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Of Transportation  
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# **Final Report**

## **United We Ride/Mobility Services for All Americans Joint Demonstration**

### **Phase One – System Planning and Design**

*Report No. FTA-SC-26-7002-2008.1*

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Lower Savannah Council of Governments of Aiken, South Carolina was awarded a **planning** grant as one of eight sites selected nationally for a USDOT Mobility Services for All Americans demonstration project for the development of a system design process and design document for a regional Travel Management and Coordination Center (TMCC). The system design was to emphasize the important role transportation

coordination among human service agencies and providers would play, as well as the important role played by technology or Intelligent Transportation Systems (ITS) in facilitating improved transportation services in any TMCC model developed for a rural setting such as the Lower Savannah Region. Stakeholder participation and input was vigorously sought and achieved during the planning process. Stakeholders “needs” for human service transportation were to be identified during the Concept of Operations and later addressed during System Requirements and System Design processes and documentation using a structured engineering process. The Lower Savannah Regional TMCC model is unique in that it strives to provide the consumer with access not only to improved transportation options, but also access to comprehensive human service program information, referral and assistance by merging the functions of a TMCC with an existing Aging & Disability Resource Center.

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## FOREWORD

This required final report is published as a result of a technology planning grant received by the Lower Savannah Council of Governments in March of 2007 under the United We Ride/Mobility Services for All Americans Demonstration project initiative from the U.S. Department of Transportation. The project allowed for a sixteen-month, technology-focused planning and design process involving a systems engineering approach.

The purpose of the planning period was to develop a concept of operations, develop a system requirements document, produce a system design, identify needed technology, and put forth an implementation, management and financial plan that would be ready for the deployment of a regional Travel Management and Coordination Center (TMCC). The TMCC planned to serve the Lower Savannah Region will benefit individuals seeking transportation; transportation providers serving their communities' transportation needs; human service agencies, employers and medical facilities needing transportation on behalf of their clients and employees; and certain funding agencies in need of accurate reporting data.

The reader of this final report will learn of the processes and planning steps taken during this grant period to design a TMCC for a predominately rural area (of South Carolina). The role of technology in the regional TMCC system, both at the centralized and decentralized locations, will be shared with the hope other communities interested in increasing coordinated travel in their area will benefit from the experiences and conclusions put forth in this report.

This project may be of particular interest to an organization that desires to facilitate better mobility options within its community but is NOT an operator of transportation themselves. Lower Savannah Council of Governments is predominately a planning organization and does not employ drivers, dispatchers, schedulers and other common support positions for transportation operational services. However, LSCOG does currently purchase transportation services through contracting with local operators and employs a mobility manger to provide transportation information and mobility assistance and advocacy for consumers in the region.

This project may also garner the interest of existing, and emerging, Aging & Disability Resource Centers (ADRC) around the United States as the Lower Savannah Regional TMCC is designed to successfully merge its transportation functions with the information, referral and assistance functions of the existing Lower Savannah ADRC that are already in place.

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## ACRONYMS

ADRC	Aging and Disability Resource Center
AVL/MDC	Automatic Vehicle Location/Mobile Data Computers
FTA	Federal Transit Administration
ITS	Intelligent Transportation Systems
IVR	Interactive Voice Response
JARC	Job Access Reverse Commute
LGOA	Lt. Governor's Office on Aging
LSCOG	Lower Savannah Council of Governments
MHz	Megahertz
MPO	Metropolitan Planning Organization
MSAA	Mobility Services for All Americans
RM CAD/AVL	RouteMatch Computer Aided Dispatch/Automatic Vehicle Location
RTA	Regional Transportation Authority
RTMA	Regional Transportation Management Association
SCDOT	South Carolina Department of Transportation
TMCC	Travel Management and Coordination Center
USDOT	United States Department of Transportation
UWR	United We Ride
VOIP	Voice Over Internet Protocol
VTE	Virtual Transit Enterprise

## ACKNOWLEDGEMENTS

The United We Ride/Mobility Services for All Americans Joint Demonstration Phase One project could not have been successfully completed by Lower Savannah Council of Governments without the significant contributions and involvement of numerous stakeholders. The Travel Management and Coordination Center (TMCC) is a regional model with a regional vision to benefit transportation consumers and transportation providers of all types, and it required the effort of time, careful thought, and commitment from many sectors of the entire region to identify the community's needs, and solutions for those needs. We would like to thank the transportation service providers of the Lower Savannah Regional Transportation Management Association (RTMA) for their valued input and suggestions all along the planning and design process. Several stakeholders had many miles to travel in order to attend stakeholder meetings and their participation is much appreciated.

Deborah McPherson of the Lt. Governor's Office on Aging was generous with her time and assistance while serving on the Design Team and the financial contribution of the CMS Systems Transformation grant, managed by her office, was pivotal in our ability to provide matching funds in order to secure this Phase One grant. The leadership of the Lt. Governor's Office on Aging has also consistently been supportive of our work on this project.

We thank SCDOT for making various staff available for participation in stakeholder events and Design Team meetings, with a special acknowledgement for the contribution made by Doug Frate, Chief Transit Planner.

Lower Savannah Council of Governments was fortunate enough to put together members of the Design Team with national reputations for excellence and talent. LSCOG was able to gain valuable assistance from Gregg Chiasson and Mark Kalevik of American Medical Response, Inc; James McLary of McLary Management, Bill Doyle of ISG, and Tom Coogan and Todd Allen of RouteMatch Software, Inc. A special "Thank You" to Tom Coogan who gave in-depth assistance with each and every grant deliverable, set up numerous GoToMeeting conference calls, racked up his frequent flyer miles, and patiently explained technology to us here at LSCOG until we actually understood! We couldn't have done it without you guys.

## ABSTRACT

Lower Savannah Council of Governments of Aiken, South Carolina was awarded a planning grant as one of eight sites selected nationally for a USDOT Mobility Services for All Americans demonstration project for the development of a system design process and design document for a regional Travel Management and Coordination Center (TMCC). The system design was to emphasize the important role transportation coordination among human service agencies and providers would play, as well as the important role played by technology or Intelligent Transportation Systems (ITS) to enable improved transportation services in any TMCC model developed for a rural setting such as the Lower Savannah Region.

Stakeholder participation and input was vigorously sought and achieved during the planning process. Stakeholders “needs” for human service transportation were to be identified during the Concept of Operations and later addressed during System Requirements and System Design processes and documentation using a structured engineering process.

The Lower Savannah Regional TMCC model is unique in that it strives to provide the consumer with access not only to improved transportation options, but also access to comprehensive human service program information, referral and assistance by merging the functions of a TMCC with an existing Aging & Disability Resource Center.

## SUMMARY

Lower Savannah Council of Governments successfully submitted a proposal to compete for a nationally awarded USDOT/FTA planning grant to design a model Travel Management and Coordination Center (TMCC). Planning on the TMCC system design began in March 2007 and concluded in July 2008 with the submission of a final system design, phasing plan and another proposal submission; this time to compete for MSAA Phase II grant funding to support the implementation of the proposed model design that would be deployed on behalf of the six counties of the Lower Savannah Region, South Carolina: Aiken, Allendale, Bamberg, Barnwell, Calhoun, and Orangeburg.

The Lower Savannah Region is a predominately rural area of 3981 square miles and a population of 300,666, with two-thirds of that population residing in rural, unincorporated areas. Much of the region has higher than average poverty, disability and unemployment. Two of the counties, Allendale and Bamberg, are among the poorest counties in the state.

The Lower Savannah Council of Governments (LSCOG) is a regional planning and development agency serving the local governments of the six-county Lower Savannah region in the southwestern portion of the state. LSCOG also houses several other programs and services including Workforce Development; Tourism; Community Block Grant Services; and the Aging & Disability Resource Center (ADRC). The ADRC encompasses several important human service and aging programs offered through the Older Americans Act and a regional Information, Assistance and Referral program. LSCOG proposes in their model design to merge the existing ADRC and its functions with the transportation and coordination functions of a TMCC; in order to provide the caller/consumer with several assistance programs along with information and human service referrals with “one-call” or “one-click” access.

The above programs, combined with the growing role LSCOG has been playing in the progression of human service transportation leadership and coordination, has placed LSCOG in a position to lead stakeholder involvement in the planning and implementation of a TMCC. LSCOG is not a direct provider or operator of transportation services but is equipped for the TMCC planning task because of its roles as the Regional Transportation Management Association, Direct Recipient status for certain FTA transit program funds that are administered

by LSCOG but contracted out for the transportation services, and the experience gained through earlier coordination efforts to create new shared seat public transportation systems in some of the Lower Savannah counties, using no new vehicle resources. LSCOG has also been awarded funding support, outside of the MSAA planning grant, for a regional mobility center model (now referred to as the TMCC model) from United We Ride and Centers for Medicare and Medicaid Services Systems Transformation Grants.

With these various grant resources, participating transportation providing agencies support, consumer and human service agency stakeholder input, an experienced and technically expert design team, a structured engineering approach to system design, and enabling technology; the model ADRC/TMCC should be able to make progress towards addressing unmet needs and transportation barriers in the region.

The TMCC model will have both centralized and de-centralized functions that support transit services and transportation coordination within the region. LSCOG will house and maintain some of the proposed technology and services like a regional telephone system, integrated voice recognition (IVR) software, databases and servers, mobility managers. Some of the other technology and service functions will be placed within the region: such as the presence of “virtual agents,” common and shared reservation-scheduling-routing-dispatch-billing software, and automatic vehicle location/mobile data computers (AVL/MDC) in participating transportation providers’ vehicles.

All this planning, coordination activity, and technology will be brought to the region to address identified user needs including, but not limited to:

- Consumer-focused transportation and human service information and assistance from one source by telephone or by web
- A quick and efficient way to make a trip reservation and receive telephone notification of such things like vehicle ETA and updates
- A more responsive transportation system that does not require a three-to-five day advance reservation policy and offers more shared seat availability to the public
- Improvements in transit functions like automated trip manifests from broker to provider; automated trip verification; enhanced vehicle communications; increased payment options for consumers; eligibility determinations; data collection and reporting; ability to track and reconcile fares.

The TMCC will bring much needed technology, coordination and efficiency to the region!

## **I. INTRODUCTION**

The United We Ride/Mobility Services for All Americans Joint Demonstration (or Demonstration of Enhanced Human Service Transportation Models: Phase I – System Development and Design) Request for Proposals was released in the Federal Register in April 2006 with proposals due on June 13, 2006. The Federal Transit Administration of the United States Department of Transportation was seeking “...local communities to carry out detailed development and design of coordinated human service transportation systems that utilize Intelligent Transportation Systems capabilities.” The RFP also stated “The expected results from Phase 1 include up to 10 ‘deployment-ready,’ replicable and scalable system detailed designs for enhanced human service transportation delivery models in communities representing a variety of operational environments and scenarios.” (Federal Register/Vol. 71, No. 72, 2006)

Lower Savannah Council of Governments was one of eight final grantee selections from around the country and was considered a rural environment with limited existing ITS capability. Efforts began in March of 2007 by all selected MSAA sites to develop a Travel Management and Coordination Center (TMCC) model and final system designs were submitted to FTA on June 30, 2008. The original eight grantees were then invited to compete among themselves for the funding to implement their model designs by submitting a proposal to FTA on July 31, 2008.

While the sites await Notice of Award for the Phase II grant funding, they are expected to submit a Final Report to FTA which will later be made available to the general public with the hope that other communities around the United States can benefit from the research and development efforts of the grantees and their model designs.

### ***a. Lower Savannah Region***

The Lower Savannah Region consists of six counties: Aiken, Allendale, Bamberg, Barnwell, Calhoun and Orangeburg in southwestern South Carolina. Because of its proximity to the Georgia state border and the Georgia city of Augusta, a part of Aiken County is considered by the Federal Transit Administration to be “large urban;” however, the rest of Aiken County and all the other five counties are quite rural.

Aiken County is the largest and most affluent county in the region, with a population of just over 144,000 and a land area of 1,002 square miles. Allendale County, by contrast, is the poorest county in the state of South Carolina and has a population of 11,211. Allendale and Bamberg are two of the region's counties which actually lost population in the 2000 census and they have struggled with substandard school systems, little industry, and the majority of their residents living at, or below, the poverty level. Barnwell County and Calhoun County have more employment opportunities, but only Barnwell County has the advantage of a demand response public transit system.

The region as a whole has a population of 300,666 and a land area of 3981 square miles. Much of the region has higher than average levels of ill health, poverty, disability, and single-parent households. Some counties lack adequate medical care so that residents must travel out of the county, or even out of the region, to access medical care. Rural Health Centers have reported that 1/3 of all appointments are missed due to their clients' lack of transportation. Failure to access medical care creates a burden to taxpayers as the lack of care ultimately leads to longer and costlier hospital stays when illness occurs.

The high numbers of unemployment in some of the counties, up to fourteen percent (14%), is exacerbated by the lack of reliable transportation for travel to and from work. These same persons often have less than high school educations and are also unable to access programs that would provide a GED or a technical school education. Social service and employment agencies often report frustration in trying to move families from public assistance and into employment opportunities because of the lack of public transportation services.

The rural nature of the region creates many barriers to effective transportation services, not only for the subsidized public transportation services, but also for members of the general public who ask for transportation assistance from neighbors and relatives. The sheer geographic area of the counties, the number of unpaved roads, high unemployment rates and a low taxpayer revenue base to fund transit projects and programs, and the fact that 22% of the families in the region do not have any type of vehicle available to them, creates isolation for many residents.





## ***b. Lower Savannah Council of Governments***

The Lower Savannah Council of Governments (LSCOG) is a regional planning and development agency, formed through an Executive Order of South Carolina's Governor in 1967. It is the mission of the organization to serve local governments in its six-county region of southwestern South Carolina and to promote economic development and improved quality of life for the people who live in the region.

Lower Savannah Council of Governments (LSCOG) has placed a high priority on developing regional, comprehensive human service, community development, transit coordination and new transit development programs to address some of the region's needs. LSCOG houses several related programs, which often complement each other including:

- Community and Economic Development Planning and Administration
- Regional Workforce Development Board (WIA)
- Regional Tourism Department
- Human Services Department
  - South Carolina's pilot Aging & Disability Resource Center (ADRC)
  - Information, Referral and Assistance Specialists
  - Medicare Part D Counseling and "SHIP" program
  - Medicaid Managed Care Plan Counseling and Selection
  - Family Caregiver Support Program
  - Disability & Benefits Specialist
  - Regional Long Term Care Ombudsman
  - Regional Area Agency on Aging
    - Older Americans Act funding for the contracting and purchase of programs like home delivered meals and in-home supports for the various communities in the region.

## ***c. Progression of Human Service Transportation Leadership & Coordination***

In 2000, LSCOG was designated by the South Carolina Department of Transportation (SCDOT) as the state's first transit coordination demonstration program. The LSCOG region had no transit-provision structure, such as a Regional Transit Authority (RTA), and lacked public

transportation in four of its six counties. In 2001, LSCOG formed a Regional Transportation Management Association (RTMA), with an elected official policy committee, and an inclusive philosophy of inviting in any health, aging, human service, public and/or private providers of transportation that were interested in working together to develop a regional, coordinated transportation network. Over the years, LSCOG led this RTMA of providers of transportation to become a team, working together on such things as purchasing, drug testing, training, strategic planning and contract negotiation.

During the years since 2001, LSCOG has become the designated recipient for urban public transit and planning funds for the urbanized portion of Aiken County and operates, through a contract, a small, three route public transit and ADA complementary para-transit system known as the *Best Friend Express/Dial A Ride* (Aiken County Transit). SCDOT also entrusted LSCOG with regional planning and administration of the FTA Section 5310 funds for services to older adults and people with disabilities. LSCOG has gradually converted the use of those funds primarily for purchase of service rather than proliferation of vehicles, in support of regional transit coordination.

LSCOG was the local lead in stakeholder input gathering meetings for the development of the regional human service transit coordination plan in 2007, and worked to develop and submit regional applications for all FTA transit funding programs for the FY 2009 funding cycle. In 2008, LSCOG was selected by South Carolina's Governor as the designated recipient for South Carolina's portion of urban FTA Section 5316 and 5317 funding, assigned to the MPO serving the Augusta urbanized area. In 2007, LSCOG added a mobility manager to its staff to research transportation resource information to add to the "SC Access" web-based resource database available to the general public and to begin providing individualized assistance to consumers in addressing transit needs and problems.

LSCOG worked with local leadership and transit providers in the region's two poorest and most rural counties to develop new, shared-seat, demand-response public transit systems with no new vehicles – filling seats and selling tickets to the public on existing human service vehicles (known as the *Allendale Scooter* and the *Bamberg Handy Ride*). A mobility manager takes calls from the public for both counties and matches caller's requests to rides, handles billing, reimbursements and reporting. Both projects have been nationally recognized and

spotlighted and are operating successfully; providing evidence that a regional expansion of this model can create additional transportation capacity to address currently unmet needs.

During strategic planning sessions of the Lower Savannah RTMA, the participating transit providers, known as “RTMA Partners,” developed a long range vision for transportation services, technology, a regional transit information/coordination center, and a coordinated regional transit network with the following goals:

*“In Lower Savannah RTMA, our transit system allows riders to travel seamlessly throughout our region, across our state and to neighboring states. Our infrastructure of compatible equipment, short client wait times, AVL systems, employer participation and regional computerized scheduling provides for designated transfer stations throughout the region and ties into rail and air travel. Information is accessible at a touch in transportation centers as well as related web sites. RTMA provides oversight and assists in securing sufficient funding for our operations. Our legislators understand and support our goal. We are the model for South Carolina.” RTMA Partners, 2003*

This vision has been framing the action steps that Lower Savannah Council of Governments and its partners have been taking for the past few years in order to make this vision a reality.

#### ***d. Current Operating Environment and Resources***

Lower Savannah Council of Governments has been proactively seeking opportunities to make the RTMA Vision come to fruition by the acquisition of technology, new transit program development, and funding opportunities. Counted among resources secured for the region are:

- **Centers for Medicare and Medicaid Services (CMS) Systems Transformation Grant (STG).** Awarded to the state unit on aging late in 2005 through a highly competitive grant process, LSCOG is the prime subcontractor for funding and assignments tasked in the grant. Out of the 10 state grantees selected, South Carolina was the only state which choose to tackle transportation as a component of “access” to the health and human service system. LSCOG began planning in early 2006 for the “mobility center” -- as it was then called. Unfortunately, it became apparent that funding in this grant alone would be insufficient to acquire the consulting assistance needed to identify and plan for the center, to purchase the selected technology once identified, and to pay for the professional services needed for the successful installation/training that would be needed. Fortunately, the CMS grant has been leveraged successfully as “matching funds” for other grants that have been combined to assist in the development of a mobility center.

- **United We Ride Grant (UWR)**, through SCDOT in 2006-07, also helped to further the planning and design work on a mobility center to serve the region.
- **Mobility Services for All Americans Grant (MSAA) Phase One** for planning and system design. This initiative offered the opportunity to engage in a technology-focused planning process to develop a Travel Management Coordination Center (TMCC), which turned out to be the same product as the “mobility center” of the CMS Systems Transformation and United We Ride grants.
- **Intelligent Technology Systems Project** award from FTA was used to purchase 100 digital radios for the RTMA partner agency vehicles. Communication between drivers and base operations offices, and communication among different service providers as well, is now possible. The radio system, Palmetto 800 MHz, is also linked to the state’s emergency management and law enforcement network.
- **VTE Project** from SCDOT distributed RouteMatch TS 3.0 software to the region’s transportation service providers and it has become part of the ITS Architecture for scheduling and dispatch functions.
- **Ageing & Disability Resource Center and the SCAccess state wide website** is also a valuable resource for the entire Lower Savannah Region as it provides not only internet based human service programs information for the general public to identify, but also provides LSCOG’s Human Service Department programs mentioned earlier in this report. The Lower Savannah Regional TMCC model for coordinated transportation is one in which transportation functions and support are merged with the existing ADRC functions in order to provide “one-call” or “one-click” access for an entire bevy of human service program assistance or referrals.

LSCOG was the pilot site for South Carolina’s first ADRC and has been successful in streamlining access for consumers to information, referral, assistance and resources, particularly for older adults and people with disabilities and their family caregivers. Having existing funding streams already in place that support the work of the ADRC allows the future TMCC to build upon the existing infrastructure and benefit from the ADRC’s success. Becoming an ADRC gave LSCOG considerable technical assistance on the “how to’s” of developing a one-call center, a web-based resource, service tracking and case management for callers/clients, and formalizing partnerships with other

community agencies also meeting the human service needs in their counties. It has become a base from which to provide information and assistance on a number of topics, including transportation.

- Existing transportation services developed, or enhanced, in recent years can also be counted as valuable resources. Among them are the **Allendale Scooter** and **Bamberg Handy Ride** (shared seat coordinated transportation models); the **Best Friend Express** (a three bus, fixed route public service system operating in the urbanized portion of Aiken County); **Dial-A-Ride** paratransit services to complement the Best Friend Express; Local Motion of Barnwell County (small public service system with some demand response capabilities); **5310 demand response**, shared seat, coordinated service offered in the areas of the region on a limited basis for the elderly or people with disabilities (the result of a “purchase of service” for program emphasis rather than purchase of vehicles). The very recent acquisition of funds for **JARC** and **New Freedom** initiatives in the region will be a valuable resource available to the TMCC model, as well.

#### *e. Problem*

There is not enough transportation service – either public or human service – available in the region to meet either the current needs, or future projections of needs, of the citizens who live there. Transportation, where available, is sometimes inconvenient due to long headways, limited hours or areas of service, long call-ahead time requirements and geographic or programmatic gaps. Transportation providers’ existing transportation services, though they are trying to increase coordination and efficiency, still have seats available on demand-response trips which could be filled with others wishing to travel, and vehicles from multiple transportation providers often duplicate routes to common out-of-county destinations. Members of the public who need transportation may not know what resources are available, where to call for service, or for what services they might be eligible. Providers of transportation service sometimes turn down requests for trips which could benefit the public and provide additional revenue because the volume of service is not sufficient to be financially feasible. Capturing transit data and documenting unmet need is challenging, and often not accurate.

Numerous stakeholder meetings, needs analysis, surveys, and market research have revealed a number of unmet needs and/or challenges to effective transportation and mobility options and consumer desires for a TMCC model to address, or include, the following:

### **Consumer Needs**

- Consumer-focused transportation and human service information and assistance from one source by web or telephone
- The ability to reach a “live human” through easy navigation of the selected telephone system
- A quick and efficient way to make a trip reservation
- Help to determine possible eligibility for other related benefits and services with one call
- A more responsive transportation system that does not require a three-to-five-day advance reservation policy
- More ability to have transportation cross county lines
- More shared seat availability on vehicles so that the general public can have transportation – not just specialized human service clients or to specified destinations
- Increased payment options for transit
- Expansion of service modes to accommodate special needs
- Translation services for callers who are not proficient in English

### **Human Service Agency/Health Professional Needs**

- Assistance to agency staff in finding transportation service to expedite service or care needs
- Assistance from ADRC staff to find other sources of addressing problems related to, but beyond, transportation

### **Government Needs**

- A model TMCC that could be replicated or scaled in other similar communities and regions
- Help from the TMCC to acquire, use and share accurate reporting, service and operations data
- Greater efficiency in use of resources

- Ability to retrieve from and enter data into SCAccess
- Ability to assist with mobility needs during an evacuation or emergency response
- Better and more transit service for local citizens to support employment and the economy

### **Transportation Provider Needs**

- Leadership to develop more opportunities for diversifying services/business
- Leadership to help providers work together to meet consumer needs instead of competing against one another
- Acquisition of, and assistance with, the technology needed to bring about **improvements** in:
  - Data collection
  - Reservations & scheduling
  - Fare Management
  - Trip Verification
  - Eligibility Determination
  - Vehicle tracking
  - System management
  - Communications and service for passengers
  - Reporting
  - Billing
  - Leadership from the TMCC to provide all partnering transit agencies the benefits of:
    - Marketing
    - Customer service standards
    - Driver training
    - Standardized safety guidelines
    - Training and guidance for using new technology
    - Fleet maintenance
    - Regional drug & alcohol testing pool
    - TMCC advocacy to attract additional transportation programs and funding streams to the region



- TMCC leadership in planning, grant management and monitoring
- An enhanced communication system among providers, consumers and the TMCC
- Improving response time
- Ability to track and reconcile fares
- Better integration with the Medicaid non-emergency transportation broker for the region
- Automated trip manifest from broker to provider
- Automated trip verification from provider to broker

## II. RESEARCH METHODOLOGY

### *a. Approach*

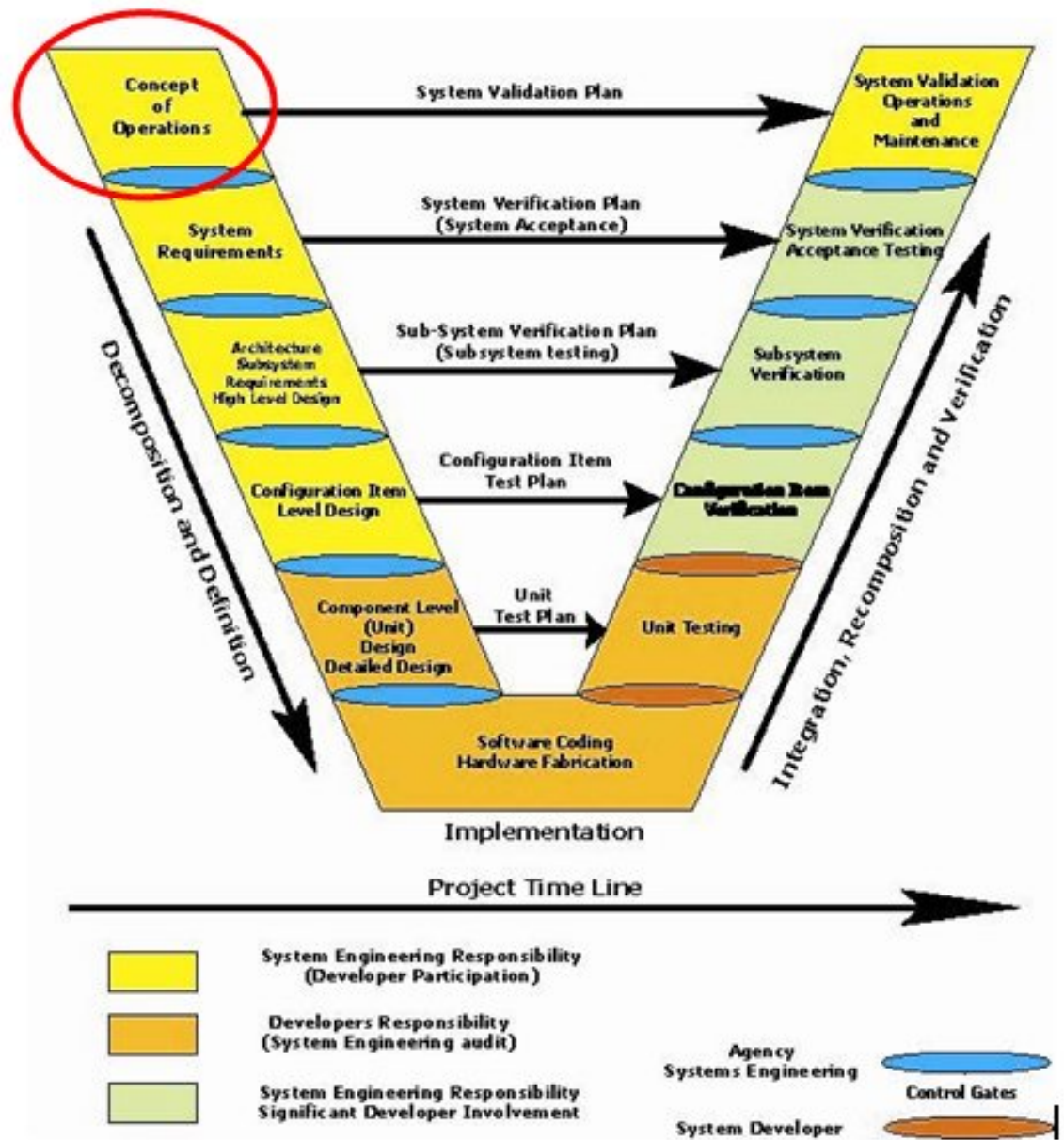
The United States Department of Transportation/Federal Transit Administration made clear upon award to the MSAA Phase I grantees that there would be firm guidelines, document templates, and uniformity of the planning processes, along with technical assistance, to encourage TMCC models follow a structured engineering approach. The diagram on the following page was a visual summary of the structured engineering approach shared with the grantees, with emphasis during Phase I planning on the left hand side of the “V.”

Of particular importance was the *Generic Concept of Operations* template which required the process and documentation of identifying, or defining, certain things very early on such as:

- Scope of the project
- Audience
- Inclusion of stakeholders
- TMCC system boundaries defined
- Functions of the TMCC
- Purpose for implementing the system
- The overarching vision of the system
- Major goals and objectives
- Identifying User Needs

Also included in a grantee’s *Concept of Operations* would be descriptions of operational needs, the operational support environment, operational scenarios and the relationship between the model TMCC and the existing regional or national ITS Architecture. The roles, responsibilities and relationship of the TMCC lead sponsoring agency to the transportation provider network, as well as other interested stakeholders, had to be explored throughout the planning and design process and documented. Additional documents outside the *Concept of Operations* would also be expected for submission to FTA to share emerging design plans with the technical assistance teams and the grant management staff in Washington D.C.

Figure 2: Structured Engineering Approach



Lower Savannah Council of Governments earnestly sought stakeholder input into the system design process and made stakeholder events available to the RTMA partners and regional transportation providers, SCDOT, the state unit on aging, consumers, disability advocates, and various human service agencies.

A nationally recognized and talented team of consultants was also selected to bring technical expertise to the project. The consultants were merged with a few key stakeholders and formed into a Design Team that would meet before and after scheduled stakeholder events in Aiken, South Carolina. Members of the Design Team, for the most part, also traveled to Washington D.C. to partake in FTA workshop activities and once to visit the Lower Savannah Region's Congressional delegations to share news and updates of the MSAA grant award.

The Lower Savannah COG Board is made up of a majority of elected officials from each of the six member counties. LSCOG staff gave regular updates on the project to the Board, which is in support of the development of a regional TMCC. When LSCOG worked with local transit providers to develop regional applications for services under FTA Sections 5310, 5316 and 5317 (transportation and mobility services for older adults and people with disabilities, transportation to work and transportation and mobility enhancements above and beyond the ADA for people with disabilities, respectively), the Lower Savannah Regional Transportation Management Association (RTMA) Policy Committee was the review and prioritization body for those applications and projects. The Policy Committee consists of one member of the local county governing body – usually the chairperson. The Policy Committee voted to establish as top priority for funding requests for technology equipment for transit vehicles and mobility management funding to support the TMCC.

During the project period, LSCOG staff worked with a robust group of elected officials and local leaders in two counties in the region to plan and develop a new coordinated public transportation system to serve both counties in the near future. At each meeting the group discussed the TMCC project and developed plans for service that would incorporate LSCOG as the coordinator for new, proposed service in those counties (Orangeburg and Calhoun). The intent was to make sure that each and every human service or public transportation initiative within the Lower Savannah Region be developed in such a way that it would support the vision of the RTMA and the development of a regional TMCC.

## ***b. Assumptions***

Underlying assumptions for the planning and development of a rural Travel Management and Coordination Center included:

- Based on the success of the local, shared seat, human service/public transportation systems initiated in Allendale and Bamberg Counties in the Lower Savannah Region, a **similar shared seat coordinated transportation model will work in other areas** of the same region. Why? In poor, rural Allendale County; with a total population of 11,000 people, a new public transit system grew out of selling tickets to the public to ride along on available seats on health and human service demand-response vehicles. Aging, Medicaid non-emergency, Disability Board and Rural Health Center vehicles were made available to open seats to the public in need of transportation. A mobility manager, stationed locally, took calls from the public and matched requests for rides with available open seats. Within the first months of service, 109, NEW, unduplicated passengers had become regular riders to work, to medical appointments, or to locations necessary to conduct activities of daily life. *No new vehicles were put into the system.* Through coordination and better use of existing resources, this prototype service demonstrated that new needs could be met and new consumers served at relatively little additional cost.
- After pursuing coordination in the region for about 15 years without total success, LSCOG adopted a second assumption. This time **appropriate technology, adapted for a rural area, could help** to make this project successful. Technology for transit had significantly improved and been upgraded during the past decade; and was more available, affordable and accessible for rural areas. The digital radio ITS project had been highly successful and easy to implement and stakeholders recognized that advances in software and vehicle communications could do more to help their operations and coordination efforts.
- The original RTMA Partners group would be primary stakeholders and would embrace LSCOG leadership and grant efforts to **continue the pursuit of the RTMA “Vision.”**
- **Demand** for human service and public transportation **would** continue to **grow**.
- Any **acquired technology** and system interfaces would be **compatible** with existing or expected ITS Architecture.

- Market research would support the stakeholders’ belief that there are **currently unmet transportation needs**, and perhaps areas of opportunity for the expansion of new services and new revenue for transportation providers.
- **Increased coordination** would need to be sought, and become possible, **with** the new **Medicaid** brokerage systems coming into the state.

### *c. Evaluation*

Monitoring, feedback, technical assistance and evaluation were all components of the MSAA Phase I grantee experience. Project teams from each of the grantee sites were invited to two (2) FTA sponsored workshops during the course of the grant award period. Site visits to Aiken, South Carolina took place over the course of the grant period by the technical assistance team from TranSystems, by an evaluation team from SAIC, and by a USDOT program manager. Grantee sites were asked to keep in touch with their technical assistance teams at least once a month and could call on them to assist with project deliverables. Federal liaisons were assigned and available for consultation. An evaluation plan template was developed for use in case a grantee was fortunate enough to be selected for future MSAA Phase II funding. Battelle consultants were engaged by USDOT/FTA to conduct an “outcomes” evaluation of all the grantee sites. Battelle conducted phone interviews with the site project managers and selected stakeholders at the beginning, mid-point, and end of the grant period.

LSCOG also independently utilized the services of the University of South Carolina Center for Health Services and Policy Research for evaluation purposes. USC CHSPR is a contracted evaluator for the CMS Systems Transformation Grant and the United We Ride Grant, and was contracted by LSCOG to conduct market research – all on behalf of the development of a mobility center or TMCC.

MSAA grantee sites were expected to research their local (as well as national) guidelines for the acquisition of Intelligent Transportation Systems equipment and technology to make sure it was compatible with ITS Architecture during each major stage of TMCC planning.

### **III. RESULTS**

#### ***a. Participating Stakeholders Identified***

##### **Federal Liaisons and Technical Assistance Team**

Technical assistance has been offered to all MSAA grantee sites to assist them in planning their respective Travel Management Coordination Centers. The Lower Savannah Council of Governments has been assigned technical assistance (TA) from the Boston offices of TranSystems. This organization specializes in transportation planning, engineering and consulting. One TranSystems TA provider is familiar with Intelligent Transportation Systems (ITS) and the other TA provider is very involved with human service transportation issues.

Lower Savannah Council of Government also benefits from the assignment of Federal liaisons to the TMCC project. One Federal liaison is from the Administration on Aging in Washington DC and the other liaison assigned to LSCOG is from Federal Transit Administration (FTA) headquarters.

##### **Lower Savannah COG Staff and Board of Directors**

LSCOG's executive leadership and staff in the Human Services Department (which also includes transportation coordination and mobility center programs) are passionate about developing this project and committed to its implementation. The Board of Directors has been kept informed and updated on a regular basis on the TMCC/mobility center project and is supportive of it, recognizing the unmet needs it will address in their respective localities.

##### **Design Team**

LSCOG has been working with a design team since the beginning of work on the Systems Transformation Grant in early 2006. In addition to Lower Savannah Council of Government staff, members of the MSAA Design Team include:

- **Lt. Governor's Office on Aging**  
Deborah McPherson, Program Manager for the CMS Systems Transformation Grant
- **S.C. Department of Transportation**
- Doug Frate, Chief Transit Planner
- Kayin C. Jones – Economic Development Specialist, Div. of Mass Transit

- **RouteMatch Software Inc.**
- Tom Coogan, Vice President Strategic Planning
- Todd Allen, Dir. Business Development & Community Relations
- **American Medical Response**
- Gregg Chiasson, Vice President Client Services
- Mark Kalevik, Director of Business Integration
- **McLary Management**  
Jim McLary, Consultant
- **ISG Solutions**  
Bill Doyle, Consultant

**Regional Transportation Management Association Members (RTMA) Transportation Provider Agencies**

The following agencies currently are transportation operating partners in the Lower Savannah RTMA. Many are also human service agencies, which also offer services and transportation for specialized groups. Regional Transportation Management Association members, both current and future, will serve as ongoing advisors, users and operating partners of any future TMCC.

- **Aiken Area Council on Aging** – provider, under contract, for Aiken County urban and rural public transit and ADA paratransit, Older Americans Act transportation, Medicaid NET transportation, state supplemental aging funds transportation, and other local services.
- **Allendale County Office on Aging**- a provider of Medicaid non-emergency transportation services and an important partner of the Allendale Scooter coordinated transportation program.
- **Allendale Scooter/Bamberg County Handy Ride/Palmetto Breeze RTA** – provider of commuter service to Hilton Head, SC; provides mobility management and operations oversight for shared-seat public transit in Allendale and Bamberg Counties; operates faith-based volunteer driver program for medical transportation in Allendale County; FTA Sec 5310



contract administrator for Barnwell County. Palmetto Breeze has also served as contract provider serving a Medicaid Waiver day-program in Orangeburg County, in partnership with the Bamberg Office on Aging.

NOTE: Palmetto Breeze is the new name for the LowCountry RTA

- **Allendale/Barnwell Disabilities and Special Needs Board** – serves its own clients and makes vehicles available for shared seat transportation of the general public in Allendale County and for section 5310 transportation in Barnwell County.
- **Bamberg County Office on Aging** – a leading provider of public transportation services for the Bamberg County Handy Ride, Medicaid non-emergency services, special dialysis outpatient contract service, and aging services under FTA 5310 and state supplemental aging funds.
- **Bamberg County Disabilities and Special Needs Board** – in addition to serving their own day-program clients, also provides Handy Ride public, shared seat transportation services, using 5311 and other local funds, and 5310 services. In the near future, they will also provide 24/7 transportation to work in the county.
- **Calhoun County Disabilities and Special Needs Board**- serves its own clients and provides services under FTA Section 5310 under contract for the Santee-Wateree RTA.
- **Generations Unlimited** – In Barnwell County provides public 5311 transportation services, Medicaid, DSS employment transportation, and contract services.
- **Orangeburg County Disabilities and Specials Needs Board** – serves its own clients with day programs, provides 5310 contract services for Santee-Wateree RTA and contracts with Santee-Wateree RTA to provide some of its consumer transportation.
- **Santee-Wateree RTA** – provides section 5310 public transportation for people with disabilities and older adults, contract, private pay and Medicaid non-emergency transportation services in Calhoun and Orangeburg Counties. It is also the recommended transit provider for a proposed public transit

system to start up in Orangeburg and Calhoun counties. SWRTA also administers the regional drug and alcohol testing program, open to all LSCOG RTMA partner agencies, and was the only entity in the state to be free of findings in the most recent statewide FTA monitoring of alcohol and drug testing programs among public and human service transportation providers.

**i. Transportation Work Group Members**

The Transportation Work Group was formed as an advisory group in 2006 to assist with the development of a mobility center as part of the CMS Systems Transformation Grant. This 35 member working advisory group has provided technical and operational input and advocacy for the MSAA TMCC project, as well. Members of the Transportation Work Group are representatives from various agencies and organizations including:

- AARP - Director of Grassroots Advocacy and an Executive Council Member
- Aiken Area Council on Aging - Executive Director
- Allendale County Dept. Social Services - Welfare to Work Supervisor
- Allendale County Office on Aging - Executive Director
- Allendale Scooter - Mobility Manager
- Allendale/Barnwell Disabilities & Special Needs Board - Director of Day Programs
- American Medical Response – VP Client Services and Director of Business Integration
- Bamberg County DSN Board – Executive Director and the Finance Director
- Brain Injury Alliance of SC
- Client Assistance Program - Governor’s Office
- Consumers – A mother of an adult child with disabilities and two adults with mobility challenges
- Disability Action Center
- Information Solutions Group - Consultant
- League of Women Voters
- Lowcountry RTA (now doing business as: Palmetto Breeze) – Executive Director

- Lower Savannah Council of Governments – several staff members
- Lt. Governor’s Office on Aging – CMS Systems Transformation Program Manager
- McLary Management – Consultant and United We Ride Ambassador
- RouteMatch Software Inc. – Director of Business Development and VP of Strategic Planning
- Santee Wateree RTA – Executive Director
- Santee-Lynches Council of Governments – Transit/Coordination Planner
- SCDOT – Chief Transit Planner and an Economic Development Manager
- SC Department of Health and Human Services, Medicaid Non-Emergency Transportation Ombudsman
- SC Hospital Association – Executive Director
- SC Independent Living Council – Executive Director
- SC State University Clyburn Transportation Center
- Spinal Cord Injury Association
- University of South Carolina; Center for Health Services and Policy Research
- Walton Options (Center for Independent Living)-two staff representatives

**ii. Additional Target Audiences and Stakeholders**

- a. USDOT
  - i. FTA
  - ii. Region IV FTA Offices
- b. SCDOT
  - i. Office of Planning
  - ii. Division of Mass Transit
- c. Current Technology Providers
  - i. Motorola / Radio Infrastructure
  - ii. RouteMatch Software / Reservations, Scheduling & Dispatch Software
  - iii. SC Access / Information and Referral and Service Tracking Database
- d. Private Transportation Providers

- e. Human Service, Social Service, Employment and Training, Rehabilitative, Health and other Service Providers and Purchasers
- f. Other entities involved in Information and Referral ( i.e. 211), community planning (United Way), road and highway planning (LSCOG Planning Department and Augusta/Aiken MPO), etc.
- g. Elected officials
- h. The General Public

***b. Stakeholder Needs Addressed***

The challenges of, barriers to, needed improvements and unmet needs of Lower Savannah regional transportation and mobility options were outlined earlier in this report under Section I e. “The Problem.” A major objective of the MSAA Phase I grant was to not only identify stakeholders needs regarding a regional TMCC model, but to offer possible solutions to these needs and address them in the system design. Some planned resolutions include:

**Figure 3: Stakeholder Needs and Resolution**

Stakeholder Need or Transportation Barriers	TMCC Proposed Resolution
Lack of consumer knowledge of transportation resources and how to access them	<ul style="list-style-type: none"> <li>• Marketing plan to inform and educate regional riders and consumers of the services offered by the TMCC and ADRC.</li> <li>• Improved access. Provide new methods and means of access to services, including the use of the internet, agent-less and agent-assisted telephone access, and publicized “walk-in” access points.</li> <li>• Provide a single regional telephone number that consumers can use to reach the TMCC center or remote virtual agents. Also maintain existing phone numbers for local providers’ coordinated services that are able to route thru the center, or not.</li> </ul>

Stakeholder Need or Transportation Barriers	TMCC Proposed Resolution
Limited areas of service	<ul style="list-style-type: none"> <li>• The TMCC, as well as the local transportation providers, will have visibility into the regional transportation system and be in a position to reserve available empty seats on vehicles servicing the area.</li> <li>• Uniform agreements from providers will help to eliminate county boundaries and territories of service.</li> </ul>
Limited hours of service	<ul style="list-style-type: none"> <li>• Provide access to consumers to reserve transportation via the internet and telephone 24 hours / 7 days a week.</li> <li>• Provide customer service representatives and dispatchers to answer phones after hours, with the goal of providing 24 hour live customer service as demand increases and more services become available.</li> </ul>
Limited service for some trip purposes or target groups	<ul style="list-style-type: none"> <li>• Provide the opportunity for all consumers to access empty seats in the region.</li> <li>• Remove the barriers that prohibit agencies from scheduling rides and services within a timely manner.</li> <li>• Provide opportunities for next day and same day transportation.</li> <li>• Provide access to all services and resources provided by the ADRC, empowering consumers to access these services in a timely and efficient manner.</li> </ul>
Inefficiencies in coordination trips throughout the region	<ul style="list-style-type: none"> <li>• Transportation providers requiring assistance for intra or inter regional transportation will have options to view, request and utilize one another's vehicles for transportation services and request individualized assistance from additional mobility managers.</li> <li>• The proposed technology will permit the ability to view and reserve open seats for these types of trips.</li> <li>• Uniform cost sharing, billing and reimbursements policies developed among providers.</li> </ul>

Stakeholder Need or Transportation Barriers	TMCC Proposed Resolution
Less than optimal automation of data, ridership, scheduling and reporting	<ul style="list-style-type: none"> <li>• Founding sources (i.e. SCDOT, LGOA, and Medicaid) will benefit from more detailed, accurate, and standardized reports utilizing the technology infrastructure.</li> <li>• All agencies reserving, scheduling, and providing services agree to document and report their unfulfilled and unmet transit requests, knowing TMCC staff will research and identify solutions to mitigate unmet needs by extending and expanding the transportation network serve the needs of the community.</li> </ul>
Lack of scalable technology infrastructure	<ul style="list-style-type: none"> <li>• Technical resources will be upgraded and enhanced to provide a scalable and replicable infrastructure. This includes the telephone system, reservations, scheduling and dispatch system, as well as the technologies for vehicle tracking and communication between driver and dispatch for both demand response and fixed route services.</li> </ul>

The importance of addressing identified stakeholder needs while in the planning stages for both the system requirements development and system design was so great that both written documents submitted to FTA had to contain a Traceability Matrix revealing how and where a stakeholder need had been resolved in the system design and where to locate the confirmation.

***c. Phase I Document Requirements and Document Purpose***

As has been previously stated in Section II Research Methodology, USDOT had a formal, organized, methodical approach to each stage of TMCC planning and design. All MSAA grantee sites were expected to develop and submit certain documents in a timely manner using suggested guidelines, outlines or templates. Direct written feedback from a FTA managed review team was given after the submission of certain documents (*Project Plan, Concept of Operations, System Requirements*).

## **Written MSAA Deliverables Submitted to FTA During the MSSA Phase I Grant Period:**

- ✓ ***Detailed Project Plan:*** Due May 31, 2007 and revised August 24, 2007

LSCOG submitted a written narrative with background information which included a lead agency overview, identified members of the Design Team, the advisory committee, the listing of expected deliverables, and project scope, including the scope of technical services.

There was also a project budget detailing the expenditure of FTA funds and LSCOG matching funds. The final travel budget was higher than originally proposed and ended up being 10% of the total grant award due to the distance traveled by certain Design Team members who were recruited and written into the original MSSA Phase I proposal for their expertise from a national pool of candidates, rather than a local pool. The majority of overall funds were spent on consultant's hourly fees and written deliverable documentation.

The third document of the Detailed Project Plan was the proposed tasks and timelines.

- ✓ ***Concept of Operations:*** Due October 31, 2007 and revised January 18, 2008

This was the largest written document LSCOG submitted to FTA as it needed to contain a vast amount of information. *See* Section II Research Methodology of this Final Report for a description of many of the subject areas to be addressed in the Concept of Operations. Not mentioned in Section II Research Methodology but also an important part of the Concept of Operations, was a high level description of proposed technology for the model TMCC including hardware and software, regional telephone system, vehicle location and communication devices, and integration issues among subsystems as well as integration with the existing Aging & Disability Resource Center. Stakeholder involvement was extensive during the development of this deliverable and again during the final design stages of the project.

✓ ***Systems Requirements:*** Due February 15, 2008 and revised April 30, 2008

This was one of the more “technical” written documents submitted to FTA and LSCOG relied heavily on their technical experts (consultants) for development of this deliverable. The assigned TA team from TranSystems was also called upon for the successful completion of this document. Template guidance was given from an online “Systems Engineering Guidebook for ITS” article written by the California division of the Department of Transportation and posted on the Federal Highway Administration, USDOT website. The website emphasized the following to be included in the Systems Requirement document and they were addressed in the LSCOG submission:

- Scope of the system or subsystems
- Functional requirements of the system or subsystems
- Performance requirements of the system or subsystems
- Interface requirements among subsystems
- Data requirements
- Non-Functional requirements (such as reliability or safety)
- Enabling requirements
- Constraints
- Verification methods
- Traceability Matrix

(<http://www.fhwa.dot.gov>)

✓ ***ITS Architecture GAPS Report:*** Due May 30, 2008

This was also a technical document which LSCOG submitted with reliance on their consulting team. ITS Architecture is not fully developed in South Carolina but there were some stated technologies identified and the Design Team made sure the regional



TMCC model would be compatible with this architecture. USDOT had, previous to this grant, laid out some guiding principles for ITS projects considering the ITS Architecture:

USDOT Rule/Policy Requirements for a Regional ITS Architecture must include:

1. A description of the region
2. Identification of participating agencies and other stakeholders
3. An operational concept that identifies roles and responsibilities of the systems included
4. Any agreements (existing or new) required for operations, including interoperability, utilization of related standards, and operations of projects
5. System functional requirements
6. Interface requirements and information exchanges with planned and existing systems and subsystems
7. Identification of ITS standards supporting regional and national interoperability
8. Sequence of projects required for implementation.

✓ ***System Design:*** Due June 30, 2008

This document revealed comprehensive information on the subsystems, integrations, hardware, software, vehicle location and communication equipment, the regional telephone system and Interactive Voice Response (IVR) functions, and data management as well as the overall functions of the proposed regional TMCC.

✓ ***System Phasing & Implementation Plan:*** Due July 15, 2008

This document identifies exactly who the system designers will be during implementation, staffing plans, and which transportation providers will be participating in the regional TMCC system. LSCOG submitted a document which has a few pre-MSAA Phase II Award activities that will help prepare for deployment (i.e., development of RFPs, recruitment of the Technical Steering Committee, bringing mobility management training classes to the area so local transportation providers can easily participate). The bulk of the work takes place during a 12 month period after the Notice of Award. It is the goal to have all participating transportation providers in the region up and running by the end of the one year grant period. USDOT asked that grantees share their plans for sustainability for *Years Two – Four* and identify additional activities past the Mid-Term and Long Range Phases. Project tasks and schedules are revealed, as well as a description of the interfaces and transition activities during start-up, deployment, and testing and system verification.

#### ***d. Final System Design***

After many months of stakeholder input, research, and planning a Travel Management and Coordination Center model for the rural Lower Savannah Region has been designed and disseminated to participating stakeholders. An overview has been provided over the next several pages. It is exciting to note that all of the original transportation providers that started the MSAA grant process with LSCOG have embraced the final design and decided to participate; as noted in the MSAA Phase II Proposal's Letters of Commitment.

The **Phase I Final Design** is one that will serve the consumers of the entire six county region, provide consumers with “one-call” or “one-click” access to transportation services, provide local literacy to callers by utilizing established local transportation staff resources as “virtual agents” for the TMCC, provide information and referral services as an option to all TMCC callers, and provide passengers with improved mobility options and services with the benefit of new technology.

The system design merges TMCC transportation functions into the existing LSCOG Aging & Disability Resource Center, which also provides the same six-county Lower Savannah Region with human services programs, and information and referral. This design is a “hybrid” of a centralized and de-centralized TMCC model since it uses both a centralized TMCC/ADRC call center with all the functions available, but also smaller, de-centralized, but linked, “virtual” centers in local communities.

The TMCC focuses on leveraging existing regional ITS technologies and linking these systems together and then expanding and/or updating the technology to create efficiency and improve transportation coordination services, as well as human service information and referral. The region's base ITS technologies include:

**SCAccess:** This application database is the primary technology tool that the staff of the ADRC utilizes to provide human services program services and/or information and referral to consumers, and to track and report on services provided.

**RouteMatch Software:** This application database is the primary technology tool that the regional providers utilize to provide, track and report on transportation services performed in the region.

**Palmetto 800 MHz Radio System:** This is the radio infrastructure utilized across the region for the transportation agency dispatch centers to directly communicate with their drivers.

The TMCC will also incorporate new advanced ITS technologies that interface and integrate with the existing technologies. For the TMCC to be successful in the region, the following technologies will be introduced to the region, thus creating a virtual TMCC by linking LSCOG and the regional transportation providers on a shared technical infrastructure. These expanded technologies include:

**Telephone System:** The new telephone system will provide the TMCC with the ability to serve as the primary access point in the region for consumers to access transportation and human service information and referral services. This technology will be capable of recording and reporting call center statistical data and information and connecting and transferring calls to partner agencies performing services in the region. It will also support the Integrated Voice Recognition System in making outbound calls for appointment reminders, weather emergency information, etc.

**Integrated Voice Recognition (IVR):** The IVR system will provide consumers in the region with the ability to select the services they are requesting in a timely and orderly manner. The IVR system will provide the consumer with the self-service capabilities to reserve, confirm and cancel transportation services. The IVR system will be integrated with both the Telephone System and the RouteMatch System to enable real time reservations with automated confirmation, day before call out reminders for consumers with scheduled and confirmed transportation services, as well as pre-arrival notification when the actual vehicle is en route to their pick-up location.

**Internet Access:** Currently, consumers in the region have access to information regarding the human service programs in the region. The TMCC will expand this service to include internet access to reserve transportation services. The transportation web ordering system is directly integrated into the RouteMatch system. Transportation requests will be scheduled with confirmation acknowledgement being communicated electronically to the consumer.

**Human Service Information and Referral:** As previously mentioned, the SC Access System is currently a key ITS element in the region for human service information and referral. The TMCC expands the use of this information by linking the data through the data warehouse technologies with the other expanded and base technologies. This will provide the stakeholders of the project a single access point to view and report on utilization and services provided in conjunction with transportation services in the region.

**RouteMatch System:** The TMCC expanded technologies includes upgrading the core RouteMatch technology platform to the most current version. This provides the platform to add the transportation web access portal, IVR integration and the coordination model. The design also outlines the infrastructure for LSCOG to host the system locally at the LSCOG data center.

**Fixed Route Technology:** The fixed route technology, which is directly integrated in the demand response application, will be provided by RouteMatch Software. The fixed route technology RM CAD/AVL will provide real time tracking and schedule adherence for the fixed route service in Aiken County. Additionally, the status of vehicles performing the fixed route service will be available for consumers at the primary transfer center which is the Aiken Area Council on Aging.

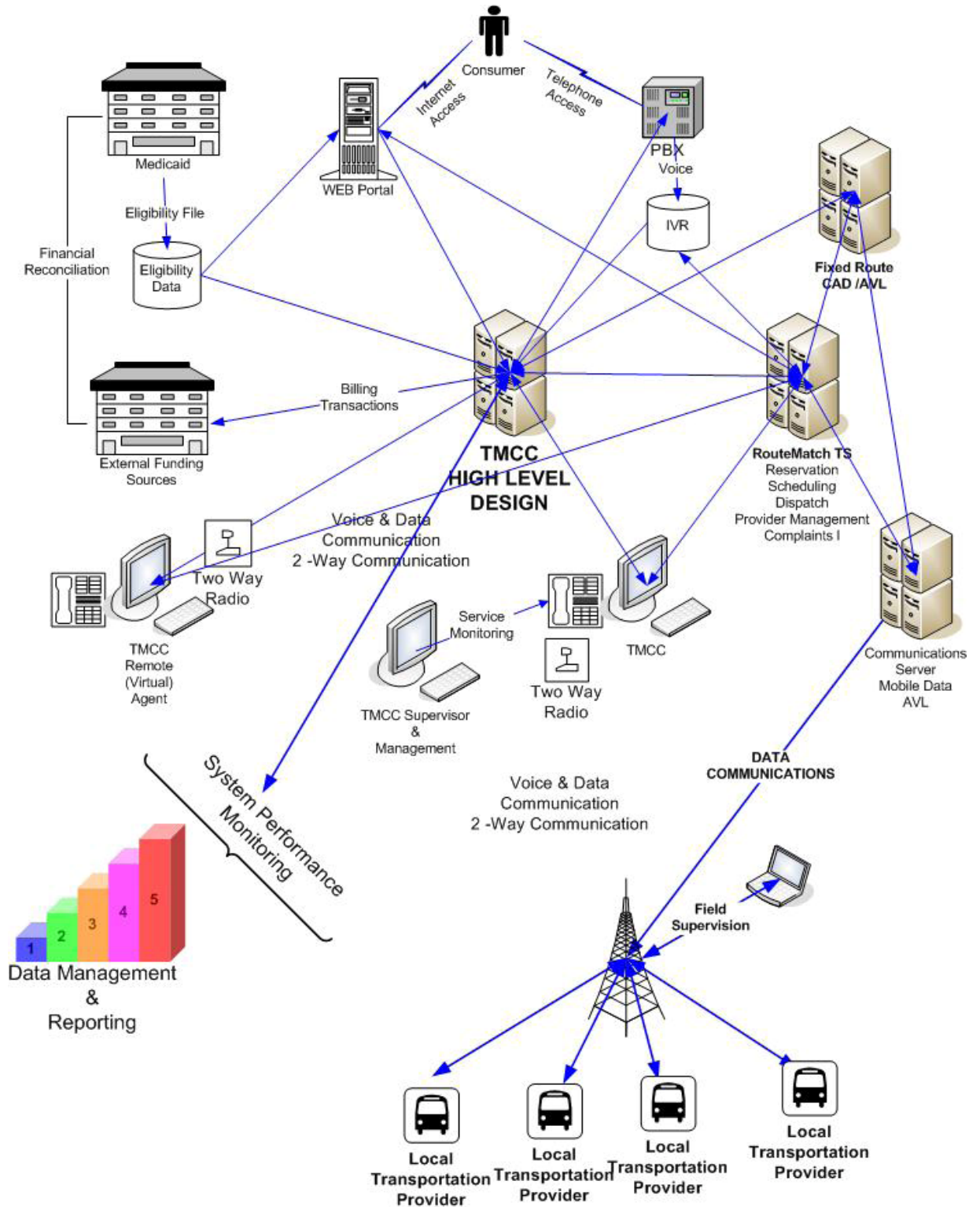
**Vehicle Communications:** Automated Vehicle Location (AVL) and Mobile Data Computers (MDC) will be installed into both the demand response and fixed route vehicles providing services for the TMCC. This will allow the TMCC to view in real time the status and location of the vehicles. Additionally, this will allow dispatchers to communicate trip information electronically to the driver. The driver will interact with the devices installed in the vehicle to electronically submit when trips are performed, cancelled at the scene and in cases when the consumer does not show up for the trip. This technology will allow the TMCC to expand and increase service in the region to same day service and utilize the closest most appropriate vehicle, further increasing efficiency and decreasing costs.

**Medicaid Brokerage Integration:** The Department of Human Services currently has contracted with a regional Medicaid broker. The TMCC will establish an electronic

interface between the RouteMatch system and the Medicaid Brokers technology. This integration will provide the Medicaid Broker the ability to electronically transmit demand response (next day) and standing order (recurring) trips to the TMCC for coordination within the region. The regional transportation provider that is assigned the trip will have the ability to electronically submit the completed trips details and invoice electronically to the Medicaid Broker.

**Data Management and Reporting:** The TMCC will build a data warehouse where the data from the proposed technologies will be centrally aggregated and stored. The data will be linked together for stakeholders to view and receive reports on all the services being provided by the TMCC. The need for consistently “accurate” data collection methods was a key stakeholder need identified during the design input meetings. The data warehouse infrastructure and reporting capabilities will include the services provided by both the ADRC and regional transportation providers.

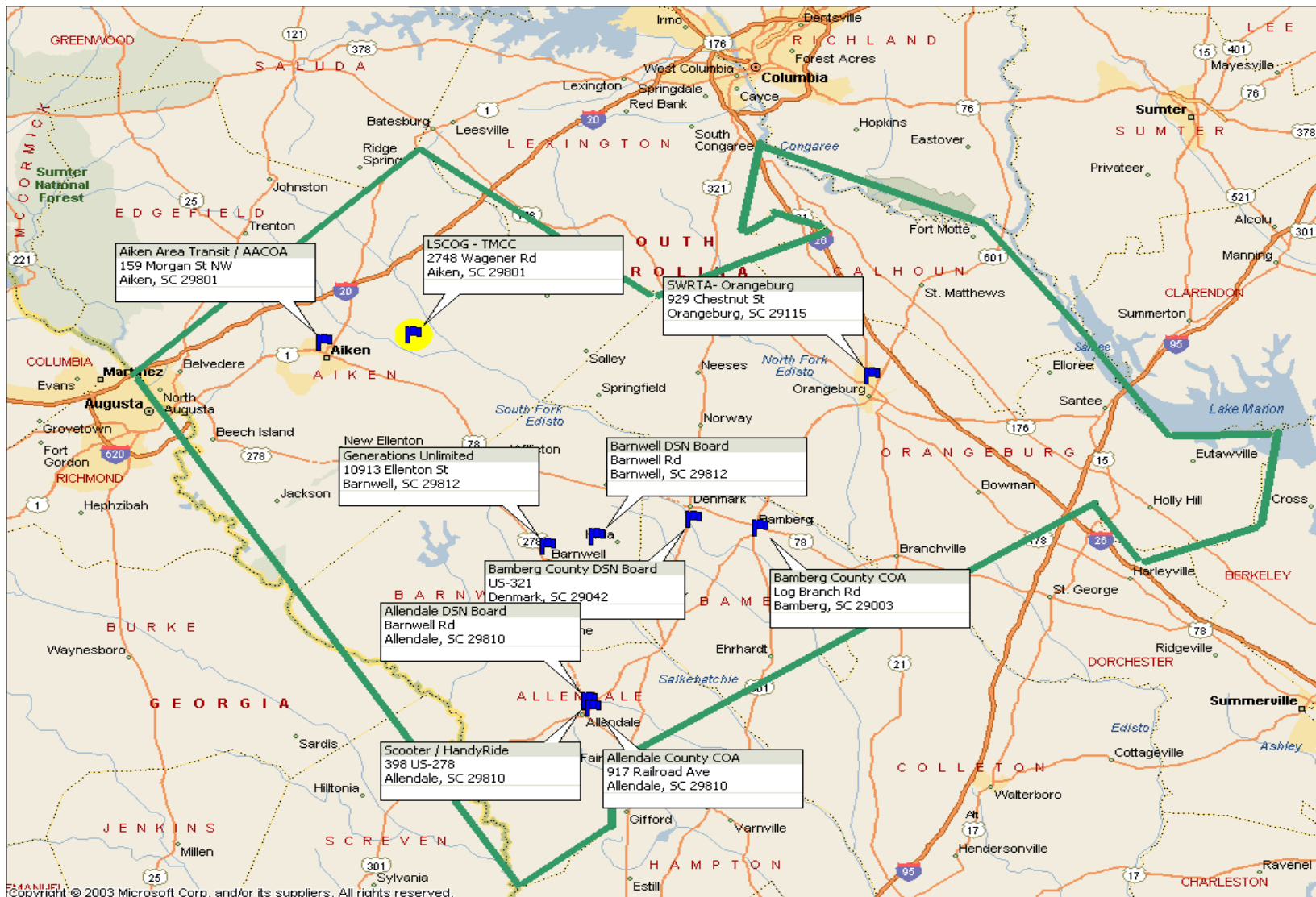
**Figure 4: High Level TMCC Design**





The following diagram represents the physical location of the TMCC partners. Palmetto Breeze is not represented in this diagram. Palmetto Breeze coordinates some services in Allendale & Bamberg Counties; their main office is located outside the region in Bluffton, South Carolina. The LSCOG service area is approximately 3,945 square miles; serving an approximate population of 300,666.

**Figure 5: TMCC System Locations**



## IV. CONCLUSION AND RECOMMENDATIONS

The MSAA Phase I demonstration project concluded with original grantee sites being able to respond to a Request for Proposal (RFP) by July 31, 2008 to compete for the funding dollars to assist them implement their TMCC system design. Lower Savannah Council of Governments fully participated in this opportunity and submitted a proposal that outlined:

- The final system design for the Lower Savannah Region.
- ITS and technology needed for the system design and transportation coordination.
- Identified stakeholders at various levels, including human service transportation providers who were committed to participating in the TMCC and will embrace the new technology and procedures -- even offering to serve as a remote TMCC site with a virtual agent, if needed.
- Funding sources for the TMCC, including three years of sustainability after the 12 month MSAA Phase II grant concludes. The final design/proposal included letters of financial commitment.
- Letters of Support from various advocacy groups, 211, Veterans Administration, elected officials, SCDOT, and the Lt. Governor's Office on Aging.
- Staffing plans and roles and responsibilities.
- Project plan and task schedules.

The following pages will share some information, "lessons learned" or suggestions and are offered in an attempt to assist the reader who may wish to pursue coordinated human service transportation initiatives in their own community.

### *a. Assistance is Available*

Human service transportation coordination is not a new idea and has been discussed among transit providers and consumers for several years. Is anything different now?

It appears that in the current environment there is an increased desire among transportation providers and funding sources to coordinate trips as they face fiscal challenges and rising fuel prices. In South Carolina, as in many other states, there is also the recent emergence of a Medicaid transportation brokerage program which has had a profound impact on the way non-emergency medical transportation is delivered to Medicaid beneficiaries in this state and the



ability of current human service transportation providers to successfully keep their original “book of service” and revenue streams. Local transportation providers in the Lower Savannah region are committed to improving their bottom line, improving their ability to deliver transportation services to consumers, and are ready to embrace business practices and technology that may enable them to do both.

There has also been some national organization and policy efforts to advocate for human service transportation coordination that has been effective in getting the issue before policy makers, decision makers, providers of transportation, transit consumers and their advocacy groups. There has been the emergence of national organizations that offer technical assistance, training, and conferences on topics/issues that promote effective transportation coordination. Examples of such organizations that Lower Savannah Council of Governments has availed themselves of over the course of the last few years to assist with coordination efforts and learn about best practices include:

- United We Ride ([www.unitedweride.gov](http://www.unitedweride.gov))
- National Center on Senior Transportation ([www.seniortransportation.net](http://www.seniortransportation.net))
- Easter Seals Project ACTION ([www.projectaction.org](http://www.projectaction.org))

USDOT/FTA have also been successful in mandating regional transportation coordination planning take place before funding for certain transit programs like Section 5310, 5316, and 5317 can take place. The reader should make sure to check with their own state Department of Transportation to learn of such planning and funding opportunities.

*Transportation coordination* and *mobility management* are now “buzz words” before the transit community and in front of various stakeholders and this has made it easier to pursue these concepts within our local communities. Mobility management concepts and strategies have been helpful in developing transportation coordination and several papers and briefs have been written about mobility management. TCRP Report 21 defines a mobility manager: “A mobility manager is a transportation organization serving the general public that responds to and influences the demands of the market by undertaking actions and supportive strategies, directly or in collaboration with others, to provide a full range of options to the single-occupant automobile.” (Mobility Managers: A Toolkit, 2005) Human service transportation coordination and shared seat programs are one of the “supportive strategies” that has been taken in “collaboration with

others” to serve the general public and certain target populations to provide an additional mobility option.

A major goal of human service transportation coordination is to have communities coordinate transportation resources, provided through multiple Federal programs, to enhance transportation access and minimize the duplication of services. To assist in that effort, USDOT has allowed mobility management to become eligible as a Federal “capital expense” supported with 80% Federal public transportation funding, when mobility management efforts are undertaken with certain FTA transit programs. “Mobility management may consist of short-range planning and management activities and projects for improving coordination among public transportation and other transportation service providers – it can include personnel and technology activities.” (FTA Authorization Fact Sheet: Human Services Transportation Coordination)

The American Public Transportation Association (APTA) and the Community Transportation Association of America (CTAA) are supporting organizations that can provide guidance on transportation coordination and mobility management. Lower Savannah Council of Governments has also benefitted from free mobility management training opportunities offered by the National Transit Institute (NTI) ([www.ntionline.org](http://www.ntionline.org)).

LSCOG has also been able to plan on funding for the new TMCC by utilizing mobility management funding opportunities (including the purchase of technology) from the Job Access Reverse Commute (JARC) and New Freedom transit programs at the 80/20 match ratio referred to earlier in this section.

All of the above referenced resources are a great place to start any transportation coordination research and efforts, in either a rural or an urban community.

### ***b. Stakeholder Involvement***

The importance of stakeholder involvement in this MSAA project cannot be over emphasized. Even if stakeholder involvement had not been strongly encouraged by the USDOT/FTA project management team, it would have been essential given the nature of the Lower Savannah Regional TMCC. The proposed Travel Management and Coordination Center and the coordinated regional transportation network is based on teamwork and cooperative

relationships among the LSCOG and partnering transportation providing agencies serving the region. Our stakeholders proved to be passionate and strongly supportive of the project.

Again, Lower Savannah Council of Governments is primarily a non-profit planning and coordination organization and not an operator of transportation services. While the agency is a Direct Recipient of certain transit funds, it uses those funds to provide transit service through contracts with transit operators. Each of the participating transportation and human service providers involved in the proposed TMCC system is an independent, autonomous organization which agrees to work with LSCOG and fellow transportation providing agencies to embrace a more formal, organized, and regional approach to service delivery and coordination. LSCOG has served the region as an agent of change, advocacy and leadership and that role has been earned through a history of cooperative relationships with local transportation providers and agencies seeking to purchase transportation.

One of the keys to the successful launch of new transportation initiatives and increased transportation coordination in the Lower Savannah region was the presence of a “champion.” Lower Savannah Council of Governments decided several years ago that it would “step up to the plate” and take on an active role as leader and facilitator of transportation coordination and enhancement in the region and carry out the responsibilities that would entail. One of the conclusions drawn from experience and stakeholder input is that there needs to be an organization to take the lead in providing facilitation for teamwork and progress towards common goals. It is important to have an organization to take on the responsibility for such tasks as setting up meetings (finding a meeting date, a meeting place, getting the word out, developing an agenda), taking notes, tracking attendance, and disseminating information. Each stakeholder meeting will result in “action steps” and the lead agency must do the necessary follow up to make sure those action steps are completed before the next scheduled meeting – or soon the process loses credibility and busy participants decide that stakeholder group events are not worth their time to attend. The lead agency should be seen as neutral, or at least “fair” in its self-interest and its desire to promote the interests of all the other stakeholders. The lead agency must be prepared to devote an adequate amount of time and resources towards the cooperative effort. In the LSCOG TMCC design process, inclusion of all interested parties was also important to the success of the process.

Lower Savannah Council of Governments worked hard to identify a broad stakeholder base and solicit the participation of those stakeholders (see Section III a. for the results of stakeholder recruitment). LSCOG worked with a statewide advisory committee, a broadly-based “Transportation Work Group,” which functioned as an advisory committee specifically on the TMCC development. LSCOG also had a working group of partnering transportation providers, including the RTMA Partners Group and the RMTA Policy Committee, which was composed of elected officials from each county in the region. Additionally, LSCOG hosted regional meetings with SCDOT during the design period time frame to elicit input for the Regional Coordination Plan, and hosted meetings and focus groups in local areas to allow for more citizen input. Service agencies and advocacy groups had a particular interest in the design of the TMCC and saw it’s potential to help their clients or members improve access to needed services for both employment and for independent living in local communities.

It was a challenge to work with several large groups over an extended amount of time, of course. One of the keys to success was making sure that sub-groups and committees were formed and that they had opportunities to meet and work in between large stakeholder events.

It was important to keep up with any changes in the personnel assigned to attend meetings within stakeholder agencies and organizations, and to bring the “new” person up to speed on an individual basis.

It was also important for a couple of the lead agency, or design team, members to meet on a more private basis with key stakeholders. LSCOG was aware that the dynamics of large meetings is such that ideas held by individuals would not always be shared in that setting, and that opportunities for LSCOG to learn of those thoughts and ideas still needed to be sought. Lower Savannah Council of Governments took several occasions to approach stakeholders on an individual or sub-group basis at crucial junctures throughout the grant. One example was the April 2008 “road trip” organized by LSCOG. Two LSCOG staff and one consultant member of the design team took an entire week to travel to each transportation provider’s base of operations to share the emerging TMCC system design and to learn if they still agreed with the collaborative group design or if they had suggestions for change, or even areas of concern. One day of that road trip week was devoted to catching up a few members of advocacy groups that LSCOG noticed had not been able to attend a critical meeting in Aiken and ask for their more recent input.

Lastly, the MSAA grant experience required a number of written documents (see Section III c.) be developed. Some of those documents became lengthy and/or technical and were not always of interest to each busy stakeholder. LSCOG always made the full document available for dissemination but would often produce a shorter “executive summary,” or PowerPoint, or handout that seemed to be appreciated and utilized by a number of the participants.

Lower Savannah Council of Governments is reassured they have produced a TMCC system design that is a reflection of the region’s desires and needs and one that will be fully embraced by the participants, as a result of the intensive stakeholder involvement undertaken during this grant. LSCOG adopted and followed the philosophy often brought forward by disability advocacy groups and applied it to transportation stakeholders in the region: “Nothing about us without us!”

### *c. Role of Technology*

One of the main objectives of the MSAA Phase I planning grant was to develop a model Travel Management and Coordination Center that utilized appropriate Intelligent Transportation Systems (ITS), that were compatible with the regional or national ITS Architecture, and that would enhance transportation coordination efforts within a community.

Lower Savannah Council of Governments, with the assistance from consultants on the design team, explored a number of technologies currently available in the transportation workplace. Special attention was paid to technology that was compatible with ITS Architecture, technologies that met user needs, technologies that could possibly be integrated with existing technology, and technology that would serve as an enabler for coordination. These technologies are briefly referenced in this document (Section III d.), and referenced in detail in several of the MSAA Phase I grant deliverable documents.

One of the challenges of choosing technological functions for the Lower Savannah regional TMCC was working within budget constraints. There are so many “bright and shiny objects” to choose from that it is easy to lose sight of the difference between want – need and the ability to pay! One possible solution to a user need for better fare management was “swipe card” technology. This technology was listed by stakeholders as desirable, but was also listed as a “low priority.” The priority rating was fortunate because the final decision was to table this

technology due to its cost verses its benefit. This technology will remain on the “wish list” for future regional transportation development.

Another technological solution considered, but ultimately rejected by LSCOG, was using the Palmetto 800 MHz system for data communication. While the Lower Savannah regional transportation providers are very content using this Palmetto system for their radio voice communications, using that same system for data communication is rather restricted and costly to get around those restrictions. As a result, the TMCC design will utilize a wireless solution using a provider that offers the best cell phone coverage for region -- always a challenge in a rural setting.

Ultimately, with input and direction from the stakeholders, LSCOG developed and submitted a comprehensive TMCC model design that will provide increased automation, ease of access for consumers, the ability for interagency transportation coordination, and accurate data collection. The design provides the opportunity to significantly reduce duplication of effort in arranging and providing transportation services and provides the means to track and address the unmet needs in the region.

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