Mobility Services for All Americans (MSAA): The Intersection of Coordination and Technology

Carol Schweiger, President
Schweiger Consulting LLC
September 7, 2016
Outline

- Background and History
- Intelligent Transportation Systems (ITS)
- ITS and Human Service Transportation (HST)
- Travel Management and Coordination Center (TMCC)
- Best Practices
- Resource Links
Introduction and History

- Prior to 2004, FTA and DHHS Coordinating Council
- Feb. 2004: Executive Order on Human Service Transportation Coordination (Executive Order 13330)
- 2005: Mobility Services for All Americans (MSAA) as part of United We Ride (UWR)
- 2006-14: MSAA Foundation Research, Phase 1 and Phase 2
- 2015: Selection of New MSAA Grantees
MSAA Program

- **Goal**: Utilize service coordination and technology integration
  - Increase mobility and transportation accessibility for transportation disadvantaged and general public
  - Achieve more efficient use of Federal transportation funding resources

- **Two current initiatives to support goal**:
  - MSAA Deployment Planning Technical Assistance and Management
  - MSAA Knowledge and Technology Transfer (KTT)
MSAA Deployment Planning Initiative Objectives

- Overcome technical and institutional barriers to promote system interoperability
  - Involve at least two human service transportation programs and providers
  - Establish operational data sharing and coordination between multiple technology platforms
  - Demonstrate functional common fleet information platform to, at a minimum, view each other’s trip scheduling and vehicle location information in real time
MSAA KTT Initiative Objectives

- Disseminate information to transportation and mobility professionals in rural and metropolitan areas to more efficiently and effectively manage HST
- Assemble and package practical information gained from MSAA and Veterans Transportation Community Living Initiative (VTCLI) initiatives:
  - Methods, experiences and best practices
  - Tools developed
  - Lessons learned
MSAA KTT Initiative Objectives (cont’d)

- Disseminate awareness of MSAA Initiative and key concepts to relevant public and private mobility and HST practitioners through:
  - Increasing number of agencies aware of and participating in MSAA KTT activities
  - Providing necessary tools for agencies to consider, plan, develop and deploy MSAA key concepts
  - Increasing number of agencies who successfully adopt MSAA concepts
Intelligent Transportation Systems (ITS)

- Clear role for ITS in HST
- Contributes to greater efficiency
- Facilitates coordination and enhances accessibility
Common ITS in Coordination

- Fleet scheduling, dispatching and routing systems
- Travel Management Coordination Center (TMCC) customer interface (e.g., telephone, IVR, internet, etc.)
- Better traveler information and trip planning systems, particularly for customers with accessibility challenges
- Vehicle communications (e.g., mobile data computers/terminals and other mobile communications devices)
Common ITS in Coordination (cont’d)

- Automatic vehicle location (AVL) and other systems to assist operations of demand-response door-to-door service
- Integrated fare payment and management (payment, collection, and processing) systems
- Eligibility certification and billing systems
ITS Implementation Challenges

- Many past ITS deployments:
  - Have been delayed
  - Failed to fully meet expectations
- User needs not clearly articulated
- Failure to engage stakeholders early enough in process
- Lack of a champion to move effort forward
- Lack of understanding / appreciation for potential institutional and technical barriers
- Overselling of benefits
ITS Implementation Challenges (cont’d)

- Failure to benefit from experience of others
- Perception of technology looking for a solution
TMCC Overview

- Replicable/Scalable Travel Management Coordination Center (TMCC):
  - Provides one-stop, unified, customer-based travel information and trip planning services
  - Supports coordinated human service transportation
TMCC Concept

The MSAA—Improving transportation services and access with a single call.
TMCC Vision

- Interoperable system that adds value to customer, service provider and human service program

<table>
<thead>
<tr>
<th>Customer</th>
<th>Provider</th>
<th>Human Service Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Simplified access</td>
<td>• Operational efficiency</td>
<td>• Streamlined program management, billing, and accounting</td>
</tr>
<tr>
<td>• Trip planning</td>
<td>• More service (rides) with same costs &amp; resources</td>
<td></td>
</tr>
<tr>
<td>• Information</td>
<td></td>
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</tr>
</tbody>
</table>
TMCC Solution

- Coordinated one-stop, customer-based travel reservation, information, and trip planning service
- Mechanism for integrating technologies
- Essential component in delivering coordinated human services transportation management and operations across various:
  - Social welfare programs and service providers
  - Modes
  - Geographic areas
TMCC Benefits

- Provides human service agencies ability to coordinate transportation needs across service providers and modes

- Gives transportation providers:
  - Methods for matching schedules and capacity with requests
  - Ability to efficiently process financial transactions
  - Opportunity to eliminate redundancies
  - Tools to ensure security and customer eligibility to use services
Intended Outcomes of MSAA

- Enhance customer experience
- Improve effectiveness and efficiency of services being provided by different transportation providers
- Produce sustainable institutional model(s) enhanced by information technology
- Data sharing by addressing institutional barriers
- Utilization of Intelligent Transportation Systems
Intended Outcomes of MSAA (cont’d)

- Advance the state-of-the-art in:
  - Comprehensive traveler support
  - Interoperable and coordinated transportation service operations and management
  - Streamlined program management requirements

- Data sharing and exchange within HST

- System interoperability by leveraging existing proprietary solutions
Overall Human Service Benefits

- Provides choice in personal mobility:
  - Access to healthcare and jobs
  - Access to social welfare programs
  - Better transportation connectivity
- Encourages inclusiveness
- Provides equity of service delivery
Technology Appropriate?

- Understanding technologies is first step in determining if deployment of technology appropriate
- Several resources available to learn about technologies
Overview: User Needs

- Know what customer wants and how system being developed must perform
- Requires identifying user needs and external factors that influence technology deployment
  - “User” means anyone who will interact with new technology system
  - Could be:
    - **Customer** traveling using an agency’s transportation services
    - **Agency staff** who will be using new technology
    - **Other individuals** who will interact with new technology (e.g., caregivers, social service agency staff, medical office staff)
Overview: Functional Requirements

- Determine functionality required to meet users’ needs
- Define “what” technology system is required to do versus “how” technology will work
- Often used in procurement to purchase software and hardware that meets requirements
Overview: Next Steps

- Studying various system alternatives and determining preferred solution
- Verify solution using rigorous process that ensures that solution:
  - Meets user needs
  - Meets functional requirements identified earlier
Successful Technology Project

1. **Requirements Analysis and Baselineing**: Know what users want and how system must perform
2. **Functional Analysis and Decomposition**: Determine desired functionality of system to meet users’ needs
3. **Alternatives Analysis**: Study various system options and determine preferred solution
4. **System Validation and Verification**: Verify preferred solution
Why Use Structured Approach?

- Stakeholders or users define what system should do (not how it should do it) and manage these “system requirements”
- Need to identify and minimize risk
- Components of technology system integrated from physical and organizational perspective
- Helps you manage complexity
- Enhances communication and system understanding
- Must verify that system meets users’ needs
Three Concepts in Structured Process

- Use a combined top-down/bottom-up approach (as shown on “Process Overview” slide)
- Focus on stakeholders/users’ needs, NOT technology
- Scale your process to the size and complexity of the project
Process Overview

What the stakeholder needs

System that meets stakeholder needs efficiently and economically

What the technical and the operational environment can support
1. Needs

- One or more of the following:
  - Problem to be solved
  - Process to be improved
  - New capability

- Critical that system users define needs

- Anyone could identify needs, but users can best articulate what is necessary for system to function

- For example, users may describe needs that reflect how they envision interacting with system
2. Needs -> System Requirements

- System requirements: what system must do or deliver
- Once system requirements are developed, project team keeps track of each requirement – called “traceability”
  - Need to confirm that requirements derived directly from user needs
  - Requirements may change over life of project
  - Need way of documenting changes, reasons for change and status of each requirement throughout testing process
3. Technology Alternatives

- Used to meet system requirements
- Once alternatives identified, evaluate and select alternative that best meets requirements
- Can use variety of factors to perform alternatives analysis including cost, ease of use and maturity of technology
4a. Procurement

- System built consisting of functions identified in Step 2 using technology alternative defined in Step 3
- Most likely, system will be developed by a vendor, meaning that you will need to procure a vendor’s services
- Key elements of procurement and resulting vendor contract on following slides
Procurement Key Elements

- Provide potential vendors with system requirements
- Ensure that vendors can meet those requirements
- Define process that vendor must use throughout project to ensure:
  - They are delivering system that meets users’ needs
  - Project is on-time and within budget
4b. Implementation Process

- Maintain system requirements matrix noting status of each requirement throughout project for traceability
- Conduct bi-weekly conference calls or meetings with vendor to discuss project status and action items
- Define and execute iterative testing to ensure:
  - System components work as they were intended
  - All components work together as a system
  - All requirements are met and can be accepted by your organization
Benefits of Structured Approach

- Reduces time required to move from concept to deployed systems
- Ensures that system meets users’ needs
- Reduces cost of deploying systems
- Ensures that number of “change orders” is minimized
- Reduces risks associated with system development
Structured Approach Benefits (cont’d)

- Improves system quality, reliability, and performance
- Improves communications among team members and vendor during design and development
- Improves ability to sustain and upgrade systems in the future
2015 MSAA Deployment Sites

- Northwest Metro Denver Coordination System – Via Mobility Services
  - Expanding Via Mobility Services to other communities within NW Denver Metro Area. Building on VTCLI Trip Exchange Project

- San Luis Obispo County TMCC - United Cerebral Palsy of San Luis Obispo/Ride-On Transportation
  - Enhancing personal mobility using Common Fleet Information Platform through TMCC’s real-time Ride Coordination System (RCS) across county

- Simply Get There Trip Triage Design – Atlanta Regional Commission
  - Atlanta region Travel Management Coordination Platform (TMCP). Developing open-source TMCP designed for complexity of HST trip transactions
Coordination of General Public and Human Services DRT: Via’s MSAA Project

Lenna Kottke, Executive Director
Via Mobility Services
Boulder, Colorado
Via Mobility Services

- A private non-profit agency founded in 1979
  - promoting independence and self-sufficiency
  - for people with limited mobility
  - by providing caring, customer-focused transportation options

Via Paratransit Services (VPT)

- On-demand, door-through-door, shared ride
- 135,000 passenger trips annually
- 2,700 riders
- 19 communities in 5 counties
- Funded by grants and donations
- Curb-to-curb demand-response for general public
- Suburban communities with lower density
- Defined service area boundaries
- Timed connections with Park-n-Rides
- Riders call drivers directly; drivers schedule trips
- Contract service fully funded by RTD

- Mandated by Americans with Disabilities Act (ADA Paratransit)
- Complementary to fixed route
- Three regional providers; Via operates 25% of service
- Trips scheduled by First Transit Call Center
- Contract service fully funded by RTD
Longmont Coordination Project

- Initiated in September, 2010
- Goal: Use automated, mobile electronic manifests and communication technology to coordinate independently run demand-responsive services in Longmont, Colorado
- Expected Outcomes:
  - Increase individual trips and service availability
  - Maintain or reduce number of vehicles while increasing ridership
  - Maintain or decrease the cost of service while increasing ridership
  - Develop a model that can be used for other locations
### Longmont Pilot Project Performance

<table>
<thead>
<tr>
<th>Average Weekday DRT</th>
<th>2010 Before</th>
<th>2012 After</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RTD Call-n-Ride - 3 vehicles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boardings</td>
<td>76</td>
<td>146</td>
<td>92%</td>
</tr>
<tr>
<td>Vehicle Hours</td>
<td>21.5</td>
<td>31.8</td>
<td>48%</td>
</tr>
<tr>
<td>Boardings/Hour</td>
<td>3.5</td>
<td>4.6</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Total CnR &amp; Via - 3 CnR + 6 Via = 9 vehicles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boardings</td>
<td>157</td>
<td>214</td>
<td>36%</td>
</tr>
<tr>
<td>Vehicle Hours</td>
<td>71.3</td>
<td>76.8</td>
<td>8%</td>
</tr>
<tr>
<td>Boardings/Hour</td>
<td>2.2</td>
<td>2.8</td>
<td>26%</td>
</tr>
</tbody>
</table>
MSAA Project Goal

• To easily transfer trips between multiple human service transportation providers and general public call-and-ride services.
  • Reduce duplication of services
  • Make best use of all resources
• To build on Longmont pilot coordination project and extend it to other locations by addressing key issues:
  • Institutional
  • Technical
  • Scaling
MSAA Project Team

Providers

• Via Mobility Services (Boulder and rural Adams counties)
• RTD
• Broomfield Easy Ride (City and County of Broomfield)
• Seniors’ Resource Center (north Denver region)

Vendors

• RouteMatch (Via Paratransit)
• DemandTrans (RTD Call-n-Ride)

Others

• TransitPlus (Project Manager)
• Denver Regional Mobility & Access Council
• Colorado Department of Transportation (CDOT)
• Federal Transit Administration (FTA)
MSAA Project Approach: Institutional

- Identify practical issues re: exchanging trips
- Identify differences in business rules, data, standards, etc. limiting information exchange
  - Reach consensus on how to address each
- Where definitions and data standards are an issue:
  - Work with others to identify common answers to common problems
- Result: Governance policies and protocols
Overcoming Institutional Barriers

- CnR general public vs. human services clients
- CnR curb to curb vs. door to/through door, driver assisted service
- Boarding time: CnR 2 min. vs. HST 5-7+ min.
- Similar, but different vehicles and drivers
- Seat belts, child seats: CnR none vs. HST mandatory
- Fares: CnR local bus vs. Via fares vs. donations
- Funding sources, invoicing & accountability
MSAA Project Approach: Technical

- Extend Longmont “Concept of Operations”
- Provide for a high level of automated exchange of data and reduce manual intervention requirements:
  - Define the basic functionality of a data hub
  - Select appropriate technology
- Develop software interfaces for RouteMatch and Mobility DR applications to connect to the hub
  - Use common definitions and specifications
  - Address functional requirements of all stages of service provision
New MSAA Data Exchange Project

- Address institutional, technical, sustainability and scaling problems
- Establish business rules
- A set of web-based interfaces and messages:

  - Trip Data Exchange Hub
    - Trip reservation request
    - Pending trip requests
    - Trip scheduling acceptance
    - Requestor cancellation
    - Trip execution
    - Trip status request

  - Access-a-Ride
  - Via
  - Senior Resources Center
  - Call-n-Ride
  - Broomfield Easy Ride
San Luis Obispo County, CA
Travel Management Coordination Center (TMCC)
Federal Transit Administration
Mobility Services for All Americans (MSAA) Initiative

April 2016
San Luis Obispo County TMCC/ MSAA Project

Project Objectives

• Vision:
  • Use technology to develop methods for social service rider to see public and private transportation options
  • Make it easy to schedule selected ride

• Focus:
  • Development of cooperative agreements between public, human service, and private transportation providers
  • Development of system that can be used by all riders and agencies

• System will be developed in phases
San Luis Obispo County TMCC/ MSAA Project

Project Partners

• United Cerebral Palsy of San Luis Obispo County/ Ride-On Transportation
• San Luis Obispo Regional Transit Authority (RTA)
• San Luis Obispo Council of Governments
• RouteMatch Software
• Community Health Centers
• San Luis Obispo Regional Rideshare
• San Luis Obispo Safe Ride
• Local Taxi/Shuttle Service Providers
• Local Human Service Agencies
San Luis Obispo County TMCC/ MSAA Project

**TMCC Advisory Committee Stakeholders**

- United States Department of Transportation (USDOT), Federal Transit Administration (FTA)
- California Department of Transportation (CalTrans)
- City of San Luis Obispo (SLO Transit)
- CenCal Health (Medi-Cal)
- Cal Poly State University – San Luis Obispo
- United States Department of Veterans Affairs
- USDOT/Federal Highway Administration (FHWA)
- Amtrak
- Others as appropriate
San Luis Obispo County TMCC/ MSAA Project

MSAA Successes

- Ride-On had strong relationships with social service agencies
- Private transportation providers wanted more social service rides
- Active public feedback system to listen to the TMCC needs from riders and organizations
- Committees looked at three phases to look at short and long term objectives
San Luis Obispo County TMCC/ MSAA Project

Challenges for the TMCC

• Must build trust among the transportation providers to develop coordination

• TMCC was a threat to the existing 511 Transportation Information Service

• People need the model to develop based on public input before planning TMCC system

• Government agencies are concerned about the cost of the TMCC and how it will be funded
<table>
<thead>
<tr>
<th>Objective</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective #1: Create a Detailed Project Plan &amp; Schedule Document</td>
<td>November 2015 - January 2016</td>
</tr>
<tr>
<td>Objective #2: Create the TMCC Concept of Operations Document (get committee and public input to develop TMCC Concept for our county)</td>
<td>January – April 2016</td>
</tr>
<tr>
<td>Objective #3: Develop the model for TMCC Technology System (TMCC operation and technology expectations)</td>
<td>May – June 2016</td>
</tr>
<tr>
<td>Objective #4: Develop the phases for implementing the TMCC System (explore, evaluate, and determine TMCC alternatives – select preferred design)</td>
<td>July – August, 2016</td>
</tr>
<tr>
<td>Objective #5: Seek Public Input on Proposed TMCC System (Formalize a task and timeline plan for implementing the TMCC)</td>
<td>September – October 2016</td>
</tr>
<tr>
<td>Objective #6: Finalize Plan and Generate Written Report of Plan (Final detailed design (prototype) and test plan for the technology elements of the TMCC)</td>
<td>October 2016 – June 2017</td>
</tr>
</tbody>
</table>
San Luis Obispo County TMCC/ MSAA Project

- Questions and Comments?

- Project Contacts:
  - **Mark Shaffer**, Project Manager, Ride-On Transportation: (805) 541-8751, shafmt@aol.com
  - **Geoff Straw**, San Luis Obispo RTA: (805) 781-4465, gstraw@slorta.org
  - **Omar McPherson**, San Luis Obispo RTA: (805) 781-1171, omcpherson@slorta.org
ITS Workshop
May 4, 2016

Renee Autumn Ray, AICP
Atlanta Regional Commission,
Aging and Health Resources Division
What is the Atlanta Regional Commission?

- Regional planning and intergovernmental coordination agency for the 10-county area.
- Dedicated to unifying the region's collective resources to prepare the metropolitan area for a prosperous future.

www.atlantaregional.com
Human Services Transportation Programmatic Approach

- **Fixed Route Public Transit**: Includes Travel Training to shift as many people as possible over to fixed route public transit.
- **Carpool/Vanpool**: Includes formal matching services such as Georgia Commute Options as well as more informal agreements.
- **Volunteer & Voucher**: Includes formal volunteer driver programs as well as less formal programs (often faith-based).
- **Dedicated Service**: Includes services such as ADA Paratransit, Medicaid, trips provided directly by social service agencies including senior services, VA, etc.
- **Taxi**: Includes taxi companies as well as Transportation Network Companies (TNCs) such as Lyft, Uber, etc.
What is Simply Get There?

- VTCLI one-call, one-click award
- “Trip discovery” tool for public, private, specialized and volunteer transportation services
  - Similar to kayak.com
- Software application developed with Cambridge Systematics
  - Pulls from two ARC-developed databases, ESP and atltransit.org
- Responsive design for use on computers, tablets, and smartphones
- Unique to the Atlanta region
- Includes specialized transportation
- Does not have scheduling capabilities
http://www.simplygetthere.org/

Simply Get There

Trip Details

- Trip* ① Round trip  One-way trip

Trip Options* ① Bike  ② Carpool  ③ Drive  ④ Specialized Services  ⑤ Vehicle for Hire  ⑥ Public Transit
- Bus
- Rail

Trip Purpose* General Purpose

Departing From*

Arriving At*

Trip #1 (Outbound)*
- Arriving By  09/14/2015  6:00 pm

Trip #2 (Return if round trip)*
- Departing A  09/14/2015  8:00 pm

About Simply Get There

Please click here for more information about transportation options in the Atlanta region. If you need someone to compare trip options by telephone, please call 404-463-3333.
Phase 2: What?

- Develop system specifications to expand software application capabilities and allow “trip transaction”
  - Centralized eligibility
  - Triaging to the best provider and mode
  - Booking
  - Scheduling
  - Dispatching
  - Payment
- Make the design to be released as open source software so that others can use it
Phase 2: Who?

Mary Blumberg, Senior Advisor

Kathryn Lawler, Senior Advisor

Renee Autumn Ray, Project Manager

Leslie Caceda, ARC ATLtransit Project Manager

Kevin Chambers, Ride Connection, Consultant

ThingTech, Consultant

External Partners
Phase 2: Who?

- Aging and Disability Resource Connection (ADRC)
- ARC Transportation Access and Mobility Manager
- Area Agency on Aging (AAA)
- Atlanta Regional Workforce Board (ARWB)
- Atlanta United Way 211
- Center for Visually Impaired (CVI)
- Cobb Community Transit (CCT)
- DeKalb Office of Senior Affairs
- Disability Link, the Center for Independent Living (CIL)
- Georgia Commute Options (GCO)
- Georgia Department of Community Health (DCH)

- Georgia Department of Human Services (DHS), Coordinated Transportation System
- Georgia Department of Transportation (GDOT)
- Georgia Governor’s Development Council (GDC), Rural and Human Services Transportation (RHST) Committee and Statewide Mobility Management
- Goodwill Industries
- Gwinnett County Senior Services
- Lifespan Resources
- Metropolitan Atlanta Rapid Transit Authority (MARTA)
- Ride Connection of Portland, Oregon
- Veterans Affairs (VA), Veterans Transportation Program (VTP)
Phase 2: Next Steps

- Complete ConOps
- TMCC phased implementation plan
- Platform design
- Final report
Phase 2 Support

• Build capacity in existing providers
  – Move from pen-and-paper systems to more technical solutions

• Strengthen relationships and buy-in from external stakeholders
  – Including relationships with each other
Best Practices

- Assess barriers and key unmet needs
- Develop a vision of desirable customer experience
- Develop TMCC Vision among stakeholders defining key organizational and technological choices
- Conduct ITS Systems Engineering project process
Resource Links

- MSAA Web Site

- Generic TMCC Concept of Operations
  - http://www.its.dot.gov/msaa/TMCC_ConOps.htm

- Systems Engineering Guidebook:
  - https://www.fhwa.dot.gov/cadiv/segb/

- ConOps Process:

- ConOps Template:
Thank You!

Carol Schweiger
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781-424-2208
clschweiger@comcast.net
TMCC Vision
(Key Organizational / Technological Choices)

Vision of Desirable Customer Experience

Barriers and Unmet Needs

Ongoing institutional structures and processes to pursue coordination of human services transportation in the community

From Brendon Hemily, *Draft Guidebook for the Planning and Design of Travel Management Coordination Centers (TMCC)*, April 30, 2013, page 18.
Schweiger Consulting LLC

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