

APPENDIX A

Phoenix Metropolitan Area, AZ

APPENDIX A: PHOENIX METROPOLITAN AREA, AZ

INTRODUCTION

The Maricopa County's Regional Public Transportation Authority (RPTA), also known as Valley Metro, is the regional transit authority for the majority of the Phoenix metro area. According to the U.S. Census, Maricopa County had a population of 3.9 million in 2012, making it the 12th largest metropolitan region in the United States. Phoenix is



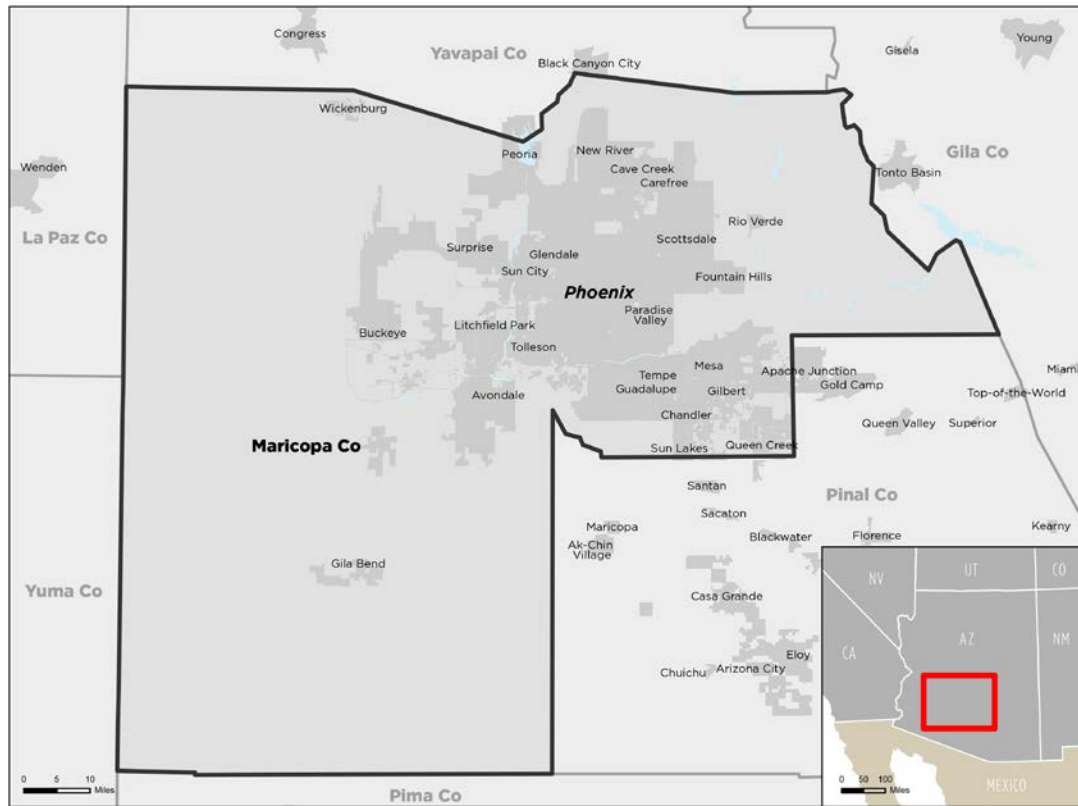
The Valley Metro brand on the street.

Photo: courtesy of Valley Metro webpage

by far the largest municipality in the region, with nearly 1.5 million people. In addition to the City of Phoenix, the region includes three Native American Communities and 25 municipalities, several of which have populations of 250,000 or more.

The history and development of regional transit services in Maricopa County and Valley Metro are tied closely to a series of successful and unsuccessful funding initiatives. In 1985, the Arizona State Legislature passed a law that allowed citizens of Maricopa County to vote on a sales tax increase to fund transportation. Later the same year, county residents approved a proposition for a half-cent regional sales tax with money dedicated to regional freeway improvements, plus seed money for a new regional transit authority (Regional Public Transportation Authority, or RPTA). The sales tax also included \$6 million to develop a regional transit plan, find dedicated funding, and develop and operate a regional transit system. Prior to the 1985 authorization and vote, all funding for public transportation was local and the City of Phoenix operated the vast majority of transit service in the region.

Figure A-1 Map of Phoenix Area



Building on the planning work funded by the 1985 tax initiative, the RPTA went back to Maricopa County voters in 1989 with a transit funding proposal, known as ValTrans, that included significantly expanded bus service and 103 miles of elevated, automated rail. This regional proposal was defeated as was a subsequent regional transit proposal in 1994. On the heels of the failed regional initiatives, however, several municipalities were able to pass local sales taxes for transit. The City of Scottsdale passed a dedicated local transportation tax in 1989, which included funding for transit. Several years later in 1996, voters in the City of Tempe approved a ½ cent sales tax for local transit service, followed by successful initiatives in Phoenix (2000) and Glendale (2001). A regional tax was finally approved by the voters in 2004, when Maricopa County residents reauthorized the original 1985 tax. This time the regional tax includes significantly more revenues for transit with \$2.8 billion allocated for transit service development, including light rail.

The system of regional and local funding for transit made the development of regional transit services in Maricopa County complicated. Nearly all of the region's most populated cities

operate local transit services. The regional services that connect communities are funded and operated separately by the RPTA, or Valley Metro. As a regional service operator, Valley Metro's initial role was fairly small; however, as regional services are added and light rail built, the agency is playing an increasing role in developing a cohesive regional network. Some of Valley Metro's early success was to coordinate the appearance of the system by consolidating passenger systems such as service branding, fares, and some capital projects.

As a result of continued effort over the years to consolidate transit operations in Maricopa County, there are currently two very large transit operators in the region: the City of Phoenix and Valley Metro. There are also several small-to-medium sized fixed-route systems in the region, as well as numerous dial-a-ride operators.

HISTORICAL OVERVIEW

In the past few decades, Phoenix and Maricopa County have been and continue to be among the fastest growing regions in the United States. Between 1970 and 1980, Maricopa County's population increased by more than 50%, growing from around 970,000 to more than 1.5 million. Growth has continued since 1980, such that the County's population is now nearly four million residents. Meeting the needs and expectations of such a rapidly growing population is inherently challenging, and among the biggest challenges is simultaneously developing, planning and managing new services and infrastructure.

In the 1980's, the City of Phoenix was the primary transit operator in the region with the Phoenix Transit System. As such, it also was the designated recipient of federal transit funds and manager of the regional transit programs. The Maricopa Association of Governments (MAG) was responsible for regional planning but much of the transit service planning and development was led by the City of Phoenix.

In 1985, the Arizona State Legislature authorized Maricopa County to tax itself to improve regional transportation systems, including public transportation. This authorization was exercised almost immediately and county residents approved a sales tax primarily to fund regional freeway improvements. The tax also included a relatively smaller pot of money dedicated to creating a Regional Public Transportation Authority (RPTA). Among other tasks, the RPTA worked on developing a regional transit system plan, which it brought to the voters in 1989. This first sales tax initiative was defeated, as were two subsequent efforts. Given the region's reluctance to vote for a regional tax, several individual municipalities –

including Scottsdale, Glendale, Tempe and Phoenix -- were able to pass local tax initiatives to develop local transit services¹. Consequently, local transit networks and interests outpaced development of regional services.

Despite a lack of success in the voting booths, the RPTA was able to make progress toward a regional transit network by operating service and assuming responsibility for several regional transit service functions. In 1993, the RPTA began operating regional bus services and branded itself as Valley Metro. The RPTA also encouraged several regional systems, including the cities of Phoenix and Mesa, to join the Valley Metro brand at this time. The goal of the regional brand was to remove visual distinctions between the services for riders. When Valley Metro was first branded, the cities of Scottsdale and Tempe did not join the brand. However, as the Valley Metro services expanded so did the value of the unified brand and visual continuity of the system. Nearly ten years later, in 2002, the cities of Tempe and Scottsdale also joined the Valley Metro system, further regionalizing the system.

Another critical step toward strengthening the regional transit network occurred in 2004 when Maricopa County residents voted to reauthorize the original tax and allocated a larger percentage to transit. Proposition 400 (or Prop 400) authorized \$2.8 billion for transit over the 20-year authorization period, including funding for bus and light rail transit improvements, development of a “supergrid” bus network and development of 27 additional miles of light rail or other high capacity transit service². Prop 400 was a major step forward in creating a regional transit network because it called for a restructuring of the bus service into a regional grid system and for incorporating the City of Phoenix’s plans for light rail into a regional system.

Light rail development was incorporated into the Valley Metro system but is managed and governed as a separate entity, Valley Metro Rail (METRO). The light rail system opened in December, 2008 with 20 miles of “starter” track and 28 stations, providing service in Phoenix, Tempe and Mesa. Most recently (2012), METRO and Valley Metro merged into a single organization headed by a single Chief Operating Officer, although there are still separate boards governing each organization. The merger was motivated by a recognized need for

¹ Note not all local tax initiatives were successful. In 1997, the City of Phoenix defeated a half-cent sales tax for transit service improvements, but a 2000 effort was successful. After passing a transportation tax in 1989, the City of Scottsdale defeated a subsequent effort in 1997. The City of Chandler also had an unsuccessful tax effort in 1999.

² Valley Metro – Regional Public Transportation Authority (RPTA). 2012. Short Range Transit Plan: FY 2012-2016. Phoenix, AZ.

more integration between the bus and rail services; a desire to more closely coordinate service goals; and the potential to reduce costs. Given that both boards will continue, the merger also identified a conflict resolution process: if the boards provide conflicting instructions, a subcommittee of an equal number representatives from each board will meet to review the concern; the subcommittee will have advisory authority only.

PROJECT DEVELOPMENT

Project Purpose

The original goal of creating a Regional Public Transportation Authority was to create a regional public transit system for Maricopa County.

Project Leadership and Partners

Developing a regional transit system in Maricopa County has been an ongoing effort since 1985 and, thus, the role and individual representatives participating in the process have evolved in the more than 25 years since that time. The RPTA is a member organization. All members contribute financially to the development and provision of regional transit services, thus all members participate in the governance of the system. The governance structure is comprised of representatives from 16 communities, including Maricopa County³ and board members are elected officials in their home communities. METRO, on the other hand, developed as a public, non-profit corporation charged with the design, construction and operation of a regional high capacity transit system. METRO board members include the cities of Phoenix, Tempe, Mesa, Glendale and Chandler, with representatives being elected officials from these communities.

Historically each of the agencies had its own Chief Executive Officer (CEO). In 2012, the two organizations merged and appointed a single CEO for both METRO and Valley Metro. For the time being, however, there are still two separate and independent boards. Much of the staff and service management functions have been consolidated.

Public Involvement

Public support and the community's willingness to support regional and local public transportation services are at the heart of Valley Metro's service development. Much of the

³ Valley Metro board includes Avondale, Buckeye, Chandler, El Mirage, Gilbert, Glendale, Goodyear, Maricopa County, Mesa, Peoria, Phoenix, Scottsdale, Surprise, Tempe, Tolleson and Wickenburg (per Valley Metro website).

regionalization efforts, including the light rail line, also reflect public involvement and support. However, while the public continues to be involved in the topics explored in this case study, namely fares, unified marketing and branding and service development, direct public input has not been a major factor in program development.

Obstacles/Challenges

Valley Metro is working toward a regional transit system by developing new transit systems while simultaneously working to knit together existing services and infrastructure. The process is ongoing, with several challenges and obstacles facing the effort.

Funding is a fundamental challenge to regionalization and service consolidation. In Maricopa County, funding reflects some of the region's greatest accomplishments and challenges. Regional funding challenges for Valley Metro include raising local funds and the dual challenge of sharing costs and distributing benefits.

- **Raising Local Funds** - Maricopa County struggled with creating a regional transit vision and plan that was supported by the broad base of residents in the county. Thus, the regional tax initiative required several efforts before it was successful, even as local jurisdictions were able to win support for transit taxes. A regional transportation tax, including funding for transit, was reauthorized in 2004.
- **Sharing Costs and Distributing Benefits** - Once the regional tax passed, developing a system that allocated costs and distributed benefits for that funding source emerged. Maricopa County covers a geographic area of more than 9,000 square miles, contains more than 25 jurisdictions and has a population of nearly 4 million. Developing a system that responds to transit needs and is perceived as equitable, therefore, is difficult. Ultimately a mechanism to distribute service benefits known as "regional equity" was created for bus system improvements. This system allocates service hours and miles to reflect a combination of shared principles and local financial contributions. The premise is that because everyone pays into the tax, everyone benefits. The challenge, however, is that the allocation of funds based on paying into the system does not necessarily line up with the demands and needs of how a regional transit service should be constructed. Thus, designing services in line with jurisdictional equity means that some areas may have unproductive transit services, while other areas in the region may be under-served.

Having multiple service contracts creates redundancies. Valley Metro has successfully worked with partners to consolidate contracts which, in turn, streamline operations and reduce costs. All transit service in Maricopa County, including rail, is operated by private sector contractors managed by public entities. As of 2012, there were six fixed-route service contracts in Maricopa County—three contracts held and managed by municipalities (Phoenix, Scottsdale and Tempe), plus one RPTA/Valley Metro contract for regional service, one contract for rural service and another for services managed by RPTA but paid for by the municipalities of Mesa, Gilbert and Chandler. There are also separate contracts with demand-response service providers. The fixed-route contracts are held with one of five contractors: Veolia, First Transit, ValuTrans, Second Generation, Inc., and Dunn Transportation. The City of Phoenix holds contracts with Veolia Phoenix and First Transit. Valley Metro has three contracts, one with Veolia RPTA, one with Second Generation, Inc and another with ValuTrans. Scottsdale also had one contract with Dunn Transportation.

The multitude of contracts, including multiple contracts with the same service provider, means there have been some redundancies in the network, which increase the cost of service. Some redundancies result from public sector staff time; instead of having a single team of planners and legal resources to manage contracts, each of the contracts are managed independently by local staff. Larger contracts also tend to create efficiencies with the operators resulting from economies of scale, especially for fuel costs, training and support service. Consolidated contracts also benefit from less staffing; private operators typically dedicate a staff to each contract. Thus, if there are five contracts in the region, there are likely five general managers and five deputy managers (among other positions), which increases overall costs.

In 2012, the City of Tempe contracted with Veolia Tempe; as of July 1, 2013, the City of Tempe decided to participate in the RPTA managed contract with First Transit. The jointly executed contract, while complicated, is expected to decrease operating costs by 10% annually. As of this change, the consolidated contract will include service for the six communities (Phoenix, Mesa, Gilbert, Scottsdale, Chandler and Tempe as well as regional service).

Creating new regional structures to manage regional resources. As discussed, local systems existed before regional transit services were added; thus in many ways the regional network functions as an overlay service. In addition, many of the local systems are older than Valley Metro and these agencies have historically played important roles in regional transit governance. As Valley Metro and other new regional governance structures, such as the

Maricopa Association of Governments (MAG) evolved, their capacity and interest in assuming more regional functions increased. In many cases, these organizations have and are assuming responsibility for regional transit governance, including, for example, fare coordination and passenger information systems. In other cases, however, local systems and municipalities have been and continue to be reluctant to transition responsibility. For instance, the City of Phoenix has been and continues to be the designated recipient for Federal Transit Authority (FTA) funds. This arrangement reflects the city's longstanding position as the largest transit operator in the region and successful administrator of the program. From an organizational perspective, given Valley Metro and METRO's role as the regional transit authority, or MAG's function as the Metropolitan Planning Organization, there may be opportunities to transition some functions away from local municipalities to regional authorities. Transitioning a critical function such as administering regional transit funding, however, will be challenging, especially because such a transition would involve transitioning authority, responsibility and control of the program. In general, agencies are reluctant to give up such authority and there are few external forces calling for the change.

Sharing service costs and benefits across funders. Among the most challenging aspects of regional cooperation involve how to share costs and benefits, especially direct financial costs and benefits. In the case of Valley Metro, the sharing of costs and benefits is complicated by the fact that several of the local entities (municipalities) both operate their own local service and contribute to the regional system. Thus, distributing benefits needs to balance how to share any benefits achieved by collaboration both locally and regionally.

For example, by jointly issuing a single service contract, the City of Tempe and Valley Metro, as well as the communities that purchase service from them, are expected to reduce costs by 10% per year. This will translate into significant savings. From the perspective of the City of Tempe, savings should be returned to the city, because their participation in the process is the reason why the benefits were generated. On the other hand, Valley Metro is also a major reason why savings were generated and thus it also has a claim to cost savings. While both Tempe and Valley Metro recognize the importance of a regional transit system and that at least part of the savings should be reinvested into this regional system, it is also true that such investments may or may not directly benefit Tempe.

Sharing regional transit agency board members with individual jurisdictions. The RPTA bus program is overseen by a Board of individuals representing 16 of the municipalities in the region. Most of the board members also hold elected seats in their home communities.

METRO is managed by a Board comprised of representatives from the three communities with light rail (Phoenix, Mesa and Tempe) plus two other communities with plans to build light rail in the future. One of the challenges facing the combined Valley Metro organization is that elected officials have different opinions depending on whether they are sitting on the regional transit board or their local municipal council. Another challenge occurs when the RPTA and METRO boards make conflicting decisions or recommendations.

Implementation and Outcomes

Despite persistent fragmentation in the regional network, Valley Metro realized significant achievements toward regionalization and increasing cooperation among individual jurisdictions.

Joint Branding and Passenger Information Systems

One of Valley Metro's major successes has been a unified brand and shared passenger information systems. The unified branding means that the look of transit services is consistent regionally and passengers are unaware of who operates the service when they board a bus. This is a significant achievement given the number of operators. The unified passenger information system also means passengers refer to the same webpage and consult the same passenger schedules to get information about transit services. This makes the system considerably easier to understand and use, and thus makes it more attractive to riders.

The joint branding and unified passenger information system also simplifies some functions for municipal transit systems and allows their much smaller staff to focus on more community specific programs and services.

Fare Systems

In addition to a unified brand, Valley Metro has a unified fare system, so that fares are set regionally and are based on mode rather than who is operating or funding the service. The unified fare system is a major benefit for Valley Metro riders because it is more convenient, easier to use and unifies the system. Fares, like passenger information systems, are one of the key strategies that Valley Metro has successfully employed to create a unified "front" to the system, despite a fragmented service delivery.



The Valley Metro logo appears throughout the transit system, on almost all vehicles, facilities or marketing materials.

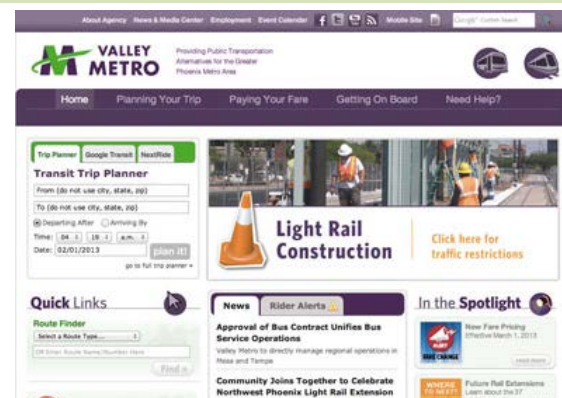
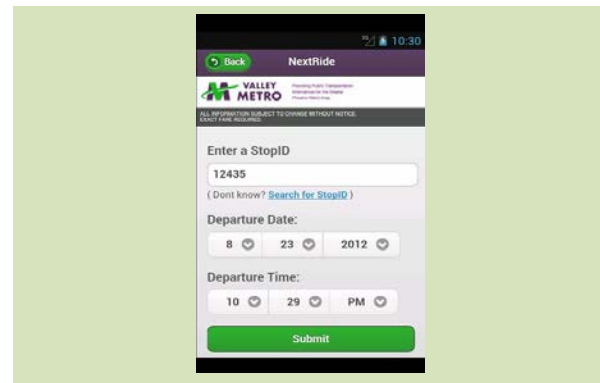
Photo: courtesy of Valley Metro web page

Fares are managed regionally by a Fare Policy Committee. Every member city is welcome to sit on the Fare Policy Committee, although it is not a priority for many of the smaller cities. The cities that pay for their own service share in the distribution of fare revenue. Fare revenue collected on the rail system is collected by the operating agencies and is distributed based on track miles directly to the host municipalities. Fare revenue collected on the bus system is collected by Valley Metro and distributed based on boarding location and is used to offset the cost charged to the municipalities for Valley Metro services.

In terms of setting fares, Valley Metro sets a regional farebox recovery rate, which is the same for all modes. Fare changes are loosely tied to maintaining a farebox recovery rate, but in reality fares have been constant for several years. Most recently fares were raised. This decision was managed by the Fare Committee, which reviewed the costs, benefits and need and then made a recommendation to the full board for a final decision. There is also a public outreach process for fare increases.

Consolidated Functions

In addition to fares, branding and passenger information, Valley Metro has also achieved success in consolidating some back office functions. In some cases, Valley Metro takes the lead on the consolidated services, but in other cases, municipal partners manage the systems. For example, the region has a shared bus procurement process; currently this is managed by the City of Phoenix, but subsequent purchases may be led by Valley Metro. The City of Phoenix also manages the transit scheduling software (HASTAS) for the region. Valley Metro manages long-range planning, fare policy, the collection and distribution of bus fares, customer complaint line, much of the region's paratransit service, the fare revenue collection and distribution



Valley Metro manages passenger information for the entire region. Any rider looking for information about any transit system in the region, regardless of who operates or funds the service, can go to one website.

Photo: courtesy of Valley Metro web page

functions for the rail system, and rider surveys and passenger research.

Service Standards and Guidelines

As discussed, one of the challenges facing Valley Metro is creating a productive and equitable transit service network. While the jurisdictional equity formula helps distribute the service, it does not always allocate service based on productivity. As a measure to consider productivity as part of service development, Valley Metro conducted a Service Efficiency and Effectiveness Study (SEES) (2007) to develop shared service standards and craft a framework for service development based on performance and productivity. Building on this effort, Valley Metro is refocused on updating the Transit Standards and Performance Measures and plans to use this process to set goals for service delivery, define service types, identify operating standards and define performance measures. Agreeing on guidelines will support a system for service management and delivery that also helps create more consistencies across service areas.

Unifying Valley Metro Governance

Since 1993, the Regional Public Transportation Authority and Valley Metro Rail have functioned as two separate organizations with separate executive officers, staff and boards. Within the last two years, however, the two organizations merged. The merger reduced staff considerably, resulting in \$1 million of savings by reducing senior staff from ten to five individuals. Additional staff reorganization, including reduced reliance on consultants is expected to save another \$1.2 million in the coming year.

As discussed previously, one of the challenges related to having a single agency with two policy boards is that sometime boards could make conflicting recommendations. In response to this the two Valley Metro boards established a process to handle conflicts: a subcommittee with equal representation from each board would meet to review and consider the action/recommendation and recommend a solution. The subcommittee does not have final authority to solve the conflict but creates a system to review and consider the problem from the perspective of both entities, and ideally find a reasonable solution.

Merged Contracts

One of Valley Metro's most recent accomplishments is a jointly contract between the RPTA and the City of Tempe services. Developing a joint contract that meets all the needs of both contracting entities (Tempe and RPTA) was a challenging task, but the joint contract will help coordinate service delivery, reduce redundancies and should reduce overhead and

administration expenses. The joint contract is expected to reduce costs on the order of 10% annually.

Dial-A-Ride

Several years ago Valley Metro assumed responsibility and consolidated the ADA and dial-a-ride services for several communities (Tempe, Mesa, Gilbert, Chandler and Scottsdale) in the East Valley, known as the East Valley Dial-a-Ride (EVDAR). Services were consolidated as a strategy to reduce overall costs, to provide “seamless” rides between municipalities and to address challenges facing local jurisdictions in managing the program. The coordinated system includes a single call-in/trip reservation number and complaint process and a consolidated operating contract through the use of a cab provider. The program has been successful at reducing costs and oversight responsibilities for the cities. However, other factors, including a growing older population, led to further program changes in 2013, including use of the discount cab program to help lower per-trip costs. To date, incorporating cabs into the service delivery model has helped manage cost increases, even as ridership grows. But, there is concern that ridership may outpace cost savings, and overall program costs will increase again.

Regional Planning

Valley Metro is also playing a larger role in regional planning, in part by working more closely with MAG. Historically MAG did most of the regional planning for the region, sharing that role with the City of Phoenix, which is the designated recipient of the regional planning funds. But as Valley Metro has achieved success in operating and planning transit services, MAG and Valley Metro are creating a Memorandum of Understanding that will give Valley Metro a larger role and create a partnership on regional planning activities. An early example of the joint planning will be an upcoming Southeast Valley Transit Study.

PROJECT BENEFITS AND COSTS

Maricopa County’s and Valley Metro’s work to create a regional transit network is ongoing, with considerable success achieved to date, but also significant work left to be done. Some of the major benefits and costs associated with the regionalization process include:

Increasing ridership. One of the clear benefits of Valley Metro and all of the region’s transit services is that transit service in Maricopa County continues to expand and diversify and

attract more riders. In FY 2013, Valley Metro served some 73.4 million riders, including both bus (59.1 million) and rail (14.3 million). This is an 8% increase over FY 2010, the first year the full system operated (55.6 million bus riders and 12.1 million rail).

Strengthening public support of transit. Valley Metro, especially through the development of the light rail service, but also the bus system, has strengthened a positive public perception of transit and a willingness to fund system expansion. The population's willingness to invest in transit infrastructure and services through Prop 400 demonstrates support for a regional system and trust in Valley Metro.

Making the system easier to use and understand. Passenger benefits are at least partially illustrated by increased ridership but, in addition, Valley Metro's work to create a unified "face" to the system in the form of a regional fare structure, consistent branding, common passenger information and a single complaint line significantly improves the riders' ability to understand and use the system.

Realizing cost savings through joint contracting. The joint service contract Valley Metro and Tempe negotiated with Veolia is expected to reduce service costs by as much as 10% annually. These savings are gained through shared staffing (including management), fuel costs, competition for the contract, and shared bus facilities, among others. For example, before merging, Tempe and Valley Metro each had their own bus facilities for maintenance and fueling; one facility was always over capacity and the other was under capacity, which caused inefficiencies in the system. Now Tempe and Valley Metro can use either facility, which evens out capacity and ensures maximum efficiency.

RECOMMENDATIONS/LESSONS LEARNED

Lessons learned from Valley Metro with respect to fostering and promoting collaboration include:

Regional equity in terms of the allocation of funding is a critical part of selling and managing a regional system. A fundamental part of creating a regional transit system is developing a mechanism for all partners to share in the costs of the service. This is particularly true for a region like Maricopa County, with a regional tax. Regional taxes mean all county residents contribute to the system. When Valley Metro was formed, the board created a "jurisdictional equity" formula to distribute service in a way that distributes funding according to an established, transparent method designed to be equitable. Jurisdictional

equity applies to revenues collected by the Prop 400 ½-cent sales tax, less money used for regional programs (i.e. Mobility Center, Customer Service, etc.). Revenues are allocated to jurisdictions based on a formula and include opportunities for policy considerations. Policy allocations are compared with actual funds spent on resources and adjusted.

The challenge with the jurisdictional equity formula, however, is that it does not take into account transit design principles and thus may not always align service and needs from a purely market perspective. A method for distributing funds equitably is essential for any regional system, especially one that requires regional voter approval. However, ideally the formulas would allow for more flexibility to assign service based on a combination of needs, market demands and regional equity.

Create regional systems by prioritizing the customer experience. Valley Metro offers an excellent example of an organization that was able to work incrementally toward a regional system by focusing on regionalizing functions and programs that offered the greatest benefit to passengers first. These types of passenger-focused systems— such as a regional fare system and a common marketing and branding scheme— offer significant benefits to the passengers and, therefore, are easy for stakeholders to support. Valley Metro also used these initial collaborative efforts to build trust and create a foundation for subsequent regional projects and programs.

Build support for regionalization by assuming responsibility for some of the less attractive and/or most challenging projects. Some of Valley Metro’s early success in creating collaborative regional systems grew out of their willingness to take responsibility for services and systems that the other communities were less enthusiastic about managing, such as customer complaint lines, dial-a-ride systems and passenger information systems. Being successful with these programs, enabled Valley Metro to build support, demonstrate capacity and earn trust.

Set standards or guidelines that provide some flexibility for local input and control. As discussed, one of the biggest challenges for Valley Metro has been balancing local control with regional interests. One of the ways Valley Metro has managed this balancing act has been by using performance guidelines, or “minimum standards” for a regional service design. The guidelines create a common framework for service, but allow flexibility for local input and control. One of the best examples is provided by vehicle branding. All the buses in Maricopa County share some common elements – a color palate/scheme, a Valley Metro

logo, and the placement of the logo. Local entities are able to exercise some of their own preferences but the system overall still has a unique identify that is clear and recognizable. Likewise Valley Metro manages and implements regional marketing campaigns to educate riders and promote transit use. These campaigns are available regionally. Individual municipalities are also able to conduct their own marketing campaign as they feel the need or if they have a special local program they wish to promote. A similar approach using service design guidelines is being proposed for transit service development, but has not yet been fully implemented.

Use representative committees to guide projects and report back to the regional board. One of the things that Valley Metro has done successfully for many years is employ a committee structure to make decisions, manage projects and report back to the full board. Valley Metro has a Regional Marketing Committee that manages branding and marketing and a Regional Fare Committee that oversees the fare structure. It also uses a committee structure to resolve conflicts between the Regional Public Transportation Authority bus board and the METRO rail board. The approach has worked well for both Valley Metro and the individual jurisdictions; members are invited to participate and collaborate on decisions affecting their service.

Develop trust among stakeholders by developing processes and systems that are have demonstrated durability. One of

the lessons cited by Valley Metro as critical to its success was developing processes and structures for addressing regional decisions. It used these systems to build confidence and trust in the agency and for the agency to gain experience making regional decisions, such as



Valley Metro created a regional brand for its bus and light rail services. All vehicles show the Valley Metro logo and are designed around the core brand colors: purple, green, white and silver.

Photo: courtesy of Valley Metro webpage

allocating costs and distributing benefits. For the most part the processes have been used to address small decisions and relatively minor problems. But, having a tried and trusted process that partners agree to and have used in the past, is a significant asset when the region faces more challenging and higher stake issues. Partners and stakeholders have confidence that fair and balanced decisions can be reached.

For example, Valley Metro proposed an express bus system focused only on passenger pick-ups at park-and-rides, rather than continuing expensive local bus circulation. However, the City of Tempe was not in favor of this approach because the existing operation was very popular with customers. Local Tempe express bus riders and city staff went to the Board and made their case against the modified operations. The Board listened and allowed Tempe bus operations to continue with local circulation. This process built trust between the City of Tempe and Valley Metro and the city feels confident Valley Metro will balance Tempe's local needs and interests with regional goals.

APPENDIX B

Butte County, CA

APPENDIX B: BUTTE COUNTY, CA

INTRODUCTION

Butte Regional Transit, known to the public as B-Line, is the regional public transit operator in Butte County, California, a mostly rural county (population 220,000, according to the 2010 US Census) located about 60 miles north of Sacramento. The county's largest concentration of residents and employment is in Chico (population 86,000), home to California State University, Chico,



Butte County B-Line Bus.

Photo: courtesy of S. Vohra

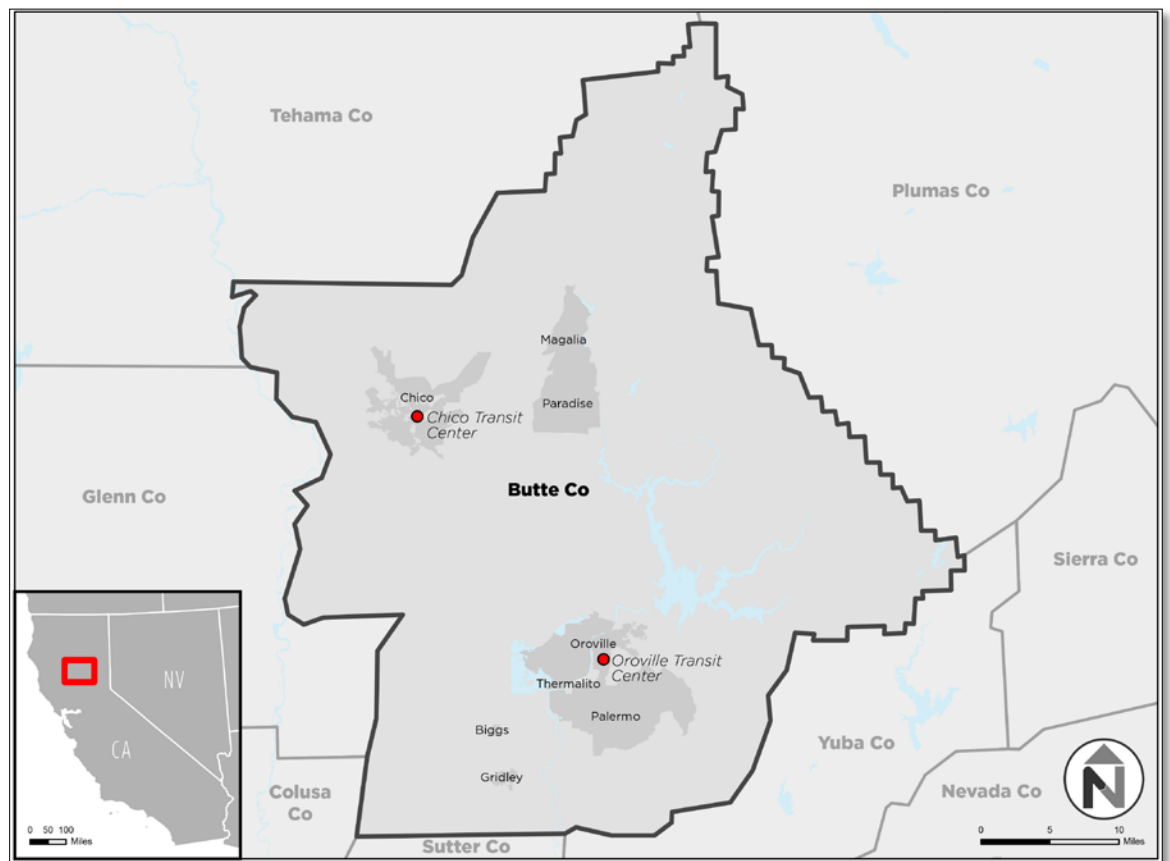
with more than 16,000 enrolled students. Oroville, the county seat, has about 15,500 residents. Paradise, an unincorporated town 10 miles east of Chico, has the county's second-largest concentration of residents, with a population of more than 26,000 residents. The remaining cities and towns have much smaller populations.

B-Line provides urban services in Chico and Oroville, as well as regional routes that link Butte County's cities. B-Line's regional routes afford limited local circulation in Paradise, Gridley and Biggs, as well as several other small communities. No regional services are currently provided by B-Line beyond Butte County, but transit operators from two adjacent counties provide both commuter and lifeline service to Chico. B-Line Paratransit operates as an ADA complement to the fixed routes in the county's three largest cities and also travels up to three miles beyond ADA boundaries for eligible riders paying an additional fare.

B-Line represents the 2005 consolidation of six separate transit operations. It includes the services of three prior fixed-route transit providers, including urban services provided by Chico Area Transit System (CATS) and Oroville Area Transit System (OATS), and Butte County Transit's (BCT) rural service that connected key cities and towns in the county. Three other services, all ADA paratransit and/or senior dial-a-rides provided by local jurisdictions, were also consolidated into B-Line: the Chico Clipper, Paradise Express, and Oroville Express.

These services, and the region in which they operate, are illustrated in Figure B-1.

Figure B-1 Butte County



HISTORICAL OVERVIEW

In the fall of 1999, representatives from the County of Butte, along with its cities, towns and transit agencies began a study process, spearheaded by the Butte County Association of Governments (BCAG), to explore opportunities to consolidate at least several of the seven transit services operating within Butte County. Some coordination efforts were already in place: the City of Oroville and Town of Paradise were purchasing administrative services for their transit operations from the County; all transit services were provided by a single contractor; and transfers between the intercity BCT and OATS were coordinated. An earlier study had recommended fare coordination, but had identified consolidation as a strategy for overall cost savings. A subsequent study identified cost savings of almost \$140,000 annually if administrative functions were transferred to BCAG.

A Transit Consolidation Policy Committee was established at the beginning of the study process. Committee representatives included technical staff and/or management from each of the jurisdictions and two policy-level representatives (a City Council member from Chico and a representative from



Buses from three of the services that operated prior to consolidation in July 2005. Top to bottom: Oroville Area Transit System, Butte County Transit, and Chico Area Transit System

Photo: courtesy of J Goldman

the County Board of Supervisors). Committee representatives met regularly over nearly a two-year period to review a range of options and build consensus on a series of issues: agree on service parameters, a funding plan, Board representation, who would administer the service, and ultimately a route structure to replace the existing mix of services. The process of regular meetings, facilitated by a consultant, proved to be beneficial for several reasons. Agendas and review materials were prepared in advance of each Committee meeting and meeting notes were distributed following each meeting. When a Committee member was unable to attend a meeting, he/she could review the materials and notes, and be informed on the progress and any decisions that were reached. Having a series of single-topic meetings provided a set of working documents that tracked discussion and debate, and how decisions were reached on each topic. According to stakeholders, having a meeting, getting consensus, and then moving on to the next topic helped pave the way for subsequent decisions.

Early in the process, to educate agency managers and other staff, as well as policymakers, on the benefits and opportunities of consolidating transit, the consultant prepared a peer review or best practices analysis (lessons learned) of how other transit agencies approached consolidation: how transit operations in other communities transitioned from a multi-agency setting to a single consolidated system. The focus was how consolidation issues were approached, the process and timeline, the goals and objectives, the challenges and barriers, how they were overcome, and whether their goals were met. Emphasis in the peer review was on operating and capital cost-sharing formulas, policy board structure to ensure geographic equity, fare structure and fare policy, revenue sharing arrangements, and contracted versus in-house operations.

The peer review provided a primer on consolidation and allowed the Committee members to develop and refine a set of goals for the Butte County study. They agreed on five major working goals to guide the study process and to assess, at the conclusion of the study, whether the study had been successful. These working goals were as follows:

- To develop consolidation alternatives that realize cost efficiencies over current system expenditures.
- To identify opportunities to improve the overall quality of transit service in Butte County.
- To develop an equitable funding plan for the preferred alternatives.

- To develop a plan for the administration and policy board oversight of the preferred alternatives.
- To recommend a preferred alternative for improving transit that is supported by all key stakeholders.

Over the course of the study, Committee members became aware of some of the inconsistencies in service policies among providers, and worked with one another to make modest adjustments to services and policies to improve coordination. At the completion of the study, services were highly coordinated, and Committee members agreed to a consolidation of administrative functions, transferring administrative responsibilities from the County and the cities to BCAG. However, due to the complex issue of determining how to share operating costs among participating jurisdictions, with resistance primarily from Butte County officials and the City of Chico, the operations remained independent, with unique brands, schedules, fares, service hours and service policies for nearly four years after the completion of the study. During this time, elected officials took note of the success of the consolidated administrative function, and staff from the jurisdictions voiced appreciation for BCAG's assumption of the day-to-day management of their services. There was also turnover in elected representation, which removed policy-level resistance to a consolidated system, allowing for discussions over the divisive cost-sharing formulas to resume.

Through a complicated negotiation process, the participating transit operators and jurisdictions evaluated a number of cost-sharing options and decided to adopt new formula that considered both population and ridership characteristics. In 2004, after several years of successfully coordinating services under a single administrative function, the jurisdictions agreed to formally consolidate the services as a single transit operation. Although only limited cost savings had been realized, transit operators appreciated the ease with which the services continued to function and policymakers were becoming comfortable with the efficiently coordinated services.

In July 2005, all of the county's transit services –with the exception of a local dial-a-ride provider in the small city of Gridley– began operating as a single system with a unified brand, schedule and fare structure, providing local and regional services in Butte County. Table B-1 highlights the differences in how transit services were organized during three distinct years, showing a progression toward a consolidated system: 1999, before services were consolidated;

2003, after administrative responsibilities were transferred to BCAG (administrative consolidation); and 2005, post-consolidation.

Table B-1 Progression of Butte County Transit Service Integration (1999-2005)

Year	Transit Service Provider(s)*	Administrative Staff	Policy Board Structure
1999	<ul style="list-style-type: none"> ▪ Chico Area Transit ▪ Oroville Area Transit ▪ Butte County Transit ▪ Chico Clipper ▪ Paradise Express ▪ Oroville Express 	One dedicated staff at City of Chico, one dedicated staff at Butte County, staff from all jurisdictions devoting a portion of time to transit services	5 separate policy boards overseeing 7 transit services
2003	<ul style="list-style-type: none"> ▪ Chico Area Transit ▪ Oroville Area Transit ▪ Butte County Transit ▪ Chico Clipper ▪ Paradise Express ▪ Oroville Express 	Two dedicated staff at BCAG, staff from all jurisdictions devoting a portion of time to transit services	5 separate policy boards overseeing 7 transit services
2005	<ul style="list-style-type: none"> ▪ B-Line 	Two dedicated staff at BCAG	One policy board overseeing one transit system

*Excludes Gridley, which opted not to consolidate services

COORDINATION PROCESS

Leadership and Partners

When the new Executive Director of BCAG arrived at the agency in 1993, he found that the idea of transit service consolidation had been discussed over the years by staff from each of the transit providers, but it was not until 1996 that the agency began taking a closer look at what consolidation might mean for transit operations in Butte County. The Executive Director approached city managers and representatives from the County to discuss the potential for consolidating transit services. The primary concern expressed by city and County officials was whether or not consolidation would make services more cost effective.

In 1999, BCAG initiated the study process to consider consolidating services. This formalized effort was prompted, in part, by the county's transit administrator, who suggested it made sense to consolidate at least some of the services because the County was already

administering more than one operation: in addition to its own Butte County Transit services, the County had assumed administrative responsibilities for operations in Oroville and Paradise. Both communities had very small staffs and were happy to accept the County's offer to cover day-to-day contracting, funding, and reporting responsibilities.

Effectively, staff-level discussions spurred the consolidation process, without significant involvement from elected officials. Select elected officials were consulted in a round of stakeholder interviews at the start of the consolidation study. Stakeholders said they generally wanted to consolidate services to improve service quality and enhance service levels, and that they expected a consolidated system would allow for expansion of service either through improved frequencies or extended service hours and days. Few stakeholders in the initial round of discussion indicated their primary goal was to reduce costs, but it was assumed that consolidation would minimize staff resources devoted to transit within individual communities and reduce overall administrative costs.

As the study progressed and Committee members made recommendations to consolidate services, representatives from each city and the County presented the findings and proposals to their respective councils and boards. Most of the elected bodies were supportive of moving forward, but members of the Chico City Council expressed concern about potentially higher costs for the City. Although most of the Council members were supportive of consolidation, one member asserted that the City should not give up local control of services, suggesting the City Council should maintain policy oversight for local transit services, and even prompting the study to be referred to as a coordination study rather than a consolidation study for a period of time. His argument was that by consolidating, they would have to cede control to an outside transit board for decisions regarding changes to services or operations in Chico. As a result of disagreement among Chico Council members, the City opted not to consent to consolidating services and operations, but agreed to a consolidation of administrative functions: day-to-day responsibilities for the operation would be transferred to BCAG, which would also assume administrative functions for the County's transit service, and services in both Oroville and Paradise.

Administrative consolidation proved to be successful, and Chico's City Manager acknowledged that it worked well for the City. Three years later, in 2003, the Council member who opposed consolidating services had left the council for the State Assembly and the reconfigured Chico City Council agreed to consolidation of all services, with BCAG's Policy Board as the oversight body.



Downtown Chico's transit center is the primary hub of B-Line buses. Prior to consolidating services, Chico and Butte County had transit centers a few blocks from one another.

Photo: courtesy of S. Vohra

Chico's California State University campus, which had heavily subsidized transit costs in Chico through the use of student fees to cover fares, transferred its partnership program to the new countywide system, B-Line.

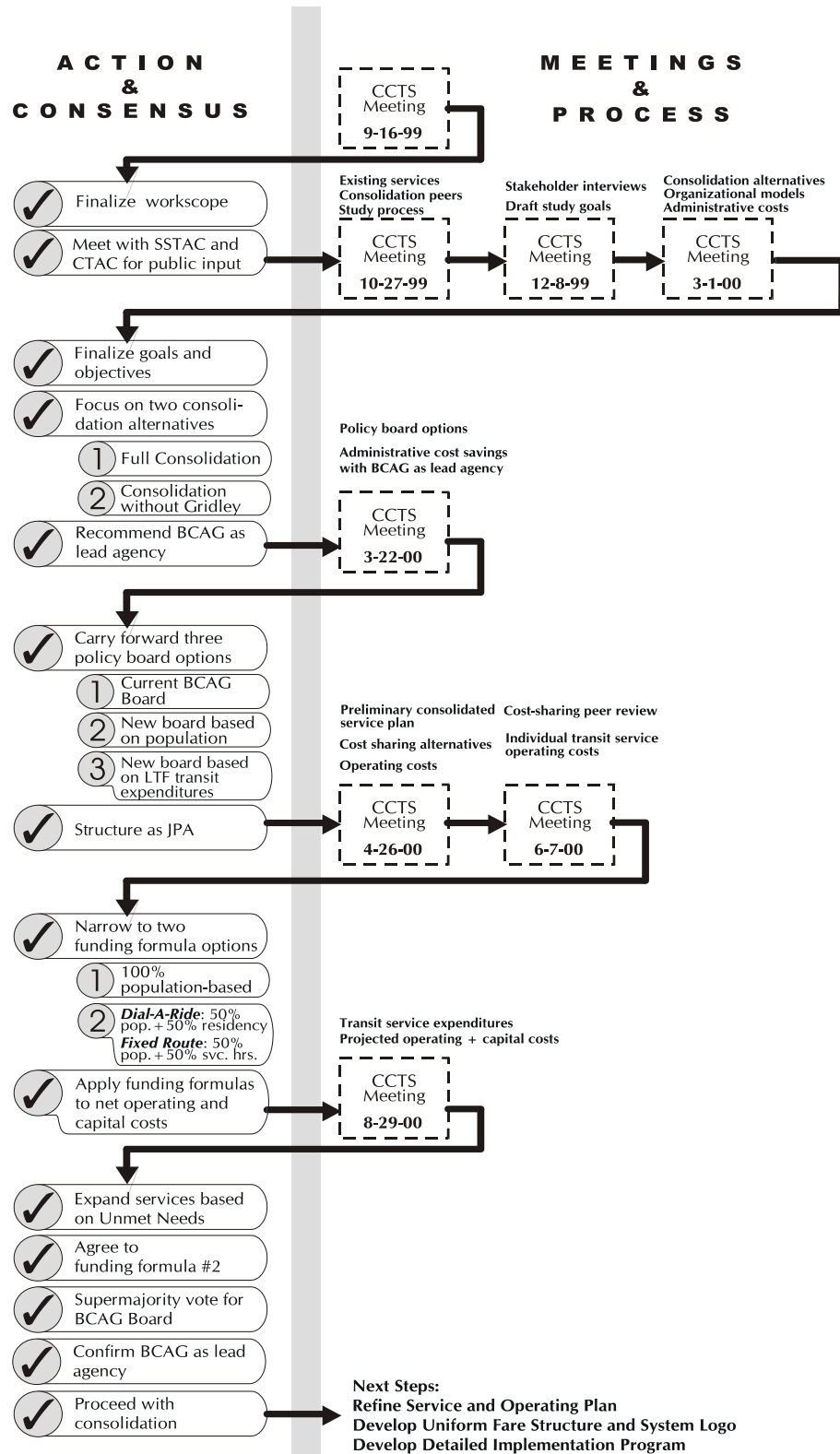
Implementation and Outcomes

The process of consolidating transit services in Butte County benefited from a number of factors that might not be easily replicable in other communities, but Figure B-2 illustrates the overall process that was followed in developing an approach for consolidation, showing a series of meetings taking place over a one-year period. Key outcomes are discussed in the following sections.

Single Contractor for Multiple Transit Operations

Prior to consolidating, all of the transit agencies, with the exception of Gridley which did not participate in the consolidation of services, contracted with the same transit service provider, ATC/Vancom, which operated all services in the county out of a single facility that it leased. Although each transit operation had dedicated vehicles, staff, and phone lines, as well as a specific set of policies governing operations, having the same contractor using one facility made it very easy to transition to a single system. As a single system, the contractor was able to bid for the work at a rate that allowed for the operation of both rural and urban routes, as well as paratransit services. The contractor was able to use staff more flexibly than with multiple systems, and a single vehicle fleet led to increased efficiencies that brought down day-to-day costs.

Figure B-2 Process for Consolidation Decision Making in Butte County



Source: Butte County Association of Governments (BCAG). 2001. Transit Consolidation Study Summary Report, January 2001. Chico, CA.

Administrative Consolidation

Before the consolidation study began, Butte County staff had already assumed administrative functions for transit operations in Oroville and Paradise. Stakeholders noted that the City of Chico had not really considered participating in this consolidation of administrative responsibilities because the City did not track the administrative costs among its overall costs (staff hours managing transit were attributed to other job functions), and therefore would not necessarily realize any administrative cost savings if those functions were transferred to the County. In addition, some stakeholders reported ongoing disagreements between the City of Chico and Butte County, as well as some personality clashes.

Over time, the County became interested in transferring responsibilities for administering the services to another agency, and BCAG was identified as the appropriate agency. As the California-designated Regional Transportation Planning Agency (RTPA) and federally designated Metropolitan Planning Organization (MPO) for Butte County, BCAG is responsible for the preparation of transportation plans and programs, and distributes federal and state transportation funds. BCAG staff assessed their abilities and determined that the agency was interested in assuming the administrative function for transit previously held by Butte County. Once those responsibilities were reassigned to BCAG, the City of Chico reconsidered its decision to retain administrative responsibilities in house.

Ultimately, BCAG became the lead administrative agency for all of the transit operations with the exception of Gridley.

Route/Service/Fare Coordination

BCT, CATS, and OATS coordinated some service schedules to facilitate transfers between buses, but service planning was done independently by each provider. Service days and hours varied among the providers, with service beginning as early as 5:30 a.m. on Butte County Transit, but 7:30 a.m. on the Chico Clipper; services ended as early as 5:15 p.m. on Oroville Area Transit and as late as 10:30 p.m. on the Chico Clipper. Service frequencies varied widely, and only a few services operated on Sunday.

Even today, not all routes operate every day, but following the consolidation effort, B-Line adopted a regional approach for planning services. Bus routes in Oroville and Paradise were significantly redesigned, and several routes in Chico were merged or eliminated to reduce duplication. For example, BCT's regional routes served portions of Chico that were already served by local CATS buses, so these routes could be reconfigured. The consolidated system

emphasizes an improved mix of equipment and routes to meet both local circulation and intercity travel needs.

Before the services were consolidated, each system had a distinct fare instrument and set of fare policies. The consolidated B-Line system maintains different local and regional fares, but allows for transfers between services, and includes passes that can be used on any route/service type.

Unified Brand

At the conclusion of the consolidation planning effort, stakeholders considered a number of different options for a new system name and logo. The consolidated system became known as B-Line (the various dial-a-rides were renamed B-Line Paratransit). A new website was developed, and maps and schedules were printed using the new brand. All buses, bus stops, and facilities were rebranded as B-Line Transit.

Public Involvement

The public played a limited role in the introduction of consolidated transit services. The City of Chico had a Transit Advisory Committee (CTAC) made up of city residents; BCAG sponsored a Social Services Transportation Advisory Council (SSTAC). Both committees were included in presentations about consolidation. Both committees were given information illustrating consolidation would be cost effective and that it would provide a more seamless network for consumers.

BCAG conducted a number of public meetings regarding the shaping of the consolidated system, soliciting input on routes and where they should operate. According to BCAG staff, the general public did not have a significant role in the consolidation discussion and decision-making process.

Obstacles and Challenges

The primary challenges were associated with key decisions to be made regarding policy oversight, cost sharing, and fare policy.

Differing Priorities among Jurisdictions

California's Transportation Development Act (TDA) provides two primary funding sources for transit: the Local Transportation Fund (LTF) and the State Transit Assistance (STA) fund, both intended to address transportation needs. In California, the term "unmet need" carries a lot of weight, because if a county can demonstrate that no unmet transit needs exist,

the LTF funds may be used for streets and roads instead of transit.⁴ Transportation funding from the TDA is allocated to each county based on population and sales tax collections, as well as transit revenues; transit operations within each county must meet a set of specific state-mandated performance standards to be eligible for ongoing funding.

While policymakers from the City of Chico —known for its healthy bicycle mode share and pedestrian amenities— were very supportive of high investment in local transit service, not all jurisdictions were equally focused on non-automobile modes. Butte County, like most other rural counties, traditionally valued TDA funds to use for its vast street and road network, with transit being less of a priority. These differing approaches led some stakeholders to question whether a consolidated agency might not provide a sufficient level of service given all of the available funding, or instead might provide more service than necessary, leaving very little funding for streets and roads projects.

Determining a policy board for the consolidated system that would responsibly represent the interests of all parties was an important issue that was discussed in the consolidation process, and, as noted on page B-7, led to a delay in consolidating. Nevertheless, as part of the consolidation planning process, the Committee reviewed a number of options for what type of organizational model would be most appropriate and the composition of the policy board. Ultimately, the recommended organizational model that was selected was a Joint Powers Authority (JPA), with BCAG serving as the lead administrative agency for a consolidated transit system. BCAG was seen as the most neutral party and its Board, with representation from all jurisdictions in Butte County, was deemed the appropriate policy board. To address concerns raised by some jurisdictions, it was agreed that all transit policy decisions would require a supermajority vote of the Board (at least seven of 10 members). The Transit Administrative Oversight Committee was established as a result of consolidation, and includes administrative and other staff representatives from the County, cities, towns and BCAG, who meet to discuss transit service planning, operations, and equipment.

Finding an Equitable Approach to Sharing Transit Costs

A major obstacle to consolidating was how to share the cost of fixed-route and dial-a-ride service between all of the jurisdictions that would become a single entity. According to one project stakeholder, all of the jurisdictions, but especially the City of Chico and Butte County, serve a diversity of populations and sometimes had divergent opinions about transit

⁴ A public hearing process is required to identify unmet transit needs.

funding. As a result, an equitable formula for sharing costs was needed for day-to-day operations and for capital investments. A goal of the Transit Consolidation Policy Committee was to establish one formula for operations and one formula for capital investments that would apply to all jurisdictions.

As a starting point, the consulting team documented the current cost-sharing agreements in place among the systems. There was no uniformity in the formulas, and the agreements were not necessarily documented or formalized. The consulting team also conducted a review of cost-sharing arrangements at other transit systems where service was operated in a multijurisdictional setting. The findings from the review were valuable to the Committee, because they revealed there is no one singularly appropriate strategy for sharing costs. Because each of Butte County's jurisdictions funded its own service and also made financial contributions to any other service operating within its jurisdiction, it meant that any formula change would result in an increase or decrease over current financial obligations. The Committee was concerned that if any jurisdiction would be required to increase its financial contribution, it could thwart service consolidation.

In advance of identifying formulas, the Committee reached consensus on an objective of sharing costs: to minimize the financial impact on any single jurisdiction while, at the same time, ensuring the formula was fair and equitable. The Committee further agreed that the funding agreement should be firm (not require renegotiation on a regular basis), and should include a specific approach for modification in order to respond to future growth within Butte County.

With goals and objectives clearly stated, the next step was to agree on a series of formulas, calculating hypothetical local funding obligations to determine if the results would increase or decrease the financial contributions for each jurisdiction.

According to BCAG staff, through this process, which required a lot of discussion back-and-forth between different city councils and the County Board of Supervisors, they achieved their goal of an equitable funding arrangement, which meant they would no longer have a "constant battle on how to fund the service."

After identifying and evaluating a series of alternative funding formulas, the Committee recommended formulas for sharing the costs of fixed-route and dial-a-ride services. The formula to determine the financial contribution for fixed-route services would be based on a

jurisdiction's population (50%) and total service hours within that jurisdiction (50%). For dial-a-ride services, the formula dictated that financial contributions would be based on a jurisdiction's population (50%) and total boardings (ridership) within that jurisdiction (50%).

Developing a Single Fare Structure and Policy for an Operation Serving an Urban Area, Rural Communities, and Butte County's Small Cities and Towns

Agencies faced many challenges in establishing a uniform fare structure for a consolidated system. First, fares were not the same among the existing services, which meant that some passengers would be subject to a fare increase while others would not be. The question also existed of how to deal with collecting both local and regional fares, and determining appropriate fare media given the profile of existing riders and the need to attract new riders.

Several committee members expressed concern about public reaction to increased fares and others wanted to ensure fares would allow them to meet revenue recovery targets. A valuable exercise in the fare analysis was to provide sample fare scenarios that Committee members could review with policymakers in their respective jurisdictions to understand what the fare would be for various trips and for different types of passengers.

After a series of meetings about fares, the Committee agreed to a new fare structure that would meet four policy goals:

- Fares should be fair and equitable for all types of services and passengers.
- Fares should be easy to understand and flexible for passenger convenience.
- Fares should be revisited on a regular basis to keep pace with the Consumer Price Index.
- Farebox recovery ratios should reflect the following targets based on the type of service:
 - Local Urban 25%
 - Local Small City 15%
 - Intercity 15%
 - ADA/Dial-A-Ride 12%

Today's fare structure includes both local and regional fares, and includes a mix of single-ride fares, day passes, and multiday passes.

Less than Full Participation in the Countywide Consolidated System

One community, Gridley, did not participate in the coordination or consolidation process, opting to operate its own small dial-a-ride system independently.

The City of Gridley, with a population of 5,000 residents at the time of the consolidation study, opted not to join a consolidated system. This meant that it continued to operate its own small dial-a-ride service using a local vendor that provided a below-market-rate structure (an individual who acted as both the single driver and dispatcher for the service).

While Gridley staff and policymakers understood the value of one countywide system, they did not want to increase their cost of operation (the increase would have been significant, from a cost structure of about \$15 per hour in Gridley to a cost between \$30 and \$40 per hour, in line with the other small city operations). Although Policy Committee representatives were disappointed in this decision, they understood the rationale and expected that at a later date, the City of Gridley might join the consolidated system when their local vendor no longer operated the service. B-Line has since expanded its regional route structure into Gridley, without a local contribution from the City, linking the city with other cities in the county because ridership is meeting performance standards.

Future Efforts

The Executive Director of BCAG noted that the consolidation effort has resulted in a seamless system.

Since consolidating, the system entered into a contract with an outdoor advertising agency that installed new bus shelters across the system—more than 70 new shelters— at no charge to the system (B-Line already had other shelters without advertisements).

In addition, the agency has made technology investments on all of the buses, including new fareboxes and automatic vehicle location (AVL) and GPS equipment to improve routing and on-time performance.



According to B-Line staff, consolidation has allowed for technology investments, improved buses, and a focus on intermodal connections between buses, bicycles, and pedestrians.

Photo: courtesy of S. Vohra

Prior to consolidation, BCT regional routes and Chico's urban CATS routes operated to two different transit centers, a few blocks away from one another, but today all of the facilities are combined.

With their larger, consolidated system, they are now planning a new operations and maintenance facility for transit that will also house BCAG's administrative offices, bringing everything together under one roof on a 10-acre facility. The current facility is used exclusively by the contract operator and is undersized for the operation; a new facility, owned by BCAG, would also offer the agency greater flexibility in selecting contract operators for the B-Line system. BCAG received an \$18 million dollar federal grant for the project, something staff remarked would have been unfathomable without consolidation.

COSTS AND BENEFITS

According to BCAG staff, the consolidation of services resulted in reduced administrative and operating costs, and allowed an overall minimization of staff resources devoted to transit within the various jurisdictions. It has also allowed BCAG to pool resources (i.e., vehicles can be used for multiple services; equipment purchases are for the countywide fleet rather than smaller system fleets) and use existing facilities more effectively. Nonetheless, BCAG has not tracked the overall cost savings or tried to quantify the differences in costs pre- and post-consolidation. A cursory review of administrative costs found that pre-consolidation (in 1999), these costs were estimated to account for 6 to 7% of total annual transit operating costs; more than ten years later, the agency's financial audits show administrative costs represented approximately 3% of annual operating expenses.⁵

Comparing pre-consolidation and post-consolidation transit performance over a ten-year period, combined revenue hours increased by more than 12%, while revenue miles dropped by more than 6%, mostly due to the elimination of duplicative services in the consolidation process. While the total number of passengers riding the services has held relatively steady, the system has maintained a farebox recovery rate of approximately 20% even though operating costs and revenues both more than doubled. BCAG staff report that since

⁵ Early in the consolidation study process, the consultant projected an administrative cost savings of at least \$50,000 annually, from approximately \$285,000 for each system operating separately (not including all administrative costs for Chico's operations attributed to transit) to \$235,000 if the services were to consolidate.

consolidation, the transit agency has consistently come in significantly under its annual operating budget.

BCAG points to the fact that with consolidation, they have been very successful at securing funding from the federal Congestion Management and Air Quality (CMAQ) program, the State of California, and other sources that might not otherwise have been sought if the transit operations were still separate and managed by the jurisdictions.

In addition to the presumed financial benefits, a number of qualitative benefits of consolidating services were identified for each jurisdiction, providing a justification for working together toward a unified transit operation. Table B-2 summarizes what were identified as the benefits shared with elected officials and others in each jurisdiction to help build support for transit service consolidation.

Table B-2 Qualitative Benefits Identified for Consolidating Services in Butte County

Chico	Oroville	Paradise	Gridley	Intercity Travel	Other Communities
Eliminate Duplication					
<ul style="list-style-type: none"> Intercity route and local route serve different locations. 	<ul style="list-style-type: none"> Provides new local circulation route. 			<ul style="list-style-type: none"> Provides a transfer to other routes. 	
Simplify Schedule					
<ul style="list-style-type: none"> Almost all trips have same routing. Consistent headways. 	<ul style="list-style-type: none"> Almost all trips have same routing. Consistent headways. 	<ul style="list-style-type: none"> Almost all trips have same routing. Consistent headways. 	<ul style="list-style-type: none"> Consistent headways. 	<ul style="list-style-type: none"> Almost all trips have same routing. Consistent headways. 	<ul style="list-style-type: none"> Operate on consistent headways.
Simplify Routes					
<ul style="list-style-type: none"> Maintains existing local routes. Core-to-core intercity service. 	<ul style="list-style-type: none"> Core-to-core intercity service. Three routes, each dedicated to specific service area. Eliminates slow Thermalito detour. 			<ul style="list-style-type: none"> Core-to-core intercity service. 	<ul style="list-style-type: none"> Eliminates service in Durham. Intercity route avoids small local roads in Magalia and Paradise Pines. Dial-A-Ride recommended for Thermalito.
Easy to Use					
<ul style="list-style-type: none"> Timed transfers. Coordinated DAR-fixed route connections. 	<ul style="list-style-type: none"> Timed transfers. Coordinated DAR-fixed route connections. 	<ul style="list-style-type: none"> Coordinated DAR-fixed route connections. 		<ul style="list-style-type: none"> Timed transfers. 	
Easier Marketing					
<ul style="list-style-type: none"> Uniform logos and fare instruments. An easy-to-understand map of the system. Comprehensive customer service. 	<ul style="list-style-type: none"> Uniform logos and fare instruments. An easy-to-understand map of the system. Comprehensive customer service. 	<ul style="list-style-type: none"> Uniform logos and fare instruments. Comprehensive customer service. 		<ul style="list-style-type: none"> Uniform logos and fare instruments. An easy-to-understand map of the system. Comprehensive customer service. 	<ul style="list-style-type: none"> Comprehensive customer service.
Maintain Important Service Markets					
<ul style="list-style-type: none"> Local fixed route and dial-a-ride service. All key origins and destinations are served. 	<ul style="list-style-type: none"> Local fixed route and dial-a-ride service. With efficient transfers, key origins and destinations are served. 	<ul style="list-style-type: none"> Local fixed route and dial-a-ride service. 	<ul style="list-style-type: none"> Local fixed route and dial-a-ride service. 	<ul style="list-style-type: none"> More direct and frequent intercity service. Reduces service to low ridership markets. With efficient transfers, key origins and destinations are served. 	<ul style="list-style-type: none"> Reduces service to low ridership markets.

Source: Butte County Association of Governments (BCAG). 2012. Transit Consolidation Study Summary Report, January 2001. Chico, CA.

RECOMMENDATIONS AND LESSONS LEARNED

The consolidation of transit providers in Butte County offers several lessons.

Consolidation has the potential to offer tremendous benefits to a wide array of stakeholders.

The introduction of B-Line as a countywide consolidated transit operation provided a level of seamlessness that had not existed previously. For the consumer, it meant a single route structure, fare policy,



Consolidation allowed for more flexible vehicle assignment among urban and regional routes in Butte County.

Photo: courtesy of S. Vohra

consistent schedules, coordinated transfers, and public information tools that allowed for one-stop trip planning from origin to destination. For the jurisdictions in Butte County, it afforded a much more efficient use of resources (staff resources, grant writing, reporting, management, and vehicle interchangeability) and allowed them to get out of the day-to-day administration of transit. For the lead agency, BCAG, it allowed a planning agency to be directly accountable for the efficient and effective operation of services and for a regional policy perspective to direct how resources should best be allocated in a growing county.

Coordination and consolidation can be a tool to enhance the experience, skill and effectiveness of a transit agency. B-Line is a fairly sophisticated transit operation, with the resources, technologies and information tools to create a high-quality experience for transit users. The level of funding the agency is able to attract is above average. B-Line's customer service and public information, as well as appearance of vehicles and facilities, exceed those of any of the smaller operations that were consolidated to form B-Line.

This is not to say that small transit agencies lack the right skills or experience to manage transit, but in Butte County staff from the smallest agencies had other responsibilities that were not necessarily related to transit. Under a consolidated system, three full-time professional staff are fully dedicated to transit. They work together to plan, develop and manage services, and also lead marketing and operations management in a collaborative

relationship with the contract operator. Transit staff also draw on the skills of others who work at BCAG, including GIS and finance staff.

Bringing together the right set of skills under one roof has not only reduced the duplication of administrative staff functions across Butte County, but has also solidified BCAG's expertise in operating a transit system. This has heightened the quality and level of service, and further secured BCAG's role as a transportation resource in Butte County.

It is important to build trust to encourage participation in a coordination effort. Any agency that seeks to take a lead role in a transit consolidation project should be trusted by partner agencies. BCAG has explicitly made an effort to be viewed as the leader in local planning, but has always taken a very collaborative role. As a result, some of the distrust which has been observed in other coordination/consolidation efforts was not a major factor in Butte County's transit consolidation experience.

According to BCAG's Executive Director, the agency often volunteers to assume new responsibilities on behalf of members. For example, the agency volunteered to build a regional GIS database that all jurisdictions could use. The agency has also led a number of environmental efforts. All of these additional tasks were undertaken to support BCAG's member agencies, but also demonstrate the relevance and importance of BCAG in the region: the agency can be depended upon and relied upon to solve challenges.

Make use of existing institutional structures. B-Line was successful because of a number of factors, but one of the key elements working in its favor was that all participating agencies saw some benefits in shifting responsibilities from the jurisdictions to BCAG, an agency that was interested in taking the lead. BCAG itself was created as a JPA between Butte County and the incorporated cities and towns in the county. As a result, when consideration was given to where a consolidated transit agency might be housed, especially one that would function as a JPA, BCAG became a logical home. The agency already had the policy and staffing framework to make administrative consolidation—and then later full consolidation—happen quickly and effectively. BCAG's Executive Director said, "If you have to start something new, it adds to the challenge." Moving transit to an existing agency made it much easier in Butte County.

The process to consolidate transit services takes more time and energy than many people realize. It requires countless meetings to knock down the barriers and get to the "heart of the matter." What some stakeholders suspected might be a relatively quick and straightforward

effort to combine operations of six transit providers took more than five years to be completed. The study effort itself took about two years, but change requires adjustment, and after several years of successful operations under administrative consolidation, all parties were finally ready to operate as a single transit operation. Even during the study period, stakeholders needed time to think about the implications and often asked for proposed funding formulas or policy board direction to be reconsidered or recalculated. The Committee would table a discussion to allow participants to return to their home jurisdictions to talk with elected officials and others, and then reconvene with an understanding of what was negotiable and what was not.

Based on this experience, other agencies considering consolidation are encouraged to approach the process with small incremental steps. If successful on a small scale, then it may be appropriate to move forward with the next step.

All agencies should be forthcoming about their concerns early in the consolidation process and “lay their cards out on the table.” An open and honest approach will help move the process along without unnecessary delays. Making others aware of any sensitivities that might be encountered can advance a process that requires working with other jurisdictions. It is also important to get policy-level participants involved early in the process.

The consolidation process in Butte County encountered a key obstacle when the City of Chico raised concerns about its perceived loss of local control. Elected officials were most concerned about maintaining their local policymaking role, but from the beginning of the study process voiced a willingness to explore consolidation. Nevertheless, once the study got underway, they became more vocal about their concerns regarding consolidation. In order to encourage Chico’s ongoing participation—and participation from all stakeholders who might have doubts—BCAG staff and the consulting team began to refer to the process as a *coordination study* rather than a *consolidation study*. Only at the conclusion of the study, once there was agreement that consolidation may indeed be a preferred option, was the term *consolidation study* reapplied to the effort. This suggests the importance not only of sharing concerns at the outset, but also that the process champions must be mindful of terminology that is used in the negotiation process so that the outcome is not perceived as coercive (there is no preconceived expectation of a particular outcome).

Consolidation is not an easy accomplishment. B-Line’s success is not something that may be easy to replicate everywhere. Each community is different. BCAG’s staff noted that it would be

much more challenging to consolidate services when three separate transit entities all have separate managers or if consolidation would result in a loss of jobs. Having had almost all of the county's transit operations managed by the same contractor also made it easier. Likewise, without an existing agency with a regional perspective, BCAG, a new agency might need to have been formed, which would have required new staffing, oversight, funding, etc.

Other chance factors helped to facilitate consolidation success in Butte County, including staff retiring from positions in at least two agencies and a change in the makeup of the Chico City Council. By agreeing initially to coordinate services and then consolidate at the administrative level, the participating agencies in Butte County were able to buy themselves some time to demonstrate successful outcomes and build support for further coordination and ultimately full consolidation.

APPENDIX C

Twin Cities, MN

APPENDIX C: TWIN CITIES, MN

INTRODUCTION

The Minneapolis-Saint Paul region, or Twin Cities, provides an interesting study in coordinated public transportation for its array of initiatives and policy direction that encourages—in some instances, mandates—that the region’s transit providers work together. Coordinated efforts

include a regional fare structure and set of fare policies, a unified route numbering scheme, a regional vehicle fleet and procurement program, multi-provider public information, coordinated operations protocols for transit facilities, a regional AVL system, regional performance standards, and a range of joint planning efforts (see page B-6). In addition, there is a single regional paratransit provider, which contracts with multiple operators to deliver service.

The Twin Cities’ regional transit network consists primarily of one large transit provider, Metro Transit, which operates the services in and around Minneapolis and Saint Paul, working with six smaller transit providers that serve a portion of the region’s vast suburbs and provide links to major destinations in the Metro Transit service area, including regional malls, downtown Minneapolis, and downtown St. Paul.

The transit agencies in the Twin Cities are, in descending order of size:

- Metropolitan Council (Met Council), which includes two major transportation divisions:
 - Metro Transit, the region’s largest fixed-route provider operating bus, light rail, and commuter rail transit services in and around Minneapolis and Saint Paul



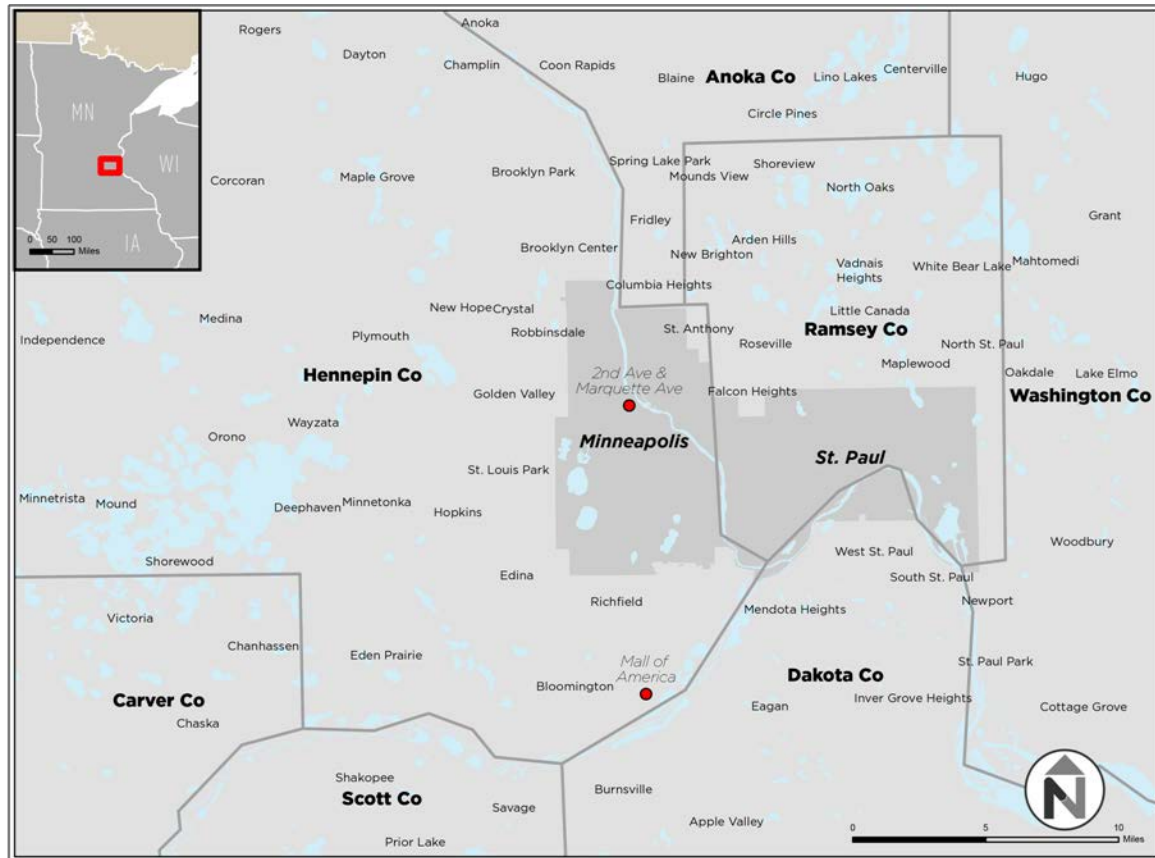
Among other services they offer, all of the suburban transit providers operate commuter buses to downtown Minneapolis. Above, a Plymouth Metrolink bus.

Photo: courtesy of J Goldman

- Metropolitan Transportation Services (MTS), which oversees selected contracted fixed-route bus services. MTS also administers the regionwide paratransit service known as Metro Mobility, the regionwide general public dial-a-ride service known as Transit Link, and the regional vanpool program known as Metro Vanpool.
- Minnesota Valley Transit Authority (MVTA), serving Apple Valley, Burnsville, Eagan, Rosemount, and Savage and providing express service to downtown Minneapolis, the University of Minnesota, and Saint Paul
- SouthWest Transit, serving Chanhassen, Chaska, and Eden Prairie and providing express service to Minneapolis and the University of Minnesota
- Maple Grove Transit, serving Maple Grove and providing express service to Minneapolis and the University of Minnesota
- Plymouth Metrolink, serving Plymouth and providing express service to Minneapolis
- Shakopee Transit, serving Shakopee (including BlueXpress service in collaboration with Prior Lake to Minneapolis)
- Prior Lake Transit, serving Prior Lake and providing express service to Minneapolis (see Shakopee Transit)

The region in which these services operate is illustrated in Figure C-1.

Figure C-1 Twin Cities Region

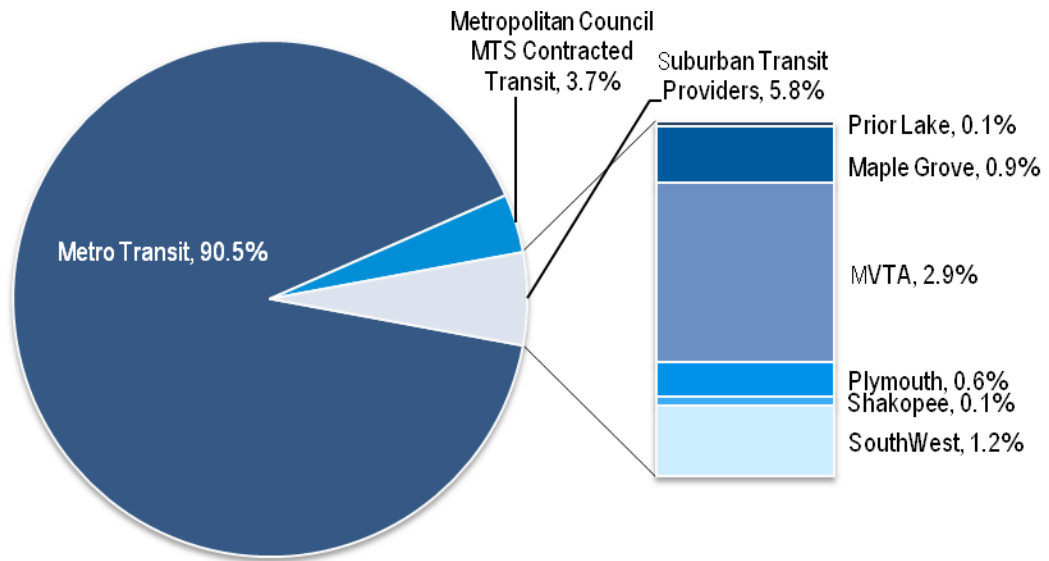


The six smaller agencies—MVTA, SouthWest Transit, Maple Grove Transit, Plymouth Metrolink, Shakopee Transit, and Prior Lake Transit—are the suburban transit providers (STPs, sometimes referred to as the opt-outs) which focus primarily, but not exclusively, on commuter express transit services. Most of the STPs operate local routes in addition to commuter express service. These STPs collectively carry about six percent of all of the region's transit riders. Suburban ridership has risen steadily from 1.5 million rides in 1990 to more than 5 million rides in 2012.

Combined, the regional transit network features several modes, including light rail, commuter rail, and a recently opened bus rapid transit (BRT) line. Express and local bus service account for approximately 85% of all general public transit rides. Metro Mobility paratransit service is available for eligible riders in any community in the region that is served by all-day fixed-route service. Transit Link is available for anyone in the region where regular transit service is not offered.

In addition to these services, the University of Minnesota operates its own transit system comprised of the Campus Connector and several circulators. Bus travel between the main Minneapolis Campus and the Saint Paul Campus is via a busway that allows for high-speed travel. With approximately 3.5 million riders each year, it is actually the second-largest transit provider in the Twin Cities region. Services are offered free of charge. The Met Council and University of Minnesota coordinate often on services, but because of the relatively self-contained nature of University services, these campus-based shuttles are not included in the discussion of regional coordination in this case study.

Figure C-2 Share of Regional General Public Transit Ridership by System (2011)*



Source: Minnesota Department of Transportation. 2012. 2012 Transit Report: A Guide to Minnesota's Public Transit Systems. St. Paul, MN.

*Excludes Metro Mobility (paratransit), Metropolitan Council Vanpools, and University of Minnesota Transit

The Met Council—with its Metro Transit division as primary transit operator and its MTS division as the region's MPO and provider of private contracted transit services— offers a model not seen in most major American cities.⁶ Metro Transit's administrative and planning staff is based in Minneapolis, while the Met Council's staff is housed in Saint Paul. Staff

⁶ The Metropolitan Council and the Transportation Advisory Board together act as the region's metropolitan planning organization.

from both organizations work together closely on many transit initiatives, to the point that sometimes the responsibilities between the two organizations appear to overlap or become blurred. According to staff, FTA and FHWA representatives have commented that this model provides better coordination in planning between the transit providers and the MPO than they have seen in other regions. Generally, Metro Transit handles short-term service planning and day-to-day transit operations, while the Met Council leads long-term regional transit planning and capital initiatives, as well as the regional funding program. The STPs are responsible for their own planning, facilities, and bus service operations, but often with some involvement or oversight from Met Council.

The large size of Metro Transit and its close relationship to the Met Council are significant determinants of how coordination works in the region: smaller agencies have less influence in the coordination decision-making process. The Met Council and Metro Transit provide nearly 94% of all regular public transit trips in the region (see Figure C-2).⁷ The Met Council is also the designated direct recipient for most federal and regional transit funds.

Although policymakers and staff from some of the smaller agencies have been vocal about their lack of autonomy, from a transit rider's perspective the coordinated policies and procedures in place have worked well in streamlining services and making the array of systems relatively easy to navigate. The Twin Cities ranks favorably among peer cities in transit efficiency and customer satisfaction measures.⁸ Despite disagreements behind the scenes, all of the agencies in the area are unified in their goal to provide a positive and "seamless" experience for the transit customer.

HISTORICAL OVERVIEW

The history of transit governance in the Twin Cities has heavily influenced the current structure of and dynamic among the area's transit agencies. In 1967, the Minnesota legislature created two organizations to handle transit operations and planning, the Met Council and the Metropolitan Transit Commission (MTC). The Met Council's purpose was to "coordinate the planning and development of the metropolitan area," including transit, while the MTC was solely devoted to transit. The MTC was tasked with aiding the region's

⁷ Based on 2011 ridership by system. See Figure C-2. Ridership on the University of Minnesota's transit services is not included in the regional ridership calculation.

⁸ Office of the Legislative Auditor, State of Minnesota. 2011. Evaluation Report: Governance of Transit in the Twin Cities Region, January 2011. St. Paul, MN, pp. 105-109.

transit system, which at the time was bus-only service operated by multiple private providers. In 1970, the MTC acquired the private bus systems and therefore became the primary transit provider in the region.

Although the MTC concentrated its services in the urban core, it was technically a regional transit system funded in large part by property taxes, including those from many of the newer suburban communities surrounding the Twin Cities. Residents and policymakers in some of the suburban communities began to express frustration that they were not receiving their fair share of service: their property taxes were partially dedicated to funding transit services but they felt they were receiving very little service—sometimes no nearby service—in return. In reflecting on this history, several of today’s transit officials agreed with a statement made by one stakeholder that the suburban communities “had very legitimate complaints.”

Responding to their complaints, in 1981 the legislature created the Metropolitan Transit Service Demonstration Program, which allowed suburban communities to opt out of regional bus service on the condition that they provide an alternative service. Twelve communities accepted the legislature’s offer, forming a total of six new STPs, still commonly referred to as “opt-outs” because they opted out of the consolidated regional transit system.⁹ The primary focus of these agencies when they were established was to provide commuter bus services to Minneapolis, but some have expanded their services over time, and several of the suburban agencies today operate local services.

Under the 1981 legislation, opt-out communities were required to allocate 10% of their property tax revenue toward regional transit programs, but could keep the other 90% to spend as they wished on their own services. Still, the legislature implemented certain requirements for all transit providers in the region with regard to coordinating routes and operations, and specified in the legislation that the fare structure would be established at the regional level.

All agencies have maintained their original, distinct identities, but changes to the transit funding structure and rules have brought about more interagency integration over time. Until 2001, the major operating source for transit was a combination of property taxes (approximately one-third of funds), the state general fund (another one-third of funds), fare revenue (one-quarter of funds), with federal funds and revenues from investment and advertising comprising the remaining amount. In 2001, the state enjoyed a large budget

⁹ Some of the STP stakeholders prefer not to use the term “opt-out,” but it is commonly used by providers and elected officials in the region.

surplus, prompting a variety of different proposals for tax relief. The legislature ultimately decided to replace the property tax contribution for transit with a dedicated 20.5% of Motor Vehicle Sales Tax (MVST) revenues going to the metro area. The STPs were guaranteed 17.5% of the region's share of MVST revenues.

The property tax contribution had facilitated a strong local connection to transit that was not lost even when the tax was no longer used for transit. As one stakeholder observed, switching to MVST cut the connection between local payment and local transit service, but among the STPs, “the idea of ‘fair share’ still exists, even though it doesn’t have any meaning because the service operating prior to the change in funding remains in place..”

The share of MVST going toward transit was increased in 2003 and again in 2006, with 36% of funds going to the metro area. According to representatives from some of the STPs, they lobbied heavily for “their fair share,” but were not successful in securing anything beyond 17.5% of the regional pot that they already had. All MVST funds pass through the Met Council, which maintains authority to distribute them among providers in the region.

The new MVST scheme was promising except that, as one stakeholder explained, “MVST tanked.” This meant that, despite the more generous allocation toward transit, total revenues available for transit dropped. Recognizing that the suburban providers were not going to be able to survive on the existing base, and that the public was clamoring for new services, in 2008 Met Council developed a regional operating revenue allocation model, adopted by the Met Council staff over the objections of the Suburban Transit Association. Several reasons explain why stakeholders from nearly all of the agencies voice reservations about the model. Unlike many revenue allocation models that are based on population or demographic characteristics, the Met Council model is roughly based on the level of service that was in place when the model was prepared, meaning that money distributed among the agencies correlates to the amount of transit service each agency has historically provided. All transit operators have limitations on how much money may be kept in an operating reserve fund, called a fund balance, and according to staff at one of the STPs, they are vulnerable to shortfalls because they are “unable to establish our own guidelines to balance our own budget.” Although the model is far from perfect—and often frustrating to administer, according to Met Council staff—representatives from the Met Council and several of the STPs said renegotiating the model would be especially challenging because there are such differing views on how the funding formula should be revised.

The history of transit system development and coordination in the Twin Cities, based on legislative action and the centralization of functions and policymaking within the Met Council, has increased the Met Council's power relative to suburban providers. Although this has unequivocally advanced integration, in some regards it has further strained the relationship between the Met Council and the STPs.

COORDINATION PROCESS

Leadership and Partners

Several players have taken the lead in establishing the transit coordinating initiatives and relationships that exist today. These include the state legislature, the Met Council, Metro Transit, the STPs, and some of the local jurisdictions.

The Minnesota state legislature played an unusually active role in Twin Cities' transit governance, affecting coordination outcomes to a significant degree. While

the legislature's involvement led to a fragmentation of the transit system in 1981, when cities were allowed to contract for transit providers of their own choice, the development and success of the suburban transit operators has directly and indirectly ushered a variety of coordination efforts. By mandating a common fare structure and fare instrument among all transit providers, the legislature also established a baseline of coordination that most stakeholders agree has been vital for creating a seamless experience across providers.

The legislature has also affected coordination outcomes by defining transit funding structures in the Twin Cities and by granting the Met Council with authority to set policies for regional transit operations, procurement and budgeting practices. Some of the Met Council's stated goals include the following, which relate to the organization's approach to coordination:



Passengers board a SouthWest Transit bus at SouthWest Station in Eden Prairie. The suburban transit providers pioneered the use of over-the road coaches in the region

Photo: courtesy of J Goldman

- Ensure that high-quality, seamless and coordinated transit service is provided throughout the region.
- Maintain the equitable, efficient and transparent distribution and use of regional transit capital and operating resources.
- Ensure compliance with all federal and state laws, regulations and procedures governing the use of transit funds by the Met Council and all subrecipients, including suburban transit agencies.

The Met Council is both the direct recipient of most federal funding and distributor of regional transit funds, and because it also administers, operates, and contracts for transit services directly under its MTS division, it is highly attentive to how those funds are used within its own operations. The agency has established a set of policies and procedures that it has found to be effective for managing its own transit services, and this has impacted how it has worked with many of the STPs, establishing uniform policies and procedures across all transit providers. As a result, the Met Council has significant influence over administration, financing, and planning of transit services at the STPs. With a strong interest in promoting regionalism, the Met Council has led several coordination efforts that have included assuming control and management of the regional vehicle fleet, collection and redistribution of fare revenues, and implementation of a common AVL system used by all but one of the STPs.

Metro Transit, as the largest transit provider and division of Met Council, is a *de facto* coordination leader, particularly with regard to operations. This primarily means sharing staff and technical resources with the smaller agencies, but also developing protocols for multi-agency transit facilities and encouraging the STPs to synchronize transfers with Metro Transit routes. Other coordination roles assumed by Metro Transit include regional marketing and branding efforts, publishing and disseminating transit information for all routes and services, and responding to emergencies in STP service areas.

The suburban providers have led some of the efforts to innovate, such as encouraging the region's adoption of over-the-road coaches for commuter routes, developing amenities on the buses (SouthWest Transit, for example, initiated the provision of Wi-Fi on buses in the region), and constructing transit-oriented developments and park-and-ride/intermodal facilities in outlying areas. With a goal of providing a unified voice in dealings with the Met Council and Metro Transit, they banded together by creating the Suburban Transit

Association in 1995. However, some of the providers indicated the association has not been as effective as was hoped, perhaps because, while they are naturally aligned on some issues, there is still significant variability among the STPs themselves. The Association meets periodically and adopts an annual Legislative Agenda.

Although the STPs are partners in regional coordination, most of the large regionwide efforts have been led by the Met Council. Several of the STPs have led coordination efforts at the sub-regional level, working with multiple jurisdictions to develop plans and services. One stakeholder noted that because the Met Council's focus is regionwide, the transit agencies and cities in the suburban counties must work together to develop strong, localized coordinated transit operations. In Scott County, the cities and the county built consensus around a unified service approach, led a planning effort, and implemented a new set of expanded commuter express bus service, local fixed-route services and an expanded dial-a-ride.

Several STP stakeholders indicated that their priorities are not adequately incorporated into the regionwide planning processes, and some feel that their opinions are rarely heard at all. Metro Transit and Met Council staff acknowledge that the Council has a significant degree of the decision-making power, but maintain that the feedback from the STPs influences the agencies' decisions. As one Met Council stakeholder pointed out, when all the agencies meet, there are often six representatives from the smaller



Top: Along Marquette Avenue and 2nd Avenue, two lanes are dedicated to buses operated by all transit providers. Bottom: Passengers wait at designated stops along Marquette Avenue during the evening commute period.

Photo: courtesy of J Goldman

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agencies in the room with only one or two from Met Council and Metro Transit, making the suburban operators collectively seem quite powerful in those instances. Some representatives from the STPs disagree, arguing that more often it is the opposite, with representatives from Metro Transit and Met Council outnumbering suburban stakeholders. They point out that STPs with small staffs cannot afford to go to every meeting.

Some of the jurisdictions have also instigated regional coordination efforts, especially in the realm of facilities and operations. For example, the City of Minneapolis guided the effort to find a coordinated solution to congestion caused by multiple providers operating buses on varied routings and schedules



Metro Transit's white T in a red circle is a ubiquitous symbol for transit across the region, but attempts to encourage all operators to embrace it fell short.

Photo: courtesy of M Curry

through downtown. The outcome was the development of high capacity double-width bus lanes in the Marquette and 2nd Avenue Corridors, including a series of designated stops, changeable message signs, and traffic mitigation efforts implemented by the City.

These primary coordination responsibilities are illustrated in Table C-1.

Table C-1 Primary Coordinating Roles of Key Organizations

Minnesota State Legislature		
Legislative direction for coordination: <ul style="list-style-type: none"> ▪ Codifies relationship of transit providers to one another and to Met Council for ongoing coordination/collaboration ▪ Defines funding coordination/cost-sharing arrangement in the metro area ▪ Establishes regional fare policy and fare coordination 		
Metropolitan Council		
Role as MPO: <ul style="list-style-type: none"> ▪ Leads coordinated long-range service and facilities planning ▪ Oversees coordination of state and federal funding for transit 	Metropolitan Transportation Services: <ul style="list-style-type: none"> ▪ Manages regional fleet/procurement policies ▪ Contracts for consolidated regional dial-a-ride 	Metro Transit: <ul style="list-style-type: none"> ▪ Coordinates transit information ▪ Collects and redistributes regional fare revenues ▪ Coordinates operations at non-STP facilities
Suburban Transit Providers		
Primary Role is Participant in Coordinating Process: <ul style="list-style-type: none"> ▪ Participates in regional coordination/planning meetings ▪ Leads sub-regional coordinated planning efforts ▪ Acts as cooperative partner in planning, data collection, public information, funding ▪ Coordinates operations at their own facilities ▪ Sets fares for local shared ride transit services 		
Jurisdictions		
Generally Minor Coordination Role: <ul style="list-style-type: none"> ▪ Sets local policy regarding transit administration, transit facilities, transit-oriented development, operations that may impact more than one transit provider ▪ Participates in regional engineering and public works projects for transit 		

Implementation and Outcomes

A number of coordinated efforts have successfully been implemented in the Twin Cities region.

Regional Fare Structure and Fare Policy

Minnesota statute requires that the Met Council “shall establish and enforce uniform fare policies for regular route transit in the metropolitan area...” Because it was instituted from the beginning, the common fare policy has been well-accepted and is generally regarded as efficient and successful, having been in place for more than 20 years. All transit providers use the same fixed-route fare schedule, with today’s general public one-way peak express bus fares

priced at \$3.00, off-peak local services at \$1.75, and consistent fare discounts and fare acceptance policies for seniors, youth, and people with disabilities.

Long after a consistent fare structure was adopted in the region, and with advances in fare payment technology, the region was also able to adopt a single-fare payment system. Because the regional Go-To fare card is used on all services, a mechanism is in place for fare collection by the Met Council, which reimburses the various transit agencies for the fares collected via the Go-To card on their vehicles. The Met Council collects the data directly from the regional fare payment system about where the fare reimbursement should go, with the exception of Metro Transit, but it only pays the fare reimbursement based on invoices it receives from the STPs. This system is the result of some concern on the part of the STPs that the Met Council's data may not be reliable, and they therefore wish to submit invoices based on their own ridership counts. According to Met Council staff, these numbers are very similar to the counts by the regional fare payment system; occasional discrepancies must be accounted for. Although this invoicing process results in some duplication of efforts, STPs can be confident they are receiving the correct share of revenues based on their own counts.

Most STPs would still prefer more flexibility in setting fares: several pointed out that their customers would be willing and able to pay more for the express commuter service. Some flexibility has been allowed for transit agencies offering specialized services. For example, although downtown fare zones have only existed in Minneapolis and Saint Paul, SouthWest Transit is experimenting with a local circulator service in the city of Chanhassen offering circulator trips for 50¢, a fare that is consistent with the urban downtown fare zones.

Met Council staff agreed that increasing fare policy flexibility “at the edges” of the region would be valuable. One stakeholder added that, with the electronic fare cards, having a common fare instrument is more important for seamlessness than having a single-fare structure.

Unified Route Numbering Scheme

All of the agencies use the same route numbering system so that there are no repeated route numbers, making the network more legible and more coordinated from the perspective of a customer. The system was implemented in 2000 and is an understated example of coordination success.

As the regional network became more complex, Metro Transit presented the idea of a consistent route numbering scheme to the other agencies. While this would mean that most

routes would have to be renumbered, representatives from all of the agencies saw the larger benefit and agreed to the proposal. One Metro Transit staff member suggested that because Metro Transit was also renumbering its own routes, the proposal felt fair and “not a case of do as I say, but do as I do.”

Regional Vehicle Fleet and Procurement Program

The Council holds the title to of all vehicles that were purchased in the region in order to streamline fleet management. According to Met Council staff, federal oversight drove this decision. In the 2009 Triennial Review, the FTA found that “the Met Council does not conduct adequate oversight of its subrecipients and contractors” and noted “there is also insufficient oversight of vehicle maintenance activities.” In response, the Met Council developed an oversight and monitoring plan for subrecipients, allowing the Met Council to retain ownership of all buses, and oversight of all fleet maintenance. The Council now owns the entire regional fleet, but allows the STPs to spec, buy, and perform regular maintenance on their own buses. The Met Council will cover the cost of major component replacements (engine core, transmission or lift).

The regional fleet system works well from the perspective of Met Council because it simplifies fleet management and has created a larger resource pool for all agencies. For example, when one operator had small buses it no longer needed, the Met Council was able to transfer those buses to another agency, allowing all participants to remain in compliance with FTA regulations. Nevertheless, some conflicts have resulted from this arrangement. Most notably, the Met Council and the suburban operators have disagreed over appropriate maintenance schedules and vehicle lifespans.

Marketing/Multi-Provider Public Information: Transit Information Center

The Transit Information Center (TIC) is Metro Transit’s information center that serves in an expanded role as a regional transit information clearinghouse. All of the providers are asked to submit updated schedules and route information to Metro Transit, which are reviewed by staff for service planning purposes and integrated into the regional transit information database.

The TIC is responsible for offering trip-planning assistance to callers who might rely on one or more providers to make a journey anywhere in the Twin Cities region. At this time, customer service agents can provide schedule information for the STPs’ routes and real-time travel information for Metro Transit routes. They expect that this information can be better

integrated in the future to provide real-time travel information across the region. Metro Transit is responsible for keeping the online trip planner on the Metro Transit website up to date, preparing and uploading the General Transit Feed (GTF or Google Transit Feed) for all of the providers in the region except MVTA, which has opted to manage its own GTF. Most of the operators manage their own Twitter accounts and Facebook pages, providing information only about their own services via these social networking avenues, with links to the websites of other transit providers.

The TIC provides a one-stop point of reference for regional transit information managed by Metro Transit, but each of the individual STPs also provides transit information for its own services, and may also provide information for connecting services. Although this technically represents a duplicative effort, staff from the STPs indicate that most of their local customers call them directly: they provide more tailored customer service in the communities they serve because their staff has knowledge of the local area.

Printed route schedules (“pocket schedules”) are prepared by each agency and exist for nearly every route in the region (or cluster of routes, in some cases). All agencies have followed Metro Transit’s lead in adopting consistent folded brochure dimensions for the schedules, allowing agencies to stock each others’ brochures in standard display racks. Metro Transit produces the regional transit service map that includes the routes of all of the region’s providers. Efforts had been made in the past, spearheaded by Metro Transit, to offer a consistent brand or unifying identifier to appear on all of the region’s bus stops and vehicles (the Metro Transit T in a red circle), but none of the STPs showed any interest in this.

Staff from Metro Transit indicated they have assumed so many of the regional transit information functions because they are the largest agency and, unlike some of the smallest STPs, have the staff resources to offer this function to their partner agencies. Even still, agencies still cooperate informally in their information efforts to make the customer experience as seamless as possible. This often means answering questions that are really for other agencies, for example about route information or a lost-and-found item. Rather than requesting a customer call the correct agency, representatives from several agencies said their staff will try to minimize inconvenience for the customer by answering whatever questions they can or contacting a specific person at another agency who can help.

Operations at Transit Facilities

Marquette and 2nd Avenue Corridors

After the parallel Marquette and 2nd Avenues downtown were designated and redesigned as a pair of dedicated transit corridors (together nicknamed Marq2), the City of Minneapolis and Metro Transit led a coordinated effort with all providers to optimize the flow of vehicles through Marq2. This meant reassigning bus stops, optimizing bus schedules for multiple operators, and establishing an operations protocol for bus drivers from all transit agencies that requires them to yield to buses pulling into the inside traffic lane from curbside stops, creating a choreographed leapfrog pattern in two lanes of traffic through the heart of downtown Minneapolis. Drivers on Marq2 must work together so that the traffic flows smoothly and safely, keeping buses on schedule.

Before Marq2 was opened, this unusual driving pattern was tested with drivers from all the providers. The result has been one of the region's signature coordination successes. Metro Transit stakeholders and others involved with Marq2 attribute this to the fact that all stakeholders had a shared interest the corridor running smoothly and maximizing through-traffic and transit vehicle speeds. Additionally, the physical limitations of the space prompted everyone to work collaboratively toward a mutually agreeable solution. Only one stakeholder from one of the smaller STPs interviewed for this case study disagreed with the assertion that Marq2 was a success, arguing that on-time performance was worse than before, and the agency's flexibility to serve downtown Minneapolis was limited due to coordinated scheduling constraints.

Other Facilities

In addition to the coordinated operations along Marquette and 2nd Avenues, several of the region's other transit facilities are served by more than one provider. At all of these facilities, the agency that is responsible for the facility generally sets the policies for use of and operations at the facility. One example is at the Mall of America, where an intermodal transit station designed by Metro Transit accommodates 1.2 million passengers annually on light rail vehicles and more than 900,000 passengers riding buses, as well as additional passengers riding paratransit and private shuttles. The station is served by more than 150 buses per day operated by Metro Transit, MVTA, and the Met Council (and previously, SouthWest Transit). The facility, which features a shared break room for operators from all agencies, is

proposed to undergo a \$20 million renovation to improve operations and the customer experience.

Neither signage at bus stops nor other facilities is formally coordinated, but all shared facilities, no matter who manages them, display route and other pertinent information for any of the agencies that use it. Metro Transit staff said that bus stops could still benefit from additional coordination and information consistency.

AVL System

As noted above, all providers except MVRTA accepted Metro Transit's offer to install the same AVL system it had been using on its own vehicles on their buses, the Trapeze ITS TransitMaster system. Metro Transit staff presented this as a positive example of coordination because they paid for the equipment and installation, and the system allows for better coordination of all regional transit services, as well as uniform information for customers. Even still, Metro Transit's information staff can generate and provide real-time arrival and departure times to the general public only for Metro Transit vehicles.

Although some of the STPs were quick to embrace a single regional AVL system, others were less positive about it, concerned that the technology was outdated and that Metro Transit had offered them no alternative. Ultimately, MVRTA was the only provider in the region that opted for a different system. Staff say they "did not make that decision lightly," and chose what they described as a newer technology for their own buses. The decision to go it alone, however, has proven to be somewhat of a headache for MVRTA, as they are now working to integrate their own AVL system with the system used by the other providers in the region.

Other Formal and Informal Coordination

While the direction of policymaking overwhelmingly comes from Metro Transit and Met Council, the input of the STPs affects the discussions that Met Council and Metro Transit staff have and the initiatives they lead. According to staff from the Met Council, they "get the message" about the STPs' concerns and try to incorporate it into their planning.

In the words of one stakeholder, the buses from all providers reportedly "get along well in the street." There is a cooperative spirit—rather than a competitive spirit among the drivers and others involved in day-to-day operations that makes the multi-operator environment work at the most fundamental level. Maintenance staff from a small STP will call maintenance staff at Metro Transit to talk about an issue and solicit input on a solution. Staff involved in

finance or planning will call their counterparts at other agencies, often the Met Council or Metro Transit, to provide training, make a presentation to a City Council, or collaborate on a local planning issue.

A vast array of coordinating committees exist at which representatives from multiple providers share input and offer suggestions. Many of these committees are initiated by the Met Council, with a goal of sharing information or developing consensus around specific issues. For example, the Regional Service Improvement Plan (RSIP), a strategic plan for identifying transit needs and service opportunities for the entire region, included participation from all transit agencies and used a consensus evaluation approach to assign priority to certain projects. In addition, there are specific technical committees that focus on fares, fare equipment, vehicle maintenance, etc.

Public Involvement

All of the transit agencies are strongly oriented toward serving the public and making a transit rider's experience seamless. In fact, almost all stakeholders indicate the purpose of the coordinated marketing, service planning, and facilities management is about providing the best experience for transit consumers. Although the public may be the focus of much of what has been undertaken, their direct role in the coordinated efforts has been minimal. Public outcry largely precipitated the fragmentation of the regional transit system in 1981 (individuals wanted to receive the level of service they believed they deserved), but it has been less of a factor in the piecing back together of a network with multiple providers. This difference may be a function of the human, or perhaps American, desire for independence—for services to reflect local values—which creates a powerful narrative that rouses the public, whereas the potential benefits of larger scale and collaborative efforts may be more difficult to understand or appreciate, therefore not stirring as much public engagement.

Today, the public's role is mostly to voice opinions at hearings for fare changes, service changes, etc., and to participate in occasional public meetings to discuss transit needs and opportunities, usually based on specific projects or initiatives. In the future, the public may have more opportunities to be engaged in coordination efforts. For example, Metro Transit staff indicated they are beginning to more actively engage the public in fare policy discussions by hosting stakeholder meetings to include staff and consumers from the STPs. The assumption is that more proactive involvement in the decision-making process may help

alleviate the sense among suburban providers that policies are being imposed on them and give them a more meaningful role in policy development.

Stakeholders acknowledge that, despite their different brands and identities, the public either is not necessarily aware of or concerned about the differences among transit providers. This acknowledgment effectively boosts the cooperative spirit among transit providers, as staff from all providers recognize that a customer's experience anywhere on the regional transit network can (fairly or unfairly) affect the public perception of the entire network.

Obstacles and Challenges

Many of the specific coordination efforts have been implemented relatively quickly within the Twin Cities, particularly with regard to service planning and shared public information. Maintaining the common focus on the quality of the service experience for transit riders has helped ease some of the friction among operators. A region that can boast almost all of its providers using the same fare instruments, route numbering conventions, AVL equipment, and operating protocols at major facilities can point to a number of successes that other regions could not even begin to emulate. Even with the terrific success of these efforts, some initiatives have been more challenging to carry forward, or have led to some of the distrust that exists among the agencies.



The Mall of America Transit Station is served by more than 150 buses per day operated by Metro Transit, MVTA, and other providers under contract to the Met Council. It is also the terminus for the METRO Blue Line light rail, as well as the new METRO Red Line, a bus rapid transit service operated by MVTA for Metro Transit.

Photo: courtesy of J Goldman

For example, it was an FTA audit on fleet management practices that resulted in the Met Council's decision to retain ownership of the regional fleet. Several of the STPs found this practice not only impeded on their autonomy, but also limited their flexibility with regard to developing appropriate fleet replacement schedules. Staff from two of the STPs talked about the Met Council's fleet ownership as adding an additional level of bureaucracy to their own operations. When something goes wrong with a farebox or a vehicle component, they must work through the Met Council to service the item because, according to staff, they do not have direct access to the vendors. Several stakeholders noted there was no federal mandate that the Met Council must maintain title to the regional fleet, and indicated they saw this as an "unnecessary power grab by the Met Council." Although not all staff of the smaller agencies agree with this assessment, this action bolstered the argument by some of the STPs that the Met Council staff often acts unilaterally, against the wishes of the regional partners.

In another example, the coordinated purchase of AVL equipment to allow for regional real-time public information, as well as shared scheduling and dispatch, was compromised when one of the STPs, MVTA, opted to purchase a different technology than all of the others had agreed to. As a result, buses for a new BRT route (operated by MVTA under contract to the Met Council) were outfitted with both systems to allow the service to be tracked across the regional transit network.

Several of the coordination obstacles and challenges among Twin Cities transit providers can in one way or another be traced back to historically complex relations between the STPs and Met Council—and to a lesser degree, Metro Transit. Other obstacles can be attributed to turfism, a real or perceived loss of local control, or the feeling of not having a meaningful role in the decision-making process. These are discussed in the following sections.

History of Transit Providers Still Colors Today's Relationships; Distrust Persists

Although all stakeholders talked positively about specific staff members at other agencies and good cooperative working relationships, distrust among agencies was still frequently cited by stakeholders as a barrier to coordination. Some consternation lingers from the original fragmentation of providers, especially among staff members who have been at their agencies for an extended time. Some of the long-serving individuals appear to have the most distrust of other agencies; at the same time, some of the long-serving individuals are also those who are least trusted by staff from other agencies. This mutual distrust manifests in a variety of ways: one agency suspects that another is not doing something competently; one agency does

not believe fare transfer data collected by the Met Council is accurate; and smaller agencies sense that Metro Transit would prefer to “homogenize” the transit system and “do away” with them altogether.

This case study acutely illustrates a finding in the literature review, that individual personalities have much to do with coordination success. As long as certain staff members remain at their agencies, some relationships are not likely to improve.

Discontent among the STPs with Decision-making Processes

Staff from the STPs said they do not feel adequately represented or involved in many of the decision-making and planning processes. Several mentioned that their input, when solicited, was merely for Met Council to “check a box” and would not be sincerely incorporated into decision making. Met Council and Metro Transit staff differ from the STPs on this point; they say that the feedback from STPs is valued and adequately considered. A few STP stakeholders felt that their accomplishments were not given due credit by Met Council or Metro Transit, making them feel undervalued and unconvinced that those agencies are truly interested in mutual success.

Perceived Unresponsiveness or Disregard for Local Policymaking by the Met Council

The structure of the Metropolitan Council raises questions about the agency’s ability to account for the interests of its constituents. The Met Council is governed by a board of 17 members, including a chair, all serving at the pleasure of the governor. No elected positions exist on the Met Council, and this lack of direct representation has led some to grumble that Council members represent their collective position more often than they represent the needs of their assigned areas. A 2011 report, *Governance of Transit in the Twin Cities Region*, recommends incorporating some elected positions as part of the Council membership, as well as staggering member terms to foster more independence and stability.

Because the Met Council is responsible for regional concerns other than transit alone (e.g., wastewater or freeway planning), non-transit issues may color transit coordination discussions. For example, a controversial Met Council approach to affordable housing policy might carry over into transit discussions, causing pushback against Met Council policies even when affordable housing, or other contentious issues, has no material effect on transit. In addition, the sheer expanse of the Met Councils’ regional policy reach is sometimes seen as lacking sensitivity to local priorities.

Differing Perceptions of Autonomy among Suburban Providers

Preserving the autonomy of the STPs was mentioned by all as an important feature of coordination success. However, definitions of autonomy or what qualifies as autonomy differ. STP stakeholders often talked about their lack of autonomy, whereas Met Council and Metro Transit staff were quicker to emphasize the many ways in which the STPs have independence.

An interesting example of autonomy was raised around the issue of the METRO Red Line, or Cedar Avenue BRT, which began operations in June 2013. The region's first BRT line, the Red Line is an 11-mile route that provides a connection to the Mall of America from Apple Valley via Eagan and Bloomington in the region's southern suburbs. Unlike the METRO Blue Line (also known as the Hiawatha Light Rail Line) or Green Line (the light rail line between Minneapolis and Saint Paul), the Red Line operates primarily outside of the Metro Transit service area, in communities that are part of the MVTA. The Red Line itself, however, is a regional service planned by the Met Council. The service is funded by the Met Council with state motor vehicle sales tax dedicated to transit and the Counties Transit Improvement Board through a 0.5-cent sales tax levy in five counties. The Council contracted with MVTA to operate the Red Line service. Although most services operated by STPs are branded by the agency operating the service, because this is a Met Council service operated under contract, it has been branded with the region's T in a red circle, which is the same as the Metro Transit logo. This was an early source of controversy: the service operated by MVTA at the MVTA Cedar Grove Transit Station and Apple Valley Transit Station would effectively be masked as a service operated/managed by Metro Transit. Ultimately, both agencies' logos are visible at both stations and marketing for the service, which began operations in June 2013, was agreed upon by representatives from the Met Council, Dakota County, MVTA, and Metro Transit.

***Coordination with the Regional Providers
Can Sometimes Dampen the Inherent Advantages of Smaller Agencies***

The suburban agencies, though limited in resources, view their small size as an advantage. They pride themselves on "having a more personal touch" and being flexible and adaptable. One suburban stakeholder was frustrated by the feeling that Met Council's mentality is "bigger is always better." Not only can bigger be "too cumbersome, not timely, and not competitive," but several suburban stakeholders also say it ignores their value as smaller, nimbler organizations.

Some of suburban stakeholders talked about the bureaucracy that has been created in the region's top-down transit policymaking and administrative structure. For example, providers are asked to give advance notice of service changes to allow Metro Transit to enter them into the customer information and AVL systems (30 days in advance, if possible, for major changes, or at least 14 days in advance for minor changes). One STP representative described this as an example of their agency no longer being able to make a service change on short notice. Another stakeholder talked about the opportunity cost of less experimentation by the smaller operators, suggesting that perhaps fewer of the types of innovations that have already made transit in the region attractive could be developed in the future.

Differing Priorities Lead to Different Policy Preferences

While all of the transit providers share a goal of customer satisfaction and increasing transit mode share, there are differences in how this can be accomplished. Met Council and Metro Transit maintain a regional orientation, serving the needs of a variety of demographic groups; the suburban providers' riders likewise represent a wide range of ages, incomes, and other demographics, but include a larger share of choice riders who opt to leave their car at a park-and-ride facility and ride transit. Thus, a key operating strategy for providers like MVTA, SouthWest Transit, and Plymouth Metrolink is to provide a reliable, high-quality transit experience that competes with the personal automobile. For several of the STPs, congestion mitigation is the main goal, rather than equity or regional mobility; for Metro Transit and Met Council, equity and mobility are key goals. This plays out in fare policy (some suburban providers have expressed interest in raising their fares and/or implementing zone-based fares), marketing (the potential for a regional look and feel of vehicles and information tools favored by Met Council versus a preference by the STPs for individual branding), and service planning (using resources to provide for local circulation in a community versus regional/commuter service).

Future Efforts

Coordination efforts will continue to evolve as the transit network expands and demand for transit increases throughout the region. The Met Council has ideas for a number of improvements that would help streamline coordination efforts, including automated daily reports from all operators, and a more sophisticated system for tracking fleet maintenance activities. There is also ongoing interest in allowing for greater fare flexibility for the STPs,

which might allow for future shifts in fare policy. Special events such as the State Fair also present recurring opportunities to tweak coordination formulas.

Stakeholders predicted that new transitways in the region would likely be a source of conflict in the future, and not only between transit agencies. Some of the STPs are concerned about Metro Transit seeking to expand its services, and its influence, via these transitways. The METRO Red Line BRT has been a novel, jointly-operated transitway which can offer lessons on the planning process and operations of co-operated rail or BRT routes in the future.

Small-scale coordination among STPs will be ongoing. Two of the smallest providers, Shakopee and Prior Lake, have found that coordination, often in conjunction with Scott County, has been fruitful. For example, their shared commuter express service, BlueXpress, has seen ridership nearly double in the five years since it started. Yet as a stakeholder from one of these agencies explained, such collaborative efforts are “just a step along the way.” Further integration, which could include organizational restructuring, is expected in the future.

Beyond Shakopee and Prior Lake, however, significant consolidation in the Twin Cities network may be unlikely. The City of Plymouth indicated it may be willing to consolidate transit services with nearby communities to continue to efficiently serve suburban residents and businesses with specialized public transit and shared ride service. The suburban providers feel they are efficiently and competently meeting the demands of their communities. Most do not see what they would gain from further consolidation with Metro Transit or with other suburban providers, and wish to retain their identities and independence as much as possible.

RECOMMENDATIONS AND LESSONS LEARNED

The Twin Cities region offers an example of how:

Centralized, top-down coordination can be very effective. The focus of coordination efforts in the region has been, foremost, on seamlessness for the rider, but also has included elimination or reduction of duplicative administrative functions and improved efficiencies in operations. Most of these efforts have been championed by one or two organizations (technically, one organization and one or two divisions of the same organization): the Met Council (and its MTS division) and Metro Transit. Their centralized, or top-down approach to coordination efforts, have proven to lead to a well-functioning regional system with high

customer satisfaction. Having significant decision-making power, coupled with a regional perspective and an eye on equity concerns, has made these organizations successful in ushering in a variety of transit initiatives that might have otherwise been stalled or intercepted. One STP stakeholder acknowledged that the regional transit bodies have helped make transit a political priority in a way that no suburban provider could—the value of this contribution to the overall transit network is potentially very significant. This case study illustrates that a strong entity afforded the political and administrative power to make decisions on behalf of a region can develop a successful model of transit service integration, allowing for the relatively quick implementation of programs and procedures by multiple providers.

Meaningful participation from collaborating agencies can help avoid conflict or resentment. Top-down coordination efforts can be effective, as described above, but can also be unpopular among those not at the top. Planning and decision-making processes must offer opportunities to make all stakeholders feel valued. If they do not, subsequent coordination efforts may be jeopardized by a loss of buy-in from partners, making these efforts potentially less successful or breeding resentment among those who feel ignored by the lead agencies. Resentment can lead to unwillingness to collaborate.

The transit agencies in the Twin Cities region have worked together to create a regional transit system that is seamless in ways that matter to customers. While all of the agencies recognize the value of this accomplishment, the smaller agencies argue that planning processes could be more inclusive of the STPs and their constituents' interests. One suburban stakeholder said that respectful conflict and disagreement should be welcomed by Met Council, rather than avoided, because it can help lead the region as a whole to better transit solutions. She worries that too much emphasis on coordination will lead to a “groupthink” situation that is unhealthy: “How are you going to learn if you never hear someone else’s experience?”

Personal relationships matter. Large numbers of agency representatives work well with one another and rely on each other to advance common goals related to transit in the Twin Cities. Road supervisors at one agency report good relationships with road supervisors at another. Customer service agents share information regularly with their colleagues at different agencies. Some members of Metro Transit’s large staff provide advanced technical support to staff at the STPs. Certain officials at different agencies, however, can reportedly be challenging to work with. This limits the potential for compromise because whenever one of

these officials is participating in a negotiated session, their presence alone is sometimes seen as an obstacle to successful collaboration. Staff find contacts at other agencies they like and feel comfortable working with, and many of the relationship-building efforts which form the basis of informal collaboration may be behind the scenes. Although some stakeholders expressed concern about having multiple contacts at some agencies resulting in mixed messages, this has also worked to allow people from different agencies to communicate with the people they work best with.

Policy flexibility is needed to optimize the transit network and create opportunities for progress. Establishing one set of policies that is adopted by multiple providers creates seamlessness, but it can encumber small agencies and ultimately hinder progress. All agencies agree that there must be enough flexibility in policies so that policies work for agencies that are not exactly like the lead agency. For example, a small agency may have a unique operating environment or characteristics that are unlike other agencies. These characteristics alone should not necessarily preclude it from full participation in a coordinated effort. Smaller agencies are often able to innovate and experiment with new ideas, which can in turn benefit the whole region. In other words, small agencies can be an asset because they can serve as a testing ground.

Keeping the customer as the priority grounds coordination discussions. Many stakeholders observed that customers do not necessarily care *who* is providing the trip; they just want to get where they are going. Although the general public and transit riders in the Twin Cities have actually had very little direct involvement in setting coordination priorities, optimizing the experience of using transit has remained the focus of nearly all of the successful efforts that have been undertaken, including common fares, fare instruments, route numbering, and shared public information.

Coordination benefits from the right types of technical and political skill. The Met Council and Metro Transit, as well as some of the STPs, have a number of people on staff with tremendous experience in transit service planning, operations, funding, maintenance, and customer service. As a result, coordinated transportation initiatives can draw on the skills of these individuals who can advise and also provide a historical perspective on what has worked and what has failed in the Twin Cities. These people can be an asset to the coordination process, but also a liability because they can hinder discussion on new approaches, being seen as one-sided or representing a single agency's point of view. Some meetings/coordinated efforts have included the services of outside facilitators, who have not

always been viewed as unbiased, but when used effectively can allow for some of these stakeholders to share their knowledge, while ensuring all participants have a say in the decision-making process. Bringing in outside advisors—for example, the American Public Transit Association advised the Met Council on a vehicle replacement schedule for over-the-road coaches—or consultants with needed technical skills can help neutralize the negotiation process.

APPENDIX D

Research Triangle, NC

APPENDIX D: RESEARCH TRIANGLE, NC

INTRODUCTION

One of the nation's fastest growing regions is a conglomeration of metropolitan areas in North Carolina – the Research Triangle, comprised of Wake, Durham, and Orange Counties containing the cities of Raleigh, Durham, and Chapel Hill, which form the three



Old Well at University of North Carolina, Chapel Hill.

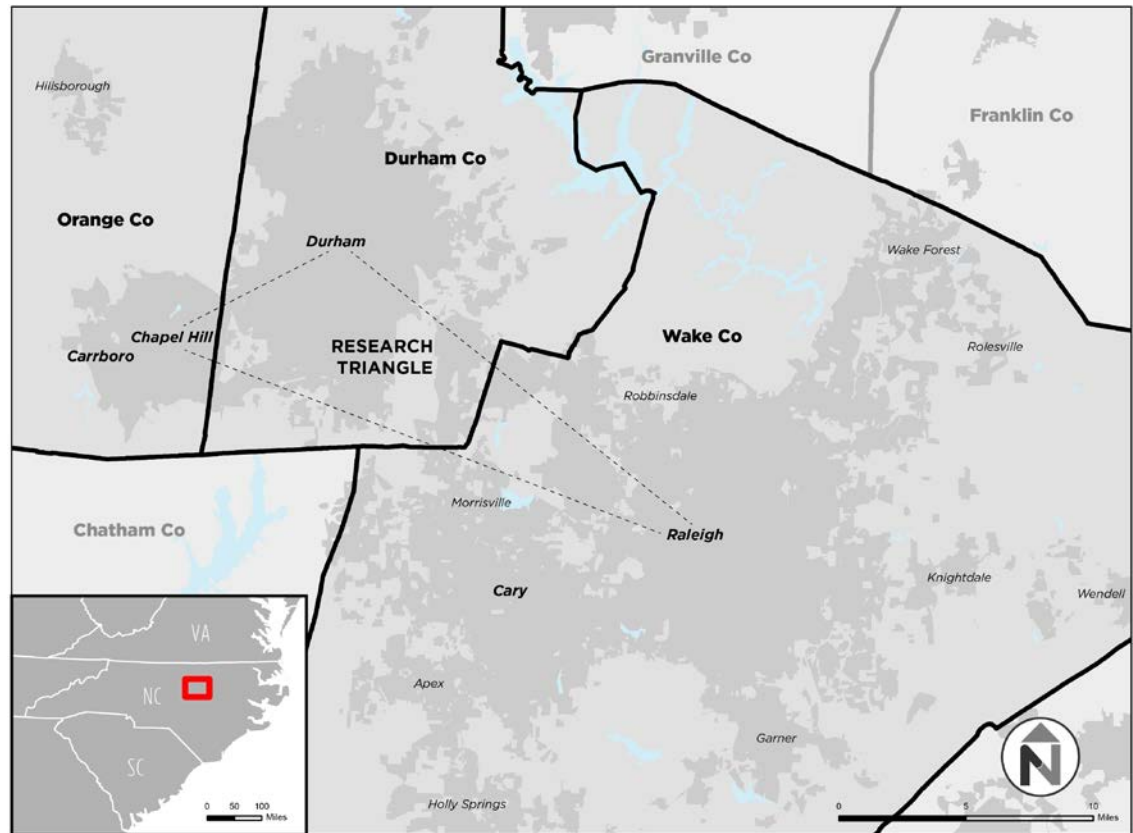
Photo: courtesy of M. Brenman

points of the triangle. The area is home to three major universities – North Carolina State University in Raleigh, University of North Carolina at Chapel Hill, and Duke University in Durham. Nestled between the points of the Triangle is Research Triangle Park, a major center of technology and research institutions. The population of the Research Triangle has more than doubled since 1990, from 850,000 to its current count of almost 2 million.

Seven transit agencies operate in different parts of the Triangle, with one serving regional travel needs. Ridership on all transit services in the region has been increasing by double digits in past years, between 9% and 15%, depending on the month. Not only is the Triangle attracting more residents, many of these residents are moving from larger metropolitan areas with sophisticated transit systems, and transit agencies are seeing a growth in choice riders as well as a growth in intercity travel to different parts of the region.

“To the casual observer,” one stakeholder said, “having five, six, seven transit services seems wasteful.” Consolidation has been the subject of formal discussion several times, but during 2003, an official study was conducted to determine the mechanics of merging the systems. The seven systems did not consolidate, but coordination has greatly increased in the decade since the study ended and has resulted in major regional enhancements to transit service quality.

Figure D-1 Research Triangle Region



HISTORICAL OVERVIEW

Seven transit agencies operate in the Research Triangle:

- Triangle Transit Authority (TTA) connects all three counties with regional service
- Capital Area Transit (CAT) in Raleigh
- Durham Area Transit Authority (DATA) in Durham
- Chapel Hill Transit (CHT) in Chapel Hill and Carrboro
- C-Tran in Cary
- Wolfline at North Carolina State University in Raleigh
- Duke University Transit at Duke University in Durham

In 1989, the Triangle J Council of Governments, which serves the entire Triangle region, held a World Class Region Conference facilitated by Governor Jim Hunt. The conference focused on regional initiatives, including environmental



DATA bus.
Photo: courtesy of Durham Area Transit Authority

management and transit. At the time, no regional government entity existed in the state; the three counties – Wake, Durham, and Orange – received a grant from the North Carolina Department of Transportation (NCDOT) to create a regional transit agency. NCDOT shepherded an authorization bill through the NC General Assembly, and the Triangle Transit Authority (TTA) was created in 1991. At its inception, the TTA was expected to absorb the region's other transit agencies, creating one consolidated organization, though implementation was never specifically discussed.

A little over a decade after the creation of TTA, Census data from the 2000 Decennial Census showed – for the first time - contiguous metropolitan area boundaries in the Research Triangle. There was also more inter-jurisdictional commuting than had been recorded before. This sparked a new wave of regionalism, and the mayors of the Triangle's four major cities began discussing a regional vision for the area, which included a plan for regional open space, water management, and economic development, along with the consolidation of the region's seven transit systems.

The result was a consolidation plan, published in 2003, and a series of meetings held by the Seamless Public Transportation Service Project. Though consolidation was not endorsed by any of the region's transit agencies and ultimately dropped, the committee for the Seamless Public Transportation Service Project met quarterly from 2003 to 2008 to carry out the other recommendations of the consolidation plan.

Though regional consolidation was off the table, in 2010 the City of Durham decided to transfer planning, marketing and oversight of DATA operations from its in-house staff to TTA, essentially creating a contractual merger of the city's transit agency with TTA, though the City has retained its own brand, and funding still passes through the city council. Further,

all three counties and all of the transit agencies are working closely together to create a new rail network in the region that will connect the major cities and could ultimately result in consolidation over the long term.

COORDINATION PROCESS

Leadership and Partners

The mayors of Raleigh, Durham, Chapel Hill, and Cary worked with representatives from NCDOT and TTA to work on consolidation. NCDOT had long been a supporter of regional consolidation, having been responsible for the legislation forming TTA in 1991. For the consolidation study, NCDOT provided 80% of the funding, and the remainder was provided by TTA, CAT, and DATA. Triangle J Council of Governments served as the fiscal conduit for the funding. Triangle J was a neutral participating agency and provided staff for the meetings and, later, facilitated some subcommittees for the Seamless Public Transportation Service Project that was created from the consolidation study. The Seamless Committee reported its progress directly to the mayors on a quarterly basis.

CAT, DATA, Chapel Hill Transit, Cary and TTA were all participants in the consolidation plan process. Duke University and the Wolfline were less involved.

Importantly, county commissioners and city council members were largely not part of the planning process. Ultimately, the omission of these local decision-makers from the process hindered the progress of consolidation talks. With leadership from the state DOT and the regional transit authority, the approach was too “top down,” according to some stakeholders.

Public Involvement

The 2003 consolidation plan was never formally presented to the public. Outreach was limited to presenting the consolidation plan after it had been developed to city council members, other decision-makers, and passenger advisory committees.

One of the outcomes of the consolidation plan, the eventual merging of DATA with TTA, did have a major outreach component, which continues to be maintained through active public input sessions. Prior to the merger, the DATA Citizens Board held monthly meetings, open to the public. DATA as operated by TTA still holds monthly public meetings in order to maintain a forum for input; however, attendance at the meetings has diminished since the 2010 merger.

Obstacles and Challenges

Process was top down NCDOT and TTA were strong proponents of consolidation. Some transit agencies perceived NCDOT's leadership as an insinuation that funding would be tied to participation in consolidation and not based on population, as it had been historically. Though the mayors were involved, most of the city council members and county commissioners were not, and these elected officials did not buy into the process or to the plan. Similarly, the region's passenger/ambassador groups were not involved until the end, when they reacted negatively instead of being able to positively shape the plan as it was developed.

Leaders communicated the "how" but not the "why" Proponents of consolidation did not relay how consolidation would benefit each community. The study described the benefits in generalities: a seamless presentation of services for the users; cost-effectiveness of regional routes that crossed boundaries and eliminated redundancies; and a unified voice in pursuing state and federal funds. The report was clear that parity would cause labor costs to rise by 29%. However, the study did not quantify savings, nor did it project ridership increases or quantify service quality improvements benefiting passengers, which were attributes more important to most agencies than the cost.

Concern about the loss of local control The plan did not give enough detail about how the TTA board would be reorganized, and agencies and jurisdictions were concerned about local representation. In their own communities, local boards have total control over decisions and their allocated funding, while they would not be the majority at a regional board. For most of the transit systems, local funding is a relatively large percentage of the operating budget, so ceding control over their investment would be difficult.

Trust of TTA was somewhat of an issue, as well as trust of other communities. Some

Key questions to answer in considering consolidation:

"Who makes the decision? Who pays?"

—Stakeholder comment

communities perceive themselves as valuing transit more than the others. One stakeholder stated that in consolidations, costs rise to the highest operating cost per hour, and that particular city wanted to be sure its investment was utilized with the most efficient system possible.

Another stumbling block was the concern by managers who were negotiating consolidation measures that their own jobs may be at stake in a reorganization. Even if the managers are in

favor of consolidation, one stakeholder mentioned that it is human nature to protect one's own turf.

Other challenges Other challenges mentioned less frequently than the primary obstacles:

- Chapel Hill Transit is a fare-free system, which creates problems with coordination now. Chapel Hill was not a fare-free system at the time, but the university was and continues to be the major funder with its own transportation interests.
- Some cities had very low regional ridership. Only 2% of CAT ridership was regional at the time, so although other systems were thinking of themselves as a region, CAT was largely serving a local market.
- Crime is more of an issue in some communities than others; some cities did not want to take on the risk of criminal activities occurring on their buses or in their facilities.
- DATA and CAT have unionized bus operators, and the other systems do not.
- The process suffered in some ways from the chicken-and-egg dilemma. Each city was risk-averse and waited for another to make the first leap. The cities are still cautious about some of the coordination initiatives, waiting to see the results before committing city funds to a new initiative.

Implementation and Outcomes

As the consolidation discussion progressed, participants began to realize the enormity of the task: the mechanics of consolidating hundreds of buses, drivers (both union and non-union), deciding who owns the vehicles and facilities, selecting who sits on the board, and the myriad other elements of consolidating five public transit agencies made for “one big elephant,” according to one stakeholder. Although the agencies did not consolidate, the group has been “taking bites” of this larger task, moving toward a more seamless system for the rider.

Nine formal coordination steps came out of the consolidation effort, and additional, unplanned projects have arisen over the years.

Formal Coordination

For five years, the committee for the **Seamless Public Transportation Service Project** met quarterly to discuss coordination projects and regional transit efforts. The Committee was put on hold in 2008 as some of the coordination projects were completed and Durham began talks with TTA to switch management of DATA operations.

The Seamless Committee had subcommittees dedicated to the nine coordination areas identified in the 2003 Consolidation Plan:

1. Undertake regional marketing activities
2. Prepare Seamless Triangle Service Bus Plan
3. Develop regional customer service program
4. Develop Triangle Seamless Service Paratransit program
5. Centralize capital procurements
6. Regional passenger amenities
7. Centralize specialized maintenance services
8. Implement regional information technology plan
9. Regional coordination of safety and security activities

The Seamless Public Transportation Service Project made concrete steps in each of these areas, with several major coordination outcomes:

Regional call center – The idea for the regional call center was initially floated in 2002, but agencies were deterred by the cost. Eventually, Raleigh and Durham partnered with TTA, and the call center opened in 2006. TTA bore most of the costs initially, but now each city is billed based on call volume. Chapel Hill joined the call center in 2009, and Cary in 2010.



TTA Call Center.

Photo courtesy of Triangle Transit Authority

Nearly every stakeholder commented that the call center has been a great asset to their respective transit systems and that the center is a great success. Cities have received good feedback from their customers, and the software has made billing transparent and simple.

Joint marketing – The agencies have put a lot of time and energy into joint marketing for the region. TTA created the GoTriangle brand, and all buses in the network have a GoTriangle

sticker. The agencies all worked together to create common bus stop signage, another project coordinated by TTA.

Regional fare passes – The GoPass, implemented in 2005, was the biggest initiative by the marketing subcommittee. The passes are good on public systems in the region except Chapel Hill, because its entire system is fare-free. The pass eliminated the large transfer penalty associated with using more than one of the regional systems.

Regional software procurement – Joint purchasing of software has helped create a much more seamless experience for riders. The state funded the joint purchase of electronic fareboxes for all of the buses, which enabled the adoption of the regional GoPass. TTA purchased a server and software to store Automated Passenger Count (APC) data for all of the transit agencies in the region, which created significant savings for some of the agencies, according to stakeholders.

Real-time information – The GoLive project was made possible through a joint technology purchase. The region jointly procured Next Bus technology, and AVLs and GPS systems to make real-time information available to riders. This technology adoption also decreased the number of phone calls fielded at the call center.

Table D-1 Call Center Volume

Fiscal Year	Total Calls Received	% Change from Previous Fiscal Year	Avg. Daily Call Volume
FY 2007*	64,325		752
FY 2008	286,286		928
FY 2009	325,219	13.6%	1,032
FY 2010	370,898	14.0%	1,161
FY 2011**	467,922	26.2%	1,458
FY 2012	485,422	3.7%	1,524
FY 2013	497,940	2.6%	1,571
TOTALS	2,498,012		1,204

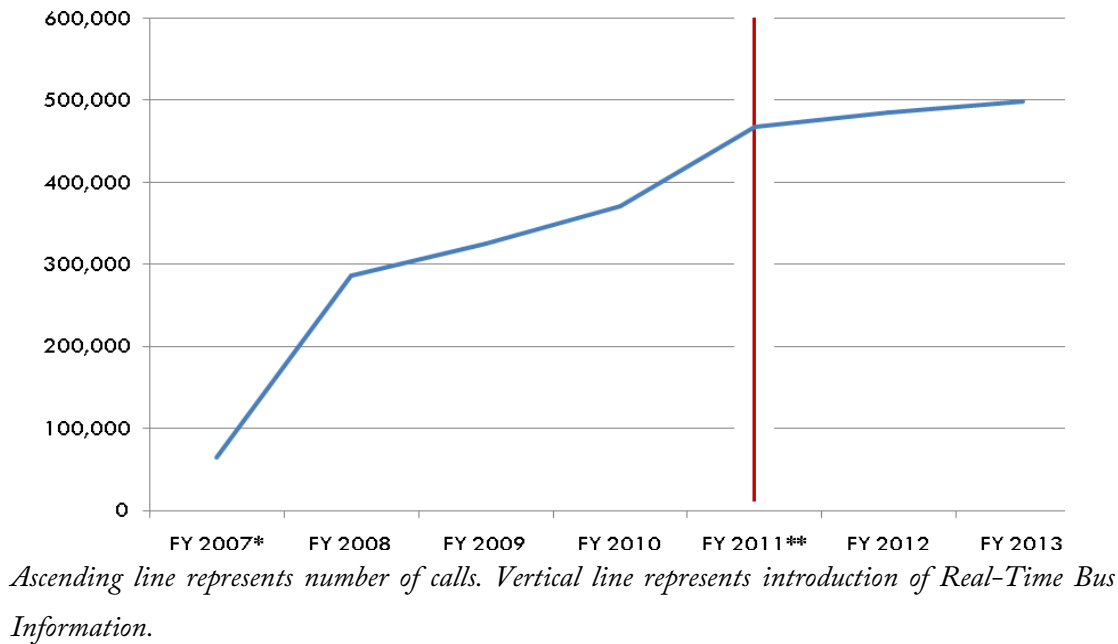
*The Regional Call Center began operations on March 15, 2007.

**Real-Time Bus Information went live November 2011.

As shown in Table D-1 and Figure D-2, call volume rose steadily

between FY2009 and FY2011, peaking with a 26.2% increase in FY2011. Following the implementation of Real-Time Information, call volume only increased 3.7% between FY2011 and FY2012. Cities saved on costs from call volume, but since the decrease in volume coincided with an increase in staff to manage the data feeding into the Real-Time Information system, total costs to agencies actually increased slightly.

Figure D-2 Historical Call Center Volume



Paratransit – TTA will regionally transport paratransit riders and pay half the cost, apportioning the other half to Wake and Durham Counties, the only counties where extensive regional paratransit is available. Transit providers benefit by TTA’s implementation of regional ADA certification, and eligible riders benefit by the elimination of transfers between multiple transit providers. (Regional paratransit service operated by TTA is available in Orange County but on a more limited basis, as required by ADA. Chapel Hill and Cary do not participate in the paratransit partnership at this time.)

Training – Agencies conduct safety and security training jointly, which includes drills and other training, as well as leadership training. No joint operator training is possible because DATA and CAT use unionized drivers and the rest do not.

Joint maintenance – Joint maintenance programs have seen less success than some of the other coordination activities, and with a few exceptions, most agencies have returned to doing their own maintenance.

DATA was initially assigned in the Seamless Public Transportation Service Project as the regional farebox and electronics maintenance facility for all of the agencies in the region. Raleigh and Chapel Hill were purchasing service from DATA, but they discontinued as gas

prices increased and travel to the maintenance facility became more expensive. DATA and CAT both have relatively new maintenance facilities. No formal joint maintenance agreements exist, but Raleigh has done some body work for TTA and shares parts.

Informal Coordination

The committee on the Seamless Public Transportation Service Project met regularly and compiled reports quarterly until 2008. Beyond the nine formal subcommittees, other coordination has occurred since the initial Seamless meetings and since the formal meetings of the committee ended:

- Department heads from the transit agencies meet quarterly, including the safety, maintenance, and operations departments.
- TTA periodically calls together the planners from the different cities to discuss regional planning as it relates to transit. This is jointly coordinated through Triangle J Council of Governments.
- Each transit agency meets frequently with TTA since all have a variety of projects involving TTA; for instance, CAT operates some TTA routes, and Cary worked closely with TTA to create a pulse system at the downtown Cary Station.
- Raleigh, Durham, and Cary are working together to coordinate local fares, though fare coordination has proven difficult since different city councils feel pressure to answer to the needs of their individual communities.
- Chapel Hill and Durham are working together to plan the alignment of new bus services to connect the two cities.

Coordination is now a part of everyday operations for the transit agencies instead of an afterthought.

DATA Merger with TTA

Durham's transit system was operated by the Duke Power Company until 1991, when the City of Durham purchased the system from Duke Power. Duke Power was a private company with unionized employees; unionized transit workers are an anomaly in North Carolina, where collective bargaining between public sector workers and their employers is illegal. Durham retained the union by contracting with a private transit management company that is responsible for the day-to-day operation of the transit system, employs the operations and maintenance staff, and collectively bargains with the transit union. Durham

employed six transit staff members to provide transit planning, marketing and grant management services and to oversee the operation of the transit system, which was challenged by deficient bus conditions, poor on-time performance, and crime at bus stops.

In 2010, Durham transferred the planning and management of DATA to TTA. The new City Manager had made transit efficiency a priority and saw TTA as better equipped to manage the day-to-day operations of a transit system. "...the city would be positioning itself to take 'transit service in Durham to the next level,' by working with an agency whose sole mission is providing transit," the city's Transportation Director stated at a city council meeting.¹⁰

TTA now manages the Durham transit system - DATA. The City owns the buses and maintenance facility and pays for service. The City is still the federal and state grantee for transit funding. TTA continues to contract with a private management company that employs the transit staff and collectively bargains with the union. TTA and Durham use a perpetual rollover contract, which renews automatically unless one party or the other wants to renegotiate terms.

Overall, the contractual merger is considered a success. Service quality on DATA buses has improved, and operations are smoother since all staff focus solely on transit instead of dividing their attention among a mix of duties, as was the case when the City operated DATA.

No major study of the routes had been performed in nearly two decades prior to the merger, and TTA revamped Durham's schedules to reduce transfers, increase frequencies, and improve on-time performance. At TTA, DATA has more access not only to transit specialists, but also to other staff, such as marketing. The fleet has improved, and crime has been reduced at Durham Station, the main transfer hub in downtown. Shelters, lighting, and sidewalks have been upgraded.

Ridership has also grown since the initial takeover, though it dipped immediately following the first year of operation.

Table D-2 DATA Annual Ridership and Budget

Year	Ridership	Operating Budget
2009	5,281,468	\$18,966,546
2010	5,059,368	\$18,881,265
2011	5,824,207	\$19,825,813
2012	6,502,151	\$21,176,683

¹⁰ The Herald-Sun, March 19, 2010

During the merger discussions, DATA's ridership was passionate about maintaining Durham's identity and not adopting TTA's brand. A citizen trustees committee was concerned that TTA, a regional provider, was not geared to providing inner-city transit to the old and infirm.

"We make decisions not always by the numbers for a route but because of who it serves," trustees Chairman Chris Harder said. "Not everything is a metric or a data point when it comes to local service."¹¹ An anonymous flyer also accused the city of "bringing in absentee landlords who don't care about Durham," and "politicians washing their hands of responsibility."¹²

Because riders and the community were worried that TTA would cut the unproductive routes that served as important lifelines to some neighborhoods, the City promised that no route changes would take place during the first year after the merger. TTA and the City began looking at efficiency improvements during the second year of operation and implemented those improvements in FY2013 after an extensive public engagement process.

Currently, the capital and operating budget and other major service changes still must be approved by the Durham City Council, but most other administration and planning occurs at TTA.

Project Status

The region did not consolidate its transit systems in 2003, and currently there is no movement to revive the idea. Local governments are open to cooperating, but there is not as much momentum without the Seamless Public Transportation Service Project meetings. Moreover, the region is focused on planning and constructing a rail network, and that effort has consumed most of the region's time, funds, and political capital for transit.



DATA Community Outreach.

Photo: courtesy of Durham Area Transit Authority

¹¹ The Herald Sun, April 8, 2010

¹² Ibid.

Still, the benefits to coordination are plain to the agencies involved. The regional call center has been a resounding success. TTA's operation of DATA is continuing successfully. Transit planning continues to become more and more closely coordinated.

TTA is the most important player in these current efforts. TTA is leading the rail network studies, outreach, and funding applications. One stakeholder called TTA, "the glue that holds the region together." Among other coordination efforts is a regional branding study TTA is currently conducting. Five of the seven agencies in the region are participating. TTA conducted a passenger survey as part of the study. Some cities are in favor of one, unified brand, and others prefer to maintain their own individual brand. The study could result in one new regional brand or potentially a unified, regional pattern that uses different colors in each city.

Future Efforts

The major transit project in the Research Triangle in recent years is not consolidation but the plans for a regional rail network. In 2011, Durham County approved the levying of a new ½-cent sales tax to support the construction of a light rail line to Chapel Hill, commuter rail line to Raleigh, and enhanced bus service throughout the county. In 2012, Orange County approved a similar measure, based on the same Bus and Rail Investment Plan compiled jointly between Durham and Chapel Hill. Wake County has yet to place the measure on the ballot. Stakeholders had mixed opinions about whether or not Wake will approve the measure soon in the coming years.

Chapel Hill and Durham have already begun collecting the new sales tax revenue and planning for bus enhancements. A 17-mile light rail corridor connecting Durham and Chapel Hill is actively being planned, with TTA coordinating the New Starts application to the Federal Transit Administration. The first of DATA's planned bus upgrades will be to use the new sales tax revenue to increase frequency on its most crowded routes, upgrade shelters, and enhance bus stop amenities.

The region is poised for a revolution in its transit network. Whereas some view the sales tax efforts as the next step toward regional consolidation, others view the process as wholly separate from the consolidation concept.

PROJECT COSTS AND BENEFITS

Several stakeholders stated that the goal of the 2003 consolidation plan was never to save money but to provide better service. Some coordination measures have reduced agency costs, but some, like the call center, have cost more. Transit agencies and their respective city councils believe that these costs are a good investment, necessary to improve service quality.

One of the most praised outcomes of the Seamless Public Transportation Service Project is the Regional Call Center. Each city pays into the call center every year based on the number of calls logged from its citizens, but this is viewed as an important use of funds. Other investments, such as real-time bus information, have contained calls and costs at the call center.

After the merger with TTA, Durham spends more on transit than it did when it employed six people to oversee the transit operation. But the city understands that the service is better; one representative said, “Doing it right costs more money sometimes.”

Benefits from the DATA/TTA merger:

- Funds are saved on bulk purchases such as tires, oils, and transmission fluids
- On-time performance is much better
- Ridership has increased
- Service frequency has been enhanced
- New routes provide more direct service to major destinations
- Fleet condition has improved

One stakeholder observed that cost-benefit analyses are not always helpful because the numbers may be underwhelming. Cost savings may be there, but may be 1% or 2% instead of the 15% that many agencies hope for.

RECOMMENDATIONS AND LESSONS LEARNED

Be willing to be patient. Extra steps may take long, but are necessary for people to trust the process and trust the outcomes. The transition of DATA from the City to TTA required postponing service changes for a year following the merger in order to ensure that riders were comfortable with the new management.

Implement changes incrementally. Only two cities joined the Regional Call Center initially, but its success brought the others along eventually. The GoTriangle brand is used by all transit agencies even though they are not consolidated, getting citizens used to the idea in phases of increased integration.

A supportive state DOT is essential to success. Advocates for consolidation and enhanced cooperation found funding for studies and grants with the help of NCDOT. NCDOT was also helpful in coordinating some joint procurement efforts.

Focus on the “why” as well as the “how.” Stakeholders consistently stated that the consolidation proposal in 2003 did not tell a convincing story for why the systems should merge into one regional network. Consolidation should not be treated as a foregone conclusion; the costs and benefits should be made plain to decision-makers in order to ensure buy-in.

Customer service should be the primary goal. Cost savings are often not significant enough to warrant consolidation alone. Agencies must be committed to improving service quality.

In the case of consolidation, lay out roles and responsibilities clearly before any action is taken. Though the DATA/TTA merger has been largely successful, the process would have benefited from additional clarity on roles and responsibilities.

Participants must be willing to cede some small fraction of power and/or dollars. As many stakeholders pointed out, the number of local members on a regional transit board cannot equal the number of local members on a local transit board. Maintenance of oversight over a jurisdiction’s investment is critical, but, said one stakeholder, agencies must be willing to say, “We don’t have to control the last 1/100th of a vote or dollar.”

APPENDIX E

Central Station, McAllen, TX

APPENDIX E: McALLEN, TEXAS

INTRODUCTION

McAllen, Texas is located in southeastern Texas, approximately nine miles from the US-Mexico border along the Rio Grande. The city itself has a population of about 135,000 and the surrounding area is home to nearly 800,000 people.

Directly across the river from McAllen is the Mexican city of



Main Entrance to Central Station.
Photo: courtesy of C Sullivan

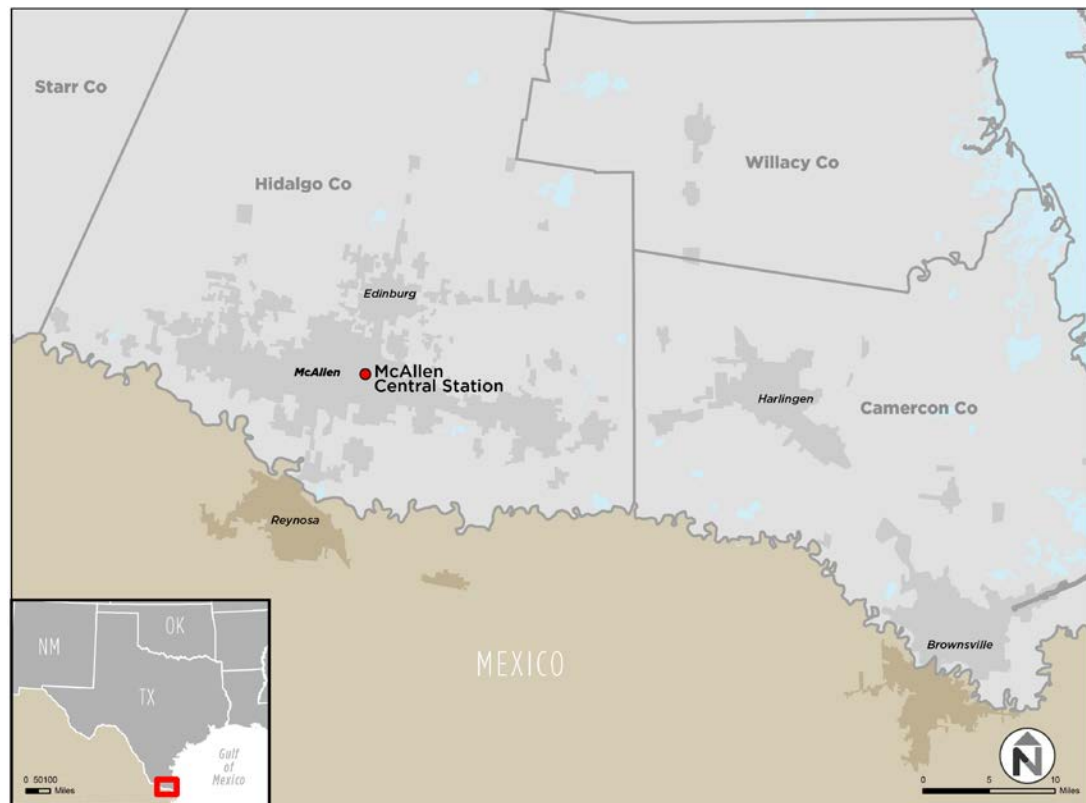
Reynosa, which is also part of the greater McAllen-Reynosa urbanized area. Combined, the area encompassing both sides of the border has a population of 1.7 million. The region is also designated as a Foreign Trade Zone (FTZ), which is designed to promote partnerships between Mexican and American companies and stimulate economic development. The demand for cross-border travel through McAllen also expands beyond Reynosa and McAllen to a larger geographic area that also has strong cross-border social and economic ties. McAllen remains at the center for much of this travel, sitting along the most direct path of travel into the United States. The movement of goods and people across the border and through McAllen is a critical part of what makes the region vibrant and dynamic and has helped stimulate recent population and economic growth.

In the midst of population and economic growth, the City of McAllen passed a local tax initiative (in 1995) that supported local public transit services within the city and, as part of the local service, a central bus station. The central bus station was intended as a hub for local service but also a facility for intercity and regional bus service. Supported by the local tax, transit service started in McAllen in 1997 and McAllen Central Station opened in 2001. The station was developed as a collaborative project, involving the City of McAllen as its primary sponsor but also a complex mix of private and public bus operators, including U.S. and

Mexican companies. Downtown merchants, property owners and local advocacy groups also played an important role in the project's development and success.

In 2012, McAllen's transit service (Metro McAllen) carried an estimated 750,000 riders; 3.5 million people visited Central Station, including nearly 375,000 international bus passengers. Central Station has also served as a model for other similar types of intermodal bus terminals in southern Texas, including a recently constructed station in Brownsville.

Figure E-1 McAllen Region



HISTORICAL OVERVIEW

Demand for passenger travel in McAllen has grown significantly in the past several decades, in part due to McAllen developing and expanding local transportation services and facilities, but also in response to broader events affecting North America. The first significant event occurred when the North American Free Trade Agreement (NAFTA) was signed into law in 1994. NAFTA eliminated most of the restrictions on cross-border bus operations, including

permitting ownership and operations of bus services on both sides of the border¹³. The impact to McAllen was significant; prior to NAFTA most cross-border bus travel consisted of short connecting trips from McAllen to Reynosa; passengers used these services to transfer to longer-distance buses to get to their final destinations. With the passage of NAFTA, buses could operate directly between Mexican and U.S. cities. Direct connections between cities made travel easier, opened new markets for travel and encouraged competition among operators.

A second major event influencing cross-border bus travel is the ongoing Mexican drug wars and an increased incidence of kidnappings, which made travel by private automobile less safe. Safety concerns associated with drug violence encouraged many travelers to travel by bus, including higher-income travelers who likely would have otherwise driven. Thus, overall demand for bus travel increased and a new market for more upscale intercity bus travel developed that benefited all riders.

At the same time that international bus travel was changing, McAllen also began developing local transit services. In the mid-1990s, the City of McAllen began an effort to raise local funds for a variety of public infrastructure investment projects through a sales tax. The tax initiative failed twice and it wasn't until the City of McAllen partnered with a local advocacy group, Interfaith Action, that the tax passed. Interfaith Action, knowing the local community and their needs well, encouraged the City to include public transportation (both services and a physical hub/station) as one component of the public projects included in the tax measure. This initiative proved successful, passing in May 1997. The half-cent sales tax was dedicated to "ten projects in ten years," including both development of local transit services and the central public transit transfer hub.

In 1996, the City of McAllen had commissioned a Transit Feasibility Study. Building on this study, local bus service began operating in McAllen in 1997. The service was initially operated by Valley Metro, a division of the Lower Rio Grande Development Council, with five routes operating six days per week for 12 hours per day.

Simultaneous with developing transit service, the City of McAllen began work on Central Station. Developing a central station, or hub, was deemed essential to making local transit service effective. In addition, the City recognized a dire need for a central intercity and regional bus hub. Prior to Central Station, almost all of the intercity bus companies operated

¹³ Metro Magazine, July 16, 2001

from independent pick-up and drop-off locations. As a result, buses were traveling on several streets in downtown, transfers between services were confusing, often entailing walking many blocks, and passenger facilities were minimal and/or unsafe, lacking waiting areas or public restrooms.

Planning for Central Station was led by City Hall in conjunction with a stakeholder group that included several partners, including domestic intercity bus operators. Early plans called for the transit station to be located outside downtown, near an on/off ramp to I-83 on an available parcel near the convention center. This site was preferred largely due to access to/from the interstate to support efficient intercity operations, but



Central Station logo.

Photo: courtesy of C Sullivan

was also attractive based on the availability of a site and the potential to support the nearby convention center and development of a new shopping center complex.

However, as site planning moved forward, a group of downtown merchants emerged to support a different location for the bus station that was closer to the heart of the central business district and integrated with downtown businesses. This group felt the health, long-term vibrancy and economic viability of downtown depended on a downtown location; they also felt a downtown location would better support the new local bus operation. The decision about where to locate the bus station became highly contentious, dividing several parts of the community. Ultimately, McAllen residents elected public officials who supported the downtown location and this site was selected for station development. One of the early successes of McAllen is that, despite the hard battle over where to site the station, stakeholders came back to the table and refocused energy on station development.

As discussed, local transit service began in 1997 and was initially operated by Valley Metro, a division of the Lower Rio Grande Development Council. After Central Station opened in 2001, a few years passed with no major changes to the service or infrastructure. However, in 2005, budget shortfalls required the City of McAllen to take a hard look at its operating costs

and examine its contracting relationship with Valley Metro. This process resulted in the City bringing service operations in house as a strategy to reduce costs. When the City of McAllen began operating service, it rebranded itself from McAllen Express to Metro McAllen; the services and station continue to be operated today by the City's Transit Department.

PROJECT DEVELOPMENT

Project Purpose

Central Station is a multimodal bus terminal located in downtown McAllen. The terminal was designed as a focal point for local transit service and regional intercity bus operators. Additionally, both the transit services and the multimodal hub were intended as economic development projects, especially when the decision was made to develop the station in a downtown location.

Project Leadership and Partners

The idea for transit services and a central transit station originated from Interfaith Action, a grassroots, faith-based advocacy group. Their support and the support of their constituents were instrumental in getting the sales tax passed in 1997.

Almost immediately after the sales tax was approved, McAllen city government began planning for development of transit services. The early stages of the project were led by the City's Planning Department. The transit service was initially managed as a department under the McAllen International Airport until the City hired a Transit Manager (2001) and assigned the responsibility for both managing Central Station as well as developing local transit services to this department. The Transit Manager eventually became head of a Transit Department within the City of McAllen.

Partnerships were formed as part of planning and developing Central Station. This effort began before the Transit Department existed; thus, most of the planning and design work was led by the City's Planning Department, in partnership with intercity bus operators. In the early stages of design, McAllen's primary partner in the process was the Valley Transit Company, which operated intercity bus services across the US-Mexico border into Reynosa.



McAllen Metro Paratransit van.
Photo: courtesy of C Sullivan

Mexican bus operators were eventually included in the planning and design, but initially they were not fully incorporated into the dialogue. Mexican bus operators felt left out of the process, in part because all meetings were held in McAllen in English, with little effort specifically initiated to ensure their involvement. This created problems because the operators were reluctant to commit to operating their services from Central Station, but the station's financial plan depended on these operators renting bus slips and counter space.

Ultimately, through initiation of a more inclusive, culturally sensitive, multi-lingual process, McAllen's Transit Department was able to engage the Mexican bus operators, address their concerns and get them to sign contracts with the City of McAllen. This secured their role as partners in the station's success. This broader and more inclusive group of stakeholders ensured the City of McAllen would achieve its goals, primarily that Central Station would become the focal point for all intercity transit operators and secondarily that the Station would succeed financially through renting and leasing of space.

Public Involvement

Members of the public were integral to the development of both Metro McAllen transit service and Central Station. The public's desire for development of transit services and facilities and approval of funding at the ballot box both mandated and funded the project's development. The public also played a major role in station location; Central Station's location in downtown was guided by a popular election. The public continues to be a major supporter and user of the transit service and station.

Obstacles/Challenges

Central Station by all accounts has been and continues to be a successful project in terms of supporting local transit service, consolidating intercity bus operations, providing a first-class passenger facility and strengthening McAllen's role as a ground hub for passenger travel between the US and Mexico.¹⁴ Despite this, there were several obstacles associated with developing the station, as well as a series of challenges associated with initial operations of the station.

Balancing stakeholder preferences over the location of Central Station. While there were some technical aspects related to the decision about where Central Station should be located, ultimately the decision represented a clear and significant difference in community opinions and values about how to share and distribute anticipated benefits associated with the bus terminal. One group of stakeholders felt strongly that the bus station should be located near the interstate to enable intercity buses to get in and out of McAllen quickly, in order to make trips faster and more direct for clients and minimize operating costs. The other group of stakeholders wanted the bus station located downtown to bring economic development benefits to McAllen's core and its merchants and to facilitate easy transfers to the local bus service. Ultimately, the community felt the benefits to downtown outweighed any operational benefits of being close to the freeway. The decision was highly politicized, and ultimately was decided by the voters, who elected a mayor who was in favor of putting the bus station downtown.

Challenges associated with this decision included not only deciding where to locate the bus station, but also extended after the location was determined, because the success of the project meant the divergent parties needed to come back and work together to make the station a success.

Top-down process during the early stages of project development. In the early stages of planning for Central Station, the process was largely led by City of McAllen staff with participation from local and domestic intercity bus operators only. While this partnership was useful, it did not fully engage the international bus operators, who were critical stakeholders not only because they represented a majority of potential lessees and therefore a fundamental ingredient in the station's financial sustainability, but also because the station needed to be

¹⁴ All interviewees were enthusiastic in their praise of Central Station and the benefits it has brought to the City of McAllen, transit passengers, and a variety of other stakeholders.

designed to optimize their operational efficiency. Ultimately the City of McAllen was able to get the Mexican operators to sign contracts to use Central Station, largely by undoing some of the previous errors. Achievements in turning the situation around included:

- Assigning a bilingual Mexican-American to a senior position and giving that individual authority to negotiate on behalf of the City of McAllen. The new staff person collaborated with the Mexican bus operators directly and worked diligently to understand and address operators concerns.
- Developing and issuing a contract that was a public document and common to any and all bus companies interested in operating out of Central Station. The common contract was consistent for all operators, regardless of size and country of origin; the ability to contract in this manner was enabled by NAFTA, with Central Station and the City of McAllen one of the first entities to take advantage of it. Issuing a common contract developed trust and fueled good will between the City of McAllen and the bus operators.
- Paying particular attention to one or two of the largest, most influential bus operators and getting these operators to sign a contract with Central Station. Once the larger operators agreed to operate from Central Station, the smaller agencies followed. This strategic approach proved very successful.

McAllen transitioned from contracting bus service to operating it in house. McAllen initially started to provide local transit service, branded locally as the McAllen Express or “ME bus,” under contract with the Lower Rio Grande Valley Development Council, transit division Valley Metro. Valley Metro was (and continues to be) an established transit operator in the region that provides contracted services for several communities. Thus, they were able to begin operating bus service in McAllen quickly and provide quality service. However, after several years of operations and increasingly constrained municipal budgets, the City took a hard look at the costs of contracting out the service and decided it would be significantly more cost effective to bring operations in house. This was not an easy decision because it meant a loss of contracting revenue for Valley Metro and also meant that the City of McAllen, which had limited experience in transit operations, had to take over an existing system, including hiring and training drivers, maintaining vehicles and managing service.

The transition was difficult for the City of McAllen and the relationship between McAllen and Valley Metro was strained by this decision. However, after a relatively short period of six to 12 months, the City was able to get service operations under control. They used this

opportunity to rebrand the service from McAllen Express (ME bus) to Metro McAllen and released a new brand, logo and color scheme for the marketing materials, signage and buses. Ridership on Metro McAllen has continued to grow and develop (see Figure E-2).

Lack of local transit experience when developing transit service. When Central Station was initially being developed, the idea of a bus station functioning as a ground hub for thousands of passengers a day was a relatively new concept with few example projects to consider. Consequently, the collective experience with transit facility development was thin locally, and even nationally there was not a lot of experience with the type of facility envisioned for McAllen. Given the lack of transit specific experience, the City of McAllen drew upon personnel that had successfully developed McAllen's airport to manage the development of Central Station. The team had strong project management and construction experience, including development of passenger facilities, but had less experience with bus operations. As a result, in many ways, Central Station resembles an airport. And, while the passenger facilities inside the station are effective, some aspects of terminal design with regards to bus operations were less effective. For example:

- The amount of space dedicated to intercity bus operations outside of the station was not sufficient. As a result, there are only a handful of bus bays and limited space for storing vehicles.
- The different vehicle movements associated with local bus services, intercity bus, taxi waiting area, and private vehicles were somewhat awkward and resulted in conflicts between modes. Access and egress to the station were ultimately reconfigured after the station was remodeled in 2010.
- Intercity bus loading and unloading areas were not sufficiently designed to protect passengers from the weather. Initial problems included not enough shade on the boarding platform, but the awnings that were added extended only to about the mid-point of an intercity coach. This meant on rainy days, the rain fell off the awnings directly onto passengers and drivers loading luggage into the vehicle.

Many of these deficiencies were corrected during the station remodel that was completed in 2010. The remodel was able to build on the experience learned from eight years of operation and to better accommodate the number of people using the terminal.

Implementation and Outcomes

Central Station opened its doors in 2001 and has become one of the largest passenger ground hubs in the country. The City of McAllen has worked every year to improve both local bus operations and the utility of Central Station; consequently ridership continues to grow on both Metro McAllen and intercity bus operations, and the functionality of the facility continues to increase.



Central Station Passenger Waiting Area.

Photo: courtesy of C Sullivan

Nine transit agencies currently operate service to/from Central Station, including Metro McAllen (local service), several regional intercity bus operators (Valley Transit Company, Americanos, Tornado and El Expreso) and many international bus operators (Tornado, Turimex, Sendor, Noreste, Transpais, My Bus/Vencedor and ADO).

Intercity Bus Operations

Buses depart from Central Station to destinations in Mexico every 30 minutes and there are several daily direct trips to Houston and Dallas (see Table E-1).

In FY 2013, nearly 400,000 international bus riders traveled on services that began or ended at Central Station. The operating budget for Central Station was just over \$1 million (FY 2013).

Table E-1 Intercity Bus Companies Operating from McAllen Central Station

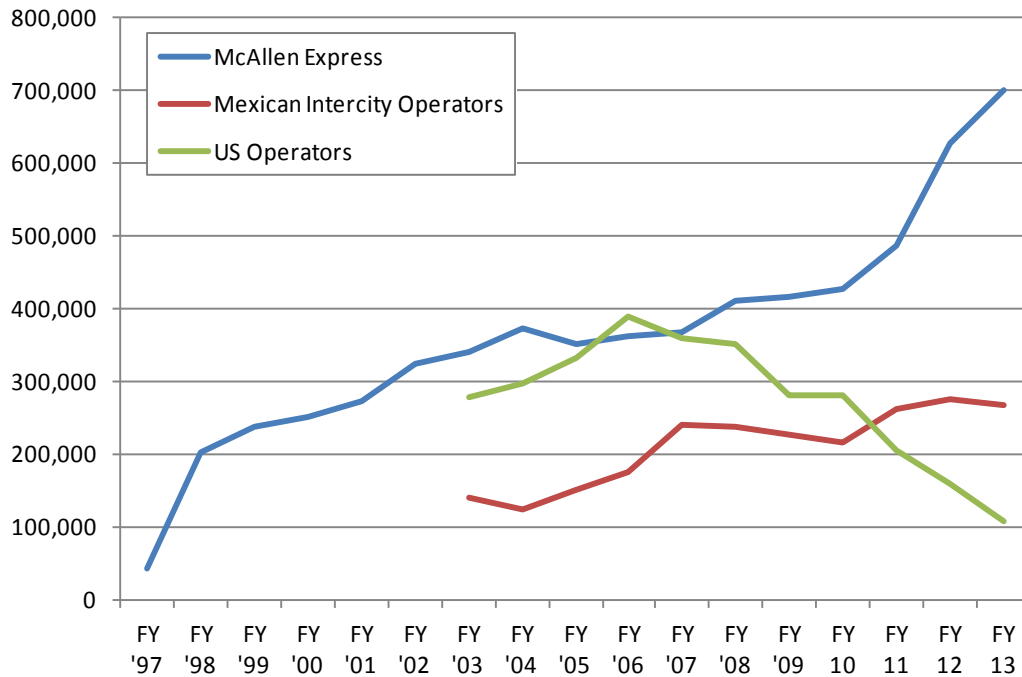
Operator	Departures/Destinations	Other Services
Valley Transit	58 daily departures to destinations throughout Texas and U.S.	Package Express Affiliated with Greyhound
Omnibus Express	Service to Texas and Eastern US	Offer daily service to Mexico through affiliates
Tornado and El Expreso	Service to Texas and Eastern US	Offer daily service to Mexico through affiliates
Turimex, Sendor and Noreste	Daily service to northern states in Mexico	
Transpais	Throughout Northern Mexico Connections to Central Mexico	
ADO	Daily departures to Mexico City and Tampico	

Local Bus Service

Metro McAllen provides daily bus service with seven routes. Of the seven routes, four operate daily (Monday through Sunday) with service from 6:00 a.m. to 11:00 p.m. Monday through Saturday and 8:00 a.m. to 8:00 p.m. on Sundays. The remaining three routes operate Monday through Saturday between 6:00 a.m. and 7:00 p.m.

In FY 2013, Metro McAllen carried just over 700,000 passengers, doubling from ridership in 2003 (roughly 340,000 riders). The operating budget for the service for FY 2013 was \$1.285 million.

Figure E-2 Annual Ridership on Local, Domestic* and International Bus Service at Central Station



Source: City of McAllen

*The drop in ridership for US Operators reflects the termination of a McAllen—Reynosa shuttle service. This shuttle service originally transported people across the border where they could catch regional, intercity services. Once intercity operators were able to travel directly to McAllen and as the level of service improved, demand for the short service fell and this is reflected in the ridership trends.

2003 Station Upgrades

Ridership on Metro McAllen has increased steadily since 1999 as has demand at Central Station. The growing demand and number of riders using the service and facilities led the City of McAllen to upgrade the Station. The major improvements involved expanding the office space and adding conference room space inside the terminal. The upgrades also involved building air lock vestibules at station entrances for better climate control, and adding or upgrading canopies at bus loading locations and the taxi stand, among other improvements. The upgrades cost approximately \$2.4 million and were completed in 2010.

Technical Assistance

As a result of the success in McAllen with Central Station, a handful of other communities in South Texas, including Brownsville and Harlingen, have also looked into developing intermodal bus terminals. McAllen staff assisted with these efforts by sharing their insights and lessons in developing the station, including design of the facility and working with

intercity bus operators. The Brownsville Station, “La Plaza,” opened its doors in 2011 and is a growing facility serving roughly 2 million passengers per year.

Regional Cooperation

As previously described, certain relationships were strained during the development of Metro McAllen.

Doing the right thing, as a team effort, for community benefit, with a humble approach is how to achieve these collaborative projects.

However, the development of both Metro McAllen transit services and Central Station resulted in the City of McAllen strengthening relationships with several other partners. New partnerships, especially with intercity bus operators and other cities in the Rio Grande Valley, have led to other regional projects, including:

- **Joint procurement of vehicles**—McAllen recently cooperated with Laredo and Brownsville to jointly procure vehicle. Working together ensured the individual agencies learned from each other with regards to developing specs, and a bulk purchase also helped lower costs.
- **A successful grant application for a regional bus route between Central Station, Harlingen and Brownsville** (*awarded in summer 2013*). This proposed regional service “Metro Connect” is being planned for operation next year.

PROJECT COSTS AND BENEFITS

Benefits realized through development of Central Station include the following:

- **Success and growth of local transit service.** One of the primary reasons for developing Central Station was to create a single hub for local bus service. This objective was realized through the design of the service (local bus service pulses from Central Station). As the bus service has grown and ridership increased, the role of the station as a local transit hub has increased. Metro McAllen carried nearly 700,000 riders in FY 2013 and ridership has increased annually since the service was initiated in 1999 (see also Figure E-2).
- **Significant improvement in customer experience.** Another major reason for Central Station was to create a single hub for all intercity bus travelers. Central Station definitely fulfilled its promise of significantly improving the convenience and quality of the passenger experience. The Station is pleasant and inviting, i.e. climate

controlled, with clean bathrooms ample seating, and concessions. It has also made it safe and easy for passengers to transfer between systems and to get information about available services.

- **Improved circulation and safety in downtown.** Another benefit realized by consolidating bus operators at a single location is a reduction of bus traffic on local streets; this improves bus operations but also makes the streets safer for pedestrians and vehicular traffic.
- **Simplify operations for intercity bus companies.** A secondary set of benefits of developing Central Station accrued to the intercity bus operators. Operators tend to benefit when passengers are all at the same location—it gives them access to the wider market and makes it easier for passengers to transfer between routes and services. In addition, bus operators not based in McAllen are able to share resources (i.e., load or rent a bus bay, share tools or equipment, etc.) when needed. Renting space from the City of McAllen also created efficiencies for the operators in terms of the need to develop, maintain and clean their own facilities, including amenities such as waiting areas and bathrooms, but also security, cleaning fees and utilities. By paying a portion of the shared complement of amenities, operators are able to provide more with less.
- **Coordination of public sector services.** One of the things McAllen did very successfully was offer the private sector bus operators “value for money” in terms of the amount the operators paid for rent relative to the value received. Several of the bus operators said they could not get close to developing similar facilities and amenities for nearly the same money. However, the ease of administration associated with paying rent rather than being responsible for an entire facility was highly valued. In addition, McAllen was able to coordinate several other public services, especially border control, police and security that added value for many operators. The concentration of private bus operators benefited the public sector providers of these services because it also helped them with “one-stop shopping.” The department of transportation, for example, is able to conduct spot checks on several operators at one location, and security concerns can be addressed through programs at a single location.
- **Support Downtown McAllen.** While the decision was highly controversial, the City of McAllen ultimately chose to locate Central Station in downtown McAllen to

support the downtown merchants and businesses. The merchants believed that by bringing both local and intercity passengers into downtown, they would more likely shop and eat in downtown, ensuring a vibrant central business district. In addition, Central Station was designed to be a public place for shoppers to visit, rest in air conditioning and have access to public restrooms. The general sentiment is this strategy has been successful, and McAllen continues to have a healthy downtown despite the recent recession. Indeed, visitations to Central Station have increased steadily, with over 1 million people visiting in 2013.¹⁵ Stakeholders compared Central Station to a project such as a major public investment in a resource like citywide fiber optics, something that will put McAllen in a more economically competitive position for decades to come.

- **New and stronger partnerships with regional transit operators.** The process of developing Metro McAllen and Central Station strengthened partnerships, including with regional domestic bus operators in El Paso, Harlingen and Brownsville and intercity bus operators. These partnerships have led to increased cooperation between agencies and collaboration, such as providing technical assistance to station development, a regional radio system, joint procurement of vehicles and joint service projects. The operators are even looking into developing a regional fare card. The success of Central Station and the subsequent partnerships has prompted much more robust regional cooperation on a variety of issues that continues to benefit customers.

RECOMMENDATIONS/LESSONS LEARNED

Lessons learned from McAllen Central Station with respect to fostering and promoting collaboration include:

- **Including as broad a group as possible is essential to success.** This was the case for Central Station even though the need and demand for a central bus terminal was clear. In the early stages of the project, the stakeholder group working on the station was small and, consequently, some stakeholders felt excluded from the project. This small group wanted to locate the bus terminal by the freeway. When the stakeholder group was expanded, however, the process became more complicated, but a different

¹⁵ No data exists about economic development benefits, but downtown appears to be thriving. Negative impacts of the recession appear to have been mitigated by the presence of the Station which draws customers from around the region and Mexico to McAllen's downtown.

decision was reached and the station was located downtown. A similar story was nearly repeated when bus operators were negotiating with the City of McAllen for operating space. Once the group expanded to include more stakeholders, the operators made commitments to the station. One of the key lessons learned from McAllen Central Station is that including as broad a group as possible is essential to success. A diversity of stakeholders ensures: 1) projects are not dominated by a single interest or stakeholder group; 2) the needs and perspectives of a broader range of users are included in the facility design; 3) a large base of support helps sustain the project through challenges; and 4) cooperative agreements, though harder to negotiate, are more beneficial than more traditional top-down regional authority, costs are lower, and more can be invested in service on the streets.

Other critical lessons about working with stakeholders are to:

- *Be sure stakeholders have equal access to the process, information and project leadership.* Given differences in relationships entering into the project, this may mean making extra efforts to ensure some individuals or groups of individuals are participating. In the case of McAllen, this meant making a special effort to engage the Mexican bus operators, including traveling to them, conducting meetings in Spanish and working to understand their needs. The spirit of collective ownership that was built within the stakeholder group was cited as a key factor in the station's ultimate success.
- *Ensure the individual leading the process has the right temperament for leading a group and developing consensus among disparate parties.* Critical among these qualities is a willingness to lead and direct but not take credit for the success. Individuals involved in the development of Central Station said they had to constantly put personal feelings and egos aside in order to take a broader perspective and celebrate collective success.

- **Financial considerations and fiscal rigor should be a part of developing any project.** One of the reasons that Metro McAllen and Central Station were successful projects is that they were well planned, designed and executed. Transit

These projects take effort, energy and constant celebration of collective strength.

Department staff continues to be successful going back to the City for new projects (such as taking control of bus operations and \$2.7 million worth of improvements to

Central Station). Program managers spend time managing the project and its financing, and prepare realistic, accurate budgets that communicate about system/service costs, revenues and changes from previous years. Some of the particular strategies include:

- *Communicating project costs and benefits clearly and efficiently to City managers and elected officials.* Transit in the United States is a subsidized service and this means it is rarely attractive to elected officials. At the same time, however, transit delivers tangible benefits to the community. By several accounts, McAllen's Transit Department continues to do an excellent job describing how much the service costs, explaining where the funding comes from and describing the benefits realized (riders served, number of visitors). City managers explained that the realistic budgets and ongoing updates of the benefits mean the Transit Department has earned their support and trust, which gives the transit staff more flexibility, authority and independence.
- *Develop partnerships with private sector entities.* McAllen Central Station is funded through a combination of federal, state and local resources, as well as rent paid by bus companies and concessionaires. A key strength of this formula for city managers and elected officials is that it includes private funding, and local revenues can be used by the City to leverage federal and state funds. Value for the money from the perspective of local government is clear.
- *Develop multi-year budgets.* Another strategy used by the Transit Department is multi-year budgets. This allows the Transit Department to track and show progress toward a longer term program. Multi-year budgeting also means changes in political leadership are less likely to occur during a first year budget; therefore, politicians are less likely to consider major changes to the program.
- **Know your market and develop services and facilities to serve this market.**
Multimodal transit hubs have not lived up to expectations in locations around the country. Demand and use of Central Station, on the other hand, has exceeded expectations. This success emerged from careful planning and paying attention to market needs, such as a clear understanding that a large portion of its market included either Mexican travelers or Mexican-American travelers. As a result, the station, services and travel experience were developed to reflect market preferences and expectations.

- **Successful development of projects, and in particular, getting stakeholders to agree to participate (*i.e.*, getting intercity bus operators to sign a lease contract for Central Station) involves developing incentives to encourage their participation.** Prior to opening Central Station, the City of McAllen issued an ordinance that made it illegal to operate independent bus terminals. The ordinance did include exemptions for existing operators, but nonetheless the ordinance signaled to the operators that the City intended to have people use Central Station. At the same time, the City also worked hard with the bus operators to create a transparent and equitable contracting process that reflected market rates and offered value. Several intercity bus operators say they continue to operate from Central Station because of the concentration of customers but also because the arrangement worked for them financially. Operators said they are able to provide a better environment for their passengers more cost-effectively than they could independently, and this is the primary reason they continue to work out of Central Station.
- **Listen to customer needs and develop a product that meets (or exceeds) these expectations.** The continued success of Central Station and Metro McAllen is that they maintain a close relationship with their customers (bus passengers) and clients (bus operators). The Transit Department is located at Central Station; this means that staff shares the facility with their clients and customers and are affected by any problems at the station, such as poor air conditioning, messy bathrooms or challenges with parking. Locating staff at Central Station also means staff is available to discuss issues and concerns with clients and customers as they occur. This allows the City of McAllen to respond to challenges quickly and collect ideas for improvements. Their familiarity and presence also helps build trust.
- **Inspired, motivated leadership is critical to surviving challenges.** Central Station and McAllen's key transit staff leaders are young, dynamic individuals who are passionate about transit services and riders and willing to share the limelight. In many ways, McAllen's staff represents a cross-section of the old and new—much of the leadership has been around for a long time and has the trust and support of elected officials and much of the business community. The other part of the leadership team includes individuals who embody the “new face of the United States”—young, non-white, passionate, thinking outside the box. Their energy and openness to new ideas, combined with the support of the more traditional leadership,

allowed McAllen Central Station's staff to try new things, change directions and ultimately deliver a quality product that benefits the local community and traveling public.

APPENDIX F

Central Puget Sound Region, WA

APPENDIX F: CENTRAL PUGET SOUND REGION, WA

INTRODUCTION

The ORCA card is a successful example of fare integration among multiple providers of varying sizes in a major metropolitan region – Central Puget Sound in northwestern Washington State. The Puget Sound is a major inlet of the Pacific Ocean including numerous islands; the Central Puget Sound region is defined as the nine counties that border the sound,



Aerial photo of ORCA Marine Pier.
Photo: courtesy of ORCA Operations Manager

centered around the largest city, Seattle. This case study will focus on the four counties with transit operators that participate in the ORCA card. These include the three counties making up the greater Seattle metropolitan area: King County, home to Seattle; Snohomish County to the north; Pierce County to the south; and Kitsap County to the west. See Figure F-1 for a map of the region. Together, the population of these four counties is approximately 3.7 million people.¹⁶

The ORCA card, which stands for “One Regional Card for All,” is a contactless smart card that can be utilized for fare payment on seven public transportation providers in this four county area:

- King County Metro
- Sound Transit
- Community Transit
- Everett Transit



The ORCA Card.
Photo: courtesy of ORCA Operations Manager

¹⁶United States Census Bureau. 2010. Decennial United States Census 2010. Government Printing Office, Washington, DC.

- Kitsap Transit
- Pierce Transit
- Washington State Ferries

A basic overview of the region and the operating characteristics of these seven agencies are shown in Figures F-1 and Table F-1 below.

Figure F-1 Central Puget Sound Region



Table F-1 Overview of Operators Participating in ORCA Card

Operator	Service Description	Fleet Size
Everett Transit	Serves City of Everett in Snohomish County, surrounded by Community Transit service territory	49 buses 26 paratransit vans
Kitsap Transit	Bus and foot ferry serving Kitsap County	110 buses 3-4 passenger ferries
Pierce Transit	Bus, paratransit and vanpools	130 buses, 346 vanpools and 100 paratransit vehicles
Community Transit	Operates bus service in Snohomish County and express bus service to King County	239 buses 365 vanpools 54 paratransit vehicles
Sound Transit	Operates express bus, light rail and commuter train services in King, Pierce and Snohomish counties	243 buses Commuter Rail– 58 cars Light Rail – 68 cars
King County Metro	Operates bus, trolley, vanpool, paratransit, passenger ferries, and bus rapid transit in King County	1,503 buses, paratransit vans, and 1,315 vanpools
Washington State Ferries	Largest ferry system in the United States, serving eight counties within Washington and the Province of British Columbia in Canada; 10 routes, 20 terminals	22 vessels

Sources:

Pierce Transit. October 18, 2013. Pierce Transit System Map. Retrieved from: <http://www.piercetransit.org/system-map/>

Sound Transit. October 18, 2013. Sound Transit Main page/ Retrieved from: <http://www.soundtransit.org/>

King County Metro. October 18, 2013. King County Metro System Map. Retrieved from: <http://metro.kingcounty.gov/maps/>

Community Transit. October 18, 2013. Community Transit System Map. Retrieved from: <http://www.commtans.org/busservice/systemmaps/>

Everett Transit. October 18, 2013. Everett Transit System Map. Retrieved from: <http://www.ci.everett.wa.us/default.aspx?ID=290>

Washington State Ferries. October 18, 2013. Washington State Ferries Route Map. Retrieved from: http://www.wsdot.wa.gov/ferries/info_desk/route-maps/

Kitsap Transit. October 18, 2013. Kitsap Transit System Map. Retrieved from: <http://www.kitsaptransit.com/SystemMap.html>

ORCA is a “closed” system meaning that value added to the card can only be used to pay public transportation fares. Federal restrictions limit the use of pre-paid fares solely for the use of public transportation. This is so that the card does not become a “depository” for funds and fall under Federal banking regulations. If an “open purse”— one



Sound Transit Light Rail.

Photo: courtesy of Nelson\Nygaard

that can be used for non-transit purchases —was desired, it is possible to add a second E-purse to the card. To date, this functionality has not been implemented for ORCA. The ORCA card utilizes Radio Frequency Identification (RFID) contactless chip technology that can load multiple fare types. Two primary types of fare value can be loaded:

- **E-Purse** – This electronic purse is stored value that allows a user to pay a cash fare on any service. A free transfer is provided when a rider transfers between buses regardless of operator (valid for two hours from initial card tag). Washington State Ferries does not participate in this transfer benefit.
- **Puget Pass** – This is a fixed price monthly pass that allows for unlimited travel on any of six services and their passenger ferries in the region (for a number of reasons described under “Challenges” below, the Washington State Ferry system has maintained agency-specific passes). Puget Passes are available in a range of denominations in 25-cent increments; a rider selects a base pass value representing the most common trip he/she takes, e.g. \$3.25. This allows the rider to take unlimited trips that are equal or lower in value.¹⁷ An individual who takes a trip that costs more pays the difference, using either value in the E-purse or cash.

There are a small number of agency-specific specialty passes that can be loaded on an ORCA card (these are valid only for rides on the issuing agency’s services), most notably Washington State Ferry monthly passes. Agency passes represent a small portion of ORCA usage.

ORCA also includes a Business program available to businesses and organizations – such as schools, human service agencies, and third-party providers – that allows employers/institutions to purchase monthly passes, an unlimited use annual pass, and/or E-purse value for their employees and clients. There are two business programs¹⁸:

- **Business Choice:** Employers can provide ORCA cards to any number of employees, purchase passes at monthly retail prices, and subsidize part or all of the pass cost. This is a flexible option that provides a simple mechanism for employers to purchase transit benefits for their employees.

¹⁷ The passes are priced at a discount, e.g. a \$3.25 pass is priced at \$117/month. This is the value of 36 trips a month; however an average Puget Pass rider takes 50-55 trips/month.

¹⁸ ORCA. October, 18, 2013. ORCA Business Accounts website. Retrieved from: <https://www.orcacard.biz/ERG-Seattle-Institution/ProgramsRedirect.do>

- **Business Passport:** This pass is based on a discounted bulk pricing model contingent on employers enrolling every employee. Pricing is based on historic transit usage per the ORCA transaction data. For employers larger than 500 employees, custom pricing can be developed that reflects actual employee transit usage; for employers smaller than 500 employees, area pricing is used based on average trip rates of all participating employers/institutions in that geographic area. Employers buy passes annually and must subsidize employee passes from 50-100%. Pricing is adjusted twice per year and applied at the next annual renewal period.

ORCA also includes a U-PASS program which provides discounted transit passes to students, faculty and staff for the University of Washington (campus population approximately 70,000).

The process to fully integrate fare payment, from both policy and technology perspectives, in a large region with numerous transit agencies was costly and required significant time, negotiation and resources. However, the resulting ORCA system is universally lauded as a successful program. Most people cannot imagine going back to conditions before the system was implemented.

HISTORICAL OVERVIEW

ORCA is the current iteration of a long history of fare integration efforts in the Puget Sound Region. The geography of the Puget Sound region creates a long, relatively narrow north-south travel corridor; people regularly must cross county and service area boundaries to make daily trips. Further, at the time the ORCA project was initiated, the greater Seattle region was ranked as the sixth most congested urban area in the United States and facilitating increased transit use was seen as a key congestion mitigation effort.¹⁹ There has long been acknowledgment by the community, state and local officials, and transit leaders, that a seamless system was needed in Puget Sound to encourage use of the region's multiple public transportation service options.

¹⁹ ORCA. 1999. Central Puget Sound Regional Fare Coordination Project Smart Card System Procurement Request for Proposals #98-069, Volume 1 of 2, Issue date: February 16, 1999; provided by ORCA staff.

Initial Efforts

Regional pass efforts began in the late 1970s with “base cards” to which each participating agency could adhere a stamp as proof of purchase of a monthly pass, and discounts were offered when two or more monthly agency passes were purchased. The “sticker” sales program had accounting challenges and evolved into a series of bi-lateral agency agreements for two-agency “joint passes” for the most popular pass combinations. Similar “joint” ticket books were sold; the cost of the joint pass or ticket book was discounted compared to the price of two agencies’ fare media purchased separately. At that time there was no consistent regional policy on how transfers were honored between systems. Agencies worked out a variety of agreements for the most common transfer patterns. This approach eventually resulted in over 300 types of paper passes.

By the 1990s, demand for a more seamless, universal approach to transit fares was growing; specifically, there was pressure to streamline transfers between systems and to create a single pass that could be used on all systems.

Sound Move

In 1996, voters in King, Pierce, and Snohomish counties approved the Sound Move initiative to fund a package of transportation improvements designed to alleviate congestion and accommodate growth. The measure included a pledge for a “one-ticket ride,” a uniform, single-ticket fare system among local and regional transit providers and an integrated fare policy for the entire public transit service network. The measure created Sound Transit, a regional transportation agency empowered to levy and collect increased sales taxes, employer taxes, and vehicle excise taxes. Creation of this dedicated funding source, the “regional transit integration fund,” and a regional policy directive to integrate fares ultimately would prove critical to ORCA’s success.

Puget Pass and Universal Transfer Privileges

Official discussions began in 1997-1998 between King County Metro, Everett Transit, Community Transit, Sound Transit, and Pierce Transit to address “ways the region could develop an integrated fare structure that would allow customers to easily transfer between different transit providers.”²⁰ In 1999, after extensive negotiations among the operators, the Puget Pass was created, a monthly paper “flash pass” that could be used for unlimited travel

²⁰ Sound Transit. 1999. Sound Transit Motion No. M99-7, approved by the Board of the Central Puget Sound Regional Transit Authority, February 11, 1999. Seattle, WA

on the five bus-based transit systems in the Puget Sound region. At this time, agencies also agreed on regionally consistent transfer privileges; each agency began accepting paper transfers from other agencies as valid for a local or one-zone fare.

A Transit Integration Group (TIG), consisting of the general managers of all five agencies, was created to manage this five agency collaboration. This group was responsible for negotiating the challenging and complex business and operating issues required to integrate fare systems.

First, creation of the Puget Pass involved developing a revenue reconciliation agreement among the operators to distribute revenue from sale of the passes. The revenue allocation was based on annual passenger surveys, the only data source available at the time. The smaller agencies in particular were wary at first due to concern that they would not get their “fair share” of revenue based on actual usage. The potential revenue loss represented a particularly significant financial risk for these smaller agencies. In addition, the staff time necessary to negotiate the integrated fares was a proportionally greater burden to the small agencies, with fewer staff qualified to perform this complex work. Critical to reaching agreement on revenue reconciliation was Sound Transit’s term limited commitment (approximately two years) to guarantee that each of the smaller agency’s fare revenue from intersystem trips would not dip beneath 67% of historical intersystem fare revenue (the largest operator, King County, did not receive funds).²¹

The TIG also negotiated issues such as aligning special fares among the operators. For example, for senior fares some agencies allowed a discount for people age 62+, others for age 65+ and all offered different discounts. Some agencies had other types of special passes that were popular among key stakeholders and difficult to eliminate, such as low-income passes and summer youth passes. Ultimately, they settled on four options for universal pass types with regionally consistent definitions: youth, adult, senior and disabled. A few agencies also maintained special pass types only valid for that agency’s services. (In particular Kitsap Transit, located on the west side of the Sound, and Washington State Ferries, which did not participate in the Puget Pass, maintained a few agency-specific monthly pass types.²²)

²¹ Ibid.

²² The current range of pass types available under ORCA can be found on the website: <https://www.orcacard.com/ERG-Seattle//common/images/ORCA%20Product%20List.pdf>.

Development of a revenue reconciliation agreement and aligning definitions for fare types represent two of the biggest issues required to integrate fare systems across operators, and both of these hurdles had already been crossed for five of the seven agencies before development of ORCA began. While the successful implementation of paper-based Puget Passes marked a significant milestone in fare integration, there were a number of challenges. Most notably, revenue reconciliation for the Puget Pass was cumbersome and time consuming and revenue allocation was based on representative annual survey data that appeared unreliable and not reflective of actual ridership patterns.²³ Therefore, evolving to an electronic system was desired because it would allow for transit usage to be precisely tracked, ensuring more certainty that each operator was getting its “fair share” of revenue from the regional Puget Pass sales and allowing for faster and less cumbersome revenue distribution and reconciliation.

ORCA

The development of ORCA (originally known as the Regional Fare Coordination System - RFCS) must be viewed as a natural evolution of these earlier efforts. The paper-based Puget Pass and universal paper transfers were always intended as intermediate steps toward an electronic fare medium. As noted in the official Board motion to approve the Puget Pass, “this agreement is the first of a multi-staged implementation



ORCA On-Board Card Reader.

Photo: courtesy of ORCA Operations Manager

program that will involve constant monitoring and adjustment to address the potential implementation of the smart card and the ultimate implementation of Light Rail.”²⁴

The RFCS, which was eventually branded as “ORCA: One Regional Card for All” took approximately 12 years to implement from the earliest feasibility studies in 1997 to its “go

²³ Coincidentally the distribution based on annual surveys did prove to be quite accurate, closely aligning with the far more accurate electronic ORCA data which records actual boardings.

²⁴ Sound Transit. Sound Transit Motion No. M99-7, approved by the Board of the Central Puget Sound Regional Transit Authority, February 11, 1999. Seattle, WA.

live” launch in April 2009. The effort was initiated in parallel with the approval of the Puget Pass, but two additional operators opted to participate in the ORCA system— Washington State Ferries and Kitsap Transit. The RFCS smart card system Request for Proposals (RFP) was released in 1999; however, the procurement process was suspended for over a year due to the passage of a voter initiative (I-695) that severely reduced or eliminated funding for all bus agencies in the region. Once new funding sources were identified, the procurement process was re-started. A notice to proceed was issued to the selected vendor in 2003 and the card was officially launched in 2009. This schedule was three years longer than originally anticipated.

Historical Milestone Summary

1970s-1980s – Ad hoc, bi-lateral transfer agreements established between some regional providers

1996 – Voters in three counties pass Sound Move, The Ten-Year Regional Transit System Plan, creating Sound Transit and mandating regional fare integration.

1999 – Puget Pass and transfer policy approved, smart card RFP released (procurement later suspended for over one year)

2003 – Notice to proceed issued to contractor

2009 – ORCA launched

ORCA was a “grassroots” effort involving all seven agencies, which was cited as its biggest strength and its biggest weakness. The governing policy operated on a consensus model with each agency having an equal voice regardless of size. At times, it was challenging to get all seven agencies on the same page about many decisions and it also meant that a single agency, representing a small fraction of system ridership, could “veto” an action desired by the large majority. However, the “bottom-up” nature of this process encouraged compromise and was universally acknowledged as critical to gaining full buy-in from all agencies and to ultimate project success. Each agency had real ownership in the project and a vested interest in making it work. King County Metro and Sound Transit, being the largest agencies with greater resources, have always dedicated more staff to support the project and have housed the administrative and fiscal responsibilities of managing ORCA. However, for policy and implementation decisions, all the agencies have had an equal vote.

This is not to say that the process was easy. It proved extremely complex and time consuming to modify the business practices of seven different agencies to agree upon regionally consistent financial, customer service and operating procedures. Fare policy touches nearly

every aspect of agency operations and the depth of coordination was far greater than initially anticipated. Prior to the Puget Pass, there was very little regional coordination required, so when the fare integration efforts began, there was some staff resistance. Not all staff saw the benefit or appreciated the need for regionally consistent business practices. Agencies did not want to cede control or autonomy and some staff feared, especially at the smaller agencies, that this was a way to “streamline” and eliminate jobs (in actuality, some work was eliminated and new types of work were created). The process involved hundreds of meetings between agency staff. As one stakeholder stated in interviews, “It was unpleasant but it was worth it.” Over time, agency leadership and staff increasingly trusted the process and that their autonomy would be maintained.

In addition, the financial backing provided by Sound Transit for the Puget Pass (described above) was continued under the ORCA system. The fare revenue guarantee provided by Sound Transit to smaller agencies was replaced with Sound Transit subsidizing the capital costs required for ORCA implementation for the smaller agencies, such as purchase and installation of on-board fare collection devices; Sound Transit also covered ORCA operating expenses for the first two years. The continuation of this financial commitment was critical to getting the smaller agencies to willingly participate in the ORCA project.

Interlocal Agreement

To implement the ORCA system, the seven agencies created an interlocal agreement (ILA) which established a Joint Board comprised of the General Manager (GM) or CEO from each of the seven transit agencies to make policy decisions; a Regional Team as the central point to manage overall project implementation; and a Site Managers group to coordinate regional decision making and manage implementation details within their specific agencies. Site Managers generally are mid-level staff representatives appointed by each agency. For the purpose of ORCA implementation/administration, regardless of the internal agency reporting structure, it proved most efficient for each Site Manager to report directly to his/her Joint Board member on ORCA issues.

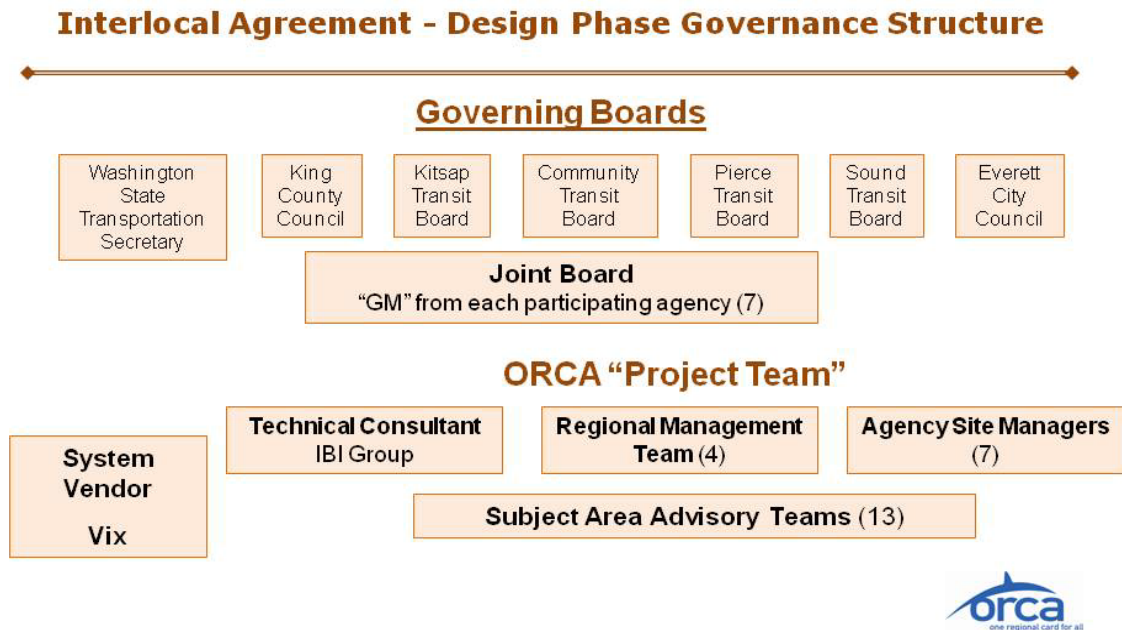
The ILA is comprehensive, defining the role of the Joint Board, the Regional Project Team (contract/project management), Site Managers, and the decisions that fall to each. This management structure and delineation of roles set out in the ILA ultimately proved to be vital to the success of ORCA.

The Joint Board was empowered to make all ORCA related policy decisions for their agencies; this meant that the agencies did not have to go back to their individual agency boards or councils for ORCA implementation decisions, which was important for keeping the project moving forward on schedule (though each Joint Board member kept their agency's elected officials briefed on ORCA implementation). Further, Site Managers recommended only major operational and implementation decisions to the Board for approval, but were empowered to make all other decisions for the agencies they represented; this delegation of decision-making authority to the Site Managers also allowed the process to move forward efficiently. Site Managers met weekly throughout the capital phase and continue to do so during ongoing operations.

King County staff, on behalf of the region, conducted the vendor procurement and performed project and budget management duties for the capital phase. The development of ORCA business rules also involved establishment of about 15 teams, known as Subject Area Advisory Teams (SAATs). These teams were comprised of representatives from agencies that were specialists in a specific area of ORCA system design, e.g. finance/accounting, fare policy, training, customer service, network operations, etc. Teams would meet as frequently as needed (weekly or monthly) to develop system software or other business rules and review /approve system documentation.

The figure below illustrates the organizational structure of ORCA during the program development phase.

Figure F-2 ORCA Organizational Structure – Development Phase

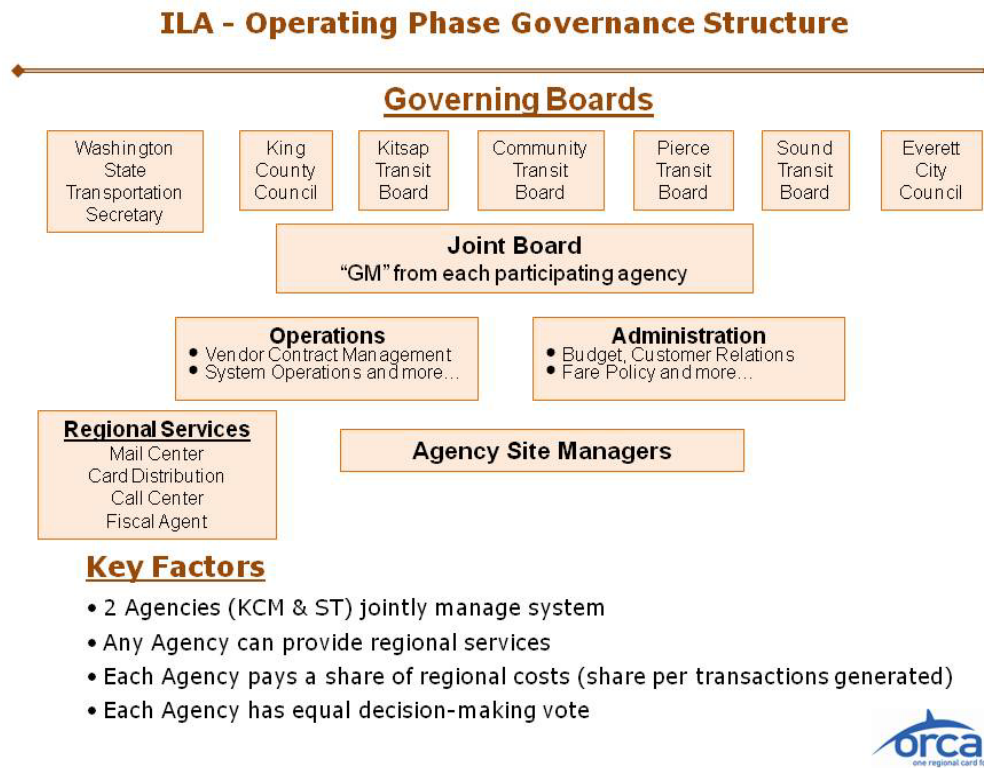


This structure (Joint Board, Regional Project Team, Regional Program Administration, ORCA Operations Team, Site Managers, SAATs) enabled a core group of people to manage the details from start to finish within firm bounds of the roles and responsibilities set by the ILA. The process would have taken longer and had higher risk of breaking down if the individual agencies' governing boards or broader staff had to make decisions. Low staff turnover in Site Managers during the planning period enabled the group to develop strong working relationships with a high degree of respect and trust that that their partners would not take an action that would harm another agency. This process has also allowed people to become very familiar with each other's agencies and work together relatively fluidly. This work has trickled down to other parts of the agency as the site managers have worked with their agency staff to act more regionally.

In the Operations phase, the King County Metro Regional Project Team has been replaced with a joint management strategy utilizing Sound Transit and King County staff. The Sound Transit Regional Program Administration group is responsible for policy decisions, public information, records requests, all financial matters via the Fiscal Agent role and support to the Joint Board. King County's ORCA Operations Team is responsible for management of day-to-day system operations, contract management and support to the Site Manager team.

The figure below illustrates how the organizational structure of ORCA has evolved for the Operations phase.

Figure F-3 ORCA Organizational Structure – Operations Phase



Agency Control over Fare and Service Policies

Another key component of developing trust and reducing the threat that ORCA posed to losing local control was that fare structure/amounts and service/schedule changes remained individual agency decisions, within certain agreed upon guidelines. ORCA requires that agencies make schedule, service or fare changes according to a fixed calendar and that fare changes be made in 25-cent increments for regional fare products. The central ORCA team publishes a two-year calendar of possible fare change dates each April, so all agencies know far in advance when planned fare changes will become effective.

PROJECT DEVELOPMENT

Project Purpose

At the broadest level, the stated goals of creating a smart card fare system were:²⁵

- Increase ridership and customer convenience
- Increase agency revenues
- Reduce operating costs, or provide demonstrable added value for cost increases

Specially, agencies hoped ORCA would make it easier for customers to purchase fare media, encourage more businesses to participate in commute subsidy programs, speed fare payment and boarding, improve riders' ability to do cash transfers between systems, decrease the number of cash transactions for fare payment, and simplify the administration of employer and institutional pass programs.

At one level, ORCA was an extension of the Puget Pass system and shared its goals of creating a more seamless transit fare system, but it was also developed to solve a number of the challenges of this paper-based regional pass and transfer system, notably accurate and timely regional revenue reconciliations and settlement.

Project Leadership and Partners

The major players involved in negotiating ORCA were:

- Seven agencies: Each had three principal roles to be filled:
 - A delegate to the Joint Board
 - A Site Manager
 - Subject Area Advisory Teams
- Regional Management Team: This centralized management strategy was universally lauded as a key to success. Although the management staff did not provide the decision-making leadership, they provided critical project and contract management and maintained centralized system records.
- Consultants: Due to the complexity of this project, financial and technical consultants were hired to advise the team on requirements and constraints. This

²⁵ ORCA. 1999. Request for Proposal #98-069, Central Puget Sound Regional Fare Coordination Project Smart Card System Procurement, February 16, 1999. Seattle, WA.

expert assistance was critical to designing the RFP and negotiating the final design/build/operate contract with the vendor.

Supportive political and executive level advocates/ leaders were critical to the success of fare integration in Puget Sound. In particular:

- **Advocacy at State Legislature:** The state legislature consistently provided direction to the agencies and Washington State Ferries that regional cooperation was essential. For example, Pierce Transit had applied for state funding for new fareboxes, and the legislature made this money contingent on the agencies working together toward a regional fare system that would enable more seamless travel throughout the Puget Sound region.
- **Strong Executive Leadership:** The King County Metro (Metro) General Manager was a major advocate for both Puget Pass and the ORCA system. As the largest agency, Metro staff wanted the data that would be available through ORCA. In particular, Metro had seen a significant increase in the use of “Flex Passes” – employer based universal transit passes – and needed a better mechanism to administer these passes and the transaction level data to price the contracts. An electronic card would allow usage data to be collected by employer and ultimately allow larger employers to be billed for actual usage rather than a flat rate per employee based on annual aggregated survey data. In the early stages of developing the Puget Pass, King County Metro’s General Manager committed that his agency was willing to absorb the potential revenue loss, which provided key leadership to other agencies to make a similar commitment.
- **Voter-Approved Policy Mandate:** The passage of Sound Move was a key catalyst for fare integration in Puget Sound. Congestion was a huge public concern; therefore, there was relatively widespread public support for enhanced transit service and willingness to fund the development of an integrated fare system. Once the mandate was passed, Sound Transit was obligated to follow through on the promise for a “one-ticket ride.”

Public Involvement

Voters approved Sound Move which mandated creation of a regional fare pass and funded its implementation. This was the greatest public contribution to the project.

Riders also provided critical “beta testing” for the ORCA card before the full public launch.

Obstacles/Challenges

Getting Everyone to the Table: Revenue Concerns and Local Control Issues

The seven agencies involved in ORCA vary in size from a 50 bus fleet to a 1,500+ bus fleet and include ferry, light rail and commuter rail operators; they range from urban operators in dense downtown Seattle to more rural outlying communities, including islands. Needless to say, these agencies all have different needs, costs, and operating structures and therefore had very different motivations and hesitations coming to the table to begin regional fare integration discussions.

Getting the smaller agencies to the table was challenging. Integration benefits weren’t as obvious and the direct and indirect costs – capital costs, necessary staff time commitment, and potential for revenue loss – all represented a proportionally larger financial risk for them than for the larger agencies.

Keys to success were:

- **Equal vote** – A level playing field among all operators was critical to getting and keeping all seven agencies at the negotiating table. It provided a foundation to develop the necessary trust and respect between agency staff. That said, the equal weighting of votes was also an occasional hurdle in developing ORCA. It meant that one agency could hold up the project, regardless of size. A current example of this is the effort to create a Regional Day Pass. Due to the significant differential in fare levels between agencies, it has been difficult to negotiate the fixed cost for a Regional Day Pass which would allow unlimited rides on each of the bus systems. The need to reach consensus has held up the introduction of this fare product.
- **Maintaining local control** – Critical decisions like fare policy and schedule changes remained in the hands of each agency, recognizing that there was overall agreement to make these decisions within certain ORCA guidelines.
- **Financial Subsidy for small agencies** – “Paying the way” initially for the smaller agencies to participate was critical to getting their participation. ORCA still represented a large financial commitment for them, but all agencies now pay a share of operating costs.
- **Willingness on the part of the large agencies to give up control** – King County Metro’s willingness to give up control by entering into an equal relationship with

agencies far smaller was also a major factor. Key opinion leaders within the agency were important motivators to getting ORCA moving and maintaining the project as a priority within the agency under this equal voting arrangement.

Technology

Working with the vendor on technical issues has been challenging at times. No software system is ever “final,” particularly one that serves the public. First, creating an RFP that specified all the technical, financial, operations management, customer service and agency-specific requirements for the system proved challenging and time consuming. For example, a business decision was made that the vendor would manage the financial “clearinghouse,” because a centralized approach was needed for regional reconciliation and a third-party provider best addressed the agencies’ need for risk management. It also had to be determined how the “float” (interest on the stored value) would be allocated among the agencies. The procurement process required dedication of significant legal expertise and resources. The final RFP was hundreds of pages long.

A contributing factor to the six-year development process was the high number and detail of business decisions that had to be made in order to develop custom system software that was regionally consistent. These types of agreements involving multiple agencies often take a long time to negotiate and technology changes so often that it is difficult for public agencies to keep up. By the time ORCA launched, the selected technology was no longer “cutting edge.”

Stakeholders also said that the website is a constant work in progress; it is the public face of the program and requires constant improvement to ensure it is accessible, user friendly and provides the most up-to-date information on seven different services that are constantly updating their programs and services.

In the tech-savvy Seattle area, expectations for technology are high. The ORCA website has been described as “clunky.” For example, the process to block cards or transfer the balance from one card to another is not as easy as desired. A lesson learned is to budget for website updates once a system is launched. Until it is used by the public, all processes will never be fully vetted.

Integration with Washington State Ferries

Washington State Ferries (WSF) presented a particularly challenging technical integration due to significantly different operating characteristics (vehicles and passengers), a complex tariff, and the concurrent implementation of a new bar-coded ticketing system that would accept ORCA as a form of payment. From the outset, it was known that WSF's passenger fares



Washington State Ferry.

Photo: Courtesy of ORCA Operations Manager

are substantially higher than transit agencies'. Ultimately, the state ferries were integrated by allowing them special conditions/status. They are not a part of the Puget Pass, but riders can use ORCA as a stand-alone passenger pass, to store commuter tickets, and for payment of ferry fares using the electronic purse. Employer-provided monthly passes have been moved completely to the ORCA Business Account Program. Early on, Washington State Ferries made the decision to focus ORCA on its multimodal passengers and to maintain its bar-coded tickets for all vehicles and infrequent travelers. WSF also is a destination attraction for tourists (typically one-time users) who are not good candidates for ORCA. All of these facts have contributed to Washington State Ferries having the lowest adoption rates for the ORCA card at 31% of its walk-on passengers system-wide. The percentage is considerably higher on those routes with multimodal passengers.

Aligning Special Passes

As described above, determining which fare categories to regionalize, which could be eliminated, and which could be maintained required each agency to strike a delicate balance between local political demands and unique local needs versus the benefits of regionalization. The keys to success were patience and understanding the benefits of one regional system. The agencies could see the benefits of streamlining fare categories – e.g. customer convenience and clarity, ease of fare collection for drivers – and for the most part they have maintained the discipline of not introducing special fare categories or exceptions.

Cashless System Is Not Yet Possible

One of the aspirational goals of the project was that it would reduce cash transactions on buses and eliminate the need for paper transfers. Since the introduction of the ORCA card in 2009, the share of riders using cash has declined, but not as much as anticipated. Those who continue to use cash are primarily infrequent riders and less affluent customers. Some agencies have successfully eliminated paper transfers. At these agencies, transfer privileges are only available via use of the ORCA card.

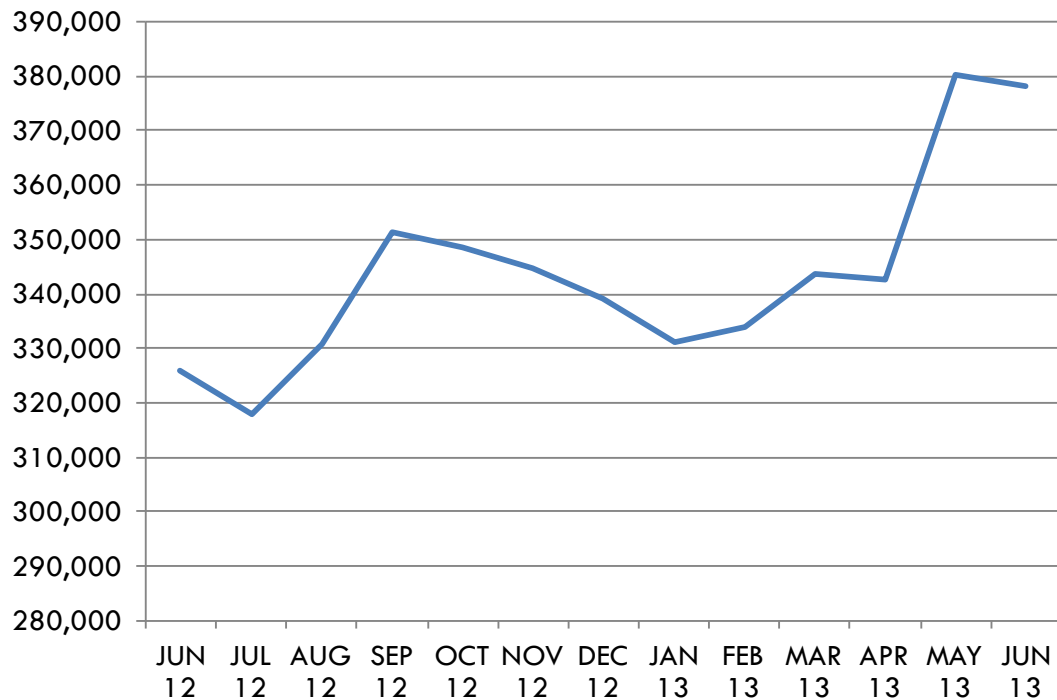
However, the process of eliminating paper transfers is challenging. Human Service agencies find that it is best to provide their clients with highly-managed individual rider benefits via ticket books, rather than the ORCA card. These are essentially cash fares and require a paper transfer. Kitsap Transit attempted to eliminate paper transfers, but experienced a backlash from low-income patrons who demanded return of paper transfers. Reducing paper transfers remains a goal of the agencies, and those agencies who still have paper transfers continue to work on a process to phase them out. However, all stakeholders agree that the vision for a near-term cashless system was unrealistic.

Implementation and Outcomes

ORCA Cards in Use

There are currently over 375,000 ORCA cards in use. ORCA cards can be purchased via Customer Service Offices, the ORCA web site, from Ticket Vending Machines, by phone or mail, or from 126 retail sites, such as Safeway or QFC supermarkets, Bartell Drugs, and Saar's MarketPlace. In January 2010, the agencies terminated the sale of all paper passes. Subsequent to that date, all pre-paid passes were via the ORCA card. Cards were distributed free of charge for the first six months. Then a card fee of \$5 was implemented for Adult and Youth cards and \$3 for Senior and Disabled cards. ORCA usage has risen steadily since the card was launched; usage over the past year is shown in the figure below.

Figure F-4 ORCA Card Usage June 2012 – June 2013



Most people using ORCA utilize the regional passes rather than the E-purse. The significant majority of ORCA boardings are regional passes (71%), either Puget Passes (29%) or Business Passport (42%).

Business Program

The business account program pre-dated ORCA, but usage of the program increased significantly with ORCA implementation. Before ORCA, the business program was primarily a King County Metro initiative. Under ORCA, any agency can set up business passes, expanding the geographic range of potential employers. ORCA also gives businesses more control; they can manage their cards online via a secure website and easily enable or disable cards as employees join and leave. This lowers their financial risk and the potential for fraud because they do not lose the value of an annual pass when an employee leaves. A paper pass, in contrast, once paid for and distributed, cannot be reclaimed if the employee leaves the agency.

There are currently over 1,700 business accounts, representing 45% of overall ORCA revenue and 42% of ORCA boardings. This program represents a significant stable revenue source for

transit agencies throughout region. ORCA has facilitated an expansion of the business pass program over time.

ORCA Usage by Agency

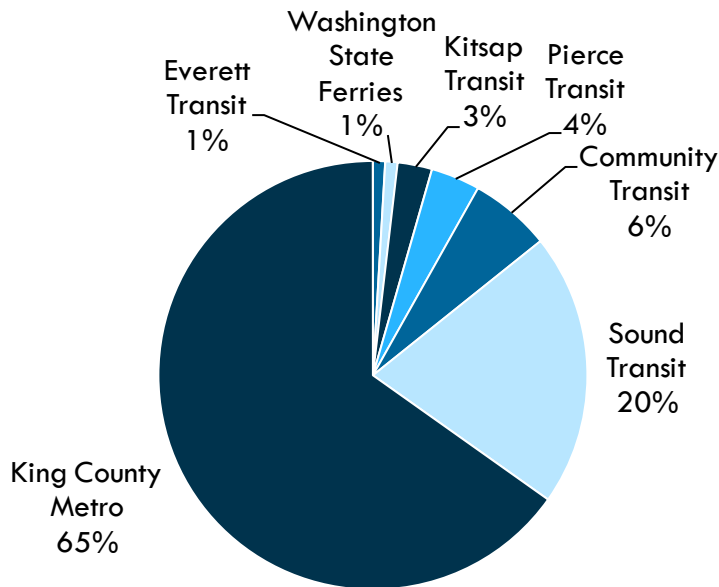
For most agencies, ORCA represents a significant majority of their weekday boardings, as high as 80-90% on some Sound Transit services, as shown in the table below.

Table F-2 ORCA Usage by Agency

Agency	ORCA as Percentage of Agency's Total Weekday Boardings June 2013
Sound Transit	Express Bus: 82% Sounder Commuter Rail: 91% Link Light Rail: 49%
Community Transit	76%
Kitsap Transit	73%
King County Metro	62%
Everett Transit	52%
Pierce Transit	40%
Washington State Ferries	31% (percentage of walk-on passengers only)

King County Metro represents the majority of ORCA's boardings, followed by Sound Transit. All the other agencies represent a small portion of the total ORCA usage as shown in Figure F-5.

Figure F-5 Percentage of Total ORCA Boardings by Agency (June 2013)



Revenue Reconciliation Agreement

With the implementation of ORCA, the revenue reconciliation between agencies has become reliably timely and accurate. Revenue distribution is calculated by the system. E-purse funds are distributed to agencies in three business days, Puget Pass funds take one month and Business Passport takes two months; these processes routinely took three months under the paper-based Puget Pass. To allocate revenue for intersystem trips, there is a formula that calculates the proportional “share” of a trip based on what the cash fare would be. For example, if someone begins a trip with Agency A on a service that costs \$3.00 and transfers to Agency B to complete their trip on a service that costs \$2.00, that rider pays no additional fare because transfers are free for trips of equal or lesser value when using the ORCA card, Agency A gets 60% of the \$3.00 and Agency B gets 40% of the \$3.00.

PROJECT COSTS AND BENEFITS

On the whole, ORCA was universally lauded as worthwhile in all the stakeholder interviews. The customer benefits, making fare payment easier and more seamless across agencies, is paramount, but the more intangible regional benefits of creating an integrated system were

also recognized by all stakeholders. Even the small agencies, which have been more impacted by the time and cost, say that they would join again, primarily due to the benefits that have accrued to their customers.

Some benefits are due to the creation of a regional pass system, the Puget Pass, set up before ORCA launched. However, ORCA was a significant improvement over the paper Puget Pass system; these improvements are described below.

Most benefits cannot be quantified, even where data exists. For example, there is no way to determine if ORCA increased ridership due to many other factors that impacted ridership over this period, such as the economic downturn and significant service changes; it would be nearly impossible to attribute causation to ORCA or any other single factor.

It is also not known if ORCA is a cost-saving project. The agencies did not do baseline pre- or post-ORCA cost documentation. The pre- and post-system features/benefits are so radically different, along with other administrative changes within the agencies, that it is not possible to do a direct mapping, even if the data were available. The capital costs were \$42 million plus agency staff time. Despite the schedule delay, the capital phase was completed under budget, and remaining contingency funds are being used today for system enhancements. All Site Managers believe the costs were worth the benefits.

Benefits

- **Customers benefit enormously:** The Puget Pass greatly improved the ease of regional transit travel by creating a single regional fare structure, eliminating the need for multiple tickets, and making the system appear unified. However, the ORCA card is a significant improvement over the paper pass and cash system and much easier for customers to use; instead of having to purchase a paper pass every month or having exact change, users can now add E-purse value or passes from home online or by setting up autoloading to automate the loading of Puget Pass and/or E-purse value. If the card is lost, that pass can be quickly and easily disabled and users can re-load their pass and E-purse onto a new card for only a small card replacement fee. In King County Metro's last passenger survey, ORCA is the single highest rated item in the whole survey, which covers every aspect of transit service. As one stakeholder said, "all outcomes on the customer-facing side have exceeded goals."
- **Data availability:** Accurate, precise ridership numbers enabled by a smart card have had several benefits.

- *More accurate and easier fare apportionment:* One of the most important things that accurate data allows is accurate fare apportionment. All the agencies can now have full confidence that they are getting their fair share of revenue as every ORCA boarding is recorded and used to allocate revenue. Further, E-purse revenue distribution takes three business days and pass revenue distribution now takes 30 to 60 days, whereas it used to take three months. The availability of accurate data has reduced the audit costs and the staff time needed to reconcile revenue allocations.
- *Service Planning:* Data also helps with marketing/promotions, services changes, and service planning. The information available through the smart card is invaluable and its utilization by the agencies is only increasing over time as they understand the quantity and type of data available through ORCA.
- *Business account pricing:* ORCA has made it possible to charge business accounts accurately. Previously, business account pricing was based on a one- week employee survey completed annually. ORCA enables an accurate reporting of employee transit use (actual rides are accounted for) which is used for subsequent year's pricing. This has resulted in higher revenue for transit agencies from business accounts. Many businesses actually saw their annual cost for business passes go up so significantly that they had to negotiate a phased cost increase.
- *Business account ease of use:* As discussed above, ORCA also gives businesses more control and lowers their financial risk and the potential for fraud. Transit passes are a big employee benefit and ORCA allows companies to access data about where employees are coming from to better design commute programs. This is particularly important in Washington, because employers are mandated to have commute benefit programs by the Commute Trip Reduction law.²⁶
- **Political currency:** Successfully implementing a large scale integration project with such a clear customer benefit clearly demonstrates that the Puget Sound agencies are actively working together in the customer interest which generates political capital for the agencies. It has made it easier for the GMs/CEOs of King County Metro and

²⁶ "The Washington State Legislature passed the Commute Trip Reduction (CTR) Law in 1991 to call on employers to encourage their workers to drive alone less often, reduce carbon emissions and keep the busiest commute routes flowing." <http://www.wsdot.wa.gov/transit/CTR>

Sound Transit to testify to regional and state elected bodies and request additional support and funding.

- **Entrée to business community:** Further, the ORCA Business Passport program has significantly expanded the transit agencies' direct line of contact with the business community. ORCA has made transit fare more relevant to the business community, aligning the success of transit agencies with that of the business community. This builds important political capital for the agencies.
- **Simplification of fare media:** Before ORCA was implemented there were hundreds of fare media in use in the region. ORCA, though it has not eliminated paper tickets, has significantly decreased the number of media types and has made it easier for operators who no longer have to understand many of the different pass types because the card reader does all the work.
- **Reduced transfer fraud:** Abuse of transfers can be a rampant problem for transit agencies. This was particularly true in Puget Sound where transfers were good on all agencies, so every operator had to know what the transfer of the day looked like for multiple operators. With ORCA, some operators have eliminated paper transfers, which has reduced passengers' ability to use transfers fraudulently.
- **Faster boarding:** Although no data exists, anecdotally, ORCA has speeded boarding, resulting in shorter dwell time, which is especially important as agencies are developing Bus Rapid Transit (BRT) systems in the region.
- **Creating a modern image for transit agencies:** The ORCA card has helped transit stay relevant and appear modern, countering the more traditional, antiquated or bureaucratic image that sometimes prevails; this is especially important for attracting and retaining younger tech-savvy riders.
- **Further regional cooperation:** As the ORCA process has created a very strong working relationship among the Site Managers, it has enabled coordination on other fronts, e.g. other interlocal agreements have been formed between agencies for service planning. There is still resistance to cooperation in some parts of the agencies, but some efforts have come to fruition.
- **Information sharing:** The exchange of information between the Site Managers and SAAT teams expose each agency's staff to specialists in other agencies, which allows for mutual learning and information exchange. This has increased expertise and staff development throughout region, in particular raising the level of sophistication at

smaller agencies, which often aren't exposed to the same systems as staff at larger agencies; overall, every agency improves its operations as a result.

- **Efficiencies:** Efficiency and cost savings were central goals of the ORCA card. Thus far, this has not been observed and reductions in staff time have been offset by new costs or responsibilities; however over time, agencies may realize some cost savings. For example, at King County Metro for the first time cash fares are on a downward trajectory and autoload is on an upward trajectory. Although they have not been quantified, it appears that reductions in cash handling such as cash counting and transport will be offset by increased credit card fees needed for autoload and other credit card transactions. Additionally, customer service call center volumes have begun to drop significantly. ORCA has been operating for about four years and the agencies are continually making system enhancements. Only recently have the Site Managers started to feel that their ORCA job responsibilities have diminished. In the first few years after implementation, staff simply moved from negotiating implementation details to trouble-shooting problems. The first years of design were highly time consuming, but after ORCA has been operating for a few years, agencies are starting to see some of the promised efficiencies.

Costs

It cost \$42 million to initiate the ORCA card and it costs approximately \$7.5 million per year to operate the ORCA system. This operating cost includes:²⁷

- Payments to the vendor (45%).
- Payment to King County Metro (30%) for administration, including ORCA operations, mail center, regional distribution and inventory center.



ORCA Card tap.

Photo: courtesy of ORCA Operations Manager

²⁷ ORCA. 2013. ORCA 2013 Operating Budget. Seattle, WA.

- Payment to Sound Transit (18%) for administration, including regional program coordination, fiscal agent and financial services, call routing, and the Ticket Vending Machine network.
- Retail Network (2%).

Initial capital costs of the system were funded via 17 federal, state, and Sound Transit grants, a donation of \$500,000 from the Boeing Company and the capital funding resources of each participating agency. Agency funding is provided by sales tax, Motor Vehicle Excise Tax, and rental car tax/fee revenue. Finally, implementing ORCA was a significant staff commitment from each agency. Every agency is required to have a Site Manager and a Joint Board member. In the end, every agency ended up with at least two full-time employees dedicated to ORCA implementation, some far more. In addition to this staff, there are three full-time staff on the ORCA Operations Team and full-time staff on the Sound Transit Regional Program Administration Team.

RECOMMENDATIONS/LESSON LEARNED

One Agency, One Vote and “Grassroots” Process

Giving every agency an equal vote regardless of size, and using a consensus-based decision-making process were fundamental to ORCA’s success. It removed the power dynamic inherent in agency size and created a level playing field for small agencies and large agencies to work together. This required the larger agencies to give up the control that their size normally would leverage. It also meant that the smaller agencies had to take just as much responsibility for their decisions as the larger agencies.

This also proved to be one of the biggest challenges; reaching consensus is slow and challenging, especially amongst such disparate operators. In retrospect, the team recognized that smaller agencies could have contracted with one of larger agencies and allowed it to negotiate the details and contract with a vendor. This possibly would have streamlined and sped up the process, and would have been less staff intensive for the smaller agencies. However, it would have given them less control over the design of ORCA and less investment in the project’s success.

Streamlined Decision Making and Single Point of Contact

In such a complex, multi-faceted negotiation, delegating decision making to the appropriate level was critical. The ORCA management structure set out in the ILA delegated all policy

decisions to the Joint Board and empowered the Regional Team and the Site Managers to make all day-to-day operational implementation decisions. Further, establishing a centralized project management structure and the Site Manager role as the single points of contact at each agency enabled decisions to be made much more quickly. Given the number of small details that had to be worked out, the process would have broken down if different representatives were present at every meeting or if a broad group had to be consulted at every agency. Institutional memory and consistency were critical.

According to stakeholders, the only thing the team recognized that could have been done better and would possibly have shortened the length of time required for the ORCA design phase was to firmly close “decision gates,” keeping people from re-visiting issues that had already been decided.

Maintaining Local Control

Maintaining local agency control over fare changes was critical to giving agencies, especially smaller agencies, a sense of autonomy; they did not sense they were being subsumed, rather that they were simply integrating a key feature that had tremendous customer benefit.

Phased Approach

Fare integration efforts in the Puget Sound region have taken place gradually over four decades and ORCA is still evolving. This phased approach has allowed agencies to work together over many years; gradually, they have learned to be more open minded, get over preconceived notions, and trust in the benefits beyond their agencies’ narrow interests.

Relationships and Trust

Site Managers insisted that it was imperative to have respectful, mutually trusting relationships. The level playing field and local control were key to establish the groundwork for developing trust. But there were also cultural and attitude factors at play. The ORCA management team referred to this ephemeral cultural factor as “Northwest Nice.” In the Puget Sound region there is a legacy of a customer focused and collaborative approach, due in part to the geography, which creates an interdependent north-south travel corridor. This culture continues generation to generation.

Policy Mandate

A voter-approved mandate for fare integration was a critical catalyst for ORCA; this mandate kept the project moving forward through many hurdles. It also created Sound Transit, a body

whose mission was regional integration. This provided the administrative and financial backing for the project as well as an established forum for coordination. A representative from every agency's Board sits on the Sound Transit Board.

Funding Priorities

The larger agencies elevated ORCA to a high priority status in staffing at the executive level and committed funding to the project. This funding commitment was not small even for a large agency. Establishment of ORCA represented a much greater financial risk and burden for smaller agencies than for large. When this significant size differential exists, willingness to “pay the way” for the smaller agencies is key to getting them to come and stay at the negotiating table.

Strong Project Management Structure

The Regional Team, Site Managers and Joint Board conducted or hired experts to provide good business analysis, legal and financial support and assistance and best practice research that helped them structure their process and system utilizing the best information available to date.

Keep Expansion in Mind

One of the biggest challenges with the vendor has been accommodating system modifications; it is costly to add new system functionality and services. The ORCA team advised keeping expansion in mind when initial contract and software development is undertaken.

APPENDIX G

Literature Review

APPENDIX G: LITERATURE REVIEW

INTRODUCTION

Fixed-route transit providers are increasingly finding opportunities to work together to fulfill shared goals such as higher ridership, increased cost efficiency, and greater regional connectivity. Collaboration among transit agencies can take shape in an endless variety of configurations that accord to the specific characteristics of the individual agencies, geographic regions, and opportunities. This chapter uses diverse examples from around the world, with an emphasis on coordination and integration activities that occur in the U.S. and Europe.

Through a review of pertinent literature, the research team has attempted to understand not only the scope of transit coordination and integration, but also the depth of knowledge that has been generated on this topic. Findings have been analyzed and summarized in this literature review, which contains the following sections:

- Methods
- Integration Defined
- Why Integrate?
- The Range of Integration
- Cost-Benefit Analysis
- Catalysts and Barriers to Integration
- Conclusions

This content is most directly relevant to transit agencies wishing to work in some capacity with other fixed-route transit providers, as well as MPOs or governing bodies capable of facilitating transit coordination. Human services transportation, shuttle bus and paratransit operators, among others, may also find that many of the principles, recommendations, and other considerations discussed here apply to their operations as well.

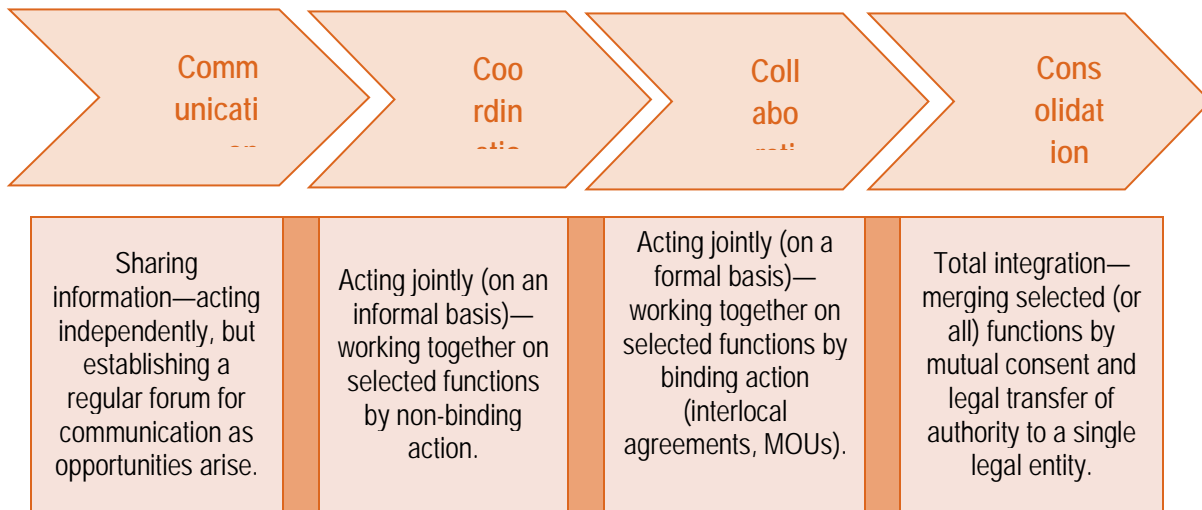
METHODS

The research team surveyed and analyzed documents found through TRID/TRIS database searches, academic databases searches, and Internet queries. Search terms used included “transit agency coordination,” “transit service integration,” “public transport collaboration,” or some combination thereof. The bibliographies of documents found were cross-referenced for additional sources. Furthermore, panel members and transit industry consultants were crucial in identifying real-life examples of integration from difficult-to-find consultant reports.

Through this process, the team found and reviewed TCRP reports, consultant reports, conference proceedings, and academic papers—including earlier literature reviews—on a range of relevant topics. All told, the team surveyed over 100 documents. They ranked these sources according to relevance. Relying most heavily on those ranked highest, the team generated a narrative about transit agency coordination and integration throughout the world, particularly in North America and Europe. The result is this literature review, which aims to fairly depict what has been documented about these practices.

INTEGRATION DEFINED

The activities that qualify as transit integration can be anywhere along a wide continuum of collaborative activities, from simple communications between individual transportation providers to shared management and planning of multimodal connections, land use policies, and social policies (NEA Transport Research and Training et al., 2003). The State of North Carolina Department of Transportation puts forward increasing orders of a continuum of collaborative activities between transit agencies that include:



Source: NCDOT and KFH 2012

This chapter explores examples of how practices that fall in the middle part of the spectrum, coordination and collaboration, apply to particular transit functions such as fares, ticketing, and passenger information, as well as those less visible to customers, such as joint funding proposals, data sharing, and vehicle procurement and maintenance (Miller 2004). Additionally, overarching issues such as network and infrastructure design are also considered.

To some, the goal of integration is a system whose sum is greater than its parts, resulting in an overall improvement of the services related to a transit rider's experience (NEA et al 2003). In other words, integration benefits passengers. In particular, a goal of “seamless travel across transit systems in the region” is considered to be ideal (Rivasplata et al. 2012). While seamlessness is often cited as a goal of integration, it is not specifically or quantitatively defined. However, in this context it can be understood as a qualitative goal to eliminate gaps and awkward transitions in the transit network.

Rivasplata et al. also point out the burdens on riders caused by uncoordinated, non-seamless systems. These include “unpredictable travel times, long transfer times, and increased payments” (Rivasplata et al. 2012). Other authors might add to this list: gaps in service coverage, poor wayfinding at transfer points, and disjointed travel information—any of which can increase the stress of travel for passengers. All of these burdens can serve to discourage ridership and limit the mobility of an entire region. Thus, while there are costs and challenges associated with interagency coordination, the costs of *not* coordinating must also be

considered (Rivasplata et al. 2012). Integration is therefore not only a way to generate new benefits, but also a form of problem-solving.

Other authors agree that integration is problem-solving, but focus less on direct benefits to passengers. Rather these authors frame coordination and integration as ongoing processes that can generate any variety of benefits, some of which may not be directly visible to passengers. Framed this way, a successful collaboration process, from planning to implementation and beyond, is viewed as critical for successful collaboration outcomes (Meyer et al. 2005). Burkhardt et al. describe coordination as “a technique for better resource management” toward greater cost-effectiveness in service delivery. They note that “coordination is about shared power, which means shared responsibility, shared management, and shared funding,” which accounts for both the efficiency of coordinated activities as well as many of its challenges (Burkhardt et al. 2004).

WHY INTEGRATE?

There is wide agreement—perhaps unanimity—that integration among transit providers, as a concept, has the potential to generate any number of benefits, big and small. For customers, shorter travel times, smoother transfers, and lower travel costs are key goals of a seamless regional system (BARTA 2011). Operators meanwhile can benefit from increased ridership, lower operating and capital costs, and access to funding and resources that are not available to each operator individually (NCDOT and KFH 2012). Indeed, transit funding agencies are often the first to encourage or mandate transit integration with the goal of maximizing transit system investments (NCDOT and KFH; Fresno County and Nelson\Nygaard 2011b). With improved transit performance, entire regions benefit from reduced traffic congestion, improved air quality, and an enhanced quality of life (BARTA 2011).

A 2005 survey of 96 transit agencies in the United States found that transit integration had six positive impacts: “1) increase in transfer activity, 2) increase in user satisfaction (decrease in customer complaints), 3) decrease in transfer time, 4) increase in ridership and transit modal split with some alleviation of parking issues, 5) increase in sales of multi-ride and multi-agency fare media, and 6) enhanced image of agency” (Miller et al. 2005a). It is worth noting that these benefits were mostly described in qualitative terms with little quantitative support. Nonetheless, researchers and the transit operators they surveyed were convinced that these benefits were real (Miller et al. 2005a).

The reasons for integrating vary. A 2007 survey of nine transit consolidation cases found eight primary motivations for integrating, including improving or expanding services, being able to offer better connections and transfers, and realizing financial savings. In Table G-1 below, black squares indicate which motivations for integrating were cited by the surveyed agencies. Where “major project” was cited, additional information about the project is given below the table. The most commonly cited motivation was “better connections and transfers.” Notably, no region listed more than three reasons to integrate, and on average each agency listed less than two motivations. (Portland Area Comprehensive Transportation System (PACTS) et al. 2007).

Table G-1 Reasons to Undertake Transit Integration

Motivation for Efforts	Better Coord. Between Providers	Financial Savings /Better Funding	Improve or Expand Services	Better Connections and Transfers	Major Project	Consolidate Planning and Marketing	Better Accountability	Better/Coord. Information to Customers
Region								
SF Bay Area				X				
Vancouver							X	
NJ-NY-CT				X	X ¹			
MTC - Bay Area				X	X ²			
Raleigh/Durham		X						
Bi-State Regional	X		X					
Kern COG			X		X ³			
Butte County		X	X	X				
Atlanta	X	X		X				

Source: Portland Area Comprehensive Transportation System (PACTS) et al. 2007

1. Establishment of Smart Card fare system for region
2. Regional commuter rail system planning
3. Closes of major highway (huge rock slide) and rerouting of Greyhound intercity routes

Burkhardt (2000) argues that coordination is most effective as a strategy when resources are not already being used efficiently, such as when there is substantial unused vehicle time or

capacity, or when economies of scale could be realized. Among perfectly efficient transit providers, coordination may still have a place as part of a package of transit reforms, but in such cases additional funding and resources would be needed to justify the effort (Burkhardt 2000).

While the range of potential benefits is widely accepted, no one recommends coordination as a one-size-fits-all solution. Most authors explain that agencies must tailor coordination activities to their own goals and circumstances in order to achieve certain benefits, and not all benefits are always accessible. Furthermore, coordination between agencies can be challenging, potentially to the point that no coordination, or only minimal coordination, is possible. In the literature, challenges to coordination are often generalized, and rarely investigated in depth—perhaps because many of these challenges are nuanced and context-specific. Still, Meyer et al. assert that “often the most critical hurdle to overcome” for agencies is simply deciding that collaborating with another agency will be valuable (Meyer et al. 2005). The next step is to define clear and consistent goals for the collaboration, because successful collaborations always “serve a clearly articulated need” (Meyer et al. 2005). But even where there are common objectives or goals, regional players will need to be prepared for extensive policy framing and negotiation to achieve effective coordination (Rivasplata 2006; NEA et al. 2003).

THE RANGE OF INTEGRATION

Integration practices vary widely. While a complete inventory of these practices is not included, this section explores the range of integrative activities found in the literature, particularly those which occur in the middle range of the collaboration spectrum (found on page G-3). They are categorized as follows:

- Information coordination
- Schedule integration
- Transfer facility coordination
- Fares: media and structure
- Operations, administration, and procurement

This list of categories can also be more simply divided into just two groups: 1) operational activities undertaken to provide customers with seamless travel (the first four listed items fall into this group), and 2) back office functions, vehicle procurement, maintenance, and capital

planning activities that primarily benefit transit agencies and are not necessarily visible to customers (Miller et al. 2005b).

Information Coordination

Making information clear and accessible can help customers navigate multiple transit systems. For participating agencies, this means providing informational media, both online and offline, about transit schedules, fares, transfers, and wayfinding, such that customers can easily see where and how to make an interoperator connection. Such practices contribute to the appearance of seamlessness in a multi-operator transit network, helping customers “see through the complexity,” which, in turn, can raise ridership and customer satisfaction (Walker 2012). In this way, coordinating information across providers can be as much a marketing strategy for transit as it is a best practice.

Results from one study indicated that about 38% of non-transit users would be more likely to take transit if “appropriate information” was made available (Sun et al. 2011). This suggests that, without making any other changes, improving the quality and availability of transit agency information could have measurable impacts on ridership and modeshare. The term “appropriate” implies a need not only for information to be easily found (for example, on an agency’s website or at a station or stop), but for that information to be relevant, easy to understand, and ideally easy to remember (Walker 2012). A glut of unfiltered or disorganized information may be intimidating or onerous, and could ultimately serve to deter potential riders (Walker 2012). For example, a focus group for 511.org, San Francisco Bay Area’s comprehensive transportation information site, noted that while the site contains “very useful information,” its organization could be clearer. In particular, it uses “terms that are not always self-explanatory,” has redundant information displays, relies too much on images and graphics, and requires too many pageclicks to get to certain types of information (Miller et al. 2005b). By contrast, clear information can be “the best marketing,” as potential riders will more easily see how to fit transit into their lives (Walker 2012).

A more explicit marketing strategy can also promote the range and utility of the system as a whole (Kellerman and Legand 2003). After all, customers in general are more concerned with transit coverage, quality, and cost than they are with any single agency’s mission (Meyer et al. 2005). In a successful branding scheme in the UK, a West Yorkshire transit coordinating body used a logo of a white “M” throughout its services and informational materials. This

created the appearance of unity among multiple transit providers and made the entire network more recognizable (Kellerman and Legand 2003).

Trip-planning resources can further serve the goal of seamlessness by offering actionable information about interoperator travel. In large metropolitan areas, regional trip-planning websites help travelers determine the best route to take, including across modes and operators (Rivasplata 2012). For example, despite some of the clarity problems of 511.org mentioned above, focus group participants especially liked the fact that “the Trip Planner is the predominant feature” of the site’s main page (Miller et al. 2005b). The site is managed by San Francisco Bay Area’s Metropolitan Transportation Commission, which relies on “the significant cooperation of Bay Area transit agencies” for up-to-date timetables and other service information (Miller et al. 2005b). As in this case, trip-planning tools are often arranged by MPOs or other transportation coordinating bodies. Individual agencies may be less likely to offer multi-operator trip-planning tools. Though some agencies share websites, many more simply provide links to the websites of other providers in the area (Rivasplata 2012).

Making real-time vehicle arrival information available to customers is a transit best practice that can reduce the uncertainty or other stresses in waiting for transit and help riders “to feel more in control of their trip” (Watkins et al. 2011). This is particularly true of real-time schedule data available on the Internet and mobile devices, as customers can choose and time their transit trips more effectively so they wait less. At-stop real-time arrival information has also been shown to decrease perceived wait time and increase satisfaction (Watkins et al. 2011). Two-thirds of agencies responding to a recent survey reported using real-time information like vehicle tracking, but few of them directly share or coordinate this data with other agencies (Rivasplata 2012).

However, even when agencies do not directly coordinate with each other, they can reap some of the benefits of information coordination just by making their real-time data available to third parties like regional trip-planning websites, smartphone app developers, and Google. When more than one transit agency in an area shares its data with Google, multi-provider trip planning becomes available via Google Transit (Lewis et al. 2009). Google Transit not only provides free, high-quality maps and step-by-step, door-to-door directions, but the site is well known—for example, tourists may turn to Google Transit, rather than unfamiliar trip-planning websites (Sun et al. 2011). Put simply, if a transit service is not on Google Maps, it

“doesn’t exist for many potential riders” (Atlanta Regional Commission and Nelson\Nygaard 2011).

In this way, Google Transit and other regional trip-planning websites or smart phone apps may bridge the otherwise uncoordinated information of multiple transit providers—meaning that, from the user’s perspective, some level of coordination is achieved without the agencies having to directly interact with each other. This represents a growing trend of how third-party technology is aiding and abetting positive transit outcomes like increased ridership and regional connectivity, with little to no effort on the part of the transit agencies (assuming, in this case, that they already have the data). In another example, websites and smartphone apps that provide real-time arrival information about transit vehicles have removed some of the uncertainty associated with choosing a transit mode (Watkins et al. 2011).

Despite the significant advantages that third-party online tools can offer, they cannot stand in completely for direct coordination of transit agencies’ information (Sun et al. 2011). According to one survey, the most common information coordination practice is shared paper maps and schedules; about 65% of agencies surveyed published information pamphlets together (Rivasplata 2012). Though slow to reflect changes in the system, paper information sources remain a valid communication form. They are inexpensive to produce and, most importantly, serve a key transit market: transit dependents who “are less likely to have access to the Internet” (Rivasplata et al. 2012). Furthermore, pamphlets can function as a backup information source if software systems go down, a concern cited in some cases of online information coordination (Miller et al. 2005a).

A small, focused survey of eight agencies that have coordinated information found that the practices have yielded mixed but generally positive results, with some agencies reporting that the changes were “effective” and others reporting “not effective at all.” Some observed a drop in customer complaints and an increase in ridership as a result of information coordination, although no agency had data to quantitatively evaluate the changes (Miller et al. 2005a). Regarding barriers to implementation, some responded that there were “no barriers,” while others mentioned funding constraints, technological constraints, and, most commonly, “administrative reluctance to try something new” (Miller et al. 2005a).

Schedule Integration

Another effective way for agencies to work together is to coordinate operations and service schedules in order to optimize the timing of transfers, especially at multi-operator transit hubs (PACTS et al. 2007). Where fixed-route transit lines approach each other or intersect,

for example at a multimodal station, operators have the opportunity to coordinate schedules such that a passenger who wants to transfer between services can do so with minimal waiting (or, perhaps in some cases, without having to race to make a narrow connection). This kind of coordination is especially important for systems with long headways overall (such as many ferry services or long-distance services), during off-peak times when headways are longer, or when connecting to the last trip of the day (Metropolitan Transportation Commission 2006).

Pucher and Kurth (1996) note that there are “limits on how far the schedules of different public transport modes and lines can be made compatible with each other.” However, they argue that the Verbund model found in several European cities offers a successful example of—among many other integration practices—coordinating different agencies’ service timetables to minimize transfer times. Started in 1967 in Hamburg, Germany, the Verbund model establishes a governing body called a Verkehrsverbund that coordinates transit services among operators to simplify regional transit travel for riders (Pucher and Kurth 1996). For example, in Hamburg, before the reforms of the Hamburger Verkehrsverbund (HVV), transit was provided by multiple public and private firms whose schedules and fares were “woefully uncoordinated,” making transfers time consuming and expensive. As part of its significant reforms, HVV optimized transit timetables based on data collected about ridership patterns. HVV’s efforts—which also included an expansion of service and a streamlining of fares—resulted in a 14% increase in ridership and a complete reversal of what had been a precipitous drop in transit usage (Pucher and Kurth 1996). Similar results were seen in other regions that adopted the Verbund system, including Munich, Rhein-Ruhr, Vienna, and Zurich. While schedule integration alone is not responsible for the success of the Verbund approach, it is clearly a contributing factor. As the authors point out, increasingly the unit of analysis for schedule planning is the length of a trip from start to finish, which explicitly takes transfers into account so that planners focus not only on speeding up travel times but also on minimizing problematic transfers (Pucher and Kurth 1996).

Improving waiting time via schedule coordination is perhaps the simplest way to reduce what is known as a *transfer penalty*—that is, the generalized cost of making a transfer, including the lost time and productivity, uncertainty, discomfort, and any other inconvenience or emotional stress related to transferring from one vehicle to another (Iseki and Taylor 2009). Numerous studies corroborate the intuitive notion that reducing transfer waiting times benefits transit riders, as they experience less of the uncertainty, stress, discomfort, and loss of productivity associated with waiting (Iseki and Taylor 2009). In turn, transit agencies benefit from a

decrease in customer complaints, a possible increase in ridership, and the feeling of increased connectivity in the transit system—all by affecting relatively simple changes at little or no cost (Rivasplata et al. 2009). Because of this, schedule coordination can be an improvement in which all stakeholders stand to benefit without taking on additional burdens (Sivakumaran et al. 2010).

Still, Iseki and Taylor (2009) find that out-of-vehicle time usually receives less attention from transit agencies and planners than in-vehicle time, meaning that agencies may be overlooking some cost-effective strategies to achieve both intangible and measurable benefits. In fact, focusing on out-of-vehicle wait times may be as or more important than focusing on the in-vehicle experience, as travelers typically perceive waiting and walking time as being about twice as burdensome as time spent in a transit vehicle (Rivasplata et al. 2009; Iseki and Taylor 2009).

In one U.S. survey, about 70% of agencies reported coordinating both daily and weekly service schedules and timetables with other agencies (Rivasplata et al. 2012). The primary motivations for this coordination are to improve riders' experiences and increase operational efficiency (Miller et al. 2005a).

When certain agencies were asked about the effectiveness of their schedule integration practices, responses ranged from “a little effective” to “completely effective” (Miller et al. 2005a). Collectively, they cited the following benefits from coordinating schedules: more transfers being made, an increase in ridership, a higher transit modeshare for the area (which in some cases alleviated parking problems), more sales of multi-ride and multi-agency tickets, as well as fewer customer complaints, reduced transfer wait times, and an overall enhanced public image. Some crowding at transfer sites was mentioned as a negative consequence (Miller et al. 2005a).

Results of that same survey suggest that, in some cases, schedule coordination is low hanging fruit—several agencies even reported “no barriers at all” to implementing schedule coordination. However, there are several factors which can constrain or prohibit schedule integration. The most commonly mentioned barrier was the limited opportunity, generally, to coordinate schedules. This may be related to incompatible headway policies among agencies, financial consequences related to such coordination, or simply a lack of interagency transfer points (Miller et al. 2005a; Metropolitan Planning Commission 2006). Schedule coordination may also be complicated by service reliability, external factors such as school schedules that

have influenced an agency's scheduling decisions, and the frequency of intra-agency schedule adjustments (Metropolitan Planning Commission 2006).

Where there are apparent opportunities for schedule coordination, agencies must first conduct a "system analysis," considering all parts of the transportation network that may be affected, in order to identify potential trade-offs or other points of conflict (Miller et al. 2005a). This ensures that patching up a gap in the schedule will not reverberate negatively somewhere else.

Transfer Facility Coordination

In addition to minimizing waiting time via schedule coordination, several other measures can mitigate transfer penalties, which are affected by *perceived* waiting as much as *actual* waiting time. In other words, a 15-minute wait at one location may be more or less burdensome than a 15-minute wait at a different location. Likewise for walking distances: the perception of short versus long walks does not vary linearly (Iseki and Taylor 2009). A number of other coordination practices can further improve the interoperator transfer process by reducing the *perceived* burden of the transfer—namely, by upgrading transfer facilities (stations and stops). Understanding transfer penalties and how people value their time differently in different situations can help transit planners identify where these penalties are highest and therefore direct limited resources in the most efficient way possible.

As with schedule coordination, agencies must understand the characteristics of the transfers that occur throughout the system—including the experience of navigating and waiting at all stops and stations—and they must also be aware of the elements of transfer penalties. Some key notes on transfer penalties and the value of time from Iseki and Taylor (2009) are:

- Travel time during business-related trips tends to be valued more highly than travel time during personal trips, so waiting and walking times may be seen as more onerous during business-related travel rather than other types of trips.
- Transfer penalties are increased when waiting conditions are crowded or unpleasant, or especially if the location is perceived as unsafe.
- Transfer penalties are increased by the need to walk up "more than a few stairs."
- When passengers have to wait against their will, as when there is an unexpected delay, they perceive the waiting time to be greater (more burdensome) than it actually is.

- Customers who are fluent with a transit system place a higher value on their time in the transit system than those who are less familiar with the system. Regular riders naturally come to expect a certain level of service from a transit agency.
- Time is valued approximately 29% higher on inter-urban trips than on intra-urban trips (Iseki and Taylor 2009).

(Note that the last two points above suggest that even modest schedule coordination can be seen as a big improvement from the perspective of regular riders—a small time savings feels highly valuable, perhaps bigger than it actually is.) Regarding the transfer facilities themselves, a best practices guidebook for London suggests starting with an “interchange audit,” or transfer facility audit, that would identify pertinent factors such as the volume and demographics of passengers, typical wait times at the facility, its hours of operation, and other features of the location (Transport for London 2001). This allows agencies to see transfer penalties in context, as they apply locally.

While the concept of a transfer penalty may be somewhat abstract, the solutions are concrete. They include measures to enhance safety (and perceived safety), predictability, comfort, and wayfinding at transfer locations (Transport for London 2001). Furthermore, stops and stations should be seen not only as transportation facilities, but also as public spaces that are enjoyable in their own right. Where possible, aesthetic and architectural consistency should be established so that passengers do not notice when they pass between areas controlled by different agencies (Transport for London 2001).

The details of coordinating interoperator transfer facilities depend as always on the agencies involved, given their resources and the needs of their stops and stations. Unlike schedule coordination, transfer facility improvements are likely to require some capital spending on the part of the agencies. When upgrades can be afforded (and this could mean diverting funds away from vehicle operations improvements), there may be physical constraints at facilities that make steps toward seamlessness very difficult or impossible, particularly in dense, built-out cities such as London (Transport for London 2001). In any region, stops and stations vary greatly according to size, location, modes served, and other factors, so criteria used to analyze them often has to be individualized. Iseki and Taylor further argue that too many design-oriented studies of facilities identify only positive and negative attributes but do not address the relative importance or potential effect on ridership of those attributes. To optimize the interoperator transfer experience on a fixed budget, agencies should strategically implement changes which decrease transfer penalties the most (Iseki and Taylor 2009).

Fares

The fare system—including its pricing structure, payment system, and ticket media—is fundamental to customers' interaction with a transit network. Thus, offering a legible format for accessing transit services, especially across operators, is a highly visible integration practice that reduces barriers to travel. Transit operators can integrate fares in several ways. The two main areas for integration are *fare media* (tickets, tokens, and passes can be used on more than one system) and *fare structures* (interoperator transfers are discounted or simplified).

Multiple studies that suggest that fare integration—whether within a single system or between operators—increases ridership, sometimes dramatically. Studies done in Zurich, Los Angeles, Munich, and Stuttgart demonstrate that implementing single-fare and reduced transfer systems can increase ridership numbers or at least increase multi-operator trips (Tsamboulas and Antoniou 2006). In London, ridership was shown to have increased by about 24% overall in the first year after introducing its TravelCard in 1983; over the next nine years ridership was shown to increase on subway and buses by 10% and 16%, respectively (passenger miles increased even more) (Tsamboulas and Antoniou 2006; Public Transport Executive Group 2009). In New York, the introduction of the MetroCard, a stored-value card that could be used on multiple transit modes, increased bus ridership by 16.9% on weekdays and 20.2% on weekends, bringing overall ridership numbers to their highest in 36 years (Tsamboulas and Antoniou 2006). Even in Singapore, where fare prices were raised and ridership was not expected to increase, a new integrated fare card system increased ridership by 2.5% (Tsamboulas and Antoniou 2006). While the details of implementation are no doubt crucial to success, it is clear that, when done well, fare integration practices improve the transit experience for riders and increases ridership.

Fare Media Sharing

Unifying or otherwise coordinating fare media so that a single ticket or pass can be used on multiple systems and services is a common form of transit collaboration, and one that is widely seen as beneficial to riders and agencies alike. Fare media integration ranges from accepting another agency's fare medium to completely integrating fare media so that all providers are using the same type of tickets and passes. Electronic fare media, like swipe cards, contactless smart cards, and payment and entry via smartphone app are technologically sophisticated payment and ticket formats which entail capital equipment and maintenance expenses (Rivasplata et al. 2012).

Given the efficiency of electronic media, as well as the capital expense of implementing them, it is not surprising that the transit systems serving the greatest number of riders, or those with many agencies interacting, have been the early adopters of advanced electronic fare payments and media, (Smart Card Alliance 2011). An exception is the Utah Transit Authority, a mid-sized transit system that has adopted a sophisticated fare technology, one that accepts not only credit-card-based smart cards but also a mobile phone app (Utah Transit Authority Website 2013). According to one survey, the most common types of coordinated fare media are not electronic, but weekly or monthly paper passes, followed by single-ride tickets or tokens—all which are relatively inexpensive to implement (Rivasplata et al. 2012). However, the advantages of increasingly sophisticated electronic fare media over paper passes or tokens are numerous. Smart cards and other contactless payment and ticketing forms:

- are convenient for riders to use
- lower fare collection costs for operators
- enable flexible pricing and make it easy to implement pricing changes
- improve transaction speeds
- reduce fraud, and
- allow operators to collect valuable data on ridership (Yoh et al. 2006a).

Smart cards typically allow customers to pass through entry gates or bus entrances in less than 300-500 milliseconds, an advantage over traditional fare media where passengers can accumulate quickly (Smart Card Alliance 2011). Fast transaction times mean less bottlenecks at payment kiosks and at system entry points, helping vehicles to leave on time and boosting customer satisfaction (Smart Card Alliance 2011). In addition to shorter queues, there are hidden advantages to smart cards, like reducing cash payments and adding flexibility to fare policy by making it easy to enact and adjust a tiered pricing structure (and ensuring customers are charged the correct fare) (Smart Card Alliance 2011).

It is worth noting that a review of smart card literature found that most of the literature on smart cards in the transit agency “is often promotional or technical rather than evaluative,” and sometimes exhibits an “uncritical enthusiasm toward the promise and benefits of smart cards” (Yoh et al. 2006b). Furthermore, few studies have specifically looked at the costs of coordinated smart card systems (Yoh et al. 2006b). Nonetheless, the speed, convenience, lower operating costs, and fare structure flexibility are known benefits of smart cards. Smart

cards also provide an opportunity for integration with other programs and organizations, particularly in an open system, described below (Smart Card Alliance 2011).

With regard to transit agency integration, many of the potential benefits of smart card systems “can be maximized if the technology is operable across modes, agencies, and jurisdictions” (Yoh et al. 2006b). Whereas in a closed system, a stored-value card can be used for only transit fares, an open system allows fare cards, including stored-value and open-payment bank cards, to be used for applications other than transit (Yoh et al 2006a; Smart Card Alliance 2011). For example, the Taipei EasyCard, and now a new EasyCard smartphone app, can be used to access not only all transit modes (including a gondola), but also a diverse set of venues like the zoo, the hospital, and private businesses. For this reason, EasyCard Corporation defines itself as a being in the financial industry, not the transportation industry, and the success of the EasyCard has depended largely on it being accepted as “a money generating product for all shareholders, including transportation service providers” (Torng and Noblis 2010).

As agencies adopt open systems and vendors increasingly accept contactless bank cards, new possibilities for partnerships, co-promotion, and revenue streams open up (Smart Card Alliance 2011). Open systems also engender *automatic interoperability* among all agencies and merchants that adopt the system technology. This means that an open-system smart card or app would be compatible with any open fare system in the world (Smart Card Alliance 2011). Further, open systems permit transit operators to minimize their role in the fare collection supply chain, theoretically freeing up attention and resources for other transit operations (Smart Card Alliance 2011).

The Smart Card Alliance argues that, given its flexibility, an open system should be established first and the details of “revenue sharing, common fares and transfers can be added to back office processes later” (Smart Card Alliance 2011). In other words: start by implementing the most modern, flexible fare technology, and then establish the details of the collaboration. Once an agency has open-system technology in place, other agencies can join the system later, without having to change their fare policies (Smart Card Alliance 2011). Still, a 2006 TCRP report points out that establishing fare media interoperability, regardless of technology, “requires significant planning and cooperation,” as agencies each bring their own cultures, policies, and equipment. According to the report, for successful fare media integration, the first step is to identify the institutional requirements of collaborators and then incorporate these other key components:

- Establishing a governing body or project sponsor
- Identifying and mitigating operational differences
- Establishing a framework for program funding
- Creating a rollout schedule
- Developing a contracting strategy

Source: Acumen and Booz Allen 2006

However, as merging different agencies' fare media becomes easier and easier from a technical standpoint, some of these recommendations may become unnecessary. For example, the Smart Card Alliance (2011) argues that open-system technology means interoperability can be achieved without needing to establish a regional governing body.

Nonetheless, many agencies have expressed doubts about whether or not the benefits of implementing sophisticated fare collection technologies would outweigh the capital investment and ongoing costs (Rivasplata et al. 2012). Indeed, the potential benefits of smart cards "are somewhat abstract in the minds of many transit system managers, such that the prevailing view of smart cards is that they are promising, as opposed to necessary—particularly with regard to interoperability" (Yoh et al. 2006a). Yet fare technology is getting more sophisticated, more reliable, and cheaper, meaning it is more attractive and accessible than ever before, and only becoming more so. However, this progress does not remove managerial, institutional, and political challenges to smart card adoption and interoperability. As one interviewee observes, the fundamental challenge remains: there are "insufficient revenues for transit" (Yoh et al. 2006a).

Fare Structure Integration

One type of fare integration is fare structure integration, which means jointly organizing fare policies so that transferring between operators becomes more affordable or simpler in some way. Often, fare structure integration occurs as part of a package of reforms, making it difficult in most cases to isolate what benefits derive specifically from new fare policies (Sharaby and Shiftan 2012). However, in Haifa, Israel, where the bus system requires many transfers, fare restructuring *alone* was shown to raise ridership and customer satisfaction (Sharaby and Shiftan 2012). Haifa's reformed fare system, established in 2008, was based on fewer zones than before and offered simple-to-remember transfer discounts. The changes not only reversed the downward trend of transit ridership in Haifa, but increased hourly and monthly pass purchases (Sharaby and Shiftan 2012). On-board surveys also provided

qualitative evidence that the simpler fare structure has made passengers more likely to use Haifa's transit system and make transfers. Note that, while Haifa's fare integration is not a case of interagency coordination, from the rider's perspective the changes resembled those of fare coordination between more than one agency. The results from this case demonstrate that a legible fare structure with affordable transfers can positively affect ridership and customer satisfaction (Sharaby and Shiftan 2012).

This "simplification effect" was also observed in London, where the introduction of flat bus fares (replacing distance-based fares) in 2000 was believed to result "in new journeys being made purely because the fare structure was easier to understand" (Public Transport Executive Group 2009). Another study in London suggests that lower transfer costs is one factor

(among others) that has led to an increase in ridership after fare reforms (Public Transport Executive Group 2009).

Simplifying fare structures may be less valuable where smart cards are used. Interoperable smart cards can calculate complex fare structures, relieving most riders of that burden and allowing "more innovation in how fares are constructed using mixtures of distance-based and time-based elements" (Walker 2012). With smart cards, the payment system for the card may ultimately be more important for ridership than the simplicity of the fare structure.

Note that the literature regarding fare structure integration primarily described its results. With the exception of an article on fare revenue sharing (discussed below), no literature found specifically examined the process or challenges of coordinating fare policies and setting fares with two or more transit agencies at the table.

Fare Revenue Sharing

Establishing free or reduced-price interoperator transfers is one of the main ways that agencies coordinate fares. A

Principles for Implementing Fare Integration (Miller et al. 2005a)

- Adequate training is very important when a new technology such as smart cards is introduced as part of fare integration.
- When considering a new fare technology, explore alternatives to using a proprietary technology controlled by a single vendor.
- In an integrated environment, it is more difficult for any single agency to regulate fare media discount policies.... Fare integration will require compromise among agencies' varying fare policy objectives.
- Revenue neutrality and costs are key concerns for many transit agencies introducing integrated fare payment. Lower revenue and new costs can be offset by decreases in other costs.
- Agencies can be induced to participate in regional fare integration using "carrots."

common concern that arises in this situation is that the changes be “revenue neutral” to the participants (Miller et al. 2005a). Indeed, a notable challenge of fare integration is determining how to fairly divide costs and distribute revenues (Tsamboulas and Antoniou 2006).

To address the complexity of dividing fare revenues among collaborators, Tsamboulas and Antoniou have developed a methodology for equitably dividing fare revenues in an integrated system. As revenue is a reimbursement of operators for a consumer service, these authors argue that the revenue allocation methodology should be based on performance measures. They add that service provision relative to population density must also be considered (Tsamboulas and Antoniou 2006). The main components of their methodology are 1) selecting performance variables based on what is determined to be the most important aspects of an agency’s performance; 2) developing operator-dependent cost factors, primarily to capture the different operating costs of all the modes; and 3) identifying agencies’ capacity for data collection and postprocessing. Using these items as inputs, the coordinating agencies can run the proposed revenue allocation algorithm—the output of which is the revenue totals to be allocated to each provider (Tsamboulas and Antoniou 2006).

Operations, Administration, and Procurement

Integration practices so far explored in this literature review have been those with a direct impact on a transit customer’s experience. While much of the academic literature on transit agency integration focuses on such practices, consultant reports show that transit agencies engage in a variety of other collaborations and integration practices which are not evident to customers. These practices are often implemented to optimize resources, save costs, or set the stage for expanding or improving transit service in the future.

They include:

- Sharing vehicle fleets
- Sharing data
- Joint procurement of equipment and technology
- Joint funding proposals
- Joint construction or maintenance of stations
- Planning and research

Source: Miller et al. 2005a; Atlanta Regional Commission and Nelson\Nygaard 2011

Burdensome costs and/or inefficiencies in a multi-operator transit system point to potential opportunities for coordination (Burkhardt 2000). In Atlanta, for example, while there are already pockets of cooperation and coordination among its 13 transit agencies, a Nelson/Nygaard report found a high spare ratio—that is, a high ratio of vehicles not in use to those that are in use—at certain times. This suggests that the collective fleet could be optimized across all providers (Atlanta Regional Commission and Nelson\Nygaard 2011). Where vehicles are in use but running far under capacity, smaller vehicles could be substituted, duplicative routes eliminated, or the cost of running the route shared among multiple agencies. For instance, merging two services along the same route in San Luis Obispo was expected to generate substantial cost savings because of the reduction in labor hours (San Luis Obispo and Nelson\Nygaard 2012).

As with sharing routes, sharing assets such as vehicles and maintenance and storage facilities can cut down on costs in a variety of ways. In Seattle, Sound Transit, a commuter bus operator, contracts with three other transit agencies to store 20–25 buses downtown during the day to reduce deadheading. The main factors that led to this collaboration were that peak demand is much stronger in one direction than another, the distance between downtown Seattle and Sound Transit’s layover facilities is long, and there is ample storage space downtown. By storing its vehicles in rented space during the day, Sound Transit saves on fuel and vehicle wear and tear (Atlanta Regional Commission and Nelson\Nygaard 2011). Furthermore, while it may not be an explicit goal of transit agencies, this sharing practice also helps reduce congestion. Thus, measures such as this benefit all users of the street, including other transit agencies. In Atlanta, there are also a number of examples of asset sharing, including sharing fuel stations and park-and-ride lots (Atlanta Regional Commission and Nelson\Nygaard 2011).

Joint procurement of new assets is a strategy that expands agencies’ purchasing power; it has the secondary effect of establishing a precedent for sharing assets in the future. This strategy can be especially effective for smaller agencies collaborating with larger agencies to procure capital equipment (Atlanta Regional Commission and Nelson\Nygaard 2011). A study of transit coordination opportunities in the Portland, Maine region inventoried facilities and assets of four transit providers and found overlap in diagnostic, repair, and maintenance equipment, as well as fueling stations. The ageing state of the equipment also meant that more duplicative purchases were predicted in the short term. The report recommended that the agencies develop a consolidated approach to their equipment procurement and

maintenance programs to avoid needless expenses and maximize maintenance efficiency on a regional scale (Main Street Connections 2011).

Combining administrative functions is another main way in which agencies work together out of the customer's view. In Vermont, the Chittenden County Transit Authority (CCTA) and Green Mountain Transit Agency (GMTA—an umbrella agency for several smaller transit authorities), consolidated administrative functions and staff but maintained separate brands and public identities. This has not led to significant cost savings—in large part because the staff was not downsized—but it did streamline bookkeeping and board meetings, meaning staff time is freed up for other valuable agency functions. Furthermore, the merger increased collective expertise of the regional transit system staff, particularly allowing the smaller agencies under GMTA to benefit from the staff expertise and other resources of the larger agency (Vermont Agency for Transportation and Nelson\Nygaard 2013). Indeed, no matter how talented or innovative a small staff, their range of skills is inevitably limited; thus, there is an inherent benefit in working with other agencies that can fill gaps in resources or specialized knowledge (Massachusetts DOT and Nelson\Nygaard 2012).

Collaboration also allows small agencies to gain from the addition of manpower on a variety of operational and administrative tasks. In Southern Maine, a study found that small transit agencies were “struggling to keep up with service, maintenance and support of their equipment;” however, if working together, the transit agencies “would appear to have appropriate levels of maintenance and support staff” for these tasks (Main Street Connections 2011).

Coordinating operational and administrative functions among agencies may ultimately lead to service or reliability improvements that are felt by the transit customer over time (Miller et al. 2005a). Or, in some cases, the collaborative relationships that are formed in the process of operational or administrative coordination can lead to new collaborations that are more directly felt by customers (Meyer et al. 2005).

Sometimes, behind-the-scenes coordination aims to directly benefit the customer. Schedule coordination, described in the Schedule Integration section above, can be supported and deepened by operational coordination. Hadas and Ceder (2010) have developed a schedule optimization model that utilizes real-time data about vehicle locations and passenger volumes at destinations, as well as operational tactics to keep vehicles running on time. The authors find that “the deployment of real-time tactics improves the overall performance of the

system,” with an average 10% reduction in travel time by significantly cutting down on transfer waiting time (Hadas and Ceder 2010). They note that the model works best from the perspective of an entire transit system, rather than in one localized section of it (Hadas and Ceder 2010).

Bruun (2007) explores the idea of integrating fixed-route services with demand-responsive services so that greater total efficiency is possible. Though he is referring to coordination within a single agency, his ideas could potentially apply to interagency integration. He argues that using sophisticated scheduling software and flexible service designs would allow transit operators to dynamically schedule vehicles according to ridership demands (Bruun 2007). This could cut down on deadheading and underutilized fixed-route vehicles, while also relieving some of the costs of demand-responsive service by mainstreaming some paratransit customers (Bruun 2007). However, “technological capability is a necessary but insufficient condition” for planning dynamic and fully integrated transit services—a variety of organizational matters would need to be managed and coordinated as well. For example, agencies would need to invest in higher levels of passenger outreach and operational management and planning skills among employees, while vehicle operators and other employees would need to “become accustomed to continual adaptation and adjustment” (Bruun 2007). He admits that most transit agencies would not likely be able to introduce a new operational paradigm such as this; however, the concept offers a sophisticated model for service integration that could prove useful to some.

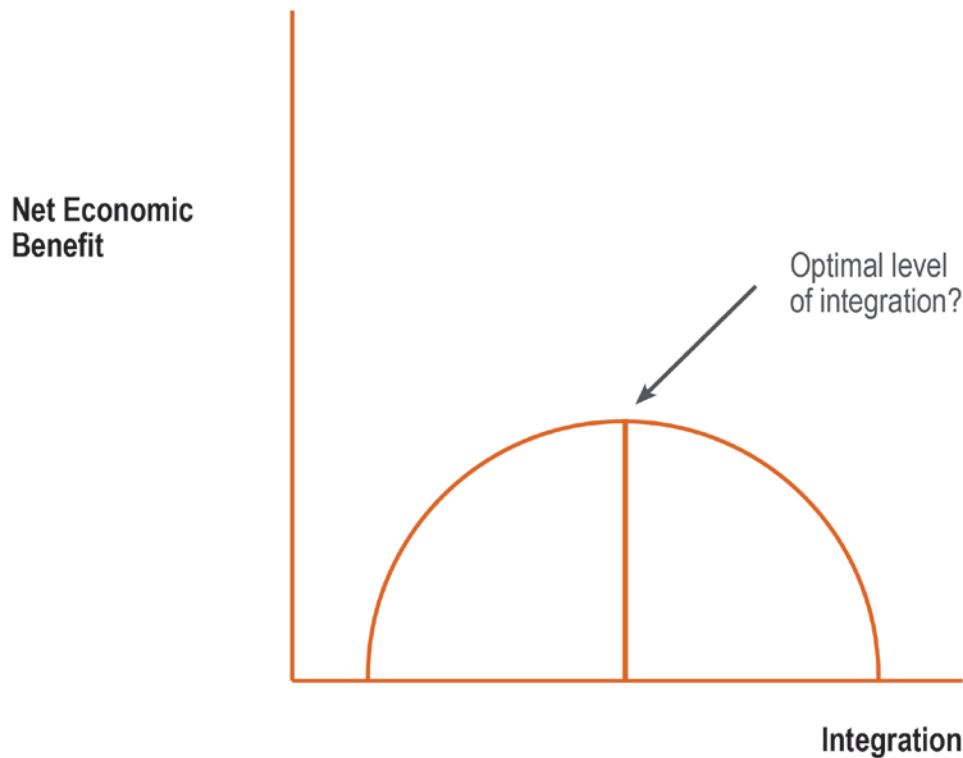
COST-BENEFIT ANALYSIS

Transit agencies naturally want to be sure that the costs of integration are worth its promised benefits. However, traditional analytical tools such as cost-benefit analyses (CBA) can be difficult to calculate in a complex environment like a transit system, where the effects of a change may be far-reaching and not easily attributable to a single action or improvement. In the literature on transit integration, data on costs or benefits or both are rarely available in a quantified (or quantifiable) form. In some cases, the *costs* of implementing a transit improvement are clear and measurable, but the *impacts* are not, being either unmeasured, unmeasurable, or muddled by additional factors. For example, in all five studied cases of Europe’s Verbund system—which coordinates the services of multiple transit agencies in a region—integration practices were implemented alongside significant service expansions and other improvements. Thus, it is difficult to extrapolate how much ridership growth in

Verbund regions was due to integration and how much was due to other transit improvements (Pucher and Kurth 1996).

Even where data are readily available for both sides of the CBA equation, externalities and intangibles make it difficult to determine true costs and benefits. For example, one study in Europe (NEA Transport Research and Training et al. 2003) took a methodical and rigorous approach to examining integration efforts in several European cities. They applied a CBA model to several projects where both cost and benefit data were available. The authors point out that both sub-optimal or super-optimal integration can occur and that there's conceptually an optimal level of integration, beyond which diminishing returns occur (See Figure G-1, NEA et al. 2003).

Figure G-1 Public Transport Integration and Optimality



Source NEA Transportation Research and Training et al.

While the authors used reliable before-and-after data based on transit system expenses and revenues, they acknowledge that the exercise was limited because they were unable to quantify many important benefits not represented by ridership and revenue numbers, such as social and environmental gains. The authors were successful in quantifying the time savings of better transfers, money saved through integrated fares, and improved waiting environments,

but they were not able to monetize the value to riders of simplified fare structures, more legible network designs, or the synergy of multiple coordination strategies. In addition to the complications of accounting for intangible benefits, procedural matters of incomplete data sets and a lack of a control also undermined the CBA results (NEA et al. 2003).

Even in the absence of perfect data, the NEA et al. were still able to reasonably determine that the investments made had net positive impacts in two European cases (NEA et al. 2003). A review of integration between regional buses and an expanded metro system in Rotterdam found that passengers benefited greatly from the integration while incurring no additional costs (fares were not raised). Transit agencies, on the other hand saw no net benefits, as all costs and benefits were absorbed by the Dutch Ministry of Transport. The Ministry of Transport saw a net reduction in the subsidy it needed to provide to the transit providers (NEA et al. 2003).

Returning to the Verbund example, Pucher and Kurth's 1996 study (which does not explicitly discuss CBA) found that subsidies to transit providers from all levels of government had to be increased after implementing the Verbund model. In Vienna, the most dramatic example, subsidy requirements increased by as much as 86% in eight years. Meanwhile, studies on ridership and revenue commissioned by the ministries of transport in Germany and Switzerland were unable to "separate out the independent effect" of the various improvements, which ranged from increased service coverage to transfer fare reductions to coordinated timetables. Thus, the precise relationship of the benefits to the costs has not been clear in the Verbund system. However, while it is clear that revenue gains have not kept pace with the costs, the benefits of the system on the whole apparently justify the investment, given that governments continue to supply subsidies. (Though, in some cases, there has been a modest scaling back of Verbund efforts in order to reduce the subsidy burdens.) As Pucher and Kurth see it, the Verbund system is ultimately a success for enabling "truly regional" public transportation for riders, which in turn, benefits public health and the environment. They argue that "adequate" government support of public transportation is needed to finance such benefits, therefore implying that the benefits of the model, even if difficult to quantify, easily exceed the costs (Pucher and Kurth 1996).

Both the NEA study and the Verbund example exhibit the difficulties in conducting a cost-benefit analysis for transit agency integration. Some variables are inherently difficult to measure and incorporate into a model, and it can be challenging to establish careful controls and protocols for before and after a CBA. Finally, while costs of integration are usually paid

up front, the benefits accrue over time. For example, the NEA study notes that transit users may take time to ascertain that a service is truly more reliable, and the benefits of land use changes and entrepreneurial activities associated with better transit may take years to come to fruition (NEA et al. 2003).

CATALYSTS AND BARRIERS TO INTEGRATION

Opportunities for integration vary substantially between regions based on the characteristics of the stakeholders in the process. Developing a sound process for integration, at all stages, appears to be a key factor for generating successful integration outcomes. Some of the literature examined speaks to actions at the state policy level, transit agency level, or even within specific transit departments, that can either help or hinder integration.

The NEA posits policy guidelines specifically for supervisory state agencies to foster collaboration, based on studies of fare integration challenges in several cities in Europe. These include establishing a regulatory framework, clarifying roles of stakeholders, and policymakers playing a coordinating role in fostering the integration process. In addition, the authors recommend creating a funding rubric that places a high value on collaboration (NEA et al. 2003). Conversely, poor public policies can form a significant barrier to integration. For example, during transit deregulation in the UK in the 1980's, many transit agencies were barred from integrative practices that were construed as anti-competitive. This hampered integration of transfer facilities, passenger information, and interoperator ticketing. Later government efforts have sought to reverse these policies, but some barriers still exist (Rivasplata 2006).

While the policy framework is important, it is but one key element in fostering coordination among transit providers. Leadership and vision are mentioned by several authors as critical to successful integration (Booz-Allen-Hamilton 2011; Meyer et al. 2005). Miller and his colleagues approach the process of integration from the standpoint of a transit system manager. They note that commitment of transit agencies to work together, along with a supportive institutional environment, is critical for integration to occur (Miller 2004). Notably, a regional transportation agency must take a leading role for an integration process to move forward (Miller 2004). In addition, Miller et al. (2005a) put forward six guiding principles for effective integration:

1. All organizations and individuals need to be committed to and invested in coordination, communication, and cooperation to achieve successful implementation of service integration practice(s); nevertheless, institutional barriers and turf protection can be anticipated to pose challenges and there will still be circumstances when regional objectives take a backseat to greater intra-agency priorities.
2. Having an institutional champion as a lead stakeholder to provide necessary direction will assist the service integration implementation process.
3. Developing contingency plans to address unexpected exogenous events is essential in the service integration implementation process.
4. As the number of participating organizations grows, including public transit agencies and regional planning organizations, the potential exists for greater customer benefits; however, these additional benefits must be traded-off against the growth in complexity of institutional issues.
5. Incremental and small, though successful, steps toward integration appear to be favored over the do-everything-at-once approach.
6. Other public transit agencies who have implemented candidate service integration practices in similar environments should be consulted to determine how effective their practices have been and to identify likely challenges.

Source: Miller et al. 2005a

In addition to understanding the positive conditions for collaboration, analyzing the barriers to a collaboration process is also necessary. In general, “a reluctance to accept risk” is a significant barrier common to private and public sector agencies (Meyer et al. 2005). In a survey of 115 transit system general managers, Ugboro and Obeng found that a wide range of barriers or impediments inhibited transit integration, as illustrated in Table G-2.

Table G-2 Impediments to Collaboration

	Frequency
Cost	14
- Cost of Daily Service	14
- Cost of Overseeing Collaboration	1
- Cost of Vehicles, Equipment, and Facilities	5
Resistance from Other Agencies	17
Difficulty Agreeing on Combined System Goals	14
Difficulty Agreeing on Combined System Cost Allocation Methods	8
Difficulty Agreeing on Combined System Revenue Allocation Methods	5
Difficulty Making Personnel Decisions	7
Government Funding Restrictions	6
Lack of Citizen's Support	2
Disagreement Between Elected Officials	6
Disagreement Between Potential Members	4

Source: Ugboro & Obeng, 1998

The diverse range of barriers shown above highlights one of the key lessons described in multiple sources: that transit integration barriers vary greatly by locale, and integration strategies need to respond to those diverse needs if they are going to be successful. In the case of the Vermont CCTA/GMTA merger mentioned in the Operations, Administration, and Procurement section above, the agencies and general public wanted to maintain local control and the image of their local transit agencies. So, while their public interface remained much the same, the agencies were in fact transformed. Even though the extent of the integration in this case was actually very deep, the effort to keep up appearances as separate agencies was considered to be an element of success, as was the extensive outreach to stakeholders, both internally and externally (Vermont Agency for Transportation and Nelson\Nygaard 2013). As Rivasplata notes, in “most cases, coordinative plans and actions cannot be expected to automatically materialize. Even where there are common objectives or goals, there will need to be extensive debate and negotiation between the principal players” (Rivasplata, 2006, NEA et al. 2003).

Often agencies attempt consolidation or other intensive forms of collaboration, but when that becomes infeasible the stakeholders consider lighter ways in which they can work together (NCDOT and KFH 2012). For example, after an abortive effort by the Metropolitan Planning Organization to foster coordination among agencies in Portland, Maine in 1990, an informal Transit Providers Working Group was formed. Over several years the group was expanded and several important coordination and integration activities were completed. Notable integration successes include establishing free transfers between systems, offering a summer student pass valid on two systems, and shared maintenance functions between services (Portland Area Comprehensive Planning Study et al, 2007).

This highlights another finding about the integration process, which is that some level of collaboration, even fairly superficial collaborations, can lead to more substantial integration practices over time (Miller et al. 2005a; NCDOT and KFH, 2012).

Many coordination barriers happen at a highly granular level within transit organization departments. Barriers noted by Miller et al. (2005), such as “the complexity of institutional issues” and “turf protection” and further refined by Ugboro and Obeng’s survey results, still do not detail the nuanced problems that transit managers face when seeking to integrate. This literature review found the best documentation of these types of barriers in consultant reports done for clients at the regional and local levels.

Barriers found cited in consultant reports include:

Cost and Revenue Sharing

- Differences between fare policies and related revenue implications.
- The need to harmonize scheduling and back office software, which creates new costs.
- Decisions about which agency pays for any additional costs that may occur.
- Allocating funding sources across jurisdictional lines.
- Sharing revenues when one agency has a more lucrative revenue source than another.

Management Structure, Labor Relations, and Personnel

- Labor and wage differentials between two different agencies, sometimes involving unions and existing contracts with employees.
- Distrust or other labor relations issues between unions and management.
- Concerns about maintaining local or agency control, both during the integration process and after.

- The need to harmonize policies and staff between organizations where redundancies occur. This can happen at the staff level to the board level.
- Power inequities when one agency is significantly better funded than another.

Routes and Infrastructure Outcomes

- Variation in fleet composition among agencies, which could present challenges to possible consolidation of maintenance functions
- Results of the consolidation entailing a cutback in service to one or more of the agencies

Sources: (Fresno County and Nelson\Nygaard, 2011a; NEA 2003; Vermont Agency for Transportation and Nelson\Nygaard 2013).

While this is no way a comprehensive list, it points to the complexity of institutional issues that enter into successful transit integration. Each integration effort has a unique set of challenges that must be approached with extreme sensitivity to local conditions. Taking incremental steps helps transit agencies achieve successful coordination efforts (Vermont Agency for Transportation and Nelson\Nygaard 2013, NCDOT and KFH 2012).

In their article “Collaboration: The Key to Success in Transportation,” Meyer et al. offer a generalized but practical guide, including concrete questions for collaborators to inform the process. They remind readers that any collaboration between agencies boils down to people working with other people, and therefore can only be expected to succeed “because of investment of time and effort of individuals having a capacity to work together” (Meyer et al. 2005).

CONCLUSIONS

The literature reviewed for this report provides insights on how, why, and when integration of fixed-route transit agencies can lead to a more efficient and effective transit network. In general, objective evaluations of integration practices are difficult because of a lack of quantitative data and the complexity of accounting for certain costs and benefits. However, most evidence suggests that integration practices are typically net positive developments wherever they are applied.

Academic studies in particular have shown how transit riders stand to gain from coordinated schedules and information, simpler or less expensive interoperator transfers, greater service coverage or frequency, and other improvements potentially generated by integration. These in turn benefit agencies when they lead to higher ridership and higher customer satisfaction.

Consultant reports and, to a lesser degree, academic studies have illuminated how transit agencies can additionally benefit from integration practices that are not necessarily visible to riders. Coordinating administrative functions, operations, maintenance, and procurement can create a number of efficiencies and economies of scale, allowing agencies to better allocate their resources.

The challenges of integration, which can be significant, may be underrepresented in the literature. Many challenges are highly context-specific, so they are often lumped into categories such as “institutional barriers” or “political barriers” without additional details. However, the implication should not be that integration is easy. Rather, it is an ongoing, often-difficult process that engages agencies with different cultures, policies, and personalities.

Many authors advise agencies to evaluate their context—including existing relationships to other agencies—and then tailor their ambitions and approach to integration accordingly. Mutually establishing a well-defined goal or set of goals at the outset is vital for keeping collaboration activities oriented to and measurable against a desired result. In addition, successful collaborations are often mediated through a coordinating body such as an MPO, Council of Governments (COG), or new organization established as part of the collaboration. Sometimes, minor cooperation and coordination activities build the relationships and collective will for more intensive integration in the future. While the literature makes it clear that specific integration activities must be carefully adapted to their

context, interagency integration, on the whole, is taken as a natural next step in an evolving transit paradigm that will meet modern travel demands.

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APPENDIX H

Agency Profiles

APPENDIX H: AGENCY PROFILES

VALLEY METRO, PHOENIX METROPOLITAN AREA, ARIZONA

Agencies profiled:

Valley Metro Phoenix Metropolitan Area, Arizona

Agency Stats	<i>System Type:</i> Urban and Suburban
	<i>Peak Vehicles:</i> Contracted Service
	<i>Citibus:</i> 20 vehicles
	<i>Service Areas:</i> 9,223 square miles
	<i>Regional Demographics:</i> 3.8 million
	<i>Political Structures:</i> Board of Directors with CEO – currently two boards (Valley Metro Rail and Valley Metro Bus)
Region	Southwest
Service Type	Urban and Suburban
Focus Area	Marketing/Customer Service and Information (unifying brand for transit systems in the Phoenix metropolitan area)
Project Genesis	In 1985, the Arizona State legislature passed a law that enabled Maricopa County (metropolitan Phoenix) to create a Regional Public Transportation Authority (RPTA). Later in 1985, Maricopa County residents passed a ½ cent sales tax increase for highway funding, a small portion of which (\$5 million adjusted for inflation) was dedicated to developing a regional transit

system. This began the region's work toward developing a regional transit system.

This initial tax provided funding to the RPTA to support two things: 1) to operate a skeletal bus system and 2) to plan a larger, more comprehensive regional transit system. The intention was that once the regional transit plan was developed, it would be brought back to the public for funding.

A plan was created and brought to the voters in 1989; however, this referendum failed. A second regional tax was attempted in 1994 and this too failed, although by a much smaller margin. The two losses led some planners to analyze the votes and as a result of this review, some communities realized that had their community voted alone, they would have funded public transportation. As a result, communities started to pass local sales taxes to support public transit, the first being the City of Tempe. In 2000, the City of Phoenix also passed a local (municipal) sales tax to support public transit. This changed the landscape significantly because once Phoenix passed the sales tax, the region was able to pursue more significant transit investments, including light rail. This, in turn, created a second regional transit authority, Valley Metro Rail, dedicated to implementing light rail (with authority designated by the RPTA).

Regional transit services therefore developed out of a system of local sales taxes, each of which supported an individual transit systems designed to meet local needs. Within this fragmented funding network, however, the RPTA created Valley Metro as the identity of the regional transit system, with the Valley Metro brand on all buses to help unify public transit systems in the Valley. As other agencies passed local tax initiatives to create transit systems, these agencies joined in with the Valley Metro brand, paint scheme and logo (among other unifying attributes).

As individual transit systems expanded and light rail implementation commenced, metropolitan Phoenix continued to work toward a regional system. In November 2004, Maricopa County voters approved Proposition 400 (or Prop 400). This tax extended the original RPTA funding through December 2025 and designated Valley Metro/RPTA as the agency

	<p>responsible for implementing the transit service, including light rail. It also strengthened the regional portion of transit funding. Despite challenges with Prop 400, namely sales taxes underperformed generally due to the recession, the region continues to work toward unification and regionalization.</p>
Project Description	<p>The RPTA (Valley Metro) is a regional organization tasked with developing regional transit services in metropolitan Phoenix and Maricopa County. Currently the organization functions as a single entity with two Boards, one governing bus service and one governing rail service.</p> <p>The development of the regional system is unique in that funding for services includes a combination of regional and local dedicated funding (sales tax). While the underlying funding system developed out of a series of independent local tax initiatives, the region did create a unifying brand, integrated information, schedules and coordinated services. Valley Metro also provides a single call center for all transit systems. To the rider, especially on fixed-route services, the system appears as an integrated and unified service.</p> <p>Regional transit services in the Phoenix area are evolving, with many in the region hoping to create a truly unified system that is funded, managed and operated as a single unit (even if contracting is retained for some services). However, communities in the region also appreciate the direct control they are able to retain over service development that comes from raising local revenues.</p>
Integration Process	<p>Frustrated by the inability of the region to pass a regional transit funding tax, individual municipalities in Maricopa County passed their own funding initiatives to provide transit services. The primary impetus for the regional system was the 1985 tax initiative, which created the RPTA and encouraged the region to think regionally. Thus, even though local communities raised their own funding, the need for regional services was recognized. This underlying assumption led to creation of the unified brand and shared service planning, functions which have helped retain</p>

many elements of a regional service, even as the individual service pieces were controlled and funded independently.

The integration process grew out of desire to create a regional system, patched together with a combination of regional and local funding. The region has progressed toward more regionalization and unification by passing a regional transit tax. However, ultimately for the region to create a single system, each of the individual funding partners, including the City of Phoenix, will need to agree on the terms and conditions. All parties agree the region is moving forward, creating and developing excellent transit services and working within the Valley Metro umbrella even as they work toward unification.

Barriers	Valley Metro is an interesting case because the individual communities see value in creating a regional brand and are willing to relinquish some authority for some aspects of service development. But, many stakeholders are reluctant to give up the local control associated with having dedicated local funds.
Expected Outcomes	The expected outcome was development of a regional transit system. This has largely been achieved, although the underlying funding and governance structures are more fragmented than originally envisioned. A key aspect of the success is development of unified brand (Valley Metro), integrated fare system, integrated passenger information system and other shared functions, such as a regional call center.
Unexpected Outcomes	When the need for regional transit services emerged as a key issue in 1985, regional municipalities expected to create a regional transit authority. Some individual cities, for example, stated they wanted to get out of the transit business. However, failed regional funding attempts led to local municipalities passing their own taxes and controlling their own local services and these local systems, in turn, became more entrenched in local needs and local control. This was not the path to a regional system that most entities envisioned, but it nonetheless led to the creation of a dynamic, effective transit network with growing ridership and an increasing role in community development. And, for the most part the system has worked.

Customer Benefits	Passengers have access to a coordinated, fully integrated, regional transit network. There are no differences in the way buses or schedules look and fares are consistent across all operators. This makes the system easier to understand and use and is a key component of the region's success.
Lessons Learned	<p>Transit integration in Maricopa County is evolving. Some stakeholders would like to see a fully unified regional system, while others are more comfortable with the current arrangement.</p> <p>A key lesson learned is that opportunities for service development need to be seized even if they deviate from the original vision. For example, Maricopa County had originally envisioned creating a regional transit network with regional funding. When that didn't happen, individual communities developed their own funding mechanisms and sources and as a result, the region developed a regional system built from individual pieces. It might not have been the preferred or direct path to where they wanted to go, but it ultimately still achieved the desired outcome.</p>
Data Availability	Historical ridership, system costs and investments into transit are available.
Why this is a compelling case	<p>Maricopa County and the City of Phoenix are among the fastest growing regions in the county. As such, they have developed and adapted a system that reflects tremendous growth and development in the past few decades.</p> <p>The relationship between the City of Phoenix, Valley Metro/RPTA, and regional municipalities is somewhat unique among regional transit services because the independent agencies are tied together in very clear and definitive ways (branding, fares, service changes, capital investments). This has made some things easier, but other things more challenging.</p> <p>The case is also compelling because it is ongoing. The region is currently working through consolidation of two formerly independent agencies – Valley Metro Rail and Valley Metro bus.</p>

BUTTE COUNTY B-LINE, CA

Agency profiled:

Butte Regional Transit B-Line
Butte County, CA

Agency Stats	<i>System Type:</i> Rural/Small Urban Fixed-Route and Paratransit
	<i>Peak Vehicles:</i> 70 vehicles
	<i>Service Area:</i> 1,677 square miles
	<i>Regional Demographics:</i> 220,000 population (2010)
	<i>Political Structure:</i> Joint Powers Authority
Region	West
Service Type	Rural
Focus Area	Service
	(Consolidation of 6 systems)
Project Genesis	In the fall of 1999, representatives from the County of Butte, along with its cities, towns and transit agencies began a study process, spearheaded by the Butte County Association of Governments (BCAG), to explore opportunities to consolidate at least several of the seven transit services operating within Butte County. Some coordination efforts were already in place: Two cities, Oroville and Paradise, were purchasing administrative services from the County; all transit services were provided by a single contractor; and transfers between the intercity Butte County Transit and Oroville Area Transit were coordinated. An earlier study had recommended fare coordination, but had identified consolidation as a strategy for overall cost savings. A subsequent study identified cost savings of almost \$140,000 annually if administrative functions were transferred to BCAG.

Project Description	<p>After the consolidation study, services remained highly coordinated but independent for nearly four years due to the complex issue of determining how to share operating costs. Through a complicated negotiation process, the participating transit operators and jurisdictions evaluated cost-sharing formulas and decided upon a new formula that considered both population and ridership characteristics. In 2004, after several years of successfully coordinating services under a single administrative function, the jurisdictions agreed to formally consolidate the services as a single transit operation. Although only limited cost savings had been realized, transit operators appreciated the ease with which the services continued to function and policymakers were becoming comfortable with the efficiently coordinated services.</p> <p>B-Line was established in 2005. It includes the services of three prior fixed-route transit providers, including Chico Area Transit (CATS), the urban system that operated within the largest city; the local routes that were operated by the City of Oroville (Oroville Area Transit); and the Butte County Transit rural service that connected key population centers while supplementing local service within Paradise, Chico and Oroville. Three other services, all ADA paratransit and/or senior dial-a-rides administered by local jurisdictions, were also consolidated into B-Line: the Chico Clipper, Paradise Express, and Oroville Express. One city, Gridley, did not participate in the coordination or consolidation process, opting to operate its own small dial-a-ride system independently.</p>
Integration Process	<p>Routes of multiple agencies, as well as paratransit operations, were consolidated, reducing duplication, providing for timed connections, and allowing for relatively seamless travel across a large rural county with several small cities. A single set of procedures for serving ADA-eligible riders was adopted: applicants for ADA service could be approved one time and schedule a trip anywhere in the county. Vehicles from multiple operators were brought together in a single fleet and dispatching and scheduling were combined. All of the operators transferred administrative functions to BCAG, giving the consolidated agency a bigger contract to negotiate a better price with an operator. A single system of fares (and</p>

	fare media) was adopted. A new brand was developed with a uniform design for buses, bus stops and all collateral materials, along with a single set of countywide transit maps
Barriers	<p>One of the significant shortcomings of the first transit integration effort was the lack of support by certain influential political leaders, particularly those representing the City of Chico. The consolidation plan was not presented to a large body of countywide policymakers until a series of final recommendations was endorsed by the oversight committee (which included two policymakers along with a much larger group of county and city staff representatives). The dissenting political leaders were particularly concerned about giving up local control.</p> <p>How to share operating costs was also a key issue that had to be resolved.</p>
Expected Outcomes	The primary impetus for considering consolidation was cost savings and improved service quality, goals which have been achieved.
Unexpected Outcomes	As the metropolitan planning organization, BCAG has access to transit funds from the State of California, as well as the federal government. Consolidating funding and reporting functions allows BCAG to more efficiently prepare grant applications and easily distribute transit funds to the B-Line operation.
Customer Benefits	<p>A single system of fares and fare media under a stable fare agreement</p> <p>Seamless travel across a large rural county with timed connections</p>
Lessons Learned	<p>In hindsight, staff conceded that they should have worked more closely with the influential political leaders throughout the process. Staff believe that having brought in all key players to negotiate early in the process might have better facilitated the process, but also think that a demonstration period of successful coordination made it very easy to move forward once all parties agreed to consolidation.</p> <p>A change in leadership can be helpful. Some staffing and policymaker changes in various city and county positions helped facilitate the transition, allowing the process to move forward without the some of the dissention that had existing previously.</p>

Data Availability	The consolidation study will have “before” data available, while the current consolidation will have comparative numbers for changes after consolidation occurred.
Why this is a compelling case	While agencies may take incremental steps toward integration, this profile is an example of the rarer result of full consolidation. It illustrates how demonstrating successes along the way can lead over time to removing barriers and developing an integrated system that benefits the customer. It would be a particularly relevant case study for small urban and rural systems.

MTC TRANSIT SUSTAINABILITY STUDY, CA

Agency profiled:

Metropolitan Transportation Commission (MTC)
Oakland, CA

Agency Stats	<i>System Type:</i> Urban Fixed-Route system of 7 large operators
	<i>Peak Vehicles:</i> 2,790
	<i>Service Area:</i> 870,000 square miles
	<i>Regional Demographics:</i> population of 5 million in the 7-operator service area
	<i>Political Structures:</i> Metropolitan Planning Organization
Region	West
Service Type	Urban
Focus Area	Administration/Procurement
	Services
	(MPO mandate for cost reductions and for increased regional coordination)
Project Genesis	The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area. The agency is guided by a 19-member policy board comprised of 14 commissioners appointed by local elected officials, two regional agency representatives, and three nonvoting members representing state and federal agencies. In early 2010, MTC began work on its Transit Sustainability Project (TSP) to address the declining productivity of the seven major San Francisco Bay Area transit operators over the previous 10 years (FY97-FY08). Its Regional Transportation Plan identified 25-year shortfalls of \$17 billion in capital and \$8 billion in operating funds. A key component of the TSP is MTC's

	<p>proposal to condition allocation of future operating and capital funds in FY19 on each transit operator's ability to meet future cost reduction targets. MTC set performance measures and targets and adopted service, paratransit, and institutional recommendations to address future transit sustainability.</p>
Project Description	<p><i>Performance measures</i> are set at a 5% inflation-adjusted unit cost reduction over a five-year period. The unit cost reduction can be achieved by a 5% reduction in any one of the following measures: service-hour cost reduction; cost per passenger reduction; cost per passenger mile.</p> <p><i>Institutional recommendations</i> were adopted by MTC in May 2012:</p> <ol style="list-style-type: none"> 1. Integrate bus/rail scheduling software to facilitate schedule coordination and customer travel planning. Establish a regional schedule change calendar. 2. Conduct multi-agency Short-Range Transit Plans at the county or subregional level to promote interagency service and capital planning. 3. Support transit agency operations on major corridors by requiring local jurisdictions to consider transit operating speeds and reliability in projects affecting these corridors. 4. Consider fare policies focused on the customer that improve regional/local connections. 5. Develop a two-county corridor transit plan for submittal to MTC in the "bedroom" counties of Marin and Sonoma. 6. Implement various paratransit recommendations for travel training and eligibility, including the creation of subregional Mobility Managers to better coordinate resources and service customers.
Integration Process	<p><i>Performance Measures:</i> MTC's initial cost reduction proposal was a 10% per service-hour cost reduction in inflation-adjusted dollars over a three-year period using the cost high point from FY08 through FY11. In 2011 the General Managers of the seven operators met a number of times to address MTC's proposal. Operators include AC Transit, CalTrain,</p>

Golden Gate Bridge, Highway and Transportation Authority, San Francisco Municipal Transportation Authority (Muni), SamTrans, Santa Clara Valley Transportation Authority, and BART. The operators' counter proposal called for reducing the 10% target to 0% and added cost per passenger and cost per passenger mile as alternative performance measures. A compromise target of 5% was reached between MTC and the operators. MTC will require annual submittals of National Transit Database data to monitor the targets. A final determination of compliance will be made in FY18.

Institutional Recommendations: In one example of the response to MTC's institutional recommendations, BART and AC Transit have undertaken an Inner East Bay (IEB) Comprehensive Operational Analysis. One suggested pilot program is a monthly IEB pass allowing unlimited rides on both systems within a core zone and a \$1 discount on trips utilizing both systems. Another option is to reconfigure AC Transit's transbay freeway bus service, which parallels BART's service in its underwater transbay tube, by instead filling in service gaps and providing high frequency shuttles to and from BART stations. A third initiative would occur if BART purchased scheduling software that matched AC Transit's so that it could share AC Transit's server and automate key bus/rail scheduling interfaces. Also under consideration is a shared customer call center. A second example of a response is a consolidation study of three providers in eastern Alameda County: Livermore Amador Valley Transit Authority, Union City Transit, and AC Transit (District 2).

Barriers

Performance Measures: Operators believed that MTC, which is not an operating entity, was imposing unrealistic performance measures and collaborated on ways to mitigate these barriers to their future funding. Operators object to conditioning receipt of existing revenues to the performance measures and requested that only future revenues be subject to the performance measures. They contend that existing funds are programmed in their budgets and subjecting them to uncertainty is an untenable threat to maintaining existing levels of service.

<p><i>Institutional Recommendations:</i> Operators stated that the Bay Area is not homogenous and that a standardized fare does not take into account local challenges and needs. They further contend that using the same scheduling software is not necessary to achieve coordination of schedules. Barriers to the IEB shuttle proposal include opening already-impacted BART parking to bus riders and shuttling people from a seated bus ride to a crowded, standing-room only BART ride in commute hours. Preparation of joint Short-Range Transit Plans would require the unlikely agreement by each elected Board of Directors that the other agency's Board could have approval authority over their capital and operating plans.</p>	
Expected Outcomes	<p>Reduction in transit agencies' costs to be eligible for future funding</p> <p>Increased coordination through implementation of the institutional recommendations</p>
Unexpected Outcomes	<p>Operators are concerned that the performance measures do not provide credit in the formula for costs to serve increased ridership; for costs to provide equity in serving disadvantaged communities; for needed upgrades to equipment and facilities; and for rising health costs and state and federal mandates out of their control.</p>
Customer Benefits	<p>Reduced costs should lead to less pressure to raise fares.</p> <p>Modified institutional recommendations should lead to greater coordination and a more seamless system.</p>
Lessons Learned	<p>Operators banding together and using their expertise can provide compromises that still achieve the overall goals.</p> <p>A top-down agency such as MTC may be needed to spur beneficial institutional changes leading to a more seamless regional system, which individual operators do not necessarily undertake on their own.</p>
Data Availability	<p>Little ability to perform a cost/benefit analysis, since the performance measures and the institutional changes will only be available in the future.</p>

Why this is a compelling case This case illustrates the process to achieve regional goals among multiple transit providers—both the leadership provided by a powerful agency and the collaboration among multiple providers to respond to it.

LYNX FLEXBUS, FL

Agency profiled:

Central Florida RTA (LYNX) — FlexBus Demonstration (Ongoing)

Agency Stats	<i>System Type:</i> Urban/Suburban
	<i>Peak Vehicles:</i> 484 (NTD 2011, all modes)
	<i>Service Area:</i> 2,538 square miles
	<i>Regional Demographics:</i> 1.8 million
	<i>Political Structures:</i> Regional Authority
Region	Southeast
Service Type	Suburban
Focus Areas	Services
	Operations, Maintenance and Assets
	(use of technology to serve suburban riders in a dynamic point-to-point system)
Project Genesis	<p>The genesis of FlexBus came originally from an effort to define a better way of serving suburban travel by transit (North Orange-South Seminole County ITS Enhanced Circulator Study) in 1999. The concept was refined to include use of computer based scheduling software, paratransit trip routing algorithms and vehicle assignment algorithms with automated vehicle location technology to provide a transit option in suburban areas in response to real-time customer requests. The service was not intended to replace fixed-route transit but rather to augment it by providing greater penetration into neighborhoods using small vehicles responding to customer requests. This greater accessibility was married to an operational strategy to serve localized trips (less than 5 miles on average) and to allow LYNX to streamline the fixed-route network into a trunkline concept.</p>

Route and point deviation models did not produce robust operating paradigms for the real-time concept. As an alternative, the FlexBus concept (then referred to as FlexBRT) assumed no routes and no schedules, in effect a real-time dynamically routed point-to-point operation connecting a series of key community activity centers. The concept was initially found to be more cost effective and more productive than fixed-route service operating at a 15-minute headway.

Subsequently, the FlexBRT was funded for further definitional development as a FDOT Project Development and Environment (PD&E) Study, completed in 2004. Using Trapeze PASS to model operating scenarios, an optimal response time of 12 minutes was identified between the time a user completes a trip request at an activity center station until the FlexBRT vehicle arrives. FlexBRT would only pick up and drop off passengers at designated FlexBRT stations (point-to-point service).

Funding was obtained to advance the project into final design and the name was changed from FlexBRT to FlexBus to avoid confusion with the specific FTA eligibility classification for BRT services. The final design was completed in 2007 and Small Start funding requests for construction were not successful.

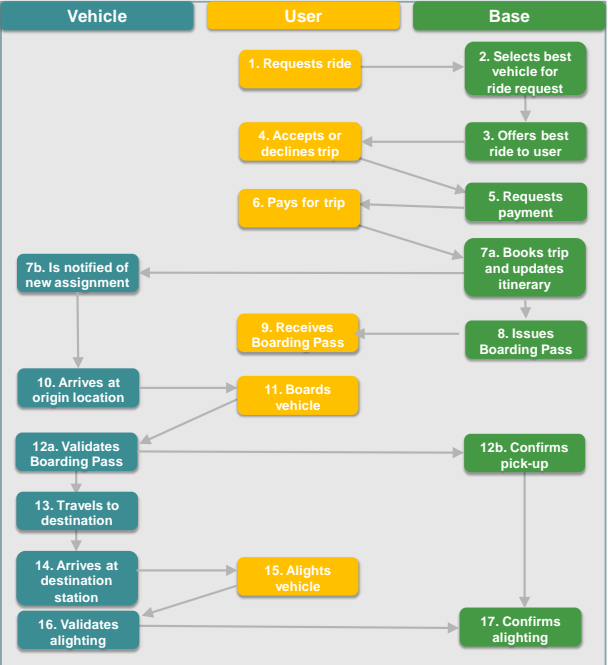
In 2010, LYNX received \$3.5 million from FTA to develop and demonstrate the FlexBus concept. The delay in obtaining funding is advantageous because now smartphones (web-enabled mobile devices) provide an ideal platform for requesting and paying for service and as a “boarding pass.” With 12 months of funding from FTA, the FlexBus demonstration goes live in the summer of 2015, connecting to SunRail, LYNX fixed-route bus and NeighborLink. If successful, the Florida DOT and the partner cities have funded the services for two additional years.

Project Description FlexBus service is a station-to-station transit operation utilizing roadway improvements and Intelligent Transportation Systems (ITS) applications to improve mobility in the service areas between designated locations. FlexBus is expected to achieve greater operational effectiveness, cost-efficiencies, travel speeds, and customer responsiveness than traditional transit services.

The FlexBus system will include targeted infrastructure improvements such as short segments of bus-only lanes; attractive and comfortable shelters; and kiosks. FlexBus will employ transit ITS applications to facilitate vehicle location, scheduling, dispatching, routing, trip assignment and manifesting capabilities and to utilize customer user interface devices to allow customers to request service in real-time or in advance. The FlexBus concept of operations is a transit service that serves stations at designated locations according to the user’s request in real-time rather than by fixed route and fixed schedule. FlexBus will connect to commuter rail and the bus network.

The passenger will access FlexBus service only at designated stations. Requests for service will be made in real-time or up to seven days in advance via the following: Station Kiosks, FlexBus Website, FlexBus smartphone applications (“apps”), An interactive voice response (IVR) phone system, and customer service representative.

FlexBus vehicles will continuously receive work assignments through mobile data communication from the base control center. Trip requests made by



customers will be sent to the scheduling software installed at the control center. The software will find out the best possible trip alternative for each customer based on specific service parameters. Once the trip alternative is presented to a customer, the customer will be asked to accept or deny the trip.

A Boarding Pass is issued with trip information and instructions for boarding at the origin station when payment is made. The Boarding Pass is either printed or displayed on the smartphone app. The system uses the unique Trip ID number for the customer and the system to track trip booking and service delivery.

When the customer boards the vehicle, the pick-up is confirmed by on-board validation equipment connected to the control center through a mobile data communication network. When the vehicle arrives at the destination station, the alighting customer will be confirmed by the driver via the mobile data terminal to update information on the central scheduling system.

Integration Process	Integrated trip booking and transfer connection protection functions will maintain connections between modes where possible.
Barriers	Requires significant use of transit technologies for scheduling, trip-booking, fare payment, and vehicle assignment functions in real-time.
Expected Outcomes	Increased suburban transit use. Enhanced local travel connectivity. Allows LYNX to straighten the regional transit network and use FlexBus for localized travel.
Unexpected Outcomes	(Ongoing) The local jurisdictional partners (the Cities of Altamonte Springs, Maitland, Casselberry and Longwood) recognize the value of improved local mobility and connectivity to Sun Rail and the regional transit network. Policy issues and coordination with other modes is dynamic. Much of the final go-live operational plan will depend on conditions and decisions as they exist closer to implementation (2015).

Customer Benefits	Customers will notice a new transit paradigm. The operating concept is opposite traditional transit. One evaluation will be how well customers acclimatize to a real-time dynamically routed system. Ideally customers will embrace the freedom to travel where/when they want rather than fixed route/schedule.
Lessons Learned	System development and integration needs to be managed. Pinning down decisions by operational staff is difficult; they tend to focus on immediate problems rather than launching a new service.
Data Availability	There is data available for the development of this project and its expected benefits, but no data yet to show measurable benefits of the future deployment.
Why this is a compelling case	This is a compelling case because it uses available technology to change how to deliver transit in suburban environments, which are the most difficult areas to serve by transit. Most U.S. metropolitan areas are more suburban than urban. This mobile dynamically routed customer responsive service concept may offer a better tool to serve the suburban market. The concept is further enhanced by recent trends in mobile device applications development that allow others beyond the transit agency to invest in improved transit service and service accessibility.

MODEL ORLANDO REGIONALLY EFFICIENT TRANSPORTATION MANAGEMENT COORDINATION CENTER (MORE TMCC), FL

Agencies profiled:

Model Orlando Regionally Efficient Transportation Management Coordination Center (MORE TMCC) (Ongoing)

Polk County Transit Division — Polk County Transit

Lakeland Mass Transit — Citrus Connection

Agency Stats	<i>System Type:</i> Urban/Suburban/Rural <i>Peak Vehicles:</i> 583 (NTD 2011, all modes, combined providers) <i>Service Area:</i> 2,663 square miles (combined service areas) <i>Regional Demographics:</i> 2.1 million (combined service area) <i>Political Structures:</i> Regional Authority, County Department, City Department
Region	Southeast
Service Type	Urban/Suburban/Rural
Focus Areas	Services Marketing/Customer Service & Information (using technology to integrate 3 public transit and 6 human service agencies, and veterans' services)
Project Genesis	The Model Orlando Regionally Efficient Transportation Management Coordination Center (MORE TMCC) was developed cooperatively by the Central Florida Regional Transportation Authority (d/b/a LYNX), Polk County Transit, Citrus Connection and six human service agencies. In addition, the Florida Commission for the Transportation Disadvantaged (CTD) and the Federal Transit Administration supported

the project. The Florida CTD requires community transportation coordination.

The MORE TMCC system was designed to serve rural, suburban, and urban travel for senior citizens, people with disabilities, economically disadvantaged citizens, and Medicare and Medicaid recipients. In addition, through the provision of coordinated services, the system will also provide transportation for the general public in areas where no general public transportation service is operated. Through the integration of existing operations, the MORE TMCC will facilitate significantly improved mobility over a wide area within existing capital and operating budgets.

Phase 1, System Design was completed in 2008 over a fifteen month process resulting in the design of a travel management coordination center to advance the goals of the Mobility Services for All Americans (MSAA) initiative. The MSAA goals included increased accessibility to public transportation and more efficient use of federal resources and funds. MORE TMCC was one of eight demonstration sites selected to create a system developed by the local community to provide travelers with simplified points of access to transportation, support coordinated operations, and streamline program management requirements and procedures.

Subsequently, MORE TMCC has advanced through Phase 2, System Design and is now entering Phase 3, Deployment, with the addition of services to veterans and the integration with the United Way of Central Florida 211 system to create a full service seamless one-call, one-click mobility management center. The Phase 3 deployment is currently being advanced through a \$2.1 million Veterans Transportation and Community Living Initiative (VTCLI) grant and will be launched under the operating name TRACS – Transportation Resources and Community Services.

Project Description	<p>MORE TMCC has been a joint effort on the part of the region's transit providers and human service agencies, with the primary goal to utilize existing resources to expand the customer's transportation options by using technology and cooperative agreements to integrate existing operations across multiple agencies in greater Central Florida.</p> <p>The proposed system will use technologies already implemented by the stakeholders and is designed to be scalable and replicable so as to add additional users over time as may be needed. At its core, MORE TMCC, involves the application and use of a web-based regional trip-booking and scheduling software and associated regional GIS map base to include the combined service areas of all participating agencies. The idea was based on the recognition of three key points: 1) The three transit agencies involved all were using Trapeze PASS for trip booking, scheduling, and processing. 2) In the region, many trips are delivered across service area boundaries. 3) The trip-booking and scheduling functions, if applied regionally and including each provider, their vehicles, and clients, could generate coordinated and cost-effective trips in the region without significant loss of authority by any one agency.</p> <p>In short, the MORE TMCC concept allows a scheduling system to coordinate transit services within the region through multiple transit providers and human service agencies. Each agency accesses trip-booking, scheduling and dispatch functions through a common web-based scheduling application. Reporting and reconciliation functions are also generated through the system. Each agency continues to certify its clients and operate its vehicles and services.</p> <p>MORE TMCC was designed to facilitate cost and revenue sharing for trip booking and service delivery with reconciliation performed through routine back office processing by the scheduling system. This design effort required developing a series of agency reciprocal agreements covering fares, eligibility determination, and cost basis.</p> <p>In this way, MORE TMCC leverages a range of mobility resources and funding sources efficiently, effectively, and still fulfills program eligibility</p>
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and reporting requirements for each agency. It integrates general public transit, human service transportation, and rural services.

With the additional development of MORE TMCC into Phase 3 Implementation as TRACS, the concept expands to include service to veterans and their families and connection to a regional 211 One-call, One-Click mobility management system.

Current participants: LYNX, Polk County Transit, United Way of Central Florida, Veterans Administration, Orange County.

Integration Process	Use of web-based regional scheduling system and formal reciprocal agreements to foster coordination of fares, fare policy, service delivery, and cost sharing. Integration with web-based regional 211 facilitates One-Call, One-Click mobility management for general public and human service mobility and community/social services. Agency coordination to define reciprocal agreements (ongoing).
Barriers	Requires cooperative agency reciprocal agreements (ongoing). Requires one entity to administer and maintain scheduling software and functions, including staffing.
Expected Outcomes	Seamless regional transit mobility management and service delivery using multiple existing agencies and service providers. Seamless connection to community/social services. Increases mobility. Improved cost effectiveness in transportation service delivery. Design can help providers deliver services that better meet community and customer needs rather than conforming to fixed routes and schedules.
Unexpected Outcomes	(Ongoing) Entities were very open to coordination and cooperation in this model. Fear of losing turf was not a big concern as each entity continues to retain its authority. Through using the regional scheduling/211 process the limited funding and resources are able to be maximized, which all recognized as a benefit to their mission and their customers.

Customer Benefits	Customers may notice different providers service their trips. They will notice they have more options for travel (trip planning) and their on-board times should be reduced. Customers in the region without access to transit may find that they now do have access to transit.
Lessons Learned	System development and integration needs to be managed and must fully reflect operating concept, operating procedures and relevant policies. When coordinating among multiple providers, the larger ones with greater technical capacity tend to overshadow involvement by the smaller ones. Government initiatives sometimes create obstacles to coordination - Medicaid NET was broken out into a separate contract.
Data Availability	There is data available for the development of this project and its expected benefits, but no data yet to show measurable benefits of the future deployment.
Why this is a compelling case	This case is compelling because it shifts coordination and integration of services to a scheduling based function rather than forcing coordination at the agency level where personalities may prevail. All transit services are scheduled before service is delivered. Automated scheduling is a commonly used tool. The scheduling function is the heart of operations management and drives service costs. Using a regional scheduling system for all transit and human service providers, service integration is the result. This allows multiple providers to integrate services without anyone abdicating their role or authority.

QUAD CITIES, IL, IA

Agencies profiled:

Quad Cities —

Rock Island County Metropolitan Mass Transit District (MetroLINK), Illinois

Bettendorf Transit (BT), Iowa

Citibus, Davenport, Iowa

Agency Stats	<p><i>System Type:</i> Suburban and Small Urban/Rural</p> <p><i>Peak Vehicles:</i> MetroLINK: 55 fixed route, 12 paratransit, 2 ferry boats; BT: 8 vehicles</p> <p>Citibus: 20 vehicles</p> <p><i>Service Areas:</i> MetroLINK: 46 square miles; BT: 22 square miles; Citibus: 30 square miles</p> <p><i>Regional Demographics:</i> 300,000 combined population</p> <p><i>Political Structures:</i> MetroLINK Board appointed by mayors of 5 cities; BT and Citibus: overseen by City Councils</p>
Region	Midwest
Service Type	Suburban and Small Urban/Rural
Focus Area	<p>Fares</p> <p>Services</p> <p>(universal fare card and jointly operated service)</p>
Project Genesis	<p>The Quad Cities area straddles two states, Illinois and Iowa, bordering the Mississippi River. In 1970 the privately-operated National City Lines, which provided seamless service between the two states, decided to shut down service because it was losing money. As a result, Illinois created a transit authority which operates and funds MetroLINK with property taxes, a state</p>

	<p>vehicle transfer tax, and federal funds. BT and Citibus continued to operate transit within the Public Works departments of their cities through local property taxes. The previous National City Lines routes were retained and residents could transfer among the three transit systems to maintain the seamless service..</p>
Project Description	<p><i>Fares:</i> Riders can buy a monthly QC Passport for \$30 which gives them unlimited rides on all three systems, including The Loop.</p> <p><i>The Loop:</i> Created by the three transit systems, The Loop is a riverfront circulator operating weekends from 5 PM to 1:20 AM on Thursdays through Saturdays and from 11 AM to 5:20 PM on Sundays. It is “the only single route in the country that crosses two bridges in two states and serves four separate city downtown areas.”</p>
Integration Process	<p><i>Fares:</i> Staff had tried unsuccessfully to create a universal fare card that could be used on all three systems. When Churches United took up the effort on behalf of their constituents in the early 2000s, the reluctance of elected officials was overcome and the QC Passport was created. Revenues from the QC Passport are shared based on the location where the pass is purchased.</p> <p><i>The Loop:</i> The Tourism Bureau, representing downtown businesses in Davenport, the Village of East Davenport, Bettendorf, “the District” in Rock Island, and Moline, identified a need for an easy way that tourists could visit features of the riverfront area, such as the casino, hotels, the convention center, theaters, parks, trails, and the botanical center. They advocated that the three transit properties create a single route with no transfers. In 2008, Bettendorf applied for an Iowa Clean Air Attainment Program (ICAP) grant of \$1.4 million, a reallocation of federal CMAQ funds. The grant was used to purchase four buses and funded 80% of the planning and 50% of the operation of The Loop. Local communities funded the other 50% of the operations. Bettendorf was chosen as the operator because of its lower labor costs using local non-unionized drivers. The grant will run out in 2013, and the three transit providers are in discussion about how to allocate the \$150,000–250,000 annual cost of continuing the service and establishing a capital replacement fund.</p>

Barriers	<p>Elected officials were reluctant to make changes until outside forces lobbied for change.</p> <p>There is no guarantee that coordination, once achieved, will always continue. For example, for almost six years, MetroLINK performed maintenance for Citibus. The Davenport Public Works department recently decided to bring the maintenance back in-house at the city.</p> <p>Increased integration could be hampered by the disparity between the larger amount and sources of funding for transit in Illinois compared to the primarily local funding available in Iowa.</p>
Expected Outcomes	<p>The QC Passport seamlessly links the three transit systems, with 10,000 passes sold annually.</p> <p>The Loop has been considered successful with 34,000 annual riders and positive efforts to continue it once the ICAP grant has been exhausted.</p>
Unexpected Outcomes	<p>Successful relationships built through coordination on fares and The Loop are leading to increased integration between MetroLINK and BT. MetroLINK will take over BT's "back office" tasks such as grant applications, federal reporting, planning, and call center operations, while BT will continue to use its own city employees for bus drivers.</p>
Customer Benefits	<p>Residents may live in one state and work in the other. The three transit providers have maintained a seamless system with a single monthly fare so that residents don't sense a border. Only the name of the bus changes as riders move across the bridges.</p> <p>Tourists, residents, and local businesses—the customers of the transit properties—benefit from the local resources available to them through The Loop special service.</p>
Lessons Learned	<p>Collaboration can result in customer benefits that extend beyond what a single agency can offer. External pressures (e.g., Churches United and the Tourist Bureau) can have a strong and positive influence on fostering change. Personalities and differing local priorities can influence whether coordination expands or contracts.</p>

Data Availability	Quantifiable data is available on the costs and benefits for the QC Passport and The Loop.
Why this is a compelling case	The Quad Cities transit services illustrate how both city and state boundaries can be erased through coordinated efforts. It also shows how imperative it can be to engage outside community groups to create partnerships that benefit the greater region.

CATA/CLINTON TRANSIT/EATON, MI

Agency profiled:

Capital Area Transportation Authority (CATA)
Lansing, MI

Agency Stats	<i>System Type:</i> Urban fixed route and paratransit <i>Peak Vehicles:</i> 166 buses, 51 vans, 2 trolleys <i>Service Area:</i> 559 square miles—all of Ingham County, Delta Township in Eaton County and portions of Clinton County <i>Regional Demographics:</i> 465,000 (2010) <i>Political Structure :</i> Regional Authority for Ingham, Eaton and Clinton Counties; 10-member Board of Directors appointed by 5 funding jurisdictions and 2 nonvoting members
Region	Midwest
Service Type	Urban
Focus Area	Services Administration/Procurement (coordinated transfers at county borders; joint vehicle procurement)
Project Genesis	Although CATA, as the regional authority, has operated in the three counties surrounding the State Capitol of Lansing, the State also fostered the creation of individual transit operators in each of the counties. The production of CATA's Transit Development Plan and Human Services Transportation Coordination Plan in the late 1990's identified cost savings that could be achieved by greater service coordination with Clinton Transit and Eatran, service providers in the counties bordering Ingham County.

Project Description	<p>Funding of transit is through a millage tax on property, which is authorized by voters. Clinton Transit, which operates 21 buses and 5 minivans, and Eatran, with 26 vehicles, provide general public demand response service to their residents. Using the Plans' recommendations, CATA instigated discussions with Clinton Transit and Eatran on how more service could be provided with the same millage through better coordination with CATA.</p>
Integration Process	<p>CATA and Clinton Transit have achieved integration by setting up transfer centers at the border of the two counties. Trips into Lansing were 30 miles one way for Clinton Transit. Now Clinton Transit carries its general public riders six miles to the border, where they transfer to a CATA fixed-route or paratransit bus for the trip into Lansing. Since CATA's fixed routes run on a published schedule, Clinton Transit can schedule its demand response services accordingly to meet at the transfer point. Future plans include seamless transfers by visually sharing AVL locations of all buses on maps, and also by coordinating through each system's call center. These timed transfers are particularly important for ADA riders when paratransit vehicles meet at the border.</p> <p>Additional coordination benefits resulted from the earlier regional planning efforts:</p> <p>CATA successfully sought a clean fuels grant on behalf of the three transit systems for medium-duty hybrid vehicles. CATA included each operator's own vehicle specifications in writing the competitive grant, providing cost savings for the smaller operators, who did not have to write their own grants, and cost-saving to the State, which did not have to process two separate grants. CATA completed the procurement with Eatran and Clinton Transit staffs' participation.</p> <p>To address gaps in service among the three counties, CATA receives CMAQ funds to support a mobility manager position in its Clean Commute Options department. The mobility manager has worked with human service organizations and with Michigan Works to place clients in workshops and jobs along bus routes within a reasonable commute from their housing. Because of this coordination, changes in the internal</p>

	practices of these human services agencies have resulted in better placement of clients and elimination of perceived service gaps.
Barriers	<p>There was initial concern that CATA would take over the small county systems and they would lose local control.</p> <p>It is difficult to overcome skepticism about cost savings and customer acceptance from integration until a new system is actually put into service.</p>
Expected Outcomes	Clinton Transit has realized financial savings by eliminating long trips into Lansing through the transfer arrangement with CATA. It has kept its own vehicles and service within Clinton County, retaining local control.
Unexpected Outcomes	Reauthorization of the millage tax in Eaton County has failed in the past two election attempts. With this situation as background, coordination and cooperation discussions between Eatran and CATA are continuing.
Customer Benefits	<p>Based on anecdotal evidence, riders from Clinton County enjoy the greater mobility of CATA's fixed-route service, where they are not limited to a single destination formerly provided by demand response service into Ingham County. Likewise, Ingham County residents now have convenient service into Clinton County.</p> <p>Clients of human service agencies benefit when their transportation is a key consideration of their placement.</p>
Lessons Learned	Patience is required for coordination to develop over time. Opportunities occur when there is a change in leadership, contributing to a fresh look at the benefits of coordination. Timing is also important, because changes in circumstances can open receptiveness to other ways of providing service. Small steps, such as the example of a joint grant for vehicles, can foster better relationships and build trust.
Data Availability	It is unlikely that the two small operators will have year to year cost/benefit comparisons.

Why this is a compelling case Many small transit providers border a larger regional transit provider. This is an example for small operators of how they can enjoy the benefits of cooperation and coordination without being absorbed by the large operator. It also demonstrates how a large operator can design a mutually beneficial collaboration with its neighboring transit providers.

SUBURBAN TRANSIT ASSOCIATION, MN

Agency profiled:

Suburban Transit Association

**Metro Transit
Minneapolis, MN**

Agency Stats	<i>System Type:</i> Large urban/suburban fixed-route
	<i>Peak Vehicles:</i> 788
	<i>Service Area:</i> Minneapolis (1,022 sq mi), Plymouth (33 sq. mi.), Eden Prairie (32 sq. mi.), Maple Grove (33 sq. mil.)
	<i>Regional Demographics:</i> Metro area population is over 2.6 million. Individual 2010 city populations: Plymouth (70,500), Eden Prairie (60,800), Maple Grove (61,600).
	<i>Political Structures:</i> Regional Transit Agency (Metro Transit); Suburban Transit Association (STA) for Plymouth Metrolink, Southwest Transit and Maple Grove Transit
Region	Midwest
Service Type	Urban and Suburban
Focus Area	Marketing/Customer Service and Information
	Fares (integrated regional fare structure and joint information and marketing)
Project Genesis	Metro Transit is a division of the Metropolitan Council, the regional planning agency and MPO. Metro Transit is the largest transit provider in the Twin Cities, providing roughly 90% of the 78 million annual transit trips taken in the region. In 1995, several suburban communities in the Twin Cities elected to “opt out” of Metro Transit under

	<p>Minnesota Statute §473.388, the transit replacement service program to establish transit that better met the needs of the suburban communities.</p> <p>After opting out of the large urban transit service (Metro Transit), the suburban cities collaborated to create the Suburban Transit Association (STA) as an alternative to the traditional urban system. STA is a partnership of public agencies and private companies in suburban Minneapolis and consists of five operators – Minnesota Valley Transit Authority, Plymouth Metrolink, Shakopee Transit, SouthWest Transit and Maple Grove Transit. Since opting out of the system, the STA has continued to collaborate with Metro Transit, including creating an integrated fare structure and jointly developing information and marketing materials.</p>
Project Description	<p>The purpose of the Suburban Transit Association (STA) is to jointly and cooperatively develop programs of mutual interest that benefit the citizens of the communities served. The STA has coordinated with the Metropolitan Council and Metro Transit over the past decade to maintain a regionally integrated fare structure and marketing information (maps, schedules, etc.) for all transit services in the Twin Cities, as well as to participate in regional planning efforts (e.g., Southwest Corridor, Cedar Avenue BRT, etc.).</p>
Integration Process	<p>Coordination between the STA and the Metropolitan Council has occurred piecemeal over time. While the STA provides all service within its service area, some regional services (operated by the Metropolitan Council) are still provided, including Metro Mobility (ADA paratransit) as well as TransitLink (general public demand response).</p>
Barriers	<p>The greatest barrier to coordinate service is the lack of integration between fixed-route services. The STA largely provides express services between its local communities to downtown Minneapolis and the University of Minnesota. The ability of these services to coordinate schedules with Metro Transit is challenging.</p>

Expected Outcomes	Improved service quality and customer information – Coordination between the STA and Metro Transit has ensured that from the passenger’s standpoint, transit in the Twin Cities is uniquely branded but as integrated as possible.
Unexpected Outcomes	<p>Duplication of staff efforts – The STA has its administration and policy oversight boards, thus duplicating efforts throughout the region.</p> <p>Increased competition for regional funding – the STA also lobbies the state legislature to further its interests.</p>
Customer Benefits	<p>Integrated fare system</p> <p>Single source of transit information</p>
Lessons Learned	<p>A common challenge with large consolidated systems is addressing member needs and concerns equally. STA achieved this by divesting from the larger organization but continuing to be a stakeholder. This is an interesting model for coordination that has realized some benefits and some costs, such as:</p> <p>Development of transit services that are oriented to meet the needs of communities that fund them. The transit systems have been successful, growing ridership consistently since forming in 1995.</p> <p>Despite the suburban operators opting out of the larger operator, STA and Metro Transit continue to be stakeholders in each other’s services and partner on regional initiatives.</p> <p>Successful example of multiple agency integration (six suburban operators – Maple Grove Transit, Minnesota Valley Transit Authority, Plymouth Metrolink, Prior Lake Laker Lines, Shakopee Transit, SouthWest Transit- and one urban operator – Metro Transit).</p> <p>Disaggregation of services creates some network-wide redundancies, such as duplicative staff functions and some service overlaps.</p> <p>Adding operators to the service network increases competition for a fixed supply of resources.</p>

Data Availability	Extensive ridership and cost data available, but would be difficult to use for a cost/benefit analysis.
Why this is a compelling case	The Suburban Transit Association offers a compelling example of agency integration because it recognizes the benefits to the customer of integrating fares and rider information – even though it has decided to opt out of the larger regional transit network due to differences in terms of how transit service should be structured (and how resources should be spent).

NJ TRANSIT, TRENTON, NJ

Agencies profiled:

NJ Transit — Trenton Transit Center (TTC) (complete)

NJ Transit — Information Integration (ongoing)

Agency Stats	<i>System Type:</i> Urban and Suburban
	<i>Peak Vehicles:</i> 3,918 (NTD 2011, all modes)
	<i>Service Area:</i> 3,450 square miles
	<i>Regional Demographics:</i> 18.4 million
	<i>Political Structures:</i> Statewide Agency
Region	Northeast
Service Type	Urban
Focus Area	Operations, Maintenance and Assets
	Marketing/Customer Service and Information
	(Trenton Transit Center hosting multiple operators; passenger information about multiple operators for Super Bowl)
Project Genesis	<p>NJ Transit is a statewide transit agency sandwiched between two of the nation's largest metropolitan areas (New York City and Philadelphia). Consequently, integration is part of the agency's business model.</p> <p>As a statewide operator, NJ Transit integrates services internally between heavy rail, light rail, and bus and externally with local, county-based operators as well as the Metropolitan Transit Authority (MTA) in New York City and Southeast Pennsylvania Transportation Authority</p>

(SEPTA) in Philadelphia. NJ Transit also coordinates with several private operators, local county-based transit services and Amtrak. Some relationships involve coordinating service; some are contractual; and others relationships are competitive.

NJ Transit also develops and maintains several intermodal facilities that host multiple modes and operators. One of these stations, the Trenton Transit Center (TTC), was recently upgraded and is examined in this document as an example of service and facility integration.

Despite ongoing efforts, NJ Transit recognizes additional demand for integration, especially with regards to information integration. Recent lessons learned in the preparation and aftermath from Hurricane Sandy, NJ Transit experienced a need to provide comprehensive travel information, not just about NJ Transit but across operators and modes. The agency anticipated the need to provide seamless, coordinated information to visitors from around the country in advance of Super Bowl XLVIII. The process and steps associated with advancing information integration is also highlighted in this profile.

Project Description	<p><i>Transit Center:</i> The TTC was recently renovated into one of busiest train stations in the U.S. and one of NJ Transit's biggest successes in agency integration. The facility is a true transit hub with a diversity of operators and multiple modal connections. Renovations to the train station are also spurring TOD development around the train station in the City of Trenton; these efforts are being led by the City of Trenton.</p> <p><i>Information Integration:</i> NJ Transit focused on information tools for the large visitor influx to northern New Jersey associated with Super Bowl XLVIII. There is a clear need to develop regional transit information across a multitude of providers. NJ Transit is exploring developing its own trip planner tools and information systems.</p>
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Integration Process	<p>Development of the TTC benefited from clear partnerships. Amtrak owns the track and NJ Transit owns the site, so the two had a clear vested interest in TTC development. NJ Transit also wanted to ensure Amtrak and other operators continued to serve the facility.</p> <p>However, NJ Transit did not directly engage SEPTA in the facility design or regional bus operators, including private operators. As a multimodal operator, NJ Transit understands facility requirements by mode as well as how to integrate service. The design and development teams therefore had the required technical expertise, perspective and experience to ensure the capital and passenger needs would be met. This integration process follows a ‘build it and they will come’ model that is also used in the NY metro area. This approach works when demand is strong enough to ensure service will be supplied.</p> <p>In the case of the Super Bowl preparation, NJ Transit agreed to Chair the Transportation and Transit Sub-Committee (part of the overall Super Bowl Host Committee). At the beginning of the planning efforts, NJ Transit leadership invited other agency leadership to a “Senior Summit” event to facilitate cooperation at the highest level and ensure that adequate resources were dedicated.</p>
Barriers	<p>Some levels of regionalism persist, especially among large operators.</p> <p>Other barriers reflect how to assign responsibility and costs, especially with regards to providing cross-border services. For example, does the responsibility for ensuring workers have access to an employment lie with the state or city where they live or the state/city where they work? In some cases, the greater good is achieved by cross-border service design, but the question about who pays for it can prevent it from happening.</p>
Expected Outcomes	<p>Seamless transfers for passengers with timed connections already existed, but transit center improvements expanded and strengthened intermodal connections. Some improvements were operationally oriented; others were focused on the passengers and included upgrades such as improved</p>

wayfinding, more and better signage, and more and better passenger facilities.

TTC is a true transit hub with opportunities to transfer between modes and services and travel in all directions, including interstate national travel (Amtrak) interstate regional travel (NYC and Philadelphia via bus and rail), intrastate regional travel to Camden (with connections to interstate rail via PATCO) and locally into downtown Trenton (Capital Connection).

Expected outcome of enhanced information integration is a system that will support seamless travel across the NY-NJ-CT metropolitan area. The Senior Summit approach is also creating an architecture that can support other regional planning efforts.

**Unexpected
Outcomes**

The transit center is located just across the river from Pennsylvania, which is at the far ends of the SEPTA service area. Thus, one side of the river has lots of service, but the other side has hardly any. The upgraded facility highlights this disparity.

Expansion of the TTC also included development of a parking garage, with fees at the garage set to pay for the garage. Consequently, the total cost of a trip to some locations (parking plus rail ticket) is higher and fairly high system wide.

TOD development at the TTC was not unexpected but economic circumstances delayed some of this development. Investment in the transit center, however, helps support subsequent investment, which in turn, strengthens the TTC.

Customer Benefits	<p>TTC benefits to passengers include access to a wide variety of destinations, regionally, statewide and locally. They also have access to diversity of modes, including slightly slower services at a lower cost and more direct choices at a higher cost.</p> <p>As part of the TTC, NJ Transit also developed the “Capital Connection,” a set of uniquely branded bus services that link the TTC with downtown Trenton; some buses continue on to other regional destinations, but all buses link between downtown and the TTC. The branded service makes it very easy for riders to know which services will get them to/from the transit center.</p> <p>Improvements to information integration will include increased access to a full portfolio of transportation services and options.</p>
Lessons Learned	<p>Creating integrated facilities for services to meet can be fairly straightforward, especially for large agencies that understand the needs and operating constraints of different modes. This ensures there is space for a variety of service providers. Ensuring adequate service to the facility or that enough service is available for connections, however, is more challenging.</p> <p>Challenges exist with regard to who is responsible to move people across state lines. The ability to determine responsibility is a challenge facing integration efforts everywhere.</p> <p>Securing high level support (Senior Summit) helps break down some of the barriers associated with agency integration by ensuring agencies participate and dedicate adequate resources.</p>
Data Availability	<p>Ridership and cost data is available for most of the TTC.</p> <p>Summary of Super Bowl coordination efforts.</p>

Why this is a compelling case The TTC is a multimodal success story in terms of transportation but also one that is spurring TOD development locally within the City of Trenton.

Information integration demonstrates the ongoing need to update, improve and manage the quality and amount of information available in a complex operating environment.

DURHAM AREA TRANSIT AUTHORITY (DATA), NC

Agency profiled:

Durham Area Transit Authority (DATA)
Durham, NC

Agency Stats	<i>Service Type:</i> Suburban fixed route and paratransit
	<i>Peak Vehicles:</i> 36 peak period fixed-route buses and 42 paratransit vans
	<i>Service Area:</i> City of Durham, NC—94.9 square miles
	<i>Demographics:</i> population of 233,252 (2011)
	<i>Political Structure:</i> private company overseen by City of Durham's transportation department but operated by regional public provider, Triangle Transit (TT)
Region	South
Service Type	Suburban
Focus Areas	Services
	Operations, Maintenance, and Assets (integration of two transit providers and other regional joint projects and joint maintenance)
Project Genesis	A regional consolidation study of six transit providers was performed in 2003 under the direction of the Triangle J Council of Governments. Providers are the cities of Durham, Raleigh, Chapel Hill, and Cary; North Carolina State University; and Triangle Transit Authority. Although consolidation was not an outcome, a regional call center, joint marketing, joint procurement and a regional fare program resulted. Joint maintenance was also pursued and the City of Durham itself integrated with the regional provider, Triangle Transit.

Project Description	<p><i>Services:</i> The City of Durham contracts with Triangle Transit to provide the day-to-day management and operation of DATA, while retaining ownership of the equipment, budget approval, and the final decision on routes in the city.</p> <p><i>Operations, Maintenance, and Assets:</i> DATA built a garage large enough to handle other transit providers' maintenance of technical equipment (e.g., fareboxes, destination signs, Automatic Vehicle Locaters) and paint and body work. At the same time three providers—TT, Chapel Hill, and Raleigh—agreed to handle other maintenance needs such as engine rebuilds, etc. so that each provider did not have to duplicate these maintenance functions internally.</p>
Integration Process	<p><i>Services:</i> A new City Manager, reviewing the consolidation study, decided to try out integration under a three-year contract with Triangle Transit, ending October 2013. His rationale was that citizens would benefit from a more seamless system and that the city's core expertise is not transit. DATA staff has been moved to Triangle Transit. Cost savings were not necessarily expected.</p> <p><i>Operations, Maintenance, and Assets:</i> DATA performed maintenance on technical equipment for itself and the three other providers for five years, until July 2012, when the systems had grown too much to continue the shared maintenance agreements. Now the other agencies have hired additional staff and have expanded their facilities to handle their own maintenance needs.</p>
Barriers	<p><i>Services:</i> Financing was the major barrier to consolidating the six transit providers. Agencies were reluctant to give up local control over hours, routes and frequencies while still being obligated to pay for the consolidated service.</p> <p>For DATA, a conflict between the Federal 13c provision requiring collective bargaining and the State's prohibition of unions in the public sector had to be resolved. The city purchased the transit system in 1991 from a private company, whose employees were unionized. The city created a private entity called Durham City Transportation Company to</p>

allow employees to remain unionized as required by federal law. DATA continues in this structure under the Triangle Transit contract, even though the other Triangle Transit employees are non-union.

Operations, Maintenance, and Assets: DATA provided maintenance of technical equipment until the growth of all systems prevented it from continuing the shared maintenance agreement. Although the garage was big enough for shared maintenance of the paint and body work, DATA ran out of funds to purchase the equipment before it could start this aspect of the joint project.

Expected Outcomes	<i>Services:</i> To date, the City of Durham's goals to benefit its residents by providing a more seamless transit system, to spend transit dollars more effectively, and to improve the level of transit service have been achieved, according to key staff. Customer boardings and the farebox recovery ratio have grown while operating costs per rider have decreased.
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Operations, Maintenance and Assets: The goal of less regional redundancy in maintenance functions was achieved for five years.

Unexpected Outcomes	Even though consolidation didn't occur, the study was the impetus for the transit providers to begin discussing and meeting with each other, leading to joint activities such as the regional call center. Other activities now include joint training of the maintenance teams and joint procurement of Automated Passenger Counters, leading to cost savings.
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Customer Benefits	<p>Better integration between DATA and the regional provider, resulting in forthcoming major service changes</p> <p>Monthly meetings for public feedback</p> <p>Regional call center for information</p> <p>Regional fare program</p>
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Lessons Learned	As a byproduct of the initial consolidation study, the transit providers found that they could do other discrete projects together which would result in cost savings. They developed a problem-solving relationship with each other, where they could bounce off local issues together to come up with solutions. Durham, Chapel Hill, Raleigh and TT now have quarterly meetings with their maintenance teams and with their operations teams.
Data Availability	<p>“Before” statistics in the consolidation study</p> <p>Narrative summaries of the Triangle Seamless Public Transportation Service Project</p> <p>Data about cost savings from the regional joint projects may be available but have not been gathered into an existing report.</p> <p>The contract requires Triangle Transit to provide statistics about service improvements to DATA resulting from integration of the two agencies</p>
Why this is a compelling case	DATA would be a good case study because it will illustrate 1) the barriers to full consolidation; 2) positive partial integration results for multiple providers in the region resulting from discussions during the consolidation study; 3) service integration of DATA and the regional provider, resulting in efficiencies; 4) solutions to federal 13c mandates in a non-union environment; and 5) the process for maintenance integration and unexpected barriers for its continuance.

NORTHWEST TRANSIT ALLIANCE, OR

Agencies profiled:

Rural Oregon Agencies:

Columbia County Rider

Sunset Empire Transportation District

Tillamook County Transportation District

Benton County Transit

Lincoln County Transit

Agency Stats	<p><i>Peak Vehicles:</i> 80 combined</p> <p><i>Service Area:</i> Five counties in Northwest Oregon: Columbia, Clatsop, Tillamook, Lincoln, and Benton Counties with connections provided to major cities in northwest Oregon, including Portland, Salem and Albany (along the I-5 corridor).</p> <p><i>Regional Demographics:</i> Rural</p> <p><i>Political Structures:</i> County governance</p>
Region	Northwest
Service Type	Rural connectors and commuter services between cities
Focus Area	<p>Marketing/Customer Service and Information</p> <p>Operations, Maintenance and Assets</p> <p>(five transit providers operating and marketed under a single brand that crosses jurisdictional boundaries)</p>
Project Genesis	<p>Columbia County and four other regional transit agencies coordinated a successful application for a three-year \$3.5 million grant from the U.S. Department of Energy (DOE), the stated goal of which was to “reduce dependence on fossil fuels and promote community livability.” The grant led to the creation of the Northwest Transit Alliance, a non-profit with goals to sustain a connector project and coordinate existing but previously uncoordinated regional transit service.</p>

The intent of the project was to bring the vision of coordinated regional transit to fruition, with a recognizable and unified “brand” for all of the service provided by the agencies in the region, particularly targeting visitors to the coastal cities from Portland and other inland areas, branding the service as the North by Northwest Connector.

The project aimed to remove barriers to transit use through better connecting the communities in northwestern Oregon to each other, to Portland and to the I-5 corridor as well as to improve coordination of routes, schedules, and fare structures between the five operators, and to coordinate branding and outreach.

**Project
Description**

Stated goals are:

- Improve transit connections between northwestern Oregon communities.
- Brand and market transit service in all five counties as a single seamless service.
- Build community partnerships to increase transit ridership while promoting regional business and economic development opportunities.
- Implement sustainable funding strategies for continued transit system development.

The effort consisted of the following actions:

- Formation of the Northwest Oregon Transit Alliance, the partnership between the five transit agencies.
 - Each of the five agencies retains ownership of all its assets and operation of all its services, but they share resources such as transit stops and coordinate to improve the convenience and cost effectiveness of regional transit services, including coordinated transfers and shared staff resources. Routes for all five agencies were evaluated in the 2012 Route and Service Recommendations report; agencies are still in the process of seeking funds for full implementation.

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- Creation of Northwest Oregon Transit Alliance, a non-profit 501(c)3 organization whose mission is to fundraise for multimodal transportation projects within the five county area. The alliance coordinates with this new foundation through a public-private partnership.
 - Creation of the North by Northwest CONNECTOR website, www.nworegontransit.org, which includes the following features:
 - A “one-stop shop” for schedule and fare information for all five transit agencies
 - A regional transit trip planner that allows planning trips across multiple agencies using Google Transit
 - A “track our performance” feature that illustrates outcomes of the Alliance’s efforts including ridership changes, fossil fuel use, vehicle miles traveled (VMT), and carbon emissions.
 - Establishment of three- and seven-day visitor passes
 - Started effort to install unified branded signage and shelters at major transit stops

Outreach also includes newspaper and radio ads, posters, signpost and bus branding.

Integration Process	After receiving a planning grant from the Department of Energy, the transit agencies have spent three years building institutional relationships and are now implementing route and service changes, coordinated outreach efforts, and unified branding for all buses in the five counties. Buses will still retain branding of the operating transit agency, but will also have a decal with the North by Northwest logo. Riders can purchase three- and seven-day passes on any bus in the five counties, which are good for one round trip from the inland cities to the coast, and for unlimited travel in the three coastal counties.
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Barriers	<p>Have had to overcome perception of transit as unable to meet rural travel needs by successfully coordinating and clarifying transit options.</p> <p>The most significant institutional barriers have been in building relationships and overcoming concerns about losing ridership and potentially losing funding sources to another system.</p>
Expected Outcomes	<p>Anticipated direct outcomes of the project were improved service for customers and improved efficiencies for transit agencies. However, anticipated benefits also included livability and economic vitality outcomes such as better employer and employee attraction and retention, improved access to businesses, and improved visitor experience, as well as environmental outcomes such as reductions in VMT with related reductions in greenhouse gas emissions and fossil fuel use.</p> <p>The five agencies as a whole have seen increased ridership, and their counties have seen lower fossil fuel use and carbon emissions.</p> <p>Leveraged a unique funding opportunity to take action to meet identified needs.</p> <p>Made immediate changes that improved service for consumers.</p>
Unexpected Outcomes	<p>Increased ridership by relocating connection points between counties to larger cities, which was done to improve the connection experience, but has also increased ridership (75% increase on one route).</p>
Customer Benefits	<p>Made immediate changes that improved service for consumers.</p> <p>Established a framework that will support and encourage ongoing collaboration and improvements to transit service in the region.</p> <p>Two agencies have split one route, one agency serving the entire two-county trip in the AM period, and the other agency in the PM period, making the trip from inland city to coast a one-seat ride for passengers, and splitting the costs for the transit agencies.</p>

Lessons Learned	<p>Develop integration concepts in advance to take advantage of funding opportunities when they occur.</p> <p>The funding for the five-agency visitor pass cannot be used by the non-profit organization because of Sec. 5311 fund restrictions. Funds for now will remain with the bus agency for which the pass was purchased. In the future, funds will likely be split evenly between all five agencies.</p>
Data Availability	<p>Continuous tracking of ridership, VMT reductions, and fossil fuel and carbon emissions.</p> <p>March 2012 Rider Incentives Report</p> <p>September 2012 Route and Service Recommendation Memorandum</p> <p>November 2012 Funding Plan</p> <p>Map, logo, poster</p>
Why this is a compelling case	<p>This illustrates use of a nontraditional funding source, a Department of Energy grant, for transit coordination. The Northwest Transit Alliance is closely tracking outcomes and will continue to look for other innovative funding opportunities. The case also demonstrates how regional coordination can occur across county borders.</p>

PAAC BUSWAYS, PA

Agency profiled:

Port Authority of Allegheny County (PAAC)
Pittsburgh, PA



Agency Stats	<i>System Type:</i> Urban/Suburban
	<i>Peak Vehicles:</i> 984 (all modes)
	<i>Service Area:</i> 905 square miles
	<i>Regional Demographics:</i> 1.7 million
	<i>Political Structures:</i> Transit agency
Region	Northeast
Service Type	Urban and Suburban
Focus Area	Operations, Maintenance and Assets
	(shared busways and regional transit hub)
Project Genesis	The first of Pittsburgh's busways (South Busway) opened in 1977, followed by the East Busway in 1983 and West Busway in 2000. After the first busway opened, regional operators asked the Port Authority (PAAC) if they could use the busways, which the Port Authority allowed. When the

	<p>West Busway was being planned in the 1990s, the planning process assumed regional operators would use the facility.</p> <p>PAAC has no written policy regarding sharing the busways and each case is handled individually. However, generally speaking the Port Authority will allow public transit agencies to operate vehicles on the busways if drivers are trained and they demonstrate proper insurance and maintenance. The Port Authority also charges an annual fee for use of the facility; this fee is relatively small and covers administrative costs only.</p>
Project Description	<p>The PAAC system includes busways (East, West and South) that provide fully separated, dedicated roadways (fixed-guideways) for bus operations from outlying suburbs into downtown Pittsburgh. Vehicles that travel on the busways travel faster and are more reliable.</p> <p>In part because of sharing the busways, non-PAAC transit operators traveling into downtown Pittsburgh converge at Penn Station in downtown Pittsburgh. This facility has become a de facto regional transit center.</p> <p>The busways were designed for PAAC and are primarily used by PAAC vehicles, but the Port Authority also allows suburban operators to operate their vehicles on the busways. Regional/suburban operators using the busways include:</p> <p>Mid Mon Valley Transit Authority (South Busway)</p> <p>Beaver County Transit Authority (West Busway)</p> <p>Westmoreland County Transit Authority (Martin Luther King Jr. East Busway)</p> <p>Additional suburban/regional operators using Penn Station are Butler County Transit Authority, Fayette Area Coordinated Transportation and New Castle Area Transit Authority.</p>
Integration Process	<p>Each agreement to use the busways was negotiated separately and independently. The agreements were not contentious in part because the busways have capacity and there is only minimal impact on the Port</p>

Authority.

The region also has a Transit Operators' Committee, a sub-committee of the metropolitan planning organization, the Southwest Pennsylvania Regional Commission. The Transit Operators' Committee does not necessarily develop agency policies or agreements but provides a forum to identify opportunities to improve regional transit services and discuss potential projects. Relationships formed at this committee help pave the way for shared projects.

Barriers	<p>Barriers to integration were minimal. A handful of policy issues have developed over time, mostly operation issues, but none were significant enough to threaten integration. These policies include:</p> <p>Decisions about allowing regional operators to open doors on the busway to pick up or drop off passengers. This is currently allowed but only one of the regional operators stops along the busway stops.</p> <p>Challenges over bus passengers' behavior at Penn Station. Problems with one group of riders meant that one of the operators was asked to move to the Greyhound Station. The Port Authority brokered this arrangement, but was otherwise not directly involved.</p> <p>The Port Authority generally does not allow private operators to use the busways. There are a variety of reasons for limiting use (including insurance and driver training as mentioned) but also the desire to protect the busways for public services.</p>
Expected Outcomes	<p>Operating on the busways reduces operating costs for the transit agency (fewer service hours) and also improves travel times for passengers.</p> <p>Sharing the busways strengthens the regional transit network overall as well as helps establish and strengthen relationships between systems.</p> <p>Sharing strengthens the Port Authority's reputation as a 'team player' and supporter of regional services.</p>

Unexpected Outcomes	<p>Use of the regional busways led in part to Penn Station in downtown Pittsburgh becoming a de facto regional transit facility. This convergence of service significantly strengthened the regional bus network by making it easier to transfer between systems and facilitate regional travel.</p> <p>As Penn Station emerged as a regional service hub, it helped structure regional transit service in downtown Pittsburgh, especially vehicle staging and layovers. Encouraging regional operators to stage and layover vehicles at Penn Station got them off of downtown streets; this improved the image of transit in downtown Pittsburgh.</p> <p>Another important unexpected outcome that resulted, in part, from this project is the region's ability to at least partially develop a regional transit network without full integration of all operators. This benefit has proven important when political pressures suggest consolidating agencies.</p>
Customer Benefits	<p>Faster, more direct travel from outlying communities into downtown Pittsburgh.</p> <p>Easier transfers between services, including regional to Port Authority transfers as well as regional to regional services.</p>
Lessons Learned	<p>The Port Authority has found the arrangement to be beneficial on a number of fronts even though they don't benefit directly in a tangible way. These benefits include relationships with regional operators and an improved public perception that the agency is cooperative.</p> <p>By sharing the busways and developing Penn Station, the Port Authority and regional service providers have demonstrated an ability to create/facilitate a regional service network. This has been a valued outcome from staff's perspective.</p> <p>At the same time, however, Penn Station functions as a de facto regional hub, but has not been fully developed to the standards expected of a regional hub. The challenge with facilitating this project is a combination of the lack of funding and the lack of leadership to champion the project.</p>

Data Availability	Some data on operating costs and travel time savings may be available, but transfer data is not.
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Why this is a compelling case	This is a compelling case because it demonstrates some clear successes in integration (improved service by sharing use of the busway and Penn Station) but also the challenges of taking integration to the next level (developing Penn Station). Also, policy makers frequently suggest consolidation of regional transit services in Pittsburgh and this case helps staff address this challenge.
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MCALLEN CENTRAL STATION, TX

Agency profiled:

McAllen Metro (McAllen Express)
City of McAllen Texas

Agency Stats	<i>System Type:</i> Small Urban Fixed Route
	<i>Peak Vehicles:</i> 7
	<i>Service Area:</i> 358 square miles
	<i>Regional Demographics:</i> 728,825
	<i>Political Structures:</i> City Department
Region	Southwest
Service Type	Small urban/urban
Focus Area	Operations, Maintenance and Assets (development of a local and regional bus facility)
Project Genesis	<p>As a border town between the U.S. and Mexico, McAllen is a terminal point for large amounts of domestic and international bus services. Without a central hub, buses were picking-up and dropping-off passengers in several locations around the city, a situation that was not ideal for passengers or the community.</p> <p>The Lower Rio Grande Development Council, which managed McAllen Metro until 2007, led an effort to organize local, regional and international bus service into a single facility, Central Station.</p>
Project Description	<p>Central Station opened to the public in 2001 and was renovated in 2010. The \$1.7 million facility functions as a local bus/transfer facility as well as hub for regional bus service, including domestic and international services. Facility has 14 bus bays and lobby seats for 250 people. Central Station</p>

	<p>has about 60 daily departures and serves over two million passengers per year. The nine current users of the bus facility are listed at the end of the profile.</p> <p>Central Station has been highly successful as a transit hub. The facility helps organize service for passengers as well as service providers and local McAllen businesses.</p>
Integration Process	<p>Central Station was primarily developed by local partners (Lower Rio Grande Development Council and City of McAllen) and with extensive input from the public and private operators who would use the system.</p> <p>Although the process was challenging at times, involvement from the operators helped ensure that the operators were willing to make commitments to use the facility and pay estimated fees for counter and bus bay space. This helped secure funding for the project and allowed it to be constructed.</p>
Barriers	<p>Stakeholder involvement was one of the key successes of the project, but also a barrier. Agreeing on a final design and location for the facility was not easy and required extensive negotiation.</p> <p>Other barriers to development of Central Station were associated with traffic and parking, especially with regards to the downtown location. In response to these concerns, the project included development of a parking garage as well as traffic plans.</p>
Expected Outcomes	<p>The goal of the project was to centralize transportation at a single location. It was also designed to help facilitate transfers between regional and international services to local bus routes. The bus terminal is located in downtown McAllen and the concentration of passengers was also intended to create economic development benefits for local retailers on Main Street.</p>
Unexpected Outcomes	<p>Central Station achieved all of its intended outcomes, with the major unexpected outcome being more success than anticipated, especially with regards to ridership and demand generated on local bus service and local taxi cab service.</p>

	Central Station has helped support significant economic growth to downtown. The decision to locate in the downtown was challenging, but ultimately proved to be a good decision as it has led to growth and vibrancy on Main Street.
Customer Benefits	Benefits to customers include organization of transit routes into a single facility with opportunities to transfer to other services and destinations. Central station also provides climate controlled, clean waiting areas.
Lessons Learned	<p><i>Engage partners and stakeholders in the planning process</i> – Negotiations with multiple transportation providers and finding solutions that were acceptable to all of them was challenging. However, including them and their perspectives ultimately strengthened the project.</p> <p><i>Make sure you have committed partners</i> – McAllen collected firm commitments from transit operators to use Central Station and pay for their use. This helped ensure the station was successful from the start.</p> <p><i>Maintenance is a major operational consideration</i> – Central Station has over three million visitors traveling to/from the facility annually. Maintaining the facility and ensuring it is clean is a massive effort. These costs and efforts should not be underestimated.</p> <p><i>Don't ignore traffic.</i> There were a lot of concerns about traffic impacts at the start of the project and as Central Station, traffic impacts increased. The key lesson is to really consider traffic impacts and the logistics associated with moving large volumes of vehicles. This helps ensure the facility can grow and expand.</p>
Data Availability	Ridership and cost data; departures and arrivals and visitors

Why this is a compelling case Central Station serves a complex network of operators, including small and large and public and private transportation operators. McAllen Metro is also a fairly small system that operates a major facility (three million visitors a year) in a fairly complex operating environment.

Success of Central Station also requires balancing a variety of stakeholder needs and expectations including transportation (parking, traffic, and taxis), transit (public and private services) and economic development. Central Station is successfully managing these expectations with recent renovations aimed at strengthening and improving operations and customer satisfaction.

Central Station was a model for a similar station built in Brownsville Texas last year.

Current users of McAllen Central Station

- | | |
|--------------------------|--------------------------|
| ▪ McAllen Metro | ▪ Turimex Sendor Noreste |
| ▪ Valley Transit Company | ▪ Transpais |
| ▪ Americanos | ▪ My Bus/Vencedor |
| ▪ Autobuses Adame | ▪ ADO |
| ▪ Tornadoo | |

DALLAS-FORT WORTH TRE COMMUTER RAIL, TX

Agencies profiled:

Dallas Area Rapid Transit (DART)

Fort Worth Transportation Authority (The T)

Denton County Transportation Authority (DCTA)

Agency Stats	<i>System Type:</i> Urban and Suburban Multimodal
	<i>Peak Vehicles (including vanpools):</i> 1,007 (DART); 394 (The T); 65 (DCTA)
	<i>Service Area:</i> 689 square miles (DART); 350 square miles (The T); 157 square miles (DCTA)
	<i>Service Area Population:</i> 3,315,025 combined population
	<i>Political Structures:</i> Regional Transit Authorities
Region	Southwest
Service Type	Urban, Suburban
Focus Area	Fares
	(Jointly operated [contracted] commuter rail service and regional fare agreement)
Project Genesis	<p>The cities of Dallas and Fort Worth jointly purchased a rail right-of-way connecting the two cities from the bankrupt Rock Island Railroad in 1983. Ownership was later transferred to Dallas Area Rapid Transit and The Fort Worth Transportation Authority, which each own a 50% stake in the rail project. Passenger service from downtown Dallas to its eastern suburb of Irving began in December 1996. Service reached downtown Fort Worth in December 2001.</p> <p>As regional rail projects have created new connection opportunities for passengers, DART, The T, and DCTA signed a reciprocal fare</p>

	<p>agreement in December 2010. Through the agreement, the three transit agencies established a seamless transfer process in which each agency honors the others' regional passes.</p>
<p>Project Description</p>	<p>The Trinity Railway Express (TRE) is a 35-mile commuter rail line linking downtown Dallas and downtown Fort Worth. The line has 10 stations in Dallas and Tarrant counties, including one serving Dallas/Fort Worth International Airport (DFW). Local bus connections at each station are provided by DART, The T, and DFW. Nearly 50 weekday (and 25 Saturday) departures serve approximately 8,000 daily passenger trips. Track maintenance is provided under contract by BNSF Railway, while Herzog Transit Services operates and maintains the trains.</p> <p>DART, The T, and DCTA have set identical fares for regional tickets and passes. Other local fare categories differ among the agencies. Currently, each system keeps the revenue generated from regional tickets and passes sold in their respective service areas and no additional revenue redistribution takes place. However, the balance between the number of regional passes purchased and accepted in each service area is of great interest and concern to the boards of the three transit agencies. Surveys are done occasionally to try to approximate this split, but an exact count is not currently possible because the region's rail systems only check passes randomly.</p>
<p>Integration Process</p>	<p>DART and The T have operating authorities that are limited to their respective service areas. The joint ownership of the TRE line enables the two agencies to offer passengers a one-seat connection between both cities' downtowns and from each city to the region's primary airport (short shuttle connection is required to airport).</p> <p>A regional fare category became necessary as regional connection opportunities emerged with the expansion of rail projects by all three agencies. More regional transfer points are expected in the future as rail lines operated by different agencies converge at DFW and other locations.</p>

Barriers	<p>Security and fare enforcement have been issues that DART and The T have had to overcome on the TRE. DART maintains a transit police force as well as a pool of fare inspectors, but their jurisdiction is limited to the DART service area. Fare inspection on the western half of the rail line is conducted by TRE (Herzog) staff and security assistance is provided by the Fort Worth Police Department randomly and when needed.</p> <p>A primary barrier to establishing a regional fare was reluctance among transit agency board members to enter into a reciprocal fare agreement out of fear of lost revenue to their respective agencies. Transit staff had to show that ridership was relatively balanced in the forward and reverse-commute directions. However, the question of equitable revenue distribution has not been resolved to the complete satisfaction of board members and perpetually remains an issue to be re-examined later.</p>
Expected Outcomes	<p>The TRE is generally considered a successful service, providing approximately 8,000 passenger trips per weekday. Infrastructure upgrades, such as grade separation and double-tracking have been made to the corridor over the years to improve operating speeds and service reliability.</p> <p>The regional fare has allowed passengers to transfer between DART, The T, and DCTA services without having to purchase separate tickets or passes for each system.</p>
Unexpected Outcomes	<p>TRE equipment and maintenance facilities have allowed other commuter rail lines in the region to begin revenue service sooner than they otherwise would have. For example, DCTA began operating its A-train commuter line between Denton and Dallas County with leased spare TRE equipment while its own rail cars were still being manufactured. Similarly, A-train vehicles were serviced at the TRE maintenance yard while the DCTA maintenance facility was under construction.</p> <p>The regional fare structure has been tweaked in several ways in response to passenger dissatisfaction and ridership losses. For example, trips made</p>

	<p>exclusively within one county have been redefined as "local" even if they are taken on a regional service such as the TRE. This is a backtrack from a previous fare structure that set a higher fare for regional services even if a trip was essentially local. In addition, the zone boundary between local and regional fares has been redrawn to make service to DFW local from both Dallas and Fort Worth. Previously the trip was considered local from Fort Worth but regional from Dallas.</p>
Customer Benefits	<p>The TRE provides a one-seat ride linking downtown Dallas, downtown Fort Worth, and eight stops between the two. The commuter line also enables access to DFW and is time competitive with the automobile (especially during peak hours).</p> <p>A regional fare has allowed passengers to enjoy seamless connections between the region's three transit agencies, making transit a more appealing and competitive option to automobile trips for regional commutes.</p>
Lessons Learned	<p>A jointly owned service provides a viable solution to the dilemma of geographic operating restrictions and spurs further regional cooperation on issues such as fares.</p> <p>Regional fares create a seamless transfer environment for passengers, but can create a backlash from passengers if they are perceived to be overpriced or unfairly applied. Also, when several agencies are involved in a regional fare agreement, dissenting voices can be drowned out. For example, if two agencies want to raise the regional fare, the third agency has little choice but to do the same, even if it prefers to keep fares lower for its passengers.</p>

Data	TRE ridership is collected for each trip, and is available by station.
Availability	Determining whether a reciprocal fare agreement is equitable is difficult with an honor-system / random inspection approach to fare inspection. Each system knows how many regional passes are sold each day, but it is difficult to know exactly how many are used within each service area because there is not a complete check of all passengers on either DART, The T, or DCTA rail service.
Why this is a compelling case	<p>There are countless examples of transit systems that operate within the confines of their designated service areas, but these political boundaries are meaningless to commuters and other area residents who simply want the ability to travel seamlessly throughout their region.</p> <p>The two examples cited are compelling because they demonstrate how transit agencies can cooperatively develop effective solutions to regional mobility issues. These examples also illustrate some of the challenges that may be encountered by transit agencies when they implement or even explore integration initiatives.</p>

ADDISON/RUTLAND COUNTY CONNECTOR, VT

Agencies profiled:

Addison County Transit Resources (ACTR)
Middlebury, VT

Marble Valley Regional Transit District (MVRTD)
Rutland, VT

Agency Stats	<i>System Type:</i> Rural/Small Urban Fixed-Route <i>Peak Vehicles:</i> 4 (ACTR); 10 (MVRTD) <i>Service Area:</i> 536 square miles <i>Regional Demographics:</i> 100,000 combined population <i>Political Structures:</i> ACTR – 501(c) Non-Profit; MVRTD – regional transit district
Region	Northeast
Service Type	Rural
Focus Area	Operations, Maintenance and Assets (jointly operated fixed-route, plus ongoing efforts to share resources and develop joint systems)
Project Genesis	Jointly operated service originated in response to the loss of Greyhound service in Vermont’s western corridor (US Route 7). Newer initiatives (2012) are led by Vermont Agency of Transportation (VTrans). State legislature interested in increasing efficiency generally and concern specifically that there are too many independent agencies. In addition, leadership change at one agency created concern over stability.

Project Description	<p>ACTR and MVRTD jointly operate the “The Connector,” a daily commuter service between Middlebury and Rutland (distance of about 45 miles) with two AM and two PM trips, plus one mid-day trip on Tuesdays and Fridays.</p> <p>Each agency operates one round trip in AM and PM; services meet half-way for mid-day trips.</p> <p>Fares are retained by operator. Fare structures are similar enough that most discounted passes are honored. But conflicts remain (UPass programs, transfers, etc.)</p> <p>ACTR and MVRTD are currently working together to identify areas for increased coordination through joint procurement and collaborating on training, technology development and sharing staff expertise.</p>
Integration Process	<p>The Connector service emerged organically in response to a need and available state grant funds to support service.</p> <p>More recent collaboration efforts were developed through a state sponsored study (Vermont Transit Efficiency Study) to identify areas for coordination and collaboration. Study involved monthly meetings with study partners to discuss issues and opportunities. Products included an action plan for increased coordination/collaboration. Next steps require funding.</p> <p>Study also produced ‘model’ for other VT transit agencies to collaborate/coordinate.</p>
Barriers	<p>Challenge to convince local boards to serve external communities.</p> <p>“Devil is in the details” as agencies forced to coordinate many aspects of their service, including schedules, vehicle layover locations, communication to staff and passengers (i.e., all promotions must be communicated and coordinated), marketing, marketing materials and developing passenger amenities along corridors.</p>
Expected Outcomes	<p>Increased Ridership and Service Development – Jointly operated Connector service is a successful route that has both attracted strong ridership and also helped both agencies develop new longer distance</p>

	<p>commuter services. Both ACTR and MVRTD jointly operated routes with other adjacent transit partners and both systems have added longer distance transit routes, building on success of the Connector.</p> <p>Cost savings and improved service quality – ACTR and MVRTD are currently working to strengthen the relationship between agencies in order to create efficiencies and cost savings, expand agency capacity and create better service overall. This effort is also expected to help both agencies expand service.</p>
Unexpected Outcomes	Need for increased coordination – an unexpected outcome of ACTR and MVRTD jointly operating a route is the need for increased coordination in terms of fares, schedules, and service policies. There are continual needs to coordinate based on internal policy changes (UPass programs, changes in fare media, updates to websites, etc.).
Customer Benefits	<p>Re-instated regional network (partial)</p> <p>Expanded commuter bus service</p>
Lessons Learned	<p>Developing trust among partners is essential, especially when an external force encourages collaboration, but also when any agency puts its product/reputation on the line, there will be concerns about trust.</p> <p>Find easy projects with a high likelihood for success to strengthen relationships and trust in process.</p> <p>Higher level (state, MPO, etc.) support is also essential, not only to help solve disputes, but also identify funding and sustain momentum. Higher level support can also include policy direction and ensure follow-up.</p> <p>Expectations are that product (service quality) will be improved, but not necessarily cost savings.</p>
Data Availability	<p>Limited ridership and cost data is available on Connector service</p> <p>Marginal use for cost/benefit analysis</p>

Why this is a compelling case

The ACTR MVRTD example is a compelling example of agency integration because the initial effort was fairly organic and arose based on a need to replace service. This led to several subsequent new routes around Vermont that further developed this ‘intercity’ commuter market.

The new round of agency integration, by contrast, reflects a top-down approach and therefore is more deliberate and thoughtful. As a result, it clearly highlights the challenges and concerns agencies bring to the table when asked to integrate functions, systems and services.

ORCA UNIVERSAL FARE CARD, PUGET SOUND, WA

Agencies profiled:

Washington State Agencies:

Community Transit

Everett Transit

King County Metro Transit

Kitsap Transit

Pierce Transit

Sound Transit

Washington State Ferries

Agency Stats	<i>Systems:</i> Urban/Suburban/Rural <i>Vehicles with on-board equipment:</i> 2,200 <i>Regional Service Area:</i> Four Counties: Pierce, King, Snohomish and Kitsap <i>Regional Demographics:</i> Central Puget Sound Population is 3,742,600 <i>Political Structures:</i> Interlocal Agreement for ORCA card
Region	Northwest
Service Type	Regional, including Urban, Suburban, Rural areas
Focus Area	Fares (regional fare instrument used by seven providers)
Project Genesis	The ORCA card is the current iteration of a long history of fare integration efforts in the Puget Sound Region. Efforts began in the late 1970s with “base cards” to which each agency could adhere a stamp as proof of a monthly pass and discounts were offered when monthly passes from multiple agencies were involved. This evolved into fixed “joint passes” for the most popular pass combinations and the sale of combination ticket books, sold at a discount compared to the price of two agencies’ fare media. At that time there was no consistent regional

policy on how transfers were honored between systems. In the 1990s, the Puget Pass was created, a paper universal pass that could be used on all systems in the region with a revenue sharing agreement among the operators to distribute revenue. The Puget Pass agreement also provided that each agency would accept paper transfers from other agencies as valid for a local or one-zone fare.

The ORCA card was the next generation of the Puget Pass, an electronic universal fare card utilizing smartcard technology:

- An electronic fare medium would allow for transit usage to be precisely tracked by system, ensuring more certainty that each operator was getting its “fair share” of revenue (always a concern, especially for the smaller operators).
- A more consistent and simple transfer policy and mechanism across operators was needed.
- A significant increase in the use of “Flex Passes” – employer-based universal transit passes – required a better mechanism to administer these passes. Usage data could be collected by employer and ultimately allow employers to be billed for actual usage rather than a flat rate per employee based on survey data.
- A universal monthly pass that could be used on all systems was desired.

The goal of ORCA was to make it easier for customers to purchase fare media, speed fare payment, improve riders’ ability to do cash transfers between systems, decrease the number of cash transactions for fare payment, and simplify the administration of employer and institutional pass programs.

Project Description	<p>The ORCA card is a regional transit fare card valid on seven public transportation providers in the region: Community Transit, Everett Transit, King County Metro Transit, Kitsap Transit, Pierce Transit, Sound Transit and Washington State Ferries.</p> <p>The following types of fares are available:</p> <ul style="list-style-type: none">▪ E-Purse – stored value that allows a user to pay for a cash fare on any service. A transfer is provided when a rider transfers between bus systems.▪ Regional Pass/PugetPass – a monthly pass in a range of denominations allows for travel on six transit services in the region, excluding the ferries <p>There are also a small number of agency-specific passes good for multiple rides on any one agency in the system.</p> <p>ORCA is a “closed system”—once riders deposit funds on their ORCA card, the funds can only be used for transit.</p> <p>ORCA also has an employer-based program with two options:</p> <ul style="list-style-type: none">▪ Business Choice: Employers can provide ORCA cards to any number of employees at monthly retail prices and subsidize part or all of the pass cost.▪ Business Passport: Based on a bulk pricing model, employers can purchase transit passes for all employees at a price based on historic transit usage. Employers buy passes annually and subsidize employee passes from 50-100%. As actual transit use grows, pricing is adjusted for the increased ridership. Each employer has to enroll every employee and commit to a full TDM package as part of the program. <p>The U-PASS program, which provides discounted transit passes to students, faculty and staff for the University of Washington, was also converted to ORCA in 2011.</p>
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Integration Process	<p>All the agencies came to the table to create the ORCA card for different reasons. Originally, King County Metro was one of the primary champions for the ORCA card based on a number of objectives, including the benefit it would offer for their employer Flex Pass system. Smaller agencies were willing to participate in order to have a higher level of confidence that they were getting their fair share of revenue. Sound Transit resisted the system at first, but ultimately saw the benefit of having its bus, commuter rail, and new light rail system fully integrated into the regional network. Sound Transit became one of the systems biggest advocates and the financial sponsor during project roll-out.</p> <p>The agencies hired technical and financial consultants to assist with the development of the RFP and the vendor selection process. The technical consultant has remained on contract to advise on system modifications.</p> <p>An Interlocal Agreement was put together to ensure that all seven agencies would have a voice in managing and policy setting for the ORCA system. The Joint Board defined in the Interlocal Agreement has championed the system since its inception.</p>
Barriers	<p>It took approximately 12 years to create and successfully implement the ORCA card throughout the Puget Sound region on all seven operators. The biggest challenges that faced the agencies in launching the ORCA card were:</p> <ul style="list-style-type: none">▪ <i>Degree of universalization:</i> It took some time to figure out what aspects of agency fares could be made universal and what aspects would need to be kept separate. Each agency had to become comfortable with how much control it would have to give up against the benefits the card promised. For example, for senior fares some agencies allowed a discount for people age 62+, others for age 65+ and all offered different levels of discounts. Some agencies had other types of special passes that were politically difficult to eliminate, such as low-income passes. Ultimately, they settled on four options for universal pass types: youth, adult,

senior and disabled pass, and a few agencies also maintained special pass types only valid for that agency's services. Some agencies also had "smart buses" that posed technology compatibility issues.

- *Privacy:* The public was concerned about data privacy. The agencies spent considerable time reviewing privacy laws and determining how card usage data would be linked to individual cardholders.
- *Integration with Washington State Ferries:* The State Ferry system was the most difficult technical integration due to significantly different operating characteristics, more stringent revenue security protocols, and the fact that they already had a bar code ticketing system that worked well for them. From the outset, it was known that the State Ferry system has different revenue recovery requirements for its fares than transit agencies. Ultimately, the state ferries were integrated by allowing them special conditions/status. And, the state ferries kept their multi-ride tickets because it makes more financial sense for some riders than the ferry-specific ORCA monthly pass.
- *Procurement process:* Creating an RFP that specified all the technological, financial, management, customer service and agency-specific requirements for the system proved challenging and time consuming. For example, a vendor was chosen to manage the financial "clearinghouse" because the financial and regulatory requirements were too onerous for any of the individual agencies to take on. It also had to be determined how the "float" (interest on the stored value) would be allocated among the agencies. The procurement process required dedication of significant legal expertise and resources.
- *Technology:* It took six years for the ORCA card to actually be rolled out after the vendor was selected for many reasons, including technological challenges.

Federal restrictions limit the use of pre-paid public transportation fares solely for the use of transit. The only way to overcome federal banking rules for an “open purse”—two purses on one card — is that the other purse for non-transit transactions cannot be managed by the transit agencies. Currently developing programs that accept credit and debit cards were not available in 2003.

Expected Outcomes	<p>Operators have a higher degree of certainty that they are getting their fair share of revenue from the universal regional monthly passes.</p> <p>The ORCA program has grown steadily over time. There are 350,000 ORCA cards in circulation. As of 2011, 63% of riders use an ORCA card to pay their fare.</p> <p>ORCA has made it very easy to market employer-based passes, which continue to grow in popularity. The business program is currently at 1,700 accounts</p> <p>Benefits for transit agencies have included “faster operations, more accurate ridership data, and improved revenue data and regional revenue reconciliation.”</p>
Unexpected Outcomes	<p>One of the aspirational goals of the project was that it would reduce cash transactions on buses. Since the introduction of the ORCA card in 2009, the share of riders using cash has declined by 20% (from 41% to 28%). Those who continue to use cash are primarily infrequent riders and less affluent customers. The near-term policy change that has been implemented at some agencies is the elimination of paper transfers. At these agencies, transfer privileges are only given to ORCA card holders.</p> <p>Washington State Ferry-based communities have lower adoption rates for the ORCA card at 30%, whereas ORCA usage on other systems is as high as 70-90% of total boardings. Using the 10-ride ferry pass makes more financial sense for riders than buying the required high value monthly ORCA pass.</p>
Customer Benefits	<p>Rider benefit is the clearest successful outcome of this project. The ease and simplicity of the system is a significant improvement from what pre-</p>

existed ORCA. Over half of all boardings in the system utilize ORCA. ORCA allows for seamless transfers, makes pass purchases much more convenient through use of the website and some use of the auto-load feature, and has eliminated the need to carry exact change to pay for transit fares. The pass has likely increased transit use by making transfers between operators less onerous and in some cases less costly due to discounted transfers.

The 2011 Rider/Non-Rider Survey reports, “The ORCA Card program has been a real success with Metro customers giving high ratings to all aspects of fare payment.” (82% very satisfied with ORCA and this percentage has gone up over time.) Cash payers, in contrast, report being less satisfied (55% very satisfied).

The region is exploring whether the ORCA card can be used for the new bike share system currently under development in the region.

Lessons Learned	The process to fully integrate fare payment in a large region with numerous transit agencies is onerous and will require significant time, effort and resources, but ultimately is worthwhile. One of the primary lessons is that making it easier to purchase fare products and pay transit fares is a substantial benefit to riders and probably increases transit usage.
Data Availability	<p>No comprehensive program evaluation has been conducted.</p> <p>No cost-benefit has been done.</p> <p>Internet surveys and informal surveys of passengers have been conducted to gauge passenger satisfaction. These surveys are not made public.</p> <p>An annual fare study conducted by Sound Transit includes some questions about ORCA.</p> <p>A quarterly ORCA Management Report includes performance statistics such as ridership, use of ORCA card, etc.</p> <p>Commute Seattle, the Transportation Management Association located in the central business district, manages ORCA pass sales for the employer programs and has data on pass sales.</p>

Why this is a compelling case This would be a very compelling case study because, although there are clear customer benefits, it required a huge effort to get underway. It has valuable lessons because seven public transportation agencies were involved, ranging from rural to urban and spanning multiple modes (bus, commuter rail, light rail, ferry, paratransit) and because of all the detailed operator-specific issues that had to be overcome to universalize the passes and fare media systems.

LINX MOBILITY MANAGEMENT CO-OP YELLOWSTONE, WY, MT, ID

Agencies profiled:

Linx — Greater Yellowstone Region
Wyoming, Idaho, and Montana

Agency Stats	<i>System Type:</i> Rural/Tourist/National Park
	<i>Peak Vehicles:</i> n/a
	<i>Service Area:</i> 35–40 million acres
	<i>Regional Demographics:</i> 728,825
	<i>Political Structures:</i> Cooperative
Region	West
	3 states (WY, MT, ID), 27 counties and 4 Indian Reservations
Service Type	Rural
Focus Area	Services
	Operations, Maintenance and Assets
	(19-member mobility management cooperative facilitating access to public, private, and human services transportation services)
Project Genesis	<p>Project emerged from a series of public roundtables identifying transportation as a critical need in the community. Yellowstone region is a vast geographic region with sparse population, but people need transportations so they can receive human services, get to/from work and conduct personal business. There are also tourists who need/want to travel in the region as well as seasonal workers.</p> <p>Recognizing opportunities and challenges associated with transportation, a multitude of partners and volunteers developed a concept of operations and then a feasibility study for Linx. These</p>

	studies led to recommendations for a transportation “co-op” designed to maximize access to existing transportation services, including both public and private services.
Project Description	<p>Linx is a transportation cooperative that facilitates access to a variety of transportation services, including public transit, human service transportation, and private carriers. The organization functions as a mobility manager; it helps organize and coordinate access to service through trip planning tools and ticket sales. For its co-op members, Linx provides marketing and ticket sales and helps coordinate routes and transfer locations to maximize the network. It could also help with joint procurement as members need/want it. (A list of transportation services reachable through the Linx network members is provided at the end of this profile.)</p>
Integration Process	<p>Linx was conceived by a variety of stakeholders working together to solve a regional problem. The project received funding for feasibility analysis as well as initial start-up funding to launch the co-op. The development model was cooperative and participatory.</p> <p>Linx is now managed by an Executive Director and Advisory Board. This group is responsible for making the co-op work, i.e. finding and sustaining members, coordinating trip planning, and ensuring members receive benefits. The co-op currently is part of the Yellowstone Business Partnership, but hopes to become self sustaining in the future.</p>
Barriers	<p><i>Real and perceived competition</i> – as a regional mobility manager still relying on federal funding programs, Linx must compete for the same funding programs as many of its partners (i.e. FTA Section 5311 funds). Regional competition for tourists has an impact on the concept of a regional service.</p> <p><i>Delivering real and meaningful benefits</i> (and encouraging partners to embrace benefits delivered to the region as part of a local benefit) – in the start-up phase of the project (current), Linx must encourage partners to participate and contribute financially (even though the amounts are small). In some cases ‘benefits’ are marginal, as many of the</p>

	<p>systems are fare free or charge very low fares. For some operators increased ridership may also increase capital/equipment costs. This creates some reluctance to participate and embrace the concept.</p> <p><i>Start-up financing</i> – Linx is intended to be a self-sustaining enterprise, but getting to that point requires sizeable investment (\$2+ million) in the early years. There are limited opportunities for Linx to get that level of funding.</p>
Expected Outcomes	<p>Increased regional mobility by connecting and capitalizing on existing transportation resources.</p> <p>By connecting existing resources, Linx would also strengthen the transportation network by increasing ridership, revenues and awareness. Ultimately people would be able to travel to and through the region car-free.</p>
Unexpected Outcomes	<p>Linx was originally intended as a system for local travelers based on the assumption that a local network would work for out-of-town travelers. Instead, Linx realized it needs a system that works for travelers and when that network is complete, the network will work for local travel needs.</p>
Customer Benefits	<p>Riders have an increased ability to create travel around the region without a car.</p> <p>Benefits to co-op members include attracting additional customers – either to their facilities or their services. Service providers also increase ridership and fare revenue.</p>
Lessons Learned	<p>The co-op model is a new concept for public transportation. It is intuitively appealing but requires education to get off the ground; thus it requires more effort than originally anticipated.</p>
Data Availability	<p>Linx is still getting up to speed, but is collecting data on costs, membership and ridership.</p>

Why this is a compelling case This is a relatively unique case of service integration that is built around a multitude of resources and partners and is designed to serve a range of needs, markets and communities.

Transit co-ops are fairly unique in the US and represent an interesting business model for rural areas.

Linx Transportation Services

- LP Transportation
(Cody, WY and Yellowstone area)
- Black Hills Stage
(Denver, CO to Billings, MT via Wyoming)
- Alltrans (Jackson Hole WY)
- Amazing Taxi (Livingston MT)
- Karst Stage (Bozeman, MT)
- West Yellowstone Foundation Bus
(West Yellowstone, Bozeman, MT)
- Rimrock Stage (MT, ND)
- Salt Lake Express (Salt Lake UT, southern ID)
- Best Choice Around Taxi (Idaho)
- LP Transportation
(Cody, WY and Yellowstone area)
- Pocatello Regional Transit (Pocatello, ID)
- Classic Limo (Yellowstone area)
- Skyline (Big Sky, MT and regional MT)
- MET Transit (Billings, MT)
- Total Transportation (Billings, MT)
- Streamline (Bozeman, MT)
- Helena Area Transit (HATS) (Helena, MT)
- Grand Targhee Shuttle (Idaho and Wyoming)
- START Bus (Jackson WY)
- Targhee Regional Transportation Authority (Idaho Falls, ID)

ASSOCIATION DU TRANSPORT URBAIN DU QUÉBEC (URBAN TRANSIT ASSOCIATION, OR ATUQ), QUÉBEC, CANADA

Agency profiled:

**Association du Transport Urbain du Québec
(Association of Québec Urban Transit, or ATUQ)**

Agency Stats	<p><i>System Type:</i> Urban/Suburban Buses and Paratransit and Urban Metro</p> <p><i>Peak Vehicles:</i> 3,500 buses and 400 paratransit vehicles for 9 transit providers</p> <p><i>Service Area:</i> Province of Québec (595,391 square miles)</p> <p><i>Regional Demographics:</i> 4 million</p> <p><i>Political Structure:</i> membership association of 9 bus operators</p>
Region	International: Canada
Service Type	Urban
Focus Area	<p>Administration/Procurement</p> <p>(transit association formed to influence government decisions and coordinate services)</p>
Project Genesis	<p>ATUQ was an outgrowth of transit providers banding together to save money through group purchases of buses, tires and gasoline. The organization was formed in 1983 to be a collective voice in promoting transit's issues before the government and the citizens and to provide better service to customers.</p>
Project Description	<p>ATUQ focuses on five priorities: continuous funding; sustainable development; sustainable mobility; political action; and performance and growth of member organizations. Its members include the bus operators of Montréal (STM), Québec City (RTC), Longueuil (RTL), Laval (STL), Lévis (STL), Saguenay (STS), Sherbrooke (STS), Trois-Rivières (STTR), and l'Outaouias (STO), which serves Gatineau, Cantley and Chelsea. The size of the operators' annual ridership ranges from 404.8 million fixed-</p>

	<p>route and 2.86 million paratransit trips for STM in Montréal to trips provided by the smallest operator, STTR in Trois-Rivières, of 3.3 million fixed-route and 80,699 paratransit trips.</p>
Integration Process	<p>Members pay dues to support an ATUQ staff of six. The ATUQ annual budget is nearly \$1 million, which is assessed according to the size of the member agency. The president and CEO of each transit agency serves on the 18-member Board of Directors. Members are organized into 14 committees: Bus Acquisition; Supplies; Benchmarking; Sustainable Development; Maintenance; Sustainable Mobility; Planning and Operations; Marketing and Sales; Human Resources; Secretaries (legal); Safety; Operations Support Systems; Paratransit; and Treasurers (finance).</p>
Barriers	<p>ATUQ members operate by consensus. Agreement isn't necessarily easy on issues concerning funding. For example, because of the disparate sizes of member agencies, all agencies don't receive the same amount of money from one of the funding programs, SOFIL (Society of Finance for Local Infrastructure). The organization affords each agency a seat at the table to put forward what they want and need, and this opportunity is valuable enough to overcome any barriers to collaboration.</p>
Expected Outcomes	<p>To achieve its priority of sustainable funding for transit, ATUQ lobbies municipalities, the provincial government, and the federal government. ATUQ believes these efforts influenced the passage of the Québec Public Transit Policy in 2006. This Policy provides dedicated funding for transit improvements through 2014. Municipalities provide 34-46% of transit funding in their communities. \$30 in vehicle registration fees goes toward transit in the six metropolitan areas, but \$45 in Montréal, where a 3-cent per liter tax is also levied.</p> <p>The initial goal of group purchasing continues, with savings averaging 15%. Recently, the nine transit providers purchased 509 hybrid buses (diesel and electricity), which will begin to arrive in 2014 and continue delivery for years.</p> <p>Benchmarking is a management tool used by members to implement corrective actions to improve performance.</p>

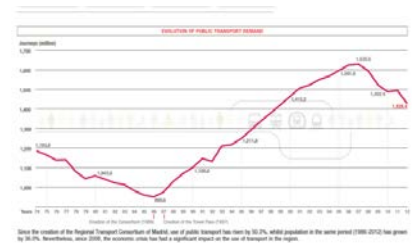
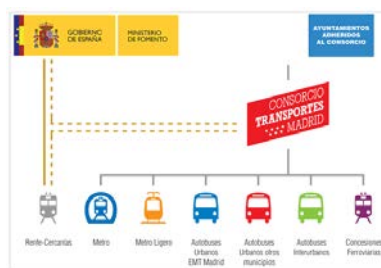
Unexpected Outcomes	<p>Through collaboration, new specific initiatives have emerged, such as:</p> <p>Persons who hold an OPUS smart card for more than one year are eligible for Maestro status, which allows riders in Montreal and Quebec City to ride free on the other city's system.</p> <p>A single pass allows riders access on buses, the Metro, and trains in Montréal, Laval, and Longueuil.</p> <p>An expert in the newest technologies teaches member agencies maintenance best practices.</p> <p>STM and RTL are testing a hybrid bus on their systems to determine how it performs to reduce greenhouse gases and are sharing results with other member transit providers.</p> <p>ATUQ participates with AQLPA (the association of Québec to combat air pollution) in a program to buy cars older than 1999 and gives the seller free access to transit for one year.</p>
Customer Benefits	<p>The Québec Public Transport Policy has increased transit services by 16%; modernized the bus fleets, and funded installation of amenities, such as bus shelters, bike racks, and elevators. Customers benefit from the availability of smart passes that can be used on multiple systems.</p>
Lessons Learned	<p>Through a formal association, transit providers can become key players influencing funding decisions, sustainable development, mobility, and political actions related to transit. Networking can ensure a pool of expertise to solve similar problems. Joint purchasing can result in lower capital and operating costs.</p>
Data Availability	<p>Data available on cost savings due to joint purchasing.</p> <p>Data available on fare benefits to riders from single passes for multiple providers.</p> <p>Data available on increases in ridership due to funding resulting from Québec Public Transit Policy.</p>

Why this is a compelling case ATUQ demonstrates that consolidation is not essential to achieve many of the same benefits. Formal coordination efforts can improve transit integration among multiple providers while still retaining the independence of member agencies.

CONSORCIO REGIONAL DE TRANSPORTES DE MADRID (MADRID REGIONAL TRANSPORTATION CONSORTIUM, OR CRTM), SPAIN

Agency profiled:

Consortio Regional de Transportes de Madrid
(Madrid Regional Transportation Consortium, or CRTM)



Source:
crtm.es/servlet/CambiarIdioma?xh_TIPO=1

Madrid Region Zones for Fare Pricing

Source:
[crtm.es/servlet/RedTransServlet?
xh_ACCION=1&xh_TIPO=7&ME
NU=5&SUBMENU=6](http://crtm.es/servlet/RedTransServlet?xh_ACCION=1&xh_TIPO=7&MENU=5&SUBMENU=6)

Source: p. 1 Madrid, a world reference, CRTM, 2012
[madrid.org/cs/Satellite?blobcol=urldata&blobheader=a
pplication%2Fpdf&blobheadervalue1=filename%3DMADRID_W
ORLD_REFERENCE_En_Marzo_2013.pdf&blobkey=id&blo
btable=MungoBlobs&blobwhere=1352812549738&ssbi
nary=true](http://madrid.org/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobheadervalue1=filename%3DMADRID_WORLD_REFERENCE_En_Marzo_2013.pdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1352812549738&ssbinary=true)

Agency Stats

System Type: Large Metropolitan

Peak Vehicles: 2,303 Metro vehicles, 4,056 buses, 1,058 suburban trains,
44 light rail vehicles

Service Area: 8,030 km² (3,100 sq. mi)

Regional Demographics: 6.5 million population in Community of Madrid
(province)

Political Structure: Madrid Regional Transport Consortium (CRTM)

Region

International – Western Europe

Service Type

Large Urban and Regional System

Focus Area	<p>Fares</p> <p>Operations, Maintenance and Assets</p> <p>(A consortium responsible for physical, administrative and fare structure integration of the regional system.)</p>
Project Genesis	<p>Following the death of dictator Francisco Franco in 1975, Spain underwent significant change. As the population of Madrid grew and the population spread from the central city to towns and centers on the periphery, the lack of coordination between Madrid's multiple transportation systems became increasingly apparent and problematic. The system needed to attract and carry more people and yet, at the time, transferring between modes and operators was difficult, time consuming and expensive; there were redundancies between services resulting in wasted funds to operate the system; and fare media, pricing structures and fare collection technologies varied by operator.</p> <p>The government at the time placed high priority on an integration effort in order to improve the overall quality of life and functionality of the capital. The system needed to improve the user's experience, improve the provision of services, optimize use of resources, and increase public transit use.</p>
Project Description	<p>Madrid has a broad offering of public transit services spanning multiple modes, including:</p> <ul style="list-style-type: none"> ▪ Empresa Municipal de Transportes (E.M.T., municipal bus) ▪ Metro (subway) ▪ Suburban bus ▪ Urban bus (bus for 12 adjoining cities) ▪ Cercanías (suburban rail) ▪ RENFE (state-owned national rail system) ▪ Light Rail and Trams

CRTM operations are paid for through ~2% of annual operations funding for the entire system. CRTM's integration efforts across these systems include:

Administrative: CRTM is responsible for planning and design of services and programming infrastructure investments, as well as supervising these projects and the system as a whole. CRTM does not operate any transit service. All the transit operators that form part of CRTM maintain autonomous management of their operations, but cede control over establishment and planning of service to CRTM and are required to follow its guidelines and regulation.

Fares: Creation of universal passes valid for all modes and unlimited rides.

Fare integration, the most important aspect in promoting an integrated network, solidified CRTM's role as the regional coordinating body from the start and represented the core of the CRTM identity and leverage. CRTM is responsible for fare collection for universal passes and distribution of revenues to operators. Revenues are systematically distributed to reimburse operators from lost revenue due to use of universal passes (based on ongoing rider surveys, ticket validation records, other regional travel research on origins and destinations).

CRTM standardized the fare rates/structure by creating a zone-based pricing system, which allows for pricing to be based on location, length and type of trip rather than based on operator or mode. CRTM began rolling out touchless electronic fare cards in 2012.

Facilities: Planned and built a series of integrated multimodal interchanges to enable smooth convenient transfers between modes. Goals were to reduce the time required for transfers, promote ease of understanding for users, and create attractive and safe spaces. Key features included:

- Strategic location: ring of peripheral interchanges allowing for suburban buses to connect to Metro subway which covers

central city; located in attractive, mixed-use urban environments.

- Key design considerations: minimize pedestrian-vehicle interface with central platforms around which buses circulate, natural light, spaciousness, ventilation, and separate climate controlled waiting areas from bus operations. Quality architecture, well-designed uniform wayfinding signage, complementary retail activity (bars, restaurants, shopping) to enhance pleasant and attractive environment.
- Focus on ease of vertical and horizontal integration to optimize ease of transfers
- Included bus-only tunnels into interchanges from surrounding highways for suburban commute buses to bypass traffic congestion in central city
- Integration with Airport (e.g. luggage checking in Metro Station in central Madrid)
- Save time for buses and trains, e.g. sawtooth bays
- Modernization and unified branding of bus fleets

Integration Process	<p>Spain adopted a new constitution in 1978 which established 17 autonomous regions called “Communities,” one of which is the Community of Madrid (created in 1983). Led by the Community of Madrid, the Consorcio Regional de Transportes de Madrid (Madrid Regional Transportation Consortium, or CRTM) was created shortly thereafter in 1985 as an independent organization (reporting to the Community of Madrid’s Public Works, Planning and Transport Division) tasked with undertaking service, fare and administrative coordination of Madrid’s regional transportation system.</p> <p>The Community of Madrid brought all the stakeholders to the table (City of Madrid, Madrid Metro, nearby municipalities, Madrid bus system, National Transportation Ministry, etc.) to form a working group and undertook studies necessary to formulate the plan for integration.</p>
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	<p>Fare integration was the first effort as it was considered the core and most important component of the integration effort. Other efforts have developed and evolved over time as the agency has built trust and competencies.</p> <p>One key milestone, and key to success early in the process, was that the 12 adjoining cities ceded control over public transit operations to CRTM.</p>
Barriers	<p>The biggest barrier was convincing the operators that the revenue sharing agreement would be fair and would make up the revenue they would lose by riders buying universal passes from CRTM instead of passes directly from the agencies. As adoption of the pass increased, agencies saw less direct passenger revenue and had to depend more heavily on disbursements from CRTM, requiring a high level of trust and confidence in the formulas for revenue sharing. This was made more difficult by the fact that card readers were only installed in the Metro system; bus ridership calculations were based on studies and passenger survey counts. This barrier was overcome rather quickly because the increase in ridership resulting from the universal pass was so significant that it was apparent that the effort was financially beneficial for all partners.</p> <p>However, Madrid CRTM was not able to gain authority over the regional rail network which is operated by the national rail system, although there is an agreement for use of the travel pass.</p>
Expected Outcomes	<p>Perhaps the biggest outcome that exceeded expectations was ridership: Use of public transit has increased by over 50% since creation of CRTM while population has grown by 36% (this includes a dip in recent years due to the economic crisis which hit Spain particularly hard). In 2012, the system served 1,428,400,000 passengers.</p> <p>Increased ridership was a key support to the modernization of the city center and improved connectivity between Madrid and surrounding municipalities.</p>

Unexpected Outcomes	CRTM's efforts promoted fairness and eliminated discrimination; those with less network access were previously penalized by higher costs and more transfers.
Customer Benefits	The integration of fares and the creation of transfer stations have been extremely well received by customers. There is little comparison between the current modern, efficient, highly usable system and what existed previously.
Lessons Learned	<p><i>Importance of fare integration:</i> creating one universal fare card valid on all modes was the single aspect of the system that most powerfully conveyed the image of a unified system and eased travel, allowing riders to make choices without mode/operator/jurisdiction being a factor.</p> <p><i>Technical tools:</i> The importance of a strong set of technical tools that were defined and established early in the process to support the CRTM was critical in getting systems up and running.</p> <p><i>Leadership:</i> The importance of a strong institutional leader cannot be overstated. This level of integration requires a strong leader who can reconcile disparate, often divergent, interests and keep the collaboration moving in pursuit of objectives that will benefit the community as a whole.</p>
Data Availability	CRTM has sought to collect a tremendous amount of data to ensure that its efforts provide a model for regions across the world. It has produced books and many reports documenting achievements and statistics on benefits and costs.
Why this is a compelling case	This is an impressive example of large scale integration across multiple focus areas. Madrid's system is one that is lauded globally and their regional cooperation is an exemplary model. That said, as an international example, some lessons may not be as applicable to a U.S. context due to institutional and structural differences between systems.

APPENDIX I

GUIDE FOR EVALUATION OF TRANSIT INTEGRATION PROJECTS

APPENDIX I: GUIDE FOR EVALUATION OF TRANSIT INTEGRATION PROJECTS

This Guide suggests a process for evaluating transit integration projects and provides examples of the types of data an agency might collect. The choice of how and when to evaluate an integration project, or if the project should be evaluated at all, is at the discretion of the agencies sponsoring the project. However, if the agencies and the communities they serve would find an evaluation important or valuable, this section provides guidelines for evaluating the success of a transit integration project.

The case study research indicates that post-implementation reviews and evaluations of transit integration projects are not often formalized or reported. However, the literature and transit practices indicate that assessments of costs and benefits for many other transit projects and programs are common within the industry. Those assessment tools can be readily applied to transit integration projects should an agency want to use them. These tools can be used prior to initiating a project, during its implementation to provide mid-course corrections as needed, or as a means for evaluating a project post-implementation. Some agencies may choose not to conduct an assessment of costs and benefits after project implementation because meeting the stated goals and objectives cannot clearly be demonstrated. Others may choose not to undertake a post-implementation evaluation if the project impacts are not forecasted to be visible for many years. For example, the economic impact of major capital projects such as a rail line might not be proved for decades. Additionally, changes experienced during the course of a project's development may make an evaluation of its original goals and objectives meaningless.

The types of evaluation metrics and analyses will vary by agency and integration project type. For example, an urban rail system considering a fare media integration project will likely have different goals, available data, and evaluation metrics than two small suburban bus services that are considering consolidating their commuter routes. This guide outlines the considerations agencies large and small can take into account for an evaluation of the success of their projects.

An Approach to Assessing Costs and Benefits

A traditional cost/benefit analysis provides a strong evaluation tool in cases where most of the project's costs and outcomes can be monetized (i.e., converted to dollars). For this type of analysis, the evaluator compares all the costs associated with a project or decision, along with all of the benefits derived from the project's implementation. The result is typically expressed as a ratio or as a net benefit, which is the sum of all associated benefits minus the sum of all costs. Traditional cost/benefit analysis is most feasible when built into the project from the start to ensure that all of the anticipated outcomes are measured using the same metric (i.e., monetized) in order to make the impacts commensurable so that they can be added and subtracted. (Adler 1998) Monetized costs and benefits provide an excellent evaluative tool if the agency can afford the data collection effort necessary to monetize *both* the costs *and* the benefits.

However, in cases in which costs and benefits cannot be easily monetized, a non-traditional assessment of costs and benefits may be appropriate. This can include using qualitative measures to assess performance, along with the costs experienced. Especially when results can be assessed but not monetized (such as customer satisfaction), methods of evaluating the success of the integration effort should also be considered.

Despite these differences, the general framework for conducting quantitative or qualitative assessments for an integration project would be the same. When agencies are looking for an approach to evaluate whether a project can achieve or has achieved its goals and whether the benefits of the project are worth the costs incurred, the methods can be adapted to include both qualitative and quantitative measurements.

Conducting an effective evaluation for an integration effort relies on the following (each of which are explained in more detail below):

- Mutually established and well-defined goal or set of goals at the outset for keeping collaboration activities oriented to and measurable against a desired result
- Priorities that are established prior to evaluation
- Definition of the metrics or measurements that will be used in the evaluation
- Data that is understood and accepted by all the stakeholders, and is comparable for both a pre-integration and post-implementation analysis
- Understanding of the integration effort's costs and outcomes with the ability to isolate impacts in a changing environment

- Recognizing external situations that may affect the project outcome

While the evaluation process described in this Guide relates to post-implementation steps, the same or similar steps can be used to predict an integration project's success prior to its implementation. The evaluation process used prior to implementation will be based on the goals and priorities established for the project in the early planning stages, and will rely on forecasted or estimated costs and benefits to achieve those goals. The data collection effort for a pre-implementation evaluation may consist of establishing baseline data, then estimating future costs and benefits based on past experience with similar projects or quantified data based on expected outcomes. For example, the cost savings (benefit) expected from reduced cash handling costs for fare card integration might be estimated to consist of a reduction of a certain number of full-time equivalent positions in the cash counting room, and a reduction in armored car costs. Both of these benefits are measured in dollars and are estimated based on the reduction in cash fares expected to be processed. Projected benefits and costs are, by their nature, estimates, which impact how much value a pre-implementation assessment of costs and benefits has against other decision-making tools.

Cost and Benefit Assessment Steps

The following provides steps for achieving a successful evaluation of project costs and benefits.

1) Identify the Project Goals

The first step in any integration effort is establishing the goals for the project. The goals also reflect the priorities of its stakeholders and help agencies stay focused on their integration efforts. If an agency's goal for integration—or any other project—is well defined, the subsequent evaluation becomes a meaningful tool whether that evaluation is a traditional cost/benefit analysis or if it considers more qualitative metrics.

Transit integration project goals can come from a variety of sources, including an agency's mission, its governing board, oversight agencies, management, the public, and legislative mandates. This is particularly important when consolidating more than one agency's functions, and where agencies may have conflicting reasons for undertaking integration. Ideally, formalizing agreement on the project's goals and objectives can also help in mid-course corrections.

The goals for the integration project will also drive whether or not a traditional cost/benefit analysis is an appropriate evaluation tool or if alternative evaluation approaches should be used in conducting the analysis. The selection of an analytical approach will also depend on the availability of data, and the potential costs associated with gathering the data, as discussed later.

2) Prioritize Goals

Not all goals will carry the same weight for all audiences. Cost effectiveness is a common goal for many integration projects. However, most projects must balance other goals. In certain cases, achievement of some goals is not feasible. Consequently, establishing a priority ranking of goals will help solidify the most important elements to evaluate before and after project implementation. Evaluating success will depend not only on the criteria, but also the relative importance of the criteria to various audiences.

Establishing different weights by goal/area or defining specific priorities for the goals requires active discussion among the decision-makers as to which goals are more important than others. In this way, discussions about the trade-offs begin early in the project development process and can provide an avenue for early buy-in and understanding of the project benefits and costs.

3) Establish the “Yardstick” for Project Benefits

Some goals are general in nature—such as “improve transit”—and can be hard to evaluate without a discrete definition of what “improvement” means. Others may be very specific, such as “reduce single occupant vehicle miles traveled by X%.” Some goals, particularly those set by regulatory or oversight agencies, funding agencies, or legislative mandates, may come with specific metrics to evaluate the project’s success. Aspects such as equity, environmental impacts, mobility, accessibility, customer satisfaction, and political feasibility can enter into the decision and can be included in the evaluation of the effort.

After the prioritization of goals, project sponsors should determine what “success” means for each of the goals. This can be expressed as something general such as “improve customer access” while others may be specific such “reduce operating cost per hour by 5%.” While it may be better to be specific and quantitative in terms of clarity, it may be more appropriate to have qualitative measure to evaluate success. This may also depend upon the data that is available before and after the integration.

Whereas quantitative outcomes are based on measurable data points, such as those identified in TCRP's Transit Capacity and Quality of Service Standards Manual, qualitative outcomes may be based on observational information (perception) from surveys and/or interviews or by assigning industry value to specific elements (Litman, 2009).

Table I-1 provides examples of qualitative and quantitative outcomes; this is a framework that can be used to develop metrics or measurements that can be used in an assessment of costs and benefits.

Table I-1 Examples of Quantitative and Qualitative Outcomes

Quantitative	Qualitative
Ridership Changes <ul style="list-style-type: none"> Passengers per hour or per trip Per capita ridership Total ridership Changes in transfer rates Percentage of ridership using new fare media 	Ridership Perception <ul style="list-style-type: none"> Satisfaction Perceived value Access to fare media Ease of use: transfers, fare media , service Cleanliness
General Revenue or Cost Changes <ul style="list-style-type: none"> Change in cost per hour, per rider, per mile, per trip Cash handling expenses Ticket vending costs—printing, distribution, collection Administrative cost savings 	General Perception <ul style="list-style-type: none"> Political Support Enhanced inter-agency or regional coordination More effective use of facilities Local control Community benefits—open space, public use lands and amenities
Service Performance <ul style="list-style-type: none"> Dwell time changes Service frequency changes Percentage of population with access to new service Deadhead miles/hours changes Accident/incident/fatality rates 	Service Performance Perception <ul style="list-style-type: none"> Elimination of duplicative service Simplified route structure Simplified fare system Perceived safety Improved customer service
Other <ul style="list-style-type: none"> Changes to property value Equitable cost sharing formula 	Other <ul style="list-style-type: none"> Marketing opportunities

Establishing the “yardstick” for measuring qualitative or quantitative benefits may also reflect the priority of goals established in the first several steps. This can involve the following:

- Defining the parameters of what constitutes specific qualitative ratings prior to reviewing the outcomes or data to ensure that the thresholds are not influenced by the results of the change

- Using quantitative data to support qualitative observations that may not appear germane helps explain placement within the threshold
- Understanding that qualitative thresholds may be binary (i.e., yes/no), or multi-variant (high, medium, or low)
- Ensuring rankings can be used to distinguish ratings between categories (high, medium, low)
- Accepting that thresholds may also be influenced by what data is available for use in the qualitative analysis
- Including thresholds for costs, if appropriate for the evaluation being done (for example, assigning rankings for costs helps establish the composite score)

4) Define the Baseline

The evaluation of many goals will involve comparisons with the status of an agency prior to implementing the integration project. To conduct a robust evaluation, a baseline should be established as the point of comparison. For many metrics (such as cost per hour or passenger per hour), baseline data can be found in standard management tools including budgets, expenditure reports, ridership counts, farebox collections, passenger surveys, and other reports and are usually for a fixed and certain point in time, such as “annual farebox revenue for 2013.”

5) Identifying Project Costs

Identifying costs associated with an integration project is the second key component of a rigorous evaluation. Like benefits, project costs are likely to be varied, and may be easy or difficult to quantify. Costs may include dedicated staff salaries and benefits, part-time staff assignments, technical consultants, IT infrastructure and equipment, construction, vehicles, outreach, and marketing. Table I-2 provides examples of costs that may be incurred for various transit integration efforts.

Understanding the “hidden” or indirect costs and benefits is also crucial to a robust project evaluation, and is often overlooked by agencies that may be only analyzing a specific element of the integration effort or may not be reviewing the benefits accruing to other parts of their operation or to other agencies. For example, agencies considering coordinated service operations may review only bus operations costs or savings, while ignoring ancillary changes in administration that may result. By not counting all of the costs (or savings), an agency might inappropriately register anticipated or realized project outcomes. This can be the case

for agencies that are contemplating very complex integration efforts in “unchartered territory” and are unfamiliar with the magnitude of change that occurs.

Table I-2 Typical Costs of Transit Integration Projects

Integration Effort	Costs
All	<ul style="list-style-type: none"> ▪ Dedicated project management staff ▪ Temporary assignment of agency staff to project ▪ Technical studies / consultants ▪ Legal counsel
Regional Transit System	<ul style="list-style-type: none"> ▪ New oversight and/or management organization ▪ Re-branding of fleet and facilities ▪ Facility modifications ▪ Marketing materials ▪ Customer service / information systems ▪ Operating costs to make the regional system coherent
Fare Integration	<ul style="list-style-type: none"> ▪ IT system equipment ▪ Ticketing system vendor contract ▪ Ticket vending machines ▪ Fare media ▪ Customer service / information systems ▪ System administration, including financial services ▪ Potential loss of fare revenue
Joint Facilities	<ul style="list-style-type: none"> ▪ Infrastructure planning and design studies ▪ Environmental clearance (as necessary) ▪ Capital costs, including construction ▪ Facility operations and maintenance

Monetization of costs and benefits can deliver an acceptable evaluation of the project provided the data is available and accurate, and the assumptions are accepted by the decision-makers. To monetize benefits and costs, evaluators first quantify the items being measured (such as vehicle revenue hours saved, gallons of fuel, tons of carbon emissions, or lives saved). These items are converted to dollars based on the value of the item. In some cases, the value will be unique to the agency (such as the marginal cost per vehicle revenue hour). In other cases, values have been established by regulatory agencies, including the US Department of Transportation (USDOT) and the Environmental Protection Agency (EPA). Information about current economic valuations used by USDOT and EPA can be found at the following websites:

- <http://www.dot.gov/regulations/economic-values-used-in-analysis>

- <http://www.epa.gov/climatechange/EPAactivities/economics/scc.html>
- http://www.dot.gov/sites/dot.dev/files/docs/BCA_OnlineSupplement_May22_2013.pdf

6) Determine Data Needs and Collection

Data to support the goals should be available, accurate, and appropriate. For example, for projects that are intended to improve inter-agency transfers, agencies would need to have data on transfers. Without such data, assumptions could be used as to transfer rates. However, that approach could lead to a lack of confidence in the evaluation.

Even when extensive data is available to monetize the benefits associated with the integration effort, there may be underlying conditions that influence the interpretation of the resultant data that must be considered. For instance, attributing large ridership gains to fare integration would need to be examined to ensure that significant changes in service frequency were not concurrent with the implementation of the fare integration. If it were, alternate or compound metrics would need to be examined in order to account for those improvements within the framework of an assessment of costs and benefits.

Prioritizing data collection and analysis is also as important as prioritizing goals, especially if the effort of data collection and analysis becomes a project in and of itself. If a project sponsor has undertaken a prioritization of goals, rendering some goals at the bottom of the heap, is it really necessary to expend resources to collect data to report on the goal's success? Understanding what is and is not necessary to evaluate should also enter into decisions about what data is essential to collect.

It is important to note that data is often costly to collect. As such, the data may prove to be more costly than beneficial in decision making. However, data collection to support the highest priority goals is often worth the investment if it is not readily available. For instance, if data on customer satisfaction or rider characteristics are needed to support evaluating the success of the highest priority goal, the costs of obtaining the data through a costly on-board survey might be worth the time and money.

7) Evaluation

Like many endeavors, transit integration projects may yield significant unanticipated results. Even a thorough, rigorous, traditional cost/benefit evaluation may not fully capture the success or failure of a project. In many cases, the results of an assessment of costs and benefits may suggest that the project should not have been undertaken due to its high costs, yet transit

customers consider the changes to be worthwhile. But some rules of thumb may support a project's perceived success:

- Share the results of the evaluation with agency leaders and partner agencies in a timely manner. This can allow for modifications, expansions, or changes in course as warranted.
- Documenting assumptions and inputs will help the audience better understand the scope of the evaluation, as well as its results.
- Help the audience understand when projects are successful by prior definition of success.
- Acknowledge that cost efficiency—like anticipated benefits—may take time. Managing expectations should be an on-going effort along with data collection and project evaluation.

In traditional cost/benefit analysis, the final evaluation compares quantified benefits to quantified costs, all expressed as dollars, and results in a ratio. Typically, a ratio of benefits to costs of “greater than one” means that the project is successful; that is, benefits outweigh the cost. In a more qualitative evaluation, the results are analyzed more subjectively but the analysis is guided by the weight of the goals and the final results of the metrics evaluated. For example, if the highest priority goal were achieved using the adopted qualitative or quantitative metrics for the goal, and low priority goals were not achieved, the analysis might result in a positive evaluation due to the importance (weight) given to the high priority goal.

Conclusions

Not all agencies need to undertake a traditional cost/benefit analysis in order to evaluate and measure success of their integration efforts, especially

“The more important the subject and the closer it cuts to the bone of our hopes and needs, the more we are likely to err in establishing a framework for analysis .”

— Stephen Jay Gould

when cost may *not* be a driving factor in the decision making. However, agencies do need to understand what is important to them when considering integration efforts so that they can develop a method of evaluating the success of their results. Stakeholders contemplating integration should feel empowered to determine what matters to them through local decision making, along with the ways that they intend to measure and evaluate how effective they were in meeting their goals.

FINAL REPORT
TCRP H-49: Improving Transit Integration Among Multiple Transit Providers

An evaluation process can demonstrate the value of a proposed project to decision-makers, funding agencies, and the public when the project is being considered, and can be used to keep the project on track during the implementation. This Guide can serve as a useful tool to conduct such evaluations.