# Transportation Coordination Enabled by Technology and Innovative Design

## Introduction

This publication, profiling service coordination through the use of technology, is part of the "Promising Practices in Mobility Management" series, created by the National Center for Mobility Management (NCMM). The series has been created for mobility management practitioners to help advance the adoption of transportation coordination and other strategies that lead to responsive, customer-centered transportation services. All publications in the series—covering the topics of coordinated transportation planning, technology in coordination, one-call/one-click services, mobility management, and performance measurement— are available at http://nationalcenterformobilitymanagement.org/.

Technology solutions that enable coordination among different agencies and programs result in long-term efficiencies that cannot be reached manually.  The technologies used to achieve improved outcomes for agencies and customers have been innovatively adapted to address specific coordination activities.  The technologies used are not necessarily new, but they have become more affordable and easier to customize, enabling transit providers to design platforms that support coordination in new and innovative ways.  Coordinating service provision through the use of technology strengthens transit providers' ability to meet agency and customer needs on many levels:

1) Technology can assuages barriers to coordination through elimination of turf and institutional differences, jurisdictional boundaries and varying means of data collection;
2) Technology improves information management capabilities, allowing easier customer access and reducing staff time and costs; and
3) Technology links transportation and human service assistance, presenting a unified service to customers, without diminishing system autonomy.

The practices profiled in this document were informed by a committee of experts, including transit and public agency directors and an expert in transit technology, all of whom were familiar with promising programs designed and implemented by their colleagues nationwide. Committee members were asked to rank programs based on how technology facilitated more efficient service delivery, improved communication between providers, expanded services to customers, streamlined reporting and billing and more efficiently used staff time. Final selection of practices was based on the input of this committee, as well as knowledge gained by NCMM program staff about other exemplary practices meeting quality indicators.

The programs profiled below are listed below (hyperlinked to their place in the document for quick reference):

# Via Mobility Services, Colorado

## Technology to Enable Trip Sharing Among Providers

Formerly known as Special Transit, nonprofit Via Mobility Services in Boulder, Colorado provides approximately 140,000 demand-response trips. Via provides accessible, driver-assisted, door-through-door transportation and mobility options for older adults and people with disabilities of any age, as well as for lower wage earners. Via's primary service area includes Boulder County, with limited service provided in the nearby counties of Adams, Arapahoe, Larimer, and Weld. Travel training, information and referral, and one-on-one individual trip planning enhance the agency's customer-focused approach to service provision.

Via has also developed coordination agreements with CareConnect (formerly RSVP), a volunteer driver program in Boulder County, and with Yellow Cab. Yellow Cab provides the equivalent of one full route in Longmont each day, with trips scheduled through Via's call center. CareConnect provides escorted medical trips, where a companion is needed to stay with the passenger, that Via is unable to provide. Through another agreement with the Longmont Housing Authority (LHA), Via provides regular group shopping trips for residents of four Section 8 housing facilities in the community. LHA pays Via what they previously spent for staff to provide those trips with a dedicated vehicle. This agreement allowed Via to incorporate the trips into its regular paratransit routes, while allowing LHA to get out of the transportation business.

### Trip Sharing in Longmont

Via has provided demand-response transportation service in the city of Longmont since 1985, coordinating a variety of funding sources and co-mingling trips for various populations. In addition to its own service, Via operates two contracted services for the Denver Regional Transportation District (RTD) in Longmont and other parts of Boulder County: Call-n-Ride and Access-a-Ride. Access-a-Ride is RTD's ADA paratransit service. Call-n-Ride is a general public service that connects to bus routes, park-n-rides, and light rail services. It is primarily focused on mostly suburban lower density communities, operating within defined boundaries. Call-n-Ride vehicles have scheduled checkpoints and zones and operate flex routes as well. Service includes on-demand rides anywhere within the service area.

Over the years, increased demand due to Longmont's burgeoning low-income older adult population has led Via to expand its capacity from three to six paratransit vehicles and to add a brokered route with a taxi company. With demand still growing faster than funding for service expansion, Via has also explored every opportunity to expand services through coordination. One such opportunity was to better coordinate the Call-n-Ride and paratransit services operated by Via. To do so, Via, RTD, and their scheduling software providers embarked on a pilot program in 2010 to determine how Via's dispatch center could access both systems' scheduling software systems and share trips between the two systems.

### First Steps

An advisory committee with representation from Longmont City, Colorado DOT, RTD, and Via staff developed an initial work plan and recruited a mobility coordinator to oversee the project. The committee continues to meet on a monthly basis, tracking work assignments and provider

responsibilities.  Via's new mobility coordinator's initial charge was to determine which Longmont trips were most appropriate to share between the Via and RTD services.

One of the first challenges to facilitating coordination between the paratransit and Call-n-Ride systems was finding a way to build capacity for cross-talk between the different scheduling/dispatching software used by the two systems: Via paratransit uses RouteMatch scheduling system, while Call-n-Ride uses a customized software system (MobilityDR) developed by DemandTrans Solutions. Via's mobility coordinator worked with both software providers to develop the technology needed to exchange data between the two proprietary software systems.  Eventually bridging software was created to allow this flow of data between the systems.

On the operations side, the mobility coordinator is able to view both screens simultaneously, identify existing gaps and excess capacity, and fill empty seats where appropriate. Because the coordinator is able to simultaneously view both screens and trip data can be automatically transferred between the systems, the need to rekey information from one system to another has been eliminated.  Updated scheduling information is then relayed to drivers' in-vehicle tablets and via cell phone using voice-over Internet protocol. Call-n-Ride and paratransit riders were informed about the project, and some standing rides were transferred between the two services based on the most efficient option.

Implementation of the program effectively doubled Via's fleet, making Via vehicles available to Call-n-Ride passengers and Call-n-Ride's vehicles available to Via passengers.   By combining service populations, Via freed paratransit seats for those riders with a higher level of need. Since the pilot was launched, the number of trip denials has decreased, and there has been a 36 percent increase in ridership, accomplished without an increase in cost.  Riders in Longmont now account for 35 percent of Via's ridership.

The expansion was supported with grant money from the New Freedom program (initially a two-year grant through 2011, twice extended) with the local share provided by RTD, the City of Longmont, and Via.

## Pilot in Practice

Currently, Via and RTD have dedicated two vehicles each to the Longmont coordination project. Seats resulting from any cancellations on either service are filled with same-day requests.  As a result of the coordination, the average number of boardings on the coordinated service has increased from 2.7/hour to 3.6/hour, a 34 percent increase in productivity.  Routes have become more efficient because peak periods between the two services have been leveled out and unused capacity has been filled.

Call-n-Ride customers can book trips online or directly with the driver.  Rides on Via can be booked automatically, with callers receiving voice or email verifications of acceptance.  Dispatchers use a map-based, visual console, real-time data on operational status and computer-assisted mobile dispatching. Via drivers communicate with the dispatching system through in-vehicle tablets, cellphones with voice-over Internet protocol, and radio.  With this technology, the mobility coordinator to monitor trip lengths and arrival times can track both successful and unsuccessful bookings.

One example of how the coordination has improved efficiency is in trips to Longmont's three dialysis centers.  Similar to many other transit providers across the nation, the increasing number of dialysis

trips constrains the ability to provide access to other destinations.  In many cases because transit resources are devoted to meeting the life-sustaining needs of dialysis patients, traveling to treatment at least three times weekly, the ability of transit providers to meet trip requests to other human service destinations is constrained.  In Longmont, the new use of technology is improving coordination and the ability to provide transportation to multiple destinations.  Previously, it was not uncommon to see multiple vehicles, each carrying only one passenger, arriving at these facilities. The new technology Identifies empty seats, allowing for more riders to be assigned to each, so fewer vehicles are completing dialysis trips, expanding opportunities for non-dialysis riders to access other necessary destinations.  Via does not prioritize by trip purpose, other than dialysis, and riders are able to access employment, education, recreation and social opportunities as well as medical and nutrition-related trips.

## Innovative Features

Adapting two different booking systems previously unable to communicate helps to coordinate client trips on both transit services.  The software allows the user to simultaneously compare RouteMatch and DemandTrans data, significantly reducing the number of empty seats due to cancellations.  As a result of freeing up spots on paratransit vehicles by assigning those who are able to ride on Call-n-Ride vehicles, Via is better able to serve individuals who are dependent on paratransit.  Another innovative feature is the ability to adjust the service protocols of both Via and Call-n-Ride services without diminishing the essential aspects of each.  Technology also enabled the agency to meld eligibility criteria for paratransit, identifying riders and referring riders who are able to use RTD Call-n-Ride.

The use of onboard mobile electronic manifests and the capacity to communicate between vehicles improved scheduling flexibility, resulting in optimal use of vehicles.  Because Call-n-Ride drivers can track boarding and deboarding times, service has become more efficient.  More realistic boarding and de-boarding times have resulted in fewer late pick-ups and drop offs on Call-n-Ride. Drivers have less "down" time and riders are more evenly distributed throughout the day.  Fewer trip denials have also resulted in reduced travel costs for riders, who would otherwise have to depend on more expensive private transportation options.

## Monitoring and Evaluating the Service

Project results are being measured with anecdotal and quantitative measures.  Anecdotal information is gleaned from customer surveys.  Quantitative measures include total number of trips, total vehicle hours, the number of trips per hour, cost per trip and the number of service denials.  Reports are shared with the Boards of Directors for both Via Mobility Services and the Regional Transportation District (RTD).  The Advisory Committee continues to meet to monitor the service and to refine and improve the coordination model.

## Moving Forward

Via is currently working with both RouteMatch and DemandTrans to further automate data exchange between the two systems, requiring less oversight and intervention by the mobility coordinator. Via recently applied for an MSAA grant, hoping to expand trip sharing services to other Denver communities in Adams and Bloomfield counties where RTD provides Call-n-Ride services (operated by Via) and other providers offer paratransit services to seniors and people with disabilities.  Via plans to use similar technology enhancements to maximize ridership between ADA paratransit (Access-a-Ride) and other

demand-response services.  The agency is also moving toward the use of a single tablet by both paratransit and Call-n-Ride drivers.


**For more information on this project**, contact Lenna Kottke, Executive Director; lkottke@viacolorado.org.


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# Polk Co. Transit and ElderPoint Ministries, Florida

## Partnering with Volunteer Drivers to Expand Capacity

In partnership since 2008, Polk County Transit Services and the nonprofit ElderPoint Ministries, have shared technology to expand transportation services for seniors and individuals with disabilities in the Lakeland, Florida area. Polk partners with ElderPoint to provide paratransit through the use of shared scheduling technology when the transit agency is unable to meet customer requests.  The door-to-door service is available Monday–Friday between 8:00 am and 3:00 pm.  Although rides cannot be guaranteed because of the volunteer nature of the program, sharing technology has enabled ElderPoint to improve access to quality of life destinations for local residents and veterans.

### Coordinating Transit and Volunteer Driver Services

The idea of a coordinated, cohesive volunteer transportation network grew out of a 2008 transit summit, where participants recognized the need for more options to serve Polk's growing population of seniors. Following the summit, and under the direction of a consultant, Polk Transit sponsored a series of community meetings with numerous stakeholders, resulting in the formation of the Polk County Volunteer Transportation Coalition.  The Executive Director of ElderPoint, Jane Hammond, was selected as the coalition chairperson.

In 2010, ElderPoint received a New Freedom grant and eventually garnered state DOT funds and in-kind support to help launch the volunteer driver initiative. Polk County and ElderPoint held meetings with other participating nonprofit organizations to develop a marketing vision of the program and put legal agreements in place between the partners.  The program, known as the Bluebird Mobility Network, began operating in 2011.

As the lead agency, ElderPoint coordinates the volunteer transportation efforts of the local nonprofits and human service agencies in the county. To facilitate program development, ElderPoint and Polk Transit entered into a coordination agreement, allowing participating agencies to operate independently while continuing to maintain services at a lower cost to each.

The Bluebird Mobility Network provides rides through volunteer drivers using their own vehicles. Bluebird also has one lift equipped minivan that is assigned to volunteer drivers to perform trips. Service is free to riders, and drivers of their own vehicles are reimbursed at the federal mileage reimbursement rate to assist with fuel costs.

### Sharing Scheduling Software/Trip Tracking

To most efficiently leverage the extra capacity provided through Bluebird's volunteer drivers, and expand the capacity of Polk County's demand-response service, the county and ElderPoint coordinate volunteer trips using the county's scheduling software, Trapeze. When requests for rides are received, ElderPoint staff assess whether or not a client is registered to receive transportation assistance through Polk Transit demand-response service. If the county service is unable to meet the caller's ride request,

ElderPoint responds if a volunteer driver is available.  If a volunteer driver is not from ElderPoint, referrals are made to other social service agency providers.

Thus in addition to trip requests that come directly to ElderPoint, the volunteer network is able to respond when the county's services are at capacity. By tapping into Polk Transit's scheduling software, ElderPoint is better able to schedule routes and track its network of customers and drivers. The system records rider and volunteer data, allowing ElderPoint staff book rides for any client and to provide referrals to partner programs to complete the ride, if necessary.  It also provides users with daily schedules and tracks both cancellations and completed rides.  Currently, ElderPoint provides about 3,000 rides a year.

When ElderPoint and the county first began collaborating in mid-2012, written procedures for system use and trip documentation were established, helping the county to capture the total number of volunteer miles driven. Trips performed by ElderPoint are included in the county's performance measures for the percentage of the transportation disadvantaged population being served. Completed rides are also captured in the county's annual reporting to the National Transit Database, thus increasing the total number of rides offered through the county.

In addition, a standardized invoicing format was implemented. As trips are entered into the Trapeze database, they are coded according to the funding source that was applied to the trip (BB-Bluebird Volunteer, Medicaid, ADA, etc.). Reports are generated by service provider and funding source, which includes the distance computations at the mileage reimbursement rate, and requires no additional sorting or manual calculations for reporting and documentation purposes. Source documents are easily accessed from the database to support invoicing for New Freedom drawdowns.

Using Trapeze also helps the Polk/ElderPoint partnership eliminate duplicate bookings. This is a common practice for some older adults as they worry about their rides. Using Trapeze ensures those double bookings are caught and resolved.

## Moving Forward

ElderPoint currently has one wheelchair accessible vehicle available, which was acquired through the Federal Transit Administration Section 5310 program, and will soon add a second.  The organization continues to partner with other community-based agencies to provide services and is sponsoring a number of community events to help increase its base of volunteer drivers.

**For additional information,** contact Jane Hammond, ElderPoint Ministries, jane.hammond@elderpoint.org or Gwen Johnson, Polk County Transit Services, GwenJohnson@polk-county.net.

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# Lane Transit District, Oregon

## Using Technology to Schedule, Track, and Allocate Trip Costs

Lane Transit District (LTD) has provided public transportation services in the Eugene, Springfield and surrounding rural communities since the 1970s. LTD also coordinates human service transportation and manages the Medicaid transportation brokerage for the region.  LTD's RideSource call center, opened in 2008, serves as the one-call center for information, scheduling and dispatching for multiple transportation services.

### Steps to Coordinating Services

Lane has a long history in coordinated human service transportation provision.   Contracts and intergovernmental agreements with various social service agencies have formalized those working relationships.  For example, in 1980, LTD contracted out a Dial-a-Ride to Special Mobility Services (SMS) for the provision of paratransit services, and created a consortium with other human service transportation providers to pool resources and centralize operations. That partnership laid the foundation for the RideSource Center, which is currently supported through a collaborative effort, including partnerships with 23 different private transportation providers.

In 1992, the Lane Council of Governments (LCOG) partnered with consultants to develop a full cost-allocation analysis model for transportation.  The analysis identified actual costs of each component of the RideSource program, and guided LCOG's work with state Department of Human Resources agencies to establish cost-sharing agreements, whereby the State and LCOG shared the cost of providing transportation.  When Lane expanded to include NEMT services, it was with full state support.

### Complexities of a Call Center for Multiple Programs

Prior to the opening of the RideSource call center, nonemergency medical transportation (NEMT) and paratransit calls were handled separately by call takers.  With the implementation of the call center, customers call the same number for any of the transportation services available. Currently, the RideSource call center receives calls for eight different programs. One of RideSource's largest programs is transportation for Medicaid patients served through coordinated care organizations (CCOs), which are required to provide the most appropriate transportation at the lowest cost for all CCO members. RideSource is the broker for these services as well as the call center. Other programs served through RideSource are two non-medical transportation programs provided under a Medicaid waiver, two volunteer driver programs, a shuttle service, a shopper service, work trips, and service to a pre-school.

Eligibility assessments for customers are done in-person by Area Agency on Aging case workers and others, trained by LTD, in conjunction with an online process developed by LTD. Assessments of the NEMT population have been added to assist LTD in determining the most appropriate mode of transportation for those riders. If during the assessment it is decided the rider needs additional support services, case workers can refer them to other social services.

## Using Technology to Schedule, Track, and Allocate Trip Costs

Over the years as LTD has added transportation programs to its RideSource call center, it has had to respond with an increasingly sophisticated trip and cost tracking and allocation software program. The resulting cost-allocation model, developed by LTD, in partnership with Special Mobility Services and the consulting firm Nelson Nygaard Associates in 2006–2007, allows for the distribution of direct services and administrative/overhead costs to sponsoring agencies. Once RideSource began brokering Medicaid trips, its cost-allocation model also had to meet the strict federal guidelines set by the Centers for Medicaid and Medicare Services. This innovative model ensures that appropriate charges are made to each program, allowing participating agencies to pay based on the cost of providing services.

One tough challenge the new cost-allocation software took on was how to allocate call center staff time to the different projects. It was completely unrealistic given the complexity of the environment in which RideSource operates to have call center staff record time sheets to reflect the different programs they worked on. In addition, because the staff had become more like case managers than call-takers, there were more tasks to capture. The sheer volume of calls coming into the center meant the new system had to be automated. RideSource had to justify its costs to Medicaid and also show our board that administrative costs were covered. The end product thus incorporated a random-moment sampling engine, sampling active work hours and then rolling that as a cost factor distributed across all the different programs.

The multimillion-dollar program expansion includes technological solutions that aid in brokering rides to the lowest-cost provider, and in combining trips in the most efficient manner. The call center's database consolidates all information relevant to passenger vehicle entry and exit, vehicle hours, mileage, administration time, volunteer time, vehicle maintenance, and cost and dispatch time. Also included is information from in-home client eligibility assessments. The database generates reservations, and provides scheduling and dispatching information. Providers receive assignments and payments for any trip. The software also facilitates eligibility determination for all programs at one time. The software program also tracks miles per trip, flags questionable mileage submissions, and separates out subscription and ongoing service requests.

This system allows Lane to serve a larger number of people than it would have been able to serve otherwise. Rides previously scheduled on paratransit vehicles are referred to more affordable human service providers or taxis, cutting costs to the customer and saving staff time and expense. Individuals who are eligible and able to travel under several programs are directed to the most appropriate mode, resulting in an increased volume of rides, decreasing duplication of services. Rides are assigned based on the specific agency's ability to respond.

## Monitoring and Evaluating the Service

A series of performance measures are currently under development. Service provider quality assurance is spot checked at the community level.

## Moving Forward

In 2012, LTD was awarded a $1.1 million Veterans Transportation and Community Living Initiative grant to upgrade its software systems.  The new technology will provide information exchange between LTD and subcontractors and between LTD and its assessment partners.   As the number of rides provided by CCOs continues to grow, Lane is working to further integrate health care and transportation entities into a model that can easily incorporate both.  The update will help LTD to cope with the drastic increase in ridership it experienced in 2014, which rose from 12,000 riders per month to nearly 20,000, primarily serving previously uninsured individuals who now qualify for service with implementation of the Affordable Healthcare Act.

**For additional information,** contact Kris Lyon, Human Services Transportation Coordinator, Lane Transit District, kris.lyon@ltd.org.

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# GoLive, North Carolina

## Providing Real-Time Travel Information to Customers

The approximately 5,600-square-mile "Triangle" (originally, Research Triangle) region encompasses three major universities (North Carolina State University, Duke University, and University of North Carolina at Chapel Hill), the cities of Raleigh and Durham, and the towns of Cary and Chapel Hill. GoTriangle is a partnership of seven public transportation agencies in the Triangle region of North Carolina:

— Capital Area Transit (CAT; city of Raleigh)
— Cary Transit
— Chapel Hill Transit
— Durham Area Transportation Authority (DATA)
— Duke Transit
— NCSU Wolfline
— Triangle Transit

The public face of GoTriangle is the partnership's website and call center, which provide information on transit and other modes of travel, such as ridesharing, cycling, and walking. In 2011, the GoTriangle partnership collaborated to create GoLive, a smartphone app and web-based program providing real-time travel information to transit customers across the region.

### Regional Coordination Efforts

The seven transit agencies in the Triangle region had been exploring different levels of coordination for several years, and in 2003 adopted the Triangle Region Consolidation-Implementation Plan, which outlined steps toward consolidation over the next four years. For example, in 2004 the region's providers committed to making improvements in several areas, such as marketing, customer information, procurement, service planning, and fare policy structure. And in 2005, Triangle Transit agreed to carry paratransit passengers on trips originating in Capital Area Transit's service area and ending in Triangle Transit's service area, eliminating the need for an intersystem transfer. This was later broadened to include Durham's transit service area.

To improve customer access to transportation information, in 2004 Triangle Transit, and the Raleigh, Cary, Durham, and Chapel Hill transit systems created GoTriangle as a common brand for promoting an on-line regional trip planner. One important step taken prior to launching a common trip planner was to create unique identifiers for each bus stop in each system. Thus each of the 3,500+ stops has its own identifier; the approximately 100 shared stops served by two or more agencies have their own identifier. All regional systems then agreed to translate their stop and schedule data into a format usable in the trip planner. In 2006, Triangle Transit, Raleigh, and Durham agreed to consolidate their call center functions providing information on their fixed route services. The GoTriangle Transit Information Center began operation in March 2007. The transit services provided by the towns of Cary and Chapel Hill joined over the next several years. In 2010, Triangle Transit worked with the other agencies to develop general transit feed specification (GTFS) files so that the trip planning function could be accessed via the

Google Maps trip planner as well as on the GoTriangle site. GoTriangle now hosts trip planning for CAT, Cary Transit, Chapel Hill Transit, Duke University Transit, DATA, NCSU Wolfline, and Triangle Transit.

## Real-Time Arrival Information

The next customer service tool the region invested in was regionwide, real-time arrival information to use in both scheduling/tracking vehicles and to provide region-wide, real-time arrival  information for customers. In 2005, Chapel Hill Transit took the first step when it received state DOT funds to implement real-time automated vehicle location (AVL) technology. Their system, using NextBus technology, went live in 2010. NCSU Wolfline purchased a scheduling system and AVL technology from TransLoc, a software company created by former NC State graduate students. In 2009, CAT procured a third AVL system.  In 2010, Triangle Transit and DATA began a process to procure AVL technology for their systems.

As part of that process in 2010, Triangle Transit separated the procurement for the AVL hardware and software for processing the data for supervisors from the public interface of the real-time arrival data. A Raleigh-based vendor, TransLoc, was hired to take the feeds from all providers and integrate the data into a single mobile app, website app and text messaging information system. The earlier work on developing a common bus stop identification system made this project much easier.

GoLive tracks information on bus locations and arrivals for five municipal transit agencies—Triangle, Cary, Capital Area, Chapel Hill, and Durham Area Transit—as well as for Duke University and the NCSU Wolfline, at one easily accessible location.  The service uses GPS technology to provide maps for locating bus routes and stops, allowing customers to identify how the various systems connect and to effectively plan cross-jurisdictional travel. Customers access information via the web, mobile web, smartphone, or SMS text message.

Passengers can access real-time information in four different ways: 1) access the mobile website "live.gotriangle.org" for real-time bus information; 2) download the GoLive TransLoc app to their smart phone, which using GPS technology, will locate stops near the customer and provide real-time information; 3) text the route number and stop ID to 41411, and then receive an automated text back with the real-time arrival information; and 4) visit the full GoLive website (http://live.gotriangle.org), choose the transit system and route they are interested in, and view the bus move in real-time as well as receive estimated times of arrival.

## Monitoring and Evaluating the Service

Staff from the GoTriangle agencies have seen several benefits to providing real-time information to customers: 1) it provides customers with a time-saving option for arriving at the bus stop just before the bus arrives; 2) by tracking the bus' location, it gives them peace of mind and confidence in the bus' arrival; 3) helps them time transfers between systems at shared bus stops; and 4) helps them schedule their appointments throughout the day. Staff have heard anecdotally from customers that the system has indeed provided these benefits for them.

The first full year in which GoLive was implemented, in 2012, saw a significant decrease in the growth of customer calls into the GoTriangle call center, although ridership continued to grow by about 15 percent. This pattern was a marked departure from the double-digit growth in call center volume in the

years leading up to the launch of the real-time applications. The volume of calls into the center as well as the number of mobile app hits are now settling into a more predictable pattern as GoLive moves through its third year.
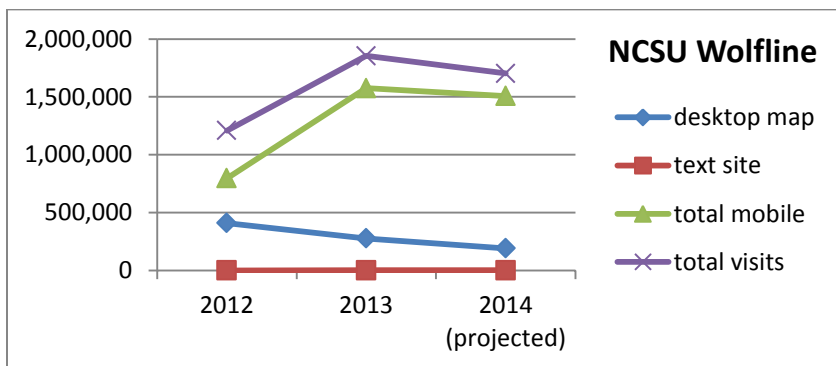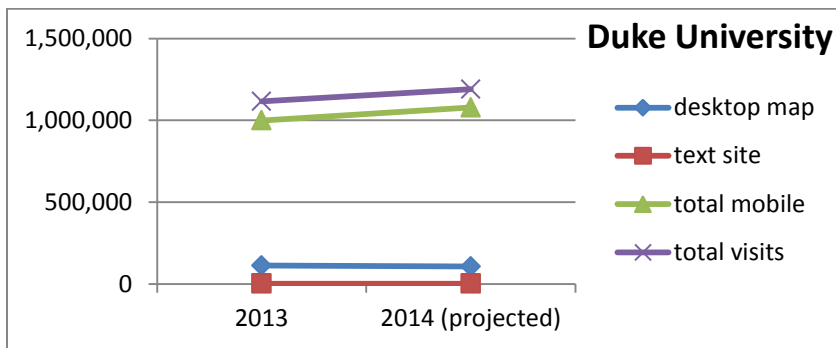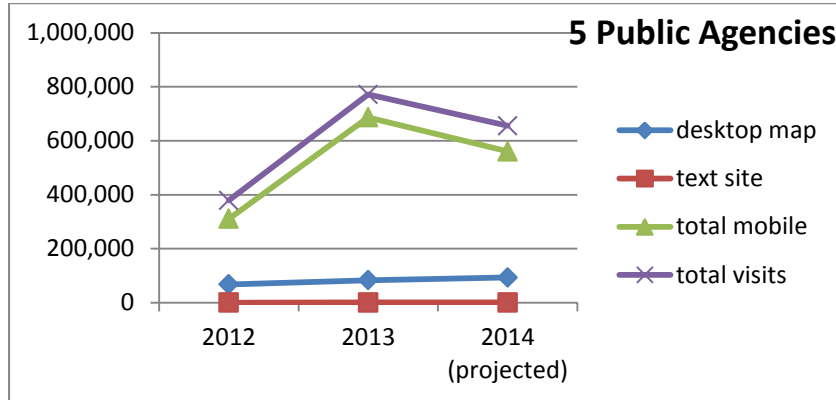
## Moving Forward

As GoLive develops this real-time customer information tool further, it plans to will allow users to obtain route and arrival information via touch-tone phone, eliminating the need for after-hour call-center staff. Staff are also planning how to integrate the information services into the regional 511 system.  Triangle is also exploring the use of interactive voice response (IVR) technology to provide real-time information for demand-response service.  Integrated fare payment via mobile app is also being considered.

**For additional information,** contact John Tallmadge, Director of Regional Development, Triangle Transit: jtallmadge@triangletransit.org.

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# Montachusett Regional Transit Authority, Massachusetts

## Web-Based Bidding System for Brokering Lowest-Cost Trip

The Montachusett Regional Transit Authority (MART), with central offices in Fitchburg, is one of Massachusetts' 15 regional transit authorities.  MART is located in North Central Massachusetts and provides public transportation to 22 area cities and towns.  MART has been brokering human service transportation since 1990, using technology to optimize competition for service and keeping prices affordable. What makes MART's brokerage system unique is its real-time, competitive, market-based approach.

### Regional Coordination Efforts

**MART's Brokerage "Bid" System**
Through its brokerage, MART provides approximately 4.5 million trips annually, and has contracts covering approximately 73 percent of the human service transportation in the state, generating nearly $110 million in annual expenditures.

As a broker, MART is responsible for
- Subcontracting with providers
- Monitoring and maintaining contract compliance
- Ensuring the provision of quality customer service delivery
- Accuracy in billing and cost effectiveness rates
- Resolving any conflicts or concerns relating to service

### Using Technology to Secure Lowest-Cost, Coordinated Trips

To provide trips at the lowest cost possible, MART has implemented a web-based bidding system that allows providers to bid on trips and review the bids of others. Currently, 235 private operators participate in the brokerage, including private, nonprofit transportation providers; private for-profit providers; private livery services; and taxis. Providers can apply to enroll in the MART system at any time.  Vendors are contracted with on a five-year basis and can bid on new contracts as they arise. Subscription trips (e.g., day programs, trips to critical appointments such as dialysis and chemotherapy) can be bid on for a three-month contract.

Available trips for bidding are posted on an open-data-exchange platform allows all vendors to view competing bids for service and counter-bid on trips. Providers may decide to lower their rate to be more competitive, and are permitted to do so during the first five business days of each month. Once all the bids are in, MART automatically assigns trips to the lowest bidder, ensuring transparency and competitive rates.  MART's software program sorts all bids every two hours based on location (who is nearest) and cost (whose is lowest). The automatically assigns a trip ID number and generates invoices for all completed trips on a daily basis, deducting the cost of cancellations and other changes. Assignments are made until all seats are filled; when possible, customers are scheduled to share trips to achieve cost-efficiencies. Almost 20 percent of MART's Medicaid trips are shared rides; an average of 2.5 percent of the brokerage passengers make their connections on its fixed route. At the end of each day, all the trips for the following day are distributed.

A database maintains requests for service, the majority of which are pre-scheduled, and manages billing and invoicing.  Samsung mobile data terminals on vehicles record trip origins and destinations, and use of GPS devices optimizes shared ride possibilities.  MART manages multiple funding sources and has the capability to schedule rides across all sources and service areas.

The portal used to provide vendor services includes these features:
- o   Auto assignment of trips, maximizing vehicle capacity
- o   Reconciliation of trips postings and attendance
- o   Vendor rates management
- o   Vendor vehicle and driver management
- o   Automated scheduling and dispatching, with requests sent directly to the vehicle
- o   Shared ride scheduling
- o   Automatic invoice preparation and reconciliation, and
- o   Incident management, which logs and reviews customer complaints, allowing for a high level of quality service

MART's system updates client information continually, and has structured the system to automatically determine a customer's eligibility for services. Having this eligibility verified for each trip means the number of denied rides can be reduced.

MART has also reduced trip costs through innovative accounting software. Invoices from and payments to providers are automatically generated by the system twice monthly. This process has served to reduce vendor administrative costs, improve vendor cash flow, and given providers increased borrowing power to expand their business, all of which also leads to lower prices. MART also assists some vendors with vehicle purchases. Many small providers that began service with one or two vehicles are now operating with 20–25, strengthening the state's network of non-emergency medical transportation.

## Innovative Features

MART's system, developed by HB Software Systems, is designed to interact with other scheduling/dispatching systems and can be used by any region or program, while MART maintains system oversight.  From a state perspective, this system has the potential to enable distribution of funding across a wider spectrum of providers through one centralized broker, and at the same time reduce state expenditures. The system could be adapted for other programs, such as ADA paratransit service.

Participation in the brokerage has also significantly improved small business development by making it easier for providers to fill seats, reduce operating costs, and transport riders for programs funded by multiple agencies.  By guaranteeing a quick cash turn-around, the system increases public borrowing power, creating better opportunities for transportation providers to offer better services.

The 2012 Human Service Transportation Annual Report issued by the Human Service Transportation Office noted an 8 percent increase in consumer trips through the MART system, with an increase in average cost per trip of only 2.6 percent.  In that year, MART provided over 4,300,000 brokered trips throughout the four of the nine service areas statewide.  MART's achievements noted in the report include streamlined scheduling of recurring appointments, improved training for inspectors and brokerage staff, and system upgrades.

While the state budget benefits from MART's efficiency, so do passengers. More non-emergency medical transportation providers improves flexibility and service. As always, the focus will remain on reducing total trip costs in order to expand service and connect more people with the healthcare they need.

## Monitoring and Evaluating the Service

Customer complaints are logged into a dedicated web-based complaint management system, to which transportation providers have access. Complaint reports are continually monitored to ensure timely management, satisfactory resolution, and appropriate disciplinary action/penalty assessment. Complaints of a serious nature are immediately brought to the attention of the appropriate manager for review. In addition, MART provides a consumer satisfaction survey to programs and consumers to assess overall satisfaction and address any deficiencies noted.

As highlighted in the 2010 annual report, fines assessed by the brokers represented 0.1 percent of total service expenditures; drivers and monitors removed represented 2 percent of the total driver/monitor workforce; and vendor contracts terminated for cause represented 0.5 percent of the total vendor base.

MART Inspectors are required to perform at minimum the appropriate number of inspections for the year required by MART's contract with the Human Services Transportation Office. Inspectors observe the transportation provider's pick up and/or drop off at the residence or facility and note and/or address the following: time violations, driver/monitor interaction with the consumer as well as the driver/monitor interaction with the residence or facility staff. Inspectors also perform a full vehicle inspection.

## Moving Forward

MART plans to enhance its brokerage software to include a vehicle manpower portal. The portal will store vehicle and driver information, generating training and licensing renewal alerts to drivers and alerts when inspections are due.  MART also plans to expand the administrative functions managed via the portal, with no further increase in manpower.

**For additional information,** contact Bruno Fisher, Chief Operations Officer, bfisher@mrta.us.

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