

## 6 Transportation System Needs Assessment

### 6.1 Introduction

Once every five years the Long Range Transportation Plan (LRTP) for the Augusta Regional Transportation Study (ARTS) is updated. A major task of ARTS is the update of the LRTP through the identification of existing transportation conditions, issues and needs; and recommending strategies and system improvements (i.e., solutions) that enhance livability in the ARTS planning area. The public was invited to become involved in this process during a series of Speaker Bureau sessions and Community Meetings held throughout the ARTS planning area during February-March 2015; or participate in an online Community Transportation Survey (posted on the ARTS website) during March-April 2015.

This report presents the analysis results of transportation issues and needs (affecting both motorized and non-motorized transportation modes) identified through the: 1) Transportation Vision 2040 public outreach campaign (February-April 2015), Community Meetings and Speaker Bureau sessions; 2) Online Community Transportation Survey; 3) Travel Demand Modeling of the ARTS, planning a real transportation network; 4) Public Transit Surveys (Augusta Public Transit and Best Friend Express); 5) Congestion Management Process; and the 6) incidence of traffic crashes (at intersections and corridors) in the ARTS planning area.

The issues and needs identified have reduced potential levels of mobility and accessibility within the ARTS planning area for pedestrians and non-motorized, motorized and freight transportation system users. If left unresolved, the economic vitality of the region may be negatively impacted. The identification of critical transportation issues and potential solutions to address them (i.e., needs) was the heart of the ARTS public participation process.

## **6.2 Methodology Identifying Issues and Needs**

A summary of the six (6) methods used to identify transportation issues and needs are presented below.

### **6.2.1 Community Meetings**

ARTS actively conducted a series of 17 community meetings concerning the Transportation Vision 2040 LRTP update, which were held at strategically selected locations during the month of March 2015. The objectives of the community meetings were: 1) introduce ARTS, its role and functions to the local community; 2) present the current status of the Transportation Vision 2040 LRTP; 3) hear issues the public identify as transportation issues and needs in their communities; and 4) solicit public input on regional transportation needs, projects and strategies in order to help define and evaluate year 2040 LRTP projects. 102 persons attended these meetings.

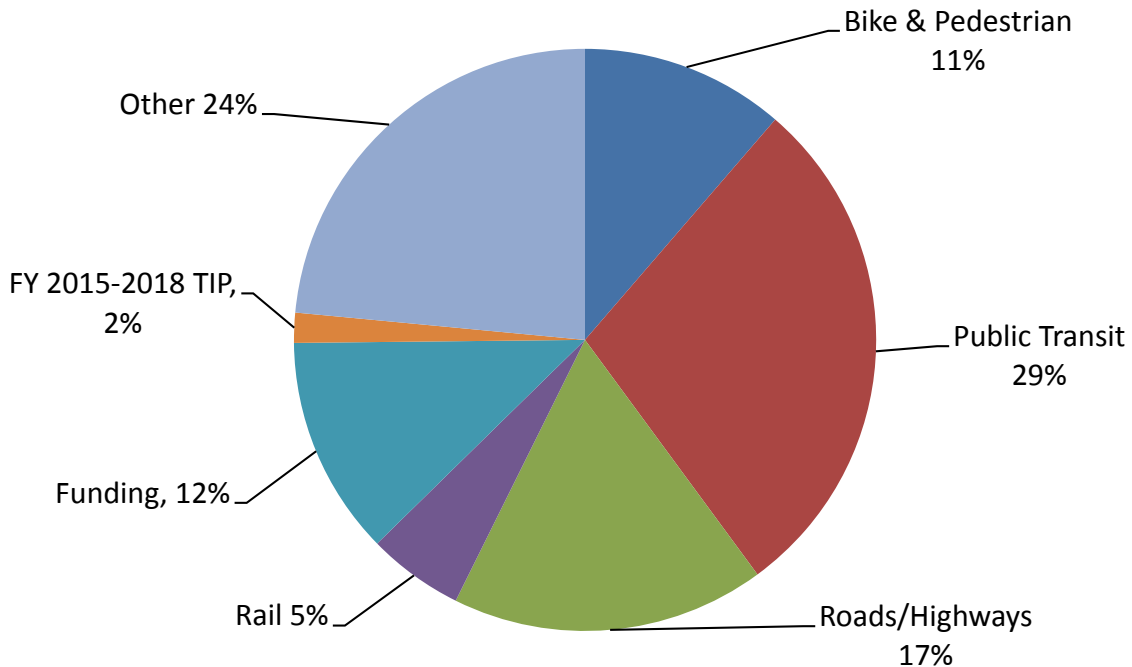
### **6.2.2 Speakers Bureau Meetings**

During the months of January through March 2015, ARTS staff addressed 12 Speaker Bureau meetings. Speaker Bureau presentations were promoted to any community, business, faith based or social service organization within the ARTS planning area. These sessions allowed ARTS staff to speak directly to public or private organizations about the LRTP update or metropolitan transportation planning process. An estimated 318 people attended these Speaker Bureau sessions.

### **6.2.3 Community Meetings and Speaker Bureaus**

It became evident that the top three (3) key themes arising at the Community Meeting were: 1) Funding transportation; 2) Roads/Highways; and, 3) Public Transit. Funding of transportation as an indirect theme dominated many Community Meeting discussions. Attendees at Community Meetings who put forward questions or comments relating to enhancing transportation and mobility choices, e.g., transit, bike and pedestrian facilities; became aware that the availability of local funds and willingness to fund by local residents, ultimately determines the choice of transportation modes in communities. The questions are resulting from comments as referenced in the Public Participation and Community Meeting Report ([\*Figure 60\*](#)).

**Figure 60: Public Comments**



Source: ARTS

#### 6.2.4 Goal Setting Process

Of the seven (7) goals that were presented the prioritized order (i.e., identifying regional transportation planning focus areas) based on average scores and input from the public is as follows:

- Goal #1 - Continue to develop a multimodal transportation network that utilizes strategies for addressing congestion management, and traffic and pedestrian safety in the ARTS planning area;
- Goal #2 - Develop a transportation system that will allow effective mobility throughout the region through improving the physical condition and maintenance of the transportation network and, provide efficient and safe movement of persons and goods;
- Goal #3 - Increase the safety and security of the transportation system for motorized and non-motorized users, and pedestrians;
- Goal #4 - Develop a transportation system integrated with planned land use;
- Goal #5 - Develop a transportation system that will enhance the economic, social, and environmental fabric of the area, using resources wisely while minimizing adverse impacts;

- Goal #6 - Promote efficient land use and development patterns to improve safety and economic vitality to meet existing and future multimodal transportation needs; and
- Goal #7 - Develop a transportation system that is financially and politically feasible and has broad support.

### **6.2.5 Online Community Transportation Survey**

An online version of the ARTS Transportation Vision 2040 Travel Behavior Survey (Community Transportation Survey) was uploaded on Monday March 9, 2015. The survey sought to obtain a wide range of information relating to the perceptions of the regional transportation system, issues and needs, from the public. Questions also sought to evaluate the respondent's level of agreement regarding a particular transportation issue. From the initial date of upload which was from Monday, March 19, 2015, to April 30, 2015, approximately 689 responses were received. The online survey closed on April 30, 2015.

### **6.2.6 Travel Demand Modeling**

A Travel Demand Model (TDM) is a computer model used to assess current trip making and travel behavior as well as predict future travel behavior and travel demand based on certain inputs and assumptions. Required TDM inputs range from population, employment and school enrollment data as well as current traffic flow levels on the highway network. The ARTS travel demand model is built and managed by a consultant under contract to the Georgia Department of Transportation (GDOT).

TDMs are highly complex and not only model demand for road trips (i.e., by car, motorcycle, van or truck) and the routes they take between origin and destination, but are also capable of modeling transit demand. The capability of ARTS TDM is to assess future traffic scenarios enabling the identification of potential highway bottlenecks or links with high volume to capacity ratios. The application of TDM in the Transportation Vision 2040 LRTP update process assists ARTS stakeholders in making informed decisions about how best to address any transportation need identified.

### **6.2.7 Public Transit Surveys**

A survey of Augusta Public Transit (APT) passengers was conducted over a 9-day period in March and April 2015. Similarly, a survey of passenger riding Best Friend Express (BFE) was conducted over a 5-day period in April and May 2015. The objectives of the transit surveys were as follows: 1) Determine where and when customers use transit; 2) Define who uses transit; 3) Gauge how satisfied customers are with the services provided; 4) Determine why customers use transit; and

5) Gain insight to identify conditions, issues, needs and future improvements from the transit user's (i.e., transit customer) perspective. All 10 fixed routes of APT and 3 routes of BFE were surveyed. Overall, a total of 662 riders (599 APT and 63 BFE) participated in the onboard transit surveys.

Identified needs and challenges relating to Public Transit are listed as:

- The majority of public transit riders, ride during the AM peak or morning period.
- The majority of public transit riders come directly from home.
- The majority of public transit riders in the ARTS planning area walk to the bus stop to commence their transit trip.
- The primary destination of transit riders in the ARTS planning area is work related.
- The majority of riders in the ARTS planning area walk from the bus stop to their final destination.
- The majority of public transit riders surveyed do not have a car/truck/van available to make trips.
- The majority of public riders surveyed have trip travel times of 30 minutes or less.
- The majority of APT and BFE riders wait for up to 15 minutes for a bus.

APT	BFE	ARTS Public Transit
Time waiting for the bus	Time waiting for the bus	Time waiting for the bus
Convenience of route	On-time Performance	Convenience of routes
On-time Performance	Convenience of routes	On-time Performance

- Fifty percent or more of public transit riders in the ARTS planning area do not possess a valid drivers' license.
- More than 40% of riders use fixed route public transit bus services five or more days per week in the ARTS planning area.
- The majority of public transit riders in the ARTS planning area have annual household incomes of \$10,000 or less.
- In order of priority, the top issues for the 662 transit riders surveyed (based on the number of comments received) were:

APT	BFE	ARTS Public Transit
Extended Operations	Saturday/Sunday Operation	Extended Operations
Higher Frequency, Bus Scheduling & Timing	Increase Routes	Higher Frequency, Bus Scheduling & Timing
Increase Routes	Higher Frequency, Bus Scheduling & Timing	Increase Routes

Respondents were asked to state the year they were born. Of the 599 APT respondents, 30% declined to answer this question, compared to 29% of BFE respondents. The age breakdown for the remaining 419 APT and 45 BFE respondents surveyed is presented in [Figure 6.2.7](#). The majority of APT respondents (94%) were of working age, i.e., 18-64, compared to 91% BFE respondents. Only 1% of APT respondents surveyed were younger than 18 years, compared to zero percent of BFE respondents. Elderly respondents 65 years and older accounted for 5% and 9% riding APT and BFE.

Of the 599 APT respondents who completed the transit survey, 539 (or 90%) disclosed their ethnicity, compared to 57 (90%) of the 63 BFE respondents. APT or BFE respondents could select one of five (5) ethnic/racial categories; namely: American Indian/Alaskan Native; Asian; Black/African American; Hispanic/Latino; or White. Blacks/African Americans were the majority users of APT services (79%); followed by respondents who identified themselves as White at 9%. Similarly Blacks/African Americans were the majority users of BFE services (56%); followed by respondents who identified themselves as White at 28%.

### **6.2.8 Congestion Management Process Survey**

Managing traffic congestion is a daily challenge in urban areas where the motorized vehicle is the primary mode of transportation. The Congestion Management Process (CMP) seeks to improve transportation system performance and reliability by reducing the adverse impacts of congestion on the movement of people and goods. Identifying congested corridors, intersections, or road segments, CMP can be used to assess alternative strategies reducing congestion that meet community needs.

### **6.2.9 Traffic Crash Incidents Analysis**

Identifying intersections and corridors within the ARTS planning area with a high incidence of crashes necessitated the analysis and mapping of traffic crash data. Traffic crash data for the years 2010 through 2013 were received from GDOT and the South Carolina Department of Public Safety (SCDPS). According to the raw data, between 2010 and 2013 there were approximately 64,232 reported traffic crashes in the four-county ARTS planning area. Of the total 64,232 crashes approximately 260 (0.4%) were fatal (i.e., a crash resulting in the death of one or more persons within 30 days of the crash).

### **6.2.10 Traffic Safety Challenges**

Safety has always been a vital component of the long range transportation planning process. MAP-21, Georgia's 2013 Statewide Strategic Transportation Plan, and South Carolina's 2040 Multimodal Transportation Plan influenced a key Transportation Vision 2040 goal to be focused on safety. Public input received from Speaker's Bureaus, Community Meetings, transit and online surveys; crash data analysis and ongoing ARTS programs such as the Congestion Management Process Surveys; all contributed to identify transportation safety deficiencies prevalent in the ARTS planning area. Safety related issues, challenges and needs in the ARTS planning area are listed as follows.

### **6.2.11 High Traffic Volumes**

High traffic volumes on major roadways during morning or afternoon peak times make it a challenge to cross streets safely for pedestrians and bicyclists. Principal arterials in the ARTS planning area, high traffic volume routes connecting major activity centers (e.g., downtowns, commercial centers) with the interstate system; are also routes with a high number of crash incidence. High traffic volumes may also contribute to congestion, characterized by stop-go traffic which in turn may decrease the level of safety for road users. Gratuitous lane-changing or inattention in congested conditions increase the possibility of rear-end crash. Slow moving traffic may tempt pedestrians to cross in-between vehicles rather than at crosswalks.

### **6.2.12 Bicycle and Pedestrian Crashes**

Lack of sidewalks, marked bicycle lanes, connectivity and crosswalks all have influenced the level of safety afforded to pedestrians and bicyclists in the ARTS planning area. According to Tables 15 and 16, 51 pedestrian crashes and 30 bicycle crashes occurred in 2013. During this same period 6 bicyclists and 6 pedestrians died as a result of these crashes. Pedestrian and bicycle crash locations have occurred on arterials, collectors and local roads indicating that all routes should accommodate to some level all road users. The promotion of walking and bicycling as a healthy lifestyle choice and a viable mobility option to motor vehicle, providing a safe and secure traveling environment will enhance community livability while meeting Transportation Vision 2040 goals.

### **6.2.13 Inadequate Safety controls on major streets and railroad crossings**

Major thoroughfares throughout the ARTS planning area lack safe crosswalk areas. At several signalized intersections pedestrian phases are limited or non-existent forcing pedestrians to cross hurriedly against multiple lanes of traffic. At other locations wide roadways necessitate that pedestrians cross in stages, from one sidewalk to a center refuge and from center refuge to the opposite sidewalk. With the possibility of an extended wait at at-grade rail crossings, impatient drivers may try to outrun a train in order to cross or circumvent the barriers.

### **6.2.14 Pedestrian Accessibility and Safety**

Strip malls, bus stops, office complexes and other activity centers lack adequate sidewalks forcing pedestrians and bicyclists who need to access these developments to walk or bicycle in the roadway. Crosswalks if available may be located at some distance from where the pedestrian desires to cross; resulting in pedestrians and bicyclists taking unwarranted risks when crossing roadways.

Limited Transportation Options in Growing Suburban Residential Developments Rapidly growing suburban residential areas where many residents drive have influenced the high incidence of traffic crashes on roads connecting these areas. Limited transportation options in these areas have exacerbated the need to own a vehicle which in turn increases the numbers of multi-vehicle households. Access to several suburban residential developments in the ARTS planning area often requires travel along CMP corridors some of which experience Seriously Congested (SC) conditions. Example corridors used as access routes to/from suburban residential developments include: Richland Avenue and Chesterfield Street (Richland Avenue CMP Corridor, Aiken County); Washington Road and Davis Road (Washington Road CMP Corridor, Columbia County); and Washington Road and Fury's Ferry Road (Washington Road CMP Corridor, Richmond County).

With the car/truck or van continuing to be the dominant mode of transportation in the ARTS planning area together with the drive towards accommodating multi-modalism there will be a constant need to provide more efficient and safer facilities for all users of the transportation system. It therefore becomes necessary that our transportation system be made as safe, accommodating, accessible and as efficient as possible.



### 6.2.15 Travel Behavior Survey

Identified needs and challenges from more than 1,000 respondents who completed the Travel Behavior Survey are listed as, Appendix F:

- The lack of sidewalks and bike lanes are very important issues to survey respondents in the ARTS planning area.
- The car, truck or van is the dominant means of transportation for ARTS residents.
- Very few people in the ARTS planning area used APT services.
- Very few people in the ARTS planning area used BFE services.
- Very few people in the ARTS planning area used APT services.
- Majority of survey respondents expressed neutral satisfaction with the regional transportation system.
- *“Do you agree with the following critical transportation issues in your community?”*  
Local traffic congestion;  
Traffic safety;  
Lack of sidewalks
- *“What transportation improvements do you think are needed in your community?”*

Online	At Meetings
Sidewalks	Sidewalks
Road/highway widening	Public transit service
Bike lanes	Bike lanes

- *“Should the following issues be important for the ARTS transportation system?”*

Online	At Meetings
Physical condition of major road streets and highways	Access to sidewalks and crosswalk areas
Flow of traffic on major streets during morning or afternoon peak times	Safety controls on major streets & railroad crossings
Safety controls on major streets & railroad crossings	Availability of public transit services

**Figure 61: Physical Condition of Roads and Sidewalks**



*Contributed by: ARTS Staff*

#### **6.2.16 Freight Movement Issues and Needs**

The last survey of the trucking and rail industries in the ARTS planning area was completed as part of the ARTS Freight Plan in 2008/9. Despite limited input from the trucking, rail and warehousing industries in the development of the Transportation Vision 2040 LRTP update, secondary sources were used to identify deficiencies in the existing transportation infrastructure that restrict efficient freight and goods movement and operations. These secondary sources included: freight and trucking industry reports, travel demand models, and interviews with representatives of local industry associations such as the Augusta Economic Development Authority. With continued economic growth of the ARTS planning area, managing freight movement and operational deficiencies will be critical to sustain this growth. Freight issues and needs identified are listed as follows.

##### **Transportation Infrastructure and Congestion**

According to the 2014 Critical Issues in the Trucking Industry survey by the American Transportation Research Institute; Transportation, Infrastructure and Congestion was ranked #7 out of 10 issues. Transportation, Infrastructure and Congestion has consistently ranked in the top 10 issues since the survey began in 2005. Deteriorating transportation infrastructure, limited capacity roadways or bridges, and congested networks (some of these network deficiencies are present in the ARTS planning area) lead to increased operating costs, longer delivery times, and inefficient supply chains.

Demonstrating the linkage between freight movement and network deficiency Figure 5 illustrates the Strategic Freight Highway Network/Designated Freight Corridors in relation to roadway LOS (2010). Key points from Figure 5 are:

- Sections of the I-520 between Wrightsboro Road and Deans Bridge Road experience LOS D, E & F. According to the 2010 base year counts, these sections are also the most highly trafficked sections in the ARTS planning area.
- Only one section of the I-20 experiences LOS D, E or F, and that is between Wheeler Road and Belair Road. High levels of traffic and the change from a 6-lane interstate (that is 3 lanes in each direction) to a 4-lane interstate has degraded LOS on this section of the I-20.
- Interstate exit- and on-ramps to and from the arterial road network are locations experiencing LOS D, E or F. Most notably, I-20/Belair Road, I-20/Riverwatch Parkway, I-20/W. Martintown Road, I-520/Wrightsboro Road, I-520/Gordon Highway and I-520/Mike Padgett Highway. The intersection of arterials and the interstate system are also locations of high traffic crashes.

#### Connectivity and Safety

The lack of a direct interstate connection between the ARTS planning area and Macon GA, Savannah GA, Charleston SC and Greenville SC; necessitates that freight movements between these centers use the arterial highway network such as US 1 Georgia, US 25 Georgia, and US 278 South Carolina. Arterial roads accommodating these movements may experience an increase in trucking volumes and congestion. The I-20 and I-520 are the designated interstate routes for trucking operations to, from and within the ARTS planning area. The increased mixing of truck and auto traffic from these designated interstate routes to arterials may also give rise to concerns about traffic safety and noise pollution.

#### At-Grade Rail Crossings and Traffic Delay

The ARTS planning area is crisscrossed by numerous at-grade railroad crossings. According to data from the FRA Office of Safety Analysis there are 221, 33, 70 and 238 at-grade railroad crossings in Aiken, Columbia, Edgefield and Richmond Counties respectively. Many of these at-grade railroad crossings are in non-urban areas. However, freight trains using at-grade crossings intersecting high volume roadways in urbanized areas can cause substantial delays to traffic. Extended traffic delays >10 minutes during the AM or PM peak periods are not uncommon particularly at downtown at-grade crossings.

### At-Grade Rail Crossings and Traffic Safety

Inadequately maintained or poorly paved at-grade crossings have been known to contribute to vehicle damage. Members of the general public interviewed as part of the ARTS Freight Plan in 2008/9 expressed this complaint. With the possibility of an extended wait at at-grade crossings, impatient drivers may try to outrun the train in order to cross. Driver inattention, disregard of rail crossing safety devices, or simply miscalculating the train's speed or distance can result in a crash at the at-grade crossing. Several crashes of this type have occurred in the ARTS planning area. The safety component of Transportation Vision 2040 goals includes safety improvements at at-grade rail crossings.

### Limiting Rail Infrastructure

A current deficiency in some sections of the rail network in the ARTS planning area is the non-accommodation of double-stack railcars, 286K railcars weighing up to 110 tons or railcars in excess of 19 ft. in height. The current defined railcar height for fully unrestricted clearance is 22 ft. 6 inches.

## **6.3 Multimodal Transportation Strategies**

Multimodal improvements recommended in the LRTP are developed from a variety of strategies that are acknowledged to improve the multimodal transportation network. The following chapters present recommended improvements based on the issues and needs that are found in the general strategies identified below. In many instances, strategies have the ability to address multiple issues and needs. These strategies are also meant to connect to the overarching goals of ARTS.

The list below provides a brief description of the strategies used as a basis for the improvements. A more detail discussion of the issues, needs and strategies are outlined in the Issues and Needs Report.

### **6.3.1 Highway and Road**

Since highways and roads facilitate travel by the predominant mode of vehicular traffic, improvements on the road network have the potential to impact a larger amount of travelers. An efficient and effective roadway network is critical to support the region's economy, quality of life, mobility, social equity, and promote livable communities. Roadways serve not only freight and passenger vehicles, but also public transit, bicycling, and pedestrian networks.

The projected growth in the region will undoubtedly lead to increase vehicle miles traveled (VMT) throughout the network. This increase will lead to capacity constraints, increasing the deficiency of the roadway. Improving the design of the roadway increases the ability of vehicles to move freely and safely through a corridor. It is important to consider the context-specific needs of a corridor at the design phase to ensure the most efficient and effective mobility improvement.

#### **6.3.1.1 Geometric Changes, Widening, or Capacity Improvements**

Geometric Changes or Widening: Such strategies involve the physical change of the roadway in terms of its horizontal or vertical alignment. Physical strategies mitigating congestion may include the addition or reconfiguration of turning lanes, lane widening, and the realignment of intersecting streets. Other strategies may include the removal of a physical constriction that delays travel, e.g., widening the space between bridge abutments or eliminating a sight barrier. Costs may vary but can be substantial depending on the extent of physical change required.

Capacity improvements serve to allow effective movement of persons and goods throughout the region and can partially tackle congestion.

#### **6.3.1.2 Traffic Operational Improvements**

Traffic Operational Improvement involves a plethora of engineering based strategies that address congestion. Traffic surveillance and control systems, motorist information systems, traffic control centers, computerized signal systems are some of the tools used in mitigating congestion along local roads. Other engineering strategies such as road widening, alternative route development, channelization, bottleneck removal, variable speed limits and computerized signal systems are implementation strategies local jurisdiction can use to relieve congestion.

Traffic operational improvements allow effective movement of persons and goods throughout the region, increases the safety and security for users, and addresses congestion.

#### **6.3.2 Airport Connectors**

Planning for the future and constructing needed airside and landside improvements is important for each of the three airports situated in the ARTS planning area. Ground access to each of these airports will be critical to their continued success. Ground access improvements are also dependent on the projected growth and subsequent increase in passenger landside traffic. The draft Master Plan Update for Augusta Regional Airport was completed March 2015. Currently, at Augusta Regional Airport there is an adequate amount of curb frontage with no constraints restricting ground access improvements anticipated in the foreseeable future.

### **6.3.2.1 Context Sensitive Solutions (CSS)**

Context Sensitive Solutions or CSS is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its unique setting. An approach leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions. It is part of the design of transportation projects from, programming, environmental studies, design, construction, operation, and maintenance, including long range planning.

Context Sensitive Solutions enhances the economic, social, and environmental fabric of the area, promotes efficient land use, and increases safety and security of users.

**Figure 62:** *Need for Context Sensitive Design Solution*



*Location: Bayvale Elementary School  
Contributed by: WALC Institute*

### 6.3.3 Public Transit

The availability of public transportation adds additional mobility options to residents, workers, and visitors. Many times, public transportation serves as the only available transportation mode for citizens to commute large distances. Limiting the mobility of citizens hinders their economic opportunity as well as personal and social activities. The sporadic and low-density development patterns throughout the ARTS planning area can make public transit planning difficult. Innovative ways to improve service in a cost effective manner is necessary.

Public transportation strategies will provide everyone an opportunity to find employment, improve mobility and access to transportation options as well as revitalize neighborhoods within ARTS. In a presentation provided by USDOT titled *Creating Ladders of Opportunity: USDOT's Efforts to Increase Access for the Future*<sup>23</sup>, improvements to local transportation provide three invaluable benefits:

- **Connect:** A multimodal transportation system provides people with reliable and affordable connections to employment, education, and other critical services. Planning transportation networks that provide low-cost reliable options enables more people to realize their economic potential and improves businesses' access to a diverse workforce.
- **Work:** Transportation projects create jobs, both in constructing projects and operating them. Through thoughtful workforce programs— built in partnership with industry, and

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<sup>23</sup> 2015 DOT Civil Rights Virtual Symposium. Speaking with One Voice: Connecting the DOTs

with a focus on disadvantaged businesses— we can help more underserved people find and keep good jobs in the transportation sector.

- Revitalize: Transportation infrastructure can have a dramatic impact on neighborhoods and regions. It can provide support for healthy main street centers and direct more equitable business and residential developments designed to bring everyone closer to opportunities.

Public transit is critical in the region, especially in ARTS Environmental Justice areas. The Unified Planning Work Program (UPWP) is the primary implementation tool. It is used to ensure all minorities and low-income residents' transportation needs are addressed. Regular activities conducted through the UPWP include:

- Collecting building permit data used to monitor changes in residential units and occupancy.
- Using Department of Labor information to develop annual estimates of employment by place of work.
- Conducting socioeconomic analysis at Traffic Analysis Zones (TAZ).
- Documenting and improving upon community outreach and engagement for minority and low-income residents.

These activities are conducted regularly to ensure everyone is connected to transportation options, opportunities for employment and improved mobility through revitalized neighborhoods.

Public Transit allows for effective mobility through the region and provides efficient movement of persons and goods, enhances the economic, social, environmental fabric of the area, and addresses congestion and air quality issues.

#### **6.3.4 Augusta Public Transit**

Transit improvements and strategies proposed by APT for implementation can be listed as:

- Expand weekday service to 10pm in 2016 and possibly Saturday. However, the introduction of Sunday service currently is not a priority project.
- Initiate a Comprehensive Operational Analysis (COA) during the first half of 2016. COA is an in-depth study of a transit system designed to identify strengths and weaknesses, and develop recommendations for improvement.



- Expand APT bus fleet by ten (10) buses and reduce bus headway. With 10 new buses, APT fleet will have 28 buses for regular mainline transit services. This will enable two (2) buses on each route, reducing bus headway to 30 minutes from current 60 minutes.
- Introduce one or two new routes with one of these routes serving South Augusta. This initiative is consistent with the Augusta Public Transit Development Plan recommendation in 2009.
- Completely replace bus shelters. Average cost of bus shelter is approximately \$4,000-\$5,000 with an upwards cost of \$10,000.
- Proposed bus and transit stop amenities include:
  - ADA accessible
  - Trash cans
  - Advanced fare box technology
  - Sidewalk approaches
  - Solar powered
- Rebranding of APT. Communication/marketing students at Georgia Regent's University (GRU) could be approached to assist with rebranding.
- Develop the APT rural service to become a feeder service connecting with mainline APT services. Although expansion of the paratransit bus network may be possibility, if the realignment of mainline routes is successful there may not be a need for an increase in the number of paratransit buses.
- Form partnerships with local businesses and community agencies.
- Explore how APT can positively impact blighted communities in Augusta. Providing transit service to underserved areas may stimulate socio-economic regeneration and revitalization.
- Upgrade of the Kmart transfer center through :
  - Replacement of shelter (this may take 4-5 months)
  - Signage improvement (such as bus stops and wayfinding information) throughout Richmond County
  - Security improvement
  - Beautification of immediate surroundings
  - Lighting improvement
- Introduce a Travel Training Program that enables seniors to be able understand how to use transit. Once seniors know how to get around using transit, more will use transit services.
- Engage in better data collection through working with the City of Augusta Information Technology Department. This may also include upgrading the APT website.

- The downtown circulator project as recommend in the Transit Development Plan may become a reality with the relocation of the Broad Street Transfer Center.
- Investigate the relocation of the Broad Street Transit Center.
- Upgrade the Kmart Transfer Center.

The Richmond County Emergency and Transit Vehicle Preemption System is a TIA funded project that is set to be implemented during 2015-2018. This system is a component of the Master Plan for ATMS in Richmond County that will result in improved operational efficiency of the transit system.

### 6.3.5 Best Friend Express

Transit improvements and strategies proposed by BFE (or programmed in the South Carolina Statewide Plan for Lower Savannah) for implementation can be listed as:

- Add 5 ADA compatible vehicles
- Add 5 motor vehicles
- Replace and Upgrade Technology
- Upgrade Transit Facility
- Upgrade Vehicle storage facility
- Initiative replacement of 20 vehicles
- Replace technology and invest in security software upgrade
- Enhance safety and security of operations and facilities
- Add 8 drivers
- Add 2 dispatchers
- Expand 5311 to 5 days of operation
- Expand 5310
- Extend bus operating hours
- Enhance ADA offerings and riding experience
- Expand to NE Aiken County
- Restore Saturday service

### **6.3.6 Bike Racks on Buses**

Most buses operating in the ARTS planning area are equipped with bike racks, a strategy that improves multimodal connectivity between all travel modes. Each bus is equipped a bike rack carrying two bikes. Installing bike racks on buses enables travelers to consider transit as a viable mobility option, potentially, increasing transit ridership. The availability of bike racks on buses widens the transit catchment area, particularly in low density areas. For example, cyclists traveling to and from a bus stop may reside or work more than a 1/4 mile, which is typically maximum walking distance to a transit stop. Public transit may be used by cyclists to access dedicated bike paths in community recreational areas. Bike racks on buses also permit one-way commuting for those workers traveling after bus operating hours. Improving multimodal mobility options, the availability of bike racks on buses eliminates barriers, increasing accessibility and the attractiveness of public transit for all travelers.

### **6.3.7 Regional Express Transit**

Express transit across large regions provides citizens with an alternative mode of transportation to the automobile. A highly utilized express system has the ability to decrease the amount of vehicles on the roadway, increasing the overall efficiency. Many times these services are linked to key commercial or residential clusters as well as large transportation hubs, such as park and rides and public transit transfer facilities.

Regional express transit allows for effective mobility through the region and provides efficient movement of persons and goods, enhances the economic, social, environmental fabric of the area, and addresses congestion and air quality issues.

### **6.3.8 Bicycle and Pedestrian Improvements**

Bicycle and Pedestrian Improvements are essential to address roadway traffic and congestion. Allowing for and promoting non-motorized travel alleviates demands placed on local road networks by providing bicyclists and pedestrians a safe and secure means of travel along public spaces. Augusta Regional Transportation Study (ARTS) currently has a Regional Bicycle and Pedestrian Plan for the area in place.

Bicycle and Pedestrian Improvements can provide effective mobility through the region, enhance the social and environmental fabric of the area, increase safety and security of users, and address congestion and air quality issues.

## 6.3.9 Congestion Management

### 6.3.9.1 ITS and ATMS

Intelligent Transportation Systems (ITS) or Advanced Traffic Management Systems (ATMS) use the latest computerized technology to monitor and control traffic. Through use of cameras, regulating traffic signals and speed sensors; local jurisdictions can manage emergency vehicle response times to incidents that occur throughout their area, enhance traffic flow and reduce congestion. This also involves the coordination of Law Enforcement, Fire, and Rescue, Medical Services Transportation, Public Safety Communications, Emergency Management, and Traffic Information Media. ITS and ATMS allow for effective and efficient movement of persons and goods, increases the safety and security of users, and addresses congestion and air quality issues.

### 6.3.9.2 Transportation Demand Management

Transportation Demand Management or Travel Demand Management, commonly referred to as TDM, are policies that reduce the demand placed on the transportation system using car or van pooling strategies, and rideshare programs. Alternative approaches, such as telecommuting and alternative work schedules are also incorporated into TDM strategies, as well as parking management and employer paid transit passes. U.S. Department of Transportation, Federal Highway Administration Office of Operations also recommends TDM as the preferred way of addressing congestion as part of their 21st Century Operations using 21st Century Technology, one lane in each direction.

TDM strategies may also include Educational Outreach programs. Such programs may target population groups that may be incentivized to use alternative travel modes to the motor car. Travel training programs targeted at seniors or persons with disabilities enable these groups regain travel independence through the use of transit. From a regional perspective, all transit buses that operate in the ARTS planning area are to be equipped with bike racks. Buses equipped with bike racks allow cyclists to broaden their area of travel by accessing all transit buses operating in the ARTS planning area. Benefits of this TDM strategy reduce commuting costs and improves personal health when compared to travel by personal car.

Transportation Demand Management when integrated with planned land use, will allow for effective mobility throughout the ARTS planning area, and addresses congestion and air quality issues.

### **6.3.10 High Occupancy Vehicle (HOV) lanes**

High Occupancy Vehicle (HOV) lanes: are used throughout the federal highway system all across the country. It reserves certain lanes along highways and expressways for vehicles with two or more occupants, allowing them a separate lane from single vehicle occupants. This strategy is presented as a high priority unfunded project for I-20 between Louisville Road and Riverwatch Parkway.

High Occupancy Vehicles allow for effective mobility through the region and provides efficient movement of persons and goods, and addresses congestion.

### **6.3.11 Land Use and Transportation**

Development of land and the growth in transportation demand are undeniably linked, affecting one another. Coordinating land use and transportation planning can enhance the resources of the area and lead to more sustainable communities. Land uses that tend to foster a balance of mixed uses, such as commercial, housing, and recreational activities, have the ability to offer citizens a greater amount of transportation options.

Land Use and Transportation connection promotes efficient land use and development patterns, is financially and politically feasible, allows for effective mobility and efficient movement of persons and goods, increases safety and security of users, and addresses congestion and air quality issues.

#### **6.3.11.1 Access Management**

Access Management is best used on all manner of roadways to help manage access and egress to and from property. This strategy applies to all local and major roadways including highways and major arterials. Signal spacing, right-of-way access to highways, streetscapes, median treatment and two-way left turn lanes, driveway location, spacing, and design are some of the techniques used to implement access management.

Access management strategies allow for effective movement of persons and goods throughout the region, integrates with surrounding land uses, increases safety and security for users, and addresses congestion.

### 6.3.12 Age-Friendly Design

The ARTS planning area, similar to many of the communities in the United States, has an increasing life expectancy and a large portion of citizens reaching retirement age. Many of these aging citizens continue to be active and engaged in the community- many times being the most active members of a community. However, with increased age comes the demand for an urban environment that meets the changing mobility needs of this growing population.

By focusing on an age-friendly design of the transportation network that encompasses all ages, ARTS can ensure citizens can maintain an active, safe, and healthy lifestyle throughout all communities. Particular focus is spent on ensuring ADA compliance, not only through transportation projects that enhance mobility such as public transit, bicycle and pedestrian facilities, but also on development that ensures citizens can “age-in-place” through mobility in homes, businesses, and recreational opportunities.

Age-Friendly Design integrated with planned land use, allows for effective mobility of users, increases the safety and security of users, and enhances the economic, social, and environmental fabric of the area.

**Figure 63:** *Need for Complete Streets*



*Location: Ellis Street downtown Augusta, GA.  
Contributed by: ARTS Staff*

### 6.3.12.1 Complete Streets

Complete Streets is now a standard transportation planning practice. This strategy involves the designing of local streets to incorporate all modes of travel and streetscapes that are designed with bicycle, pedestrian, car, and public transit in mind. Many state Departments of Transportation have formally adopted Complete Street Policies encouraging local jurisdictions to do the same.

Complete Streets promotes efficient land uses and development patterns, increases safety and security of users, enhances economic and environmental fabric of the area, and addresses congestion and air quality issues.

**Figure 64:** *Need for Complete Streets*



*Contributed by: ARTS Staff*

## 6.4 Regional Transportation Improvements

### 6.4.1 Summary

The primary purpose of this report has been to provide a comprehensive understanding of transportation needs within the ARTS planning area. This report also presents strategies and transportation improvements that can address identified needs as well as support the Transportation Vision 2040 goals. Through an extensive public outreach program, analysis of the existing transportation system conditions, and the identification of current and programmed projects; a series of recommended strategies and improvements have been put forward. Anticipated growth in population and highway traffic in a financially constrained environment will necessitate the need to consider alternative resources and efficient transportation options. Transportation improvement projects presented in this plan will contribute to the fulfillment of Transportation Vision 2040 goals while strengthening the economic vibrancy and livability of the ARTS planning area ([Table 39](#)).

**Table 39: Key Findings based on Needs Recommendations**

<b>Capacity, Level of Service and Congestion</b>
<p><b>Key Findings</b></p> <ul style="list-style-type: none"> <li>· Carryover capacity projects from 2035 LRTP on roadways that are seriously congested.</li> <li>· Implement new capacity projects on roadways that are exhibiting poor Level of Service and are Seriously Congested.</li> <li>· Monitor congestion levels and implement congestion mitigation measures in South Augusta as it continues to develop.</li> <li>· Monitor congestion levels and implement congestion mitigation measures in and around the Fort Gordon Military Base as it continues to develop.</li> <li>· Continued implementation of congestion mitigation strategies on Seriously Congested roadways identified in the annual congestion management process surveys.</li> <li>· Continued implementation of ATMS plan to address safety and congestion.</li> </ul>
<b>Traffic Safety Improvements</b>
<p><b>Key Findings</b></p> <ul style="list-style-type: none"> <li>· Implement safety improvements at high crash intersections.</li> <li>· Implement operational and access management improvements on corridors with extensive amounts of driveways, such as Washington Road.</li> </ul>
<b>Freight</b>
<p><b>Key Findings</b></p> <ul style="list-style-type: none"> <li>· Many large state projects for freight have been completed.</li> <li>· Continue to focus on corridors with high freight activity, especially near industrial areas, such as I-20.</li> <li>· Implement capacity improvements on major roadways and freight corridors, including I-20, US 78, and US 278</li> </ul>
<b>Bicycle and Pedestrian</b>
<p><b>Key Findings</b></p> <ul style="list-style-type: none"> <li>· Complete implementation of 2012 Bicycle and Pedestrian plan.</li> <li>· Focus on paths and trails with regional connectivity.</li> <li>· Advocate and implement bicycle and pedestrian facilities on roadway projects.</li> <li>· Increase education of all road users of roadway safety.</li> <li>· Continued maintenance of existing facilities.</li> </ul>
<b>Transit</b>
<p><b>Key Findings</b></p> <ul style="list-style-type: none"> <li>· Current densities do not facilitate large expansions of fixed route service, although certain population/employment clusters could offset potential expansion if land uses are appropriate.</li> <li>· Changes to current routes may improve efficiency.</li> <li>· Improved frequency and extended hours of service into the evenings and weekends provide increased quality of life and economic opportunity to residents.</li> <li>· If future development is compact there exists the potential to support bus rapid transit if commuting pattern needs exist.</li> <li>· Bike racks on buses</li> <li>· Educational Outreach and Travel Training programs</li> </ul>

Source: ARTS