Examination of Regional Transit Service Under Contracting: A Case Study in the Greater New Orleans Region

MTI Report 10-09

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MTI Report 10-09

EXAMINATION OF REGIONAL TRANSIT SERVICE UNDER CONTRACTING: A CASE STUDY IN THE GREATER NEW ORLEANS REGION

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16. Abstract

Many local governments and transit agencies in the United States face financial difficulties in providing adequate public transit service in individual systems, and in providing sufficient regional coordination to accommodate transit trips involving at least one transfer between systems. These difficulties can be attributed to the recent economic downturn, continuing withdrawal of the state and federal funds that help support local transit service, a decline in local funding for transit service in inner cities due to ongoing suburbanization, and a distribution of resources that responds to geographic equity without addressing service needs.

This study examines two main research questions: (1) the effect of a “delegated management” contract on efficiency and effectiveness within a single transit system, and (2) the effects of a single private firm—contracted separately by more than one agency in the same region—on regional coordination, exploring the case in Greater New Orleans. The current situation in New Orleans exhibits two unique transit service conditions. First, New Orleans Regional Transit Authority (RTA) executed a “delegated management” contract with a multinational private firm, outsourcing more functions (e.g., management, planning, funding) to the contractor than has been typical in the U.S. Second, as the same contractor has also been contracted by another transit agency in an adjacent jurisdiction—Jefferson Transit (JeT), this firm may potentially have economic incentives to improve regional coordination, in order to increase the productivity and effectiveness of its own transit service provision.

Although the limited amount of available operation and financial data has prevented us from drawing more definitive conclusions, the findings of this multifaceted study should provide valuable information on a transit service contracting approach new to the U.S.: delegated management. This study also identified a coherent set of indices with which to evaluate the regional coordination of transit service, the present status of coordination among U.S. transit agencies, and barriers that need to be resolved for regional transit coordination to be successful.

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EXECUTIVE SUMMARY

Introduction

Public transportation is a vital service aimed at accommodating the travel needs of those without easy access to private automobiles, and at maintaining the quality of life in most urban areas of the United States. Public transit agencies in the U.S. have been challenged to provide cost-effective service in the face of both declining state and federal aid. Declines in population, jobs, and business in inner cities have also caused significant losses in the tax bases, and make it financially more difficult for public agencies to provide transit service in these areas where more residents depend on public transit for their mobility. At the same time, continuous trends in suburbanization of jobs and housing have also been increasingly making travel patterns of residents and workers more complex over the past decades, requiring them to travel across multiple jurisdictions. Particularly, the need that transit riders have to be able to travel across a metropolitan area demands better regional coordination to accommodate trips using multiple transit systems.

This study examines two hypotheses pertinent to the possibility of improving efficiency and effectiveness of regional transit service through privatization. Specifically, in the empirical research, the following two hypotheses are examined: given carefully designed contractual terms, (1) privatization leads to more cost efficient and effective provision of transit service to the public, and (2) privatization improves regional coordination of transit services through internal coordination, when one private contractor is contracted by multiple districts. Of particular interest regarding the first hypothesis is the effects of “delegated management” contract implemented by New Orleans Regional Transit Authority (RTA), which transfers more responsibility in management, planning, and financial responsibilities as well as operation and maintenance to a contractor than contracts prevalently used in the U.S. In addition, the unique circumstances in Greater New Orleans, where two transit agencies—New Orleans RTA in Orleans Parish and Jefferson Transit (JeT) in Jefferson Parish—contracted with the same multinational firm, Veolia, to provide transit service, made it possible to address this second hypothesis.

Literature Review

This study’s literature review covered two subject areas: (1) transit service privatization and its effects on productivity, and (2) regional coordination of transit service. The transit contracting literature addresses various issues ranging from different forms of competition and ownership issues to economic issues; from labor issues to passengers’ experience (Thredbo 2010).

In the United States, public transit agencies have been more conservative in terms of both the levels and forms of privatization than the United Kingdom, other European countries, and Australia. Outsourcing is usually limited to operation, maintenance, and occasionally limited planning functions.

Two categories of transit service contracts—cost-plus and fixed-price—are discussed in some detail regarding compensation, associated incentives for contractors, transactions

costs, and risks that agencies must be aware of. Performance-based contracts may be of either type, but include specific incentives for achieving service quality goals set by the transit agency. Several important issues that significantly influence outcome of service contracting are discussed, including competitive bidding and negotiation of contracts, in order to set the basis to evaluate contractual terms in the case study.

This study's review of the literature regarding the effects of contracting in past studies reveals that there remains a mixture of findings on this subject, as different countries exhibit different experiences in transit service privatization, reflecting large variances in the amount of experience in public service privatization and conditions in transit policies, regulations, transit and labor markets, operation and management, operating environment, and overall travel behaviors of the population in different countries. Regarding the U.K., many experts believe that London's tendering schemes have been more successful in gaining ridership and improving productivity than the fully deregulated systems elsewhere in the country (Karlaftis 2006; White 1990, 1997). Although tendering transit service has had favorable-enough results in Western Europe, not all European nations have been equally successful at achieving both cost savings and policy goals, underscoring the importance of contract provisions and awarding procedures.

Most quantitative studies of U.S. transit contracting are more mixed on whether, and to what extent, cost-efficiency and/or cost-effectiveness are realized. In contrast, qualitative studies on transit contracting discuss the higher complexity of decision making for contracting and of its outcomes; agencies are influenced by political, social, and institutional forces, and by levels of knowledge and experience regarding contracting, as well as by economic incentives (Berechman 1993; Iseki 2008; Richmond 2001; Sclar 2000). Whether or not contracting is more cost effective than public provision of transit is an empirical question. The specific provisions of the contract and the manner in which it is awarded (through a competitive bidding process or through straight negotiation) can directly influence the cost-effectiveness of transit services.

The studies of transit contracting focus on the productivity and effectiveness of transit service by contractors in individual transit systems, but do not address the implications of contracting on regional coordination. In fact, the importance of regional coordination has been well recognized by researchers and practitioners (Meyer et al. 2005; Miller et al. 2005; Pucher and Kurth 1989), providing broad definition of regional coordination and integration. However, relatively little research has been conducted on methods and criteria for measuring and evaluating regional coordination and integration using concrete indices and indicators. A common set of indicators in three categories emerged from careful examination of scholarly articles and reports on the subject of regional coordination and integration:

1. Operational/managerial coordination,
2. Organizational/institutional coordination, and
3. Financial/institutional coordination.

Operational/managerial coordination indicators directly influence a transit user's experience in a transit system and their perceptions toward the quality of service of the system. This

category of indicators includes coordination of general operations such as schedules, fares, and facilities. The second category, organizational/institutional involves the coordination at the level of transit administration. This type of coordination includes such indicators as coordinated goals and policies, centralized administration, and information sharing. The last category, financial/institutional, is generally only practiced in highly coordinated regions and involves the coordination or sharing of financial resources for common goals. This category includes measures such as joint funding arrangements and joint procurement of equipment. Based on these three categories, a set of regional coordination indices/ indicators were developed to evaluate the level of regional coordination in the New Orleans region as well as other regions in the U.S. in this empirical study.

Empirical Study: The Effects of Transit Contracting on Service Provision and Regional Coordination

Two jurisdictions in the case study—RTA in the city of New Orleans, which is coterminous with Orleans Parish, and JeT in Jefferson Parish, composed of several suburban cities outside New Orleans—exhibit very different economic and social conditions that influence the provision of transit service. Both parishes were impacted by Hurricane Katrina in 2005, which intensified the decline in population since the 1960s and economic stagnation, and also exacerbated social problems. At the same time, the two parishes—Jefferson and Orleans—have very different economic and demographic profiles. Residents of suburban Jefferson Parish have much higher incomes, longer commute times, and use public transportation less than Orleans Parish residents. Within these settings, JeT operates a much smaller transit system with a much smaller budget than does RTA, but serves a much larger area with fewer routes, while RTA faces the challenge of suburbanization and "job sprawl," in which employers are locating in suburban areas. Under these conditions, RTA and JeT currently outsource transit service, but have approached contracting in very different ways in terms of roles and responsibilities that are transferred from the transit agency to a private contractor. RTA made a "delegated management" contract with a multinational company, Veolia, to transfer a wide range of responsibilities. This decision has created the necessity for a less rigid, more financially complicated contract. In contrast, JeT's contract is a typical of many transit service contracts in the U.S., outsourcing only operation and maintenance functions to Veolia. It has placed a great deal of emphasis on quality control and customer service to ensure that standards will continue to be met while Veolia is discovering new ways to efficiently cut the costs of bus operation. As for RTA, a desire to reorganize the structure and effectiveness of the transit system while decreasing the previously high operating costs is reflected throughout the contract.

Survey data of 461 transit users were analyzed using Importance-Satisfaction (IS) analysis and statistical analysis to observe how the riding public perceive the quality of transit service provided under the two different types of contracts in the RTA and JeT transit systems. Although both RTA and JeT transit riders surveyed consider overall ease of making transfers and connections and reliability of service important, they differed significantly in their importance ratings of eight of the 17 attributes in the study's survey, most notably in the importance of being able to obtain information about JeT routes and schedules. JeT riders not only ranked JeT information higher than RTA riders—in sixth place, they ranked the importance of being able to obtain RTA information even higher—in third place.

RTA and JeT riders differed even more regarding satisfaction levels. While RTA riders list two access-related attributes, JeT riders place three regional coordination-related attributes in the top six. Both groups of riders are well-satisfied with access-related attributes, but are concerned with a lack of sitting space, waiting time, and safety at night. There were only three attributes for which there was no statistically significant difference between the two agencies, and only one attribute (ease of getting around the bus stop/station) for which RTA riders expressed slightly higher satisfaction than JeT riders, and that difference was not statistically significant. The average percentage of people who are relatively satisfied for all attributes for 61.5 percent among RTA riders, compared to JeT riders' 75.1 percent, indicating RTA riders are less happy about the quality of transit service than JeT riders, and that RTA/Veolia continues to face challenges regarding customer satisfaction. As both RTA and JeT riders rank regional coordination-related attributes in the middle range, and in the same order, these two agencies can address improvements with a similar priority.

This study also evaluates the performance of RTA and JeT under different contracts over time, and examines each agency's financial and operating data, such as operating expenses, quantity of service provided, level of consumption of transit service, and several performance indicators for efficiency and effectiveness. While both RTA and JeT experienced losses in productivity in the immediate aftermath of Hurricane Katrina in 2005, they show different performance trends from 2006 to 2009. Overall, JeT has not seen dramatic changes over the four year period, while RTA has made significant improvements in several areas that could be attributed to the significant restructuring of RTA transit service management and operation under the RTA/Veolia contract beginning in late 2008.

Although streetcar gains in revenue hours and mileage, passenger trips, fare revenue, and operating cost efficiency are accompanied by losses by buses through 2008 (while streetcar lines were being restored, and pre-Veolia management), RTA buses made gains in revenue miles and hours, trips per capita, cost efficiency, cost per passenger trip, and farebox recovery ratio (Figure 1) in 2009—despite this being the first complete year of fully restored streetcar lines. These improvements could be attributed to various adjustments in operation, such as bus realignment, rescheduling, or reallocation of vehicles, implemented under the new management by Veolia. These gains in the bus system are accompanied by a considerable loss of cost efficiency in RTA streetcar operation in 2009 compared to 2008, although streetcars keep higher effectiveness, in terms of ridership per vehicle mile and hour, than buses. This loss in cost efficiency for streetcars can be attributed to a significant increase in operating costs, which may be due to the higher platform-hour rate charged by Veolia for better management—for example, increasing supervisors on the routes to maintain even intervals between streetcars. As a whole, RTA/Veolia improved the overall efficiency in providing transit service, since the gains made by RTA buses were sufficient to offset the declines in streetcar efficiency.

In the analysis of responses to questionnaires and interviews collected from directors and planners at RTA, JeT, and New Orleans Regional Planning Commission (RPC) in comparison to data from the nationwide survey of transit agencies on regional coordination indicators, the current coordination of transit service in the Greater New Orleans region

is found limited and less advanced than transit coordination in most of the agencies responded to the nationwide survey.

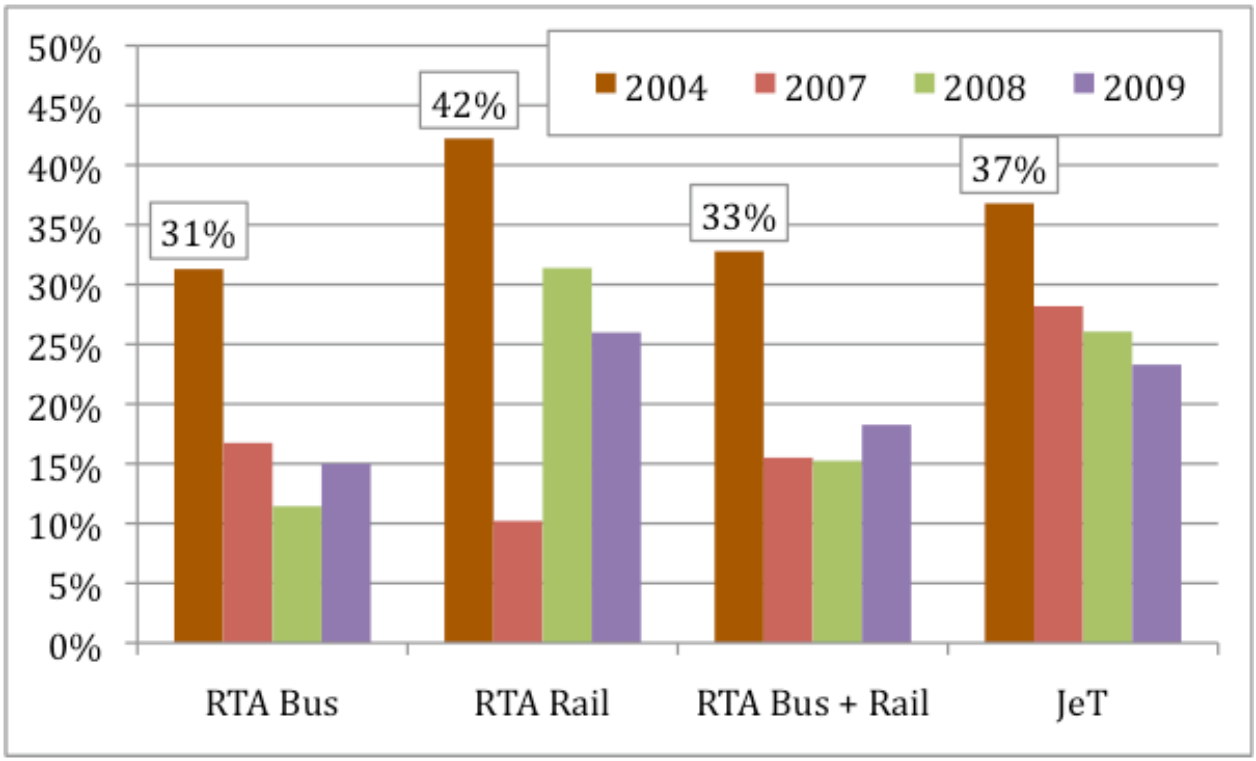

Figure 1. Farebox Recovery Ratios for RTA and JeT, 2004, 2007, 2008, and 2009

Table 1 summarizes Greater New Orleans' level of achievement in each indicator of regional coordination, along with the percentages of agencies that provided positive responses in the survey. Responses to the questionnaire revealed the premature level of regional coordination of transit service in Greater New Orleans. Out of 17 indices, Greater New Orleans has a fully positive response for only three: (1) the availability of transit fare media in the other agency's service area, (2) joint provision of information, and (3) sharing facilities. Also, some level of coordination exists in terms of transfer points and discussion of possibly locating and designing facilities to better accommodate transfers, although the questionnaire responses are not consistent between all three agencies. The inconsistency of responses exhibits the different understanding of current conditions on the part of each agency, and their different perspectives regarding transit service coordination. In other categories, RTA and JeT are falling behind the national trend, apart from some unofficial coordination of vehicle scheduling being conducted through a private channel within Veolia.

Table 1. Responses to the Questionnaire on Regional Coordination of Transit Service in the Greater New Orleans Region

(1) Well achieved in Greater New Orleans	Nationwide
Availability of passes, tickets, or tokens in the other transit area's service area	55%
Joint provision of information on transit service	75%
Sharing facilities (e.g., terminal, shelter, park & ride lot)	69%
(2) Partially achieved in Greater New Orleans	
Special discount program with other public or private entities	64%
Clearly designated transfer points	74%
Discussion of possibly locating and designing facilities to better accomodate transfers	43%
(3) Not achieved in Greater New Orleans	
A coordinated regional fare system	52%
Passes, tickets, tokens or transfers usable in the other transit system	54%
Free or discounted transfer from the other transit system	63%
Consideration of the other transit system's service availability in service scheduling	70%
Coordination in time scheduling to accomodate transfers	68%
Real-time information for operation (e.g., AVL) shared between the two transit systems	6%
Other various agreements, such as joint training for employees	9–29%

Overall, although there is a certain expectation of regional coordination both between RTA and JeT, and through the internal channel of Veolia, many of the testimonies often lack concrete plans for funding and implementation of regional coordination in follow-up interviews with the survey respondents from RTA, JeT, and RPC. Some discussion of increased cooperation that were repeatedly mentioned, and, therefore, could be candidates for formal implementation include: (1) installing a shared facility in Orleans Parish, (2) jointly working on vehicle scheduling to provide seamless travel to transit riders, and (3) discussing the potential for revisiting fare media sharing programs.

This study also identified several obstacles to public agencies in the region moving forward. One of the most serious concerns is political representation: an assurance of equal representation on any board or decision-making body is essential—in particular, from the perspective of Jefferson Transit, which is a smaller agency in the suburbs. Another serious concern is financial: there has to be a strong justification and solid assurance for JeT that any coordinating efforts for transit service are beneficial to the parish's taxpayers and transit riders, since parish residents pay a dedicated property tax for transit service. Regarding this point, the mechanism for revenue allocation within any fare media sharing policy has to be transparent and fair, so that both agencies can agree on their share of proceeds. These political and financial issues are major barriers to regional coordination, consistent with past studies on geographic equity and adoption of new technologies among multiple public agencies. At this point, these concerns on

the part of the public agencies certainly override any economic incentive that the private contractor both agencies may have.

In summary, the presence of Veolia as a single provider to two separate parishes has increased optimism about the improvement of regional coordination. However, uncertainty and hesitation remain, primarily with respect to political structure, financial concerns, and the role of metropolitan planning organization, which need to be addressed and resolved before attempts at further coordination could successfully move ahead.

Nationwide Regional Coordination Survey

A nationwide survey was developed, based on the indicators of regional coordination found in the literature review, to gauge the present status of regional coordination among U.S. transit agencies in support of the case study of New Orleans transit service. Among 590 transit agencies with fixed-route transit service in the U.S., 202 responded, representing agencies in 45 states. The results of the survey indicate that while regional coordination is commonplace throughout the country, there are still many regions with very low levels of coordination. Transit agency executives offered a number of reasons why they thought this is the case, including local funding requirements and political, institutional, and financial barriers.

Conclusion

This study found some positive indications of effects the RTA/Veolia delegated management contract may be having on the efficiency and effectiveness of transit service in the RTA transit system and regional coordination in Greater New Orleans, based on the analysis of RTA performance indicators and on interviews. However, the analysis of transit user surveys showed that transit riders are still generally less satisfied with the quality of RTA's service—in particular with those attributes related to regional coordination—than with JeT's, and that few RTA riders have noticed substantial positive changes in service quality. The analysis of information from the questionnaire and the nationwide survey regarding regional survey also revealed very limited efforts being made toward coordination in Greater New Orleans compared to the nation average, despite some optimism expressed by the interviewees, and an official report prepared by RPC. Political concerns between the two transit agencies arising mainly from financial issues, such as the distribution of local tax revenue, allocation of revenue from regional fare program, and costs of new technologies, are so substantial that these constraints prevent the agencies from moving forward with coordination. A relatively simple contract between JeT and Veolia does not allow Veolia much autonomy outside of operation and maintenance, and JeT generally has greater reservations toward coordination than RTA. In this situation, it seems important that RTA/Veolia find ways to improve regional coordination within its system without incurring substantial costs that offset the benefits, so that it can gain cooperation from JeT in future. Certainly, RPC can have an important role in bridging gaps between the two transit agencies.

Despite these findings, drawing more definitive conclusions presented substantial difficulty because of the limited amount of available operation and financial data—due to both a short period of analysis following the execution of the contract, and a variable level of

cooperation on the part of RTA. Further analysis will be required to more thoroughly evaluate the performance of the effects of the delegated-management contract between RTA and Veolia over the next several years. For example, one should carefully examine whether Veolia can reverse 2009 declines in streetcar efficiency and increases in operating costs within its significant involvement in planning streetcar expansions. A future study might also explore the prospect of Veolia developing a regional transit monopoly with the execution of its contract to provide demand-response service to a third transit agency in Southeast Louisiana (River Parishes Transit Authority) in February, 2009, as well as how that may further influence regional coordination.

The findings of this multifaceted study should provide valuable information on a transit service contracting approach new to the U.S.—delegated management. This study also identified a coherent set of indices with which to evaluate the regional coordination of transit service, the present status of coordination among U.S. transit agencies, and barriers that need to be resolved for regional transit coordination to be successful.

INTRODUCTION

Public transportation is a vital service aimed at accommodating the travel needs of those without easy access to private automobiles, and at maintaining the quality of life in most United States urban areas. Households with annual incomes of less than $20,000 are at least five times more likely to be carless and three times more likely to take their trips by public transportation than higher-income households (Pucher and Renne 2001). For local public officials, few services are as fiscally challenging to provide as public transportation, especially in the face of both declining state and federal aid. One of the most important, and certainly the most hotly debated, strategies for cost-effective provision of transit service is privatization. In the early 1980s, facing limited funding for transit service, continuous demand from transit dependents, and political circumstances leading to transit budget cuts, some state and local transit agencies began to contract out their services in order to increase productivity and cost efficiency. Other countries, such as the United Kingdom, Chile and Sri Lanka, experimented with the privatization of transit in the 1970s and 1980s. In most cities, this often entailed the breakup of state-run companies and the sale of entire fleets to the private sector.

U.S. public transit agencies spend a significant amount of public funding to purchase transit service from private firms or other public agencies. In 2008, 37 percent of U.S. transit agencies that provided fixed-route bus transit services contracted out at least some of their service (Figure 2).

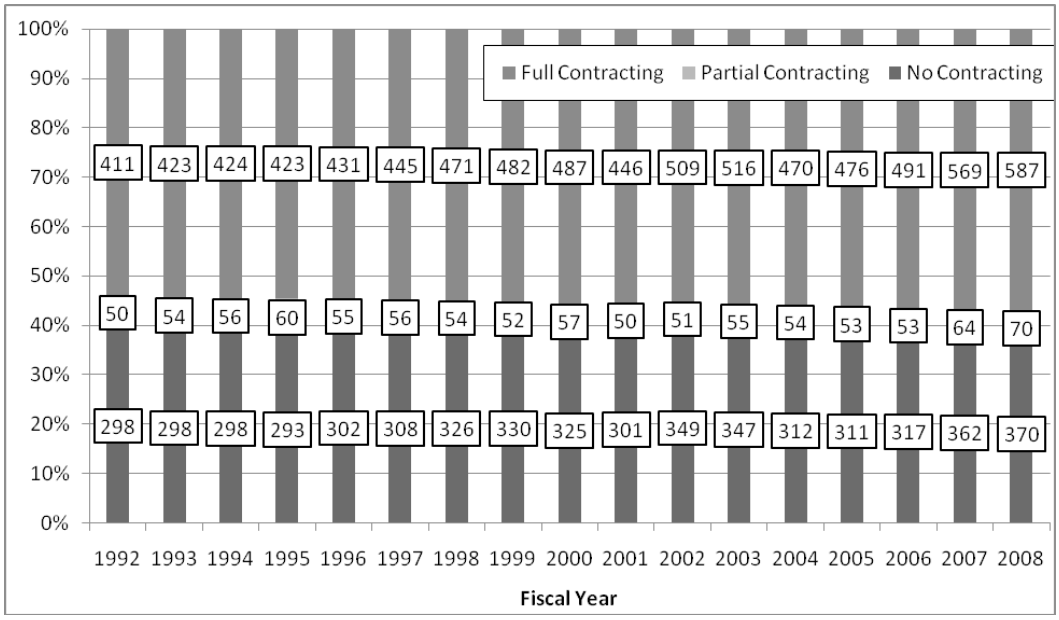

Figure 2. Proportion of Agencies Operating on Different Levels of Contracted Bus Service by Year (1992–2008)

Source: The authors' calculation based on National Transit Database (Federal Transit Administration 2010)
Note: Dollar amounts are adjusted to 2008 dollars using U.S. consumer price indices available on the website of the U.S. Department of Labor Statistics: http://www.bls.gov/cpi/.

Analysis of data from the National Transit Database (NTD) shows the total amount spent on contracted fixed route transit reached $3.1 billion in 2008 (or 10.1 percent of total operating

expenses of $30.7 billion). Focusing on fixed-route bus service, the total amount spent on contracted service in the United States reached $2.0 billion (or 11.1 percent of total operating expenses for bus service) in 2008 (Figure 3). Over the 16 year period from 1992 to 2008, total bus mode expenses for contracted bus service increased by 104 percent, from $914 million (2008 dollars) in 1992 (Federal Transit Administration 2010). The total amount spent on contracted bus service over the same period reached approximately $20 billion (2006 dollars) (American Public Transportation Association 2009). Thus, contracted service makes up a significant portion of all transit provided and funding spent in the United States, and plays an important role in providing mobility to the American public.

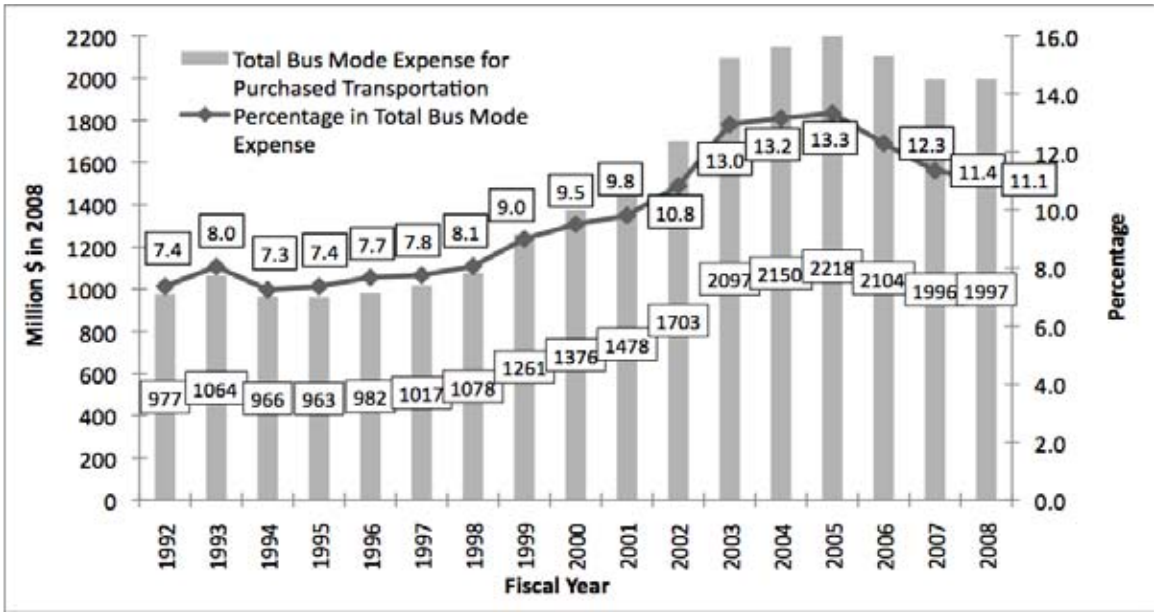

Figure 3. Total Modal Expense for Contracted Bus Service by Year (1992–2008)

Source: The authors' calculation based on National Transit Database (Federal Transit Administration 2010)
Note: Dollar amounts are adjusted to 2008 dollars using U.S. consumer price indices available on the website of the U.S. Department of Labor Statistics: http://www.bls.gov/cpi/.

Despite its importance, the literature on the effects of contracting on the quality and productivity of transit service has been limited in the United States. Most research on U.S. transit contracting is still inconclusive, due to problems with the nature and methodology of those studies over the past decade. In the 1980s and early 1990s, most U.S. studies focused on examinations of cost savings resulting from contracted service, but there are only a limited number of studies that have examined the level of contracting practice for providing fixed-route service (Halvorson and Wilson 1996; Teal 1985). These studies collectively show savings estimates on the order of ten to forty percent per unit of contracted service (e.g., per vehicle mile, per vehicle hour), in comparison to in-house (or directly provided) service.[1] Among U.S. studies, only three cases—the Denver case reported by Sclar (1997), the Westchester County case described by Teal (1991a), and a cross-sectional study by McCullough, Taylor, and Wachs (1998)—show private service costs higher than public service costs.

1 For example, Peskin, Mundle, and Varma (1993); Karlaftis, Wasson, and Steadham (1997); Teal (Evans 1988; Teal 1991b); and Nicosia (2002). For a more comprehensive review of these studies, see Iseki (2004).

At the same time, continuous suburbanization and subsequent declines in population, employment, and business in inner cities of the United States have resulted in significant losses to their tax bases while suburban city tax bases remain steady or even grow, limiting inner cities' ability to adequately fund public transit services. As a result, more transit dependents (whose mobility depends on public transit due to limited access to private automobiles) remain in inner cities, creating a situation that makes regional coordination of transit service even more difficult for a number of reasons. First, the distribution of transit service is largely driven by the motive of ensuring geographic equity—i.e. allocating transit services based on a jurisdiction's contribution to transit funds for the region. This poses a challenge because while affluent suburbs may contribute more to public transportation services, residents of these suburbs do not ride transit as much as those who live in inner cities, where transit is more cost-effective due to high densities and concentrated activities. The allocation of transit funds to these suburban areas, therefore, reduces the overall cost effectiveness of transit for the region. Second, individual transit agencies focus on services within their own jurisdictions, and do not effectively address the needs of transit users who travel across different systems. Third, making general service improvements, conducting marketing, providing customer service, and adopting new technologies (such as smart cards, automated vehicle location systems, or next vehicle arrival notification systems) is also difficult, because individual agencies have different levels of needs and priorities in their use of funding (Yoh, Iseki, and Taylor 2008). Thus, political and administrative issues among public transit agencies often make regional coordination very difficult to achieve, posing significant challenges to agencies charged with improving transportation for transit dependents.

During the economic downturn, local governments in the Greater New Orleans region have continued to struggle to provide public services. For example, the provision of public transportation has been particularly difficult in the city of New Orleans, which initially lost more than half its population and 236 public transit vehicles (205 buses and 31 streetcars) after the Hurricane Katrina disaster in 2005. For low-income New Orleanians who do not have access to private automobiles, public transit service affects the quality of their lives—commuting, going to school, taking care of private business, and having social lives. With the recent trend of state and federal governments being hesitant to increase financial assistance for local public transit services, local officials and transit planners must seek a variety of ways to increase efficiency and effectiveness in the provision of public transit services. Under these circumstances, and as transit privatization strategies continue to be employed around the world, the two primary transit agencies in the New Orleans region have separately contracted transit services from one multinational private firm.

This study examines the efficiency and effectiveness of providing regional transit service through privatization as a strategy to improve the quality of transit service and achieve financial resiliency for regional transit systems. In particular, the study addresses the following two sets of questions in this study. The first set of questions evaluates the effects of transit service privatization by measuring changes in service improvements, cost efficiency, and cost-effectiveness of service provision in two individual transit systems. While Jefferson Parish uses the transit service contracting approach most prevalent in the

U.S.,[2] that is, contracting out operation, management, and/or maintenance, New Orleans Regional Transit Authority (RTA) now outsources a variety of functions and responsibilities to a contractor at a level unprecedented in the U.S.[3] These two transit systems are compared for various performance indicators.

The second set of questions examines whether or not one private firm that serves two areas under separate contracts can increase regional coordination for both. The current situation in the Greater New Orleans region presents a unique case in which one private firm has contracted with two districts—Orleans Parish and Jefferson Parish—in separate contracts for different functions of providing transit service. In this situation, this study examines the level of regional coordination in the Greater New Orleans region relative to other regions in the U.S., based on data collected through questionnaires and interviews conducted with local public agencies, as well as a nationwide online survey.

The following chapters will review existing literature on the topics of transit contracting and regional coordination, and develop a set of indices with which to measure regional coordination from the literature. The study will describe the transit systems in Orleans and Jefferson Parishes and the contexts within which they operate, and then will present and analyze findings from the surveys and data collection undertaken for this report, and finally, presents its concluding remarks and recommendations.

2 Contracting allows public agencies to maintain control of the policy decisions about service quality and quantity, such as service coverage, operating hours, and headways, while outsourcing operation and/or maintenance.

3 According to Veolia, the only comparable model in the U.S. is its own management of Foothill Transit in Greater Los Angeles. Veolia manages the administrative, financial and planning functions for Foothill, but actual operations of buses and paratransit are contracted to two other firms (Veolia Transportation 2009).

REVIEW OF THE LITERATURE

The transit contracting literature addresses various issues ranging from different forms of competition and ownership issues to economic issues; from labor issues to passengers' experience (Thredbo 2010). Although the fundamental objective of transit service contracting is to increase cost efficiency and cost effectiveness in providing transit service, public transit agencies may take different strategies to achieve these goals, balancing them with other policy priorities (e.g., improving service quality, reducing emissions, alleviating congestion).

In general, public transit agencies in the U.S. have followed more conservative strategies within the spectrum of transit service contracting than their counterparts in other developed countries, including the U.K., the Netherlands, and Australia, generally outsourcing only their operation and maintenance functions. As a result, research on this subject is more advanced outside the U.S., and therefore more literature is available from these and other experienced countries. At the same time, because many different factors influence a transit agency's decision whether or not to outsource public transit service, it is not easy to compare cases in the U.S. to those in other countries. The transfer of ideas to the U.S. must be done with great caution, as each country is very different.

Proponents of contracting tout its potential to reduce the cost of transit service provision through greater flexibility for contractors. They argue that contracting can reduce the inefficiencies associated with providing peak service, relax labor rules, and reduce overtime payrolls (Cervero 1988; Morlok and Viton 1985; O'Looney 1992; Tomazinis and Takyi 1989), thereby freeing up public funds for other uses. At the same time, economists point out that the promise of contracting will only be fulfilled in the presence of competitive bidding, well-designed contracts, effective oversight, and competitive rebidding of contracts (Black 1991; O'Looney 1998; Savage 1986; Sclar 1997). Complicating matters are the many political, fiscal, institutional, and transit system factors that affect contracting decisions (Berechman 1993).

Whether or not contracting is more cost effective than the public provision of transit is an empirical question. The specific provisions of the contract and the manner in which it is awarded (through a competitive bidding process or through straight negotiation) can influence the cost effectiveness of transit services. Competitive bidding normally allows the regulator to more carefully stipulate the necessary conditions over the life of the contract, ensuring greater accountability, while negotiation can permit experienced private operators to bring their knowledge to bear in the design of a complex contract. Similarly, some publicly-provided services with lackluster performance have been restructured to make them more cost effective than before when the potential of future competition from private contractors has been introduced (McCullough, Taylor, and Wachs 1998; Wallis 2003).

TYPES OF TRANSIT SERVICE CONTRACTING

Many of the current arguments in favor of public transit deregulation and privatization around the world can be traced back to a series of studies and policies in the 1980s in the U.K.;[4] particularly the U.K. *Transport Act of 1985*, which virtually deregulated bus transportation,

4 Appendix A describes the history of privatization of public transit service in the U.K. in more detail.

leading to the deregulation and privatization of bus transit service in the U.K. The privatization of transit services in the U.K. presented two distinct approaches—deregulation and tendering, and was characterized by three factors: (1) ownership of transit service, (2) control over policy issues, and (3) geographic area and/or system size of operations to be privatized or tendered. The following discussion will focus more on transit service contracting/tendering/outsourcing than on deregulation, because it is more relevant to most U.S. urban settings, where public agencies have theoretically kept control over policy issues and where transit has been maintained as a social service for those that have limited access to a private car for either financial or physical reasons. In particular, this study will review the nature of contracts and payment schemes because of their crucial roles in determining the outcomes of service contracting. Past research has examined the types of transit privatization that will likely facilitate the best outcomes in terms of cost savings and service quality, focusing on types of compensation and processes for selecting contractors (Gagnepain and Ivaldi 2002; Hensher and Stanley 2003, 2008; Hensher and Wallis 2005). Indeed, many factors associated with transit privatization influence the quality of a private operator's performance (Hensher and Stanley 2008), including the degree of government regulation and the size of the transit market.

Cost-Plus and Fixed-Price Contracts

Much of the literature associated with public service contracting, or tendering, focuses on two types of contracting: (1) cost-plus, and (2) fixed-price contracts, although in practice the distinction is sometimes blurred in cases where incentives or penalties related to specific performance goals are included, or where provisions for renegotiation exist to accommodate for future uncertainties (Cox and Love 1991; Gagnepain and Ivaldi 2002; Laffont and Tirole 1993; Piacenza 2006; Roy and Yvrande-Billon 2007). Laffont and Tirole (1993) place public service procurement contracts along a spectrum between cost-plus and fixed-price. They define cost-plus contracts as one in which the government pays its contractor all its realized costs, plus a fee independent of the contractor's actual performance. In a fixed-price contract, on the other hand, the contractor's compensation from the government remains the same regardless of either performance or exogenous changes in costs. Each model has potential strengths and weaknesses. Fixed-price contracts are generally held to incentivize cost efficiency and cost reduction than cost-plus contracts, but cost-plus contracts permit more flexibility with lower transaction costs in the provision of goods or services that are very complex or subject to many uncertainties (e.g., involving a high degree of technological innovation, or long-term contracts where future circumstances are difficult to predict), and may inhibit a contractor's incentive to sacrifice quality to cut costs (Bajari, McMillan, and Tadelis 2002; Laffont and Tirole 1993).

Gagnepain and Ivaldi (2002) examine cost-plus and fixed-price contracts and their use in French public transit systems to determine which is more likely to encourage increased

firm performance.[5] The authors found in their analysis that cost-plus contracts offered very little incentive for operators to improve efficiency because the regulator pays the firms ex post costs. This ex post payment, in conjunction with an assumed lack of complete information on the part of regulators concerning the operator's efficiency practices, creates a situation in which operators have limited concern for efficiency because they will be reimbursed even if expenditures increase. Although fixed-price contracts outperformed cost-plus schemes in their analysis even when regulators' information was limited, optimal welfare was higher in networks with better-informed regulators.

Roy and Yvrande-Billon (2007), who also analyzed French transit systems on the basis of technical efficiency, distinguished between three general types of contracts: (1) management, essentially a cost-plus contract in which the contractor receives a fixed management fee, but the public agency bears the service provision costs; (2) gross-cost, a type of fixed-price contract in which the contractor bears the production-cost risk but fare revenue is accrued to the public agency; and (3) net-cost, another variety of fixed-price contracts in which the contractor's subsidy is based on both its projected costs *and* projected fare revenues, exposing the contractor to revenue risk. The authors find that operators under both types of fixed-price contract were more technically efficient during the period studied, and that gross-cost contracts had the higher efficiency scores than net-cost. The differences between all types of contracts were statistically significant but slight, however, suggesting that technical inefficiency is not the primary cause of burgeoning transit costs in France.

Examining Italian transit systems using cost-plus or fixed-price contracts (both gross- and net-cost), Piacencza (2006) also finds beneficial results for fixed-price contracts, exhibiting lower cost distortion than systems employing cost-plus contracts. Traffic conditions, however, also had a substantial effect on overall efficiency, limiting the gains that can be expected from fixed-price contracts without addressing traffic regulation policy in highly congested networks. Drawing upon experience they have had with contract design in Detroit, Los Angeles, St. Louis and various other cities, Cox and Love (1991) also found that fixed price contracts generally yielded lower costs for the transit authority while cost-plus contracts tend to favor the firm vying for the contract.

Performance-Based Contracts

Regarding transit service privatization, Hensher and his colleagues have conducted an examination of the type of contract that is best suited to include both performance indicators and incentives (Hensher and Prioni 2002; Hensher and Stanley 2008; Hensher and Wallis 2005).Their studies go beyond incentives that focus on cost efficiency, and examine how regulators can add a dimension of service quality within contracts that addresses policy

5 Their study is based on three primary assumptions. First, the authors assume that transit service is regulated by a local authority (regulator), and that a single, private firm (operator) is responsible for operation, unlike completely deregulated regimes, or regimes with multiple operators. Second, it is assumed that information asymmetries exist between the regulator and operator, because operators have much more knowledge of factors in service operation: for instance, the number of buses required to operate a specific network and their associated costs; fuel consumption levels, which are highly dependent on drivers' skills; and the increased costs of operating during periods of heavy traffic congestion (Gagnepain and Ivaldi 2002).

goals for transit that may improve social welfare, but not necessarily be profitable enough for operators to pursue without additional subsidy (e.g., attracting new passengers, maintaining low fares, school service, increasing service frequency overall and during peak hours for passenger comfort).

Commonly referred to as *performance-based*, this type of contract includes not only a payment for delivering a minimum level of service, but also an incentive structure for rewarding operators for increases in the quality of service that meet the transit agency's policy goals. A critical feature of performance-based contracts, whether they are competitively tendered or negotiated, is that payments above the level specified for the operator's minimum obligations are based on the social or environmental benefits that the regulating agency hopes to realize, rather than primarily on commercial considerations. Another key feature is that operators typically have more knowledge of customers' wants and needs than regulators do, and thus, should have tactical freedom to design routes and schedules that meet the requirements that regulators establish as a framework (Hensher and Stanley 2003). Designing subsidy-based incentives that give operators sufficient motivation to pursue otherwise unprofitable social goals (in a cost effective manner), requires a high degree of cooperation between operators and authorities (Carlquist 2001; Hensher and Stanley 2003).

An example of a performance-based contract is that of Hordaland, Norway, which became the first county in Norway to fully implement this type of contract.[6] Hordaland county, home of Norway's second-largest city, Bergen, entered into "quality contracts," or performance-based contracts, with its three operators in 2000, replacing net-cost contracts (Carlquist 2001). Initial reform proposals called for introducing competitive tendering, but instead, Hordaland officials chose to try negotiating performance-based contracts, with the threat of switching to tendering if operators failed to meet expectations.

Increasing the number of revenue kilometers provided was seen as the most important service improvement from the passengers' point of view, but it was recognized that operators faced marginal costs and benefits under different circumstances. In order to remunerate operators in ways that would encourage them to provide socially-optimal levels of service at all times of day and in all places without changing passengers' fares, Hordaland used modeling schemes that took into account not only the different marginal costs of adding service for peak or off-peak periods and in areas of different density, but also considered social benefits from attracting private automobile drivers to transit during heavily congested periods, and the higher proportions of seasonal pass holders and school children eligible for free fares in more rural areas (Larsen 2001). Passengers' overall perceptions of service are also accounted for in the contracts, with bonuses and penalties based on customer satisfaction surveys (Carlquist 2001). Reviewing the implementation of performance-based contracts in the year after its inception, Carlquist (2001) found that customer satisfaction surveys provided positive results, despite negative media coverage in 2000. Although actual use of some of the incentives had diverged somewhat from the original recommendations, operators were free to make changes as long as they did not reduce total network kilometers.

6 Oslo had previously implemented a more limited form of performance-based contract (Carlquist 2001).

Process of Selecting Contractors, Increased Costs Associated with Re-bidding Process, and Communication in Complex Contracting

Performance-based contracting has emerged as an alternative to conventional tendering,[7] in response to some of the drawbacks associated with tendering (Hensher and Stanley 2003; Mathisen and Solvoll 2008). As privatization of formerly publicly owned and operated bus service has proceeded, in regimes that have chosen to contract service areas rather than fully liberalize their transit markets—i.e. those that introduce competition *for* a transit market rather than *within* a transit market (Karlaftis 2006)—the question of *how* contracts are awarded has increasingly been a topic of debate, alongside the question of what implications the *type* of contract has on cost and quality of service.

Competitive tendering has been the primary tool for public agencies seeking to award an exclusive right to allow an operator to service a specific area, encouraging the efficiency gains associated with competition ex ante, while still maintaining some degree of public control over the kind of service to be provided (Yvrande-Billon 2006). In practice, however, there are challenges to designing and implementing tendering processes that yield the desired service quality and efficiency gains (Yvrande-Billon 2006). Negotiated contracts, which have been used more frequently in public-private partnerships for infrastructure provision, are an alternative to tendering (Hensher and Wallis 2005).

In a study of public transit in 13 European nations, the MARETOPE project found that cities that competitively tendered transit service had the largest positive increases in overall efficiency (MARETOPE 2003). Cost reductions of as much as 20 to 30 percent or higher have been achieved where tendering has been introduced. However, the largest reductions are typically found in the first round of tendering, and the price increase of tendering became a serious concern among transit agencies in Europe between 1983 and 2001. In some cases, this may be partly due to the “winner’s curse” phenomenon (Hensher and Wallis 2005). “Winner’s curse” refers to the likelihood that in auctions where incomplete information is a hazard faced by bidders, the winning bidder will be the one who has overestimated the value of the item being auctioned by the most, or in the case of transit, has underestimated the costs of providing the service. In other cases, this is because of declining numbers of bids per contract and increasing public subsidies (Hensher and Hauge 2001). This is especially true in cases where contracts must be re-bid due to underperformance of the first round operator. Not only does this increase costs by requiring another bidding round, but the number of bidders in the second round tends to be less, as contracts are usually too big and the pool of potential bidders too small (Hensher and Wallis 2005).

Another cause of concern in competitively tendered auctions is the lack of regulator/operator communication in devising contracts. Bajari, McMillian and Tadelis (2002) found in their study on private sector building contracts awarded in Northern California that tendering/bidding mechanisms perform poorly when projects are complex, and stifle the

7 Performance-based contracts can be wholly negotiated or tendered. Conventional tendering’s tendency to be focused entirely on the lowest-price bid limits the action of market-based competition to the ex ante contracting stage, whereas performance-based contracts (ideally) build in market-like mechanisms throughout the contract period (Hensher and Wallis 2005).

communication between buyers (regulators) and sellers (operators), making it nearly impossible for the buyers to utilize the expertise of the sellers in creating the contract.

The complexities of competitive tendering have been a reoccurring topic of discussion in the Thredbo conference series.[8] Conclusions drawn from discussions conducted in conferences outline five steps that must be dealt with in the implementation of competitive tendering: (1) stimulating competition, (2) making clear what you want, (3) getting what you want, (4) getting what you paid for, and (5) next time around (Hensher and Hauge 2001). These may seem simplistic but the complexity of tendering leaves some wondering whether public agencies that are new to competition for service operation should consider utilizing a different method of contracting. This has led to questions of whether or not there are viable alternatives to competitive tendering (Hensher and Hauge 2001).

Negotiated Contracts

The widely discussed alternative to competitive tendering is the strict negotiation of contracts without a prior bidding process. Whereas competitive tendering requires the regulator to accept the lowest bid for a predetermined contract, negotiation requires the regulator to work directly with the operator in determining price and performance goals for the contract. In theory, the negotiation of contracts that have not been put out to bid can alleviate some of the financial costs of competitive tendering while opening up a dialogue between the regulator and potential operator. Using negotiation, the value of the service is created based on the combined knowledge and expertise of both the operator and regulator, whereas competitive tendering determines the value of the service based on bid prices received (Hensher and Stanley 2008). It is important to note, however, that while some negotiation of contracts follows the competitive tendering process, its purpose is to agree on the final details of a bid, in contrast to negotiations where no prior bidding process has been undertaken.

While negotiation permits more flexibility in the design of complex contracts, achieving cost reductions may be more difficult than in competitive tendering, particularly if the public agency has limited knowledge of the operator's costs.[9] Competitive tendering can still be a tool used in negotiated contracts when operators are not conforming to the expectations laid out in the negotiated contract. In situations where the operator is continuously failing to meet standards, the regulator can use competitive tendering as a bargaining tactic to either induce performance, or to secure a different operator in cases where underperformance continues.

8 Thredbo is the Australian city where the first Competition and Ownership in Land Passenger Transport Conference was held in 1989. The series of biennial conferences that followed have been held in cities around the world, and is still known as the Thredbo Series (Thredbo 2010).

9 One method to introduce an element of competition in pricing without auctioning the route or network is "yardstick" competition. Yardstick or benchmarking methods introduce surrogate competition by comparing multiple similar firms' prices, and basing all firms' reimbursements on the best benchmark. A firm that reduces its costs more than the firms it is compared to profits, whereas a firm that fails to reduce its costs while other firms do will lose (Schleifer 1985). In the early 1990s, the yardstick model became the most popular form of contract for bus transit in Norway, replacing lower-powered individual negotiations with each firm. More recently, however, many Norwegian counties have been switching to contracts based on subsidy caps or tendering (Dalen and Gómez-Lobo 2003).

EVALUATION OF THE EFFECTS OF CONTRACTING IN PAST STUDIES

Transit Service Privatization in the U.K.

Although there is some disagreement regarding the ultimate outcomes of deregulation within the U.K., many experts and academics believe that tendering-schemes in London have been more successful in gaining ridership and increasing productivity than have deregulated systems in other areas of the country (Karlaftis 2006; White 1990, 1997).

White (1997) found that ridership fell throughout the deregulated areas as much as 35.6 percent in the metropolitan areas and increased by 1.3 percent in London. In terms of productivity, White found an increase in productivity of 11 percent and a 23.6 percent decrease in total operating costs in the metropolitan areas (outside of London), along with a 16.2 percent decline in ridership between 1985 and 1989. In contrast, in London, passenger trips and productivity increased by 5.6 percent and 4.4 percent respectively, while total operating costs declined by 10.5 percent (Karlaftis 2006). Similarly, Banister and Pickup observed a 10.2 percent increase in ridership in London during the two-year period following deregulation (Karlaftis 2006). Other studies on the tendering experiences in London report reduction in cost per vehicle kilometer by 35 percent (Department of Transport 1984, 1994; Mackie, Preston, and Nash 1995; White 1995) and by 14 percent from 1985/86 to 1988/89 without including depreciation of vehicles (Glaister 1997). Including depreciation of vehicles, operating costs per vehicle kilometer declined by 41.2 percent between 1985/86 to 2002/03 (U.K. Commission for Integrated Transport 2004). These figures remain inconsistent because of different methods employed to gauge specific attributes and to control for external factors that can influence variables, such as population and economic growth, and lack of accurate reporting methods (Colin Buchanan and Partners 2003). In addition, another problem with evaluating the London case is the difficulty of dealing with the highly aggregate data, a change of regulation, and contract terms over time (Toner 2001), while Glaister (1997) states that tendering cut down overhead costs in management, engineering, and staff facilities.

While the studies by White and by Banister and Pickup were undertaken within the first ten years following the *Transport Act of 1985*, more comprehensive studies have been conducted in recent years to better understand trends and the effects the *Act* has had on bus operations in the long run. Colin Buchanan and Partners (CBP), which was commissioned by the European Commission Directorate-General of Transport and Energy, examined the effects of deregulation and transit contracting on the overall health of the transportation system.[10] CBP collected data for 43 European Union cities including 29 with no competition, ten with controlled competition and four with deregulated competition which had a minimum of five consecutive years of data available. The most recent years used in this study ranged from 1995 to 1999, depending on the age of the system and how well information was reported. In their analysis, CBP found that cities without competition experienced, on the average, an annual decline in ridership of 0.2 percent, and an annual increase of 1.7 percent in areas of controlled competition areas, and an annual drop of 2.6 percent in service areas that were fully deregulated (Buchanan and Partners 2003). CBP

10 The EC had previously collected some data to examine this issue and hired CBP as consultants to ensure that their methods of evaluation and conclusions would be consistent with that of the CBP.

does point out that there are a variety of factors that cannot be accounted for in their study that have the potential to influence the outcome, such as issues the following: size, the phase of deregulation a particular area is in, and general geographical and demographic characteristics. These factors exert influence on travel and ridership patterns (Colin Buchanan and Partners 2003).

Transit Service Privatization in Other International Cases

Despite initial skepticism in other European countries about introducing competition into transit, tendering made inroads in the following years, and by 2000, the European Council was officially encouraging its member states to speed up liberalization of their transit systems (Regulation (EC) No 1370/2007 2007; van de Velde 2001). In 2007, European Union Regulation 1370/2007 updated the legal framework for the awarding of transit contracts and compensation for public services, acknowledging the growth of an EU-wide transit market subject to the Treaty's protection of economic freedoms. The regulation advocates regulated competition—with safeguards[11]—as means to achieving "more attractive and innovative services at lower cost," based on studies and experiences of member states that had already implemented competition in transit (Regulation [EC] No 1370/2007 2007, p. L 315/2). Gwilliam and van de Velde (1990) summarize the status and nature of several Western European countries' transit policies and markets in the late 1980s, as the immediate impact of the U.K.'s reforms were being observed, and van de Velde (2001) revisits those countries a decade later, as the EU considered amendments to its regulation of payment of transit operators in light of the ongoing market changes.

There exists a great deal of variation in the amount of experience in public service privatization throughout the world, with each country exhibiting a unique set of transit policies, regulations, transit and labor markets, operation and management, operating environments, and overall travel behaviors. As a result, each country exhibits somewhat a somewhat different experience in the area of transit service privatization. There is a mixture of successes and failures. The Netherlands, Scandinavian countries, Poland, and Australia have seen more favorable results, while France and Italy have had more disappointing outcomes.

Causes of failures in competitive tendering include: (1) lack of competition in French cities, keeping incumbent providers in place with little incentive to improve of cost savings; (2) inability to reduce high labor costs due to a contract clause that require transit providers to retain existing employees in Italy; (3) no clear service specifications in France and Italy, giving advantages to incumbents; and (4) monitoring and quality control problems in the Netherlands. Individual experiences in France, Italy, the Netherlands, Scandinavian countries, Germany, Central European countries, Australia, South American countries, and South Africa are reviewed in more detail in Appendix B.

11 While the EU found sufficient positive results of competition in its studies to make it the officially preferred policy for transit provision, the emphasis on safeguards is warranted, as not all European cases have been equally successful at achieving both cost savings and public policy goals.

Transit Service Contracting in the U.S.

In comparison to the U.K., other European countries, and Australia, the U.S. has been relatively more conservative in terms of forms and levels of public transportation privatization even after the Reagan administration promoted privatization of public services in the 1980s. Most public agencies in the U.S., if they engage in any outsourcing at all, tend to outsource operation, maintenance, and occasionally planning funding to the private sector,[12] but keep control over policies issues, such as fare structure, route design, and operation hours. This may be a reflection of the fact that public transit business in most urban areas will not yield profits and requires public subsidies from the governments regardless of whether transit service is provided by the public or private sector. This status of provision of transit service also influences the number of studies conducted on this subject in the U.S.

Because of the heightened interests in fixed-route bus service privatization in the 1980s and continued interest in the 1990s, a number of studies were conducted to examine cost savings and cost efficiency gains expected from service contracting.[13] The first group of studies examined costs to provide transit service before-and-after contracting, and most them reported cost savings and/or cost efficiency gains in contracted services. A study of fixed-route bus services in Denver by Peskin, Mundle, and Varma (1993) showed one-year cost savings of $2.5 million (or 12.5 percent), based on an incremental cost analysis, and $5.1 million (or 25.8 percent) based on a fully allocated cost analysis. A fully allocated cost analysis by Denver RTD Public Financial Management (2001) reported savings of $40.1 million dollars (or 31 percent) or more over nine years. Three studies on contracted service in the Foothill Transit system, which were commissioned by Los Angeles County Transportation Commission and conducted by Ernst and Young (Ernst and Young 1991, 1992, 1993), showed a 43 percent cost savings. Teal (1985) and Teal and Nemer (1986) found significant cost savings at the level of, on average, 39 percent for six fixed-route services and 43 percent for six commuter bus services. While most studies examined cost savings and/or cost efficiency for *the service contracted*, Karlaftis, Wasson, and Steadham (1997) analyzed cost efficiency for *transit systems*. They analyzed monthly data from an approximately six-year period, and found that cost efficiency increased by 22 percent (or an 18 percent reduction in cost per vehicle mile) after all transit service routes in the Indianapolis transit system were contracted out to a private firm.

The second group of studies conducted a cross-sectional comparison of the costs of services provided by the public sector and by the private sector, either by system or by line. Morlock and Viton (1985) found higher cost efficiency—in terms of average costs per vehicle mile—was consistently higher in privately provided services by a margin of 40 percent to 50 percent than publicly provided services in three U.S. cities. Downs (1988) found that the six private companies as a group were more cost efficient and cost effective in providing local bus service than the New York City Transit Authority. Webster's case study of Dallas Area Rapid Transit (DART) (1988) also reported costs per vehicle mile for contracted suburban express and local services that were lower by about 40 percent than in-house services.

12 On average, in the U.S. the farebox recovery ratio is less than 30 percent.
13 Iseki (2004) provides a more comprehensive review of these studies.

Employing a simultaneous equations model in an analysis of panel data of more than 300 U.S. transit agencies from 1994 to 1998 to addresses the endogeneity problem between contracting decision and cost efficiency, Nicosia (2002) developed a transit cost model to predict the *potential minimum cost* to produce specified outputs, given input prices as well as other influential factors.[14] Nicosia found cost savings of 14 percent of operating costs, or approximately $3.7 million (in average dollar over the six-year period from 1993 to 1998), for the average public transit agency in her analysis.

Iseki (2010) analyzed a cross-sectional time-series data of more than 400 agencies constructed from the National Transit Database from 1992 to 2000, using a simultaneous equations model with a clear distinction between agencies that contract out *only a portion of service* from those that contract out *all service* and taking into account the moderating effects of several factors on the effect of contracting on cost efficiency. Iseki found relatively small cost efficiency gains in the *average cases*—7.8 percent and 5.5 percent for partial and full contracting agencies respectively. Iseki's analysis also shows the effects of contracting on cost efficiency vary by factors such as peak-to-base ratio, agency size, the wage gap between bus operators in the public and private sectors, and agency.

Only a handful of studies reported negative economic effects of contracting services in the U.S. cases. In contrast to the findings of Peskin, Mundle and Varma (1993) and Denver RTD Public Financial Management (2001), Sclar (1997) argues that the Denver RTD actually lost $9.2 million (in 1990–1995 dollars) in contracting over six years. And in contrast to the findings of Ernst and Young (1991; 1992; 1993), Coopers and Lybrand (1991) reports that the net marginal cost per revenue hour of in-house services was equivalent to that of services procured from a private firm in the Foothill Transit District. In a study of multiple contracting cases in the U.S., Teal (1991a) cited Phoenix Transit and Westchester County studies that increased costs. McCullough, Taylor, and Wachs (1998) reported that operating cost per revenue vehicle hour in the system level is much higher in an absolute term for agencies that contracted some portion of their service than for those that contracted all or none of their service, using cross-sectional data from the National Transit Database (NTD) over a 5-year period, from 1989 to 1993. Examining the rate of cost increase over the study period, they also found that unit costs increased below inflation for all three groups, but least for those agencies with partially contracted service.

In addition to cost savings concerns, the effects of contracting on workers' wages and benefits and quality of service in terms of vehicle maintenance and collision rates have been a point of apprehension. Kim (2005) conducted the first comprehensive study of the effect that contracting out operations has on workers' wage and benefit packages by examining twelve U.S. transit operators from 1995 to 2001, finding that overall, private operators were paid less than the rate in which comparable public employees were paid (Frick, Taylor, and Wachs 2006; Kim 2005). In her regression analysis of the NTD for 320

14 Nicosia's transit cost model is a fundamentally different approach from other studies. It has a solid theoretical basis of the functional form based on the duality theory that allows an analysis of production and cost functions at the same time (Obeng 1985). Refer details of transit cost models to the studies such as Foster (1974), Williams (1979), Viton (1981), Friedlaender et al. (1993), Braeutigam (1999), and Nicosia (2002).

agencies, Nicosia (2002) found that contracted service providers had 70 percent more vehicle collisions and 36 percent more vehicle breakdowns than transit systems that were publicly operated (Frick, Taylor, and Wachs 2006). In these cases, it is likely that cost savings were realized at the expense of workers and quality of service provided and not necessarily from increases in efficiency.

Collectively, most studies of transit contracting in the U.S. have reported on the varying level of positive economic outcomes in terms of cost savings or cost efficiency (i.e., cost per unit of service output—cost per vehicle mile and cost per vehicle hour). At the same time, several studies reported adverse impacts of contracting on the costs, labor conditions, and quality of service.

In contrast to this dominant group of quantitative studies, qualitative studies on the subject discuss the higher complexity of decision making for contracting and of its outcomes. These qualitative studies argue that agencies are influenced by political, social, and institutional forces, and by levels of knowledge and experience regarding contracting, as well as by economic incentives (Iseki 2008; Richmond 2001; Sclar 2000).

While research has been done on public decision making regarding whether or not to privatize transit service as well as other public services (Lopez-de-Silanes, Shleifer, and Vishny 1997), there has not been any research on how such privatization of transit service may affect the quality of transit service in a regional level. This is not a big surprise for two reasons. First, as a contract is made between each public agency and a contractor for a service provision within each system, the success of contracting is often measured also within each system. In addition, regional transit coordination is usually considered responsibility of public agencies, often in conjunction with regional authorities or entities. Nevertheless, contractors may have an important role to increase effectiveness of regional coordination with its role to determine service scheduling and distribute service information. Furthermore, as a private contractor increases its role in other functions, such as planning and capital acquisition, it is likely that their influence on the quality of regional coordination also increases.

The next section will discuss transit service regional coordination in depth based on the literature review. However, it should be noted that it does not include discussion of private contractors' role in regional coordination as no studies on the roles, behaviors, and attitudes of contractors toward transit service coordination could be located.

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REGIONAL COORDINATION OF TRANSIT SERVICE

As one of its components, this study examines the possibility that a private firm contracting with multiple public transit agencies within a region may improve regional coordination of transit service. This section discusses the different types of regional coordination and identifies the indicators that researchers have used to define and measure regional coordination.

Transit users often travel across political jurisdictions conducting economic and social activities in dispersed metropolitan and urban areas. Since many transit users have to travel across a region, the provision of transit service that accommodates people's travel needs is inherently a regional issue. However, political, operational, organizational and financial barriers often pose challenges to coordinating transit services across jurisdictions within a region.

The importance of regional coordination and integration has been well recognized by researchers and practitioners (Meyer et al. 2005; Miller et al. 2005; Pucher and Kurth 1989). According to NEA, an international research firm based in the Netherlands, regional coordination/ integration is defined as:

> The organization process through which elements of the passenger transport system (network and infrastructure, tariffs and ticketing, information and marketing etc) are, across modes and operators, brought into closer and more efficient interaction, resulting in an overall positive enhancement to the overall state and quality of services linked to the individual travel components. (NEA Transport 2003, 17)

Regional coordination and integration are important in providing seamless travel to transit users using multiple transit systems to reach a destination (Cook, Lawrie, and Henry 2003; Miller, Englisher, and Kaplan 2005; NEA Transport 2003; Pucher and Kurth 1989). Regional transit systems that are not well-coordinated can impose burdens on transit users, discourage transferring among multiple transit agencies, and decrease ridership (Miller, Englisher, and Kaplan 2005). Some of the burdens that riders may face in an uncoordinated transit system are unpredictable travel times, long transfer times, lack of system wide information and increased fare payments (Miller, Englisher, and Kaplan 2005). By coordinating services, some regions have been successful in reducing those burdens, and thereby increasing ridership and customer satisfaction (Miller et al. 2005; Pucher and Kurth 1989). Several examples have been pointed out in the literature. Pucher

and Kurth (1989) found that regional integration has been an important factor leading to an increase in transit ridership in decentralizing cities in Germany. Miller, Englisher, and Kaplan (2005) conclude that integration has led to customer level of service improvements and ridership increases in the San Francisco Bay Area.

Despite its importance, relatively little research has been conducted on methods and criteria for measuring and evaluating regional coordination and integration using concrete indices and indicators. In contrast, many studies on the subject tend to broadly define regional coordination and integration, but do not offer any specific indicators to measure it.

While limited, scholarly articles and reports that provide specific indicators, as well as concepts, to measure regional coordination and integration, were carefully examined in order to identify a common set of indicators (Tables 2, 3 and 4). Broadly speaking, among those actually measuring regional coordination and integration, scholarly journal articles often use indictors to analyze the success or failure of specific transportation systems, programs, or policies, while research reports prepared by transit agencies and consultants tend to use indicators as criteria to make recommendations for improving a specific transit system.

Tables 2, 3, and 4 illustrate the following three categories to organize indicators of regional coordination and integration:

1. Managerial/Operational Coordination (page 30),
2. Organizational/Institutional Coordination (page 32), and
3. Financial/Institutional Coordination (page 33).

There are similar typologies within each of these three categories that provide a better perspective on the concrete measures that can be taken by regional transit service administrators to achieve regional coordination. The following sections discuss each of the identified measures in relation to the three aforementioned categories of coordination.

Managerial/Operational Coordination

The first category of indicators is managerial/operational (Table 2). These indicators directly influence the transit user's experience in a transit system and their perceptions toward the quality of service of the system. Among the eight articles in Table 2, all except one (Cook, Lawrie, and Henry 2003) discuss at least two indices in this operational/managerial coordination category.

One of the most frequently mentioned types of operational integration in the literature is schedule (or timetable) coordination.[15] Timetable coordination allows for the seamless transfer of transit passengers from one vehicle to another, from one mode to another, and from one transit system to another. By coordinating arrival and departure times, agencies

15 Several of the articles suggest the use of technology in coordinating schedules. Many transit operators have begun using GPS technology to coordinate schedules and provide better information to transit users on arrival or departure times of vehicles. These technologies such as the automatic vehicle location system can greatly enhance the ability of operators to better coordinate their own schedules and schedules of other operators by providing real-time information about vehicle locations.

can minimize waiting time for travelers at transfer points. This has a direct impact on transit riders' experience by reducing waiting times, particularly out-of-vehicle time, which users usually perceive more onerous than in-vehicle time. Miller, Englisher, and Kaplan (2005) discuss one such example of successful schedule coordination in the San Francisco Bay Area that was done by coordinating schedules of two regional transit systems: Bay Area Rapid Transit (BART) and Caltrain. After coordinating schedules, Caltrain experienced a 17 percent increase in ridership over four months.

Intermodal facility coordination is frequently mentioned as an important factor of regional coordination and integration (NEA Transport 2003; Pucher and Kurth 1989; Transport for London 2001; Tyson 1990). Transport for London's (TfL) "Best Practices Guidelines" provides the most extensive research on intermodal interchange facilities and discusses why this type of coordination is integral to transit planning. Well-coordinated intermodal interchange facilities can help reduce problems such as uncertainty about arrival times, lack of safety, or exposure to the elements by making transfers more convenient, comfortable, secure, and predictable (Transport for London 2001). In particular, taking into account that people generally dislike transferring because of the inconvenience and uncertainty involved (Horowitz and Zlosel 1981), improving interchanges can significantly raise the overall level of integration in a regional transit system (Transport for London 2001). Interchange facilities in certain scales[16] provide lighting and security, shelter from the elements, and serve as centers for passenger information. Other articles mention the importance of accommodating the needs of transit users in non-transit modes at interchange facilities and transfer points, including the provision of park-and-ride systems and bicycle facilities (Pucher and Kurth 1989; Transport for London 2001, 2002).

Information coordination is also identified as a key component of coordination and integration. This form of integration brings together information from multiple agencies, combining it into one medium and using common terms, descriptions, and logos to make it understandable to the user (NEA Transport 2003). There are several references to utilizing real-time, computerized information from regional entities, allowing the transit user to access this coordinated information, either through on-display boards at transit facilities (Pucher and Kurth 1989; Transport for London 2001) or electronically, via the Internet (Miller, Englisher, and Kaplan 2005; Transport for London 2001). It can reasonably be assumed that technologies not readily available when these articles were published (e.g., Internet-ready mobile phones, handheld computers) would further enhance the user's experience. These various techniques for disseminating comprehensive information for regional transit service can heighten the user's sense that he/she is dealing with one coordinated transit system, as opposed to many multiple operators, which can make interpreting information much easier (Miller, Englisher, and Kaplan 2005; NEA Transport 2003; Pucher and Kurth 1989; Transport for London 2001; Tyson 1990). Information coordination is not only important for information on schedules or routes, but also for reporting accidents, delays, or emergency information to passengers or among agencies (Transport for London 2002).

16 As noted by Iseki et al. (2007), transfer facilities can vary greatly in levels of accommodation to passengers, ranging from a simple curbside stop with no shelter to large city-center transfer stations accommodating multiple modes and thousands of transit users.

Fare coordination enables the use of single tickets or passes among multiple transit agencies. Several articles mention fare coordination's role in regional coordination and integration (Miller, Englisher, and Kaplan 2005; NEA Transport 2003; Pucher and Kurth 1989; Transport for London 2001; Tyson 1990). When a trip takes more than one leg to complete, fare integration enables passengers to pay only once, despite the number of operators providing the service (NEA Transport 2003). Fare integration can be implemented within one agency or among multiple agencies, and in the form of passes, stored-value cards, or transfer tickets (Miller, Englisher, and Kaplan 2005). Where passes or stored-value cards are not in use, transfer tickets can offer some degree of coordination among transit operators, allowing passengers to transfer within a transit system or to another system at a discounted fare or at no extra charge for a certain length of time, which can facilitate better coordination between transit systems. Miller, Englisher, and Kaplan (2005) note that many transit systems in the United States with a coordinated fare system have created a better experience for the user. Pucher and Kurth (1989) discuss the success (in terms of ridership growth) of fare coordination and innovative pricing structures in Germany, Austria, and Switzerland, where transit systems utilize corporate and university discounts and special off-season fare rates.

Lastly, coordinated expansion of service is also important for improving regional coordination and integration (Pucher and Kurth 1989). Coordinated expansion of routes allows for more direct and faster journeys, while increased service intervals help attract more transit users (Pucher and Kurth 1989). Pucher and Kurth (1989) cite expansion of routes, improving regional connectivity, and increases in service intervals as key to the success of regional transit systems in Germany, Austria, and Switzerland. The coordination of transit routes and interchanges is also important to regional coordination and integration by connecting routes that otherwise might otherwise be disjointed (Transport for London 2001; Tyson 1990).

Organizational/Institutional Coordination

The second category of regional coordination indices includes organizational and institutional efforts progressing towards regional coordination (Table 3). The literature presents regional coordination at a variety of levels. Highly coordinated regions have integrated regional transit, including a centralized administration, long-term planning and research, and a shared regional vision and strategy (Cook, Lawrie, and Henry 2003; Federal Highway Administration 2002; Miller, Englisher, and Kaplan 2005). These highly coordinated regions are characterized by an active policy at all authority levels (from individual managers, to operators, to regional transit authorities) to implement coordination, with fair representation of all operators at a regional coordinating agency (NEA Transport 2003). These regions may also choose to monitor interagency coordination through the application of performance measures, i.e., benchmarking their progress against integration indices derived from case studies (NEA Transport 2003).

In a regional setting, the policies of individual transit entities can greatly help or hinder the success of regional coordination. Shared regional policies regarding staffing, maintenance, and cleaning of intermodal facilities were identified as indicators of coordination. For example, in Paris "site committees" of transportation operators, local officials, and private tenants are

often established to manage intermodal facilities and maintain operations (Transport for London 2001). Similarly, Cook et al. (2003) referred to the ability to consolidate staff and staff training as benefits to regional transit system consolidation and coordination. This sort of regional training can produce a more consistent quality of service system-wide for transit users. Furthermore, Pucher and Kurth have identified similar regionally shared policies, such as shared advertizing and marketing, as keys to successful coordination (and increased ridership) in several of Germany's Verkehrsverbunds, regional transit authorities established in each of the country's major urban areas (Pucher and Kurth 1989).

Several authors mentioned that a uniform set of agency policies clearly defining roles and responsibilities are essential in reducing conflict between entities and/or transit agencies (Cook, Lawrie, and Henry 2003; NEA Transport 2003; U.K. Commission for Integrated Transport 2001). Indeed, the FHWA discusses the importance of establishing a regional concept of operations in which roles and responsibilities are thoroughly defined through regulations and regional agreements (Federal Highway Administration 2002). Shared regulatory policies can, in fact, strengthen a regional transit system (NEA Transport 2003). Similarly, the sharing of data on ridership, fare revenue, and accidents between agencies could strengthen regional coordination and reduce conflicts (Miller, Englisher, and Kaplan 2005). In addition to institutional policies and goals, a strong political commitment transcending municipal administrations is seen as essential to regional coordination (NEA Transport 2003).

Financial Coordination

The final category of indices covers financial coordination (Table 4). If one thinks of regional coordination as a spectrum of involvement between regional transit entities, evidence of these financial indicators are most often found in the more highly integrated regions, while less integrated regions would likely utilize relatively simple coordination practices, such as timetable sharing. According to the U.K. Commission for Integrated Transport, the most coordinated regions funnel dedicated funding through a citywide umbrella agency (with responsibilities for regional coordination). While creation of this additional layer of bureaucracy is a major barrier in some cases, it is crucial to improving integration. Case studies in the U.K. demonstrated that regional coordination was "only likely to be achieved where funds and resources for policy and scheme implementation are readily available and vested in regional authorities" (U.K. Commission for Integrated Transport 2001, 28). One of the most important factor affecting regional transit planning and coordination is the role of local government in identifying funding sources for the establishment and ongoing operation of cooperative programs at the regional level (Rivasplata 2006).

In the U.S., the financial integration of regional transit systems is much less common than in Europe. According to Miller et al., (2005) joint funding proposals and joint procurement of equipment between regional transit entities are practices that can indirectly impact the service provided to users. Their survey of transit regions across the U.S. found that several regions (including Metro DC, Puget Sound, San Francisco Bay, Southwest Connecticut and Dallas/Fort Worth) utilized joint funding and/ or joint procurement of vehicles. However, the authors acknowledged that none of these regions actually prepared

cost-benefit analyses before embarking on coordinative projects, and as a result, have not been able to quantitatively measure the outcome of infrastructure improvements (Miller, Englisher, and Kaplan 2005). Elsewhere in the literature, dedicated funding sources were seen as beneficial, as they can ensure that regional transit systems provide matching funds for state and federal grant opportunities. In addition, dedicated regional funding sources were seen as potentially important for training of regional staff, coordinating fares and schedules, and improving regional facilities (Cook, Lawrie, and Henry 2003).

Barriers to Regional Coordination

The literature also discusses barriers to regional coordination. Finding sources of funding can be a major barrier to regional coordination and integration (Federal Highway Administration 2002; Miller, Englisher, and Kaplan 2005; Pucher and Kurth 1989). Coordination and integration projects are often expensive to implement, and many regions lack the money or resources to do so (Miller, Englisher, and Kaplan 2005). Moreover, the Texas Transportation Institute has grouped types of barriers that face regions; some of these groups include jurisdictional/boundary issues, communications, funding, cross-agency concerns/lack of trust, service gaps, differing driver requirements, cost allocation, and differing collecting and data requirements (Capital Area Regional Transit Coordination Committee 2006; North Central Texas Council of Governments 2006). These types of obstructions to regional coordination can be present in many urban areas.

Regional Coordination Indices Summary

Table 5 summarizes the indices of regional coordination that were identified in the literature review in a way that they can be more easily operationalized for actual measurement. A “data needed” column elucidates data to obtain to accurately apply these indices to actual measurement of regional coordination. Some of the information is more concrete and easily obtainable (fare schedules, routes, etc), while other information related to organizational policies is obtainable only through interviewing local transit planners and operators. It should be noted that transit operators in this table can mean either public transit agencies or private transit companies.

Table 2. Regional Coordination Indices, Managerial/Operational

Type of Coordination	Indices	Pucher et al., 1989	Miller et al., 2005	Cook et al., 2003	TfL, 2001	Tyson, 1990	NEA, 2003	UK Commission, 2001	Federal Highway Admin., 2002
Managerial/ Operational	Schedule coordination	Better coordination of timetables	Coordination of timetables			Timetable coordination		Integrated timetables	On-time arrival rate
								High-tech approach to coordinating and time tabling	Total average delay (regional)
									Average point-to-point delay time
	Intermodal facility coordination	Park-and-ride systems	Coordinated intermodal facility improvements		Shared interchange signage and route way information	Coordination between modes	Network integration (operational)	Greater pedestrian and cyclist priority	
								Balance use of street space to enable walking, cycling	
			Establishment of transfer centers		Uniform security guards & lighting in interchange zones			Better provision for cyclists (secure cycle parking)	
								Easier interchange between modes	
	Information coordination	Information provision expanded	Real-time info about travel cond. shared		Real-time shared information	Information provision	Information Integration	Better provision of information	
		Computerized timetables	Coordinated activities of information dissemination						
			Transit trip planning info shared						

Note: TfL, 2001, *Transport for London, Best Practices*; NEA, 2003, *NEA, Integration and Regulatory Structures*; U.K. Commission, 2001, *U.K. Commission for Integrated Transport.*

Table 2. Regional Coordination Indices, Managerial/Operational (continued)

Type of Coordination	Indices	Pucher et al., 1989	Miller et al., 2005	Tyson, 1990	NEA, 2003	UK Commission, 2001	Federal Highway Admin., 2002
Managerial/ Operational	Fare coordination	Attractive monthly and annual tickets	Single system-wide passes	Inter-availability of tickets	Ticket and fare integration	Common tariffs	
		Corporate or Univ. discounts	Reduction of transfer fees between jurisdictions				
		Discounts for off-season tickets					
		More attractive fares					
	Expansion/ coordination of services (routes, stops, etc.)	Service expansion		Interchange journeys (transfer coordination)		Security- actual and perceived (incl. appropriate shelters, lighting, amenities)	Customer satisfaction
		Increased service frequency				Carefully coordinated routes	
		Reserved bus lanes				Shelters, passenger info, lighting, seating, at all stops	
		Expanded, modernized bus stops and stations				Perceived affordability - good value for money	
		Improved quality of vehicles				Appropriate speed limits (reduces perceived journey time, creates safer conditions)	
		Better service quality				Increased service quality	

Note: TfL, 2001, *Transport for London, Best Practices*; NEA, 2003, *NEA, Integration and Regulatory Structures*; U.K. Commission, 2001, U.K. Commission for Integrated Transport.

Table 3. Regional Coordination Indices, Organizational/Institutional

Type of Coordination	Indices	Pucher et al., 1989	Miller et al., 2005	Cook et al., 2003	TfL, 2001	NEA, 2003	UK Commission, 2001	Federal Highway Admin., 2002
Organizational/ Institutional	Coordinated marketing/ advertising	Better marketing and innovative advertising						
	Coordinated staff training			Consolidation of training	Shared staff training in multi-modal information provision			
	Shared use of information/ availability of information		Data sharing					Shared Ridership statistics Incident rates
	Coordinated goals and Policies			Uniform set of policies among agencies to reduce conflict		Clearly defined roles and responsibilities; Political commitment to integration Market compatibility of services		
	Overseeing agency/ institutional framework					An authority with coordination role Regulatory and institutional framework Network integration (institutional)	Integrated institutional arrangements	Regional concept of operations
	Coordinated and centralized administration/ governance		Long term planning and research	Centralized administration Fair representation of members in region		Benchmarks to measure progress Index for measuring integration Integration with other (external) organizations Active policy at all authority levels to implement coordination		Shared regional vision and strategy

Note: TfL, 2001, *Transport for London, Best Practices*; NEA, 2003, NEA, *Integration and Regulatory Structures*; U.K. Commission, 2001, *U.K. Commission for Integrated Transport.*

Table 4. Regional Coordination Indices, Financial/Institutional

Type of Coordination	Indices	Miller et al., 2005	Cook et al., 2003	UK Commission, 2001
Financial/ Institutional	Shared/ coordinated funding arrangements	Joint funding proposals	Dedicated regional funding source	Integrated funding arrangements
	Shared purchasing of equipment	Joint procurement of equipment		

Table 5. Operationalized Indices of Regional Coordination

Type of Coordination	Regional Coordination/ Integration Indicator	Operationalized Indices	Data Needed
Managerial/ Operational	Service Schedule Coordination	Coordination in timetables between entities/modes to accommodate transit users (TUs') transfers	Waiting time at major transfer points, headway times, on-time arrival rate, total average delay, (regional), average point-to-point delay time, coordinated bus scheduling system
		Coordination/ Consistency in daily/ weekly operating time schedule to accommodate TU's needs	Daily & weekly operating schedule
	Information Coordination	Information of multiple transit systems shared and provided to TUs, disseminated jointly?	Information on web sites, brochures, maps, web apps, etc.
		Computerized shared information system for TUs in real-time (e.g., web site, iPhone apps)	Information on web sites and web applications.
		Computerized shared information system for operators in real-time	Technologies to share real-time information for operation (e.g., automatic vehicle location system)
	Fare Coordination	Coordinated regional fares, regional system-wide transit passes (one-day, weekly, monthly, annual, off-season, discounted to universities, companies shared medium passes)	Fare media
			Locations where to purchase transit passes
		Provision of regional passes in all districts	

Table 5. Operationalized Indices of Regional Coordination (continued)

Type of Coordination	Regional Coordination/ Integration Indicator	Operationalized Indices	Data Needed
Managerial/ Operational	Intermodal Facilities Coordination	Joint intermodal facility operation and maintenance	Operation and maintenance
		Proximity and directness between stops/stations	Design of transit facilities at transfer points
		Shared signage	Signage
		Shared security force and system	Security force and system
		Shared park & ride lot	Park & ride lot
	Coordinated Service/ Expansion	Route expansion, increased service frequency, service quality improvement, Joint vehicle upgrades	Information on routes, service frequency, vehicle upgrades
Organizational/ Institutional	Coordinated Marketing/ Advertising	Joint marketing	Information on advertisements
	Coordinated Staff Training	Joint staff training	Information on training
	Data Sharing	Shared system usage/ ridership information	Data sharing system or activities
	Coordinating Goals/ Policies	Shared goals/policies	Information on transit agencies' goals and policies
	Intermodal Facilities Coordination	Joint intermodal facility planning/ construction/ maintenance	Presence of such facilities and coordination between operators, MPO's involvement for planning
	Creating Institutional Framework	Regulatory framework	Presence of such regulations
		Authority created with coordination role	Presence of such authorities
	Coordinated and Centralized Administration/ Governance	Policies to implement coordination	Presence of such policies
		Monitoring of coordination/ integration with indices to measure integration in place	Presence of such a system and indices
Financial	Shared/ Coordinated Funding Arrangements	Joint funding proposals	Presence of such practices
		Joint funding arrangements	Presence of such arrangements
		Dedicated regional funding source	Presence of such sources
	Shared purchasing of equipment	Joint vehicle/ equipment purchase	Presence of such practices

Note: Operators in this table can mean either public transit operators or private transit service contractors

EMPIRICAL STUDY: EFFECTS OF TRANSIT CONTRACTING

INTRODUCTION

The purpose of this study is to examine the possibility of improving the efficiency and effectiveness of regional transit service provision through privatization. The unique circumstances, where one private firm has been contracted separately by two districts—Orleans Parish and Jefferson Parish—to provide public transit service, have made it possible to address this second question, regarding regional coordination.

This study examines two main hypotheses:

1. Given carefully designed contractual terms, a private firm has a strong incentive to perform well and meet requirements specified in contracts in order to receive compensation and rewards and avoid penalties, and that this good performance by a contractor will lead to more cost-efficient and effective provision of transit service to the public.
2. Given carefully designed contractual terms, a private firm has an incentive to improve regional coordination, increase ridership, generate more fare revenue, and present a good performance for future contracts by combining services in the two separate areas through internal coordination.[17]

The first hypothesis addresses very common questions pertinent to privatization of public services: the consequences of the transit service privatization on changes in quality, cost-efficiency, and cost-effectiveness of service provision. Of particular interest in this question is the effects of "delegated management contract" implemented by New Orleans Regional Transit Authority (RTA). After a significant degradation in the quality of transit service following Hurricane Katrina, RTA decided to contract out a large portion of functions and responsibilities to a private firm—*significantly more than regular contracting arrangements made in the U.S.*—and started a series of interim contracts with a multinational private sector operator of multi-modal transit, Veolia, in October, 2008. Following this provisional period, RTA and Veolia entered into an official contract with an initial term period of five years, starting in September 2009.

Veolia Transportation is the North American business unit of France's Veolia Transport, a multinational, multimodal transportation provider operating in 28 countries. Veolia Transportation 200 operates contracts in the U.S. and Canada, and cites over 100 years of experience in the U.S., including operations in Jefferson Parish since 1949. Veolia Transportation offers a variety of transit contract options, ranging from strictly management or strictly operational contracts to delegated management and public-private partnerships, encompassing design, construction, financing, operation, and maintenance of transit networks. Although Veolia Transportation's website promotes its delegated management option and touts the success of such contracts in Europe, Veolia's delegated management contract with RTA is its first in the U.S.

17 In other words, a private firm may provide more cost-effective transit service with better regional coordination than do two separate public agencies, if the firm is given appropriate incentives (such as adequate compensation and the prospect of continuation of contracts in future).

Veolia Transport's parent company is Veolia Environnement, a French-based corporation offering services in three areas in addition to transit: water, waste management, and energy.

Veolia has also contracted with Jefferson Parish Transit (JeT) for operation, basic management, and vehicle maintenance of transit service since July 2006.[18] Under these circumstances, we examine the efficiency and effectiveness of providing transit service at each of these two agencies in New Orleans separately, carefully taking into account differences in contractual terms and conditions for regional transit service in New Orleans over years.[19]

The second hypothesis examines a potential benefit to regional coordination that may arise from having one private firm provide services for multiple jurisdictions in a region. In other words, this study will examine whether or not, and how efficiently, one private firm that contracts with two different jurisdictions can achieve better regional coordination for transit service in multiple aspects, such as planning, management, operation, and adopting new technologies, while avoiding geographic equity issues and other jurisdictional problems.[20]

Given appropriate coordination and regulation (e.g., incentives to increase fare box revenues by encouraging ridership), a private firm may create a more coordinated system. Although it is often difficult generalize the analysis findings of a case study of one or more agencies, it can provide experiences that contribute to a better understanding of the advantages and limitations of transit contracting as it relates to regional service coordination.

BACKGROUND

Greater New Orleans Region

The Greater New Orleans region offers a unique opportunity to study the effects that contracting transit provision has on cost efficiency and effectiveness, quality of service delivered, and regional coordination.[21] As it is important to understand the economic and social settings in which RTA and JeT operate public transit service in order to examine the effects of contracting, this section documents the background conditions of transit service outsourcing in two contrasting jurisdictions: (1) New Orleans Regional Transit Authority

18 The original contract was signed with ATC/Vancom, which had recently been acquired by Veolia. The contract was later amended to change the name to Veolia Transportation services.

19 It should be noted that two separate contracts do not specifically require regional coordination per se. Thus, RTA and JeT each focus on their own system performance, not regional coordination.

20 This situation is not widely seen in the U.S., but is often found in the U.K. (Stagecoach services in the Tyne and Wear Metropolitan Area). For example, as one private firm operates transit service in both Orleans Parish and Jefferson Parish, which includes the New-Orleans Airport (served by the "Blue Van" shuttle), this firm is expected to improve coordination in services across jurisdictional boundaries, which has been problematic for many years.

21 A quick GIS analysis of urban areas with more than one transit agency, combined with contractor data for those agencies from the NTD, indicated that there are only four areas in the country in which one provider has been separately contracted by two adjacent jurisdictions to provide the operational services of public transit.

(NORTA or RTA) in the city of New Orleans and (2) Jefferson Transit (JeT) in Jefferson Parish, made up of several suburban cities adjacent to New Orleans.[22]

The city of New Orleans has played an important role in the history of the United States. Its port, located on the Mississippi River, brought the city to international prominence in the 19th and early 20th centuries (City of New Orleans 2010). During this period, New Orleans grew significantly in size and population.

Infrastructure projects, most notably a drainage system built between 1896 and 1925, allowed for rapid expansion and growth. New neighborhoods were built, extensive streetcar tracks were laid, and public health improved in the 19th and early 20th centuries (City of New Orleans 2010).

Like many cities, New Orleans underwent dramatic changes after World War II, as urban renewal projects, the construction of the Interstate Highway System (featuring I-10 in the New Orleans region), and suburbanization took place (City of New Orleans 2010). Eventually all streetcar lines, except the Saint Charles line, were removed as buses became the dominant mode of public transit. Despite dramatic expansion and changes, New Orleans still retained much of its historic character, which is essential to one of its main industries, tourism. The population in the city of New Orleans reached its peak with 627,525 in 1960 and fell steadily in the ensuing decades (City of New Orleans 2010).

The oil and gas industry spurred significant economic development during the 1970s and 1980s. During this time, the region added 100,000 new jobs, an increase of 25 percent (City of New Orleans 2010). However, the economy drastically changed when the oil and gas boom ended in 1985. The oil and gas bust, along with decreased federal funding, led to a period of economic stagnation (City of New Orleans 2010). Household incomes fell and the population shrank. This stagnation stabilized as the national economy began to grow in the 1990s, but the New Orleans economy never fully recovered. The city's tourism and creative industries became the new backbone of the economy after oil and gas companies moved their operations to Houston and Dallas (City of New Orleans 2010). The Port saw significant investment and growth during the 1990s, but the New Orleans region, on the whole, failed to diversify and compete in other industries (City of New Orleans 2010). Economic and social problems persisted through the 1990s and 2000s, and were widely exposed in the wake of Hurricane Katrina, which hit the city in late August 2005 (City of New Orleans 2010).

The New Orleans urbanized area, located in Southeastern Louisiana, consists of seven parishes spread over an area of 198 square miles (Federal Transit Administration 2008a). In 2009, the population of the entire seven-parish urbanized area was estimated to total about 1.19 million. The two largest parishes by population, Orleans and Jefferson, are served by two transit systems: RTA and JeT, respectively. After Hurricane Katrina, the population in the New Orleans metropolitan area plummeted as refugees scattered all over the country (Figure 4). The region's largest parish by population, Orleans, fell from

22 While it is important to take into account the certain effects of Hurricane Katrina on local conditions, this is more so for Orleans Parish than for Jefferson Parish. To examine this, it would be useful to conduct an analysis of longitudinal data, such as monthly data of operation indices and ridership for two jurisdictions, controlling for other variables such as population and economic indicators.

455,000 residents in July 2005 to 158,253 in December 2005,[23] a decrease of 64 percent, reaching an estimated 208,000 the following year, a drop of 54 percent from 2005 (Figure 5). Jefferson Parish also lost population during the aftermath of Katrina, though the loss was not as dramatic. Jefferson Parish's population fell from 451,000 in July 2005 to 420,000 by July 2006; a loss of about 31 thousand people (seven percent). Since then, Orleans Parish has recovered much of its lost population, but is still not back to pre-Katrina levels. As of July 2009, Orleans Parish had an estimated population of 354,000, which is 78 percent of its pre-Katrina population. As of July 2009, Jefferson Parish's population was estimated to be 443,000, which is 98 percent of its pre-Katrina population (Federal Transit Administration 2008a).

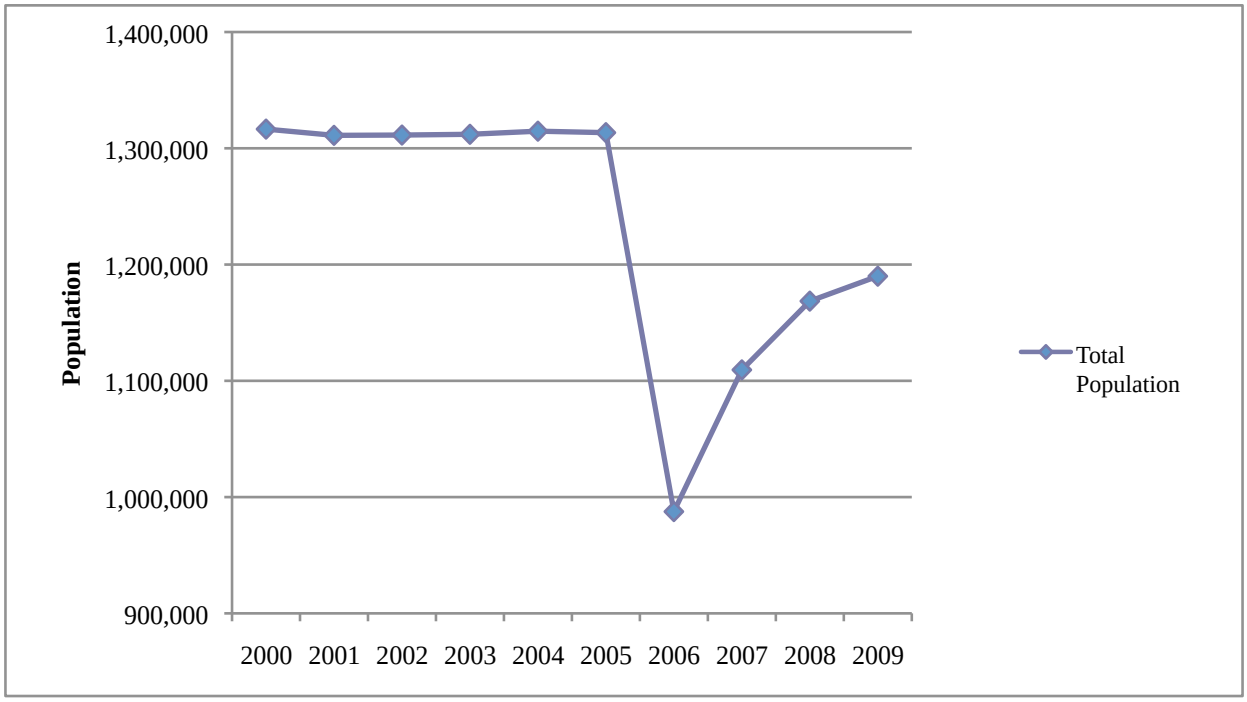

Figure 4. Population Estimates for New Orleans MSA (2000–2009)
Source: Greater New Orleans Community Data Center 2010

Hurricane Katrina not only impacted the residents in the region—its effects extended to the region's transportation system as well. The situation created after the storm is unique for transportation planners. Hundreds of millions of dollars of physical assets were lost and transit users relocated or were left homeless, resulting in losses of farebox revenue and ridership. In response transit providers were forced to scale back operations. Forecasts made before the storm are no longer useful (New Orleans Regional Planning Commission (RPC) 2009).

In addition, the Greater New Orleans region has been going through suburbanization of both residents and jobs. Over the past several decades, residents of Orleans Parish have been moving from the urban core in Orleans Parish to suburban Jefferson Parish. Jefferson Parish now has the largest population in the New Orleans Region (Plyer and

23 Another study by Frey and Singer (2006) reports that the city went from a pre-Katrina population of 437,186. Only since March 2009 has the population surpassed 300,000.

Campanella 2010). Along with the region's population, jobs have also been moving away from the city core. Labeled "job sprawl," this dispersing of job centers has made the task of providing transit service much more difficult as more and more people rely on automobiles to access employment opportunities located in suburban areas rather than taking jobs in the central city. Suburban Jefferson Parish now has more jobs in all employment sectors than the urban core in Orleans Parish (Plyer and Campanella 2010).

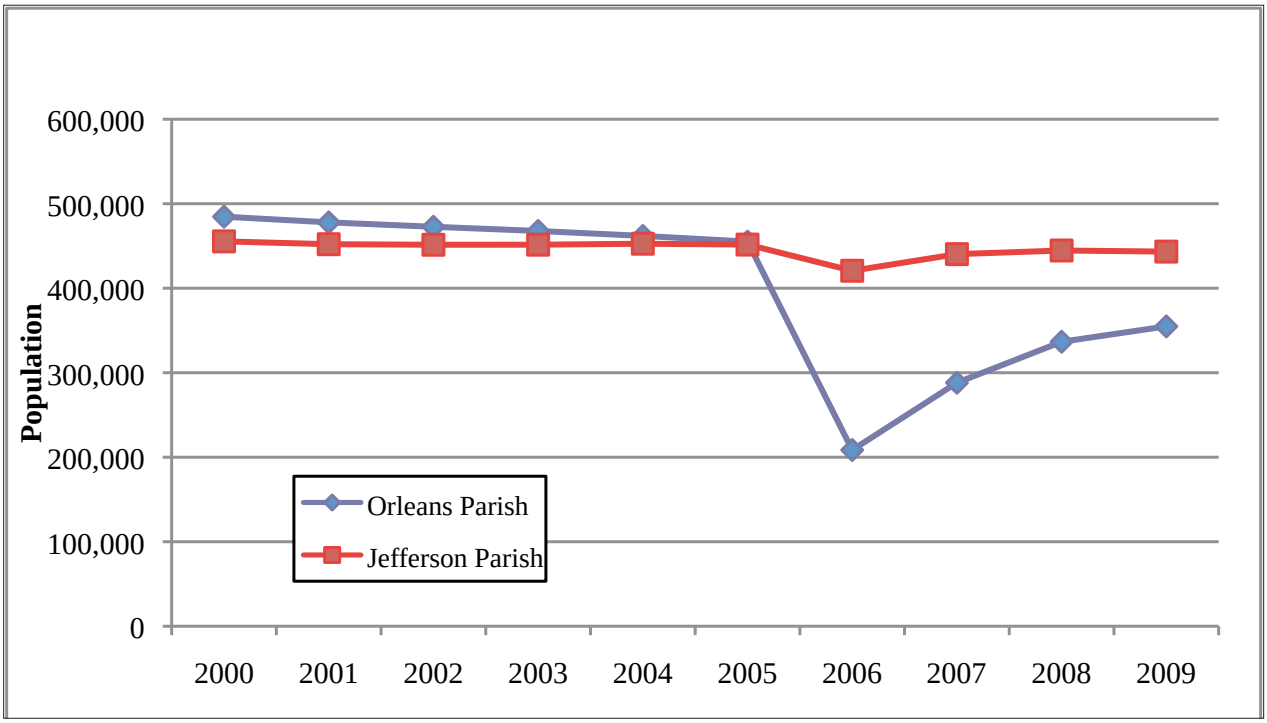

Figure 5. Population Estimates for Orleans and Jefferson Parishes (2000–2009)
Source: Greater New Orleans Community Data Center 2010

As illustrated in Figure 6, the differing urban forms of the two parishes are reflected in their commuting characteristics. Orleans Parish, which includes inner-city New Orleans, has more commuters that rely on public transportation than Jefferson Parish, which has a much more dispersed urban form. As such, a larger percentage of suburban Jefferson Parish residents rely on automobiles to access their jobs, whereas Orleans Parish has far more public transit users, walkers, and cyclists. While seven percent of Orleans Parish residents used public transit to access their jobs in 2008, only one percent of Jefferson Parish residents used public transit. Eighty-one percent of Jefferson Parish workers drove alone to work, compared to 67 percent in Orleans Parish.

As shown in Table 6, the differences between Orleans and Jefferson Parishes are also reflected in their economic characteristics. Suburban Jefferson Parish has a much higher median household income and a far lower percentage of people living below the poverty level. A greater percentage of Jefferson Parish residents have access to a vehicle, and have a slightly longer average commute time than those living in Orleans Parish.

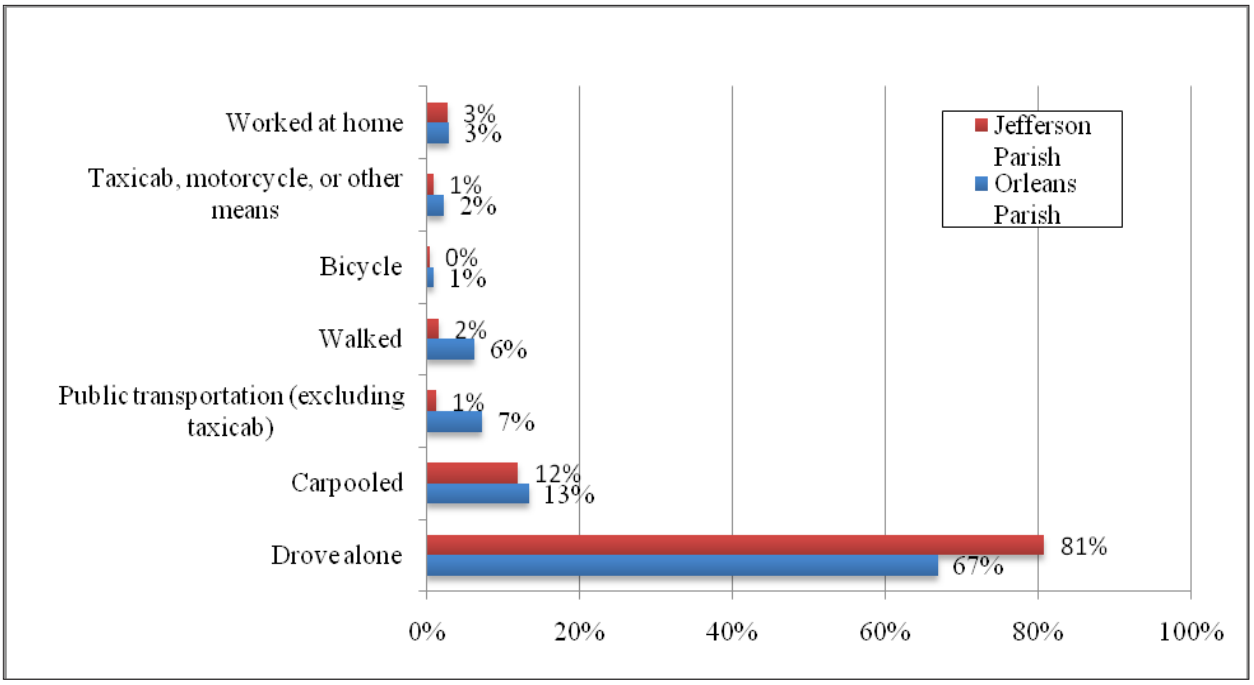

Figure 6. Mode of Transport to Work in Orleans and Jefferson Parish, 2008
Source: U.S. Bureau of the Census 2008

Similarly, Orleans and Jefferson Parish have divergent income distributions. The disparity in household incomes between Orleans and Jefferson Parish is stark. As mentioned previously, Jefferson Parish has attracted more jobs and residents than Orleans Parish. Jefferson Parish not only has a larger population than Orleans parish, but it also has far more wage earners than the latter. Additionally, according to the U.S. Census, wage earners in Jefferson Parish make more money than their counterparts in Orleans Parish. Jefferson Parish has a higher percentage high-income households ($75,000 or more) and middle-income households ($25,000 to $75,000) (Figure 7). At 36 percent, Orleans Parish has a far greater percentage of households earning less than $25,000 per year than Jefferson Parish.

Jefferson and Orleans Parishes also have very different racial/ethnic composition. Like many American cities and suburbs, the demographics and socio-economic characteristics of New Orleans vary greatly between the inner city and the surrounding suburbs. As Figure 8 shows, Jefferson Parish's population is predominantly white at 59 percent, while Orleans Parish has a majority black or African American population of 61 percent. Jefferson Parish also has a larger Hispanic or Latino population at nine percent, while Orleans Parish's Hispanic or Latino population is five percent.

With these economic and social background conditions, the two transit operators in Orleans and Jefferson Parishes face very different challenges in providing service to their respective areas.

Table 6. Selected Economic Characteristics of Orleans and Jefferson Parish

	Orleans Parish	Jefferson Parish
Median Household Income	$37,751	$47,135
Percentage of People Living Below the Poverty Level	22.6%	12.5%
Households without Access to a vehicle	20%	7%
Mean Travel Time to Work (workers 16 and over)	22.7 minutes	24.1 minutes

Source: U.S. Bureau of the Census 2008

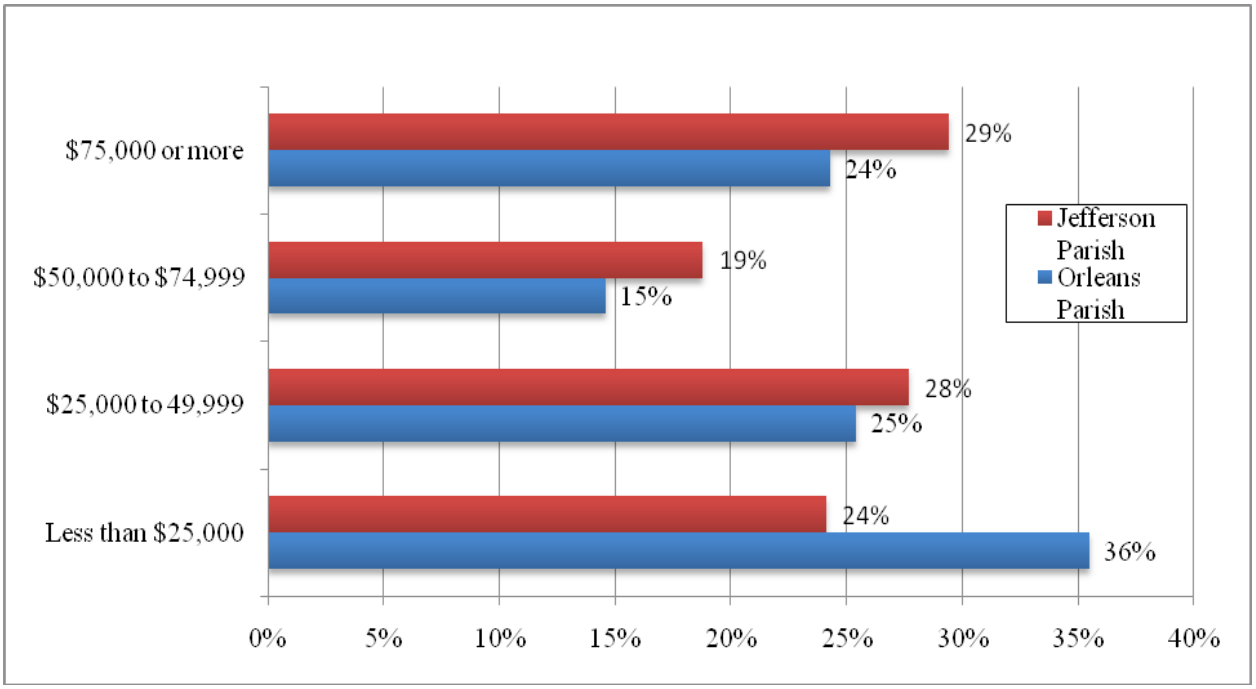

Figure 7. Household Income Distribution in Orleans and Jefferson Parishes in 2008
Source: U.S. Bureau of the Census 2008

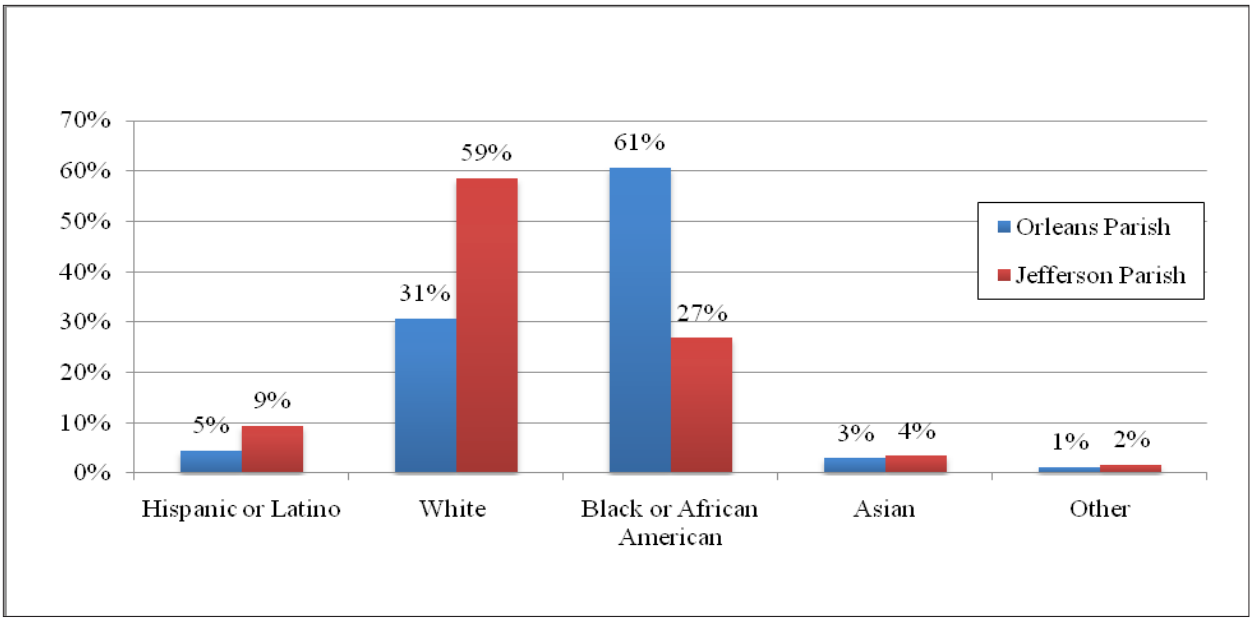

Figure 8. Race/Ethnicity of Residents in Orleans and Jefferson Parishes in 2008
Source: U.S. Bureau of the Census 2008

New Orleans Regional Transit Authority (RTA)

The New Orleans Regional Transit Authority (RTA) is by far the largest fixed route transit operator in the New Orleans area. The agency operates buses and streetcars in New Orleans and the nearby city of Kenner. Before Hurricane Katrina in 2005, RTA recorded 38,762,811 annual boardings, an operating budget of over $103 million, and employed over 1,300 people (New Orleans Regional Planning Commission 2005).

Even before Hurricane Katrina, the authority was already burdened by high pension payments and extremely high operating costs from inefficiencies that developed while RTA was publicly owned and operated. Subsequently, RTA's in-house service experienced a significant decline in productivity and patronage due to the direct damage to its transit system and also the losses in population, jobs, and resources caused by Hurricane Katrina in 2005. RTA lost 205 buses and 31 streetcars to the storm and flooding.[24] By 2007, ridership had decreased to 12 million. In addition to the direct loss of resources and riders, two of RTA's primary funding sources, hotel and sales taxes, were drastically reduced after the hurricane.

Despite these unprecedented challenges, RTA has continued to provide transit service to the New Orleans area. With the help of funding from FEMA and the Louisiana Recovery Authority ($121 million has been obligated as of December 29, 2009) (Federal Emergency Management Agency 2009), most of the streetcar and bus lines are up and running again, although service has been substantially scaled back. For the year 2008, RTA provided more than 12.2 million unlinked passenger trips to the smaller post-Katrina population in

24 In 2005, RTA operated service 24 hours a day, 7 days a week, with 302 peak buses operating 59 fixed bus routes, 66 streetcars operating on three route alignments, and 92 paratransit vehicles providing service on demand. In 2007, RTA was operating 18 hours a day, consisting of 63 peak buses operating on 28 fixed routes, 14 streetcars operating on three route alignments, and 63 paratransit vehicles (New Orleans Regional Transit Authority 2008).

a relatively dense urban area, and spent over $82 million on operations with a much larger fleet and more extensive routes than JeT, as Table 7 shows (Federal Transit Administration 2008b).

Table 7. Service Characteristics of RTA and JeT

	RTA	JeT
Service Area	75 square miles	94 square miles
Population Served	195,000	438,765
Vehicles Operated in Maximum Service	109	42
Vehicles Available for Maximum Service	206	68
Routes Operated	33	13
Fare Revenues Earned	$10,529,956	$2,558,502
Modes Operated	Bus Light Rail Demand Response	Bus Demand Response
Annual Passenger Miles	31,157,218	11,586,415
Annual Unlinked Trips	12,273,303	2,104,408
Annual Vehicle Revenue Miles	4,369,008	1,632,872
Annual Vehicle Revenue Hours	392,617	119,061
Total Operating Funds Expended	$82,828,828	$11,920,947

Source: Federal Transit Administration 2008b

While RTA provided all of its service in-house from 2002 to 2008, it began contracting out transit service to Veolia Transportation, a subsidiary company of Veolia Transport, based in France. Veolia is faced with the pre-existing inefficiencies in the RTA system, high pension payments, and Katrina-related obstacles as it takes over management and operation. Due to a significant reduction in the number of vehicles in the fleet as well as the patronage, the entire transit system has been going through a complete restructuring based on the current travel patterns of current customers. In addition, RTA/Veolia has been working also on amenities at bus and streetcar stops, including shelters, benches, time schedules and route maps. In short, RTA/Veolia has been improving these basic elements that are important to accommodate the needs of transit riders within the system.

Jefferson Transit (JeT)

While RTA primarily serves the city of New Orleans, Jefferson Parish Transit (JeT) operates primarily outside of New Orleans in suburban Jefferson Parish, including the cities of Metairie, Gretna, Terrytown, Harvey, and Marrero. JeT, however, has a few bus lines that provide service to New Orleans, including an express bus that runs to the central business district. JeT operates 52 buses, 16 paratransit minibuses, and has over 100 employees (Federal Transit Administration 2008b; Office of Parish President Aaron F. Broussard 2009). It has 10 fixed routes and two park and ride facilities (Office of Parish President Aaron F. Broussard 2009).

While JeT is a much smaller transit operator than RTA, it serves what has become the most populous Parish in the New Orleans region, serving 438,000 people and providing 2.1 million unlinked passenger trips with the total operating expenses of $11.9 million in 2008 (Table 7) (Federal Transit Administration 2008b). Ridership on JeT increased by five percent from 2007 to 2008 (Jefferson Parish Transit 2008). In 2009, voters approved a measure to renew a millage (property tax) to support JeT's operations. Sixty-seven percent of voters approved the measure to support paratransit, while 61 percent supported the tax for improved fixed route service. The renewed millage will help with improvements such as replacing buses, new bus shelters, a new terminal, and improved security (Office of Parish President Aaron F. Broussard 2009). JeT faces challenges serving a large, dispersed, suburban area, but given Jefferson Parish's new status as having the most jobs and people in the region, JeT's operation certainly has the potential to grow (Plyer and Campanella 2010).

Although Hurricane Katrina brought both agencies to a standstill, JeT sustained considerably less damage than RTA and returned service to its parish on September 28, 2005, after the threat posed by Hurricane Rita had passed (Jefferson Parish 2005). While RTA lost 236 fixed-route vehicles in addition to greatly reduced ridership levels (Luczak 2007), JeT lost only one bus, and Jefferson Parish's population and resources remained more stable than Orleans' did after Katrina.

Data, Data Sources, and Data Collection

This report presents a case study examining how transit contracting influences the quality and productivity of transit service in two adjacent jurisdictions in the New Orleans region. Four distinctive data sets are analyzed in this study: (1) financial and operating data from the National Transit Database (administered by the Federal Transit Administration of the U.S. Department of Transportation) from 2001 to 2008;[25] (2) data and documents on transit management, operation, finance and contracting from public agencies in the Greater New Orleans region;[26] (3) original transit user survey data; and (4) information collected through a questionnaire and interviews on regional coordination that we conducted with transportation planners at RTA, JeT, and the Regional Planning Commission (RPC), the metropolitan planning organization in the New Orleans region, in comparison to the data collected from the nationwide survey.

The first and second sets of data were used to examine processes and contractual terms of transit service outsourcing in two contrasting jurisdictions, and analyze performance of transit service. The factors examined were not just those that are easily quantified—cost efficiency measured by cost per vehicle hour and cost per vehicle mile—but also the service quality that transit users perceive in transit systems, using the third set of data.

25 The NTD contains a wide array of operating and financial data for all public transit systems that are recipients or beneficiaries of FTA Urbanized Area Formula Program (Section 5307; formally Section 9) grants and the Congestion Mitigation and Air Quality (CMAQ) program funding.

26 These include governments' reports, reports prepared by the staff at public agencies, meeting minutes of city council, request for proposals, and contracts between public agencies and the contractor, and document background conditions, processes, and contractual terms of transit service outsourcing in two contracting jurisdictions. Table 36 in Appendix C lists the documents that we received from the public agencies in the Greater New Orleans Region.

These factors include the level of satisfaction that users have on a variety of service components, such as safety, security, on-time performance, information, and amenities. The fourth data set was used to assess the level of regional coordination in New Orleans' transit service.

CONTRACTUAL TERMS

Transit Service Contracting in the New Orleans Region

In January of 2008, the New Orleans Regional Transit Authority issued a request for proposals for transit management services that were previously contracted to Transit Management of Southeast Louisiana (TMSEL). TMSEL had operated the system starting in 2002, when RTA cancelled its contract with Metro New Orleans Transit Inc., stemming from fraud allegations within the company that were later proven accurate.[27] Since 1979, the transit system had been operated by the RTA, a political subdivision of the State of Louisiana (New Orleans Regional Transit Authority 2008). TMSEL had played a role in the delivery of transit service in New Orleans since 1983, however, when the previously privately owned and operated system came under public control. The private owner, New Orleans Public Service, Inc. (NOPSI, also the city's energy company), partnered with RTA and the City of New Orleans' Office of Transit Administration jointly formed TMSEL. Since NOPSI's existing transit staff were union-represented, rather than subject to civil service rules, TMSEL was originally created to negotiate wage and other employment matters.

A request for proposals for transit management services was issued on January 28, 2008, with a submission deadline of March 18, 2008. The RFP called for a single contractor to provide service of fixed-route, paratransit, and streetcar services in Orleans Parish. Since 1979, the transit system had been operated by the Regional Transit Authority, a political subdivision of the State of Louisiana (New Orleans Regional Transit Authority 2008).

The contracted firm would be responsible for operations, maintenance, planning, funding, and management, with overall policy issues, such as fare structure, decided by the RTA Board of Commissioners (New Orleans Regional Transit Authority 2008). The uniqueness of this contract lies in these functions, and the RTA's decision to negotiate the terms with the selected provider rather than strictly outline them within the RFP.

Bids received from First Transit Inc. of Cincinnati, Veolia Transportation, and TMSEL were reviewed by a private consultant, Anthony Mumphrey, hired by the RTA. He presented his recommendation to the RTA board on June 26, 2008. Mr. Mumphrey stated that Veolia rated the highest in the area of management team experience, strategic approach to delivery of services, plans for hiring disadvantaged companies as subcontractors, and in its use of creative ideas, justifying his recommendation to the RTA Board of Directors to award the contract to Veolia (Donze 2008).

27 On May 24, 2006, Glenn A. Haydel, the majority stakeholder of Metro Transit New Orleans Inc., pleaded guilty to committing federal program fraud. Mr. Haydel also served as the president of TMSEL and had embezzled monies from the cash-strapped RTA during his tenure (U.S. Attorney's Office 2006).

After receiving a recommendation from the RTA consultant, in October 2008, RTA's board of commissioners unanimously voted in favor of a delegated management contract with Veolia Transportation. Under the new agreement, Veolia is responsible for all functions below the board level, including "operations, safety, maintenance, customer care, routes and schedules, capital planning, budgeting, employee salaries and benefits, human resources, marketing, ridership growth, grant administration, as well as all the other typical functions of a transit authority" (Veolia Transportation 2009). After the initial trial period from October 2008 to August 2009, the official contract period began September 2009, and will last for five years, with the option to extend an additional five years.

In April of 2005, three years prior to the request for proposals sent out by RTA, Jefferson Parish commenced its own process of securing a single private firm to provide operation of fixed-route bus service (69,721 revenue hours per year[28]). The parish, which is divided by the Mississippi River into two unattached landmasses, previously had three separate contracts with three different operators to provide fixed-route bus service to the Westbank and Eastbank, and ADA complimentary paratransit service to the parish as a whole.[29] In its request for proposals, Jefferson Parish stated that the consolidation of the three contracts into one would "create efficiencies and reduce redundancies that have resulted from having three [separate] providers." Jefferson Parish utilized a competitive tendering process where bids received were evaluated based on scoring criteria inclusive of (1) qualifications and experience of the contractor, (2) general requirements, and (3) the price of the proposal. ATC/Vancom, Inc. was awarded the contract, which was signed in July of 2006. In January of 2007, an amendment was signed (Amendment 2), acknowledging the name change from ATC/Vancom to Veolia Transportation Services, which had acquired the company in September of 2005.

Although the transit provider for these adjacent parishes is the same, the type of contract utilized and range of responsibilities given to Veolia by each authority are very different. In Jefferson Parish, Veolia's contract and responsibilities are along the lines of what is traditionally seen in the U.S., consisting of operations and maintenance roles. Conversely, RTA in Orleans Parish approached contracting in a unique way compared to customary contracts in the U.S. by fully allocating the responsibilities for operations, maintenance, management, planning, and funding to Veolia negotiating with the company to produce a delegated management contract.

Table 8 compares the functions contracted out to Veolia by RTA and JeT, and illustrates the differences between the two. The table is separated into five categories: (1) operations, (2) maintenance, (3) management, (4) planning, and (5) funding, showing what tasks Veolia is responsible for. These varied approaches to contracting in Orleans and Jefferson Parishes offer a unique opportunity to examine the differences between each parish in the process of securing a private provider, and how much control each authority retains over Veolia.

28 Prior to Hurricane Katrina, when the first RFP was issued, there were 167, 405 bus revenue hours per year.

29 Louisiana Transit operated service on the Eastbank, ATC on the Westbank, and East Jefferson General Hospital provided parish-wide paratransit service.

Table 8. Responsibilities, Reporting, and Requirements at RTA and JeT

	RTA	JeT
Operation	• Operation of fixed-route bus service, streetcar and paratransit services, and related tasks that are usually assumed for regular operation.	• Operation of fixed-route bus service. • Vehicle utilization reporting, inclusive of bicycle rack and wheelchair lift usage. • Data reporting of total hours operated by line. • Accident reporting. • Reporting of customer service issues and steps taken to rectify issues.
Maintenance	• Maintenance of all vehicles and facilities. • Following suggested maintenance schedules for all equipment.	• Maintenance of all vehicles and facilities. • Following preventative maintenance plan that was submitted as part of the proposal.
Management	• All transit system functional responsibilities. • Grants. • Administration of service contracts with outside contractors. • Marketing and advertising. • Safety and security program. • Staff levels and labor relations. • Formal training and safety program submitted as part of the proposal.	• Report employee training and pay. • Formal training and safety program submitted as part of the proposal.
Planning	• Short- and long-term service planning. • Submission of annual plan for services and budget to RTA Board. • Capital planning, projects, and procurement. • Route and schedule planning.	• Veolia is not responsible for any transit planning functions.
Funding	• Applying for grants and government funding. • Exploring new funding options and programs.	• Veolia is not responsible for procuring funding.

Interim Services Management Contract and Outcome of Negotiations between RTA and Veolia

RTA used negotiations with Veolia to structure a contract that would reflect the shared goals of each entity (New Orleans Regional Transit Authority (RTA) and Veolia Transportation Services 2008). The scope of responsibilities that RTA required Veolia to provide and negotiations between the two led to a contract that is less rigid than that of Jefferson Parish. This left Veolia much room to decide how to efficiently manage transit in New Orleans.

While RTA and Veolia were in negotiations, they collectively decided to enter into a short-term interim contract. The Initial Interim Services Management contract would serve as a test period while the prior service provider, TMSEL, worked with RTA to transfer its responsibilities to the control of Veolia. Before the full transition could take place, RTA stipulated that Veolia fulfill certain transitional tasks to show that they were capable of handling the complex transit system (Table 9). The transitional terms illustrate the complexity of the contract and the vast range of responsibilities that were allocated to Veolia, such as requiring Veolia to invest their own funds in establishing the Lil' Easy Bus service, and generating plans for long-term capital improvements and rail programs. It also signified the increased contract term, from three years with two one-year renewal options that were outlined in the RFP, to a ten-year contract (New Orleans Regional Transit Authority (RTA) 2008; New Orleans Regional Transit Authority (RTA) and Veolia Transportation Services 2008). The terms were eventually met,[30] and the Delegated Management contract between Veolia and RTA commenced on July 1, 2009.

Table 9. RTA Transitional Contract Requirements

Veolia is required to:
• Invest their own resources in acquiring and implementing the Lil' Easy bus system. • Create a plan to establish a full-time rail program that would examine the feasibility of rail options. • Plan for the transition of employees from temporary offices to renovated, permanent offices. • Generate and present a plan for cost savings within the system. • Produce a long-term fleet replacement plan, introducing unique and different vehicle options. • Plan for long-term capital improvements. • Generate a reorganization plan intended to improve service delivery.

Contractual Terms and Monitoring for Quality Control

Mechanisms to ensure quality service delivery by Veolia are present in both the RTA and JeT contracts to different degrees, and enforced in different ways. Jefferson Parish's contract is designed to include financial incentives for efficient operation, including elements typically found in performance-based contracts such as growth in service

30 The time frame for completion of these tasks was 90 days after the Initial Interim Services contract was signed. By mutual agreement, this was extended by six months.

levels (Hensher and Wallis 2005).[31] Although there are no direct financial incentives for increases in ridership, on-time performance, or maintaining cleanliness of vehicles, these aspects are accounted for through financial penalties for poor performance or risk of termination if problems persist. Veolia's contract with RTA has much less emphasis on the specifics of quality, and takes a more holistic and possibly naïve approach by assuming that quality service will be achieved because Veolia has expressed their shared goal with RTA in "improving the delivery of public transit service to the citizens of the New Orleans Metropolitan Area" (New Orleans Regional Transit Authority (RTA) and Veolia Transportation Services 2008, p. 1).

Jefferson Parish explains that it is establishing a system of controls and standards to prioritize customer satisfaction, and require the operator to provide service that is high in quality, clean and courteous, and performed in a timely manner (Department of Transit Administration 2005). These aspects show a level of commitment by the parish to ensure quality bus service, and recognition that low operating costs are not the only important factor. In order to monitor the quality of service, Jefferson Parish requires Veolia to submit monthly reports that detail day-to-day operations, inclusive of customer usage of special features (e.g., bicycle racks, wheelchair lifts), operator training and upkeep training programs, and complaints from customers and how they were handled. These reporting requirements allow Jefferson Parish to keep a close eye on Veolia, but may increase the cost of contracting because of the amount of monthly reporting required.[32] Service is also monitored by parish staff members, who randomly check the quality of service by riding the buses to gauge timeliness, passenger treatment, and cleanliness of vehicles, and report any problems discovered to Jefferson Parish. Finally, Veolia is required to assist the parish in developing methods to sample transit users to measure their perception of service.

If Veolia fails to comply with the service quality standards and reporting required by Jefferson Parish, they may be terminated from their duties as a contracted operator. Consistent reference to service quality and customer satisfaction, penalties for poor performance, and a financial retainer to safeguard Jefferson Parish against inadequate service delivery add a layer of protection for the parish. Unfortunately, similar protections and justifications for termination[33] are not seen within the RTA contract. It may be assumed that negotiations between RTA and Veolia allowed for a less stringent outline of quality control requirements because RTA was entrusting Veolia to manage the entire system, and the contract was jointly designed based on a shared set of goals between RTA and Veolia.[34]

31 Cox and Love (1988) outline performance measures that could be used in a performance-based contract. They include: (1) on-time performance, (2) driver courtesy, (3) cleanliness of vehicles, (4) safety and maintenance measured by break-down rates, and (5) trip completion.

32 Cox and Love (1988) warn that contractors take into account excessive penalties or reporting standards when bidding on a contract, and will increase the bid price accordingly.

33 The termination policy by RTA allows for a 30-day remedy period, and only refers to the material obligations of the contract. Since the RTA contract does not include details of service quality, there are no direct references to termination based on poor service quality.

34 These common goals include: (1) a commitment by both parties to improve the delivery of public transit services in New Orleans, (2) reducing costs and reinvesting savings, (3) finding alternative public transit system delivery methods to respond to the varying city needs, and (4) funding a Comprehensive Improvement Program.

One feature to control quality that is seen in both the RTA and JeT contract is preventative maintenance standards. Preventative maintenance requirements are intended to ensure that buses are operating efficiently for both cost saving and service quality concerns. This includes requiring that Veolia follow strict preventative maintenance and cleaning schedules, so long as they comply with the manufacturers' suggested maintenance. The management component of the RTA/Veolia contract made it possible for RTA to be less involved in making such schedules, while Jefferson Parish has increased involvement in managing the transit system and generating maintenance and cleanliness schedules for Veolia. It is also a testament to the different stages RTA and JeT were in when the contracts were signed that JeT looked to Veolia to provide basic operations of a relatively organized transit system, while Orleans looked for an all-encompassing provider to help restructure and improve the transit system as a whole. Although each parish made it apparent that preventative maintenance was a concern, JeT clearly outlined the repercussions of failing to comply by including in the contract that a $100-a-day fine would be levied against Veolia if they were found in non-compliance with the maintenance and cleanliness terms.

While both Jefferson Parish and RTA have indicated that cost savings is not the only concern that should be accounted for, Jefferson Parish has been more directive in how Veolia is expected to perform when it comes to quality of service, and has made quality customer experiences a much larger part of these requirements. RTA has focused more on expanding and improving physical services, perhaps because the system was in a worse position in terms of efficient operation than Jefferson Parish was.

Labor Issues in Contracts

While RTA in Orleans Parish does not outline worker relations in such detail, Jefferson Parish makes it clear in the contract that outsourcing should not have any negative impacts on existing employees. The contracts by both agencies require that Veolia work with those operators who were employed by the agencies prior to the contract period, and that Veolia maintain working relations with the labor unions that serve the operators. In addition, both Jefferson Parish and RTA have outlined the mandated federal provisions that must be followed in reference to the Equal Opportunity Act, Disadvantaged Business Enterprises, and Title VI Civil Rights Act. Since Jefferson Parish has retained this responsibility,[35] it is necessary for the Parish to outline the details of standards and expectations in regard to Veolia's hires. For this reason, Jefferson Parish clearly indicates the importance of workers' rights in both its Request for Proposals and its contract. Jefferson Parish states that it recognizes the need for operators to pay wages sufficient to attract quality workers. It also outlines rules for overtime pay (which is the standard time-and-a-half), and requires the operator to honor current union labor agreements and those that were in effect prior to awarding the contract.[36]

Thus, Jefferson Parish has taken adequate measures to ensure that workers will be protected and that cost savings will be based on efficiency of operations, and not on cuts in service quality or employee compensation. This is important, especially in light of

35 Although Veolia does not retain any management responsibilities, they are required to provide safety and worker training and refresher courses, which could be seen as a management component.
36 Jefferson Parish has two separate labor agreements, one for the Eastbank, and another for the Westbank.

research that has identified these cuts as prevalent when transit operations are contracted out (Frick, Taylor, and Wachs 2006; Kim 2005; Nicosia 2002).

Compensation and Cost Saving Incentives

Jefferson Parish and RTA approached compensation of Veolia in different ways, although each includes a variable cost payment to cover operating costs. This is due to the varied level of responsibilities found within each contract. Although RTA utilized negotiations in securing Veolia as a provider, similar to those of performance-based contracts, RTA does not include an incentive payment in the final Delegated Management contract. Jefferson Parish followed a more traditional bidding process and created a more rigid contract, but the parish offers an incentive payment based on quality performance. This exemplified the mixture of performance-based contract format and traditional competitive tendering format found within each of the parishes' contracts. Table 10 presents details of payments and incentives to Veolia in three different contracts: (1) RTA's transitional contract, (2) RTA's final delegated management contract, and (3) JeT's final contract.[37]

Comparing the RTA Initial Interim Services contract and the RTA Delegated Management contract, one can see how Veolia and RTA collectively worked together to negotiate the changes in contractual terms towards common goals. In particular, the change in cost per vehicle hour is substantial when comparing the Initial Interim Services contract and the Delegated Management contract (New Orleans Regional Transit Authority (RTA) and Veolia Transportation Services 2008). Because Veolia received documents and data on RTA's existing transit system, Veolia was able to examine potential measures for cost savings. Within the first contract, the cost per vehicle hour for fixed-route, paratransit, and streetcar were $85.52, $77.24, and $115.21 respectively, resulting in a 10 percent decrease in fixed-route cost, 12 percent decrease in paratransit cost, and nineteen percent decrease in streetcar cost from the initial payments RTA had anticipated making. Hensher and Stanley (2008) better explain this process by suggesting that in negotiations, parties perceive one or more problems between them and work together toward a common goal of resolution.

Aside from the variable cost per vehicle hour, Veolia is also compensated by RTA with a fixed rate per month of $1,390,732 for the length of the contract to cover costs mainly associated with administrative and management costs.[38] Such a payment is not found in the Jefferson Parish contract because Veolia does not have the level of responsibility in Jefferson Parish that it does in Orleans Parish. Veolia is responsible for planning and management functions (Table 8) that greatly increase its costs incurred in the RTA/Veolia contract. Although some of the costs, such as insurance payments, and labor and benefits of administrative staff, are covered by Veolia in Jefferson Parish, it is assumed that these costs were factored into the cost per revenue vehicle hour that Veolia is reimbursed for.

37 It should be noted that RTA/Veolia did not supply more details than provided in this report despite our repeated requests to obtain documents and reports that supplement two documents that RTA/Veolia initially provided: (1) 2008 Request for Proposals, and (2) Transit Management Services First Amendment to Transit Management Agreement (Transitioning to Delegated Management).

38 The fixed fee covers all administrative, supervisor, and dispatcher employee labor and benefit; Workers' Compensation Insurance; casualty and liability insurance; administrative equipment and supplies; data processing and technical services; security; armored car services; travel; and advertising and promotion.

Table 10. Payments and Incentives in RTA and JeT Contracts

	RTA		JeT
	Transitional Contract	**Final Delegated Management Contract**	**Final Contract**
Payment	Fixed fee: $1,109,544 from October 2008 to December 2009 Variable fee: $85.52/hr (fixed route), $77.24/hr (paratransit), and $115.21/hr (light rail)	Fixed fee: $1,390,544 made in monthly installments for 299,388 fixed route vehicle hours (VH), 77,020 paratransit VH, 120,583 light rail VH Variable fees: $76.86/hr (fixed route), $68.32/hr (paratransit), and $93.47/hr (light rail)	$88.97 per fixed route revenue VH for 75,347 revenue VH; increases of more than 20,000 revenue VH will be renegotiated
Management Fee	$45,984 for first month, then $147,938 per month during interim management period Additional $16,573 per month for EZ bus service	Same as Transitional Contract	Built into cost per revenue VH
Cost-Saving Incentives	Veolia will receive 25% of the total savings achieved each year if it meets service quality performance standards: Maintenance Effectiveness: Miles between road calls Operating Effectiveness: Percent missed trips Safety: Accidents per 100,000 miles Service effectiveness: Ridership per hour	No incentive program	Veolia receives 10% of the difference between projected costs and actual costs when the actual costs are lower, without stated requirement to meet certain performance criteria*
Fares	Property of RTA	Property of RTA	Property of Jefferson Parish
Fuel Cost	Reimbursed by RTA as a part of operating expenses	Same as Transitional Contract	Fuel is calculated at $2.18 per gallon; each quarter Veolia reports increases in fuel costs and will be compensated for the difference

* JeT outlines performance standards and penalties associated. It is unclear whether Veolia will receive cost difference payments if they are not meeting performance standards, but there are penalties attached to underperformance.

Veolia has the opportunity to increase its compensation in different ways throughout both contracts. In Jefferson Parish, Veolia is awarded 10 percent of the difference between the actual annual audited budget, and any cost savings realized by Veolia. There is also a component for compensation built into the cost per revenue hour. Jefferson Parish has built into the contract a way in which the budget can be renegotiated if necessary, but warns that any renegotiations that take place will also include a renegotiation of the set management fee. The risk of renegotiations leading to Jefferson Parish decreasing the management fee paid to Veolia may be viewed as a way to deter Veolia from working inefficiently, and consequently increasing the cost of operations. On the other hand, if Veolia is able to decrease operating costs, it will share the benefit with Jefferson Parish because the contract allows Veolia to receive 10 percent of any cost savings realized.

The matter of incentive payments to Veolia by RTA is another aspect of the contract that changed significantly from the Initial Interim Services contract to the Delegated Management contract. In the transitional contract, Veolia was compensated 25 percent of any cost savings achieved, as long as certain performance standards were met. These standards included a variable to account for maintenance effectiveness, operating effectiveness, and safety and service effectiveness. Any shortcomings in meeting any of these standards were to result in a reduction of the incentive payments. Once the transition to the Delegated Management contract was made, these incentive payments were removed in their entirety. The rationale behind this decision to remove the incentive payments is unclear from the available documents.[39]

As shown, each public agency has approached contracting transit services in a very different way. Each contract holds similarities to those found in the adjacent parish, but RTA's decision to contract out a wider range of responsibilities has created the necessity for a less rigid, more financially complicated contract. JeT in Jefferson Parish has placed a great deal of emphasis on quality control and customer service to ensure that standards will continue to be met while Veolia is discovering new ways to efficiently cut the costs of bus operation. As for RTA in Orleans Parish, a desire to reorganize the structure and effectiveness of the transit system while decreasing the previously high operating costs is reflected throughout the contract.

TRANSIT USER SURVEY

Methodology of Transit User Survey Data Collection

A survey was designed to assess transit user's perceptions of quality and regional coordination of transit service in the Greater New Orleans region, and to capture any changes in users' perceptions during the 12-month period prior to the time when each participant took the survey, representing the period in which RTA service provision strategy changed from in-house to contracting. The main survey questions were related to riders' perceptions of various attributes of transit service and regional coordination that influence transit users' experience, ranging from safety and cleanliness to waiting times and route

39 As previously stated, RTA/Veolia has not responded requests for more details of the contract as of November 24, 2010. This lack of transparency to the public is often problematic, and might lead to more serious problems once more information on the contract is revealed.

information. Additionally, the survey included questions regarding transit users' demographic characteristics and their trip characteristics at the time of survey taking.[40] The survey was designed so that survey respondents could complete it within 15 minutes, as they would have limited time to complete the survey while waiting for their next bus or streetcar.

Bus/streetcar stop locations for conducting the survey were selected based on the presence of trip generators/attractors and transfer points of more than two transit lines, and on consultation with RTA and JeT. Although initially an equal number of bus/streetcar stops in both jurisdictions was selected, the plan was changed due to a substantially lower number of people observed waiting at bus stops in Jefferson Parish. Instead on-board surveys were conducted on JeT vehicles.[41] A total of four graduate and undergraduate research assistants went into the field and approached individuals waiting at transit stops, ensured that they were over the age of 18, and requested participation in our transit user survey. Each respondent could either fill out the survey or provide responses to the research assistant, who could fill out the survey on behalf of the survey taker. In general, people were very cooperative, and were eager to express their opinions on transit service.A total of 461 surveys were collected over a three-month period.

There are a few concerns arising from the way this survey was conducted. First, the survey was conducted on people who are already using transit service, which may have caused a selection bias; for example, people who are so dissatisfied with the level of transit service that they no longer use it would not be captured by this survey. Second, some respondents may have provided answers for multiple questions in seconds without carefully reflecting on their perceptions of transit service attributes. In this case, although recorded responses may not reflect real perceptions possessed by transit users, there are no measures to distinguish them from other responses.

Transit User Survey Data Analysis

In all, 461 transit users completed surveys: 231 at RTA stops, 77 at JeT stops or onboard JeT buses, and 153 at transfer points between the two systems. After collecting the survey data, we inputted them into a Microsoft Access database. Then the data set was exported and converted to a Stata format. The user survey data was analyzed using standard descriptive statistics (frequency tables, and cross-tabulations) and the importance-satisfaction (IS) analysis method, distinguishing responses in the RTA system from those in the JeT system.

Demographic and Trip Characteristics

Trip Characteristics

Only transit patrons over the age 18 were interviewed, so the results represent the characteristics of adult riders and their trips. Almost 40 percent of the respondents were

40 The actual survey sheet used in this study is included in Appendix E.

41 Questions on the transit user survey were kept the same. Instead, survey respondents were asked to think about the transit stop with their most frequent use to answer some of survey questions.

going to or from work. The next most common trip purposes for respondents were for shopping or personal business (26 percent), and school or college (18 percent) (see Appendix F, Figure 32). Approximately 69 percent of the riders were on a trip that they regularly made (see Appendix F, Figure 33).[42] Sixty-six percent of respondents expected to make at least one transfer (see Appendix F, Figure 34), and 34 percent reported that their trip would include a transfer between RTA and JeT (see Appendix F, Figure 35).

Rider Characteristics

A total of 385 respondents reported that they used public transportation weekly. Of those, 75 percent used transit four or more times a week (see Appendix F, Figure 36). Respondents reported that they definitely or probably could not have used a car for the trip they were on (see Appendix F, Figure 37).

Almost two-thirds of all respondents reported an income below $50,000 a year. Of those, 46 percent had incomes below $15,000, 33 percent had incomes between $15,000 and $30,000, and 20 percent had incomes between $30,000 and $49,000 (see Appendix F, Figure 38).

Almost half of the adult riders reported that they were between 18 and 35 years; while only five percent were over 65 (see Appendix F, Figure 39).

Finally, there were significant differences in the racial profiles of riders from each transit system (Appendix F, Table 36). Overall, 74 percent of respondents were African American, 12 percent were white, five percent were Latino, and nine percent were Asian, Native American, or some other race. However, JeT's proportion of African American riders surveyed is much lower than RTA's and its proportion of White riders is higher. Seventy-nine percent of riders surveyed at RTA stops were African American, as opposed to 57 percent of JeT riders, and only nine percent of RTA riders were Caucasian, compared with 25 percent in the JeT system.[43] In both parishes, African American ridership is disproportionately high and white ridership is disproportionately low, compared to the racial breakdowns of populations in each parish; in comparison, Jefferson Parish's population is 27 percent African American and 59 percent white, while Orleans' is 61 percent African American and 31 percent white (Figure 9).

Importance and Satisfaction (IS) Analysis

Importance-Satisfaction (IS) analysis was developed in the marketing field, and is often used to evaluate the relative importance of attributes of transit services and facilities. IS-analysis helps transportation planners and managers maximize the impact of new investments on customer satisfaction by focusing improvements in areas where customer satisfaction is low and importance to customers is high (ETC Institute 2006). Thus, using

42 Respondents could choose more than one purpose, so the total of the percentages for all categories is greater than 100 percent.
43 See Appendix F, Table 36 for more detailed results of survey respondents' race and ethnicity by agency.

indices of improvement need (IS rankings), transit agencies can direct investments toward improvements that will be most beneficial to their customers.[44]

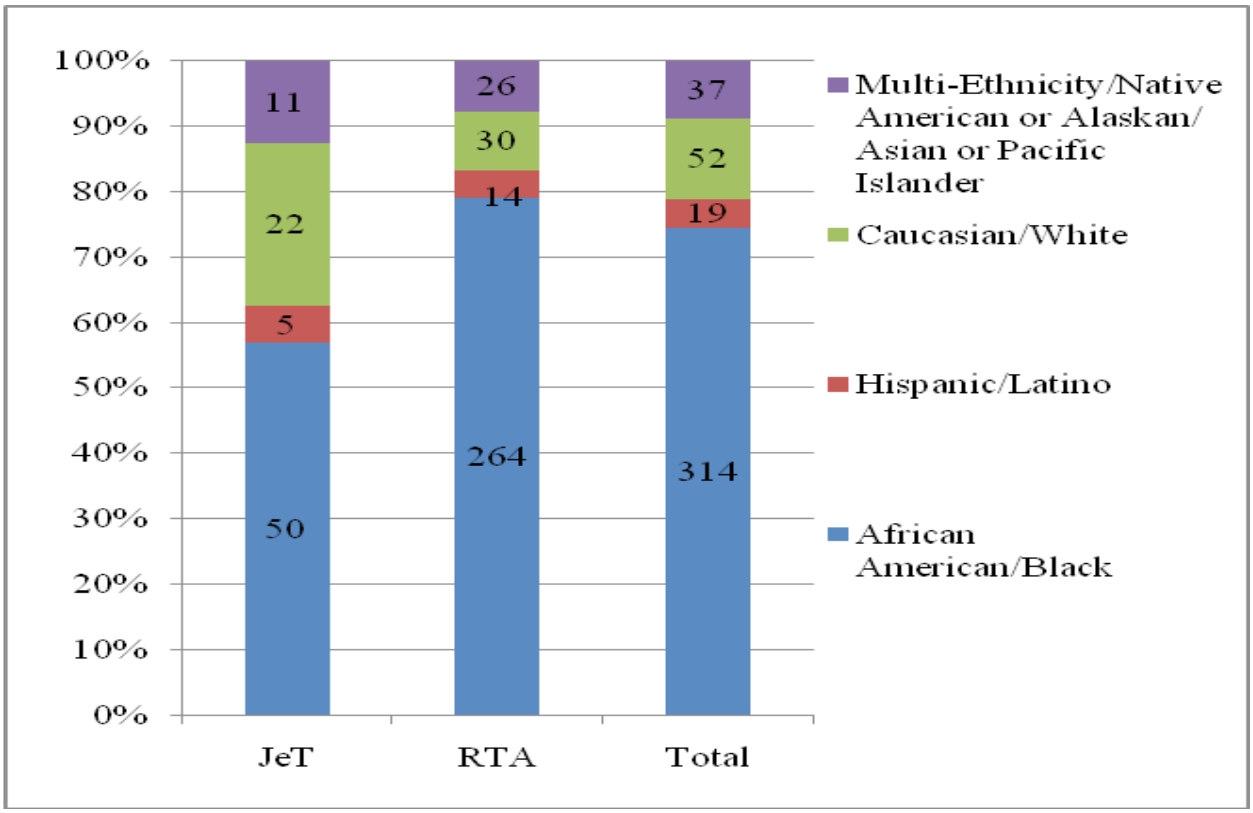

Figure 9. Race/Ethnicity of Survey Respondents

To obtain an attribute's importance rating, researchers calculated the proportion of respondents who ranked it "Very Important" out of the total number of valid answers in the survey. To obtain the satisfaction rating, we calculate the proportion of survey respondents who indicate satisfaction with the attribute ("Strongly agree" or "Agree somewhat"). These ratings are expressed in percentages. Based on the ratings of all attributes, one may determine rankings for both importance and satisfaction.

Then the Importance-Satisfaction (IS) rating is computed for each attribute by multiplying the importance rating by 1 minus the satisfaction rating.

Equation 1: Importance-Satisfaction

$$\begin{aligned} IS &= [\text{Importance} \times (1\text{-Satisfaction})] \\ &= [\text{Importance} \times \text{Dissatisfaction}] \end{aligned}$$

The maximum rating of 1.00 occurs when all respondents consider an attribute "Very important," but no respondents are satisfied with the current quality of the attribute. The minimum rating of 0.00 occurs when one of the following is true:

44 This analysis has been adapted from research that one of the authors has been conducting with researches at UCLA. See (Iseki and Taylor 2009, 2010; Taylor et al. 2007).

1. No respondents consider the attribute "Very important," and
2. All respondents are at least somewhat satisfied with the current quality of the attribute (i.e., all respondents chose "Strongly agree" or "Agree somewhat" with a satisfaction statement in the survey)

The IS rating is thus an index that assesses the need for improvement; the higher the IS rating, the greater the improvement need. Ideally, an agency would prioritize improvements to attributes with high IS ratings. Based on IS ratings for each of the attributes across facilities surveyed, we rank them for importance and satisfaction levels. In this study, the results are aggregated across a multiple facilities and routes to compare levels of importance and satisfaction between the two transit systems.[45]

The quality of service factors that transit users were asked to rank for both importance and satisfaction were the following:

- This station/stop area is clean.
- There are enough places to sit.
- There is shelter here to protect me from the sun or rain.
- The signs here are helpful.
- It is easy to get schedule and route information at this station.
- I usually have a short wait to catch my bus/train.
- My bus/train is usually on time.
- It is easy to find my stop.
- I feel safe here during the day.
- I feel safe here at night.
- This stop is well lit at night.
- It is easy to get bus/streetcar schedule/route maps of RTA.
- It is easy to get bus/streetcar schedule/route maps of JeT.
- It is convenient to pay for fare.
- It is easy to get around this stop.
- It requires a short waiting time to make a transfer at this stop.
- Overall, this is an easy place to transfer to another bus or streetcar.

In addition to asking about users' importance and satisfaction ratings for each of these issues, researchers also asked each respondent if s/he had noticed any change in the quality of service within the last twelve months, and if so, approximately when the change became noticeable, but too few users could recall a change or when it occurred to make this data useful.

Importance

The percentages of RTA and JeT users surveyed who indicated that each attribute was "very important," and how their responses rank the importance of each attribute, are shown in Table 11 and Table 12. For eight of the 17 attributes, differences between RTA and JeT users were found to be statistically significant in t-tests that compare the proportions of

45 If these data and IS ratings were to be used for planning purposes, the data reported on here would need to be disaggregated by facility to produce more meaningful results for transit customers.

respondents in each system who answered “very important” (highlighted in the tables). Most notably, RTA riders ranked the ease of obtaining information (attribute M) about JeT routes and maps last, with only 80.4 percent indicating that JeT information was very important to them. JeT users on the other hand, not only ranked the importance of ease of obtaining JeT information sixth (94.4 percent), but they ranked the importance of obtaining RTA information (attribute L) even higher—in third place, with 94.9 percent. RTA users ranked the importance of obtaining RTA information seventh, with 92.0 percent of respondents giving it the highest importance level.

After ease of obtaining JeT schedule and route information, convenience in paying fares was the next most significant difference (attribute N). More JeT users ranked this “very important” (95.8 percent), than any other category. 90.8 percent of RTA respondents rated fare convenience “very important,” putting it in ninth place.

Short transfer waiting times (attribute P) were another significant difference between the two systems. Although respondents from both systems placed greater value on a short wait overall, 94.1 percent of JeT users rated transfer waiting times as very important, placing it at seventh rank, while 90.7 percent of RTA users found it very important, in tenth place.

Other responses with statistically significant differences in importance ratings were: (1) shelter from the elements (attribute C), which JeT users rated higher at 93.7 percent and twelfth place compared to RTA users’ 91.2 percent and eighth place; (2) overall ease of transferring to another bus from the stop/line in question, which RTA and JeT users both rated highly, but JeT users slightly more so, with 95.3 percent considering it very important compared to 93.2 percent of RTA users; on-time buses/streetcars, which was very important to 94.8 percent of JeT users and 92.8 percent of RTA users (attribute G); helpful signs, with a 90.4 percent rating from RTA users and an 86.5 percent rating from JeT (attribute D); and ease of getting schedule and route information at the stop or station where the survey was completed (attribute E), with 89.4 percent of RTA users and 86.5 percent of JeT users rating this very important.

JeT riders place more importance on regional coordination than RTA riders. Among JeT riders, ease of getting bus/streetcar schedule/route maps of RTA came as the fourth highest in ranking (attribute L), and the three other attributes related to regional coordination are also ranked within the top seven. In contrast, RTA riders ease of getting bus/streetcar schedule/route maps of JeT placed (attribute M) at the bottom of the list, and three other attributes related to regional coordination at seventh, ninth, and tenth overall. This finding may actually indicate that many JeT riders in fact need to make transfers within the RTA system to complete their trips.

Satisfaction

RTA and JeT users surveyed differed more substantially in their levels of satisfaction. The average percentage of “strongly agree” or “agree somewhat” answers for RTA respondents was 61.5 percent, whereas for JeT respondents the average was 75.1 percent. Satisfaction ratings and rankings for each agency are shown in Table 13 and

Table 14. In the case of satisfaction, there were only three quality factors that users of the two systems did not differ on significantly: feeling safe during the day (attribute I), which users of both systems ranked highly, in second place for both; convenience of paying fare (attribute N), which was ranked fourth among RTA responses and fifth for JeT; and ease of getting around the stop where the survey took place (attribute O), ranked third among both systems' respondents (highlighted in tables).

Satisfaction with the ease of finding their stop (attribute H) received the most high satisfaction ratings from both systems' users, although the difference between them was still statistically significant: 87.6 percent of RTA users surveyed were very or somewhat satisfied, compared to 94.7 percent of JeT users.

Table 11. RTA Riders' Importance Rankings

	Survey Question	Category	Rating	Ranking
H	It is easy to find my stop.	Access	95.0%	1
F	I usually have a short wait to catch my bus/train.	Connection & Reliability	94.2%	2
Q	Overall, this is an easy place to transfer to another bus or streetcar.	Overall	93.2%	3
O	It is easy to get around this stop.	Access	92.9%	4
I	I feel safe here during the day.	Security & Safety	92.9%	5
G	My bus/train is usually on time.	Connection & Reliability	92.8%	6
L	It is easy to get bus/streetcar schedule/route maps of RTA.	Regional Coordination	92.0%	7
C	There is shelter here to protect me from the sun or rain.	Amenities	91.2%	8
N	It is convenient to pay for fare.	Regional Coordination	90.8%	9
P	It requires a short waiting time to make a transfer at this stop.	Regional Coordination	90.7%	10
D	The signs here are helpful.	Information	90.4%	11
E	It is easy to get schedule and route information at this station.	Information	89.4%	12
K	This stop is well lit at night.	Security & Safety	89.0%	13
J	I feel safe here at night.	Security & Safety	87.5%	14
B	There are enough places to sit.	Amenities	86.3%	15
A	This station/stop area is clean.	Amenities	84.1%	16
M	It is easy to get bus/streetcar schedule/route maps of JeT.	Regional Coordination	80.4%	17
		AVERAGE	90.2%	

Table 12. JeT Riders' Importance Rankings

	Survey Question	Category	Rating	Ranking
N	It is convenient to pay for fare.	Regional Coordination	95.8%	1
Q	Overall, this is an easy place to transfer to another bus or streetcar.	Overall	95.3%	2
L	It is easy to get bus/streetcar schedule/route maps of RTA.	Regional Coordination	94.9%	3
F	I usually have a short wait to catch my bus/train.	Connection & Reliability	94.8%	4
G	My bus/train is usually on time.	Connection & Reliability	94.8%	5
M	It is easy to get bus/streetcar schedule/route maps of JeT.	Regional Coordination	94.4%	6
P	It requires a short waiting time to make a transfer at this stop.	Regional Coordination	94.1%	7
I	I feel safe here during the day.	Security & Safety	93.8%	8
C	There is shelter here to protect me from the sun or rain.	Amenities	93.7%	9
O	It is easy to get around this stop.	Access	93.4%	10
H	It is easy to find my stop.	Access	92.6%	11
J	I feel safe here at night.	Security & Safety	89.2%	12
D	The signs here are helpful.	Information	86.5%	13
E	It is easy to get schedule and route information at this station.	Information	86.5%	14
K	This stop is well lit at night.	Security & Safety	86.3%	15
B	There are enough places to sit.	Amenities	85.4%	16
A	This station/stop area is clean.	Amenities	84.4%	17
		AVERAGE	91.5%	

Table 13. RTA Riders' Satisfaction Rankings

	Survvey Question	Category	Rating	Ranking
H	It is easy to find my stop.	Access	87.6%	1
I	I feel safe here during the day.	Security & Safety	86.2%	2
O	It is easy to get around this stop.	Access	85.4%	3
N	It is convenient to pay for fare.	Regional Coordination	81.7%	4
Q	Overall, this is an easy place to transfer to another bus or streetcar.	Overall	76.8%	5
D	The signs here are helpful.	Information	65.5%	6
A	This station/ top area is clean.	Amenities	62.9%	7
M	It is easy to get bus/streetcar schedule/route maps of JeT.	Regional Coordination	60.3%	8
L	It is easy to get bus/streetcar schedule/route maps of RTA.	Regional Coordination	56.8%	9
P	It requires a short waiting time to make a transfer at this stop.	Regional Coordination	56.7%	10
G	My bus/train is usually on time.	Connection & Reliability	52.4%	11
C	There is shelter here to protect me from the sun or rain.	Amenities	47.5%	12
K	This stop is well lit at night.	Security & Safety	47.4%	13
E	It is easy to get schedule and route information at this station.	Information	47.1%	14
F	I usually have a short wait to catch my bus/train.	Connection & Reliability	45.1%	15
J	I feel safe here at night.	Security & Safety	44.4%	16
B	There are enough places to sit.	Amenities	42.2%	17
		AVERAGE	61.5%	

Table 14. JeT Riders' Satisfaction Rankings

	Survey Question	Category	Rating	Ranking
H	It is easy to find my stop.	Access	94.7%	1
I	I feel safe here during the day.	Security & Safety	87.5%	2
O	It is easy to get around this stop.	Access	84.9%	3
Q	Overall, this is an easy place to transfer to another bus or streetcar.	Overall	83.7%	4
N	It is convenient to pay for fare.	Regional Coordination	83.2%	5
A	This station/stop area is clean.	Amenities	82.3%	6
D	The signs here are helpful.	Information	80.2%	7
M	It is easy to get bus/streetcar schedule/route maps of JeT.	Regional Coordination	73.3%	8
L	It is easy to get bus/streetcar schedule/route maps of RTA.	Regional Coordination	72.2%	9
P	It requires a short waiting time to make a transfer at this stop.	Regional Coordination	72.1%	10
C	There is shelter here to protect me from the sun or rain.	Amenities	71.6%	11
E	It is easy to get schedule and route information at this station.	Information	70.8%	12
G	My bus/train is usually on time.	Connection & Reliability	68.8%	13
B	There are enough places to sit.	Amenities	68.8%	14
F	I usually have a short wait to catch my bus/train.	Connection & Reliability	65.6%	15
J	I feel safe here at night.	Security & Safety	61.4%	16
K	This stop is well lit at night.	Security & Safety	56.3%	17
		AVERAGE	75.1%	

Importance-Satisfaction

The average IS rating for survey questions at RTA stops was .345, while the average at JeT stops and lines was .227, indicating that RTA has more high-priority improvements to make to satisfy its users. Table 15 and Table 16 show the IS ratings and rankings for each survey question for RTA's and JeT's, respectively, and compare the agency's scores (Figure 10).

While "it is easy to find my stop" (attribute H) received the highest importance rating from RTA users, it has the lowest need for improvement based on IS rankings, as the riding public are very satisfied with this attribute. For both systems, this survey suggests that ease of finding stops and safety during the day (attribute I) are of low priority to improve, despite their importance levels, falling in last and second-to-last place for both agencies. Transit riders are not as concerned about safety during the day as we expected, considering the crime rates in New Orleans, although safety is a serious concern at night.

Short waits (attribute F) and safety at night (attribute J) are two of the three highest-rated quality issues for both agencies; waiting time is first for RTA (with a rating of 0.518) and third for JeT (rating of 0.326), and safety at night is third for RTA (0.486) and second for JeT (0.344). JeT riders' concern for nighttime safety is further emphasized by the importance-satisfaction rating for bus stop lighting at night, which ranks first for JeT at 0.377.

Ease of getting around the stop (attribute O) and convenience of paying fares (attribute N) are of relatively low priority for both RTA and JeT, although fare-paying convenience ranks higher for JeT at 12th place compared to RTA's 14th (it is rated similarly for both agencies: 0.161 for JeT, and 0.166 for RTA).

Table 15. RTA Riders' Importance-Satisfaction (IS) Ratings and Rankings

	Survey Question	Category	Rating	Ranking
F	I usually have a short wait to catch my bus/train.	Connection & Reliability	0.518	1
B	There are enough places to sit.	Amenities	0.499	2
J	I feel safe here at night.	Security & Safety	0.486	3
C	There is shelter here to protect me from the sun or rain.	Amenities	0.479	4
E	It is easy to get schedule and route information at this station.	Information	0.473	5
K	This stop is well lit at night.	Security & Safety	0.468	6
G	My bus/train is usually on time.	Connection & Reliability	0.442	7
L	It is easy to get bus/streetcar schedule/route maps of RTA.	Regional Coordination	0.397	8
P	It requires a short waiting time to make a transfer at this stop.	Regional Coordination	0.393	9
M	It is easy to get bus/streetcar schedule/route maps of JeT.	Regional Coordination	0.319	10
D	The signs here are helpful.	Information	0.312	11
A	This station/stop area is clean.	Amenities	0.312	12
Q	Overall, this is an easy place to transfer to another bus or streetcar.	Overall	0.217	13
N	It is convenient to pay for fare.	Regional Coordination	0.166	14
O	It is easy to get around this stop.	Access	0.136	15
I	I feel safe here during the day.	Security & Safety	0.128	16
H	It is easy to find my stop.	Access	0.117	17
		AVERAGE	0.345	

Matters of regional coordination are in the middle range of IS rankings for both agencies. Based on these IS ratings, ease of obtaining RTA route and schedule information (attribute L) is the highest priority regional coordination to both agencies' users (ranking eighth for RTA, with a rating of 0.397, and seventh for JeT, with a rating of 0.264). Shorter transfer times

(attribute P) are close behind for both RTA and JeT, ranking ninth and eighth respectively, with scores of 0.393 and 0.263. Although JeT riders place higher importance on regional coordination attributes, RTA riders are still less satisfied. While recent improvements in terms of new vehicles, installation of new shelters and benches, and service rescheduling have been observed, our analysis shows that RTA/Veolia is not yet making significant progress toward changing users' perception of their regional coordination efforts.

Table 16. JeT Riders' Importance-Satisfaction (IS) Ratings and Rankings

	Survey Question	Category	Rating	Ranking
K	This stop is well lit at night.	Security & Safety	0.377	1
J	I feel safe here at night.	Security & Safety	0.344	2
F	I usually have a short wait to catch my bus/train.	Connection & Reliability	0.326	3
G	My bus/train is usually on time.	Connection & Reliability	0.296	4
B	There are enough places to sit.	Amenities	0.267	5
C	There is shelter here to protect me from the sun or rain.	Amenities	0.266	6
L	It is easy to get bus/streetcar schedule/route maps of RTA.	Regional Coordination	0.264	7
P	It requires a short waiting time to make a transfer at this stop.	Regional Coordination	0.263	8
E	It is easy to get schedule and route information at this station.	Information	0.252	9
M	It is easy to get bus/streetcar schedule/route maps of JeT.	Regional Coordination	0.252	10
D	The signs here are helpful.	Information	0.171	11
N	It is convenient to pay for fare.	Regional Coordination	0.161	12
Q	Overall, this is an easy place to transfer to another bus or streetcar.	Overall	0.155	13
A	This station/stop area is clean.	Amenities	0.149	14
O	It is easy to get around this stop.	Access	0.141	15
I	I feel safe here during the day.	Security & Safety	0.117	16
H	It is easy to find my stop.	Access	0.049	17
		AVERAGE	0.227	

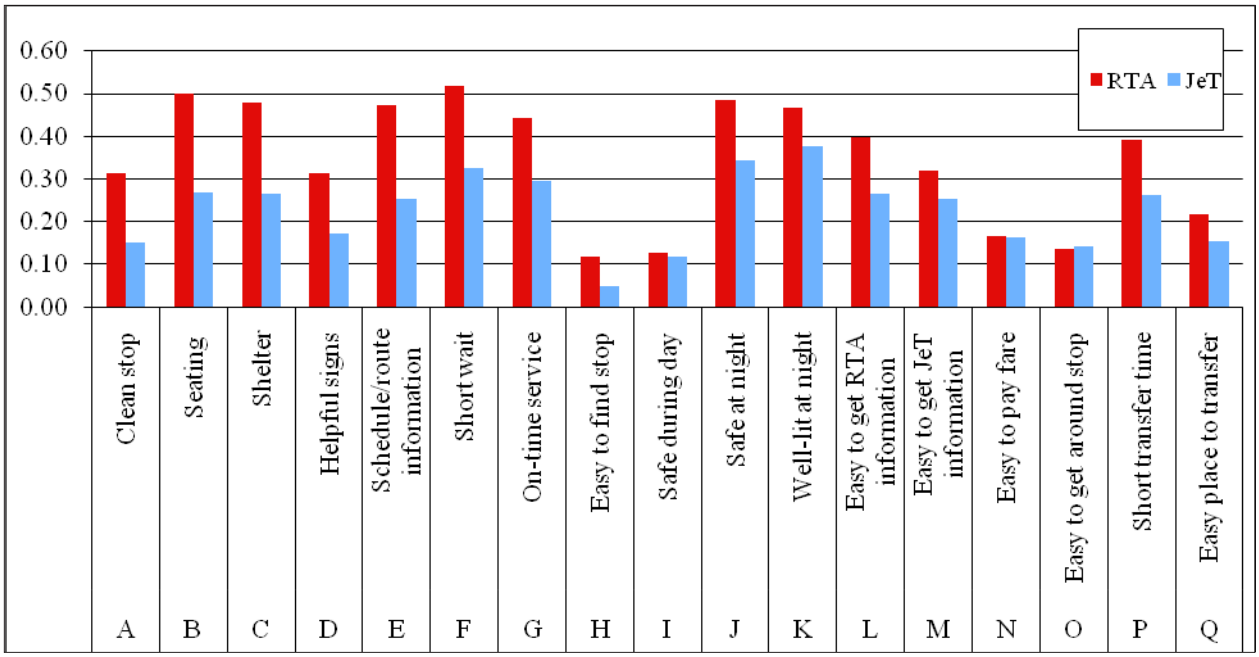

Figure 10. RTA and JeT Importance-Satisfaction Scores (IS)

Overall, while both RTA and JeT transit riders consider (attribute Q) overall ease of making transfer and (attributes F and G) two connection- and reliability-related attributes import to them, they also have different priorities within the top six. While RTA riders list two access-related attributes (attributes H and O), JeT riders place three regional coordination related attributes (attributes N, L, and G) among the top six. In terms of the level of satisfaction, both groups of riders are well-satisfied with access-related attributes, but are concerned with a lack of sitting space (attribute B), short waiting time (attribute F), and safety at night (attribute J). In addition, RTA users are less satisfied with most attributes, in contrast to JeT riders, indicating continued challenges that RTA/Veolia will have to overcome in regard to customer satisfaction.

IS analysis takes into account both the importance and satisfaction levels in transit users' perception of transit service quality, and shows findings that cannot be obtained by using only one measurement at a time.[46] Both RTA and JeT riders rank regional coordination-related attributes in the middle range in the same order, short waiting time, safety at night, sitting space in the top range, and access-related attributes and safety during the day at the bottom. In this respect, both RTA and JeT can address improvements with similar priority levels.

PERFORMANCE INDICES

The literature on public transit service privatization shows that governments are often motivated to privatize by economic reasons: reducing public spending and increasing productivity in the provision of transit service. Decisions regarding privatization can

46 If RTA planners considered importance rankings alone, ease of finding stops (attribute H) would appear to be the most critical need to address, while its IS ranking is actually the lowest. Similarly, JeT planners might be misled by the low importance level of bus stop lighting at night (ranked 15th in importance), which is actually a high priority because of the low satisfaction about lighting.

sometimes be politically or ideologically driven, however (Iseki 2004; Sclar 2000). Inadequate contract design with insufficient economic analysis prior to privatization could actually lead to an overall cost increase, including transaction and monitoring costs, as well as lower quality of service. A level of privatization that transfers significant control over fare levels, service coverage, operating hours, or service frequency from a public agency to a private firm could potentially reduce both the quantity and quality of service to the public.

This section analyzes financial and operating data directly obtained from the New Orleans Regional Transit Authority (RTA) and Jefferson Transit (JeT), in combination with data from the National Transit Database (NTD) from 2004 to 2009, to assess the performance of these two transit systems under different privatization schemes. Examining data from these sources determines each agency's operating expenses, quantity of service provided, and level of consumption of transit service. Also evaluated are several performance indicators for efficiency and effectiveness. It should be noted that data from RTA for 2005 was not included, as RTA was not required to report 2005 data to the NTD due to Hurricane Katrina, and that this make graphs appear discontinuous.

Operating and Financial Indices

Operating Expenses

Two variables examined are related to overall operating expenses. One variable is total modal expenses (TME), or all expenses categorized under operation (as opposed to capital expenses), which include labor, fuel, supplies, vehicle and non-vehicle maintenance, administration, insurance, and taxes. The second variable is vehicle operating expenses (VOE), which primarily includes salaries, wages, and benefits for operators, and fuel costs. Figure 11 and Figure 12 show TME and VOE for RTA's fixed-route bus and streetcar services and JeT's fixed-route bus service from 2004 to 2009.

Figure 11 shows the relative change in TME for each agency since 2004. Expenses for transit service in the Greater New Orleans Region substantially declined after Hurricane Katrina, but service levels dropped substantially as well, as is shown later. Both agencies had similar percentage drops in TME from 2004 to 2006: 35.3 percent for RTA's bus and streetcar services combined (38.7 percent for bus expenses alone), and 39.2 percent for JeT's bus service, but the differences in the actual reductions in dollars spent are more dramatic: $37.0 million for RTA bus and streetcar combined, and $35.1 million for bus alone (dropping from $104.8 million and $90.5 million, respectively, to $67.7 million and $55.4 million), and $5.2 million for JeT buses (dropping from $13.4 million to $8.1 million).

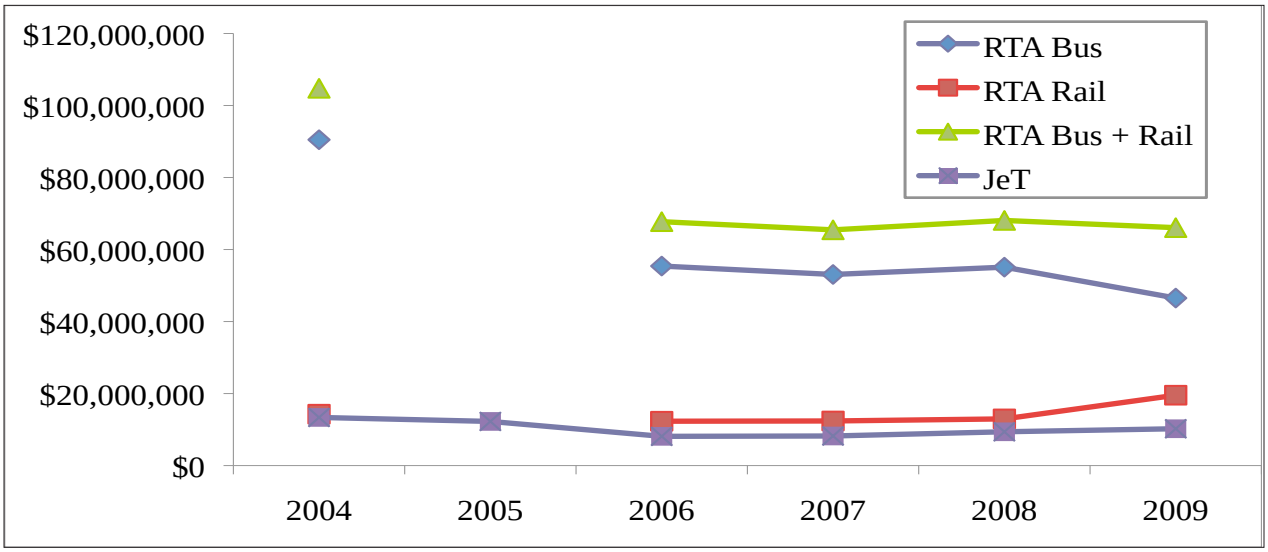

Figure 11. Total Modal Expenses (TME) for RTA and JeT
Source: No data available for RTA in 2005

From 2006 (when Veolia commenced its contract with Jefferson Parish, and management of JeT's East- and Westbank services were combined) to 2009, JeT's TME increased gradually from $8.1 million to $10.2 million, a change of 26 percent overall. RTA's TME for bus and streetcar service combined was slightly lower in 2009 than it was in 2006, shortly after resuming post-Katrina service. RTA's TME went down from $67.7 million to $66.1 million (a 2.4 percent drop). 2008–2009 was a turning point for RTA with a distinct drop in bus TME and a rise in streetcar TME.

Two important changes occurred in 2008 for RTA regarding substantial changes in TME. First, Veolia took on management of the system in October. Second, repairs to all streetcar lines were completed in June, bringing them back to their former lengths, and obviating the need for buses to continue serving the restored portions of these lines. The Canal Street streetcar line began partial service in December 2005 and resumed its full length in April 2006 (New Orleans Regional Transit Authority 2006a, 2006b), but the highly popular Saint Charles line—which ran through areas that had not been flooded or that had seen limited flooding and were quick to repopulate—did not begin any rail service until December 2006, and then only in New Orleans' central business district (RTA 2006d). A substantial extension of Saint Charles rail service was completed in December 2007 (RTA 2007), and the streetcar line reopened its full pre-Katrina route in June 2008 (Faciane 2008).

For JeT, vehicle operating expenses (VOE) were 29 percent lower in 2009 than they were in 2004, the year before Hurricane Katrina. JeT's VOE fell to their lowest point in 2006, and rose from there until dropping again between 2008 and 2009. RTA's VOE were more volatile. System-wide costs fell 32.7 percent from 2004 to 2006, and continued to drop in 2007, when the number of vehicles in peak service fell from 74 to 59. VOE rose by 24.5 percent from 2007 to 2008—the same year that a new fleet of biodiesel buses were rolled out (RTA' 2006c), but also a year in which gas prices were exceptionally high. Bus operating costs fell to their lowest level of all in 2009, but streetcar VOE rose in the first full year of fully restored streetcar lines. RTA's system-wide VOE dropped from its 2008 level in 2009, but not as far as its 2007 low.

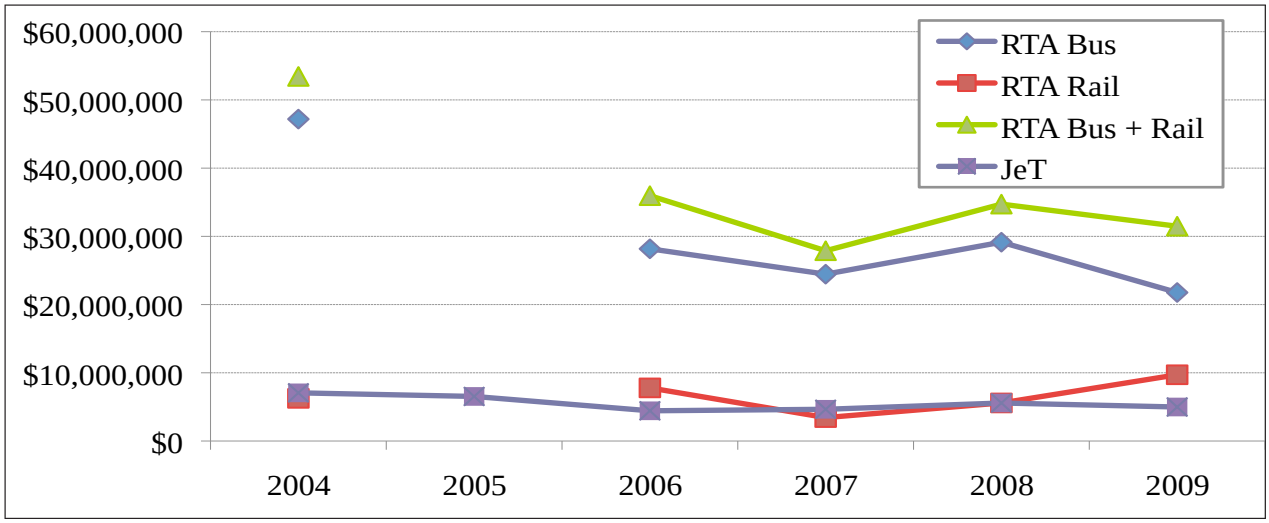

Figure 12. Vehicle Operating Expenses (VOE) for RTA and JeT
Source: No data avaialble for RTA in 2005

Service Provided

As noted, reductions in operating expenses accompanied reduced service levels. Figure 13 and Figure 14 show the amount of service provided by each agency in terms of revenue vehicle hours and revenue vehicle miles. Revenue miles and hours are those in which buses or streetcars are providing service to the public, excluding those when they are running but not in public service (e.g., "deadheading," or traveling between the storage facility and the route).

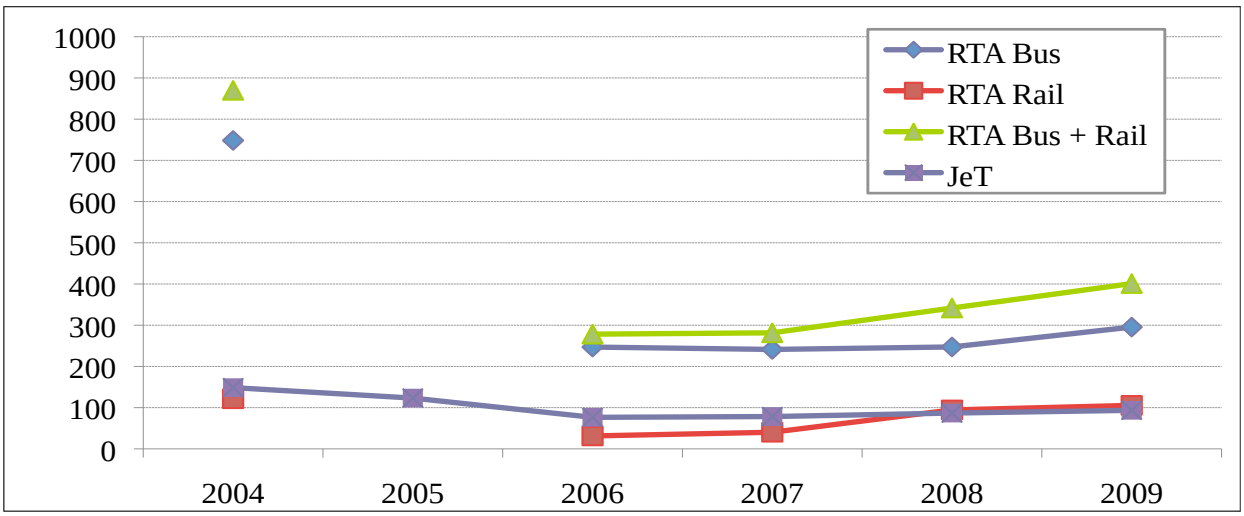

Figure 13. Annual Total Revenue Vehicle Hours (in Thousands) for RTA and JeT
Source: No data avaialble for RTA in 2005

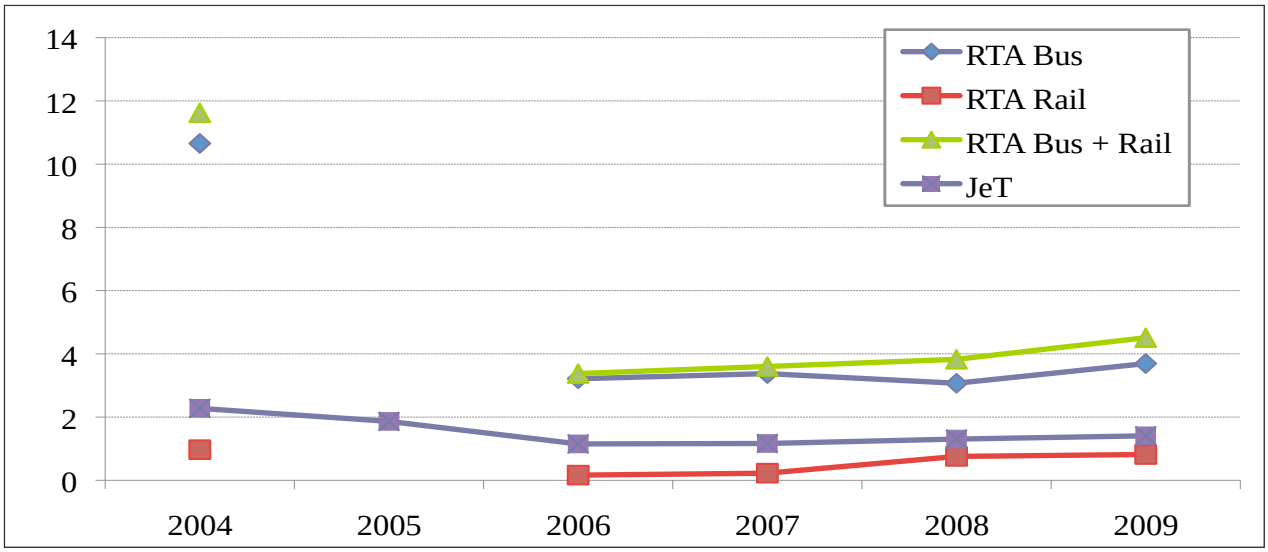

Figure 14. Annual Total Revenue Vehicle Miles (in Millions) for RTA and JeT
Source: No data avaialble for RTA in 2005

While RTA's operating expenses decreased by 35.3 percent from 2004 to 2006 in terms of TME, and 32.7 percent in terms of VOE, revenue vehicle hours and miles dropped by 68.0 percent and 70.9 percent, respectively, indicating a substantial loss of productivity. JeT also experienced a drop in productivity, but a smaller one. From 2004 to 2006, JeT's TME decreased by 39.2 percent and its VOE decreased by 37.3 percent, but its revenue vehicle hours dropped by only 48.5 percent, and its revenue vehicle miles dropped by 49.4 percent. The amount of service provided by RTA has been increasing steadily since 2007, though, while JeT's service levels remained relatively constant. RTA's revenue vehicle hours rose by 42.4 percent from 2007 to 2009, and revenue vehicle miles rose by 26.9 percent; JeT's revenue vehicle hours and miles rose by 19.3 percent and 20.8 percent, respectively.

The post-Katrina drop in service is also reflected in the number of vehicles operated in maximum service: RTA went from 306 in 2004 to 74 in 2006, a loss of 75.8 percent, while Jet went from 53 to 23, a loss of 56.6 percent. Over the next few years, however, the number of RTA vehicles operated in maximum service actually dropped further, even while revenue hours and miles were increasing. In 2009, RTA reported 58 vehicles operated in maximum service, a drop of 28.4 percent from 2006. JeT's number of vehicles operated in maximum service rose by 21.7 percent in the same period. See Appendix G, Table 37 for each agency's vehicles in maximum service from 2000–2009.

Figure 15 and Figure 16 show revenue vehicle hours and miles indexed to 2006 figures in order to illustrate the changes through 2009. All fixed-route services at both agencies increased over the four-year period, but RTA streetcar service rose by more than 300 percent (from 100 vehicle hours in 2006 to 497 in 2009) because of progress on repairing damaged lines and vehicles, and thus cannot be attributed to changes in management or policy.[47] Veolia began its interim operation of RTA in October 2008, and 2008–2009, was the most marked period of service increase for RTA's bus service, with a 19.5 percent

47 For greater legibility of the graph, the full extent of the rise in streetcar revenue hours and miles is not shown in Figure 15 or Figure 16, but is shown separately in Figure 17.

jump in revenue vehicle hours and a 20.3 percent jump in revenue vehicle miles—despite the removal of bus service along part of the Saint Charles route after the streetcar repairs were finished. JeT's service increases in that same period were more modest, with a 7.7 percent rise in revenue hours and a 7.9 percent rise in revenue miles.

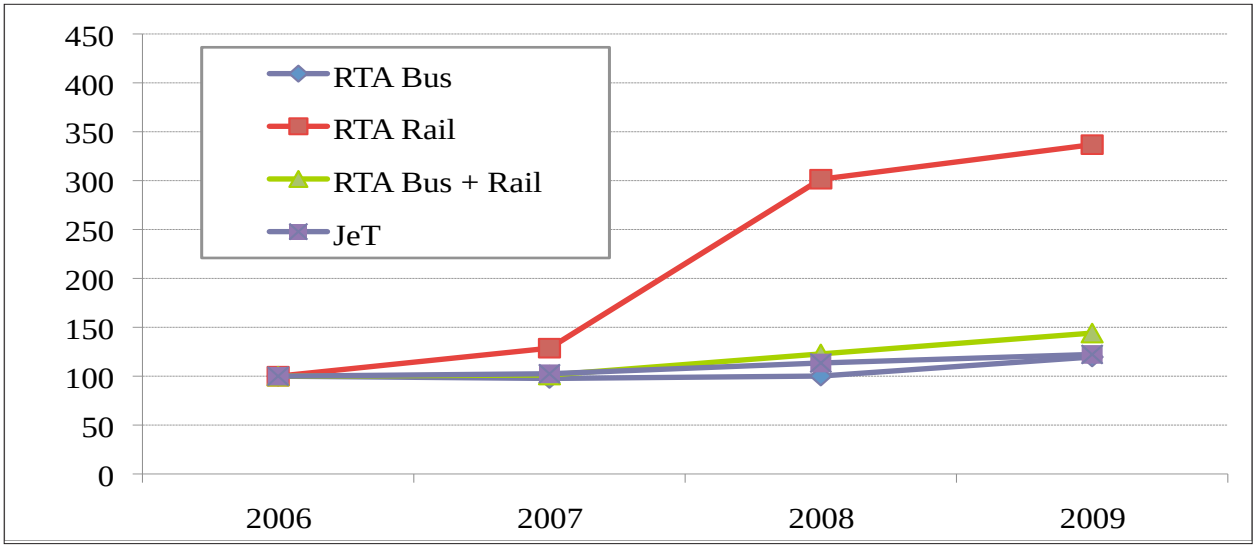

Figure 15. Revenue Vehicle Hours for RTA and JeT Indexed to 2006 Numbers

RTA's bus revenue hours remained fairly constant from 2006 through 2008, but bus revenue miles declined by 9.0 percent from 2007 to 2008, a period when substantial additions to the Saint Charles streetcar line were being made.

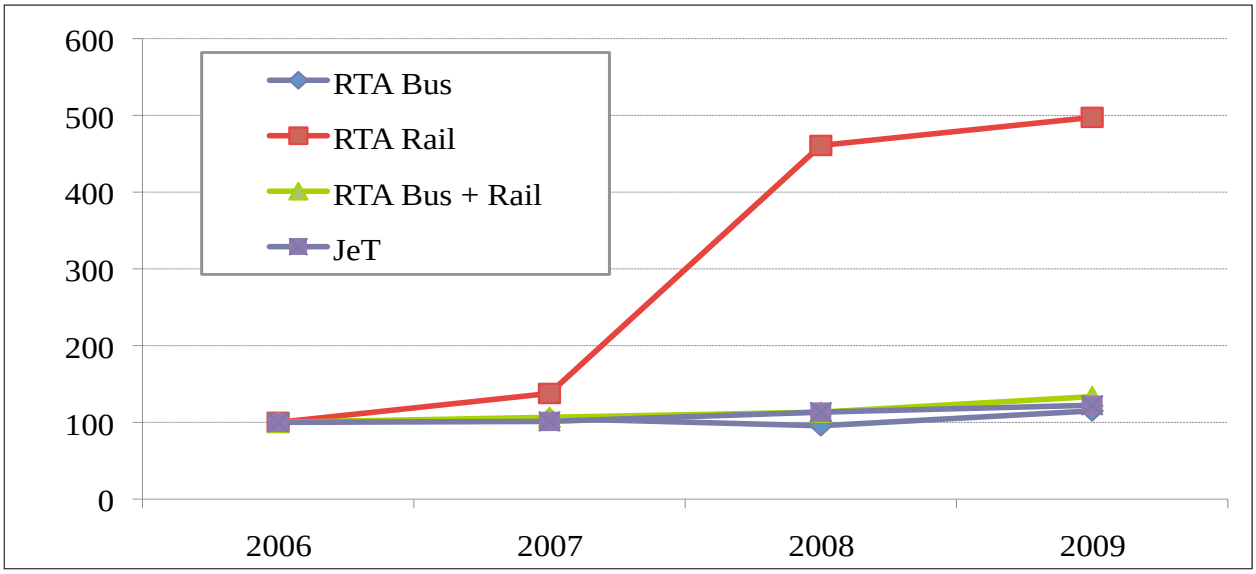

Figure 16. Revenue Vehicle Miles for RTA and JeT Indexed to 2006 Numbers

Impacts of the Saint Charles streetcar extensions from December 2007 to June 2008 can clearly be seen in Figure 17, illustrating the growth in both hours and miles. Rail revenue vehicle hours rose to 301 percent of the 2006 baseline, and miles to 461 percent. There was a 134 percent increase in revenue vehicle hours from 2007 to 2008, and a

235 percent increase in revenue miles. It should be remembered, though, that the 2006 baseline represents only one streetcar line that was not serving its full pre-Katrina length until April.

RTA did make some extensions to bus services in 2007, including in areas that had been badly flooded and that were slower than most to recover population density (New Orleans Regional Transit Authority 2006), but the replacement of buses with streetcars along the Saint Charles route still resulted in an overall decline in bus mileage. The fact that bus revenue hours rose by 2.5 percent in the same period that vehicle mileage decreased by 9.0 percent indicates a drop in RTA's bus operating speed. In 2009, bus revenue hours increased to 120 percent of the service provided in 2006.

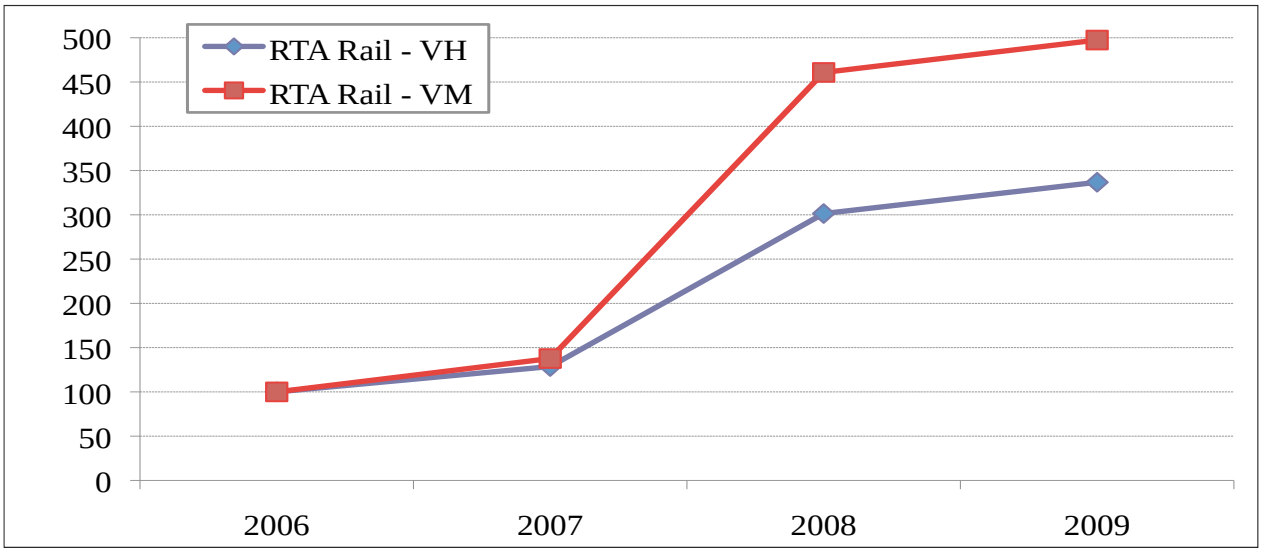

Figure 17. Revenue Vehicle Hours and Miles for RTA Streetcars

Ridership and Passenger Miles Traveled

Figure 18 shows changes in the number of unlinked passenger trips[48] for RTA and JeT from 2004 through 2009. RTA ridership has steadily increased since Katrina at an average of 2.78 million additional trips per year (bus and rail combined), while JeT has dropped from 2.24 million trips in 2006 to 1.98 million in 2009.

48 If a trip involves any number of transfer, it will be counted as more than one trip.

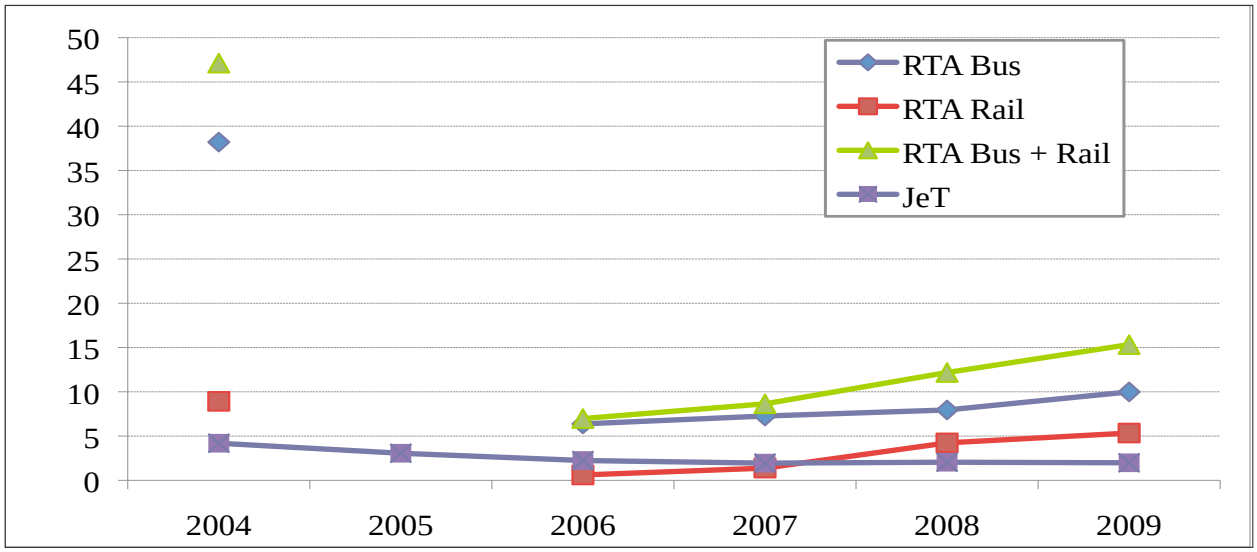

Figure 18. Annual Unlinked Passenger Trips (in Millions) for RTA and JeT
Source: No data avaialble for RTA in 2005

Figure 19 shows passenger miles traveled for both agencies. RTA's passenger miles are shown from 2006 to 2009, with 2004's figures omitted to preserve the legibility of the graph because of the precipitous post-Katrina drop (combined bus and rail passenger miles in 2004 were 109.7 million, 302.9 percent higher than its 2006 passenger miles of 27.2 million).

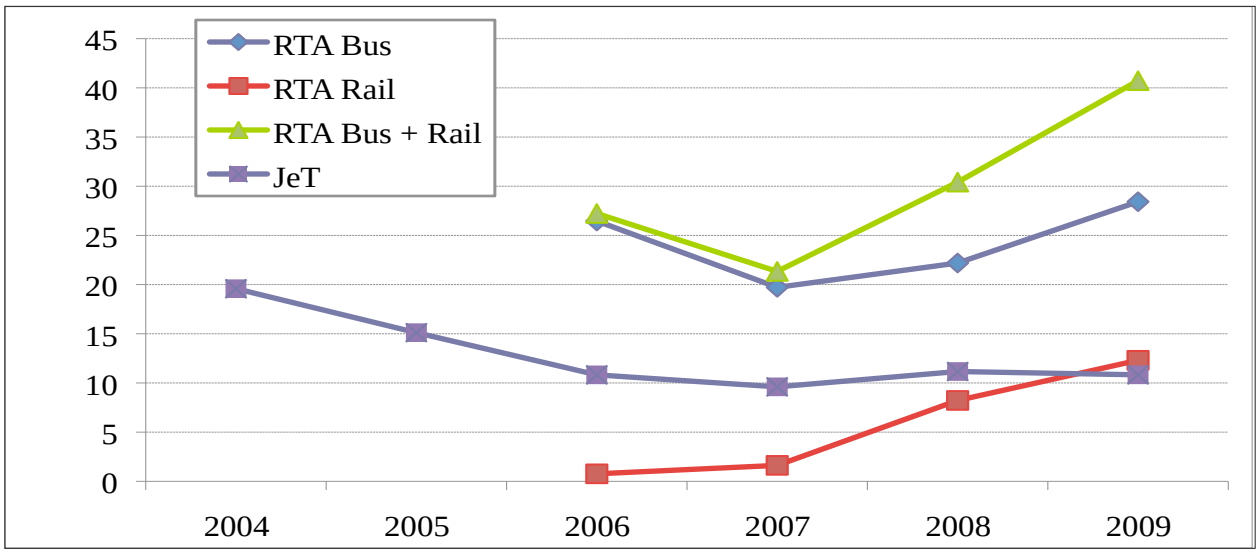

Figure 19. Annual Passenger Miles Traveled (in Millions) for RTA and JeT
Source: No data avaialble for RTA in 2004 and 2005. For greater legibility of the graph, RTA's passenger miles for 2004 are not shown. Bus passenger miles in 2004 were 92.2 million, rail passenger miles were 17.5 million, and combined passenger miles were 109.7 million.

2007 is a turning point for passenger mileage at both agencies, especially RTA. Miles traveled continued to decline in 2006 for the bus service and overall fixed-route service at both agencies. Rail passenger miles increased from 2006 to 2007 (0.76 million to 1.62 million), but 2006 began with very little streetcar service available at all, and routes were extended over the following year. RTA's bus passenger miles fell by 25.5 percent in its

first year back in service following the hurricane, and its combined rail and bus passenger miles fell by 21.6 percent. JeT's passenger miles fell by 11.3 percent from 2006 to 2007, began to climb again from 2007 to 2008, but dropped again in 2009 to its approximate level in 2006, 10.82 million. RTA's bus passenger miles increased by 12.5 percent and rail passenger miles increased 406.9 percent as restoration proceeded, for a total growth in passenger miles of 42.5 percent.

The decline in RTA ridership from 2004 to 2006 is more acute than the decline in vehicle hours of service provided: 85.2 percent, compared to 68.0 percent. This can be attributed not only to lower productivity, but to population loss (especially lower income households more likely to depend on transit) and uncertainty about when and where population recovery would occur in the city while it was being hotly debated whether many New Orleans neighborhoods could, or should, be rebuilt.

Figure 20 shows the average number of trips per capita (in thousands) for each transit system and mode. Compared to JeT, RTA has gained more ridership per capita since 2007. What is notable is the change in RTA's ridership per capita from 2007 to 2009, an increase of 30.6 percent. From 2008 to 2009, bus ridership per capita, which had been falling since 2006, began to rise, and ridership per capita of the recently completed streetcar lines continued to rise, albeit at a slower rate than when service was still being added. This suggests that RTA was increasing its public service effectiveness throughout this period, and that while modal substitution may have affected bus ridership levels during streetcar restorations, bus service was nevertheless continuing to increase its effectiveness under Veolia's management in 2009.

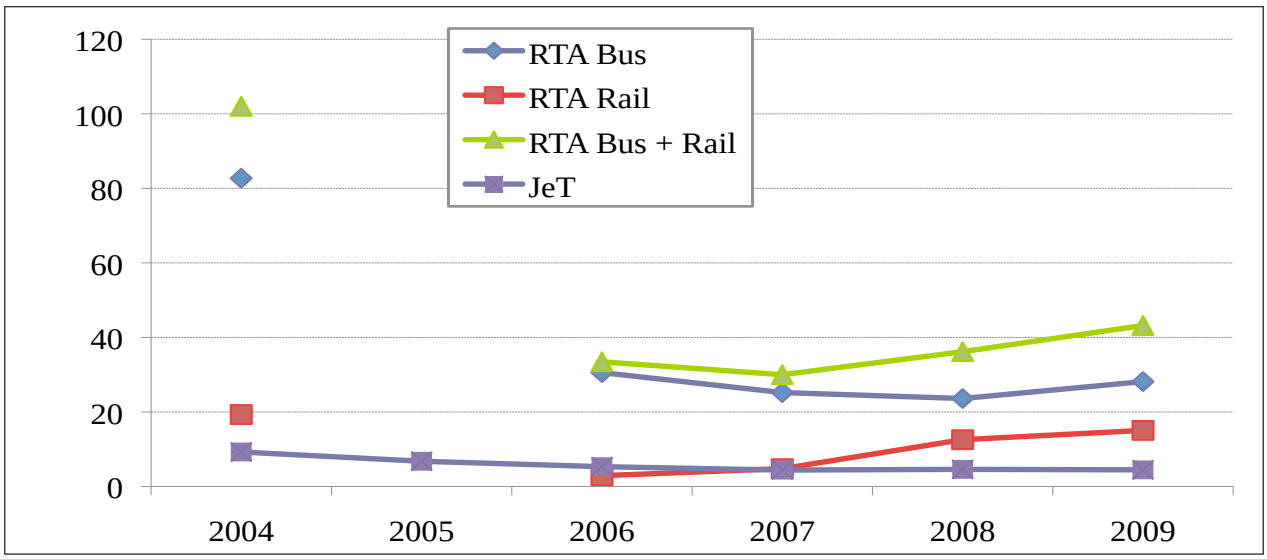

Figure 20. Average Number of Trips per Capita (1,000)
Source: No data avaialble for RTA in 2005

Fare Revenue

Figure 21 shows the fare revenue collected by both agencies from 2004 to 2009. The Federal Emergency Management Agency (FEMA), together with the Federal Transit Administration (FTA), funded free fares on all RTA buses and streetcars from October 2,

2005 to August 6, 2006 (DeLong 1998; Pickrell 1992; Rubin and Moore 1996). This free fare until 2006 accounted for the more dramatic rise in RTA fare revenue than in revenue miles or hours from 2006 to 2007. In its first year of full fare collection after Katrina, RTA fare revenue increased by only 2.2 percent, with a sharp drop in bus fare revenue accompanied by a rise in streetcar revenue suggesting a modal shift. Revenue from both buses and streetcars rose by 16.2 percent from 2008 to 2009, however. JeT recovered from its 2006 low of $918,000 to $2.3 million in 2007, but remained relatively constant afterward.

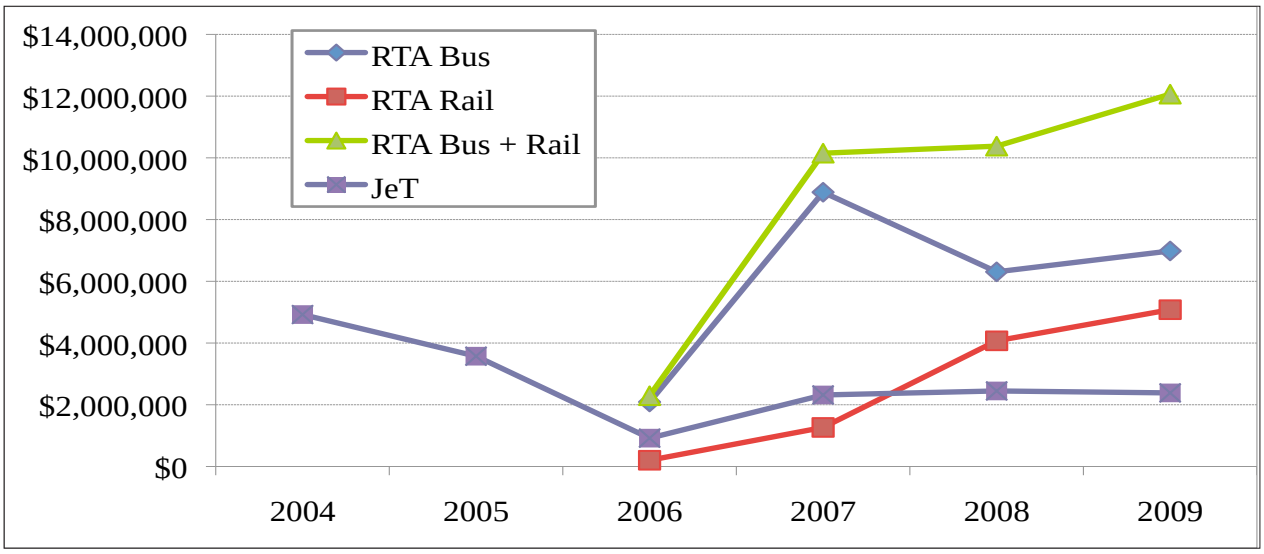

Figure 21. Annual Fare Revenue for RTA and JeT
Source: No data avaialble for RTA in 2004 and 2005. RTA's 2004 data are not shown to preserve the legibility of the graph

Efficiency Indices

To evaluate the efficiency and productivity of the two transit systems, one must examine efficiency indices that can be calculated by dividing one output variable by one input variable. These efficiency measures normalize an output variable by the input variable, and are more comparable among different agencies and time periods.

Cost Efficiency

Although one might guess that productivity declined in both Orleans and Jefferson Parishes immediately after Hurricane Katrina, after comparing both agencies' drop in revenue vehicle hours from 2004 to 2006 (68.0 percent for RTA and 48.5 percent for JeT) to the drop in their total modal expenses (35.3 percent for RTA and 39.2 percent), and then reviewing the information from Figure 11 to Figure 16 the relationship is not entirely clear. Cost per revenue vehicle hour by total modal expenses (Figure 22) and cost per revenue vehicle hour by vehicle operation expenses (Figure 23) were computed to examine cost efficiency in RTA's and JeT's transit services.As these figures show, RTA's cost per revenue vehicle hour for buses drastically declined from 2008 to 2009—by 29.4 percent in terms of TME, and 37.4 percent in terms of vehicle operation expenses. As this number remained relatively constant from 2006 to 2008, efficiency certainly improved in

RTA's first full-year of management and operation under a new contract. However, these figures also show that streetcar efficiency declined in 2009.

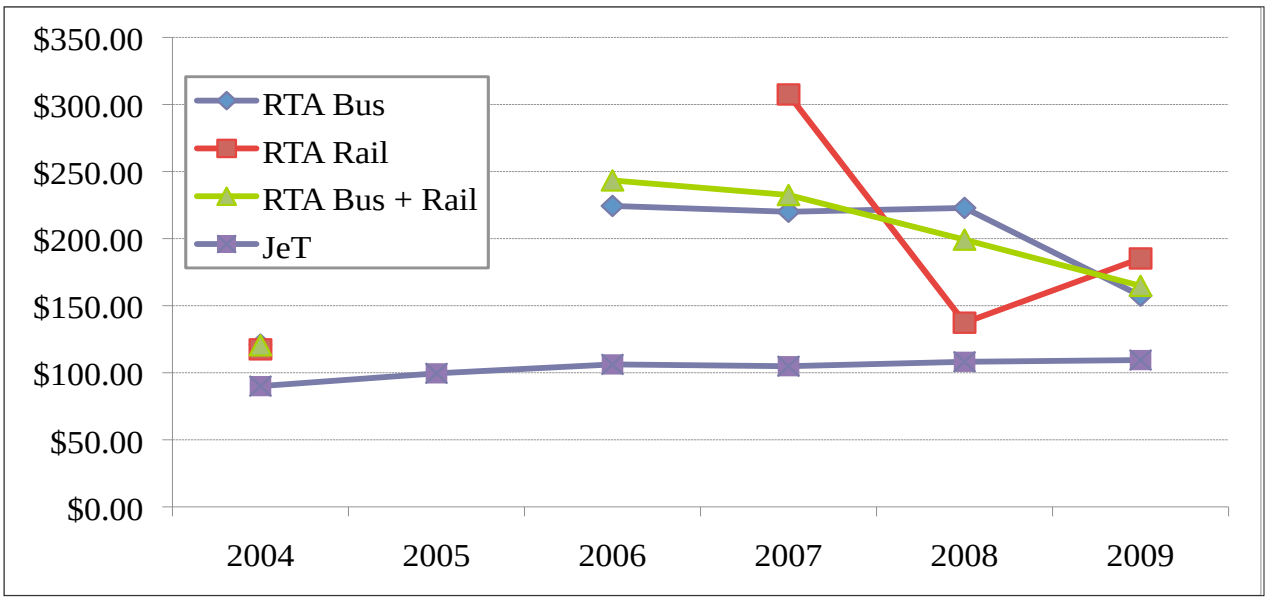

Figure 22. Cost (TME) per Revenue Vehicle Hour by Mode, for Agency by Year
Source: No data avaialble for RTA in 2005

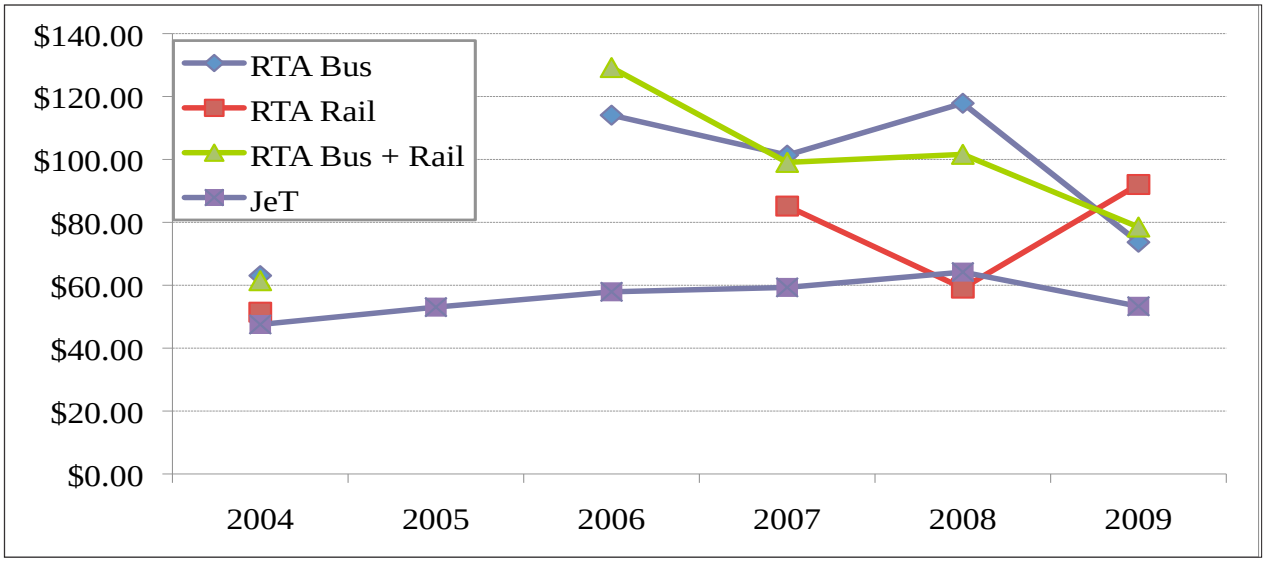

Figure 23. Cost (VOE) per Revenue Vehicle Hour by Mode, for Agency by Year
Source: No data avaialble for RTA in 2005

Farebox Recovery

Figure 24 illustrates RTA's and JeT's farebox recovery ratios. Farebox recovery is the ratio of fare revenue to total modal expenses. Farebox recovery ratios for 2004, 2007, 2008, and 2009 are shown, with 2005 and 2006 omitted because of RTA's free fare period. This data suggests that JeT is recovering less and less of its expenses from fares; as its farebox recovery ratio decreased from 28 percent in 2006 to 23 percent in 2009. In contrast, RTA's buses have seen a reversal from earlier trends, as farebox recovery ratios

have increased, from a low of 11 percent in 2008 to 15 percent in 2009. RTA's streetcars have seen a five percent decline in farebox recovery ratios in 2009, but the system as a whole has improved its ratio by three percent, as the bus system makes up a larger proportion of operating expenses and fare revenue.

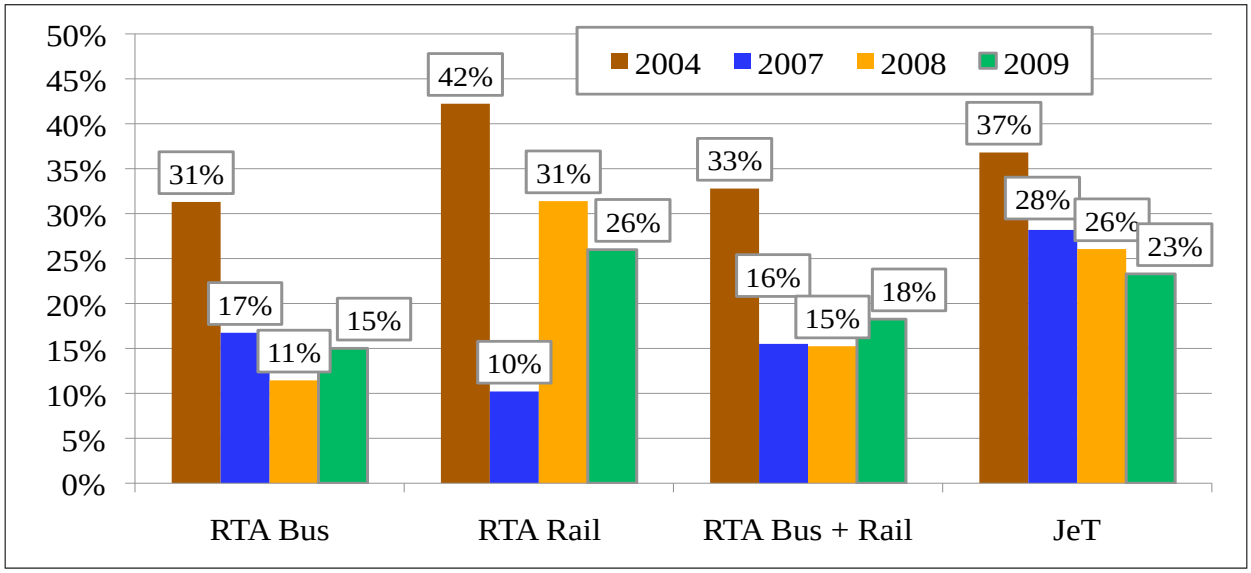

Figure 24. Farebox Recovery Ratios for RTA and JeT, 2004, 2007, 2008, and 2009
Source: No data avaialble for RTA in 2005. Total modal expenses were used to calculate this ratio. Data in 2005 and 2006 of RTA's free fare period were not included.

Effectiveness Indices

Effectiveness measures how well transit service providers serve the riding public. In many cases, indices are normalized by input variables, such as operating costs or the number of employees. The major difference between efficiency and effectiveness indices is that many factors outside the control of transit operators can affect the public's consumption of transit services (as measured by ridership and passenger miles), and consequently, transit service effectiveness. Factors external to transit providers include the state of the regional economy, household incomes, private vehicle ownership, availability of parking, and levels of congestion on highways (Miller et al. 2005; Taylor et al. 2009). At the same time, it is the goal of public provision of transit services subsidized by tax revenue to meet a public need for transportation, and that the service be well utilized.[49] Thus, it is important to evaluate cost effectiveness ratios.

Cost Effectiveness

Ridership per revenue vehicle hour (Figure 25) evaluates how effectively the service provided by each agency increases its ridership. JeT has consistently attracted a similar level of ridership per unit of operation, averaging 26.3 riders per vehicle hour over the period studied, but slowly declining from a high in 2006. RTA attracted far fewer riders

49 In reality, the political motivations of elected officials to serve their specific constituencies often leads to more dispersed transit service than is necessary, in areas that cannot expect even moderate ridership given local demographics and built environments.

per unit of operation after the hurricane than before, dropping from 54.2 riders per vehicle hour in 2004 to only 25.1 in 2006, but increased that number by 52 percent to 38.2 riders from 2006 to 2009.

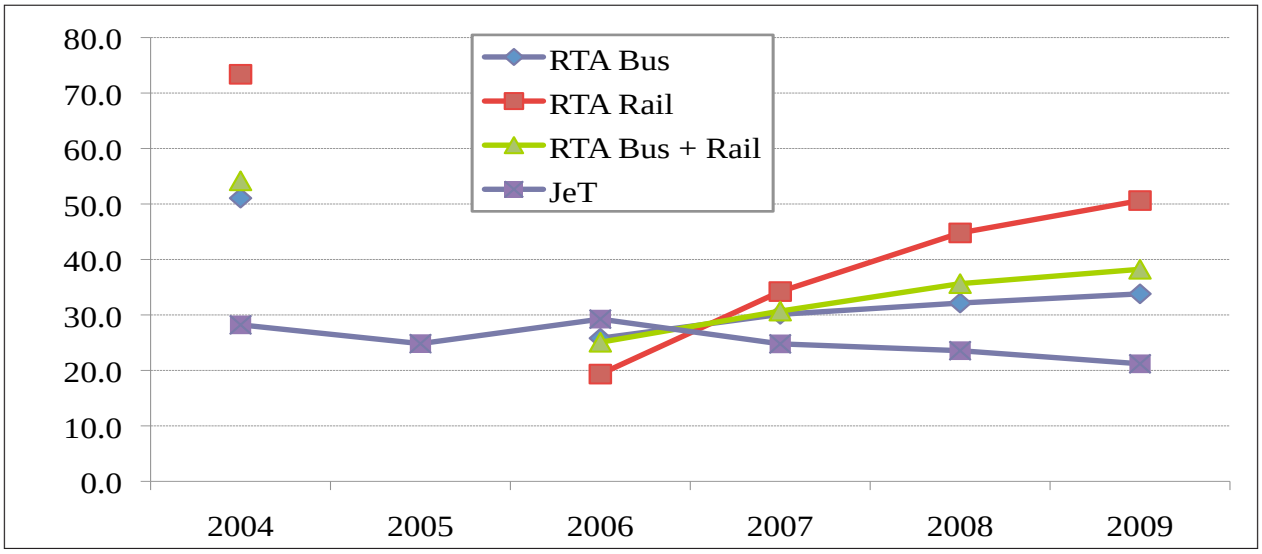

Figure 25. Ridership per Revenue Vehicle Hour, RTA and JeT
Source: No data avaialble for RTA in 2005

Ridership per revenue vehicle mile (Figure 26) is another effectiveness measure. JeT's ridership per mile has hovered between one and two over the entire period, while RTA's bus ridership has risen slightly since Katrina, and streetcar ridership has risen more dramatically, contributing to an overall increase for RTA of 64.5 percent. As seen in both figures, streetcar effectiveness is substantially higher than bus effectiveness. The Saint Charles and Canal Street streetcar lines are exceptionally popular routes, with the Saint Charles line alone commanding 25.1 percent of RTA's ridership in 2009.

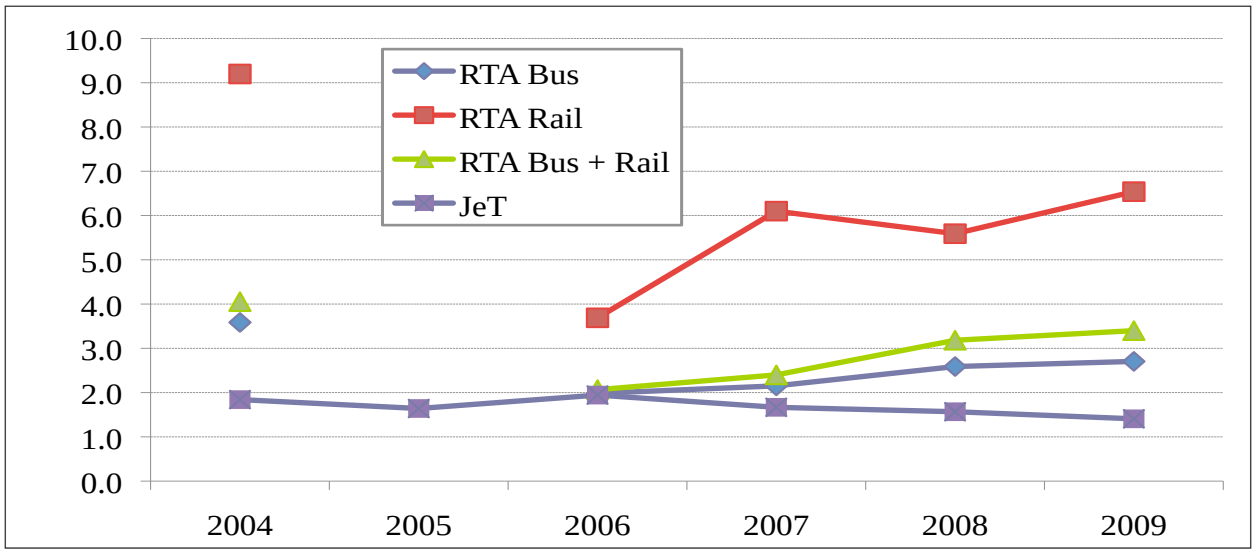

Figure 26. Ridership per Revenue Vehicle Mile, RTA and JeT
Source: No data avaialble for RTA in 2005

While effective in terms of ridership, the cost (as a share of total modal expenses) of an unlinked passenger trip on an RTA streetcar rose sharply in 2009 (Figure 27). Prior to Hurricane Katrina, RTA streetcars had the lowest cost per trip of either agency or mode, at approximately $1.60. Although initially high post-Katrina streetcar costs per tip dropped to a low of only $3.07 in 2008, in 2009—the first full year of completely restored streetcar service—the cost more than doubled, to $6.22.

RTA bus costs per passenger trip have fallen each year since their high of $8.70 in 2006, with the sharpest decline (of 32.8 percent) occurring from 2008 to 2009, the system's first full year under Veolia. JeT, on the other hand, has seen rising costs per passenger trip since 2006. JeT's 2009 cost per passenger trip was $5.16, higher than RTA's cost of $4.66 for bus alone, and of $4.31 for bus and rail combined.

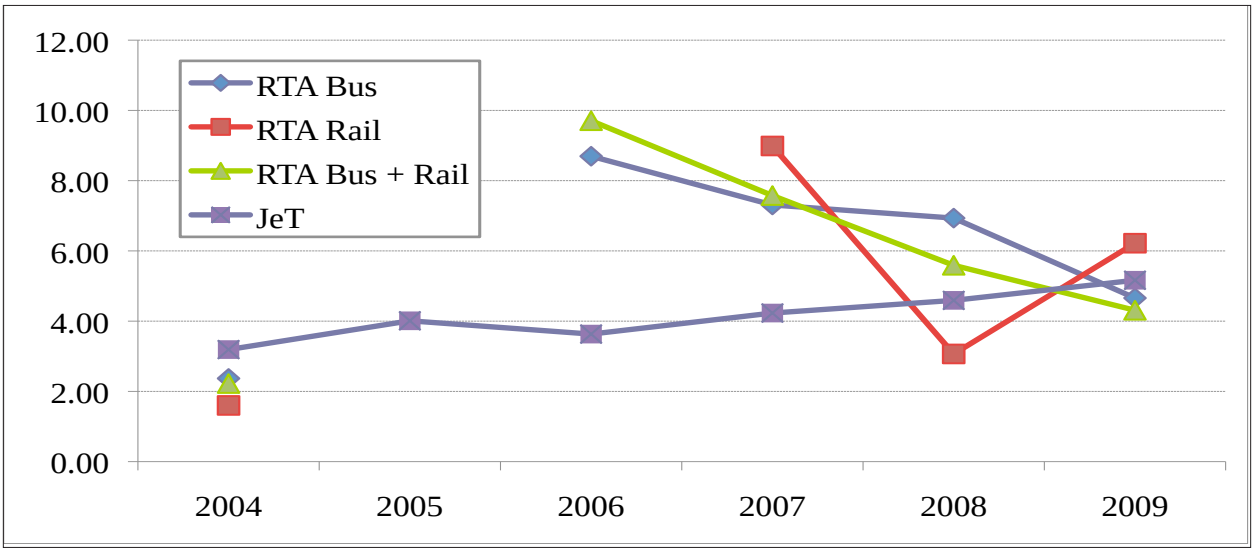

Figure 27. Cost (TME) per Unlinked Passenger Trip, RTA and JeT
Source: No data avaialble for RTA in 2005. Cost per unlinked passenger trip for light rail was substantianly higher, $20.34, due to the limited level of service, and is not included for legibility in this graph.

Summary of Analyses

While both RTA and JeT experienced losses in productivity in the immediate aftermath of Hurricane Katrina, the analysis of operating and financial data show different performance trends for these two agencies from 2006 to 2009. Since 2006, the JeT transit system has been operated by Veolia under a contract that gives the company much less decision-making latitude than the delegated management contract between RTA and Veolia allows. Overall, while JeT has not seen dramatic changes over the five year period, RTA has made significant improvements in several indicators that could be attributed to a significant restructuring of RTA transit service management and operation under the RTA/Veolia contract.

While RTA made many gains following its resumption of service in 2006, some are attributable to the fact that the city and the transit system have begun to recover from the profound lows of 2006. This is especially noticeable when looking at RTA's data by mode and comparing it to the rate of streetcar line restoration, particularly since the Saint

Charles and Canal lines have the system's highest ridership. Through 2008, streetcar gains in revenue hours and mileage, passenger trips, fare revenue, and operating cost efficiency were accompanied by corresponding losses on the bus side. In 2009, however, RTA buses made gains in revenue miles and hours, trips per capita, cost efficiency, and cost per passenger trip—despite 2009 being the first complete year of fully restored streetcar lines. These gains could be attributed to bus line re-alignment, rescheduling, and reallocation of vehicles implemented under new Veolia management. At the same time, researchers observed a considerable loss in cost efficiency in the RTA streetcars operation compared to 2008, although their effectiveness in terms of ridership per vehicle mile and hour is notably higher than buses. This loss in cost efficiency for streetcars is due to a significant increase in operating costs, which may be due to the higher platform hour rate charged by Veolia to ensure that supervisors keep even intervals between streetcars. Still, the gains made by RTA buses were sufficient to offset the declines in streetcar efficiency, as the system has improved as a whole.

One important question arising from this study's analysis is whether Veolia can reverse 2009 declines in streetcar efficiency and increases in operating costs. Although there is still an ongoing debate for efficacy of light rail in terms of cost-effectiveness (DeLong 1998; Pickrell 1992), New Orleans has historically enjoyed very high effectiveness on its streetcar lines, and under its delegated management contract, Veolia has been charged with exploring rail expansion as one of its planning tasks. Additionally, it remains to be seen whether Veolia can effect much change in Jefferson Parish over the remainder of its contract. While neither JeT nor Jefferson Parish was devastated by Katrina to the extent that RTA and Orleans Parish were, some of the minor decreases in effectiveness and efficiency may be due in part to circumstances beyond JeT's or Veolia's control, as the entire region contends with population and land use changes.

While some indication of the effects of the RTA/Veolia contract on efficiency and effectiveness in providing transit service to the New Orleans public were obtainable, the limited amount of data made available to researchers—due to a short analysis period after the contract and limited cooperation from RTA—has made it difficult to draw more definitive findings. It was not possible to obtain any of the more detailed documents that were referred to in the initial request for proposals, the contracts, those related to the bidding and selection processes, or the post-selection negotiations between RTA and Veolia. Therefore, if the contract is renewed, further analysis—with more data—is warranted to more thoroughly evaluate the performance of Veolia's management of RTA over the next four, or possibly nine, years.

REGIONAL COORDINATION IN GREATER NEW ORLEANS

Regional coordination of public transit is an important issue in metropolitan areas where transit riders travel across multiple transit systems to reach destinations spread out across a region. In the New Orleans region, suburbanization of both housing and jobs, combined with a central business district that continues to be of importance in downtown New Orleans, requires many people to travel between Orleans, Jefferson, and several other suburban parishes. It is important for RTA and JeT to coordinate their transit services to better accommodate the needs of travelers across the two jurisdictions—particularly those

who do not have easy access to private automobiles and must depend on public transit service for their mobility.

This section addresses the following questions: (1) whether or not a private firm, given proper incentives (such as adequate compensation and the prospect of continuation of contracts in future), provides more cost-effective transit service with better regional coordination than do two separate public agencies, and (2) if it does, how efficiently the one contractor can achieve better regional transit coordination. Specifically, this section discusses findings from a questionnaire and interviews regarding regional coordination in the Greater New Orleans region, comparing them with the findings of the nationwide survey on the status of regional coordination that are discussed in more detail in the next chapter, "Nationwide Regional Coordination Survey." Transportation planners at the Regional Planning Commission (RPC: the metropolitan planning agency in New Orleans), and transit directors and planners from RTA and JeT responded to the questionnaire and participated in the follow-up brief interviews (Table 17).

Table 17. Agencies and Positions of Respondents for Questionnaire and Interviews

New Orleans Regional Transit Authority (RTA)/Veolia:
• Chief Operating Officer • Director of Planning and Scheduling
Jefferson Transit (JeT):
• Director of Transit Administration
Jefferson Transit/Veolia:
• Operations Manager
Regional Planning Commission (RPC):
• Director of Planning • Transportation Planner • Transportation Planner
GCR & Associates:
• Senior Planner

Note: GCR & Associates are contracted out to provide the planning function for JeT.

Table 18 and Table 19 summarize the questionnaire responses from the planners and directors at the New Orleans agencies and from the nationwide survey on regional transit service coordination, respectively. Both tables list the 17 indicators of regional transit coordination that we developed based on the literature review, which are grouped into the following five major categories.

- **Fare, Pass and Discount Programs (Fare Coordination)** include setting a regional fare structure, selling tickets and tokens for services outside the agency's own jurisdiction, offering shared tickets and free or discounted transfers, and offering special discounts programs with other public or private entities;
- **Service Schedule** is related to coordination of service schedules that carefully takes into account other agencies' service availability and vehicle schedules for transfers;

- **Information** refers to joint provision of information on service schedules, system/line maps, fare information and real-time operation (i.e. automotive vehicle location—AVL),
- **Facilities and Vehicles** refer to sharing of transit facilities and vehicles, clear designation of transfer points, and planning for transfer points, and
- **Others** include any joint agreements between the transit agencies to: (1) expand transit system and/or increase transit service, (2) make marketing efforts, (3) implement smartcards as fare media, (4) provide worker training programs, (5) share data for planning and operation purposes, and other agreements that would promote regional coordination. Coordination in these areas would require a high degree of cooperation by both parties.

In Table 18,[50] either a "yes" or a "no" answer is shown for each of RTA, JeT, and RPC with specific notes from their responses. Percentages in Table 19 represent the proportion of transit agencies that provided an affirmative response for each regional coordination index in the nationwide survey.

The Unified Planning Work Program for 2010, which was prepared by RPC in April of 2009 and documents all federally funded planning activities in the urbanized area, clearly states, "[S]ignificant inroads toward regional transit provision have been achieved with the selection of a single operational provider for JeT, RTA, and RPTA,[51] Veolia Transportation (RPC 2009)." However, responses to the questionnaires from the three agencies in New Orleans revealed the relatively low level of coordination in this region. Among seventeen indices measuring the level of regional coordination, the Greater New Orleans region has a full positive response to only three of them: availability of transit fare media in the other transit agency's service area (indicator 2), joint provision of information (indicator 8), and sharing facilities (indicator 10) (Table 18). In contrast, for these three issues, more than half of the responding agencies nationwide gave positive responses, indicating a significant level of coordination: 55 percent for fare media, 75 percent for joint provision of information, and 69 percent of sharing facilities (Table 19).

50 Note that five indicators are combined into Item 13, "Others" in Table 19.

51 The River Parishes Transit Authority, RPTA, was created in February 2009 to serve St. James, St. John the Baptist, and Saint Charles Parishes with demand-response service. Saint Charles Parish shares a border with Jefferson Parish, and RPTA offers connections to JeT, RTA, and Baton Rouge, as well as to St. James Parish's fixed-route service (River Parishes Transit Authority 2010).

Table 18. Responses to the Questionnaire on Regional Coordination of Transit Service in the Greater New Orleans Region

		Indicator	Current Condition			Note
			RTA	JeT	RPC	
1	Fares/passes/ discount programs	A coordinated regional fare system	No	No	No	Some discussion among three agencies, but JeT has some reservations.
2		Availability of passes, tickets, or tokens in the other transit agency's service area	**Yes**	**Yes**	N/A	**RPC**: In the near future RTA will install fare kiosks at major transfer points, and they may also sell JeT tickets.
3		Passes, tickets, tokens or transfers usable in the other transit system's	No	No	No	-
4		Special discount program with other public or private entities	N/R	**Yes**	No	**JeT**: 3% discounted monthly passes to select state agencies
5		Free or discounted transfer from the other transit system	No	No	No	-
6	Service Schedule	Consideration of the other transit system's service availability in service scheduling	No	No	N/R	**RPC/JeT**: Informal (*internal to Veolia*) communications when routes are disrupted in order to assists passagners who are transfering. Plan to work together in future.
7		Coordination in time scheduling to accommodate transfers	No	No	Yes	**RPC**: Attempts were made. **RTA**: not currently, but is planning.
8	Information	Joint-provision of information on transit service	**Yes**	**Yes**	**Yes**	**All**: Both transit agencies provide links to each other's web sites/phone numbers
9		Real-time information for operation (e.g. AVL) shared between the two transit systems	No	(Yes)	No	**RTA**: Both JeT and RTA use similar AVL systems and this will be considered. **RPC**: RTA considering using this for real-time rider information.
10	Facilities/vehicles	Sharing facilities (e.g., terminal, shelter, park & ride lot)	**Yes**	**Yes**	**Yes**	**JeT**: Two bus terminals; **RTA**: facilities at three transfer points, and plan to expand one of them.
11		Clearly designed transfer points	No	No	**Yes**	**RPC**: There are transfer points within both RTA and JeT service areas, designated with signage from the appropriate agency. **RTA/JeT:** No clear desgination that these are transfer points.
12		Discussion of possibly locating and designing facilities to better accommodate transfers	**Yes**	No	No	**RPC**: RTA plans improvements to transfer points which will benefit JeT passengers but JeT is not involved in the project. **RTA and JeT**: Discussion about locating joint terminals, but no formal plan.
13	Others	Agreements to (1) increase service frequency or expand routes, (2) jointly markey transit service, (3) introduce regional transit smart card, (4) joint worker training, and (5) share data on ridership, accidents etc.	No	No	No	**RPC**: Project to encourage non-single occupant commute modes. This program will market the use of transit in general, regardless of transit provider

Note: The "other (13)" category of this table contains five separate questions for a total of seventeen questions.

Table 19. Summary of Findings from the Nationwide Regional Coordination Survey

		Indicator	Nationwide Yes %
1	**Fares/passes/discount programs**	A coordinated regional fare system	52%
2		Availability of passes, tickets, or tokens in the other transit agency' service area	55%
3		Passes, tickets, tokens or transfers usable in the other transit system's	54%
4		Special discount program with other public or private entities	64%
5		Free or discounted transfer from the other transit system	63%
6	**Service Schedule**	Consideration of the other transit system's service availability in service scheduling	70%
7		Coordination in time scheduling to accomodate transfers	68%
8	**Information**	Joint provision of information on transit service	75%
9		Real-time information for operation (e.g., AVL) shated between the two transit systems*	6%
10	**Facilities/Vehicles**	Sharing facilities (e.g., terminal, shelter, park & ride lot)	69%
11		Clearly designed transfer points	74%
12		Discussion of possibly locating and designing facilities to better accomodate transfers**	43%
13	**Others**	Agreements to increase service frequency or expand routes	17%
14		Agreements to jointly market transit services	27%
15		Agreements to introduce a regional transit smart card	29%
16		Agreements to jointly train transit workers	9%
17		Agreements to jointly share data on ridership, accidents, etc.	10%

* 51% responded that their agency is using real-time information, but not sharing with other agencies.
** Only includes responses from agencies that do not already clearly designate transfer points with other agencies.
*** In this table, the "other" category is broken down to five different issues.

While the questionnaire responses obtained from the three agencies are not consistent, one of the three agencies indicates that some level of regional coordination exists for each of the following: clearly defined transfer points (indicator 11), and discussion of possibly locating and designing facilities to better accommodate transfers (indicator 12). While 74 percent of agencies in the nationwide survey provided a positive response on designation of transfer points (Table 19), it is surprising to find that two of the three agencies disagree that there is clear designation of transfer point between RTA and JeT systems, taking into account that their transit system maps actually indicate several locations considered as transfer points. These inconsistent responses may stem from different understandings of the current conditions, and the different perspectives that each agency has regarding transit service coordination in the region.

JeT indicated (3) a special discount program with other public and private entities and (9) real-time information for operation, both of which have potential to expand to the regional level. However, as RTA has not implemented either program or technology, neither has been included in enhancement of regional transit service. Thus, the Greater New Orleans region has a very slow rate of progress in special discount programs, compared to 64 percent of agencies in the nation that have such programs (Table 19). In contrast, if RTA and JeT can work together on automatic vehicle location (AVL), it would be a good step forward for regional coordination, as only 6 percent of the transit agencies responding to the aforementioned nationwide survey currently feature AVL coordination.

RTA and JeT also show lower levels of coordination in vehicle scheduling than most agencies in the nation. There is no official agreement or consideration for coordinating vehicle scheduling between the two agencies in New Orleans, while about 70 percent of agencies that responded to our nationwide survey have such an agreement. However, as will be discussed,, RTA and JeT have informal coordination of vehicle scheduling through a staff-level channel within Veolia. Finally, the New Orleans agencies lag behind the national trend in terms of coordination of fare/pass programs, providing a positive response only for the sale of passes, tickets, tokens or transfers for the other agency. In contrast, more than half of the agencies that responded to the nationwide survey are implementing programs in each of five indicators listed under the “fares/passes/discount programs” category of coordination (see Table 19).

In short, although there is a certain expectation among the agencies that regional coordination both between the transit agencies and through the internal channel of Veolia will be improving in the future, current coordination of transit service in the Greater New Orleans region was found very limited and not as pervasive as the transit coordination among many of the agencies responding to the nationwide survey.

In order to obtain details of management, operation, and planning by each of RTA and JeT to supplement information obtained from the questionnaire, and to find reasons that regional coordination has not made much progress in the New Orleans region, follow-up interviews were conducted. The findings from these interviews with planners and directors of RTA, JeT, and RPC are discussed in the following sections. First, the issues in each of the five categories in Table 19 are addressed in detail. Next, the politics and funding issues that make the relationship between RTA and JeT difficult, as well as the role of RPC and the possibility of future coordination are described.

Examination of Regional Coordination between RTA and JeT

Fare/Passes/Discount Programs

Prior to Hurricane Katrina, RTA and JeT held informal monthly meetings to discuss various issues including coordination, according to interviewees from both agencies. From 2002 to 2005, RTA and JeT jointly offered day passes that allowed transit riders to use a single one-day pass ($5.00) to travel in both transit systems without paying a transfer fare, providing seamless travel to pass users. The director of planning and scheduling for RTA/Veolia explains that this was the only real instance of regional fare coordination between the two systems in the past.

This fare media sharing system used a day pass with stubs that indicated in which transit system the pass was purchased, that is, whether RTA or JeT collected the fare. Fare revenue from day passes was redistributed in each period by first counting stubs[52] that both RTA and JeT collected from passengers and then transferring fare revenue equivalent to half of the ticket price multiplied by the difference in the number of stubs that each agency collected. With this method of fare media sharing, however, it was difficult to ensure that each agency was receiving its appropriate share of fare revenue. One reason is that it was not possible to figure out how many transfers each traveler made within each system, as well as between the two systems. This could mean that one agency carried the passenger multiple times on one day, the other agency only carried the person once, and each agency still received half of the original ticket revenue. Another concern related to day passes is that passes left at a bus stop could be used more than once by multiple riders—the person who purchased the pass and someone else who found the discarded pass. In this case, two people would be riding for the price of one, and the transit agencies would lose expected revenue.

Although Hurricane Katrina brought both agencies to a standstill, JeT sustained considerably less damage than RTA,[53] and returned to service shortly after the storm. Once JeT resumed services, it decided that it would not renew the day pass program with RTA. Throughout the lifetime of the program, JeT had continuously been concerned with fare allocation. As there were more people traveling from the RTA system to the JeT system, RTA was collecting more fares, and JeT collected more stubs to get reimbursed for the shared fare revenue. Also, according to a transportation planner at RPC, transit planners at JeT believed that the methodology used to determine fare revenue sharing was not transparent and that JeT was unfairly losing money to RTA.

In addition, the technology inconsistency due to the different types of fareboxes that RTA and JeT used over the past several years—RTA had an older one—created friction and did not allow easy introduction of common fare media. RTA has been introducing fareboxes with newer technology, as well as new fare media called “Jazzy Passes,” which are magnetically striped tickets good for either 3 days or 5 days. These new technologies will allow RTA to collect fares before passengers board the vehicle, as passes are sold at

52 The collection of a stub indicated that the purchase of Day Pass and its use for travel occurred in two separate transit systems.
53 For example, JeT lost only one vehicle, while 205 RTA buses and 31 RTA streetcars were damaged.

machines, not by operators, in this new system. This will help RTA prevent the employee errors and fraud often found in fare transactions, but user fraud will still be hard to stop. Although the questionnaire indicates that there is no longer a fare media-sharing program, a comment made by an RPC interviewee suggests that a more coordinated fare system may be on the horizon. An RPC interviewee commented that there is a possibility that RTA could offer tickets that are used for both RTA and JeT systems at ticket kiosks that RTA is planning to install in the near future.[54] However, a fare revenue allocation method was not mentioned. This was the only sign of any real plan for a joint ticketing venture to come out of interviews with RTA, JeT, and RPC representatives.

Hesitation remains regarding any fare media-sharing program, as the director of transit administration at JeT indicated that politics, revenue transparency, and equal representation of both RTA and JeT interests would need to be worked out before any new fare media/revenue sharing system could be possible. In addition, an RTA interviewee also provided an explanation from the JeT perspective regarding avoidance of a regional fare structure:[55] because of the difference in size between the agencies and their funding structures, JeT could lose a larger proportion of its fare revenue with a regional fare program than RTA. Clearly, this would be unacceptable for JeT, which tends to emphasize the revenue-expenditure balance more than does RTA.

Service Schedule

Scheduling of operating hours and transit routes is an important indicator of the level of regional coordination. Responses to the questionnaires show that neither RTA nor JeT takes into consideration the schedule of the other system when deciding timetables for bus/streetcar stops at transfer points, although the director of planning and scheduling at RTA indicated that he is planning to introduce this concept. This point was also discussed further with the operations manager at JeT, who indicated that some level of coordination between the two systems does indeed exist occasionally and informally through the internal connection within Veolia.

One such example of coordination is illustrated through the actions of this JeT operations manager and the RTA chief operating officer, when they discussed and adjusted the timing of when JeT buses pick up passengers from RTA's streetcars on Canal Street. It had been brought to the attention of the JeT manager that JeT buses were scheduled to leave right before the Canal streetcars arrived. He explained that particularly during special events or temporary disruptions in service due to road construction, he contacts RTA to ensure that schedule changes in one system do not interfere with the other's scheduling at major

54 RTA announced, "RTA will introduce the Jazzy Pass and ticket vending machines in summer 2010, providing riders with a state-of-the-art transpass system to make boarding more efficient and convenient" (New Orleans Regional Transit Authority nd).

55 JeT's fare is higher than RTA's fare. The fare structure is one sticky point. A lack of the regional fare structure poses another challenge to RTA operation. Although it is not productive to provide service on one line that historically has run on Veterans Boulevard in Jefferson Parish and permits access to shopping, removing this RTA line forces people to pay double fares due to the lack of a regional fare structure. Removing it also raise a problem regarding Title VI of the Civil Rights Act of 1964 that requires that "[n]o person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance (Civil Rights Act 1964).

transfer locations. In cases where buses are running behind schedule due to disruption on a specific JeT line, he can make a request to an RTA operation manager that RTA take late arrivals of JeT buses into account and accommodate JeT passengers' smooth transfers to RTA buses, rather than make them wait for the next bus.

Although these are not formal examples of joint service scheduling, it does suggest that there is an open communication path through the contractor's internal channels to ensure that customer's needs be met. Indeed, Chisholm (1989) discusses this essential form of informal coordination in his classic study of transit coordination in the San Francisco Bay Area in the 1980s.

Information

Information sharing was one of the two categories where there were clear indications of regional coordination. Transit users can access bus and streetcar schedules of RTA's system via a web link provided on JeT's website. In addition, both transit agencies provide riders with the telephone number to obtain arrival information for the next bus/streetcar. However, neither system offers paper time schedules for the adjacent system's lines on-board buses or streetcars.

JeT offers information on real-time next bus arrivals, using the automatic vehicle location (AVL) system at two terminals that are transfer points between RTA and JeT. The fact that these facilities are located in Jefferson Parish explains the difference in responses to this question between RTA and JeT. The director of planning and scheduling at RTA/Veolia also indicated on his questionnaire response that RTA will utilize an AVL system similar to JeT's, and that it may make information sharing feasible in the future. It should be noted that at least this director at RTA/Veolia thinks of it as a reasonable option to choose a similar AVL technology for future coordination at this point, taking into account the technology that the operating unit of Veolia for JeT uses. While his consideration will not necessarily lead to the selection of the same or similar technology, he could advocate a particular technology. A "champion" often plays a very important role in the introduction of a new technology to a public organization (Achilladelis, Jervis, and Robertson 1971; Ettlie, Bridges, and O'Keefe 1984; Howell and Higgins 1990; Rothwell et al. 1974; Schön 1963; Yoh 2008).

Facilities/ Vehicles

Facility sharing was among those categories that showed positive signs of regional coordination. Interviewees at both RTA and JeT constantly mentioned five major transfer points where RTA and JeT transit systems meet and transit riders transfer between them: (1) two terminals on the West Bank located in Jefferson Parish where RTA buses pick up commuters to downtown New Orleans, and (2) three intersections in Orleans Parish.[56]

Although both RTA and JeT answered "no" to the question of whether there were "clearly designated transfer points," the system maps available on the agencies' web sites and

56 These are the Wilty and Walkertown Terminals, and intersections of Canal Boulevard & City Park Avenue, S. Carrollton Avenue & S. Claiborne Avenue, and S. Carrollton Avenue & Tulane Avenue.

printed copies, clearly indicate transfer points between the two transit systems.[57] The two transit agencies provided inconsistent responses regarding a future plan to locate a joint transfer facility, for example, at the intersection of Canal Street and Carrollton Avenue. On one hand, the RTA interviewee briefly explained that there has been a discussion on this issue, but that a formal plan has yet to be made. On the other hand, the JeT interviewee provided a negative response, expressing JeT's cautious position on an issue that may require funding allocations that do not exclusively benefit Jefferson Parish.

Transferring between RTA and Jefferson Parish is necessary for many riders who work in one parish and reside in the other, as was also revealed in our transit user survey. How well the two systems facilitate transfers between parishes is also one indication of their level of coordination with each other. The JeT website homepage has a link to an interactive system map that identifies transfer points from the JeT system to RTA (shown in Appendix D, Figure 30).[58] From the same page as the interactive map, one can also download a printable PDF version of the system map with more detail than the web version, including a complete list of connecting RTA lines (Appendix D, Figure 31).

The RTA website does not provide riders with much information on how to transfer from one system to the other.[59] Similarly, RTA does not provide a detailed list of lines that intersect with JeT lines on their webpage. Neither a phone number for JeT nor a link for the JeT website is available on the RTA website, making it difficult for those who want to travel between RTA and JeT. Finally, RTA does not identify their travel to the Wilty Terminal, which is located in and maintained by Jefferson Parish. The RTA runs one bus to the Wilty terminal, but neither the system nor route map identify this point by name, only by a colored line indicating a stop.

While its system and route maps are more difficult to use, RTA offers an online trip planning tool, which helps transit users to find a travel route and time.[60] The Trip Planner tool is helpful to use when traveling within RTA's service area, but does not have the capability

57 Transit systems maps of RTA and JeT are included in Appendix D.
58 Clicking on a route shown on the map leads to a more detailed map of that route, and information including amounts of fares and transfers, connecting routes (including RTA buses), a link to the JeT route schedule in PDF format, and a link to the RTA website homepage for those routes that connect with RTA.
59 The system map provided, as of August 2010, is a Google map that does not allow users to zoom in to see the system in detail, although scrolling is possible. Similar Google maps are available for each route, labeled "interactive" maps, and "printable" PDF maps are also offered although the PDF file is a copy of the route's entire map and schedule brochure, designed to be printed on 29.67" x 9.67" paper.
60 After filling in information for an origin and a destination of trip, travel date, and either desired departure or arrival time, users are presented with a table that identifies walking distances, bus numbers and transfer information. There is an advanced search allowing users to dictate maximum walking distances, routes to avoid, and mode options. Once the proper information is filled in, users are presented route options that include estimated departure times, arrival times, bus numbers, approximate total travel time, and walking distances to and from bus stops. A link to another mapping tool (not Google Maps) is provided, which does allow zooming and jumping to points along the trip.

to take into account a transfer between the RTA and JeT systems.[61] In addition, although it may also be useful to those who are already acquainted with the transit system and New Orleans geography, this tool may be difficult for those who are first-time riders or not familiar with the area to understand and use. Jefferson Parish has done a relatively good job of informing passengers of the different ways and routes to transfer from JeT to RTA by providing RTA contacts, transfer points and bus lines directly on the website.

In short, while RTA offers its users customizable route planning within its own service area, the agency has yet to improve transfer information accessibility to their customers via their website in either static or dynamic form as well as in other conventional media.

Issues to be Addressed for Future Coordination

Although study authors found a need for improved regional coordination in our transit user survey, and our review of the literature on regional coordination supports its value for improving mobility and quality of life for people dependent on transit, the current condition of coordination between RTA and JeT is limited, lagging behind the average level we found in our survey of national transit agencies. In follow-up interviews with transit planners and directors, they identified some of the impediments to improved coordination and learned their thoughts on the potential for improving coordination in the near future.

Politics and Funding

In 1983, the Regional Transit Authority of New Orleans was established as an outgrowth of the city management office and was charged with operating the transportation system in the New Orleans area. State law provided RTA with the authority to operate regionally, although adjacent parishes declined the offer to have RTA provide transit service in their areas.[62] The Director of Planning at the RPC explained that the adjacent parishes, including Jefferson Parish, were concerned with political corruption, which had plagued the city for years, and were apprehensive that working with RTA could bring similar problems to their parishes.

The second issue that has created hesitation on the part of JeT regarding general coordination with RTA is funding. Jefferson Parish partially relies mainly on millage (parish property tax) in funding its transit service; 19 percent of operating funds and 20 percent

61 When using the Trip Planner to travel from Orleans to Jefferson Parish, the end point provided by RTA is not the rider's final destination. Instead, the end point is either a RTA/JeT joint transfer point, or the nearest RTA point to the final destination, requiring riders to walk the remainder of the distance. While walking distances are indicated, transferring to the JeT system is not. Instead, the final destination is a joint transfer point and not the destination that was requested, with no indication that a transfer to another system must be made. In one instance, the rider must take a ferry across the Mississippi River from the final RTA bus stop to the final destination in Jefferson Parish, but this is not indicated in the Route Details section. It would be beneficial for RTA to either indicate or include transfers from RTA to JeT so riders are aware that they must travel on both systems during their journey. There is also an issue with utilization on certain browsers like Google Chrome where the RTA graphics interfere with the Trip Planner and other links, making it difficult to navigate the site.

62 In particular, RTA attempted to purchase Louisiana Transit that was providing transit service to the East Bank within Jefferson Parish. However, Jefferson Parish disagreed with the deal, and prevented it from happening.

of capital funds in 2008 were generated locally, in addition to the 21 percent of operating funds generated by fares. This large proportion of local funds attracts more attention from taxpayers than the use of state and federal funds. In the case of Jefferson Parish, this property tax has to be renewed every ten years (Bureau of Governmental Research 2009; Jefferson Parish Transit 2009). In this setting, elected officials and directors of public service agencies are concerned with ensuring that all tax funds are properly accounted for and effectively used to provide services to their taxpayers. This clear obligation for a public agency to return benefits to its taxpayers significantly limits the prospects of revenue sharing through transfer exchanges and/or a regional fare media, or other coordination efforts that could lead to an outflow of funding from Jefferson Parish. The same concern was revealed in an interview with RTA transit planners, when they stated that RTA would not be able to provide direct service from Orleans Parish to a re-opened WalMart store in St. Bernard Parish in the foreseeable future—which could be a big trip generator—because RTA also has to be concerned about keeping tax money within the Orleans Parish jurisdiction, i.e., by providing transit service there.

Role of Metropolitan Planning Organization

Researchers included RPC, the metropolitan planning organization in the Greater New Orleans region, in the questionnaire and interviews to examine its level of involvement in facilitating and promoting regional coordination for transit service. However, they found via interviews that RPC takes a passive role on this account. RPC planners explained that RPC faces substantial challenges in encouraging coordination between the two transit systems in the region because it has no authority on policy decisions by the transit agencies as is often the case with metropolitan planning organizations throughout the country.

One of the RTA interviewees stated that RPC has developed planning initiatives in response to Federal requirements regarding regional transportation planning, and that he is pushing for a regional transit plan. Taking into account the fact that many residents in Orleans Parish are trying to reach jobs in other areas, particularly in Metairie in Jefferson Parish, it is important for transit agencies to meet this transit demand. He emphasized the importance of having policy-making discussion on how services are allocated between parishes, and the need to collect data for transit planning in future years. For example, a regional travel survey has not been conducted for more than 30 years.

RPC often approaches issues related to regional coordination as a mediator between all of the transportation service providers (including railroad companies), with a focus on solving conflicts and problems among providers and attaining the highest level of satisfaction with the outcome among providers, rather than achieving the goals and objective that may bring more benefits to the region as a whole.

Future Coordination

All interviewees agree that regional coordination of transit service is important to accommodate travel in the region. Planners at RTA/Veolia commented them that the questionnaire actually reminded them of these important issues that will have to be

addressed in the future if not now. As a matter of fact, RTA's director of planning and scheduling stated that he first has to work on the basics within his own transit system. These basics were being managed to less than adequate levels by the previous management at RTA, even three years after the hurricane.

The chief operating officer at RTA/Veolia, the director of transit administration at JeT, and Transportation Planners at RPC have all expressed optimism that regional coordination is more likely to occur now, since there is a common interest within Veolia. Planners at RPC commented that the involvement of Veolia in management, operation, and planning for the RTA transit system has increased the discussion of coordination and that their goal is now more accessible, while the JeT director of transit Administration believes that Veolia is the mechanism that has the potential to increase regional coordination. There was little discussion in any of the interviews, however, of specific plans for improving coordination.

Summary of Analysis

In analyzing responses to the questionnaires and interviews, the current coordination of transit service in the Greater New Orleans region is found limited and is less advanced than transit coordination in most of the agencies consulted in the nationwide survey. There is a certain level of expectation of improved regional coordination, both between public transit agencies, and through the internal channel of Veolia, and there has been discussion of increased coordination. Throughout the interviews, a few issues were repeatedly mentioned, and, therefore, could be candidates for formal implementation. These issues include: (1) installing a shared facility in Orleans Parish, (2) jointly working on vehicle scheduling to provide seamless travel to transit riders, and (3) discussing the potential for revisiting fare media sharing programs. However, many of the testimonies often lack concrete plans.

Interviews revealed three main political and financial concerns that could potentially hinder future implementation of these plans. These are: (1) equal representation of both agencies in a decision making body for regional coordination issues, (2) justification and assurance for benefits for all taxpayers and transit riders in both parishes, and (3) fair and transparent mechanism for fare sharing. In addition, as is often the case with many metropolitan planning organizations, RPC also has been playing a limited role in regional coordination, often as a mediator among transit agencies.

CONCLUSION

This chapter examined two main hypotheses regarding: (1) the performance of a transit service contractor with respect to cost efficiency and cost effectiveness under different contracts, and (2) the level of regional coordination attained with involvement of a contractor for multiple transit agencies in the region. Economic and social settings where RTA and JeT operate their service were carefully taken into account to examine related questions. Although it was not possible to fully examine the details of request for proposal and contracts between RTA and Veolia (due to insufficient documents provided by RTA), the differences between RTA's contract and JeT's contract were clearly identified. RTA and Veolia had substantial negotiation and transition time to craft common goals as well as contractual

terms after the bidding selection. RTA transfers substantially more responsibilities to Veolia in its delegated management contract than does JeT. However, despite expectations, RTA did not include any performance incentives in the final contract, in contrast to JeT's contract, but decided to compensate Veolia with fixed management fees and variable fees based on fixed per-vehicle-hour rates and amount of service provided.

Analysis of the transit service based on transit user surveys and financial and operation data showed that while RTA/Veolia has been improving cost efficiency and cost effectiveness, RTA riders are still less satisfied with the quality of transit service in many aspects than JeT riders are. In particular, sitting space, length of waiting time, and safety at night are the three main attributes of transit service that RTA needs to improve to enhance customer satisfactions.

In contrast, through analysis of financial and operating data, some positive impacts of the Veolia's management and operation on cost efficiency and effectiveness in the RTA system, compared to the JeT system, were evident, even taking into account that the immediate aftermath of Hurricane Katrina that New Orleans and its transit system had to contend with in 2005 and 2006. After the inception of Veolia's initial transitional contract in October, 2008, RTA buses made gains in several indices, such as revenue miles and hours, trips per capita, cost efficiency, and cost per passenger trip in 2009, compared to the slightly declining productivity in the JeT's system. However, we also observed a considerable loss in cost efficiency in the RTA streetcars operation compared to 2008, mainly due to a significant increase in operating costs. This cost increase for the streetcar operation could be attributed to the higher platform hour rate for the supervisor/management level staffing by Veolia. At the same time, as insufficient amount of details of the bidding and selection processes, the post-selection negotiations between RTA and Veolia, and contractual terms, as well as a short time period after the contract implementation did not permit a full analysis, further analysis is warranted to examine its long-term effects of RTA/Veolia's delegated management contract—in particular on the effectiveness of the streetcar operation and planning.

Regarding regional coordination, the analysis of information collected through the questionnaire and interviews showed that RTA and JeT are behind many other agencies in the U.S. regarding the level of regional coordination of transit service. Three political and financial concerns were identified as major barriers for the regional coordination in the Greater New Orleans region. These concerns need to be addressed and resolved before successful attempts at further coordination can move forward. As long as it will not impose a substantial financial burden on any party, it is likely that a few technical issues, such as different technologies for fare collection, bus scheduling, and information sharing will be resolved in the future. Uncertainty still remains, primarily with respect to the political structure and funding at both JeT and RTA. In addition, initiative on the part of RPC, the metropolitan planning organization for the region, is needed beyond its traditional role as a mediator for improving transit service coordination in the Greater New Orleans region.

NATIONWIDE REGIONAL COORDINATION SURVEY

INTRODUCTION

In order to establish a baseline from which to compare the level of regional coordination in New Orleans, a nationwide survey was conducted to evaluate the status of several aspects of regional coordination throughout the United States. The survey employed the measures of regional coordination identified in the literature review to design a survey for fixed-route transit operators throughout the country. Data from this survey were used to compare and evaluate the level of regional coordination in the New Orleans region as discussed in the previous chapter. This section discusses the details of findings from this nationwide survey.

DATA, DATA SOURCES, AND DATA COLLECTION

The time frame of the nationwide survey was two months from April 12, 2010 through June 11, 2010. The 2008 National Transit Database (NTD) administered by the Federal Transit Administration was used to identify 590 transit agencies with fixed-route services.

All of these agencies were invited to participate in the survey through an email letter, the text of which is included in this report in Appendix H. The initial invitation explained the purpose of the survey, and asked respondents to complete the survey, clearly indicating that participation was voluntary. Respondents to the survey were directed to a web-based survey,[63] which provided a general overview of the project, the purpose of the survey, survey instructions, and a statement assuring confidentiality of identity and individual responses. After sending two more follow-up e-mail invitations, researchers sent an invitation letter via U.S. post to all agencies that had not yet responded, including those for which we had no email address. In addition, two reminder emails were sent to agencies which had not responded or which had started the survey, but not completed it. Finally, the survey was closed on June 11, 2010.

The survey consisted of two parts. The first part asked questions related to agency profile and contracting characteristics, such as the number of contractors employed and the functions contracted out. The second part of the survey asked a set of questions related to the following areas of regional coordination which were identified in the literature review:

1. Fare coordination,
2. Service schedule coordination,
3. Information coordination,
4. Facilities/Vehicle coordination, and
5. Joint agreements.[64]

202 agencies in 45 states responded, giving an overall response rate of 34 percent. The sample represents different sized agencies from 45 states and all major regions of the United States. As Table 20 shows, the survey captured agencies that were closely representative of the fleet sizes of the entire population of fixed-route agencies provided by the NTD. The

63 The survey was conducted using SurveyMonkey, www.surveymonkey.com.
64 A copy of the survey can be found in Appendix H.

sample population, however, captured a significantly smaller percentage of agencies with fewer than 25 vehicles, and a larger percentage of agencies with 100–249 vehicles. Of these respondents, approximately 45 percent indicated that their agency is the only fixed-route transit agency operating in their region. The survey did not require respondents from these agencies to answer questions related to regional coordination, as they were the sole provider and thus, not required to partake in such activity. The remaining 111 respondents answered questions on several aspects of regional coordination. Respondents who answered questions on regional coordination represented 111 transit agencies from 31 different states and 81 different urbanized areas, as classified by the NTD.

Table 20. Fleet Sizes of Agencies Surveyed and Entire Population

Vehicles Operated at Maximum Service (Total Fleet Size)	Survey Sample	Entire Population of Fixed-Route Agencies
Under 25	28%	43%
25–49	23%	19%
50–99	14%	16%
100–249	19%	11%
250–499	7%	6%
500–999	4%	3%
Over 1,000	5%	3%

STATUS OF REGIONAL COORDINATION IN THE U.S.

Contracting

Agencies were polled on several questions related to contracting (Table 21). Almost half of respondents (48 percent) indicated that their agency contracts out some level of fixed-route service to either private or other public agencies. A small percentage of agencies had contractors (15 percent) that were involved with improving regional transit service coordination, although many of the transit agencies polled are in regions with few or no other fixed-route transit agencies.

Respondents indicated that operations and maintenance are the functions most frequently contracted out (Table 22). A few of the respondents indicated that their agency contracts out all functions in Table 3, but more commonly agencies contract out a combination of operations, maintenance, and management without contracting out planning. As mentioned in previous sections, the RTA/Veolia contract provides that Veolia take on all functions “below the board level,” including all four functions mentioned in Table 3 below. RTA is somewhat unique in the U.S. in engaging in this level of contracting. Nevertheless, there were some respondents to the survey that noted that their agency contracts out all functions. In addition, among agencies operating in regions with other fixed-route transit agencies, 20 percent reported that there was a contractor involved with improving regional coordination.

Table 21. Questions Related to Contracting

	Yes		No		Total
	N	%	N	%	N
Does your agency contract out functions related to the provision of fixed-route transit service to private firms or other public transit agencies?	97	48	105	52	202
In the event of an emergency (e.g., natural disaster), are there any existing agreements between your agency and contracted transit providers to provide service?	64	32	134	68	198
Are there any particular roles that contractors have in improving regional transit service coordination among multiple transit systems in your region?	30	15	166	85	196

N=number of respondents

Table 22. Functions Contracted Out by Transit Agencies

	N	%
Operations	82	85
Maintenance	65	67
Management	34	35
Planning	13	13
Other	11	11

Total number of respondents: 97
Note: Respondents provided multiple answers

Fare Coordination

Agencies were polled on a number of questions related to fare coordination (Table 23). Of the 111 responses, 52 percent indicated that a coordinated fare system is in place in their region. A little over half of the agencies sell transit tickets, passes, or tokens that can be used on other transit systems and a similar number of agencies sell tickets through other transit systems in their region. A majority of agencies (63 percent) accept discounted or free transfers from other agencies.

While more than half of respondents indicated that a coordinated fare system has been established in their region, our data suggests that there are still a large number of agencies operating in regions without them. As Miller et al. (2005) have suggested, coordinated fare systems are generally considered beneficial to customers, but agencies may have a difficult time implementing a coordinated fare system for a number of reasons associated with institutional, financial, or technological constraints (Yoh 2008; Yoh, Iseki, and Taylor 2008). While these difficulties may prevent agencies from providing their customers with a fully coordinated fare system, agencies may provide customers with the benefit of accepting free or discounted transfers. Allowing free or discounted fares may encourage ridership among transit riders who use more than one transit system by bringing the overall cost of their trip down. About 44 percent of the 111 respondents indicated that their agency allows transfers from other transit systems without an additional fare, while 17 percent said that their agency allows transfers if an additional fare is paid.

Transit agencies in the New Orleans region currently have little fare coordination in place. With the exception of the RTA selling JeT passes, fare coordination is non-existent in Greater New Orleans, and a rider using both transit systems is required to pay two full fares. This lack of fare coordination may be a hindrance to many customers who need to travel on both transit systems, and may be discouraging customers from using public transit for regional trips altogether. This is not only bad for customers, but also reduces the two transit agencies' effectiveness at accommodating customers who need to take regional transit trips.

While the New Orleans region currently has little fare coordination in place, officials from the two agencies have commented that they have had discussions about implementing a coordinated regional fare system. Before Hurricane Katrina, the two agencies offered day passes for use on both systems. After Hurricane Katrina, JeT decided not to renew the program because it was concerned with the allocation of funding, i.e., RTA had been collecting more fare revenues and the method of allocating revenues was not transparent.

Table 23. Questions Related to Fare Coordination

	Yes		No		Total
	N	%	N	%	N
Has a coordinated regional fare system (including the charging of a transfer fare) been established in your region?	58	52	53	48	111
Does your agency sell transit passes, tickets, or tokens that can be used on other transit systems?	60	54	51	46	111
Do other transit agencies in your region offer or sell transit passes, tickets, or tokens that can be used on your transit system?	60	55	50	45	110
Does your agency allow transfers from other transit systems for free or with a discounted fare?	70	63	41	37	111

N=number of respondents

For those 58 respondents that reported having a coordinated fare system established in their region, the most common fare structures were agreements between certain operators, followed by integrated fare structures based on flat fares (Table 24). It seems that the terms of fare integration needed to be worked out between agencies in most instances rather than relying on other criteria. This was the case for the New Orleans region before Katrina, where arrangements had been made between RTA and JeT regarding their one-day pass.

Table 24. Interoperator Fare Structure Used by Agencies in Regions with Coordinated Fare Systems

Which of the following interoperator fare structures has/have been implemented in your region?	N	%
Transfer agreement(s) between/among certain operators	46	79
Integrated fare structure based on flat fares	19	33
Integrated fare structure based on distance	7	12
Integrated fare structure based on multiple operator criteria	7	12
Other	14	24

Total number of respondents: 58

Of the 60 transit agencies that sell fare media for use on other transit systems or whose fare media are sold by other transit systems, the most popular form of media was a paper pass valid for one week or longer (Table 25). This fare medium is used by more than half of respondents' transit agencies. The second most popular fare media is the one-ride ticket or token. Compared to smart card or magnetic swipe card systems, which often require new equipment and incur ongoing expenses, these paper fare media are inexpensive to implement. These cost factors may account for the popularity of paper passes. In many regions, the costs associated with purchasing and maintaining a technologically-sophisticated fare collection system, such as a smart card system, may prohibit its implementation (Iseki et al. 2008). This is especially true with agencies that have low ridership, where it is difficult to justify the upfront costs associated with a smart card system (Iseki, Yoh, and Taylor 2007). Paper passes that are shared between agencies, on the other hand, can provide a low cost way to coordinate fares in a region.

Table 25. Fare Media Sold (1) by Respondent's Agency for Use on Other Transit Systems, and (2) by Other Agencies for Use on Respondent's Transit System

	(1) For use on Other Transit Systems		(2) Sold by Other Transit Systems	
	N	%	N	%
Paper pass (valid for one week or longer)	30	50	31	52
One-ride ticket or token (including tickets valid for transfer within a few hours)	21	35	25	42
Magnetic swipe card (one week or longer)	17	28	16	27
Smart card	15	25	15	25
One-day/few-day paper ticket	11	18	15	25
Magnetic swipe card (less than one week)	7	12	6	10
Other	8	13	9	15

Total number of respondents: 60

Note: Respondents provided multiple answers

Service Schedule

Agencies were polled on two questions related to service schedule (Table 26). Of the 111 responses, close to 70 percent of agencies coordinate both their daily and weekly service schedules and timetables with other agencies in their region. While matching service schedule and time schedule is a very basic level of coordination, it can be very beneficial to transit passengers by reducing passenger wait time. However, this type of coordination may also produce benefits to transit operators as well, as ridership has been shown to increase, customer complaints decrease, and a number of other benefits take place when transit systems are able to coordinate schedules for the convenience of their passengers (Miller et al. 2005). Given the win-win situation that service schedule coordination can have, it is understandable that this was one of the most popular categories of coordination in the survey.

The coordination of daily and weekly service schedules and timetables in the New Orleans region is very limited as it stands now. There is no officially scheduled coordination that takes place on a regular basis for published timetables. However, informal service schedule coordination occasionally takes place through staff-level communication. For example, when an operation manager finds out a significant delay for feeder buses due to, for example, an accident, the manager may direct commuter bus drivers to wait for feeder buses to arrive, so that commuters do not miss their chance to transfer. In addition, RTA/Veolia's transit director and manager mentioned that some schedule coordination also takes place during large events, such as New Orleans Jazz Festival and French Quarter Festival. However, like fare coordination, RTA and JeT have been discussing a plan to try and match service schedules in the future.

Table 26. Questions Related to Service Schedule

	Yes		No		Total
	N	%	N	%	N
Does your agency take into account the service schedule of other transit agencies in the region to determine the daily and weekly service schedules of your agency?	78	70	33	30	111
Does your agency determine time schedules of buses, street-cars or other fixed-route transit services in coordination with the schedules of other transit systems, taking into account transfer time for users at major transfer points?	76	68	35	32	111

N=number of respondents

Information

The survey asked several questions on the joint provision of information. Of the 111 respondents, 83 or 75 percent provide information jointly with other transit agencies (Table 27). Those agencies provided a variety of information. The most common jointly provided information was in the form of a route map and time schedules, which 67 percent of agencies provided (Table 28). Integrated information provision can make it easier for customers to use transit to travel across areas served by multiple agencies (Miller, Englisher, and Kaplan 2005).

Table 27. Jointly Provided Information

	Yes		No		Total
	N	%	N	%	N
Does your agency jointly provide information to customers in conjunction with other transit agencies?	83	75	28	25	111

N=number of respondents

Table 28. Types of Jointly Provided Information

	N	%
Time schedule	56	67
Route map	56	67
Transfer information	52	63
System map	51	61
Fares	50	60
Other	14	17

Total number of respondents: 83
Note: Respondents provided multiple answers

The 83 agencies indicated that they employ a variety of media to provide joint information (Table 29). The most commonly used media were information pamphlets, used by 65 percent of the agencies, and shared websites, used by less than half of the agencies. A few agencies noted that while they do not share websites, they do provide links to other agencies' websites. The use of shared websites for a region, such as the 511.org site in the San Francisco Bay Area or the tripplanner.mta.info site in the New York City area, can be very helpful for planning routes across more than one transit system or finding transit information easily and quickly. However, information pamphlets may be a more popular media to jointly provide information as they are accessible to everyone, including those who do not have access to the Internet.

Table 29. Media Used in Jointly Provided Information

	N	%
Information pamphlets	54	65
Telephone service numbers	49	59
Transfer centers that provide information	44	53
Shared websites	37	45
On-board display	14	17
Other	15	18

Total number of respondents: 83
Note: Respondents provided multiple answers

The provision of regional transit information in the New Orleans Region is inadequate, as discussed in the previous chapter. Both agencies provide very limited information about the others' services, and there is no joint provision of information. A quick visit to the RTA or JeT websites will show this lack of information. The trip planner on the RTA website, for example, does not include routes run by JeT.

The use of real-time information was widespread among agencies we polled, though regional coordination of real-time information is not (Table 30). Most agencies indicated that they are currently using real-time information such as automatic vehicle location systems. About one-third indicated that they do not use real-time information. Most agencies use real-time information within their own agencies, but are not sharing the use of real-time information with other agencies.

This is the case for both JeT and RTA, which use or will soon use automatic vehicle location systems for their systems' operation. Planners at RTA have noted that the system that RTA will install will be similar to JeT's system, and that they are hoping to coordinate their real-time information in the future.

Table 30. Use of Real-Time Information

	N	%
No	37	33
Yes, for the agency's operation	31	28
Yes, for the agency's operation and for transit users	25	23
Yes, shared by multiple agencies for operation	1	1
Yes, shared by multiple agencies for operation and for transit users	6	5
Other	11	10

Total number of respondents: 111

Facilities

The last measures of regional coordination that we polled agencies on were related to facility sharing and sign design (Table 31). Sharing facilities such as bus shelters is done on some level by most agencies that were polled. About 69 percent of the 111 agencies shared facilities (e.g., bus shelter, terminal). The extent to which those agencies share facilities could make a big difference in the level of coordination. For example, agencies that share only a few bus shelters with other agencies still may have other facilities that could be coordinated.

Nearly three-quarters of the 111 respondents reported that they jointly designate transfer points with other transit agencies, clearly indicating where customers need to transfer. It appears that this form of coordination is relatively easy to implement, as the designation of transfer points requires minimal effort.

The sharing of signage design was not a very common practice. Of agencies polled, only 35 percent of respondents share sign design with other agencies. This may be due to the fact that agencies develop their own unique brand, or find it difficult to come to an agreement with other transit agencies on signage. Shared sign design can give customers the perception that they are working within a unified transit system, rather than a disjointed one.

Table 31. Questions Related to Facilities and Signage

	Yes		No		Total
	N	%	N	%	N
Does your transit agency share facilities (e.g. terminal, shelter) with any other fixed-route transit agencies in the region?	77	69	34	31	111
Are transfer points in your region clearly designated for the convenient transfer between different transit systems?	81	74	29	26	110
Does your agency share the design of system signage with other agencies?	39	35	71	65	110

N=number of respondents

Agencies were asked to list the types of facilities shared between agencies (Table 32). Shelters were the most commonly shared type of facility (75 percent of respondents), while terminals were the second most commonly shared facility (62 percent of respondents). Shared facilities for passengers such as bus stops or terminals can make transferring from one system to another convenient for passengers by eliminating the need to walk to a new stop or shelter. Agencies may have trouble sharing facilities when agreements on maintenance cannot be reached. While it may be relatively easy to come to agreements on bus shelters, it may not be as convenient to agree on sharing maintenance facilities, as only nine percent of responding agencies had such arrangements.

Table 32. Types of Facilities Shared Between Agencies

	N	%
Shelter	58	75
Terminal	48	62
Park and ride lot	39	51
Station	32	42
Maintenance facilities	7	9
Other	7	9

Total number of respondents: 77
Note: Respondents provided multiple answers

Facility sharing in the New Orleans region is limited. According to the RTA/Veolia director of planning and scheduling, RTA and JeT share facilities at three transfer points located in Orleans Parish. According to JeT transit maps, there are only eight designated transfer points between RTA and JeT. Since there are relatively few areas of overlap between the two systems, it follows that the transfer points and facilities shared between them is limited, and as noted above, the agencies are not in complete agreement about plans to build another shared transfer facility.

Other Indicators

The survey included a few questions regarding other existing agreements between agencies. Often, respondents indicated that their agency currently has agreements with other agencies to expand routes. The coordinated expansion of routes can help link locations that do not have service, connect service from multiple agencies, or eliminate

unnecessary coverage provided by more than one agency. The second most frequently cited agreement was the introduction of a regional smart card. It seems that quite a few regions in the U.S. are moving forward with plans implement smart cards. In the New Orleans region, there are currently no agreements between the two agencies from the list in Table 33.

Table 33. Existing Agreements between Agencies

	N	%
To expand routes	34	38
To introduce a regional transit smart card that can be used on multiple systems	26	29
To jointly market transit services	24	27
To jointly share data on ridership, accidents, etc.	16	18
To increase service frequency	15	17
To jointly train transit workers or share the same training materials	8	9
Other	47	52

Total number of respondents: 90
Note: Respondents provided multiple answers

The last question related to regional coordination concerned discount programs. Discount programs may not be directly related to regional coordination, but they have been shown to help agencies increase ridership. When multiple agencies within a region provide discounts, it can encourage ridership in a region (Pucher and Kurth 1989). Nearly two-thirds of the respondents indicated that their agencies have some kind of discount program. College and university discounts were the most popular, perhaps because these institutions have large student populations that do not own cars.

For the New Orleans Region there are few discount programs. Both of the region's transit agencies offer free or discounted fares for seniors and persons with disabilities, and JeT currently offers discount passes for public agencies.[65] However, discount programs that are quite popular nationally, such as university/college and school discounts, have not been implemented in the New Orleans region (Table 34).

Table 34. Discount Programs

	N	%
Colleges/Universities	89	68
Grade schools (K-12)	59	45
Public agencies	52	40
Corporate entities	32	24
Events/Festivals	32	24
Other	17	13

Total number of respondents: 131
Note: Respondents provided multiple answers

65 As indicated in JeT response to the nationwide survey.

Respondent Comments

In addition to the multiple-choice section of the questionnaire, we asked respondents to answer open-ended questions regarding regional coordination. Respondents commented on a variety of issues related to regional coordination, noting some of the difficulties in implementing regional coordination and also highlighting some of their successes.

As noted by some of the responding transit agency executives, agencies face challenges in coordinating transit systems in an environment where long-standing financial, institutional, and political situations exist. Finding ways around these obstacles is likely to be a key step in advancing a region's level of coordination. One respondent referred to some of the difficulties of coordinating with other agencies, stating that "it's not the practicalities that create the challenge," but rather "the political and personal realities." Where home rule is well established and counties are responsible for providing transit service, many of these agencies are unwilling to cooperate if they don't have to, and it is extremely difficult to force them to cooperate.

Other respondents pointed out the complexity in achieving coordination efforts when working with multiple agencies. Several executives commented on the difficulty in getting all of the players to the table to reach an agreement. They pointed out that in order for multiple transit agencies to coordinate effectively, there needs to be strong regional governance as well as a focus away from the individual to the collective (e.g., agency fare collection to a regional revenue sharing scheme base on smart card technology). In addition, some respondents revealed that transit coordination is hampered by local funding requirements, as is also the case in the New Orleans region. A respondent remarked that when operating funds are secured through countywide sales tax levies, it is difficult to cross county borders to service other counties, even when there are destination points across county lines. The respondent suggested that one way to alleviate the situation might be for federal or state governments to provide operational funding.

Several other respondents commented on their successes in regional coordination, noting the benefits that passengers receive from having a coordinated regional transit system. As the demand for travel grows in a region, transit demand for trips across service area boundaries also grows. In some cases, transit agencies have formulated agreements to address the demand for better coordination, such as joint purchases of fareboxes, combining grant funds, and offering a regional information hotline. Other respondents remarked that at the regional or state level, it might be advantageous to develop legislation that allows for the development of regional transit authorities.

One clear message from comments received is the need for transit agencies to establish working relationships with other agencies in their region in order to achieve regional coordination goals. Regional coordination explicitly demands that agencies work together. Without functioning relationships between agencies and/or government bodies, coordination is not likely to happen.

Conclusion

The results of the nationwide survey revealed that many of the regional coordination measures listed in our survey are commonplace, but there is clearly a need for coordination in many regions. Broadly speaking, regions either had very high levels of coordination, or very low levels of coordination. A good example of this is the Los Angeles urbanized area. Several agencies from this region participated in the survey, where respondents reported high levels of regional coordination between transit agencies. Almost all respondents from the Los Angeles urbanized area noted that their agencies were coordinated in all areas, including fares, service schedules, information provision, and facility sharing. On the other hand, agencies from some other areas reported very low levels of coordination.

The status of regional coordination in the New Orleans urbanized area is clear. RTA and JeT have very low levels of coordination for most aspects covered in our survey, including fare, service schedule, information, facilities, and joint agreements. Despite low levels of coordination, officials from the two major agencies in the region have acknowledged the need for greater coordination and have expressed a desire to work on coordination efforts.

Given the struggles that the New Orleans region has undergone in recent years, it is not surprising that difficulties with regional coordination have arisen. However, as the region continues to recover from the effects of Hurricane Katrina, there is a widely held optimism among the people living in the region. As the transit agencies move forward with major changes to the structure of their agencies and new players get involved, perhaps there will be renewed efforts to coordinate transportation services in the area. The region is presented with a unique challenge, but also a unique opportunity to change long-standing norms throughout the region.

SUMMARY OF FINDINGS AND CONCLUSION

Many local governments and transit agencies in the U.S. face financial difficulties in providing adequate public transit service in individual systems, and in providing sufficient regional coordination to accommodate transit trips involving at least one transfer between transit systems. These difficulties can be attributed to the recent economic downturn, continuing withdrawal of the state and federal funds that help support local transit service, a decline in local funding for transit service in inner cities due to ongoing suburbanization, and a distribution of resources that responds to geographic equity without addressing service needs.

This study examined the effects of the "delegated management" contract executed by New Orleans Regional Transit Authority (RTA) with a multinational private firm, Veolia. This contract was designed to allow RTA to outsource more functions (e.g., management, planning, funding) to Veolia than has been typical in the U.S. This study has also explored the possibility of improving regional coordination of transit service among multiple public agencies.

As Veolia has also been contracted by another transit agency in an adjacent jurisdiction—Jefferson Transit (JeT) in Jefferson Parish—the presumption is that Veolia may potentially have economic incentives to improve regional coordination in order to increase the productivity and effectiveness of its transit service provision. To this end, the study examined two unique issues that have not yet been explored in the U.S.: (1) the effect of a "delegated management" contract on efficiency and effectiveness within a single transit system, and (2) the effects of a single private firm, contracted separately by more than one agency in the same region, on regional coordination.

In exploration of these two principal issues, this study combined three methodological approaches: (1) a transit user survey to ask passengers about their perceptions of service quality, (2) an analysis of operation and financial data obtained from the two transit agencies as well as from the National Transit Database, and (3) a questionnaire and a set of interviews focusing on regional coordination, as it compares to the results of a nationwide survey of transit agencies on regional coordination. These analyses carefully took into account conditions surrounding the transit operations at RTA and JeT, such as demographic changes and specific contract terms.

Analysis of the transit user survey data indicated that compared to JeT, RTA has more work to do to improve many service qualities including safety, amenities, and connections for its customers. In particular, transit users in the RTA system are generally less satisfied than JeT users with attributes related to regional coordination—such as ease of getting service information about the other agency, transfer times, or convenience in paying fares—while JeT riders place more importance on the same attributes. In addition, most RTA riders do not recognize improvements in the last twelve months in the service quality of almost all the attributes asked about in the survey, despite clear physical improvements made by RTA/Veolia, which include introducing new vehicles, installing new shelters and benches, and realigning bus lines. While this lack of recognition may be attributed to a negative image of RTA on the part of the public, RTA/Veolia has attempted to address this perception issue in order to better serve its customers. In addition, since many JeT riders make transfers to the

RTA system, it is very important that RTA foster better coordination with JeT to accommodate those who travel across the region.

Analysis of operation and financial data for the two transit agencies was also revealing. Overall, while JeT has not seen dramatic changes over the three year period from 2006 to 2008, RTA/Veolia (with a delegated management contract) has made significant improvements in several areas. These changes can be attributed to a restructuring of RTA transit service management and operation, which feature bus line realignment, rescheduling, and reallocation of vehicles implemented under the new management by Veolia. Until 2008, gains in streetcar revenue hours and miles, passenger trips, fare revenue, and operating cost efficiency were accompanied by corresponding losses on the bus side. However, in 2009, the first complete year of fully restored streetcar lines, RTA buses made gains in revenue miles and hours, trips per capita, cost per passenger trip, and farebox recovery ratio.

At the same time, analysis revealed that in 2009, the RTA streetcar operation experienced a loss in cost efficiency compared to the previous year, although its effectiveness in terms of ridership per vehicle mile and hour is notably higher than that of buses. This loss in cost efficiency for streetcars is largely due to a significant increase in operating costs, which may be related to the costs of increased levels of supervision and management. Nevertheless, the gains made by RTA buses were sufficient to offset the declines in streetcar efficiency.

Still, the limited amount of available operation and financial data—due to both a short period of analysis following the execution of the contract, and to a variable level of cooperation on the part of RTA—has made it difficult to draw more definitive conclusions. Further analysis will be required to more thoroughly evaluate the performance of the RTA/Veolia management over the next several years. One important question that arose from our analysis is whether Veolia can reverse 2009 declines in streetcar efficiency and increases in operating costs with its involvement in planning streetcar expansions. A future study might also explore the prospect of Veolia developing a regional transit monopoly with the execution of its contract to provide demand-response service to a third transit agency in Southeast Louisiana (River Parishes Transit Authority) in February, 2009, as well as how that may further influence regional coordination. The lack of RTA/Veolia cooperation in providing more details on their requests for proposals, contracts, and related documents is a serious concern, as lack of transparency in a contract between a public agency and a private firm tends to be a negative sign of not executing the contract appropriately—e.g., not properly transferring risks and responsibilities in exchange for the compensation that the private firm receives, which might result in a substantial loss of public resources (Checherita and Gifford 2007; Iseki and Houtman 2010, 2011; Ortiz and Buxbaum 2008; Sclar 1997).

The analysis of the questionnaire responses and interviews regarding regional coordination in Greater New Orleans in comparison with the nationwide survey suggested that current coordination of transit service in Greater New Orleans is limited and is not comparable to the average level that we found in the nationwide survey. Of the 17 indices used to measure levels of coordination, Greater New Orleans only scored favorably on three: availability

of transit fare media in the other agency's service area, joint provision of information, and sharing facilities. The inconsistent manner in which respondents answered the questionnaire may be due to agency variations in the understanding of current conditions, as well as different agency perspectives on transit service coordination in the region.
While interviewees mentioned the importance of internal channels within the contractor's organization and past discussions on the need to increase coordination in a few areas, there is generally a lack of financial and strategic planning for funding or implementation. With respect to adoption of new technologies that substantially benefit regional transit operation (e.g., smart cards, automated vehicle location, real-time vehicle information), there was some evidence of prioritization on the part of the contractor, and an interagency prospectus calling for the adoption of new technologies. However, no clear planning or strategy implementation was evident.

Constraints preventing the agencies from moving forward with coordination include the tendency—shared with many agencies—to use politics to protect their own interests and benefits, financial concerns with seeing that tax revenues raised within their jurisdiction are spent there, and misgivings that the mechanism for allocating fare media revenue regionally could be inequitable. These political and financial issues are major barriers to regional coordination, and are consistent with past studies on geographic equity and on the adoption of new technologies among multiple public agencies. At this point, these concerns are inhibiting any economic incentives that might be identified by the private contractor the agencies share, although there is a certain level of expectation regarding regional coordination through Veolia's internal channels, as well as between the two public transit agencies. These concerns are not well addressed, partly due to the lack of strong initiative on the part of the metropolitan planning organization, the Regional Planning Commission (RPC). This report's literature review, as well as its nationwide survey identified the potential role that a regional planning entity can play in the promotion of interagency cooperation and service coordination, such as a common set of transfer policies, establishment of a smart card network.

This study's findings reveal that common political and financial concerns need to be addressed and resolved before successful attempts at further coordination can move forward. In contrast, some technical coordination issues, such as bus scheduling, information sharing, or agreeing on and implementing common fare collection technology, could be resolved, as long as they do not incur an undue financial burden on one or the other party.

Although it was not possible to draw as definitive a set of conclusions as initially hoped, the findings of this multifaceted study should provide valuable information on a transit service contracting approach new to the U.S., delegated management. This study also identified a coherent set of indices with which to evaluate the regional coordination of transit service, the present status of coordination among U.S. transit agencies, and barriers that need to be resolved for regional transit coordination to be successful.

APPENDIX A: PRIVATIZATION OF PUBLIC TRANSIT SERVICE: THE U.K.

The contracting of transit service by public agencies began to attract particular attention when the U.K. *Transport Act of 1985* virtually deregulated bus transportation. Britain's *White Paper on Buses* (Department of Transport 1984), recommended that the U.K. bus industry be deregulated, namely, that it be operated under free market conditions. The period immediately following release of the *White Paper* was characterized by concerns over public operator efficiency and continuous government subsidy (Gwilliam, Nash, and Mackie 1984; White 1990). Positions taken in the Bus *White Paper* were effectively used to achieve passage of the *Transport Act of 1985*, leading to the deregulation and privatization of bus transit service in the U.K.

Following deregulation of the U.K. bus industry, a number of researchers (Colson 1996; Evans 1988; Glaister 1997; Gwilliam, Nash, and Mackie 1984; Gwilliam and van de Velde 1990; Karlaftis 2006) sought to determine whether this legislation had brought about positive effects on ridership and service quality. In the 25 years since enactment of the Transport Act of 1985, a number of studies have analyzed the effectiveness of deregulation and competitive tendering in delivering quality services and cost savings (Colson 1996; Glaister 1997; White 1990, 1995).

Prior to the full deregulation of bus services throughout Britain (London and Northern Ireland excluded), the *Transport Act of 1980* had established trial areas to experiment with new models for the provision of transit service (Evans 1988). These trials were to test how service quality would be affected by the private provision of bus service. The most interesting of the three trial areas was Hereford, a civil parish located in Herefordshire, which volunteered to participate in the trial. The Hereford case is notable because of its geographic makeup, which includes both rural and urban areas, as well as because of its experiment with both deregulation and tendering of services. Differences in the application of local bus regulation, i.e., deregulation vs. competitive tendering may have led to different outcomes in terms of both service quality (e.g., number of operating buses per route, on-time service) and fare prices.

The Hereford trial study was separated into two distinct regimes. In the rural area, regulators retained control over policy issues and instituted competitive tendering schemes to award contracts for subsidized bus service. The rural councils retained policy control over bus service, because the rural areas were characterized by low demand, due to low density and high car ownership rates. To ensure that bus service would continue in the countryside, councils gave their current transit providers the option of either providing service without subsidy, or risk losing the routes in a competitive tendering process. Competitive tendering was a success during the trial period, with many formerly subsidized routes being run without subsidies, and the subsidy levels for the remaining routes falling as a result of bidding (Evans 1988).

In Hereford's urban areas, demand for bus service was high enough to sustain a market-based approach to transit provision. Under the urban model, complete deregulation allowed

private companies to freely enter and exit the market. During the trial period, these deregulated areas witnessed increased competition—in many cases, multiple carriers operating the same routes. Increased competition for profitable routes created instability, with fare prices rising and falling sporadically, operators entering and exiting the market frequently, and safety and quality standards repeatedly ignored by operators who were more interested in gaining market share from their competitors than in providing reliable service.

Evans (1988) discusses the basis for the differences in stability between the urban and rural areas during the trial period by examining fare prices, vehicle-miles operated, and patronage levels from 1979 (pre-trial) to 1988, distinguishing between urban and rural. He cautiously concludes[66] that stability was achieved in rural areas because county councils remained key decision makers on service levels, schedules and fare prices. Lack of regulation in the completely market-dominated urban trial areas caused chaotic conditions, with uncoordinated scheduling, fare fluctuations, and poor safety and quality standards, perhaps an early warning to the government that the potential impacts of deregulation had not been carefully considered and that competitive tendering of private services might actually be an adequate incentive to private operators.

Based on these trials with deregulation on the one hand, and competitive tendering for unprofitable routes on the other, the *White Paper on Buses* (Department of Transport 1984) recommended eliminating the barriers to entrance into the public transportation market, and allowing privately-owned and operate companies to begin providing service, deciding routes and schedules, setting fares, and making service and planning decisions traditionally left to the local authorities (Alexandersson, Hulten, and Folster 1998). The recommendations regarding bus industry deregulation were implemented through the *Transport Act of 1985* for most of the U.K., except for London and Northern Ireland. In the case of London, the decision to not deregulate would allow researchers a unique situation with which to measure the effectiveness of deregulation.[67]

The *Transport Act 1985* introduced the privatization of bus services—transfers to the private sector of publicly owned bus companies and the competitive tendering of services—into a public transportation model that had previously been dominated by a few national public providers (Simpson 1996). In addition, it eliminated many of the regulations previously placed on bus operators outside of London. The principal ambitions of deregulation and privatization in this Act were to decrease government spending on public transportation by encouraging the creation of a competitive market that would incentivize cost-effective entities and improve resource allocation without causing undesirable spin-off effects (Glaister 1997; Gwilliam, Nash, and Mackie 1984). *Privatization* of bus service in the U.K. divided the National Bus Company into numerous components for sale to multiple private companies. *Deregulation* (outside of London) eliminated road service licensing, and only

66 The Hereford trial period coincided with the creation of Midland Red West, a nationalized bus company created to introduce more local management into the transit system. Midland Red West's performance improved during this period, but it is difficult to assess whether the improvement was due to the competitive nature of the trial period, or to increased local management (Evans 1988).

67 The "White Paper on Buses" was written after the trial period in Hereford. According to Evans (1988), the decision to support full deregulation was not supported by conclusions drawn from the trials, but by general arguments and presumptions.

required that private companies register with the Traffic Commissioner to report their scheduled routes and timetables. Outside of London, authorities were only charged with tendering fiscally undesirable yet socially necessary routes, so that these services would remain in operation (Glaister 1997).

While London also underwent a period of privatization with the breakup of bus operations under London Transport, it was one of the few urban areas in the country where the bus industry was never deregulated. The *London Regional Transport Act of 1984* (LRTA) was enacted prior to the *Transport Act of 1985*. As a result, the Conservative Government proposed deferring deregulation in London and allowing London Transport, the subsidized regional transit provider, some time to show progress (Glaister 1997). This legislation required that London Transport, invite competition where necessary and efficient, and to tender routes or networks to private contractors. By 1994, 60 percent of London's bus service was provided directly by the regulated public sector, 20 percent was operated by the same operator under competitive contract, and the remainder was operated by private companies, also under competitive contract (Glaister 1997). By the time planning authority was devolved to Transport for London, the new regional transit agency for London in 2000, the privatization of London's bus services was almost complete.

Although Britain's bus reforms revolutionized European public transit and attracted attention from around the world, most Western European countries introducing policies in favor of greater competition in transit provision emulated the London route tendering model rather than deregulation model (van de Velde 2001). Indeed, in light of the results in the U.K., many countries were initially skeptical about the value of competition in transit altogether (Gwilliam and van de Velde 1990). In their review of European attitudes toward competition in the provision of transit in the wake of the British reforms, Gwilliam and Velde (1990) also note the manner in which subsidies were paid in different countries at that time, differentiating between what they term "pure deficit finance," (or automatic ex post coverage of all costs to the organization providing transit); "norm-related finance," (or payment related to norms of performance determined ex ante*);* and "contract-related finance," (or payment based on contract terms developed ex ante under negotiation or competition). With more developed countries, including the U.S., contracting is more attractive than deregulation when exploring private participation in transit.

Where policy makers find it desirable to continue offering subsidies in order to achieve long-term policy goals, such as many rural areas of the U.K., the nature of contracts and payment schemes is crucial. Past research has examined the types of transit privatization that will likely facilitate the best outcomes in terms of cost savings and service quality, focusing on types of compensation and processes for selecting contractors (Gagnepain and Ivaldi 2002; Hensher and Stanley 2003, 2008; Hensher and Wallis 2005). Indeed, many factors associated with transit privatization influence the quality of a private operator's performance (Hensher and Stanley 2008), including the degree of government regulation and the size of the market.

In the past decade, there has been a clear policy shift away from full deregulation in the U.K. and toward a more regulated transit system model (Department of Transport 2004). The U.K. Department of Transport reported in 2004 that partnerships between

local authorities and bus companies have increased innovation and produced better services than private companies operating alone. The Transport Acts of 2000 and 2008 have made strides to increase system stability and partnerships by introducing what they call "Quality Partnerships" and "Quality Contracts," each entailing a relationship between the local transport authority (LTA), private operators, and other transportation agencies (e.g., highway departments). In Quality Partnerships, operators agree to invest in service-improving measures, such as newer vehicles, more dependable service or staff training, while LTAs and other agencies agree to invest in better bus-related infrastructure, such as bus stations, shelters, or other facilities. Quality Contracts have been introduced in the past decade as potential tools to restore government control of bus services. The concept is to replace on-road competition with competitive tendering, permitting LTAs to outline service specifications and performance targets.[68] While helpful, one drawback with Quality Contracts is that they often take a year or two to establish, due to the lengthy process of approvals required to regulate a previously unregulated route. Another problem is that unless Quality Contracts cover a specific sub-area of a city, they are really only a band-aid on the problem. Thus, there is a need for a more comprehensive form of regulation that encompasses numerous contracts or corridors (Rivasplata 2006).

One reason for promoting Quality Contracts is that they can effectively reestablish transit coordination in cities outside of London. Following deregulation, *Competition Act* provisions severely limited transit coordination between private operators outside of London (U.K. Office of Fair Trading 1999). While transit coordination in London has been strengthened by competitive tendering (e.g., TfL has incorporated specific operator coordination provisions into the bidding process), outside of London, in most cases, inter-operator coordination is considered to constitute a form of collusion and is strongly discouraged (Rivasplata 2006).

68 Quality Contracts have not been widely used yet, because LTAs were originally required to prove that such contracts were the best and only means of serving the public interest, a formidable task in most areas due to the complexity involved in the approval process. The burden of proof was relaxed in the 2008 Act, and was revised again in January 2010 (Butcher 2010).

APPENDIX B: REVIEW OF TRANSIT SERVICE PRIVATIZATION IN INTERNATIONAL CASES

France

France has had private involvement in transit management somewhat longer than many European nations (Faivre D'Arcier 2009), but with little actual competition for contracts (Yvrande-Billon 2006). From 1982, when France decentralized responsibility for urban public transit to local authorities, most have chosen to delegate management to private companies. Competitive tendering was not required until the Sapin Act of 1993, and contract were usually renewed by tacit agreement.

In Kerstens' (1996) review of 114 urban bus systems' 1990 performance (excluding Paris and multi-modal companies), France was one of the few European nations that had seen its ridership grow over the previous two decades, and private ownership had a slight positive effect on performance. Kerstens also found that arrangements in which more risk was shared between parties had a positive relationship to technical efficiency, even without substantial presence of competition for contracts (1996). In contrast, examining 165 French transit networks' performance from 1995–2002 (after competitive tendering became mandatory), Yvrand-Billon (2006) found that operating costs rose 21.5 percent, labor productivity decreased 9.8 percent, and fares covered only 34 percent of operating costs, reduced from 55 percent in 1992. Some improvements in technology and passenger comfort were observed, but speed and frequency of service remained low. Approximately 88 percent of contracts up for auction over those years awarded the contract to the incumbent, with little evidence to suggest that competition was encouraging those incumbents to improve their performance, or that the transit sector was performing well enough to not require change. Yvrande-Billon dubs French competitive tendering a "myth," as it is implemented in a two-stage process, involving a competitive phase followed by contract negotiation after the selection of a winner. Authorities are not required to provide detailed information either about the service desired or the status of the current transit system (e.g., the quality of its stock, financial data) to bidders, making bidding a high risk transaction cost to a non-incumbent unfamiliar with the system.

Furthermore, the French government found sufficient evidence of collusion among three leading operators to fine them each five percent of their turnover. Competitive tendering *per se* is not to blame for poor performance in France, but Yvrand-Billon argues that the particular French process of combining tendering and negotiation leads to "worst of both worlds" outcomes. Faivre D'Arcier's (2009) study of 1995–2000 data on French public transit networks also found a drift of operating expenses and failure to attract new passengers, and at the same time, oversupply of services. He attributes this in part to France's dedicated Transport Tax (*Versement Transport*). Over-reliance on a dedicated funding source may inhibit efficiency, but the Transport Tax will likely fail to cover the rising costs in coming years. Besides not fully achieving full cost savings and efficiency, France's transit provision methods are failing to realize public policy goals—particularly improving mobility for low-income individuals, reducing congestion, limiting sprawl, and reducing emissions (Faivre D'Arcier 2009).

Italy

Italy is another country where competition has not clearly produced benefits. Italian legislation in the 1990s attempted to ban all non-tendered bus concessions by 2004, although later legislation left more discretion to local governments as to whether to tender or self-provide transit (Boitani and Cambini 2006). Labor costs are exceptionally high in Italy, making up approximately two-thirds of operating costs while having one of the lowest levels of labor productivity in Europe. By 2004, public subsidies covered an average of 70 percent of operating costs. Addressing poor cost performance and high subsidies were significant motivating factors in Italian regions that chose competitive tendering of bus services. Almost everywhere that tendering was introduced, however, incumbent operators won the concession, and savings relative to transit authorities' reserve prices were less than five percent (Boitani and Cambini 2006).

Boitani and Cambini (2006) found compensation per bus kilometer varied too widely to observe any definite patterns, although they suggest that rates seem to be determined to some extent by past cost levels. In some cases, higher than average compensation may be related to mountainous terrain, but there are other cases that have no clear reason for their high compensation rates. The authors suggest several possible factors hampering true competition for Italian concessions. Transit workers are not eligible for unemployment benefits in Italy, so "social clauses" in bus contracts require that new operators retain all employees on the same terms, keeping Italy's high transit labor costs untouchable. When brand new routes were tendered in Rome, bids for those routes promised lower costs than average bids on existing routes, suggesting that routes that permit operators greater freedom to set staffing levels have more potential to realize savings than pre-existing routes. Boitani and Cambini also note that local governments are not required to provide bidders with precise service definitions or transit system data, giving incumbents an advantage. Political factors also appear to be in play, with some cases of tenders designed specifically for publicly owned incumbents to protect political rents. Like Yvrande-Billon (2006), Boitani and Cambini agree that competitive tendering has the potential to be beneficial, but in Italy's relatively brief experience, tenders should be organized differently if they are to promote competition that leads to lower costs and higher quality.

The Netherlands

The Netherlands did not introduce reforms to require competitive tendering until 2001 (to be phased in gradually), and at the same time, devolved responsibility for transit to local and provincial authorities (van de Velde, Schipholt, and Veeneman 2008). Bus concessions can be awarded for up to eight years, so it is only recently that the first experiences with tendering and private service provision are being assessed. Unlike France, which gives transit authorities wide latitude for subjective judgment of bids and open negotiation, the Netherlands requires objectively measurable criteria and prevents negotiation, and allows more latitude over the term of the concession to create incentive structures for particular performance goals (van de Velde, Schipholt, and Veeneman 2008).

Specific goals nationwide at the time of the reforms were to increase ridership, reduce public subsidies from around 67 percent to 50 percent, and make use of experienced

operators' tactical knowledge. Since local authorities had little or no experience directly managing transit, operators' knowledge of passengers' needs and wants and how to supply them efficiently was critical, while local authorities could define strategic goals related to public policy (van de Velde 2001). Van de Velde et al (2008) found that prices per bus hour dropped by around 30 percent across the country after competitive tendering was introduced. The savings were not limited to tendered concessions; concessions that were still negotiated improved as authorities used upcoming tendering as leverage, and operators prepared themselves to be more competitive for the future (van de Velde, Schipholt, and Veeneman 2008).

Surveys by the Dutch Transport Knowledge Resource Centre (KpVV) have indicated that passengers' perceptions of service quality have risen more for competitively tendered services than non-tendered services (van de Velde, Schipholt, and Veeneman 2008). However, region-by-region implementation of tendering has not been without challenges. Van de Velde et al (2005) have identified an interesting trend as provinces learn from first-round experiences: authorities are diverging on how much service design freedom to leave to operators, with authorities who chose wide latitude for service design in their first tendering round reversing their position, and vice versa. First-round contracts that gave more freedom to operators have tended to have poorer performance in terms of increasing ridership and technological innovation, while those that gave public authorities stricter control of planning were more likely to suffer from monitoring and quality control problems (van de Velde, Schipholt, and Veeneman 2008). Although the Dutch tendering experiences to date have had largely positive results, a few negative cases have drawn media attention (van de Velde, Schipholt, and Veeneman 2008). Clearly, even in a competitive bidding process, there are tradeoffs as far as what contracts can be expected to achieve.

Scandinavian Countries

Scandinavian countries were among the earliest adopters of public transit reform following the U.K. (Karlaftis 2006). Helsinki, Finland was chosen as one of the competitive tendering "Good Practice" case studies for the SIPTRAM project on sustainability in urban public transport (Müller and Hidson 2003). The Helsinki Metropolitan Area Council awarded its first transit tender in 1994, and since 1996, all of Helsinki's regional transit services have been procured through competitive tendering. While contracts are generally awarded to the bidders with the lowest overall costs, quality-related properties of vehicles (e.g., low emissions, low floors, etc.) are also evaluated positively in consideration of proposals. Because of this consideration, the average age of the fleet declined from 6.5 years to 4.5 years between pre-tendering and 2002 (Müller and Hidson 2003). The Good Practice report estimates that, adjusting for inflation, providing the level of service found in Helsinki in 2002 at the cost of pre-tendering services should have come to FIM 446 million, but was actually only FIM 322 million (Müller and Hidson 2003).

In Sweden, cost savings since 1991 (three years after a national transit act permitted competitive procurement for transit services) are estimated to be between five and ten percent on average (Jansson and Pyddoke 2007). While cost savings have been realized, less attention has been given to service quality. Stockholm County's authority, SL, has experimented more than any other transit agency in Sweden with quality incentives

in their gross cost contracts, reviewed by Jansson and Pyddoke (2007). SL bases punctuality incentives and penalties (including late, early, and cancelled departures) on their estimates of passengers' valuation of delay time per minute, and also incentivizes vehicle cleanliness, staff behavior, and information quality. Reviewing data sets on SL contract areas ranging between 1996 and 2005 for changes before and after introduction of (or change to) incentives, Jansson and Pyddoke (2007) found that for most of the bus contract areas, punctuality incentives actually had a *negative* effect, despite attempting to control for the effects of factors outside operators' control, such as weather conditions, numbers of passengers boarding, and speed (as a proxy for congestion). They also found a slight (but not statistically significant) increase in passenger complaints after cleanliness, staff behavior, and information quality incentives were introduced. Among the authors' hypotheses for such counter-intuitive results are that the number and kinds of incentives are too large and complex, and bonuses and penalties too low, to be worth operators' transaction costs to implement quality improvements. They also suggest that SL's estimation of passenger valuation of their delay time and willingness to pay for punctuality may need to be reconsidered. Their prime hypothesis, however, is that they have not identified and controlled for some important factor influencing timeliness.

Germany

Local-level German transit systems have been dominated by publicly-owned companies, but the new EU regulations have required that Germany introduce more competitive elements (Müller and Hidson 2003). One way in which local transit authorities have been encouraged to introduce competition with an emphasis on achieving better quality service is through the Environment Ministry's 2002 pilot project to promote better environmental standards in local transit, and encourage the consideration of environmental externalities (e.g., costs and benefits of different fuels, noisiness, etc.) in evaluating bids (Müller and Hidson 2003). Competitive tendering is still not used in all regions. Nevertheless, Walter (2009) has found that local transit operators have made increasing use of outsourcing elements of their services to private partners over the years he studied 39 German transit companies (1997-2006), and that high outsourcing values are correlated with higher efficiency. When examining the relationship of technological progress and cost decreases, Walter observed rising cost decreases associated with technology until 2004, when they leveled off. This may be due in part to the replacement of the former East Germany's transit stock.

Central Europe

Central European countries have faced different challenges than their Western European counterparts, as their transit markets have changed. In fact, Europe-wide studies conducted by the MARETOPE project found that Southern and Central European cities have lower labor costs than most of Europe, and still have public ownership of their transit (MARETOPE 2003). Central Europe's economic transitions are affecting public transit markets, however. Car ownership has rapidly risen, high-density socialist cities are giving way to rapid suburbanization, and funds to subsidize the formerly low fares have been slashed at the same time that aging rolling stock and infrastructure are deteriorating (Pucher and Buehler 2005).

Polish transit ceased to be a monopoly in 1992, and transit management became the responsibility of local Public Transit Authorities. Outside of cities, the market is almost entirely deregulated and suffering from poor quality vehicles and information and lack of coordination (Wolański 2009). Polish cities utilize a variety of provision strategies, from entirely tendered services, to public sector entities with no separate identity from the city government, and mixes of public and private provision in between (Wolański 2009). Comparing tendered to non-tendered transit services in Polish cities, Wolański (2009) found that tendering significantly improves efficiency; public operators forced to compete are still capable of achieving efficiency levels similar to those of private companies, while not achieving higher efficiency. Public operators still perform more than twice the amount of tendered services as private operators, which may be due in part to some cities where private operators find it difficult to satisfy criteria like owning their own bus fleets. There are also instances where public operators with direct awards in one region were able to underbid private operators on competitive tenders by cross subsidizing, which was not yet banned by the European Union at the time of the study. Unexpectedly, Wolański found that municipal monopolies not under the authority of a Public Transport Authority were more efficient than public operators directly awarded contracts by PTAs.

Australia

Australian transit issues are comparable to those in Europe and the U.S., and beginning in 1995, two state capitals—Perth and Adelaide—introduced tendering into their transit systems (Wallis 2003). Both cities preserved public agencies' control of policy and regulatory functions (e.g., fares, service levels, finding funding), while conducting actual service planning in a "partnership" arrangement between operators and state governments. Each city also combined fixed annual payments with additional payment per bus revenue kilometer and per passenger. Assessing both cities' bus transit performance after several years of tendering, Wallis (2003) found significant increases in user satisfaction in customer surveys, and noticeable growth of revenue bus kilometers (15 percent in Adelaide and 32 percent in Perth) as well as patronage, after years of decline (8 percent growth in Adelaide and 26 percent growth in Perth). At the same time, average costs per bus kilometer declined in both cities, meaning that total bus system costs in Adelaide fell around 33 percent in the period studied, and Perth's system-wide costs stayed constant even though services substantially increased. Elsewhere in Australia in the same time period, other cities' publicly owned bus systems improved efficiency under the continuous threat of possible tendering in the future, although not as dramatically as in Perth or Adelaide (Wallis 2003).

Latin American and Developing Countries

Like Central Europe, Latin American countries are facing somewhat different public transit challenges than those of Western Europe, Australia, and the U.S., but certain privatization and regulation issues being faced in these nations have some relevance to competitive tendering and regulation questions in the U.S. Orrico Filho, Aragão, and Santo (2007) provide an overview of the main trends in competition in Latin American transit. Apart from Brazil, much of the Latin American urban transit market is characterized by "artisan" operators: individuals or families who operate one or a few vehicles, often outside of a legal framework. Massive congestion reaching crisis levels in many Latin American cities

is one of the primary factors encouraging policy-makers to attempt to create more formal, coordinated transit networks, and modernize technology, sometimes using competitive tendering.

Brazil has historically had larger operators, facilitated in part by a bus manufacturing industry, but illegal artisanal operators have become more common there as well. Tendering is legally mandatory in Brazil, but has been resisted by major operators. In cities and regions where prosecution forced tendering procedures to be performed, collusion among operators has frustrated the process. As in France and Italy, Brazilian cities, and to some extent other Latin American cities, have found that reforming previous transit provision methods to be genuinely competitive in ways that generate efficiency and higher quality is more challenging than simply mandating tendering.

In the case of Santiago, Chile, a competitive tendering process similar to London's was implemented on a regional level. Over the past 20 years, structural reforms have been introduced to a previously-privatized bus market, effectively modifying the amount and quality of services to address major environmental concerns (Lee and Rivasplata 2001). More recently, the Transantiago project, which introduced new vehicles and infrastructure, reduced the number of potential contracts while requiring that bidders cite past professional experience in the area of transit provision. This last provision was designed to prevent the existence of artisan operators that did not have network vision and were not interested in integrating services with other operators (Malbrán et al. 2003; Rivasplata 2006).

South Africa

In South Africa, the federal government's *Transport White Paper* of 1996 and Cape Town's *Moving Ahead* (1998) placed emphasis on renewing investment in transit and reducing travel times and monetary costs for commuters (Rivasplata 2006). In a departure from past policy, the federal government committed itself to opening bus routes, including those operated by Golden Arrow Bus (a private operator previously under a long-term contract to the city), to a competitive tendering process. Competitive tendering, which was first introduced in 1996, is seen as a tool with which to reduce subsidies and promote innovation. Western Cape Province, the political unit containing the City of Cape Town, regards tendering as a means through which to achieve "an effective, efficient, equitable and affordable transport system" (Cape Metropolitan Council 1998).

APPENDIX C: LIST OF DOCUMENTS OBTAINED FROM TRANSIT AGENCIES IN NEW ORLEANS

Table 35. List of Documents Received From Transit Agencies in the Greater New Orleans Region

RTA	JeT
• 2008 Request for Proposals—Transit Management Services • First Amendment to Transit Management Agreement (Transitioning to Delegated Management)	• 2006 Request for Proposal—Transit Services • Request for Proposal—Management Contract • Transit Service Contract ATC/Vancom 2006 • Contract Amendment—Name change to Veolia • Operating Expenses FY 2007 and 2008 • Revenue MITS and Fixed Route FY 2007 and 2008 • Performance Indicators Report: 2007, 2008, and 2009 • Title VI Reports 2007 and 2009 • Geocoded bus stop inventory • Transit Budget: 2007, 2008, and 2009 • Meeting minutes of pre-bid conference • Bid evaluation

APPENDIX D: RTA AND JET ROUTE MAPS

RTA Maps

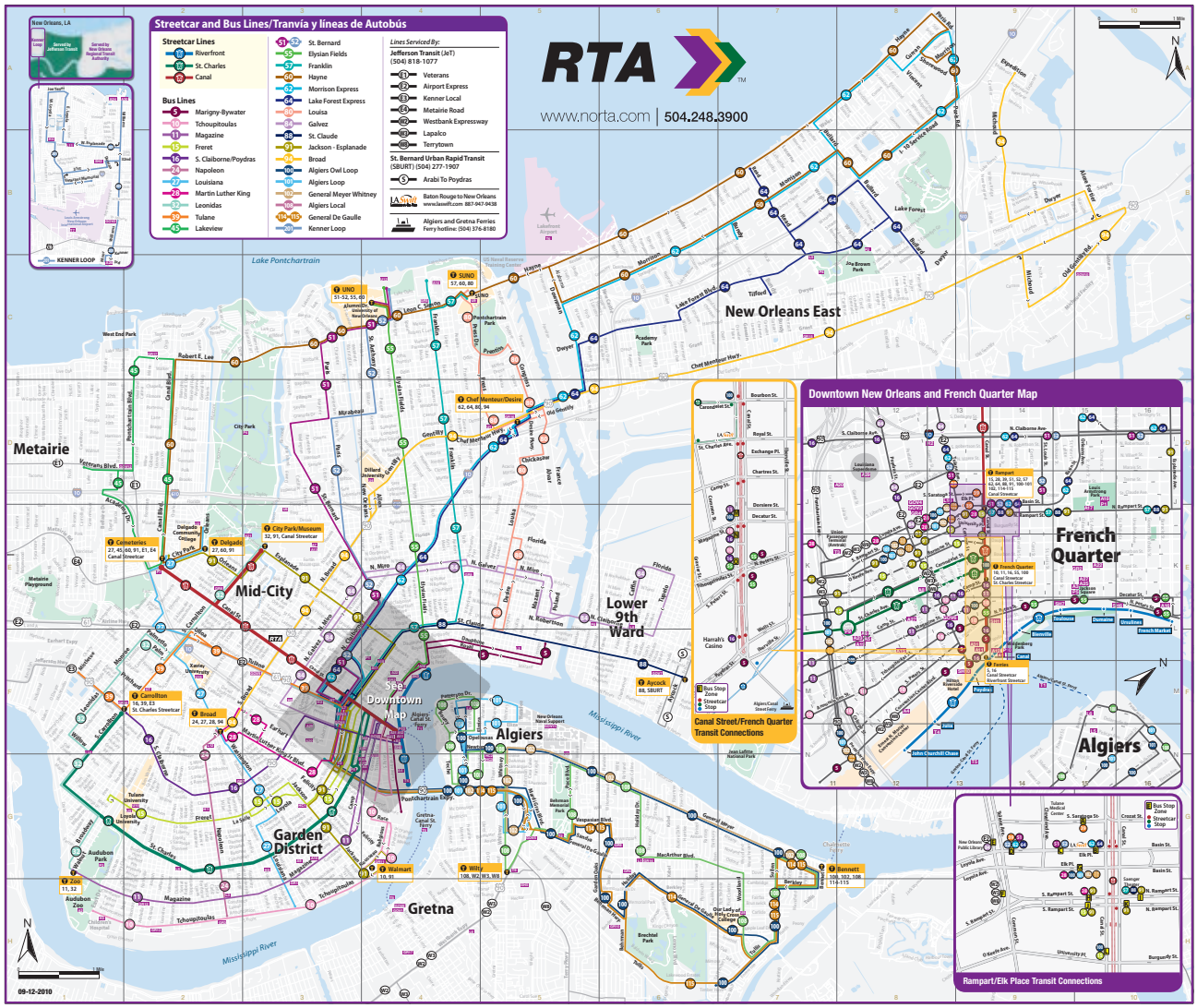

Figure 28. New Orleans Regional Transit Authority (RTA) Transit System Map

Note: This is a copy of a printed map. A system map generated using Google Maps is available at the RTA website, at http://www.norta.com/?page=system.

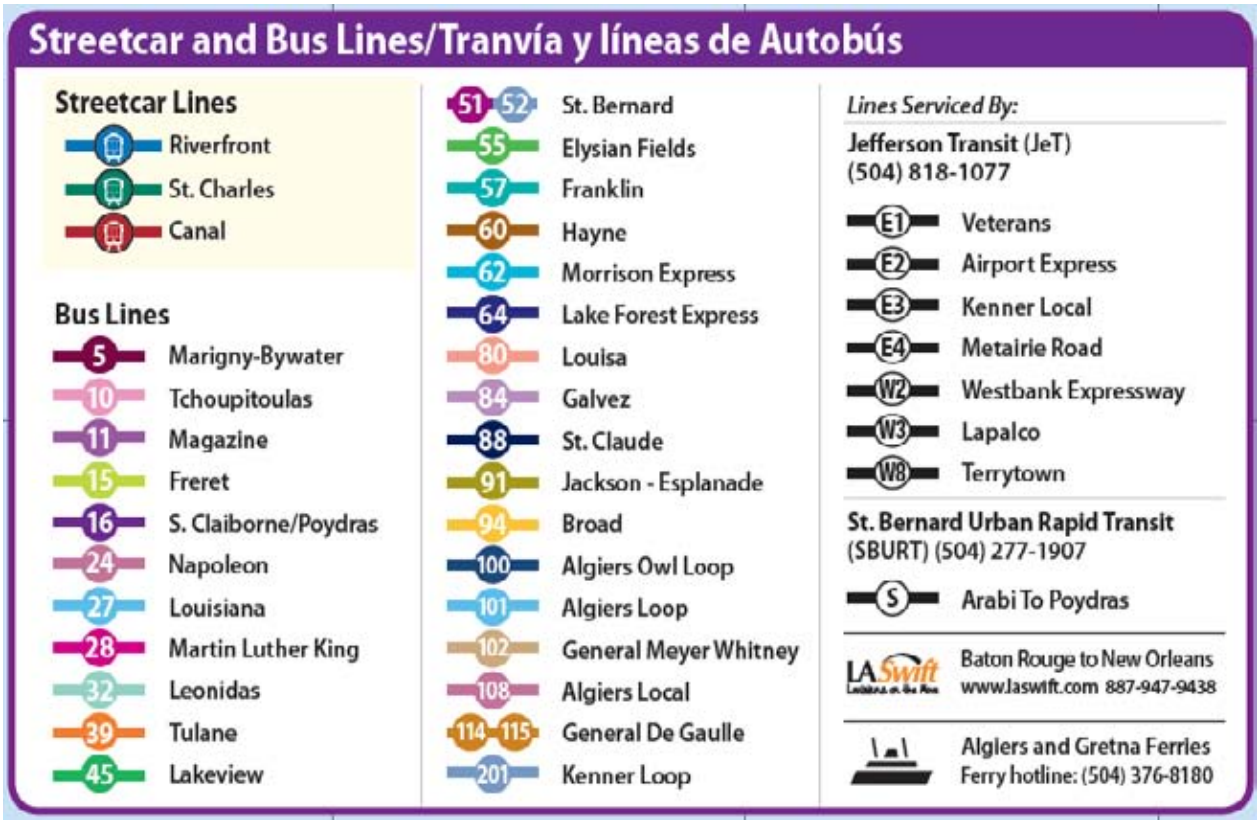

Figure 29. RTA System Map Route Legend

JeT Route Maps

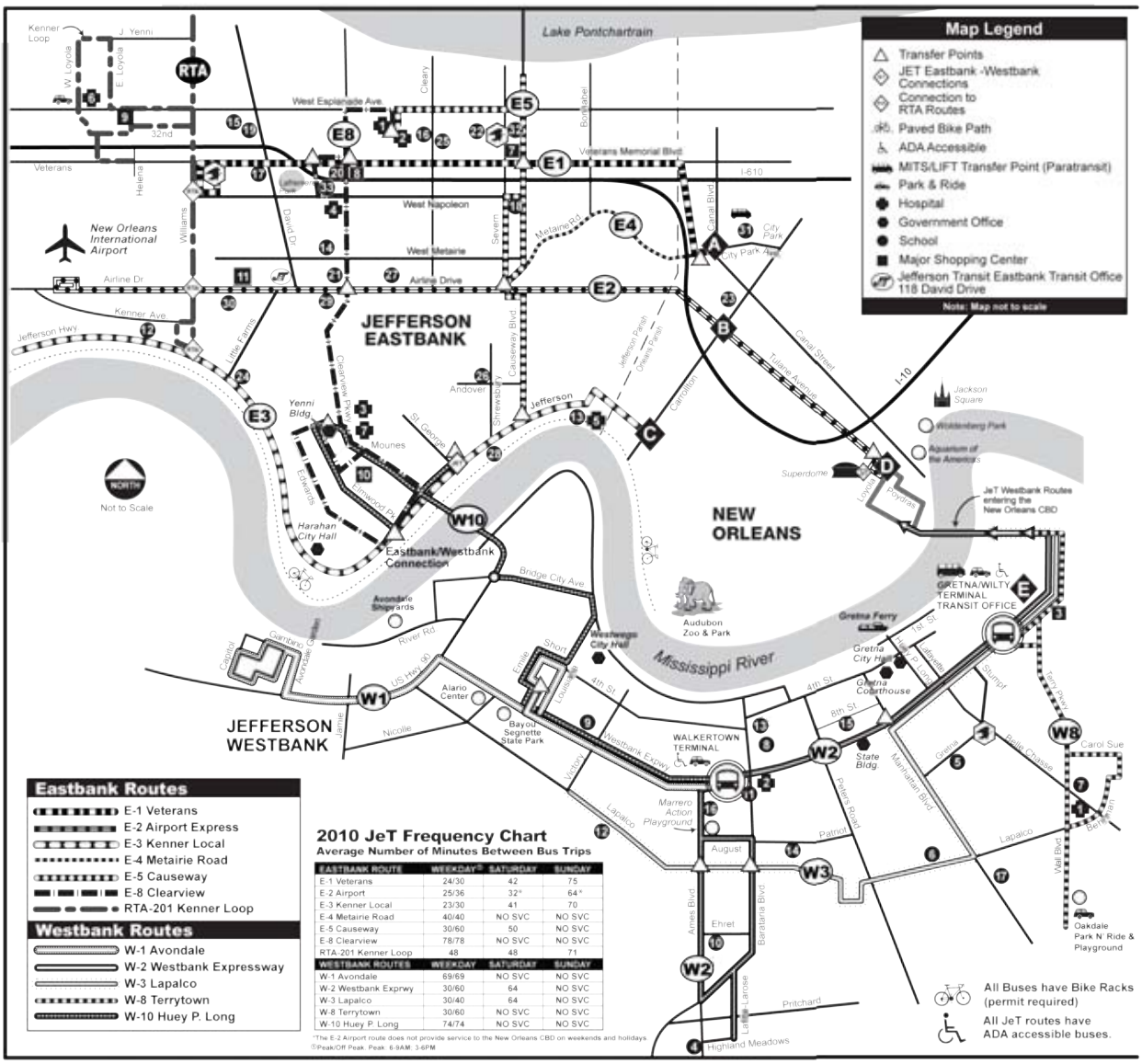

Figure 30. Jefferson Transit (JeT) System Map, Interactive Web Version

Note: Available at http://www.jeffersontransit.org/maps

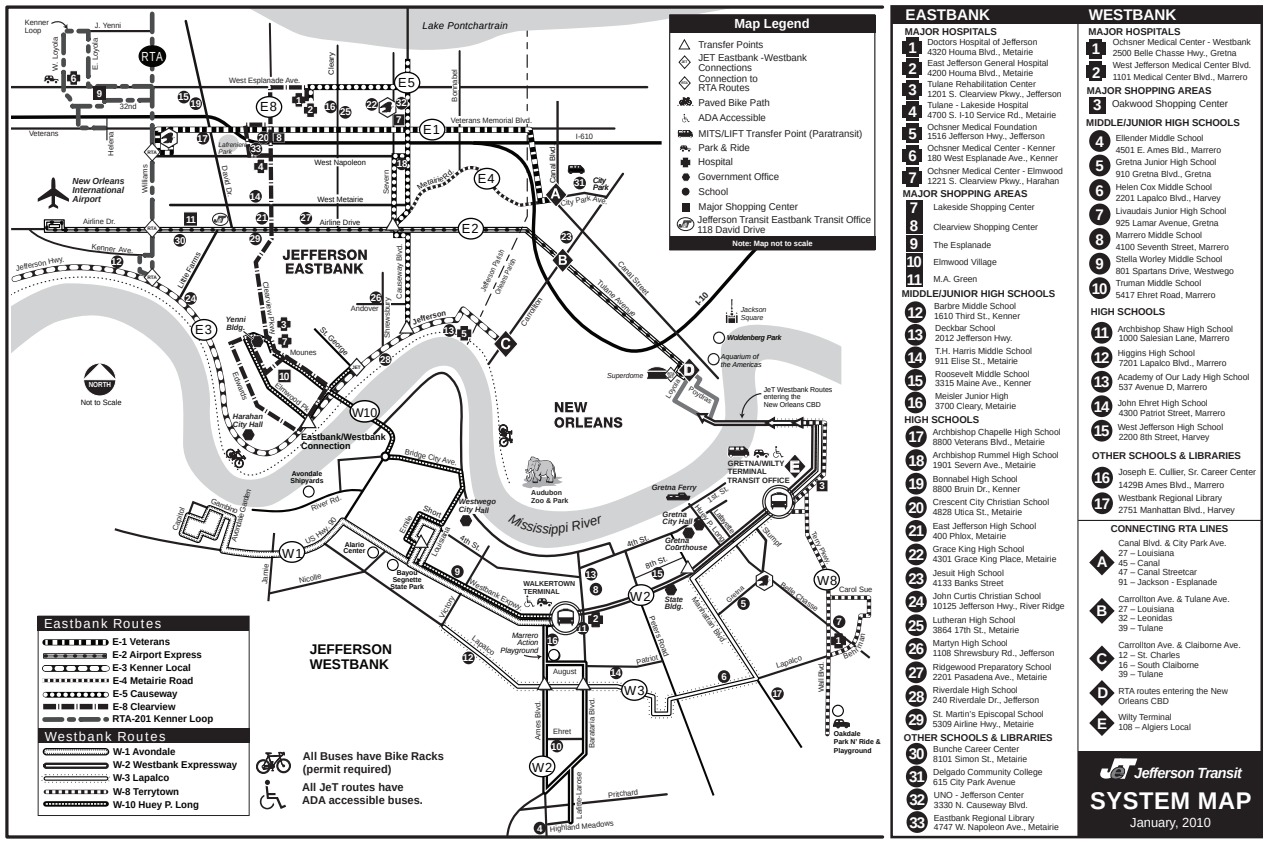

Figure 31. Jefferson Transit (JeT) System Map, Printable Version

Note: Available at http://www.jeffersontransit.org/schedules/PDF_Schedules/2010/System%20Map%20SPREAD%202010%2010_11.pdf

APPENDIX E: TRANSIT USER SURVEY

UNO Transit User Survey – Tell Us What You Think!!

University of New Orleans researchers are conducting a study to improve transportation services. Part of this work includes asking people like you about your views on transit service and facilities. This survey should take only several minutes to complete and is completely voluntary. You are under no obligation to take or even to complete this survey once you have started. Further, the survey is anonymous and no individuals will be identified in any of the work produced from this research.

Are you willing to participate in this survey? ❑ Yes ❑ No

Bus Stop Qualities	Do you agree with or disagree? (1) Strongly agree, (2) Agree somewhat, (3) disagree somewhat, (4) strongly disagree	How important it is to you? (1) very important, (2) important, (3) somewhat important, (4) not important.	Have you noticed any change within the last 12 months? Got: (1) better, (2) somewhat better, (3) no change, (4) somewhat worse, (5) worse.	Approximately when did you notice the change? (e.g., several months ago; around February, 2009).
This stop area is clean.			.	
There are enough places to sit.				
There is shelter here to protect me from the sun or rain.				
The signs here are clear and helpful.				
It is easy to get schedule and route information at this stop.				
I usually have a short wait to catch my bus / train.				
My bus / train is usually on time.				
It's easy to find my stop.				
I feel safe here during the day.				
I feel safe here at night.				
This stop is well lit at night.				
It is easy to get bus/streetcar schedules/route maps of RTA.				
It is easy to get bus/streetcar schedules/route maps of JeT.				
It is convenient to pay for fare.				
It is easy to get around this stop.				
It requires a short waiting time to make a transfer at this stop.				
Overall, this is an easy place to transfer to another bus or streetcar.				

How many days a week do you use public transportation? _____ If less than once a week, how many times a month? _____

How often do you make the trip you are currently on? ❑ regularly ❑ sometimes ❑ not often ❑ never before

Which transit lines do you usually take for this trip? _____; _____; _____

Does your trip involve any transfer between RTA and Jefferson Transit (JeT)? ❑ Yes ❑ No

How many transfers do you expect to make this trip? _____

Was there a car that you could have used to make this trip today? ❑ Yes, easily ❑ Yes, with little effort ❑ No, probably not ❑ No, definitely not

What is the main purpose of this trip? ❑ Travel to/from work ❑ Other work-related trip ❑ Shopping or Personal business ❑ College/School ❑ Hospital/doctor's office ❑ Social or Recreational ❑ Other: _____

How do you pay for this trip? ❑ Cash ❑ Monthly/weekly pass ❑ Day pass ❑ Transfer ticket ❑ Other: _____

How long have you been waiting at this stop/station? _____ minutes; ❑ I just got here ❑ Unsure

How much longer do you expect to wait before catching another bus/streetcar: _____ minutes; ❑ I just got here ❑ Unsure

How long does your entire trip normally take? _____ minutes; ❑ I just got here ❑ Unsure

Gender: ❑ Male ❑ Female

What is your background? ❑ American Indian or Alaskan Native ❑ Asian or Pacific Islander ❑ African-American/Black ❑ Hispanic/Latino ❑ Caucasian/White ❑ Multi-Ethnic ❑ Other: _____

What is your total annual household income? ❑ Under $15,000 ❑ $15,000 - $29,999 ❑ $30,000 – $49,999 ❑ $50,000 - $74,999 ❑ $75,000 - $99,999 ❑ $100,000 or greater

What year were you born? 19_____

If you don't mind, please tell me both the starting and ending locations of this trip: (address or closest cross street)
Starting: _____ Ending: _____ ***THANK YOU FOR YOUR HELP!!***

APPENDIX F: SELECTED TRANSIT USER SURVEY RESULTS

Trip Characteristics

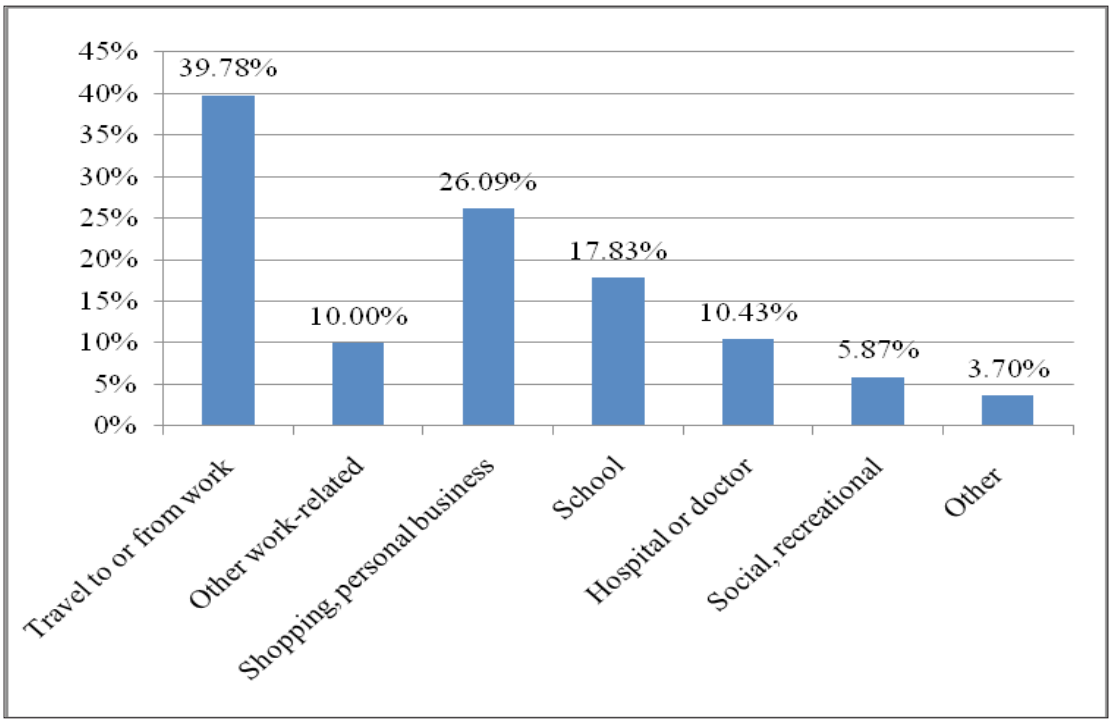

Figure 32. What is the Main Purpose of Your Trip?

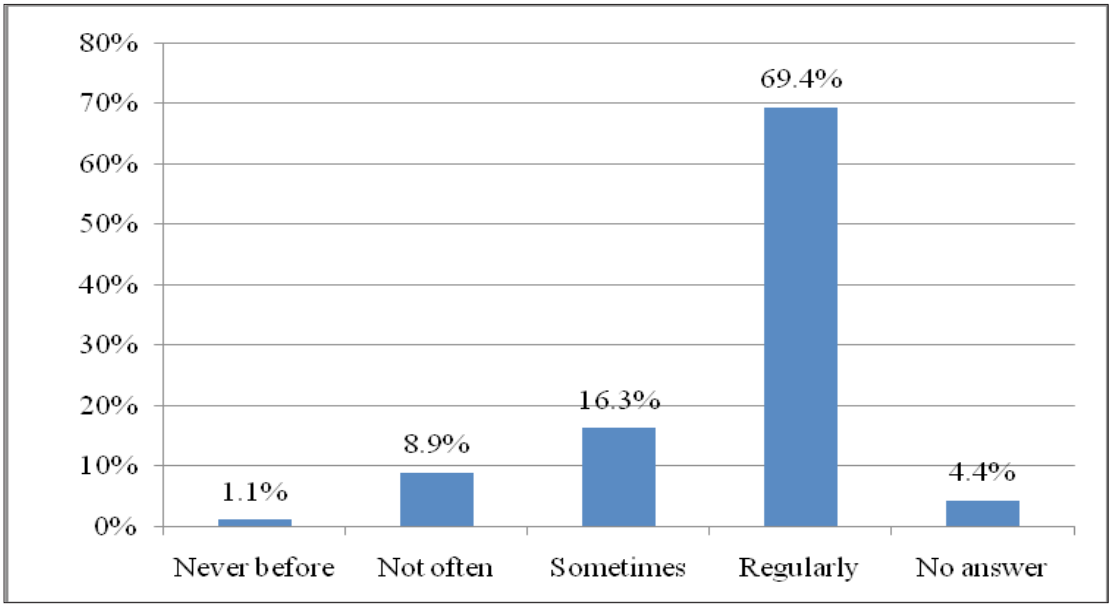

Figure 33. How Often Do You Make the Trip You are Currently On?

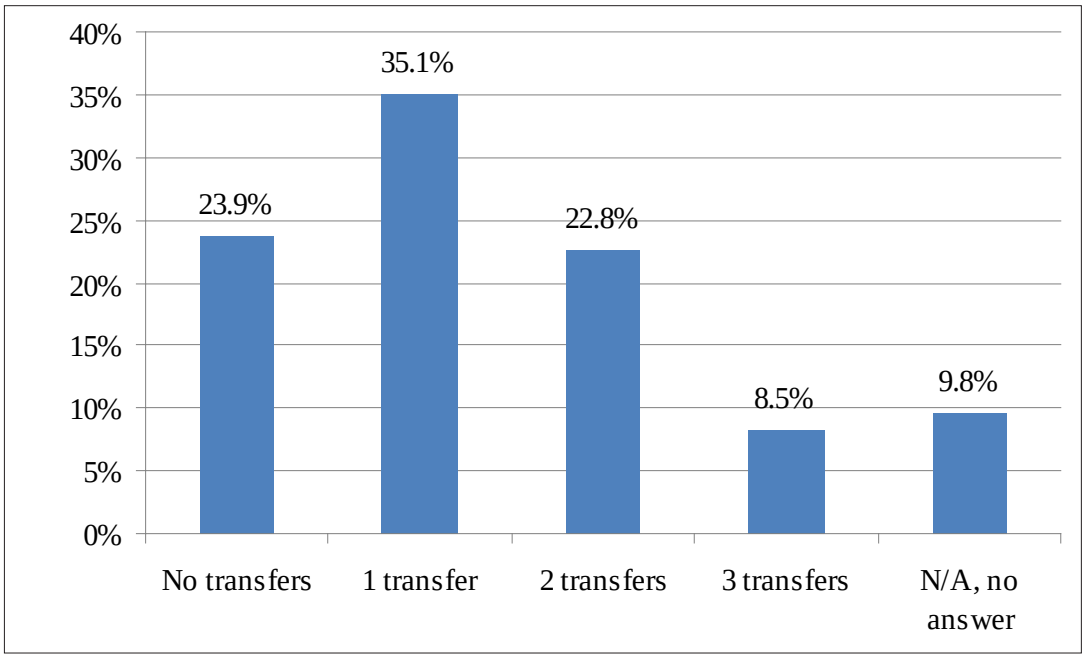

Figure 34. How Many Transfers Do You Expect to Make on this Trip?

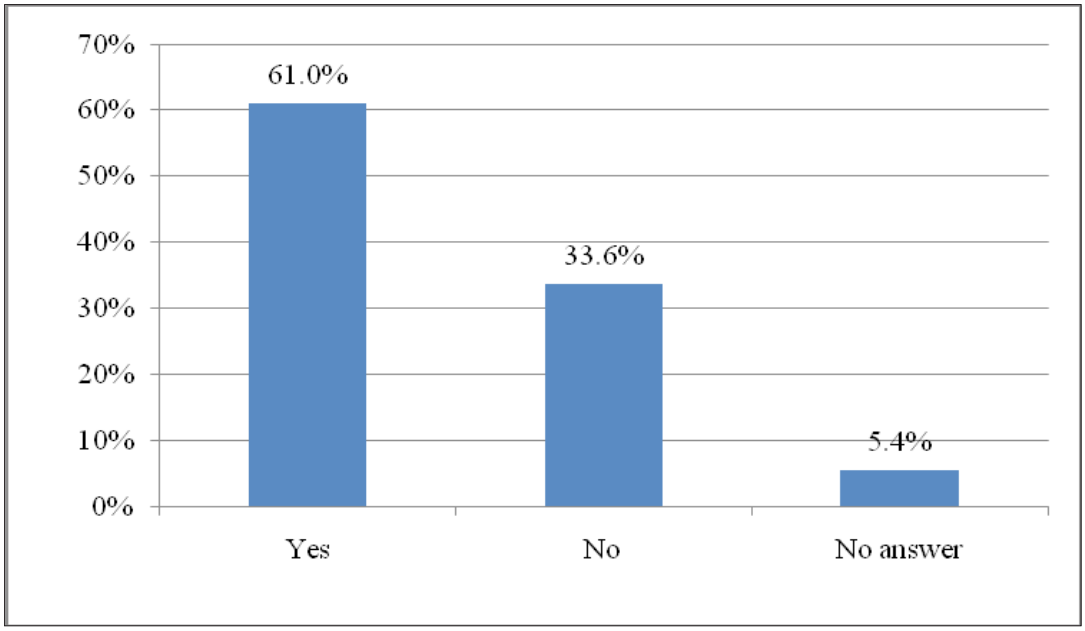

Figure 35. Does Your Trip Involve Any Transfer Between RTA and JeT?

Passenger Characteristics

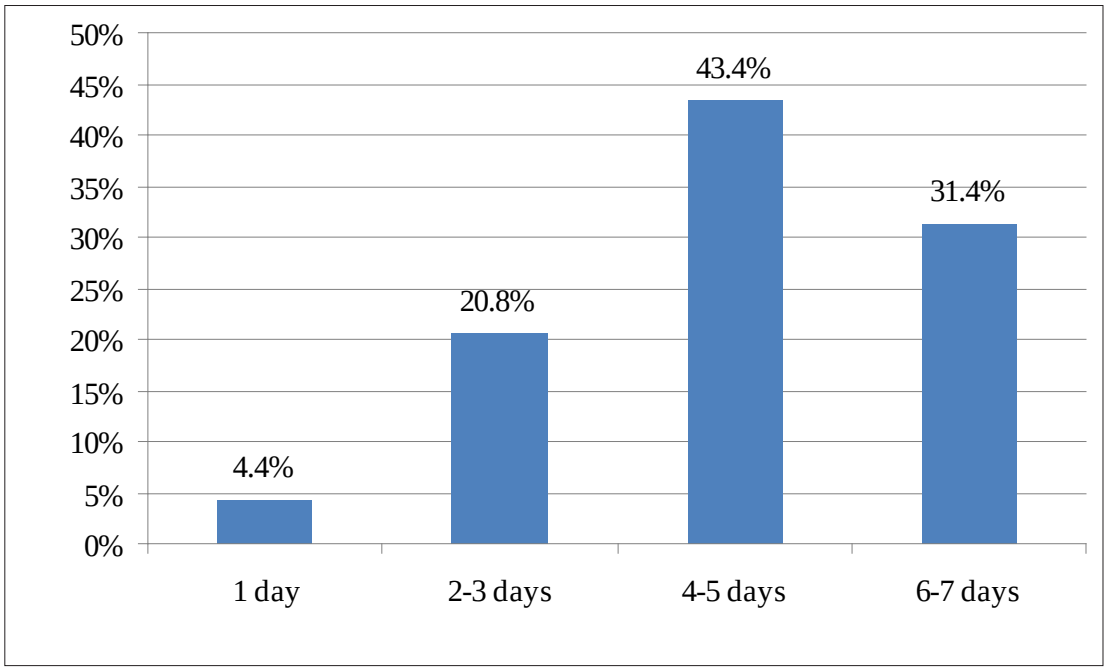

Figure 36. How Many Days a Week Do You Use Public Transportation? (Respondents Reporting Weekly Ridership)

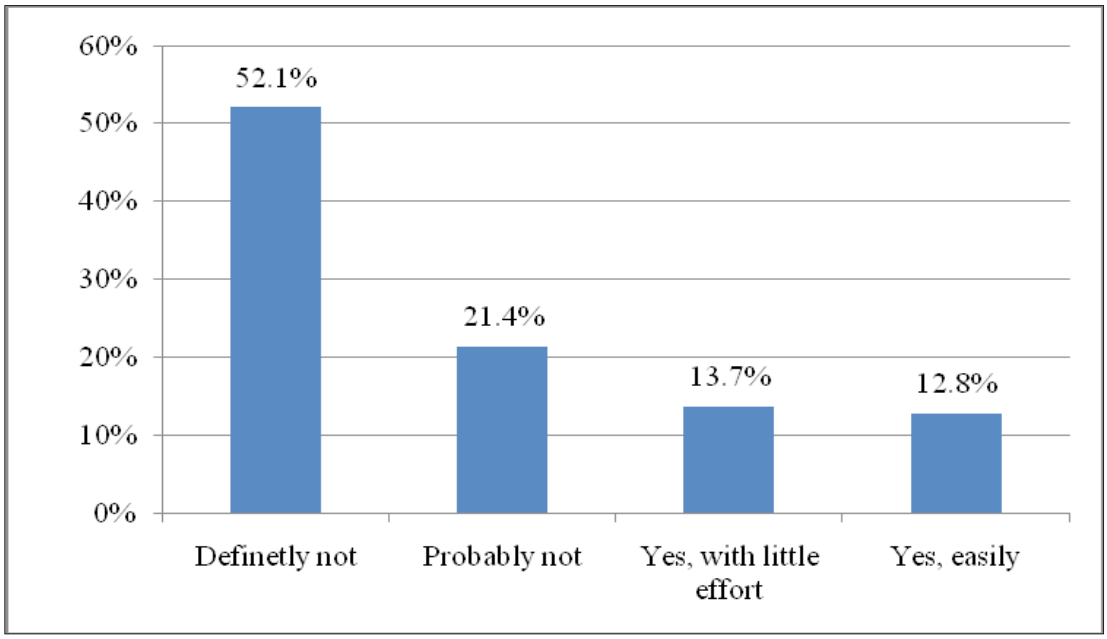

Figure 37. Was There a Car that You Could Take for this Trip?

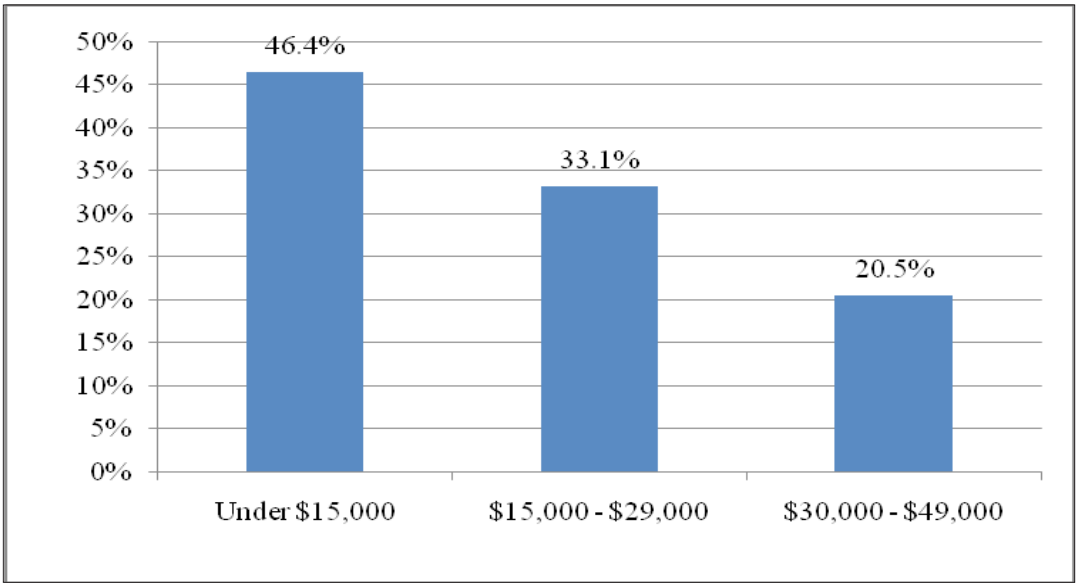

Figure 38. Proportions of Respondents With Income Under $50,000

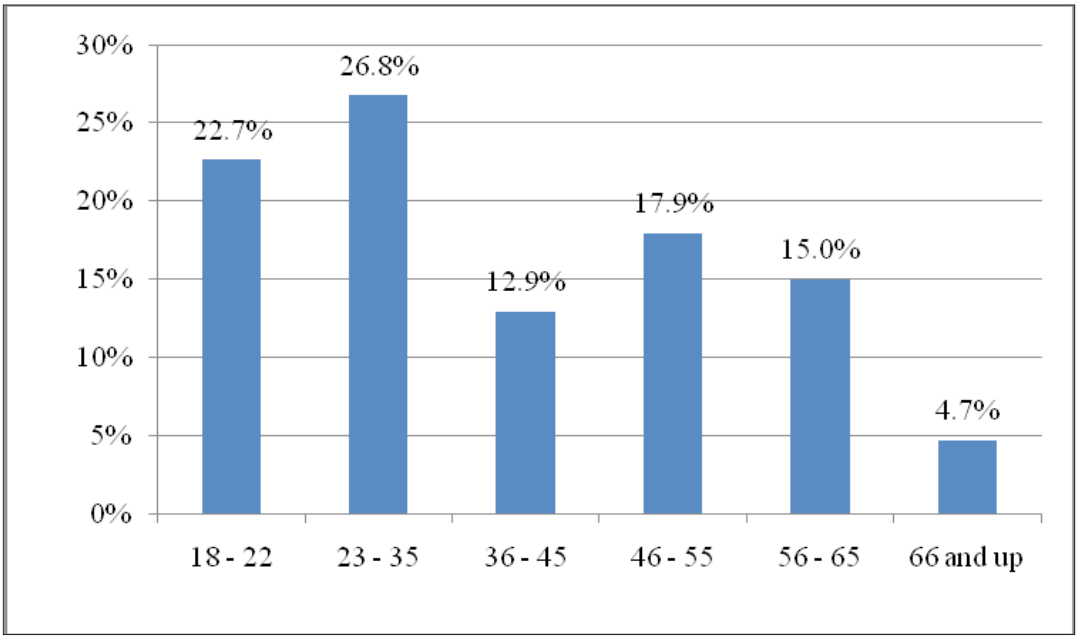

Figure 39. Age

Table 36. Race/Ethnicity of Survey Respondents

Race/Ethnicity	RTA		JeT		Total	
African American/Black	264	79.04%	50	56.82%	314	74.41%
Hispanic/Latino	14	4.19%	5	5.68%	19	4.50%
Caucasian/White	30	8.98%	22	25.00%	52	12.32%
Multi-Ethnicity/Native American or Alaskan/Asian or Pacific Islander	26	7.78%	11	12.50%	37	8.77%

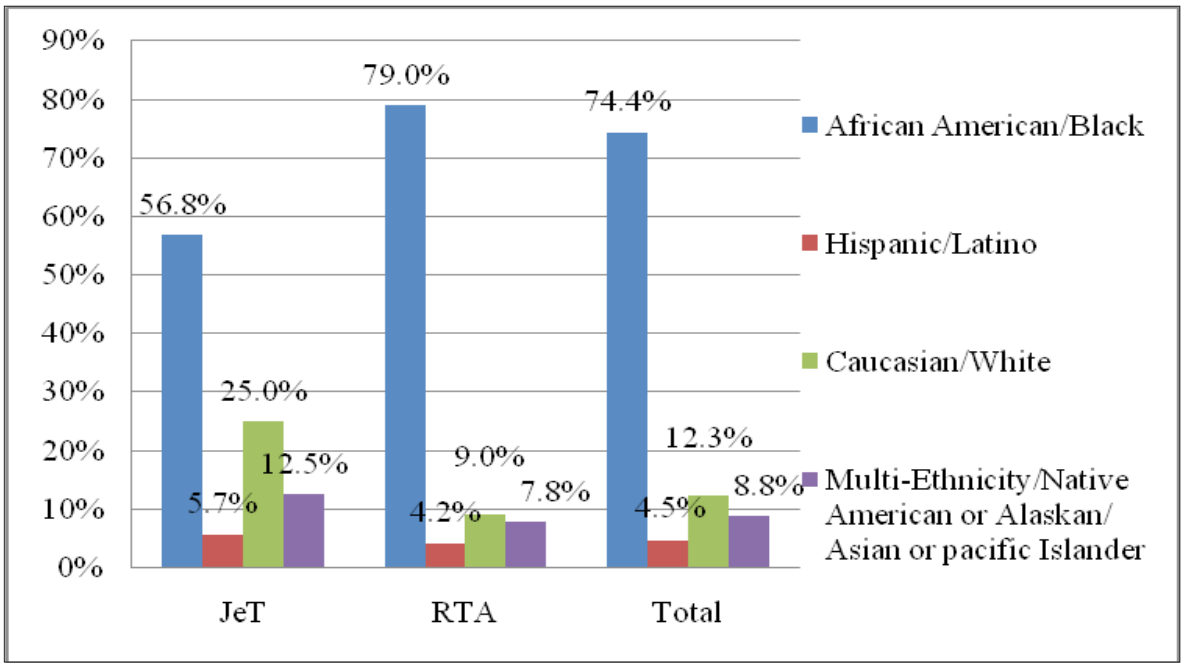

Figure 40. Race/Ethnicity of Survey Respondents by Transit Agency, Total

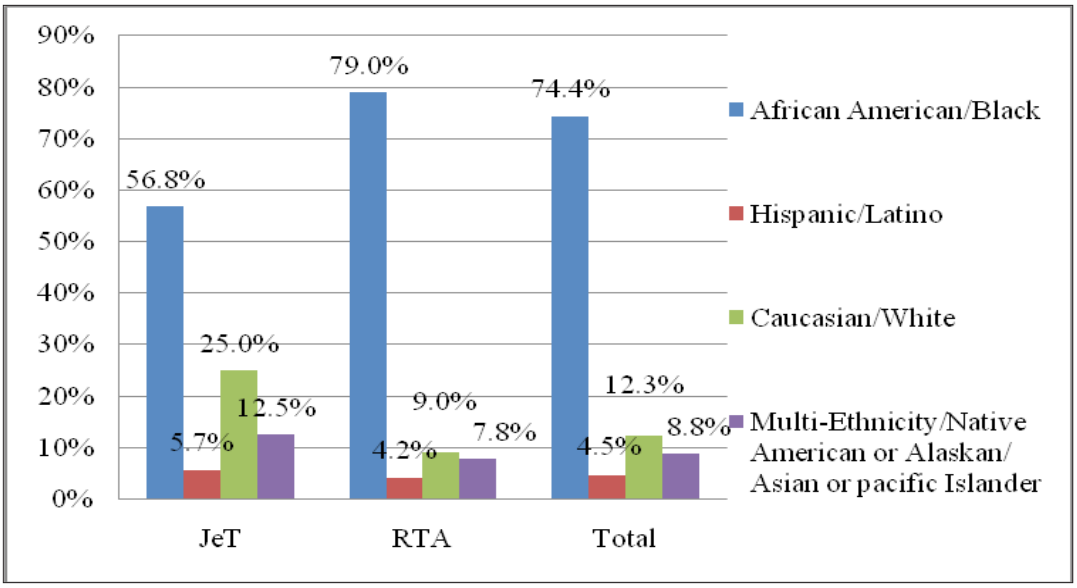

Figure 41. Race/Ethnicity of Survey Respondents by Transit Agency, Total

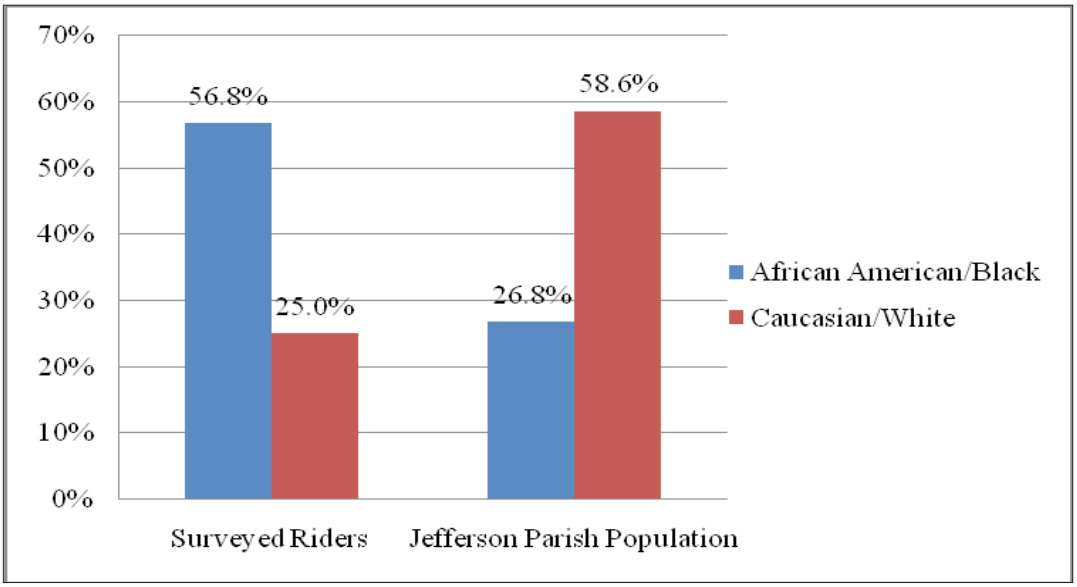

Figure 42. Jefferson Parish African American and Caucasian Survey Respondents, Compared to Parish Population

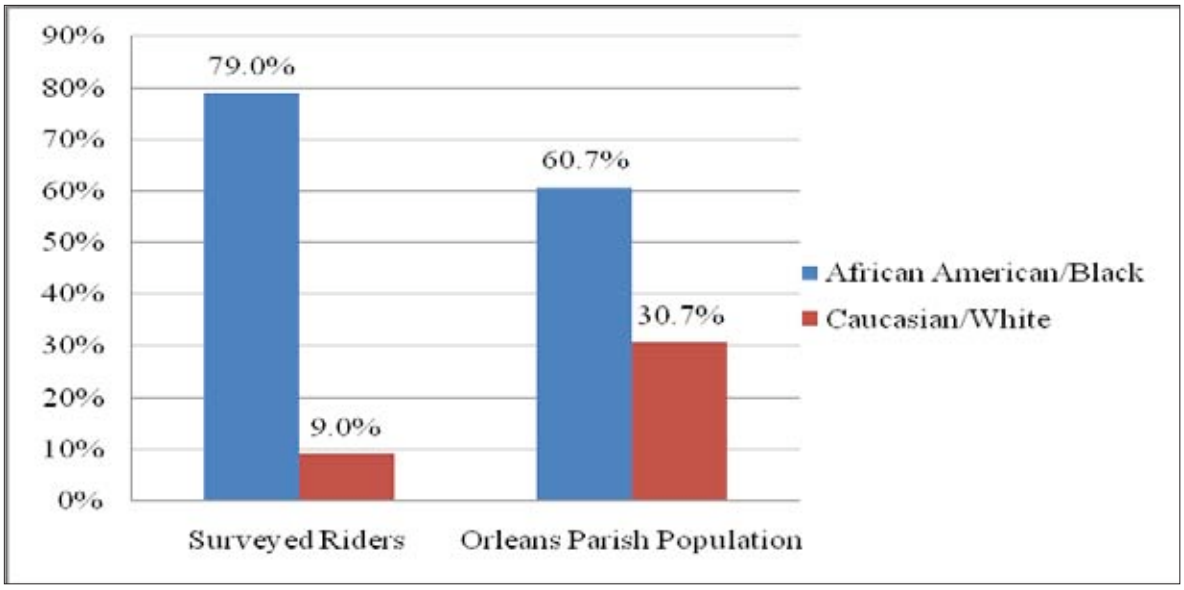

Figure 43. Orleans Parish African American and Caucasian Survey Respondents, Compared to Parish Population

APPENDIX G: MAXIMUM FLEET SIZES OF RTA AND JET SYSTEMS

Table 37. Agency Sizes

	VOMAL			Size Category			Size Category	Vehicle Operated Maximum Available (VOMAL)
	RTA		JeT	RTA	JeT			
	Bus	Light Rail	Bus					
2000	299	23	49	5	2		1	10–24
2001	301	23	49	5	2		2	25–49
2002	364	43	53	5	3		3	50–99
2003	303	20	52	5	3		4	100–249
2004	306	60	53	5	3		5	250–499
2005	N/R	N/R	53	-	3		6	500–999
2006	74	7	23	3	1			
2007	59	19	27	3	2			
2008	58	22	28	3	2			
2009	62	23	28	3	2			

Note: RTA did not report data for 2005, due to Hurricane Katrina.

APPENDIX H: REGIONAL TRANSIT COORDINATION SURVEY

Introduction

The University of New Orleans University Transportation Center (UNO-UTC),[66] in conjunction with the Mineta Transportation Institute at San Jose State University (SJSU), is conducting a study to better understand the extent to which transit agencies have considered, are considering, or are implementing regional coordination strategies. The study will examine the efficiency and effectiveness of providing regional, multi-jurisdictional transit service to achieve financial resiliency.

It will also assess the roles of private transit providers in improving regional and local transit service. Responses you provide in this survey will be instrumental in assessing the status of regional coordination among fixed-route transit service in the nation.

Please note that we would like you to provide factual information about the status of transit service at your agency (and in the region where you serve) from the perspective of a transit planner, manager or director, i.e., we are not asking for your personal views or opinions. Thank you so much for responding to this questionnaire in a timely manner.

Please note that in order for your survey responses to be submitted, you must select "Done" on the last page of the survey. Thank you.

Personal Information

1. What is your position in the agency where you work? (open ended)

2. What is your principal area of responsibility?

   - ☐ Planning
   - ☐ Management
   - ☐ Operations
   - ☐ Reporting to the board
   - ☐ Public communication
   - ☐ Other (please specify)

3. How long have you worked there? year (s): and month (s)

Transit Agency Information

1. What is the full name of your transit agency? (open ended)
2. If you know the National Transit Database ID of your agency, please specify. NTD #:
3. Within which state and metropolitan region does your agency provide fixed-route transit service? State: Metropolitan Region:

66 Gulf Coast Research Center for Evacuation and Transportation Resiliency at the University of New Orleans/Louisiana State University

4. If you know the MSA Code and/or Urbanized Area Code, please specify. MSA Code: Urbanized Area Code:
5. Does your agency contract out functions related to the provision of fixed-route transit service to private firms or other public transit agencies? (Yes/No)
6. If yes, which function (s) does your agency contract out? Check all that apply.

   Operations
   Maintenance
   Management
   Planning
   Other (please specify)

7. Currently, how many private and public ontractors does your agency employ for operation of transit service? (If none, please enter 0)
   Private contractors: Public contractors:

8. How many other transit agencies operate fixed-route service in the region where your agency provides transit service? 0 1 2 3 4 5 More than five

The "regional transit service area" refers to the metropolitan or urban area in which your agency and other fixed-route transit agencies operate. It includes the entire transit service area that your metropolitan planning organization (MPO) plans for, i.e., where some transit riders may travel on more than one transit system.

Fares/Passes

1. Has a coordinated regional fare system (including the charging of a transfer fare) been established in your region? (Yes/No)

2. If yes, which of the following interoperator fare structures has/have been implemented in your region? Check all that apply.

   Integrated fare structure based on distance
   Integrated fare structure based on multiple operator criteria
   Integrated fare structure based on flat fares
   Transfer agreement(s) between/among certain operators
   Other (please describe)

3. Does your agency sell transit passes, tickets, or tokens that can be used on other transit systems? (Yes/No)

4. If yes, which of the following media are used? Check all that apply.

   One-ride ticket or token (including tickets valid for transfer within a few hours)
   One-day/few-day paper ticket
   Paper pass (valid for one week or longer)
   Magnetic swipe card (less than one week)
   Magnetic swipe card (one week or longer)
   Smart card
   Other (please specify)

5. Do other transit agencies in your region offer or sell transit passes, tickets, or tokens that can be used on your transit system? (Yes/No)

6. If yes, which of the following media are used? Check all that apply.

    - ☐ One-ride ticket or token (including tickets valid for transfer within a few hours)
    - ☐ One-day/few-day paper ticket
    - ☐ Paper pass (valid for one week or longer)
    - ☐ Magnetic swipe card (less than one week)
    - ☐ Magnetic swipe card (one week or longer)
    - ☐ Smart card
    - ☐ Other (please specify)

7. Does your agency allow transfers from other transit systems for free or with a discounted fare? (Yes/No)

8. If yes, check the option that applies.

    - ☐ My agency allows transfers with an additional fare
    - ☐ My agency allows transfers without an additional fare

9. If a transfer is allowed, how are revenues allocated?

    - ☐ Each agency keeps fare revenues
    - ☐ Allocated based on a fixed ratio
    - ☐ Allocated based on a pre-determined formula
    - ☐ Other (please specify)

Service Schedule

1. Does your agency take into account the service schedule of other transit agencies in the region to determine the daily and weekly service schedules of your agency? (Yes/No)

2. If yes, check the option that applies.

    - ☐ Some service schedules are coordinated
    - ☐ All service schedules are coordinated with other agencies

3. Does your agency determine time schedules of buses, streetcars or other fixed-route transit services in coordination with the schedules of other transit systems, taking into account transfer time for users at major transfer points? (Yes/No)

4. If yes, check the option that applies.

    - ☐ Some schedules at major transfer points are coordinated
    - ☐ All schedules at major transfer points are coordinated

Information

1. Does your agency jointly provide information to customers in conjunction with other transit agencies? (Yes/No)

2. If yes, check all that apply.

   - ☐ Time schedule
   - ☐ Route map
   - ☐ System map
   - ☐ Fares
   - ☐ Transfer information
   - ☐ Other (please specify)

3. If applicable, which media are used in the joint provision of information?

   - ☐ Shared websites
   - ☐ Telephone service numbers
   - ☐ Information pamphlets
   - ☐ Transfer centers that provide information
   - ☐ On-board display
   - ☐ Other (please specify)

4. Is real-time information (e.g., an automatic vehicle location system) being employed in your region?

   - ☐ No
   - ☐ Yes, for the agency's operation
   - ☐ Yes, for the agency's operation and for transit users
   - ☐ Yes, shared by multiple agencies for operation
   - ☐ Yes, shared by multiple agencies for operation and for transit users
   - ☐ Other (please specify)

Facilities/Vehicles

1. Does your transit agency share facilities (e.g., terminal, shelter) with any other fixed-route transit agencies in the region? (Yes/No)

2. If yes, check all that apply.

   - ☐ Terminal
   - ☐ Shelter
   - ☐ Park and ride lot
   - ☐ Station
   - ☐ Maintenance facilities
   - ☐ Other (please specify)

3. Are transfer points in your region clearly designated for the convenient transfer between different transit systems? (Yes/No)

4. If your agency does not designate transfer points shared with other agencies in your region, have two or more fixed route transit agencies discussed the possibility of locating and designing transfer facilities to better accommodate the transfer of transit users in the future? (Yes/No)

5. If yes, please describe type of facilities and the corresponding modes that would utilize these facilities. (open ended)

6. Does your agency share the design of system signage with other agencies? (Yes/No)

7. If yes, check the option that applies.

   - ☐ Our agency shares some sign design with other agencies
   - ☐ All signage design is shared between agencies

Other

1. Are there any existing agreements between your agency and other transit agencies to jointly provide transit services? (Yes/No)

2. If yes, please note which types of agreements your agency has entered into.

   - ☐ To increase service frequency
   - ☐ To expand routes
   - ☐ To jointly market transit services
   - ☐ To introduce a regional transit smart card that can be used on multiple systems
   - ☐ To jointly train transit workers or share the same training materials
   - ☐ To jointly share data on ridership, accidents, etc.
   - ☐ Other (please specify)

3. Does your agency have any special discount program with public agencies, corporate entities, schools, colleges, universities, or for particular events/festivals? (Yes/No)

4. If yes, check all that apply.

   - ☐ Public agencies
   - ☐ Corporate entities
   - ☐ Grade schools (K–12)
   - ☐ Colleges/Universities
   - ☐ Events/Festivals
   - ☐ Other (please specify)

5. In the event of an emergency (e.g., natural disaster), are there any existing agreements between your agency and contracted transit providers to provide service? (Yes/No)

6. If yes, please briefly describe them. (open ended)

7. Are there any particular roles that contractors have in improving regional transit service coordination among multiple transit systems in your region? (Yes/No)

8. If yes, what are they? (open ended)

9. Do you have additional comments concerning transit coordination? (open ended)

Thank you again for providing information for our study. Your responses will help us better understand the current state of regional coordination of transit service. If necessary, we may contact you for further information and/or clarification of your responses.

In this survey, we have asked for your views and opinions as a transit planner, manager, or director, on regional coordination as well as for factual information about the status of transit service at your agency and in your region. We want to assure you that all of your responses will be treated as confidential, unless you provide us with your consent to use your name and that of your agency in the reports or other materials produced from our research.

Please choose one of the following options:

☐ All of my individual responses should be kept completely confidential, including quotes of written responses without attribution – I want no individual responses reported at all.

☐ All of my individual responses should be kept completely confidential, though you may quote my responses anonymously provided that neither my identity nor my organization's identity can be discerned from the quotes.

☐ You may identify my agency by name when reporting on this research, but you should not identify who from my agency completed this survey.

☐ There is nothing confidential here; you may identify responses by me and/or my agency by name in reporting on this research.

The results of this study will be made available at a later time. If you would like to receive a copy of a report please leave your email address below.

Please select "Done" below to submit your survey responses. Thank you.

Email invitation letter sent with survey

Subject: Regional Transit Coordination Survey conducted by Univ. of New Orleans and Mineta Transportation Institute

Dear Transit Service Provider:

The University of New Orleans University Transportation Center (UNO-UTC), in conjunction with the Mineta Transportation Institute at San Jose State University (MTI-SJSU), is conducting a study to better understand the extent to which transit agencies have considered, are considering, or are implementing regional coordination strategies. The study will examine the efficiency and effectiveness of providing regional, multi-jurisdictional transit service to achieve financial resiliency.

Your participation in this survey will be instrumental in assessing the current status of regional coordination among fixed-route transit service in the nation.

You can take the survey by clicking on the link below or copying it into your browser. The survey should take between 5 and 15 minutes to complete.

http://www.surveymonkey.com/s/RegionalTransitSurvey

Thank you for your participation.

Sincerely,

Dr. Hiroyuki Iseki, Principal Investigator
Assistant Professor, Department of Planning and Urban Studies (PLUS)
University of New Orleans

Dr. Charles Rivasplata, Investigator
Lecturer, Department of Urban and Regional Planning
San José State University

ABBREVIATIONS AND ACRONYMS

APTA	American Public Transit Association
AVL	Automatic Vehicle Location
BART	Bay Area Rapid Transit
CBP	Colin Buchanan and Partners
DART	Dallas Area Rapid Transit
EC	European Council
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GIS	Geographic Information Systems
IS Analysis	Importance-Satisfaction Analysis
JeT	Local Transport Authority Jefferson Transit
LTA	Local Transport Authority
MARETOPE	Managing and Assessing Regulatory Evolution in Local Public Transport Operations in Europe
NEA	An International Research Firm Located in The Netherlands
NOPS	New Orleans Public Service, Inc.
NORTA	New Orleans Regional Transit Authority
NTD	National Transit Database
RPC	Regional Planning Commission
RPTA	River Parishes Transit Authority
RTA	(New Orleans) Regional Transit Authority
RTD	Rural Transit District
SIPTRAM project	Sustainability in the Public Urban Transport Market
TfL	Transport for London
TME	Total Modal Expenses
TMSEL	Transit Management of Southeast Louisiana
UK	United Kingdom
VH	Vehicle Hours
VOE	Vehicle Operating Expenses

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