Coordinating School and Public Transportation

Assessing the Opportunities in New Jersey

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I. EXECUTIVE SUMMARY

Background: School buses provide an estimated 10 billion student trips each year, transporting over half of the country's student population every school day, according to the American School Bus Council. As transportation costs rise, and tax relief and aid diminish each year, New Jersey school districts are under increasing pressure to consolidate, reduce or eliminate bus services for students. However, school districts are not the only transportation provider facing constrained resources. Public transit agencies face their own financial squeeze to efficiently deliver quality transportation services to meet the growing demand against a tide of rising transportation costs.

School bus and public transportation agencies face similar economic obstacles, yet they have distinct operating characteristics and scheduling needs, and they are restricted by differing regulations and policies. However, the potential exists for improved efficiencies, cost savings, and retention and expansion of mobility through transportation coordination between the schools and public transit. This research will review the current status of coordination in New Jersey, evaluate and describe successful models nationally, assess the pros and cons of coordinated transportation, and determine potential barriers and strategies for pursuing transportation coordination within the state of New Jersey.

Methods: Key participants who would provide various perspectives on transportation coordination in New Jersey were selected for interviews. In order to understand the general outlook of the feasibility and presence of coordination in New Jersey, statewide agencies such as the New Jersey Department of Education, New Jersey Department of Transportation, School Transportation Supervisors of New Jersey, New Jersey School Boards Association, and NJ TRANSIT were selected for interviews. Subsequent to these discussions, several school districts were suggested to contact regarding current transportation coordination efforts with public transit agencies. In addition, new articles and press releases regarding school districts interested in or currently partnering with public transit were also considered for interviews.

Results: Interviews were conducted via telephone, one in-person interview and one via email for information regarding transportation coordination efforts in New Jersey. In total, eleven participants were interviewed including two representatives from School Transportation Supervisors of New Jersey, a representative from HART (Hunterdon

Area Regional Transit) Commuter Information Services serving western New Jersey, a representative from TransOptions, a transportation management association assisting counties in northwestern New Jersey, as well as transportation personnel from the following school districts in New Jersey:

- Bloomfield
- Elizabeth
- Jersey City
- Montclair
- Newark
- Paterson
- Trenton

Information from these interviews revealed that transportation coordination currently exists in New Jersey school districts, primarily those with large student populations and located in dense, urban communities with extensive public transit networks. Bus passes on NJ TRANSIT are provided to high school and some middle school students for transportation to and from school instead of riding yellow school buses. This type of transportation coordination is a significant cost savings for the schools while providing additional revenue to the public transit agencies. HART and TransOptions also partnered with schools in their respective counties to provide transportation services more efficiently and cost effectively for a select group of riders.

Conclusion: The limited number of examples of transportation coordination identified in this report reveals that although coordination may not be prevalent, there is potential for more coordination in New Jersey. The benefits of coordination must override the barriers to coordination, and all parties must be willing to compromise in order for transportation coordination to be pursued. Possible barriers to coordination in New Jersey consist of loss of control, limited use of school buses and the current existence of coordinated transportation service agencies that assist schools with transportation consolidation and efficiency. There is possibility for more transportation coordination in New Jersey through strategies such as utilizing public transit for high school and some middle school students, implementing “behind-the-scenes” coordination as well as exploring innovative coordination.

II. BACKGROUND

Introduction

School bus transportation is often an overlooked yet essential sector of the American transportation system. According to the American School Bus Council, over 480,000 school buses transport 26 million children to and from schools and school-related activities every day. Thus, over half of the country's student population is transported by a school bus (ASBC 2011). School buses may have the largest ridership of any non-personal vehicle in the country; however, school bus planning is often left out of comprehensive transportation plans for municipalities nationwide.

Student transportation can be a substantial portion of a school district's budget, particularly in New Jersey. Pursuant to the New Jersey Statutes Annotated (NJSA) 18A:39-1, all public elementary school students (grades K-8) who live more than two miles from their school and all public secondary school students (grades 9-12) who live more than 2.5 miles from their school are entitled to transportation. Also, any classified student or child with an Individualized Education Program (IEP) who either meets these distance requirements or for whom transportation is required in the student's IEP must be transported to school. When a school district is required to provide busing to public school students, it must also provide remote busing to certain non-public school students such as those attending charter and private schools. A school district may decide to pay the parents of these non-public school students an amount of money established by the state in lieu of providing busing services (NJDOE).

In addition to the required busing, which is supplemented by some aid from the State, many school districts in New Jersey are also paying for non-mandated transportation. However, non-mandated transportation, transporting students who do not live remote from school as defined by New Jersey State law, is at the discretion and expense of the local Boards of Education. Courtesy busing, the most common type of non-mandated busing, is transporting elementary school students who live less than two miles from school and transporting secondary school students who live less than 2.5 miles from school. Although courtesy busing may be provided to students due to hazardous routes where walking and biking conditions are considered dangerous and unsafe, courtesy busing is not eligible for state aid and funding, and therefore must be funded by the school district's budget (NJDOE).

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Due to declining federal and state aid, school districts are under increasing pressure to find ways to save money and cut costs. Transportation costs are often targeted to avoid reductions which directly impact students' education such as curriculum, classroom teachers, staff and extra-curricular activities like clubs and sports. Many school districts throughout New Jersey have reconfigured, consolidated or eliminated bus routes and services in response to these cost pressures. Additionally, some school districts are asking parents or guardians to pay for school busing, canceling some field trips, and/or reducing or eliminating after school busing for sports and extra-curricular activities.

School districts are not the only transportation provider feeling the squeeze of limited financial resources and rising costs. Public transit agencies are also experiencing serious economic and servicing problems resulting in decreased productivity and low customer service levels. Inadequate state funding and local governments reluctant to increase taxes place the future of transportation services in uncertainty. However, demand for transportation services has never been greater. During the last decade, the number of people over age 65 increased to more than 35 million while people over age 85 grew beyond 1.1 million, to more than 4.2 million people (Farber, 2008). The American population is aging; health care demands are growing; and new communities and developments are expanding, resulting in greater distances between home, employment and health services.

School districts and transportation agencies are being called upon to do more with less. With these challenges, it is important to consider models for coordinating school transportation and public transit agencies, agreements that could expand mobility and increase revenue and service quality. Coordination could enable better resource management from both agencies to potentially share responsibilities such as administration, personnel, capital equipment, infrastructure and funding. Evaluating the coordination of transportation services between schools and public transit as well as assessing the feasibility of coordination in New Jersey is the focus of this report.

Purpose and Objectives

To assess the occurrence of coordination within the state, a review of the current status of coordination between school bus services and public transportation in New Jersey is investigated and evaluated. Research has focused on exploring the status of the practice and identifying opportunities for transportation coordination in New Jersey. The objectives are to: 1.) identify coordination efforts that have already taken place in New

Jersey; 2.) characterize successful models of coordination efforts nationally; 3.) assess the advantages and disadvantages of coordinated programs; and 4.) describe and identify issues, possible barriers and potential strategies for pursuing more coordinated programs between school and public transportation within the state of New Jersey.

State of the Literature

The idea of coordinating school and public transportation services is not new in the United States. An initial scan of the literature revealed several documents written on the subject dating back to the early 1970s. However, few detailed studies have been prepared that describe the merits or challenges of coordinating school bus and public transportation services. The research team has reviewed national and international literature related to school transportation, public transportation, transportation coordination, as well as school and public transportation regulations, standards, laws and procedures in the United States. The review of literature focused on three general areas. The first area concentrated on gathering knowledge and specific information regarding the academic documentation of any coordination efforts that have taken place within the State of New Jersey. The second area focused on a broader, national examination of the subject. Within this area, a view of the general contemporary concepts behind coordination and specific case studies throughout the nation were considered. The third area focused on themes of coordination, specifically, the advantages and disadvantages of coordination as documented in national studies.

Area 1: Academic Documentation

A review of the literature revealed that few detailed studies have been prepared that describe the merits or challenges of coordinating school bus and public transportation services. Of the resources reviewed, no specific information regarding transportation coordination in New Jersey could be found.

Area 2: National Review

One of the better comprehensive national studies was published as *Transit Cooperative Research Program (TCRP 1999) Report 56: Integrating School Bus and Public Transportation Services in Non-urban Communities*. In this report, Multisystems, Transit Plus, Martin, Tull and IBI Group explore the types of coordination that currently exist in rural communities and the barriers and challenges for establishing coordinated

services. This analysis provides insights about the complexities of coordination between school and public transportation, highlighting how differences in regulations, funding, and vehicles can impact coordination efforts. The study finds that decisions made at the federal, state, and local levels impact a community's ability to coordinate services. A major factor in the ability of a community to blend services is the institutional willingness for – or resistance to – the coordination of student transportation and public transportation services in non-urban areas. Case studies were also conducted to obtain more detailed information about communities that have successfully coordinated or integrated some aspect of school and public transportation. Although coordination is not yet widespread, the study described a number of different strategies being used by communities that are coordinating services. The report culminates with an implementation guide. By providing information about how to replicate coordination in other communities, non-urban communities could consider the coordination of public and pupil transportation.

The document, “A Handbook for Coordinating Transportation Services: An Introduction and Step-by-Step Approach to Coordination” was developed cooperatively by the Ohio Department of Transportation Office of Transit, RLS & Associates, Inc., and CGA Consulting Services, Inc. This handbook was created to provide transportation providers in Ohio with a step-by-step process for establishing a coordination program. The handbook is a wealth of information and includes seven chapters that introduce the various types of coordination and provide guidance for implementing a coordination program. Initial chapters describe the process of getting started such as steps to assess local interest and collect information, while subsequent chapters focus on specific issues including joint use arrangements and consolidation.

In 2003, the Iowa General Assembly asked the Iowa Department of Transportation to conduct a study of Iowa public policy regarding coordination of public transit services and school transportation. The resulting report “Coordination of Transit and School Busing in Iowa,” was prepared by the Center for Transportation Research and Education (CTRE) at Iowa State University. This report describes the efficiencies that may be obtained by coordinating transit management and maintenance systems in the areas of school transportation, public transit, and other forms of public transportation. CTRE conducted a survey of the 35 transit agencies in Iowa and school districts served by public transit agencies to determine the extent and nature of coordination. The report revealed that in Iowa, 23 transit agencies coordinate in some manner with over

45 school districts. The nature of the coordination depends on whether the area is urban or rural. The study concluded that Iowa policy is supportive of coordination activities, and coordination occurs when there is clear benefit to both parties, resulting in efficiencies and cost savings.

While the Ohio and Iowa documents were specific to their respective states, both provide insights into the process of coordination and the efficiencies that may be obtained. The Iowa document for example, presents detailed transportation coordination case studies as well as highlighting barriers to coordination, including safety issues and differing requirements, qualifications, and training associated with public transit and school bus transportation.

Area 3: Themes of Coordination

There were several broad themes evident in the literature regarding the advantages and disadvantages of coordination. One of the most common themes revolved around economic benefits and costs. This theme is discussed in *TCRP Report 144: Sharing the Costs of Human Services and Transportation* and *TCRP Report 91: Economic Benefits of Coordinating Human Service Transportation and Transit Services*. The themes presented in both of these TCRP reports are best summarized in an article written for the Transportation Research Record called *Economic Benefits of Coordinating Human Service Transportation and Transit Services*. This article was written by Jon E. Burkhardt, one of the authors of both TCRP Report 91 and TCRP Report 144, as a summary document for the findings of TCRP Report 91. The paper describes basic coordination concepts, typical economic benefits of coordination, strategies that enable transportation operators to achieve significant value from coordinating operations, and potential overall industry impacts. The focus of Burkhardt's work is to discuss how coordinating transportation services can offer benefits such as generating new revenue, saving costs, enhancing mobility, and increasing efficiency and productivity.

Another broad theme was using collaboration as a means to provide or improve transportation for communities with little access and/or special needs. This theme is shown in the article *School Buses and Special Needs Transportation: Options for Policymakers* written by Nicholas Farber. Farber notes that using school buses to transport disadvantaged populations benefits both those being transported and the school district. As budgets continue to shrink, school districts have less money to

spend on student transportation. Farber concludes that an extra revenue stream from the use of school buses through coordination could retain programs in difficult economic times. While in support of coordination efforts, Farber also identifies many challenges to coordination. These challenges include varying safety standards for mass transit and school buses, issues with Americans with Disability Act (ADA) standards for public transit, differing driver qualifications and training standards for mass transit and school bus drivers, complications with reorganizing labor agreements, and concerns over mixing populations – children using mass transit and allowing the public on school buses with students.

The issue of safety was also a common theme in the literature, often appearing as a potential barrier to coordination. The excellent safety record for yellow school buses transporting children is well known and often cited. The Transportation Research Board Special Report 269, *The Relative Risks of School Travel* noted that school buses represent 25 percent of the miles traveled by students but account for less than four percent of the injuries and two percent of the fatalities. Conversely, other modes have estimated injury rates and fatality counts that are disproportionately greater than expected on the basis of exposure data. For example, passenger vehicles with teen drivers account for more than half of the injuries and fatalities, a much greater proportion than the 14 to 16 percent that would be expected on the basis of student miles and trips. With the evidence found in Transportation Research Board Special Report 269, convincing administrators, school boards and parents or guardians to embrace options that involve students traveling to and from school other than on a yellow school bus can be quite challenging.

This theme was further explored in the article *Pupil Fatalities on Public Transit: A Comparison with School Buses* written by Lidia Kostyniuk. In this study, fatality rates of school-age children on trips to and from school by transit bus as passengers were compared with school bus related fatality rates. Data from the Fatal Analysis Reporting System (FARS) 1996-1998 were used to identify deaths of school-age bus passengers and pedestrians in all crashes during times that students normally travel to and from school. Additionally, police crash reports were obtained for the pedestrian deaths and reviewed for bus involvement and an indication as to whether the trip was to or from school. The research found that the average number of pupils killed on such trips on transit buses in the United States was 0.3 deaths per year, and possibly as high as 1.7 deaths per year. Using the National Personal Travel Survey (NPTS) data to control for

exposure, a fatality rate of four deaths per billion student trips (95% confidence interval of 1-11) was estimated. Kostyniuk concluded that, within the precision achievable with available data, no recognizable difference between pupil fatality rates by transit buses and school buses could be found. This is favorable news to proponents of coordination, but the study has significant limitations: more children are transported to and from school each day by school bus than by public transit bus. The very low number of student deaths by public transit bus greatly limits the statistical precision of attainable estimates.

Coordination Defined

In order to assess coordination opportunities between school bus providers and public transportation agencies in New Jersey, there must be a clear understanding of what "coordination" is and why parties would want to enter into coordination agreements. Coordination occurs when two or more agencies work together to improve output by combining existing resources (Kroger 2005). Effective coordination of transportation results in both agencies increasing ridership, increasing revenue and/or decreasing costs, providing better service, or some combination of these benefits (Andrle et al. 2003). Without these factors, agencies will not be interested in entering a coordination agreement. Coordination has shared objectives, such as eliminating redundant route services or optimizing under-utilized vehicles, and each agency participating in the coordination must share the responsibility of reaching those objectives (Kroger 2005). When implemented effectively, coordination can result in better or equivalent services, lower costs and/or increased revenue for transportation providers who are constantly under pressure by management, officials and tax-paying residents to cut costs and produce revenues.

III. TYPES OF COORDINATION

Coordination between school transportation providers and public transit agencies has different forms. The varying levels of coordination range from the in-depth, such as coordination of services, to moderate, such as coordination of management and administrative functions, and to the less involved, such as coordination of physical stock and resources. Since coordination is a process, agencies should establish goals that can be achieved through coordination and decide what method of coordination works best for the situation.

Service Coordination

Coordination of services includes some element of using an agency's modes of transportation such as buses, subways and rail lines, to serve the riders of another agency. At the extreme of true coordination, public transit and school transportation services would be completely combined, with riders mixed, and schools becoming part of the network of routes and stops. This level of service coordination is theoretical since no such coordination currently exists in the United States. School districts still prefer to provide yellow school bus service for elementary school students who are too young to ride public transit alone. Aside from complete consolidation of services, there are various ways to coordinate school and public transit services.

Transit Pass Programs

Service coordination allows selected students to ride public transit, while the school district pays for their fares in lieu of providing separate school bus service. In denser cities with high levels of public transit, this option is used for older students, usually high school and middle school. Most school districts throughout the country set a minimum distance from the student's home to the school for providing transportation, often a two-mile ring for elementary school students (grades K-8), which usually coincides with the school districts' State requirements. Schools can coordinate with public transit instead of providing separate school busing to transport students outside the two-mile ring. This type of service coordination with public transit can also be used as an alternate means of transportation for those students who are ineligible for school bus transport or when courtesy busing for students is eliminated. All of these examples of service coordination mix non-students with students on public transportation vehicles such as buses, trains and subways.

New York City offers an example of how public transit and the school system can coordinate services. Because of the vast geographic size and number of students, approximately 1.1 million students, the New York City Public School System coordinates services with the regional Metropolitan Transportation Authority (MTA). Rather than providing yellow school bus service to students in grades 7-12 at a significant cost, full fare transportation (Metro Card) is provided at no cost to the student, if eligible, for use on the extensive New York subway and bus system (NYC DOE 2011). Eligible students in grades K-6 are able to receive either yellow school bus service or obtain Metro Cards for use on MTA's subway and bus lines. The eligibility

requirements are specified on New York City's Department of Education website and below in Table 1.

Table 1: Transportation Eligibility for NYC Students for 2011-2012 School Year

<table>
<tr><td></td><td></td><td colspan="4">Distance From Residence to School</td></tr>
<tr><td></td><td></td><td>Less than ½ mile</td><td>½ mile or more, but less than 1 mile</td><td>1 mile or more but less than 1½ miles</td><td>1½ miles or more</td></tr>
<tr><td rowspan="3">Grade Level</td><td>K-2</td><td>Not Eligible*</td><td colspan="3">Eligible for Full Fare Transportation**</td></tr>
<tr><td>3-6</td><td rowspan="2">Transportation Not Provided</td><td colspan="2" rowspan="2">Not Eligible*</td><td rowspan="2">Not Yellow Bus Eligible – Metro Card Only</td></tr>
<tr><td>7-12</td></tr>
</table>

Source: NYC DOE website:
http://schools.nyc.gov/Offices/Transportation/ServicesAndEligibility/BusTransportation/default.htm

*Students are not eligible for full fare transportation; however they may receive a half fare student Metro Card good for use on buses only. Half fare Metro Cards are provided as a courtesy from the MTA.
**Students who are eligible for full fare transportation may receive either yellow bus transportation or a full fare student Metro Card for use on buses and subways.

School grade level age and distance from home determine who is eligible for transportation on New York school buses, public buses and subways. New York has unique circumstances due to its large student population, geographic size and extensive public transportation network; however cities across the country have also implemented similar transit pass programs on public buses and trains for secondary school students (grades 7-12). The following cities utilize public transit to transport older students to and from school:

- Cincinnati, Ohio
- Des Moines, Iowa
- Detroit, Michigan
- Madison, Wisconsin
- Oakland, California
- Philadelphia, Pennsylvania

- Portland, Oregon
- Seattle, Washington

Para-Transit Services

Another type of service coordination addresses the transportation needs of physically disabled riders. Schools are required to provide transportation for special needs students, and Americans with Disabilities Act (ADA) regulations require that accessible transportation be provided for disabled riders. Smaller, wheelchair accessible vehicles called para-transit shuttles can be very expensive to purchase and operate. Thus, school districts can coordinate to share vehicles and mix riders for para-transit shuttles with public transportation agencies, human services providers, or both.

The Northeast Iowa Community Action Transit (NEICAT), a regional agency that provides transportation services for Head Start[1] participants as well as special needs students to communities all over Northeast Iowa, provides an example of shared para-transit services. Communication between the school districts, parents, transit agency, and school transportation supervisors was challenging initially, however after more than 20 years of coordination, the process is essentially seamless. By coordinating transportation services for special needs and disabled riders, the taxpayers in the region save money by reducing the need for extra vehicles, fuel, equipment and drivers (Andrle et al. 2003).

Managing Peak Demand

Service coordination can take advantage of varying peak demand times for school buses and public transit. School buses sit empty and idle throughout most of the school day. These buses can be utilized by the public transit agency during peak commuting times, particularly the evening rush hour. Alternately, ridership on public transit is low during school dismissal and some starting times, and public transit can be utilized by students for transportation to and from school.

In Ames Iowa, Iowa State University students increase demand for the public transit system, called CyRide, during peak times. CyRide allows University students to ride

[1] Head Start is a program of the United States Department of Health and Human Services that provides comprehensive education, health, nutrition, and parental involvement services to low-income children and their families.

with their student ID card as student fees each semester pay for the service. The popularity and success of the program requires more buses during peak hours. As a result, CyRide hires extra buses and drivers from the Ames school district transportation provider, Central Iowa Transit (CIT), during these peak hours to transport University students and general passengers. Savings are estimated at $13,000 annually for CyRide since additional drivers and vehicles are not needed for a handful of added trips during peak hours, and extra revenue is generated for the school district by utilizing the school buses and drivers, when not in use by the schools, for the overflow on CyRide (Andrle et al. 2003).

Management and Administrative Coordination

For some municipalities, combining the services of school bus transportation and public transit may not be operationally or politically feasible. However, coordination of management and administrative tasks are “behind-the-scenes” activities, which are usually less controversial and can still save agencies money. Managing the logistics of route designations and dispatch services can be arduous and may involve purchasing expensive software. The daily maintenance and storage of vehicles can also be expensive. Time-consuming and costly functions such as driver background checks, drug screening and driver training can be shared by agencies. Sharing resources between agencies or consolidating staff required to manage these aspects can significantly decrease costs for both agencies. (ACCT 2004).

Branchburg and Readington school districts of Somerset County in New Jersey provide an example. The adjacent school districts share transportation personnel, school bus facilities and maintenance costs. The districts were able to eliminate 19 routes during the first year by maximizing efficiencies and consolidating routes. Both districts also benefit from having a joint pool of substitute drivers and spare buses, and both can share maintenance and storage costs. The merging of the two operations saves each school district approximately $70,000 every school year.

Physical Stock Coordination

At the most minimal level, physical stock coordination can still save money for school transportation providers and public transit agencies by combining and coordinating procurement functions. Buses, regardless of whom they transport, require fuel, parts,

and tires. By consolidating fuel sales, and the purchasing of vehicles, tires and parts, agencies can secure better prices from suppliers.

In California, some transportation agencies are purchasing vehicles called “hybrid” or utility vehicles together. The utility vehicle meets the safety standards of both school bus and public transit regulations and can be easily converted from one to the other. By buying these utility buses together with shared resources, school districts and public transportation agencies can exchange stock as well as consolidate purchasing agreements, resulting in cost savings for each agency (Farber 2008).

Table 2 summarizes the types of coordination between school and public transportation.

Table 2: Types of Transportation Coordination

	Service Coordination					Management & Administrative Coordination	Physical Stock Coordination
Coordination Type	Complete Combination of Services	Select Students Ride Public Transit		Share Para-transit Vehicles for Special needs students & riders	Empty School Buses used to fill peak-hour demand for Public Transit	Share Dispatching Services/Logistics, Driver Training/ Labor Agreements, Maintenance and Storage Contracts	Share Vehicles, Fuel, Tires & Parts
		Older Students get transit pass	Students within 2-mile ring take transit				
Mixture of Students and Non-Students?	Yes	Yes	Yes	Possibly	No	No	No
Examples	None to date	NYC, NY, Portland, OR and Des Moines, IA	Cedar Rapids and Iowa City, IA	NEICAT in Iowa	CyRide in Ames, IA	Branchburg & Readington School Districts in NJ	Utility Buses in California

IV. EFFECTS OF COORDINATION

Improving coordination between school districts and public transportation provides a promising means for a more effective use of taxpayer funds. School districts and public transportation agencies are constantly faced with growing demand for services with

limited resources. However, there are both benefits and barriers to coordinating transportation between school districts and public transit.

Benefits

School districts across the country are constantly struggling to provide sufficient services for students under constrained budgets. Transporting students can be a significant portion of their overall school budget. If costs could be saved by coordinating services with other agencies, resources could be used for core education functions or preserved. Public transportation agencies are also looking to manage their costs and allocate resources toward increasing quality and frequency of service.

Generate Revenue and/or Save Costs

Coordinating transportation services with schools can provide additional revenue for public transit agencies. Schools can utilize funds to pay for transporting students who use public transit to and from school, thereby increasing revenue for the public transit agency. Public transit agencies would be able to increase ridership and revenues with little or no incremental costs. Furthermore, coordination could save money for the school district which would otherwise have to secure costly busing for its students (Andrle et al. 2003). Capital savings could be realized for both schools and public transit agencies by avoiding the expansion of its fleet of vehicles and using vehicles that would otherwise sit idle or underutilized.

Mason County Transportation Authority in rural Washington coordinates school district and public transportation resources, saving both over $20,000 per year in operating expenses, $120,000 in vehicle purchase costs and $84,000 in annual fuel costs (TCRP Report 91).

Schools and public transit agencies can save money by coordinating infrastructure and management. Sharing facilities, maintenance and storage expenses in addition to vehicle, fuel, tire and equipment purchases can further result in cost savings (Farber 2008). Coordination of employee, management, and administrative services reduces costs and eliminates redundancies as well. Combining driver-training and background checks not only reduces costs but also ensures drivers have the proper training to serve adults, children, and individuals with disabilities. Route designating, scheduling and dispatching are very time intensive tasks that may require expensive purchasing of

specialized software, therefore sharing these costs alleviates the expenditures for each agency (Andrle et al. 2003).

The Dodger Area Rapid Transit System in Fort Dodge, Iowa operates the urban transit system, the regional transit service in the six counties and the school bus service. By spreading staff costs over multiple contracts, reductions in staff by about three-fourths of a full time staff member saves over $20,000 per year (TCRP Report 91).

Increase Efficiency and/or Productivity

Coordination of school and public transportation allows vehicles to accommodate more passengers of various types and more often, thus increasing productivity and efficiency. Transporting students on public transit vehicles is most effective when underused capacity on existing routes is utilized. Similarly, transporting public riders on school buses when there is available capacity is efficient. Often referred to as "ridesharing," this ensures a cost-effective application of drivers and vehicles. Ridesharing can solve problems associated with overlapping routes, duplication of services, inefficient route design and poorly timed schedules. Eliminating redundancies can save a substantial amount of money particularly in smaller communities.

The Mason County Afternoon Transit Service in Washington State uses school buses with school bus drivers serving as transit drivers while school is in session. The school bus is converted into a transit bus with the addition of a magnetic "Mason Transit" sign that is placed on the side of the school bus when transporting public transit riders. The dual use increases efficiency by utilizing the school buses which would otherwise sit idle during the school day.

Increase Mobility

Overall mobility for the community can be enhanced tremendously by using school buses during off peak hours or transporting students to school via public transit. Access is increased for riders, expanding services to more places, times and serving a wider population, including the elderly, disabled, students and low income households. For the elderly, the need for accessible public transportation will increase as this population grows over the next two decades. According to a 2002 AARP survey, 16 percent of people aged 75 years and over did not have a driver's license in 2001 and 25 percent

had not driven in the last month. As this population continues to grow, access to public transportation will be needed (Farber 2008).

Mason Transit and the Mason County school district in Washington State face the difficult challenge of supplying enough vehicles or routes to meet the transportation demand in a rural county that incorporates over 900 square miles. Improving coordination between the two agencies made it possible for the Mason County Afternoon Transit Service to transport students home safely after dark. These students participate in after school activities, have no personal transportation resources and live outside the area served by Mason County Transit's regular routes. Members of the general public also living in these remote areas are able to take the Mason County Afternoon Transit Service thereby increasing mobility (ACCT 2004). School buses are used to transport kids and teens to and from after school programs as well as to fill in transit route gaps for the general public when regular routes on existing transit are not available.

Other Benefits

Besides the important benefits of saving costs and increasing revenue, efficiency, productivity and mobility, there are other advantages for coordinating transportation with schools and public transit. Making fuller use of underutilized vehicles reduces the carbon footprint which results in fewer exhaust emissions. Students can participate in sports and after school activities, allowing them to be more socially engaged and active if there are available from-school transportation services. Coordination supports a flexible schedule for students and parents, who cannot transport their children due to work commitments. Finally, students gain independence and are exposed to community resources and real world learning opportunities about how to use public transportation.

Barriers to Coordination

There are many benefits for coordination of school transportation services with public transit, but coordinating can be a difficult process with barriers that create challenges for some agencies. Even though transporting students and the public share many similarities and benefits, the two sectors of transportation have several issues that can be difficult to overcome when coordinating.

Operational Issues

When combining any two agencies, pre-existing labor arrangements must be thoroughly considered. "Reorganization of the workforce between existing service providers may create a range of issues related to successor rights for existing employees, training, licensing, compensation agreements, and so forth" (United States & FTA 1999, p ES-8). Successor rights or "turfism" can also be difficult for coordinating between existing agencies (Amiet 2003) as neither party wants to give up any amount of control. Contractual agreements can also stand as a barrier to coordination. School bus services are usually contracted on a one to three year basis, while transit contracts typically have a period of three to five years (United States & FTA 1999), thereby making it challenging to consolidate contracts.

Differences in management style are always difficult to overcome when combining agencies, as school districts often manage transportation services within the district, while public transit agencies typically contract their management to a third party (United States & FTA 1999). In addition, insurance and liability standards are different for school buses and public transit. School districts are liable for the safety of the student from the moment they board a school bus, which can be difficult to convert onto a public transit bus or vehicle.

Finally, public transportation officials believe that school buses which lack certain comforts such as accessible equipment, air conditioning as well as larger seats, aisles, doors and ceilings, are not designed to carry adults and reduce the customer service quality and experience for general passengers.

Legal and Regulatory Issues

Legal and regulatory issues also inhibit the coordination of transportation services. At the federal level, transit regulations limit the type of school transportation services that could be provided using Federal Transit Authority (FTA) funded vehicles in order to protect private operations. For example, a transit agency in an urban area may provide public transportation that is exclusive to students and school personnel if private school bus operators in the urban area are unable to provide adequate transportation at a reasonable rate and in conformance with applicable safety standards. However, buses, facilities, and equipment that have been purchased with FTA assistance cannot be used

to provide this service. Therefore, an agency may use only buses, facilities, and equipment that have been purchased exclusively with non-FTA funds to transport students and school personnel to and from school or school-sponsored activities (FTA).

Some state laws restrict yellow school buses to carry students and allow only certain personnel such as the bus driver and monitor on board. Many states have laws that prohibit the mixing of students with non-students on district buses. There are 25 states that allow for school districts to use buses to transport disadvantaged populations such as the elderly, disabled and nonprofit organizations, however for most of these states, students are restricted from boarding buses when used in this capacity (Farber 2008). When states allow school buses to be used for non-student transportation, some states require that the "school bus" label cannot be shown (Farber 2008). In addition to these restrictions, each state has regulations regarding the bidding process for school transportation contracts that can make it even more difficult for public transportation agencies to coordinate with a school district's transportation services department (Amiet 2003).

Public transportation vehicles must meet different standards. Notably, all new public transportation vehicles since 1990 have to meet the Americans with Disability Act (ADA) requirements that provide equal access of public transportation for people with disabilities. To meet ADA standards, public transit buses must be furnished with certain equipment such as lifts, slip-resistant floor areas, priority seating signs, handrails and adequate lighting for the disabled (Farber 2008, p. 2). Some states, such as New Jersey, have more recently required that all new school bus vehicles meet ADA requirements, however many existing school buses throughout New Jersey and across the country currently do not meet ADA requirements. These school buses have steep stairwell entrances, narrow aisles and seats, and lack air-conditioning. School buses are also not as easy to maneuver down one way or narrow streets as smaller para-transit vehicles, therefore they are not able to serve the door-to-door function many disabled riders require (Farber 2008). These constraints make it challenging and problematic for school buses to transport adults, particularly the elderly and disabled.

Federal law prohibits public transit agencies from providing exclusive school bus service either separately or as part of their contracted provision of transit service unless private operators are not available for the purpose. This prohibition was designed to ensure that transit agencies subsidized by public funds would not compete with private school bus operators. Public transit can however accommodate school children through

regular transit service including routes designed primarily for school travel as long as that service is open to the general public (TRB 2002).

Safety Concerns

The school district is responsible for students from the time the children are picked up from the bus until they are dropped off from the bus per existing legislation (TRB 2002). Any shift in transportation from yellow school bus to public transportation shifts the responsibility of safety from the school to the parents/guardians. As a result, younger students may not be candidates for utilizing public transportation; however, secondary school students in grades 9-12 can and have been using public transit for many years.

Safe transportation of children to school involves more than just vehicle standards. "Stranger danger" is a concern for many parents. Historically, the yellow school bus has served as a symbol of safety, transporting children to school where they are surrounded by school personnel and staff who are required to pass rigorous background checks. Many states have laws that prohibit non-school affiliated adults from riding on school buses with children (United States & FTA 1999), and some require that school bus drivers pass more extensive screening than their public bus driver counterparts. Not only does the concern over stranger danger limit parent willingness to support mixing riders on school buses, but also parents are hesitant to allow their children to ride public transportation in lieu of school buses. Parental concern regarding safety is often a barrier to this type of coordination.

In addition to state and federal laws that determine who can ride on school buses and who can bid for school transportation contracts, school bus vehicles have to meet stricter safety standards than public transit buses. School buses are designed to optimally protect school children, thus, "the measures taken to keep children safe in case of an accident make the buses difficult to maneuver and uncomfortable for adults." (Farber 2008, p 2). The National Highway Traffic Safety Administration established 36 Federal Motor Vehicle Safety Standards specifically for school buses in 1968 (Farber 2008). These regulations established school bus interiors that children have become very familiar with over the last fifty years. These interiors have narrow padded seats with high backs to minimize the effects of traffic accidents to children. Federal Motor Carrier Safety Standards impose additional requirements for school buses, including outside mirrors that allow a seated driver to see along both sides of the bus, additional

emergency exits, special fuel system requirements, and amber and red warning lights and stop sign to indicate when loading and unloading students (Kostyniuk, 2003. p 44).

Besides the lack of identifying flashing lights and yellow school bus marks which indicate when students are boarding and unloading the bus, public transit buses tend to force students to cross the street behind the bus rather than in front of the bus, as students do with school buses, unless at an intersection which has a traffic signal instructing pedestrians when to cross. Students must cross with no help from equipment, such as flashing amber lights and stop signs and limited help from the bus driver and other motorists (TRB 2002). Students must be prepared to take extra caution when boarding and unloading from public transit buses, particularly those accustomed to riding yellow school buses.

Other Considerations

While using public transit buses may be more cost efficient, students' ride time may vary considerably from yellow school bus times, potentially causing parents to opt for driving their children to school. Because the school district has limited control over stops and routes on public transit lines, students may have to take bus transfers in order to get to a bus line which will take them closer to school adding more time to the students' commute. School districts also have no control over mitigating risks like labor strikes, fare increases, and service changes which significantly impact students' ability to get to and from school.

Table 2 summarizes the benefits and barriers of transportation coordination between schools and public transit.

Table 2: Summary of the Effects of Transportation Coordination

Benefits of Coordination	Barriers to Coordination
– Expands fleet size & seating capacity – Utilizes/fills empty buses during non-peak hours – Shares facility, fuel, parts, equipment, maintenance, operational, management & administrative costs – Increases efficiency by reducing or eliminating duplicate services – Increases mobility & accessibility of underserved populations	– Contractual Agreements – Loss of management control/ Reluctance to change – Liability/Insurance and Legal/Regulatory issues – Strict vehicle safety standards on school busses & perceptions of "stranger danger" on public transit – Different ADA requirements – Mixing of students with general public

V. Are There Feasible Opportunities for Coordination in New Jersey?

New Jersey is the most densely populated state, with 1,195.5 persons per square mile according to the 2010 US Census. With enrollments in grades K-12 of 1,357,382 students in the 2010-2011 school year, there is a high demand for comprehensive school transportation services that reach students across New Jersey (NJDOE 2011). Given this high demand, 590 New Jersey school districts of varying sizes and demographics serving students across municipal and county boundaries are challenged to implement transportation coordination with various local governments and public transportation providers.

School bus use in New Jersey has limitations regarding who may ride the buses. According to New Jersey Statute 6A:27-7.8, which defines the use of school buses other than to and from school and school related activities, "the district board of education may permit the use of school buses, owned or leased by the school district, for the purpose of transporting senior citizens' groups to and from events within the school district or in any contiguous school district, for transporting handicapped citizens in any school district, and for transporting children and adults participating in a

recreation or other program operated by the municipality or municipalities in which the school district is located or the municipality in which any constituent school district of a regional school district is located. Such events shall include, but not be limited to, civic, social, cultural, educational, recreational, nutritional and health programs and activities." Essentially, this statute restricts using school buses to transport riders other than students, seniors, handicapped persons, and children and adults participating in recreational or other programs operated by the municipality. Unfortunately, this suggests that school buses cannot be used to transport the general public, for example, during school hours when school buses sit idle.

New Jersey has an established system for transportation coordination, leading to coordination amongst school districts at the county level but generally not including public transit agencies. New Jersey law requires that every county provide a Coordinated Transportation Service Agency (CTSA) for school districts to voluntarily join. CTSAs enable and encourage neighboring school districts to coordinate transportation services with each other to save costs and increase efficiency. CTSAs not only provide the channel of communication for neighboring school districts to coordinate with each other but they can also perform the management and scheduling responsibilities for coordinated districts in the county (N.J.A.C. 2010). Resident district boards of education can utilize a CTSA to transport students going to a special education or vocational school located outside of the resident school district, and to transport nonpublic school students whose parents received aid in lieu of transportation in the prior school year. CTSAs organize, schedule and provide transportation services in a manner which achieves maximum efficiency for participating districts. These services and method of payment are defined in an agreement between the CTSA and the resident district board of education. A CTSA may charge an administrative fee to participating school districts to cover the ordinary cost of doing business and determining routes and availability of service should be considered part of the ordinary cost of doing business and included in the administrative fees charged to district boards of education. CTSAs do not charge a per student application fee (NJDOE 2011).

With the CTSA system well-established in New Jersey and the aforementioned New Jersey statute which limits the use of school buses, school districts across the State may be reluctant to enter into any level of coordination with public transportation providers. On the other hand, coordination efforts with public transportation may be easier if the CTSA wants to coordinate with county-wide public transit systems, perhaps

at a regional level rather than at a county level, enabling coordination to be more comprehensive.

Selection of Interviews for Case Studies

To determine the level of coordination between school buses and public transit in New Jersey, the research team conducted informational interviews with stakeholders to elicit informal perspectives on coordination. The purpose of the interviews was not to obtain the coordination status of every school district or public transit agency in New Jersey as such research was outside of the scope of this project. Instead, the interviews focused on participants at various levels of involvement in coordination. Telephone interviews were conducted using a survey (See Appendix A for the full survey) to obtain information about transportation coordination efforts underway or considered, details about the coordination, goals achieved, barriers confronted, reactions from the affected communities, and lessons learned.

To understand the general perspective of the feasibility of coordination in New Jersey, state-wide agencies such as the New Jersey Department of Education, New Jersey Department of Transportation, School Transportation Supervisors of New Jersey, and NJ TRANSIT were contacted. These initial inquiries directed our research team to school districts who have engaged in coordination in the past or who are currently in a coordination arrangement.

The following organizations were selected to obtain information regarding transportation coordination between schools and public transit agencies:

- New Jersey Department of Education (NJDOE) Office of Student Transportation
- New Jersey Department of Transportation's (NJDOT) Safe Routes to School (SRTS) program
- New Jersey Transit (NJ TRANSIT)
- New Jersey School Boards Association (NJSBA)
- School Transportation Supervisors of New Jersey (STS)
- School transportation providers and/or supervisors currently in a coordination agreement or looking to enter into a coordination agreement.
- Public transportation agencies currently in a coordination agreement and/or looking to enter into a coordination agreement

- Para-Transit/Human Services Providers currently in a coordination agreement and/or looking to enter into a coordination agreement.

Drawing upon news articles and press releases, school districts in New Jersey reportedly interested in partnering with or currently partnering public transit agencies were also considered for interviews (See Appendix B for a listing of news articles).

VI. RESULTS OF THE INTERVIEWS

The research team conducted a total of eleven interviews, primarily via telephone, but occasionally in-person or via email. Those interviewed provided information about transportation coordination between schools and public transit in New Jersey. The team interviewed two representatives from School Transportation Supervisors (STS) of New Jersey, an organization which engages in programs of professional development and improvement, conducts and sponsors research concerning school transportation, and works with educational associations and federal and/or state governmental organizations in developing and improving school transportation management and administration in New Jersey. These participants not only provided valuable feedback about transportation coordination efforts in New Jersey but also recommended several school districts that were coordinating with public transit in some way. Based on recommendations from STS, NJDOT and NJ TRANSIT representatives as well as news articles and press releases regarding transportation coordination with schools and public transit, transportation personnel from the following school districts were interviewed: Bloomfield, Elizabeth, Jersey City, Montclair, Newark, Paterson, and Trenton.

Interviews were also conducted with representatives from HART (Hunterdon Area Regional Transit) Commuter Information Services, a Transportation Management Association (TMA) serving western New Jersey and TransOptions, a TMA assisting counties in northwest New Jersey. TMAs form alliances with non-profit, public/private sectors to assist local businesses, governments and schools with transportation services and to solve any transportation problems or issues. Both agencies worked with the schools in their county to coordinate transportation in an effort to increase efficiency and reduce costs. This section summarizes the information collected from the interviews regarding transportation coordination efforts throughout New Jersey.

School Transportation Supervisors of New Jersey

Interviews with two representatives from School Transportation Supervisors of New Jersey identified various transportation coordination services between school transportation providers and public transit agencies in school districts throughout New Jersey including in Elizabeth, Jersey City, Newark, Trenton and possibly Paterson. These school districts are utilizing NJ TRANSIT buses and train services to transport students to and from school instead of providing separate yellow school bus services.

When asked if expanding coordination efforts in New Jersey seem possible at this time, representatives from STS mentioned that this would be a viable option for densely populated, urban school districts that have an established public transit system. Smaller, more suburban school districts would have more difficulty coordinating with public transit because the existing public transit infrastructure may not be extensive enough to support students' needs nor financially attractive enough for the public transit agencies to coordinate with the school districts. Furthermore, they cautioned that public transit would only be sensible for older students, not elementary school students who are too young to travel public transit routes alone.

Safety and protection, particularly for the younger students, was a great concern for the interviewees. They were concerned about the consequences to students if they fall asleep on the public transit buses and trains, leave their belongings on a bus or train, miss a stop, and/or get lost. They mentioned that some districts may decide the safety risks outweigh any cost-savings benefits of using public transit and dismiss the option of coordination. Interviewees did not believe that NJ TRANSIT would be flexible or willing to change their procedures or stops for school districts unless it benefits them financially. The interviewees realize that cost savings for the school district could be fairly significant; however, exploring other areas of transportation such as sharing services with other districts and consolidating routes and stops may be a more feasible way to achieve transportation savings. They both mentioned that there are no resources currently in place to obtain information about transportation coordination other than talking with other districts who are currently working with public transit agencies, and that each school district is different and unique. Some parents and students may be in favor or already accustomed to using public transit, and some may be directly opposed to the idea because of the safety risks and inconvenience.

Bloomfield Public School District – Bloomfield, NJ

Bloomfield Public School District is located in Essex County and is comprised of 11 public schools, including eight elementary schools, two middle schools and one high school serving approximately 6,000 students. Upon reading an article about Bloomfield students using NJ TRANIST buses (Frankel 2012), the research team spoke with a representative from the transportation department at the Bloomfield Public School District. According to the interviewee, high school students and some middle school students are offered bus tickets on NJ TRANSIT to transport them to and from school. Approximately two years ago, courtesy busing was eliminated for high school and middle school students as a result of school budget cuts. Courtesy busing had been offered for high school students who lived less than 2.5 miles from school and middle school students who lived less than two miles from school. NJ TRANSIT bus tickets are purchased by the district at a discounted, bulk-rate price and are available for students to purchase at the high school and middle school. School busing service is still provided for those middle school students who reside more than two miles from school and high school students who reside more than 2.5 miles from school. The transportation coordination program with NJ TRANSIT is still new to the students and district. Thus far, there does not appear to be any major issues with the coordination, and the district is able to realize cost savings by eliminating courtesy busing as well as offering alternative transportation for the students who no longer receive bus services.

Elizabeth Public School District – Elizabeth, NJ

Elizabeth Public School District in Union county is the fourth largest school district in the State, comprising over 23,000 students, three Early Childhood Learning Centers, 24 Pre-Kindergarten through grade 8 schools and six high schools. With such a large student population, providing transportation services for the students is highly complex. According to a representative from the school district's transportation group, Elizabeth Public Schools District provides high school students, who meet the State's requirements of living more than 2.5 miles from school, with NJ TRANSIT bus passes. Approximately five or six years ago, the school district eliminated yellow school bus service for high school students in an effort to save costs. The estimated amount of cost savings is not only substantial but also bus coordination for the school district is much easier to manage without having to include the six high schools.

The process of coordinating student transportation on NJ TRANSIT buses has multiple steps. The district's transportation group sends the names of the eligible students each month to the secretary of each high school's principal who then completes the bus vouchers and distributes them to each student. The students must then go to the NJ TRANSIT customer service window to receive their monthly bus pass. NJ TRANSIT then bills the district based on a discounted, bulk-rate price. Because students transfer in and out of the schools fairly frequently, passes are distributed on a monthly basis in an effort to save costs. Unfortunately, because much of the responsibility lies with the students, they often lose their vouchers and/or their bus passes. If this occurs, the student must purchase a replacement pass for the full price at the NJ TRANSIT customer service booth.

According to the representative from Elizabeth, students and parents seem to accept using NJ TRANSIT although there was some resistance initially. Both, however, are reportedly pleased with the flexibility and availability it offers for students riding home in the evenings from sports and after school activities.

Jersey City Public School District – Jersey City, NJ

The Jersey City Public School District also faces the challenges of serving a large student population. As the second largest school district in the State, Jersey City Public Schools has 27,886 students at 39 schools, according to the district's website (2011). An employee in the transportation department of the district reported that Jersey City Public School District coordinates with NJ TRANSIT to provide students with bus and light rail tickets instead of providing separate school bus service. The district also organizes similar bus ticket programs, as they have with NJ TRANSIT, with smaller, local bus companies. The district buys the public transit tickets at a slightly discounted price and distributes them to students who are eligible for school bus transportation. Elementary school students (grades K-8) are eligible if they live outside a two mile radius of their school or if they live outside a 2.5-mile radius for high school students. Currently, there are approximately 2,200 students who receive public transit tickets instead of riding yellow school buses. Jersey City Public Schools has maintained this arrangement with NJ TRANSIT and public transit buses for over 25 years. With such an established program, feedback from parents and students has been positive, and the school district is especially pleased with the substantial cost savings as well as the environmental benefits of removing vehicles off the roads.

The public transit tickets are distributed at the beginning of the school year, but the district has had difficulty distributing the tickets in a timely fashion. Each year, the district must estimate how many tickets are needed, and additional tickets must be purchased if demand exceeds estimations. The district also faces the problem of students duplicating tickets, mostly affecting the smaller, public bus agencies because they lack the ability to produce more sophisticated tickets that cannot be counterfeited. Otherwise, the program has been a success and runs relatively smoothly every year.

In addition to the public transit ticket program, the district coordinates the use of their 47 school buses with 12 other school districts as well as the CTSAs from Essex, Sussex, Passaic, and Union Counties. The CTSAs enable Jersey City to transport students who temporarily moved out of their district (for example to group homes) but still wish to attend Jersey City public schools. They determine if Jersey City buses already serve their new/temporary addresses or if other districts can provide service to these relocated students. The Jersey City Public School District has been pleased with the transportation coordination from the different CTSAs and the convenience they provide in quickly providing transportation solutions toward unexpected issues. The CTSAs manage the quoting and bidding with the other school districts in their consortium for a fee which leads to economies of scale and cost savings for the school district.

Montclair Public School District – Montclair, NJ

An article by a Montclair High School student in the ***Montclair Patch***, the municipality's local newspaper, mentions alternate ways that students get to and from high school, including the option of riding the NJ TRANSIT bus. The article cited that instead of taking a yellow school bus home, many high school students take NJ TRANSIT buses. However, a majority try to avoid taking NJ TRANSIT buses because they arrive late and sometimes not at all (Rawley 2012).

A representative from the Montclair School District's transportation department reported that no formal coordination agreement exists with NJ TRANSIT or any of the public transit agencies. For the past few years, late buses or after school activities/sports buses have no longer been offered and high school students participating in after school activities and sports have to find their own way home from school. The school representative mentioned that while many students are driven home from sports and after school activities, some students must take public transportation when their parents are unable to pick them up at school because of work. Taking the NJ TRANSIT bus

home from sports and after school activities is a great option for high school students particularly when it is dark and parents are unable to give them a ride home. Students, however, need to be aware of when and how often the NJ TRANSIT buses run and the specific routes and bus stops in order to avoid getting on the wrong bus.

Newark Public School District – Newark, NJ

Newark Public School District is the largest school district in New Jersey with 75 schools serving 39,440 students (Newark public Schools 2011). For a district as large as Newark, managing transportation services for the student population is exceedingly complex. In 2009, the district spent over $28 million for student transportation services, or approximately 6.3% of total expenditures that year (NPS 2011). This relatively low proportion of expenditures on student transportation may be explained by the district's involvement in two types of coordination. According to an interview with a representative from their Office of Pupil Transportation, the Newark Public School District coordinates with NJ TRANSIT to provide bus fare for students in lieu of school bus service as well as coordinates all special needs transportation through the Essex County Educational Services Commission, the CTSA for Essex County.

The Newark Public School District has been offering students NJ TRANSIT student passes for over 20 years. The district buys these tickets directly from NJ TRANSIT at a slightly discounted price and then distributes them to approximately 2,500 regular public school students, 2,500 charter school students, and 2,100 non-public school students. NJ TRANSIT bus tickets for students, mostly middle and high school aged, are less expensive for the school district than separate school bus service, particularly for non-public school students who must be provided transportation or aid in lieu of transportation by the school district as required by New Jersey law. According to the Office of Pupil Transportation, the student bus ticket program has been extremely successful. Since the program has been in existence for over 20 years and is well established, students are accustomed to using NJ TRANSIT bus service, and many students even prefer to take the public transit bus instead of the yellow school bus. The Office of Pupil Transportation also noted that an unexpected occurrence of the program's success has been students' preference for public buses; a stigma against arriving to school in a yellow school bus, referred to by students as the "cheese bus," has developed among the students.

The Newark Public School District is also involved in coordination of their transportation for special needs students with the Essex County Educational Services Commission (ECESC). Under this coordination model, the ECESC uses various contracted vendors to supply transportation services for special needs students throughout Essex County, allowing students from other districts to be routed together with Newark students. Newark's school district pays a fee to ECESC, who then pays and contracts the private contractors. ECESC's ability to organize and consolidate routes for special needs students saves the district a substantial amount in transportation costs.

Paterson Public School District – Paterson, NJ

The Paterson Public School District, located in Passaic County, is the third largest school district in New Jersey comprised of about 40 schools and over 24,000 students. As is the case with Newark and Jersey City public school districts, managing transportation services for its large student population is time consuming and expensive. A representative from Paterson School District's transportation department noted that many of the high school students take the NJ TRANSIT bus to get to and from school. Also, some of the special education students who travel out of town to get to their school take the NJ TRANSIT bus. High school students who live further than 2.5 miles from school are provided transportation from the district. These eligible students are given NJ TRANIST bus tickets which are purchased at a discounted, bulk rate price by the district in lieu of separate school bus service. This saves the school district a significant amount of money. The students are accustomed to taking NJ TRANSIT since school bus service for high school students was replaced with NJ TRANSIT buses several years ago. There have been a few complaints from the students regarding taking NJ TRANIST such as bus drivers allowing regular passengers to board first before the students, filling the bus. Students have to wait for the next bus, causing them to be late for school. Some of the students do not like the hassle of having to make one or two transfers from their home to get to school, however, they like the convenience and flexibility of taking the bus home from sports and after school activities. NJ TRANSIT does not make any special or additional stops for the school nor do they run separate buses for the students even though the district has approached NJ TRANSIT regarding making some changes.

Trenton Public School District – Trenton, NJ

The Trenton Public School District located in Mercer County has 21 elementary schools, two middle schools and five high school programs serving over 11,300 students. A representative from the district's transportation department reported that Trenton Public Schools has a coordination agreement with NJ TRANSIT using buses to transport approximately 900 - 1,000 middle and high school students. Both public and charter school students who live outside the state limits (high school students must reside more than 2.5 miles from school, and students in grades K-8 must reside more than two miles from school), are eligible to receive transportation to school from the school district. If students live more than a half mile from the nearest NJ TRANSIT bus stop, they are eligible to receive a transfer bus pass which transports them to the main bus route to school. All eligible high school students must take the NJ TRANSIT bus, and middle school students have the option of either riding the NJ TRANSIT bus or a yellow school bus.

Middle and high school students are able to use NJ TRANSIT buses to and from school by displaying their student ID as well as the bus ticket to the driver. In contrast to Patterson, NJ TRANSIT provides a separate bus for Trenton students only and has added an extra bus stop at the high school for morning and afternoon routes. A separate bus and stop was made available to the high school students because general public riders did not want to ride on buses that were primarily filled with students, and since the volume of students riding during the morning and afternoon runs overcrowded the buses, a separate bus was added. NJ TRANSIT bus tickets are accepted at all times of the day that school is in session. In particular, students who participate in sports and after school activities can ride the bus home in the evenings.

The transportation department at Trenton Public Schools purchases the NJ TRANSIT bus tickets for students at a discounted, bulk-rate price - approximately a 25-30% discount - depending on how many tickets are purchased. Tickets are distributed to the students who qualify each month with the exception of September when bus tickets are mailed to the students at the end of August. Each month, students must pick up their monthly allotment of NJ TRANIST bus tickets at the high school.

According to the representative from the Trenton Public School's transportation department, coordination with NJ TRANSIT began approximately 15-20 years ago not only to save costs but also to simplify the management and scheduling of school bus

routes and stops. Because the area is densely populated and public transportation is reliable and accessible, coordination with public transit creates efficiencies. Transportation coordination with NJ TRANSIT saves the district about $450,000 a year without taking into account the costs of maintenance and depreciation of the buses nor the hiring and management of bus drivers and routes. Operating a separate yellow school bus service is estimated to cost approximately $650,000 and discount ticket purchases amount to about $200,000. This is a substantial amount of savings for the district, and there is also the added environmental benefit of removing unnecessary vehicles off of the road.

The process of handing out the NJ TRANSIT bus tickets to students is perhaps the most challenging aspect in coordinating services. Representatives from the school district's transportation department set up a table each month at the high school to distribute the tickets to the eligible students. They discovered that they could realize some savings due to "breakage" by distributing them monthly. Breakage is cost savings achieved when students do not pick up their tickets. The school district is able to control and monitor the tickets better – making sure tickets are not sold to other students and eliminating the use of tickets on days when there was no school such as holidays, breaks, and snow days. Students would either not pick up their tickets or pick them up later in the month allowing the school to only allot enough bus tickets to cover the remainder of the month. This constant monitoring of the bus tickets is arduous, however the savings are sizeable.

Coordination with NJ TRANSIT in Trenton meets the needs of the students, parents, schools and NJ TRANSIT; and feedback from parents and students has been generally positive. The transportation department from Trenton School District has developed a good working relationship with NJ TRANSIT over the past several years, and NJ TRANSIT has been helpful in accommodating the district's needs while not impacting the general public.

HART Commuter Information Services – Hunterdon County, NJ

HART (Hunterdon Area Regional Transit) Commuter Information Services is a Transportation Management Association (TMA) that serves western New Jersey. TMAs form alliances with private sector and non-profit organizations to assist local businesses, governments and schools with transportation services and to solve any transportation problems (TransOptions 2011). In 1998, HART TMA began a trial

service for the "Buses to Business" project in Hunterdon County to address the transportation needs of former special needs students. The main goal of the "Buses to Business" program was to provide transportation for special needs individuals who were former students and who participate in work placement arrangements.

The program was first advocated for by case workers who work with students with special needs. They noted that many of their former pupils were left without transportation after they reached the age of 23, when the schools could no longer consider them students. The school system invests a substantial amount of money in special needs students to ensure they can manage as contributing members of society, and employment placement is a large part of that goal. While the students are still in school, transportation is provided by the district, but once they "age out" at 23 years, transportation ends. Transportation is essential for retaining employment for many of them. Local public transit may not the best option to access their jobs since it may entail several transfers and stops far from the final destination. A local school board member spearheaded this project, seeing a persistent need for transportation for these individuals and an excess of school vehicles that are underutilized during the school day.

To allow these former students to ride school buses, a waiver was required from the New Jersey Legislature to permit non-students to ride public school buses. HART discovered that the concept worked rather well. Since these former students had been previously riding the school buses, there were no issues about travelling together with current students as they already knew each other. Participants paid fares to the school comparable to local transit fares, which helped to offset some of the costs. Bus drivers were already trained to transport riders with special needs.

There were a few complications regarding the coordination. School buses only operate according to the school calendar, so transportation was not available on holidays, breaks and snow days. Another challenge was the locations of employment placement for the participants. Jobs were carefully selected by a case worker based on the individual's needs and interests, and sometimes these jobs were too far of a distance for the school buses to feasibly travel without incurring significantly higher costs.

HART's trial program revealed the successes and limitations of providing transportation for special needs graduates. However, due to a lack of funding, the pilot program ended

in 2003 and no other attempts to reestablish this program have been undertaken. No other TMAs in New Jersey seem to have initiated a similar program.

TransOptions – Northwest New Jersey

TransOptions is one of eight TMAs in New Jersey which serves commuters, businesses, municipalities and schools in Morris, Sussex, Warren, Essex, Passaic, and Union counties (TransOptions 2011). An interview with a representative from TransOptions revealed that they coordinated transportation services for a private Catholic school in 2004 in order to improve the school's transportation services and reduce costs.

Morris Catholic High School in Denville, New Jersey had a school busing program that was highly inefficient and expensive. TransOptions used geographic information system (GIS) mapping software to determine bus routes that were running with few or no passengers. They were able to eliminate door-to-school service for some students and provide an alternate transportation route for them. These students would take a NJ TRANSIT train to the Denville Station along the Morristown and the Montclair-Boonton Lines. A school bus would pick up these students at the Denville train station and bring them directly to school. TransOptions also eliminated two bus routes and moved those students onto other bus routes streamlining bus services. The revised transportation services recommended by TransOptions were met with positive reactions from the school, students, and parents. Parents, who pay for transportation as part of tuition, were particularly pleased with the reductions in transportation costs.

Morris Catholic High School has not been in contact with TransOptions since the service was implemented in 2004, therefore a reevaluation of the school's transportation services may be necessary in the near future. TransOptions was satisfied with the outcome of this coordination since it resulted not only in cost savings but also in removing vehicles from the road and encouraging more people to use public transportation in their daily commute. Allowing students to become comfortable with public transit may facilitate the use of public transit as a viable transportation option throughout their lives.

VII. CONCLUSION

While not prevalent throughout the state, several of the case studies presented in this report effectively demonstrate that there is potential for coordinating and integrating school and public transportation services in New Jersey. The case studies highlighted different approaches to coordination. Before deciding on a particular approach, a certain foundation must be in place for coordination to be effective, and both agencies must realize benefits. Whether the benefits are increasing ridership, increasing revenue and/or decreasing costs, providing more comprehensive services, or any combination of these, the benefits must support the foundation for coordination. To achieve these benefits, the leadership of the participating agencies must display several characteristics. Most importantly, an understanding and willingness to accept compromises is vital. The trade-offs between the challenging process of implementing coordination and the risks associated with altering current practices should outweigh the anticipated benefits of transportation coordination.

Possible Roadblocks for Coordination in New Jersey

While transportation coordination between school districts and public transit presents many benefits, most notably financial advantages, for both the schools and public transit agencies, there are a few possible roadblocks for implementing coordination in New Jersey. Loss of control for agencies, limited use for school buses, and the presence and use of CTSAs by school districts are barriers that may hinder transportation coordination throughout the State.

Loss of Control

There is a risk of losing control over a segment of one's operation to achieve the gains presented through coordination. This may be a significant challenge in New Jersey, a state with a history of home rule that may impede efforts of working together. The Home Rule Act of 1917 N.J.S.A. 40:42 et. seq. states:

> *"In construing the provisions of this subtitle, all courts shall construe the same most favorably to municipalities, it being the intention to give all municipalities to which this subtitle applies the fullest and most complete powers possible over the internal affairs of such municipalities for local self-government."*

The perceived benefit of "home rule" is that people will have a smaller, more responsive government that preserves the character of individual communities and provides greater access to elected representatives. However, the large number of municipalities within New Jersey means that there could be a range of services that could be more economically delivered if some duplication in services were eliminated and services were shared over a larger population base. State programs to encourage shared services have not yet transformed the ways local governments do business. Many fear the laws that promote consolidation could possibly accelerate property taxes in the long run; and school districts that merge or regionalize may lose state aid. The tendency to avoid consolidation and hence, coordination in New Jersey is a significant barrier. For coordination to be successful in New Jersey, the advantages presented by increased efficiency, cost savings and/or increased revenue must substantially outweigh the procedural benefits of "home rule."

Limited Use of School Buses

Another barrier to transportation coordination is the limited use of school buses when not used to transport students to and from school, after school activities and field trips. New Jersey Statute 6A:27-7.8 states that district boards of education may only permit the use of school buses for the purpose of transporting senior citizens, handicapped citizens, and children and adults participating in a recreation or other program operated by the municipality. This statute severely limits the ability for school buses to be used to transport the general public during hours when the buses sit idle, thus restricting the ability to collect additional revenue for the district. School districts could attempt to seek waivers from the New Jersey Department of Education such as HART Commuter Information Services did in order to allow special needs individuals to ride school buses, although the rationale and revenue gained should be substantially strong and convincing to enable school buses to be used for purposes other than transporting students to and from school.

Presence of CTSAs

Another potential roadblock to coordination between school districts and transit agencies are New Jersey's Coordinated Transportation Service Agencies (CTSA). CTSAs enable and encourage neighboring school districts to coordinate transportation services with each other to reduce costs and increase efficiency. CTSAs not only provide the channel of communication for neighboring school districts to coordinate with

each other but they can also perform the management and scheduling responsibilities for coordinated districts in the county. Boards of Education can utilize a CTSA to transport students going to a special education or vocational school located outside of the resident school district as well as transport nonpublic school students whose parents received aid in lieu of transportation in the prior school year. CTSAs organize, schedule and provide transportation services in a manner which achieves maximum efficiency for participating districts. The CTSA system is already well-established and utilized in New Jersey. With this system in place, school districts may be less likely to consider entering into any level of coordination with public transportation agencies. On the other hand, positive experiences with the CTSA system may encourage a school district to be more open to the idea of coordination with public transportation agencies. There is also an opportunity for the CTSAs to coordinate with county-wide public transit systems and perhaps at a regional level rather than at a county level, enabling coordination to be more comprehensive.

Potential for Coordination in New Jersey

Despite these barriers, there is still potential for coordination between school districts and public transit which can achieve cost savings and efficiency. School districts in New Jersey have been utilizing public transit to transport high school and some middle school students to and from school for the past 15-20 years with a high degree of success. Through commitment toward innovation and change, coordination efforts can be explored and implemented, enabling further financial and environmental benefits.

Utilizing Public Transit for Students

The case studies documented in this report represent the state of coordination in New Jersey, presenting what has worked thus far and what is likely to continue into the future. The most common form of transportation coordination involves school districts offering NJ TRANSIT bus tickets to high-school students instead of providing them with a separate yellow school bus. This form of coordination was documented in Bloomfield, Elizabeth, Jersey City, Montclair, Newark, Paterson and Trenton. While these are very different communities, they are generally located in densely populated areas with high student enrollments and where an extensive public transit network already exists. Conversations with school districts have revealed that NJ TRANSIT avoids the school bus service market for a number of reasons related to safety, liability and regulations. NJ TRANSIT will operate selected “school” routes as discussed in the Trenton

coordination case study in order to avoid overcrowding along regular bus route services and to improve servicing for the general public. Under FTA rules, NJ TRANSIT is obligated to publish the availability of these trips on timetables and these trips must be open to the general public. But, NJ TRANSIT's policy does not allow for the establishment of any new or unique routes to meet the needs of students traveling to or from school, particularly if the routes are not along the existing operating routes. In Trenton's case, NJ TRANSIT operated a separate bus and route for high school students to improve customer service since the students were overcrowding the buses and regular passengers preferred not to ride with a bus load of students.

Understanding the position of NJ TRANSIT and recognizing the qualities of the communities in which this type of coordination has been effective, namely in densely populated areas with high student enrollments and where an extensive public transit network already exists, the opportunity for expanding service coordination in New Jersey appears limited. While this type of coordination will continue to be effective in densely populated urban areas, it may not be feasible in many suburban and rural communities that lack the expansive transit networks of New Jersey's urban centers. If a community has a public transit network that is established and runs along lines that stop at or near high schools and middle schools, perhaps they can be utilized as alternative transportation for students, such as the case in Bloomfield.

"Behind the Scenes" Coordination

Though not prevalent in the case studies from this report, the form of coordination that holds the most promise in suburban, urban and rural communities throughout the state of New Jersey is the "behind-the-scenes" type of transportation coordination or management, administration and physical stock coordination. These "behind-the-scenes" types of coordination are generally not controversial as opposed to options that involve mixing students with other transit passengers and may decrease costs and increase efficiency for the agencies. Management and administrative coordination takes place when time-consuming and costly operational functions such as driver background checks, drug screening and driver training can be shared by agencies, resulting in cost savings for agencies participating in the coordination. Physical stock coordination involves agencies combining purchases of vehicles, fuel, tires and parts to achieve savings through bulk purchase deals and agreements.

Branchburg and Readington Public School Districts in Somerville County, New Jersey share transportation services such as personnel, school bus facilities and maintenance costs. Since the school districts are neighbors, sharing services is economical. The districts were able to eliminate 19 bus routes during the first year by removing redundancies and consolidating routes. Both school districts also benefit from a joint pool of substitute drivers and spare buses. Sharing maintenance and storage costs maximizes efficiencies and decreases expenses. The merging of the two operations saves each school district approximately $70,000 every school year. More school districts should explore this option of transportation coordination with neighboring school districts and municipalities since it does not directly impact the students nor does it entail using school buses other than for transporting students.

Innovative Coordination

While expanded service coordination in dense urban areas and enhanced "behind-the-scenes" coordination in all areas are the most likely sources of enhanced school and public transportation coordination in New Jersey, there is still opportunity for innovation. This innovation can be seen in the example case study from HART TMA. The main goal of HART's "Buses to Business" program was to provide bus transportation for special needs individuals who are in work placement arrangements. The program was advocated by case workers who noted that many of their pupils were left in a transportation crisis after they reached the age of 23. Once an individual reaches the age of 23, the school district could no longer consider them students nor provide them transportation. Transportation is essential for these former students to maintain their employment, an important part of allowing them to continue as contributing members of society. Seeing a persistent need for transportation for these individuals and an excess of school vehicles that were underutilized during the school day, HART solved a problem and better utilized existing vehicles. In times of continued dwindling federal and state aid, coordination between school and public transit are likely to continue and expand. With both school districts and public transit agencies under constant pressure to save money and cut costs, the case for critical thinking and innovative problem solving will only continue to strengthen.

While less likely to be feasible in suburban and rural communities in New Jersey, the case study offered by TransOptions TMA offers an example where Transit vehicles could be used to transport students to school using existing routes. In this example, the TMA worked with a private school to determine bus routes that were running with few or

no passengers. They were able to eliminate door-to-school service for some students and provide an alternate transportation route for them. These students would take a NJ TRANSIT train and then a school bus would pick up these students at the train station and bring them directly to school. In the case of private schools or regional schools in less dense suburban and rural communities where students are coming from a much wider geographic area, there is potential to make use of existing public transit lines for all or part of the trip to school. For private schools pulling from a large region where parents pay for transportation as part of their child's tuition, this solution may prove to be a popular option as parents and private schools will directly benefit from the reductions in transportation costs.

Although transportation coordination currently exists in New Jersey, primarily in the form of service coordination where students use public transit to and from school in dense, urban communities, there is potential for more coordination. The important benefits of cost savings, increased efficiency and mobility as well as improving the environment warrant pursuing more coordination opportunities. The benefits of coordination, however must override the barriers to coordination, and all parties must be willing to compromise in order for transportation coordination to be attempted, implemented and to be successful. In times of continued declining federal and state aid and higher demand for more services, coordination between school and public transit should be encouraged, and the need for transportation agencies to apply critical thinking and innovative problem solving will be essential.

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