size, urbanized area population density, similar college/university influence, similar low-income population, urbanized area share of metropolitan population, and comparable transit service.

Table 5.11 shows the demographics and other characteristics of the five selected peer areas using these criteria. The selection criteria and methodology are further outlined below.

Location in the South

Areas outside of the Census Bureau's South Region were removed. This was done because state and local transit funding is lower in this region and the public perception of transit is much lower.

Urbanized Area Size

Urbanized areas with populations (2017 American Community Survey) not within approximately 50% of the Auburn, AL urbanized area population were removed.

Urbanized Area Population Density

Urbanized areas with population densities (2017 American Community Survey) not within approximately 50% of the Auburn, AL urbanized area population density were removed.

Similar College/University Influence

Urbanized areas with percentages of the adult population enrolled in college (2017 American Community Survey) not within approximately 50% of the Auburn, AL urbanized area percentage were removed.

Similar Low-income Population

Urbanized areas with percentages of households receiving food stamps (2017 American Community Survey) not within approximately 33% of the Auburn, AL urbanized area percentage were removed.

Urbanized Area Share of Metropolitan Population

Urbanized areas that were not exclusively within one metropolitan statistical area were excluded and urbanized areas that did not comprise at least 50% of their metropolitan statistical area were excluded. This left six urbanized areas.

Comparable Transit Service

In order to reduce the number of peers to five, the Morgantown, WV urbanized area was removed because its size and inclusion of a rail-based system. This left the five remaining peer regions highlighted in Table 5.11.

Table 5.11: Selected Peer Urbanized Areas

Urbanized Area (UZA)	Population	Population per Square Mile	Percentage of Adults in College	Percentage of Households with Food Stamps	Major University
Auburn, AL	82,524	1,641	33.5%	12.5%	Auburn University
Bowling Green, KY	87,194	1,910	20.6%	16.2%	Western Kentucky University
Greenville, NC	124,300	1,892	27.7%	14.4%	East Carolina University
Harrisonburg, VA	71,216	2,183	32.2%	10.6%	James Madison University
Lynchburg, VA	122,765	1,375	20.9%	11.9%	Liberty University
Tuscaloosa, AL	148,440	1,628	20.2%	11.3%	University of Alabama

Source: Census Bureau, 2010 Census and 2013-2017 American Community Survey

Peer Comparison

Table 5.12 provides service area information and operational characteristics for all public transit services in the selected peer regions. This information is broken down into transit system characteristics: service supplied and consumed, operating efficiency, and fare revenue. The following observations can be gleaned from this information.

Service Area and Business Model

Coverage vs. Ridership Goal

The Auburn-Opelika region (LRCOG) is unique amongst its peers for its large service area and its primary focus on providing transit service to most areas (coverage goal) as opposed to providing higher-quality service in high demand areas (ridership goal).

This coverage-based business model explains most of the differences between the Auburn-Opelika region and other regions. The decision to operate a coverage-based model versus a ridership-based model is a policy decision and depends upon the goals of an organization. One is not better than the other, but they do have different goals and outcomes.

A Potential Hybrid Option

The Greenville, NC region provides service somewhere in between a coverage-based and ridership-based business model. In this area, there is an urban, fixed-route system (GREAT) and a rural, demand response system (PATS). If the Auburn-Opelika region wants to provide greater transit service to its urban area and continue to provide service to its rural areas too, this could be a model to further study.

Integrated Public/University System

In the Harrisonburg, VA region, the city-based transit agency (Harrisonburg Transit) also operates James Madison University's transit system and all university students and employees ride both systems for free. This approach can be found throughout the country and has many advantages and tradeoffs to explore further if the public sector in the Auburn-Opelika region wishes to consider partnering with Auburn University for public transit service in the region.

Funding Levels

The Auburn-Opelika region funds transit (annual operating budget) at levels substantially lower than three of its five peers. If the region wishes to expand transit to match its peer regions, it will need to identify new funding sources.

Service Supplied and Consumed

The Auburn-Opelika region only lags substantially behind the Harrisonburg, VA and Lynchburg, VA regions in terms of service supplied (vehicle hours and miles).

However, because of its coverage-based model and reliance on door-to-door, demand response service, it is much more unproductive than all of the other regions. This is not reflective of poor performance but is typical for demand response-based systems.

Cost Efficiency and Fare Revenue

Despite its unproductivity when compared to its peers, the cost of operating transit per revenue mile and revenue hour are actually lower than all peers. This is likely explained by a relatively lower cost of living and wages in this area but could also be explained by other businesses practices.

However, in terms of the cost per passenger trip, the Auburn-Opelika region is much more expensive than all other regions. Again, this is not reflective of poor performance, but is typical for demand response-based systems.

The average fare paid by customers is about average for the Auburn-Opelika region. However, its farebox recovery ratio, or the percentage of operating costs paid by fares, is lower than all other peers due to its low ridership productivity. Again, this is not reflective of poor performance, but is typical for demand response-based systems.

Table 5.12: Operating Characteristics for Transit Services in Peer Urbanized Areas

Transit System Characteristics	Bowling Green, KY	Greenville, NC	Harrisonburg, VA	Lynchburg, VA	Tuscaloosa, AL	Peer Average	Auburn, AL
Transit Agency	CASK	GREAT / PATS	Harrisonburg Transit	GLTC	TTA	n/a	LRCOG
Service Area Population	67,274	178,617	53,907	81,065	100,118	96,196	218,669
Service Area Square Miles	36	655	17	50	72	166	1,263
Service Area Population Density (ppsm)	1,890	273	3,100	1,637	1,395	1,659	173
Vehicles Operated in Maximum Services	16	23	39	43	12	27	27
Annual Operating Budget	$1,428,320	$2,699,857	$4,464,672	$8,034,835	$2,066,442	$3,738,825	$1,986,151
Service Supplied and Consumed							
Annual Vehicle Revenue Miles	420,161	743,266	755,257	1,209,924	420,161	709,754	560,202
Annual Vehicle Revenue Hours	21,542	51,038	74,742	104,997	28,200	56,104	42,051
Annual Unlinked Trips	113,443	443,056	2,572,937	2,279,605	310,176	1,143,843	77,940
Passenger Trips per Capita	1.7	2.5	47.7	28.1	3.1	16.6	0.4
Passenger Trips per Revenue Mile	0.3	0.6	3.4	1.9	0.7	1.4	0.1
Passenger Trips per Revenue Hour	5.3	8.7	34.4	21.7	11.0	16.2	1.9
Cost Efficiency							
Operating Expense per Vehicle Revenue Mile	$3.40	$3.63	$5.91	$6.64	$4.92	$4.90	$3.31
Operating Expense per Vehicle Revenue Hour	$66.30	$52.90	$59.73	$76.52	$73.28	$65.75	$44.05
Operating Expense per Passenger Trip	$12.59	$6.09	$1.74	$3.52	$6.66	$6.12	$23.77
Fare Revenue							
Average Fare	$1.04	$0.65	$0.71	$1.35	$0.59	$0.87	$0.84
Farebox Recovery Rate	8.2%	10.7%	40.8%	38.3%	8.9%	21.4%	3.5%

Source: National Transit Database, 2017 Reporting Information for all services provided in a region.