



MAGIC Suburban Mobility Transit Study - Phase II

Utilizing School Buses for Public Transportation

September 2012

Fixed-Route Service
Transportation Hub
Demand Responsive Service
Service Coordination
Commuter Shuttles
Fitchburg Line
Volunteer Drivers
Lexpress
Commuter Shuttles
Multi-Modal Transportation

Council on Aging
Park & Ride
Council on Aging



Minuteman Advisory Group on Interlocal Coordination

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Executive Summary

The Minuteman Advisory Group on Inter-local Coordination (MAGIC), a subregion of the 101 cities and towns in the Metropolitan Area Planning Council (MAPC) region, requested a study to explore the opportunities and challenges of utilizing school buses as a means of public transportation.

The main objectives of the study were to:

- Identify the potential opportunities provided by combining pupil and public transportation
- Understand the potential challenges to the school district and municipality that may arise from combining pupil and public transportation
- Research federal and state regulations that may encourage or prevent combining pupil and public transportation

As part of this effort, MAPC reviewed several research papers which investigated the opportunities and issues with combining pupil and public transportation. These research papers highlighted best practices and case studies from across the United States and identified three types of combined service models:

1. Using existing public transit vehicles to take children to and from school, mostly in urban settings
2. Combining an existing public transit system with an existing public school bus system to form a single transportation system that can be used by the public and by students
3. Allowing the public to use an existing school bus system as a means of public transportation

Municipalities in the MAGIC subregion would likely consider the third service model example of opening up existing school buses for use by the general public. In looking at case studies and research on this type of service model there are several factors that school districts and municipalities should take into consideration before attempting to combine services. These key factors include:

- Lack of public transportation
- Existence of human service agency transportation
- Operations
- Funding
- Legal and regulatory
- Safety and comfort

Examining and understanding the opportunities and challenges under each of these key factors is an important first step in determining whether or not a combined service model is the appropriate transportation solution for the municipality. Along with the logistical, safety and operational challenges of a combined service, funding can be limited in these types of models. Traditional transit funding sources and traditional school transportation funding sources are typically separated to fund each on their own and not as a combined service. The municipality and school district should look at their current funding sources and determine if combining them would impact future funding.

Finally, federal and state regulations have been set up for the protection of both school children and the general public when it comes to transportation on buses. Regulations that govern the design and functionality of school buses increase safety for school children at the expense of comfort for adults. Seats are not designed for adults, school buses lack air conditioning, and school buses are also not designed to meet the requirements of the Americans with Disabilities Act. Some states have looked into a hybrid bus design that meets safety standards for school children and also accommodates the needs of disabled individuals.

If a school district and municipality were to move forward with a plan to open up school buses to the general public, both entities would need to fully understand all the challenges and implications of creating such a system. It is critical to understand the funding components and commitments, the need for close monitoring and coordination of the system, and the actual and perceived safety issues with placing adults and children on the same vehicle.

Chapter 1: Introduction

As a continuation of the work completed under the MAGIC Suburban Mobility Transit Study, the Minuteman Advisory Group on Interlocal Coordination (MAGIC), a sub-region of the 101 cities and towns in the Metropolitan Area Planning Council (MAPC) region, requested and funded a Phase II study. Phase II is a follow-on to the recommendations made under the first Transit Study and provides additional research and analysis in the following topic areas:

1. *Inventory of Ridership and Costs for Public Transportation* - MAPC will inventory the number of rides provided on public transit and human service transportation systems in each community. MAPC will also inventory the costs by community for receiving and providing these services.
2. *Council on Aging Research and Recommendations* - MAPC will collect and analyze data from each town's Council on Aging office to determine the levels of service provided, costs of service, and trip origins and destinations. Recommendations will be made about the opportunities and challenges of moving toward a shared-service model which could reduce costs, provide more trips, and increase service areas.
3. **School Buses as Public Transit - MAPC will research the opportunities and challenges of implementing policies allowing public school buses to be used for public transportation. MAPC will research Massachusetts policies to determine if sharing uses is possible under state or local law.**
4. *Transportation Management Association Assessment* - MAPC will analyze the potential for creating a TMA in the MAGIC subregion and beyond to connect employers to transportation alternatives.

Study Participants

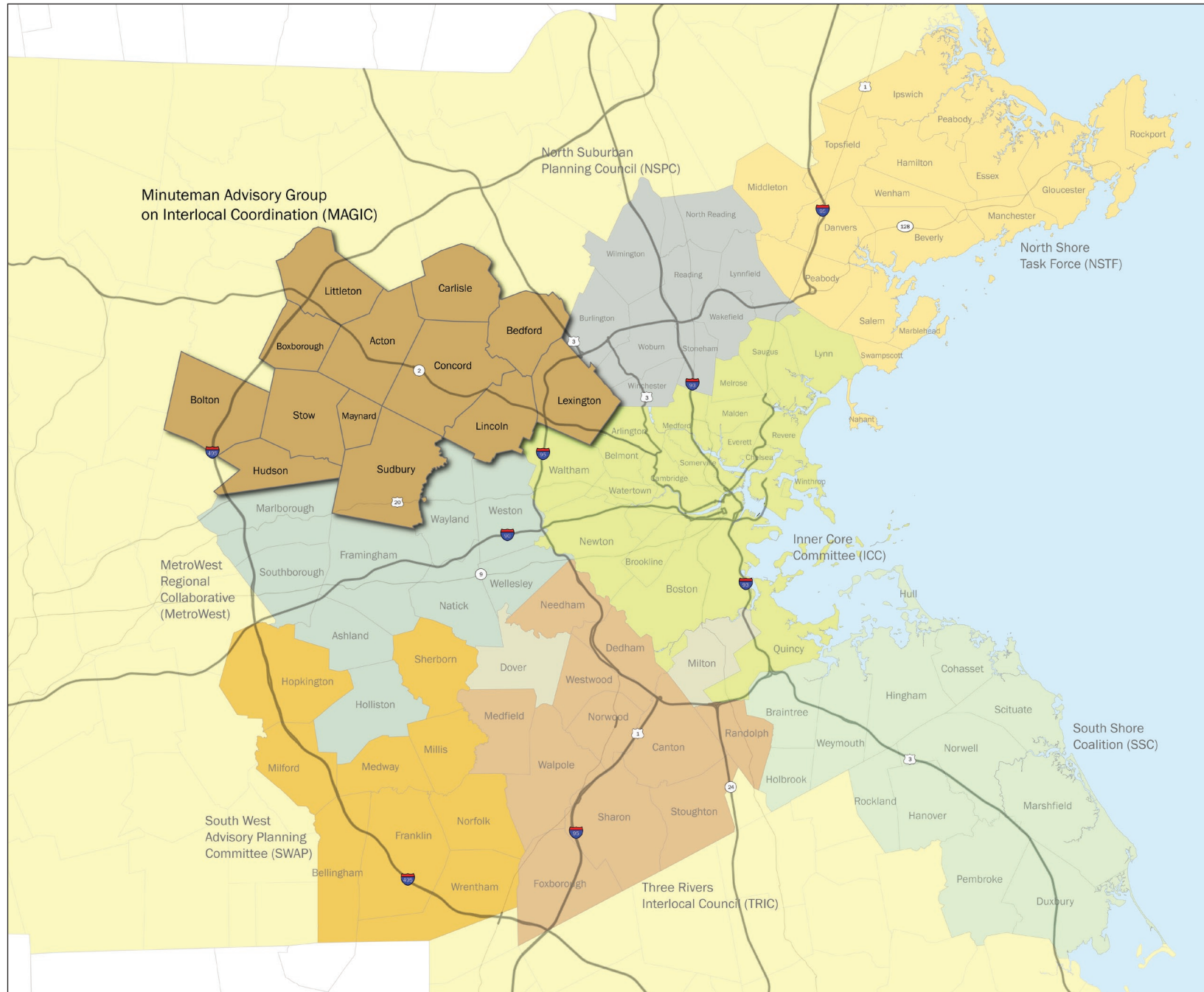
The study area consists of thirteen municipalities stretching from the Route 128/I-95 corridor west to the I-495 corridor, and involves four Regional Transit Authorities (shown in Figure 1.1). Each municipality participated in this mobility study through a working group. The Working Group included at

least one municipal representative (i.e. town planner, town administrator) who provided a working knowledge of municipal transit services and needs. A list of municipalities and the corresponding representatives are shown in Table 1.1.

Table 1.1: Working Group Representatives

Municipality	Working Group Member	Title
Acton	Fran Osman	Acton Transportation Advisory Committee
	Doug Halley	Public Health Director
Bedford	Glenn Garber	Planning Director
Bolton	Jennifer Atwood Burney	Town Planner
Boxborough	Elizabeth Hughes	Town Planner
Carlisle	George Mansfield	Planning Administrator
Concord	Marcia Rasmussen	Director of Planning and Land Management
	Jennifer Burke	Planning Director
Hudson	Michelle Ciccolo	Director of Community Development
	Jeanette Rebecchi	Transportation Services Coordinator
Lexington	David Kucharsky	Town Planner
	Chris Reilly	Town Planner
Lincoln	Chris Reilly	Town Planner
Littleton	Keith Bergman	Town Administrator and Current MAGIC Chair
Maynard	Michael Sullivan	Town Administrator
Stow	Karen Kelleher	Town Planner
Sudbury	Jody Kablack	Director of Planning and Community Development

Figure 1.1: MAPC Region and the MAGIC Subregion



Chapter 2: Background

Pupil transportation is common in one form or another to every school district across the United States. Whether a child is part of a walking, driving or busing district, transportation to and from school is an important part of a child's school day. Since a majority of school districts across the U.S. transport children using school buses, the idea of utilizing those school buses as a form of public transportation creates challenges with mixing public transportation and pupil transportation. There have been three main areas of integration tested throughout the country over the last several decades:

1. Using existing public transit vehicles to take children to and from school, mostly in urban settings
2. Combining an existing public transit system with an existing public school bus system to form a single transportation system that can be used by the public and by students
3. Allowing the public to use an existing school bus system as a means of public transportation

A majority of the case studies and successes have occurred under the first two examples listed above. The more difficult integration is the one which is of interest to MAGIC members; allowing the public to use existing capacity on school buses as a means of public transportation. Much of the success with the first two options occurred because existing public transportation systems were in place and children were already using it to travel to after-school jobs, events, friend's houses, the movies, etc. A certain level of comfortability existed making the transition to combining pupil and public transportation less of a challenge. In cases where a public transportation system, particularly a bus system, does not exist, the perceived safety and institutional challenges are much more difficult to overcome because parents and children are simply not accustomed to sharing a system for public and pupil transportation.

When it comes to combining public and pupil transportation, projects that focus on integrating older pupils with adults tend to have a higher success rate than projects seeking full integration of pupils of all ages with the public. Integrating high school age children with adults has proven to be

a successful model, and in a few cases middle school children have also been included. With elementary school children there are often perception barriers among the general public, especially parents of young children, about the potential safety issues of combining young children and adults on a school bus. More safety measures have to be taken in these instances like education and training for children, and placing bus monitors on board to help the driver monitor activity on the vehicle. There are many challenges to combining pupil and public transportation, but perceived safety issues can be one of the more significant challenges and one that is more difficult to address through policy decisions or funding changes.

Our review of national research revealed a number of key factors faced by communities and school districts that have tried to combine pupil and public transportation. These key factors¹ include:

- Lack of public transportation
- Existence of human service agency transportation
- Operations
- Funding
- Legal and regulatory
- Safety and comfort

The following sections of the report explain in more detail the opportunities for combining services and the challenges most often met by agencies that are considering a combined transportation service system for pupils and the public.

¹Transportation Research Board, TCRP Report 56: Integrating School Bus and Public Transportation Services in Non-Urban Communities, 1999.

Chapter 3: Potential Opportunities and Challenges

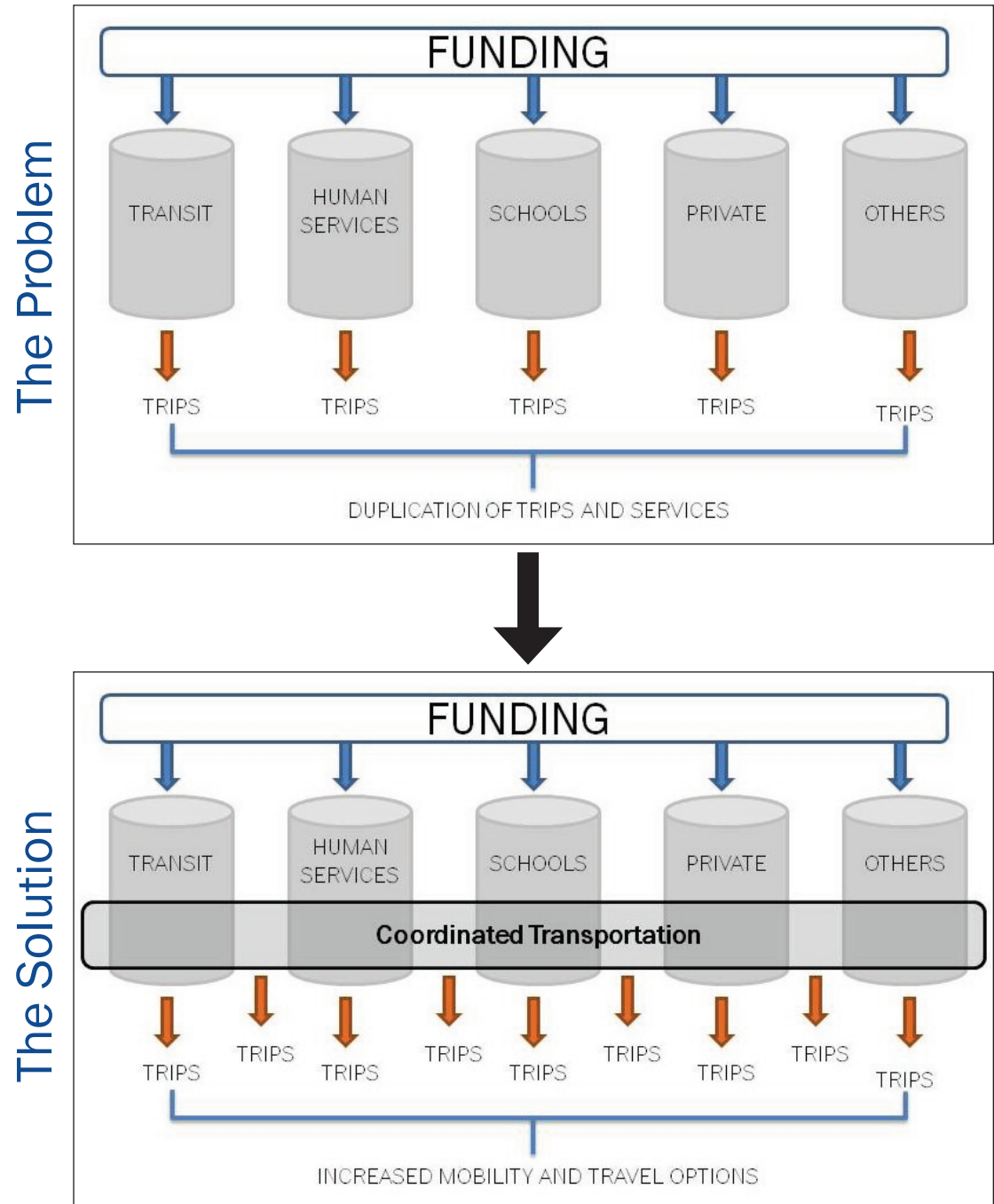
Within the MAGIC subregion there are several different public transportation agencies working to move people from place to place. These include traditional transit agencies, human service transportation agencies, schools, businesses, and non-profits. All these agencies are moving people throughout the day to various destinations often making similar trips at the same time with limited cross-communication.

As shown in the graphics to the right, the solution to this lack of communication is a more well-coordinated transportation system where funding is combined when possible and duplicative trips are reduced through the use of central dispatches and coordinated schedules. The idea of combining services may sound simple on the surface, but administratively can be quite challenging. A critical factor to success is communicating to service agencies the “what’s in it for me” factor.

For municipalities and regional transit agencies concerned with funding allocations and shrinking resources, combining services can sometimes save money by making systems more efficient, sharing employees, and collecting more fare revenue by combining trip purposes and the clients served. Human service transportation agencies could be better served by a shared dispatching system, shared drivers, shared vehicles, and the ability to serve more riders and more destinations. Private sector companies providing transportation could offer additional services to their employees if a coordinated transportation system were put in place allowing employees to use both public and private commuter shuttles to get to and from work.

The identification of the “what’s in it for me” factors are critical to getting the right stakeholders around the table and talking

Figure 3.1: Redundancy Issues and Coordinated Solutions



Washington State DOT, *Building a Community Bus: Guide to Coordinating Pupil and Public Transportation*, December 2004

about ways in which the current transportation system could be improved by thinking outside the traditional funding and service silos in which many operate today.

Costs of School Transportation

The costs to school districts for transporting students is a significant factor in annual budgets, especially for local school districts that do not receive state reimbursements for transportation. According to our analysis based on costs provided by the Massachusetts Department of Education, school transportation costs for students across the 13 MAGIC towns approached \$15 million in fiscal year 2011² not including the \$4.5 million in state reimbursements for regional school districts. The cost to local school districts (those whose school district boundaries are within their municipal boundaries) made up about \$10.6 million of the \$15 million total.

The money that is spent on school bus transportation is significant, especially when one considers the rolling stock sits idle for large portions of the day and on weekends. The amount of spending would also warrant municipalities to question whether this money could be used to help support a more inclusive pupil/public transportation system. Our research turned up a number of factors that should be considered when looking at the feasibility of opening up pupil transportation to the general public. The following key factors can be used to help uncover the “what’s in it for me” talking points and make note of potential challenges that could inhibit an effort to combine pupil and public transportation.

Key Factor #1: Lack of Public Transportation Services

Many suburban and rural locations across the U.S. have very limited access to public transportation options. In 2011, the Brookings Institute found that residents in metropolitan regions could only reach about 30% of the jobs in their region via transit in 90 minutes or less. This problem is compounded for employees in low -or middle-skill jobs where only

a quarter of jobs were accessible by transit in 90 minutes or less³. In the MAGIC subregion, traditional commute flows to the Boston area for employment are accessible using the Fitchburg commuter rail line, but with nearly 50% of commute trips taking place within the subregion there is a challenge with commuting between municipalities.

Human service transportation agencies like Councils on Aging have growing challenges meeting an increased need for senior and disability transportation as the number of senior citizens increases with the retirement of the baby boomers. Councils on Aging are having to meet increased demand with level or decreased funding streams, which could leave many seniors isolated and unable to get to medical appointments or attend social gatherings.

The increasing number of after-school activities that children are attending can put a strain on households where both parents are working or households with access to one or no vehicles. Transportation options for kids to get to sports practices, music lessons, volunteer activities, and after-school jobs is very limited in the subregion. Typical “late buses” will only transport kids from school to home and are not available to take kids to other non-school related activities. This places the onus on parents to adjust their schedules to provide opportunities to their children.

The idea of utilizing school buses as a form of pupil and public transportation has potential benefits for the municipality, private sector businesses, the school district, and the residents of the community. Commuters could potentially use it as a connection from rail stations to job centers, the elderly could use it as another option for shopping and medical trips, and students could use it to get to after-school jobs or home after practices and events.

Opening up school buses to the public for general trips could help provide added service to businesses and residents in a community without having to purchase new vehicles and implement a completely new transit service. School bus transportation could potentially cut down on the

²FY 2011 School Cost Data Provided by Mass. Dept. of Education.

³Brookings Institute, Missed Opportunities: Transit and Jobs in Metropolitan America, 2011.

number of duplicated trips during certain times of the day and make use of an existing transportation resource that may be sitting idle during the middle of the day when children are in school.

A firm understanding by participating entities that there is a clear lack of transportation services and that there are particular ways this type of transit solution could benefit them is a key first step.

Key Factor #2: Existence of Human Service Agency Transportation

In many suburban and rural areas, human service agencies are some of the only transportation providers and operators. Their services typically cover senior citizens, disabled individuals, and low-income individuals (workforce participation or Medicaid recipients). Human service agencies offer interesting opportunities for potential collaboration for the following reasons:

1. The times that students and human service clients are typically transported are complementary
2. School bus and human service agency vehicles can be complementary in size and degree of accessibility, especially if schools are utilizing para-transit bus service along with their traditional school buses
3. Some human service agencies have transportation funding available but would prefer to not be in the transportation business

The clients served by human service agencies may be more willing to ride along with students on vehicles than are other users. There could also be opportunities to coordinate the joint funding of maintenance, fuel purchases, the sharing of administrative staff, etc. In the end, communities considering combining transportation services should consider transportation users that share common and complementary travel times, destinations, and purposes. For communities considering a combined pupil/public transportation service, human service clients may be a good first step when piloting the service.

Key Factor #3: Operations

The operating structure and plans for running a combined pupil/public transportation service may be the most challenging piece to organize and implement. There needs to be a common understanding held by the school district, municipal officials and the public about service standards, vehicle standards, governance structure, and the regulations for combining these services. This section explains some of the key factors which need to be understood and agreed upon before moving forward with this joint service.

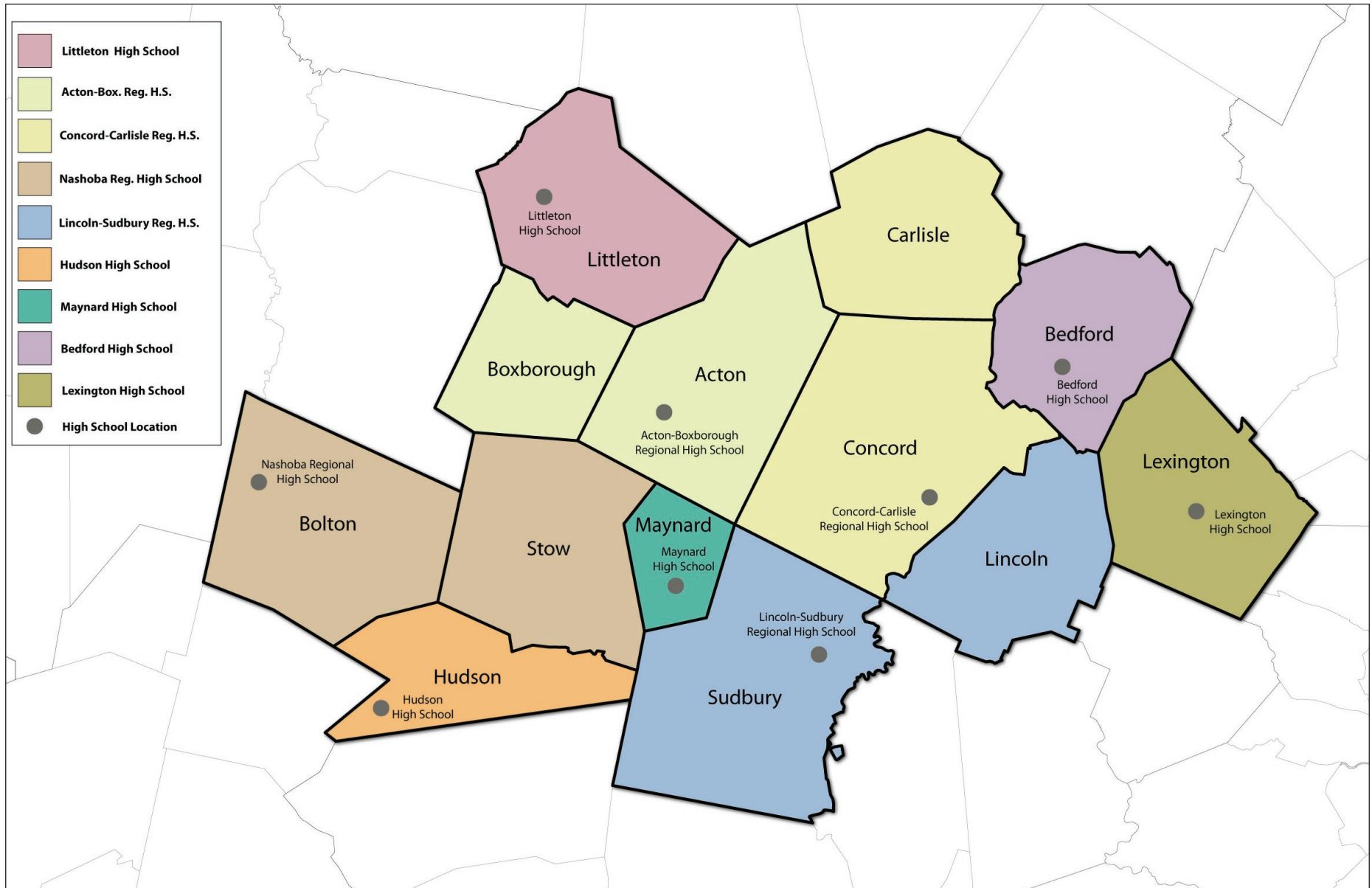
Servicing Different Types of Schools

The MAGIC subregion has both local and regional schools which creates an interesting situation when trying to utilize school buses as public transportation. If local school buses are used to take elementary and middle school students to school and regional buses are used to take high school students to school, a decision would need to be made as to which set of buses would be best for the combined transportation service. In the cases where regional school buses are used, it would require the agreement of more than one municipality and the school district to provide the combined service. Since the more successful cases of combined service (absent a regional transit authority) primarily targeted high school bus service, the issue of local and regional schools should be of particular interest in the MAGIC subregion. Figure 3.1 shows the towns in the subregion and whether they are part of a local or regional high school system.

School Transportation Providers

School transportation is usually provided in one of two ways: by the school district itself using their own buses and drivers or it is provided by a third party contractor hired to provide the transportation service. Municipalities interested in a combined service need understand who provides their school bus services. If it is a third-party provider, the municipality should know when their contract expires and what it would take to either switch to a municipally run service or get the contractor to consider a combined service model. If a school district does have a third-party contractor providing school transportation, it could provide an opportunity to structure a longer-term contractual arrangement for the provision of the combined service.

Figure 3.2: MAGIC Subregion and Public High School Locations



Labor Arrangements

If the school district and the municipality have labor agreements in place with drivers, maintenance workers or administrative staff regarding hours, pay rates and work rules, a change in transportation services would likely result in changes to the existing labor agreements. If existing bus drivers are under a part-time work agreement, moving to a full-time driving schedule could result in labor negotiations and added cost to the district and/or municipality.

Vehicle Availability and Routing

School buses used for pupil-only transport are traditionally used during the morning and afternoon peak hours, Monday through Friday. This busing schedule leaves the vehicles available for early morning, mid-day, evening, and weekend use. Normally, buses sit idle during these times with the exception of a possible field trip use or the occasional chartering by an outside organization if allowed by the school district. These idle times during the day are what lead communities to consider a combined pupil/public transportation system. Seeing this large, often municipally-owned, asset sitting idle provides the incentive to think more creatively about how to better utilize these buses.

While the number of idle hours for buses can be significant, the hours when buses are being used coincide with traditional commuting hours. Commuters are one user group that could greatly benefit from opening up school buses to the public with routes designed to connect to commuter rail stations and large employment centers. In order to accommodate both the public and pupil riders, some school districts that have combined services have created flexible bell times at schools. School districts can create staggered start and finish times for certain grades in a school to free capacity for commuters in the morning and also stagger service for late buses in the evenings for commuters. Flexing schedules also lessens traffic impacts at schools by not having all the children dropped off at the same time.

If the goal of a combined service is to provide fixed-route transit service for general public users, these routes would have to be closely aligned with the normal school bus routes to ensure children are being picked up and dropped off consistent with the school district's standards. Towns should also look at whether or not children are picked up in a door-to-door type

service or are children required to walk to a bus stop for pick up. If the town has door-to-door service, this could add significantly to the trip length and deviate the route too much for a public rider to get to their end destination in a timely manner.

Maintenance

The additional use of school buses to support public transportation will place more wear-and-tear on the vehicles resulting in the need for more on-going maintenance. The growth in maintenance needs could place added strain on the maintenance crew creating the need for more coordination and the hiring of more employees, not to mention the added cost of parts and the work of maintaining the vehicles. There would also need to be discussions about who would maintain the vehicles, the school district or the municipality, and where the maintenance would take place.

Key Factor #4: Funding

Funding, especially the prospect of saving money, is often a primary driver for investigating the feasibility of combining transportation services. This is especially true given the current economic climate and tightened municipal budgets. Funding has been used by some as a leverage point to begin the discussion of integrating school and public transit in locations where both agencies already exist. In the case of the MAGIC subregion, where one singular public transit agency does not exist, the funding question takes a different spin becoming one of potential cost increases to the school district and/or the municipality.

Challenges with Costs

In a majority of the successful cases where pupil and public transportation were combined, a region, county or municipality were already using both school buses and public transit buses to provide transportation services. In these cases, redundancy in service area and serviced populations were seen as a potential opportunity to combine these services and reduce costs and redundancy. Unused capacity on either the school buses or the public transit buses (depending on the case study) was used to accommodate both pupils and the public. By combining the two service types, vehicles were taken out of service

saving money on maintenance, fuel and insurance, fewer drivers were needed, and fewer administrative staff were needed bringing down the costs of service.

Of the three types of combined pupil/public transportation options mentioned in Chapter 2, the service where school buses are opened up for use by the general public tend to see cost increases and challenges with funding streams. Utilizing school buses as a form of both pupil and public transportation has the potential to drive up costs for service provision. When considering this combined service, areas where costs could increase include:

- *Administration* - Combining pupil and public transportation where existing public transportation services and routes do not currently exist will add to the administrative work up front to determine routes and scheduling. This could result in the need to add a full time transportation coordinator above and beyond what a current school transportation coordinator may be able or willing to do. There will also be added administrative costs for school district and municipal staff who will need to monitor the system over time, seek funding sources, manage questions/complaints from parents and the public, etc.
- *Bus Drivers* - Depending on the plan for the transportation service, the work hours for drivers could be expanded from a part-time employee to a full-time employee. If the service plan results in full day fixed-route bus service, the school district and/or municipality will need to employ full-time drivers which could add significantly to the cost of the current pupil service. There may be cases where drivers are already paid for a full day of work even though they are currently driving only in the morning and afternoon. The training and testing requirements for school bus drivers and public transportation drivers are also different. School bus drivers must often pass added background checks and go through additional driver training because of their close interaction with school-age children. Some of the case studies on this topic have also noted the need to have bus monitors to watch over the children on the bus. If

bus monitors need to be hired (in some cases they are volunteers) this would also add to the cost.

- *Fuel* - If buses will be running all day or serving additional routes and destinations than they are currently serving for the school population, added fuel costs are likely to be incurred. Although money can be saved through programs like bulk fuel procurements, fuel is a very costly piece to running a public transportation system.
- *Maintenance* - With the increased wear-and-tear on school buses resulting from added service hours and mileage, it is likely that maintenance costs will increase. The more the buses are used, the more preventative maintenance and repairs will need to be completed.
- *Insurance* - Depending on how the insurance policies are currently set up by the school district and municipality, adding different users to the school bus system may increase the cost of insurance. The school district or municipality may need additional coverage which could increase premiums and costs.
- *Cost Sharing Agreement* - An agreement would need to be established in advance of this type of service to determine how costs and revenues would be accounted for between the school district and the municipality. A split could be used where the schools pay their current costs (based current student ridership) and the municipality picks up the entire added cost of transforming the system to accommodate the public. The cost agreement could be reviewed annually to adjust for changes in student population and use.

Federal Funding Streams

Federal funding through the Federal Transit Administration (FTA) is used almost exclusively for funding the capital and operational costs of regional transit agencies and not for school bus transportation. In the case of the MAGIC subregion it is likely this funding stream would not be an issue because there are no regional transit authorities running fixed-

route services with larger buses located solely within a town or within the subregion. The MBTA has limited fixed-routes in Lexington, Bedford and Lincoln and the LRTA has a short piece of a fixed-route in Littleton, but it's likely that neither RTA would engage in the purchasing or operation of a pupil/public transportation system.

Another issue to be aware of is that under U.S.C. 5323(f) and 49 CFR Part 605, the federal government regulates the use of federal transit funding assistance by stating, *“recipients of federal transit assistance may not engage in school bus operations exclusively for the transportation of students and school personnel in competition with private school bus operators unless qualified under specified exemptions. When operating exclusive school bus service under allowable exemption, recipients may not use federally funded equipment, vehicles or facilities.”*

This regulation pertains primarily to federally assisted agencies using FTA funds for public transportation and seeks to minimize the use of federal transit funding to support a service that may be available through a private sector vendor. If a system was put in place that combines public and pupil transportation, the administrators of the program would want to make sure they are not putting other FTA funding in jeopardy. Other grants that come through federal agencies may also not apply to a combined public/pupil transportation system because of grant restrictions which may not incorporate unique uses like a combined system. It is likely that a combined system in one or more MAGIC communities would rely heavily on local resources for funding the combined system due to the unique nature of this idea and the fact that very few models have succeeded across the U.S.

State Funding Streams

The primary state funding stream for pupil transportation comes through the annual reimbursement program approved by the Commissioner for Education in November of each year. Towns are reimbursed for appropriate expenses related to the transportation of pupils in a lump sum based on a per annum amount per pupil. Under Chapter 71 Section 7A of the Massachusetts General Laws, there are no written

regulations about reimbursements being impacted by opening up school transportation to the public but this could be a case where the Legislature has not come across such a request from a school district or municipality. In any case, the town's legal counsel should be consulted to determine if combining pupil and public transportation would impact funding reimbursements at the state level.

Section 7A also talks about prevailing wages for the payment of anyone employed under a contract to provide school transportation services. Any city or town having a population over 16,000 shall request the commissioner of labor and industries to determine the rates of wages to be paid to each person to be employed by the bidder under the approved contract. This provision could impact costs associated with providing school transportation where additional drivers need to be hired to expand the service to the general public.

Section 7B discusses the ability of a regional transit authority to be reimbursed by the state on a per-student formula basis for providing transportation to school children as part of a traditional public transit system. If a regional transit authority were transporting students from a MAGIC community to the local school, as long as the student was further than 1.5 miles from the school, they may be eligible for reimbursement. This differs from the situation that the MAGIC communities may consider setting up which is not the establishment of an RTA to support school services, but instead a system where school buses are open for public transportation.

Section 7C in the General Laws discusses the use of state funds to purchase buses or operate a bus system that is solely intended to serve students if a private company is available and would provide the service at reasonable rates in conformance with applicable safety standards. This section of the general laws is very similar to the federal regulation limiting FTA funding as discussed in the previous section.

Opportunities for Revenue

While it's likely the municipality and school district may not see any

direct cost savings from creating a joint service for public and pupil transportation, there is the chance that the municipality would receive revenues from fares collected to help offset some of the service costs. Given the lower population densities of many communities in the MAGIC subregion and the challenges noted by other case studies of getting the public to ride on school buses, the potential revenues generated from using school buses as transportation would likely be small.

Key Factor #5: Legal and Regulatory

The rules around funding for both pupil and public transportation restrict how funds can be allocated to pay for public transportation if school uses are a significant part of the overall ridership structure. There are also federal and state regulations that guide the use and design of vehicles used for pupil transportation. These regulations provide protections for disabled individuals riding public transportation and for students riding school buses.

Federal Law: Americans with Disabilities Act

The Americans with Disabilities Act (ADA) gives civil rights protections to individuals with disabilities. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, State and local government services, and telecommunications. ADA accessibility regulations for transportation pertain directly to public transportation agencies and their vehicles to ensure the designs, dimensions and functionality provide equal access for able-bodied and disabled individuals. School buses are exempt from ADA regulations and do not have to be designed to accommodate disabled individuals. However, there are separate federal regulations like the Individuals with Disabilities Education Act (IDEA) that guide transportation and access for school children with disabilities.

Since ADA does not apply to the design and accessibility of standard school buses, they are not designed with features like wheelchair lifts or ramps, non-slip aisles, floors and steps, aisle widths that accommodate wheelchairs or walkers, priority seating, handrails, and adequate lighting. This design shortfall will make it difficult for school districts and

municipalities to open up school buses for public transportation use. If the school buses are used primarily for the transportation of school children, and opened up to certain populations for public transportation (senior citizens, low-income workers, etc.) it may continue to be exempt under ADA regulations. For this to truly be an accessible public transportation system, some para-transit vehicles would still need to be available for disabled individuals.

Federal Law: Federal Motor Vehicle Safety Standards

The federal government has developed 60 federal motor vehicle safety standards (FMVSS) as a way to ensure that all motor vehicles sold in the U.S. meet certain safety criteria. After a vehicle is sold, it is the responsibility of the state to regulate the safety of the vehicle. Of the 60 FMVSS regulations, there are 37 that apply to school buses and a few that relate specifically to yellow school buses. The following regulations apply directly to the traditional yellow school buses⁴:

- FMVSS 111: Rearview Mirrors - Established the requirement for cross-view mirrors to ensure the driver can see to the ground along the sides of the vehicle and around the front of the vehicle.
- FMVSS 126: Electronic Stability Control - Installation of computer-controlled braking of individual wheels to assist the driver in maintaining control in critical driving situations.
- FMVSS 131: School Bus Pedestrian Safety Devices - Requires the installation of extendable stop arms.
- FMVSS 208: Occupant Crash Protection - Requirements for driver seat belts, air bags, and seat regulations for children.
- FMVSS 209: Seat Belt Assemblies - Regulations for the design and assembly of seat belt devices and associated hardware.
- FMVSS 210: Seat Belt Assembly Anchorages - Regulations for the location and restraint properties of seat belt anchorages.
- FMVSS 213: Child Restraint Systems - Regulates the design and placement of child restraints in vehicles.
- FMVSS 217: Bus Emergency Exits and Window Retention and Release - Requirements for the retention of windows other than windshields in buses, and establishes the opening forces,

⁴School Transportation News, <http://www.stnonline.com/resources/government/federal-motor-vehicle-safety-standards>.

dimensions and markings for emergency exits. The purpose is to reduce individuals from being thrown from the bus in emergency incidents.

- FMVSS 220: School Bus Rollover Protection - Regulates the standards for body design of school buses to increase safety during rollover crash events.
- FMVSS 221: School Bus Body Joint Strength - Regulates the strength of body panel joints in school bus bodies to reduce deaths and injuries during a structural collapse of a school bus body.
- FMVSS 222: School Bus Passenger Seating and Crash Protection Establishes the regulations related to “compartmentalization” for school bus seating that utilizes high-backed padded seats to reduce injuries during crash events. These seat designs are very different than what is required and constructed on regular public buses.
- FMVSS 225: Child Restraint Anchorage Systems - Regulation to reduce the likelihood of failed anchorage systems and increase the likelihood that these systems are located properly to reduce injury.
- FMVSS 301: Fuel System Integrity - Regulation to maintain the integrity of fuel systems and prevent fires from occurring as a result of fuel leakage during crashes.
- FMVSS 304: Compressed Natural Gas Fuel System Integrity - Similar to regulation 301, but specific to natural gas fuel systems.
- FMVSS 403 and 404: Platform Lift Systems - Sets safety standards for the design and installation of vehicles with passenger lift systems.

Many of the FMVSS regulations pertain only to school buses and can be challenging to incorporate on a vehicle that is designed to carry both the public and school children. The state of California invested in a utility bus design that can be used for both pupil and public school transportation and is fully ADA accessible. The bus was designed and purchased in reaction to shrinking school bus ridership by students and tightening municipal and school budgets. The utility service makes combining school and public transportation easier and addresses many of the design and regulatory constraints placed by federal and state laws.

California Utility Bus Project

The state of California was dealing with extremely low numbers of students being transported to school by school buses in many of the state’s districts. School bus utilization rates across the state had dropped to an all-time low of 17% of total school enrollment. With the increasing costs of transportation, shrinking budgets and the desire to see state education funding go toward education needs in the classroom, the California Department of Education invested in a utility bus design that could be used for both public and pupil transportation.

The utility bus was designed with the most current technology from mass transit and school buses, operates at the highest level of safety for adults and children, includes comforts not traditionally designed in yellow school buses, and can be constructed within municipal budgets. The specs of the utility bus are shown below:

Brand: Thomas Built Buses
 Value: \$148,630.00 (Plus Tax)
 Model Year: 2000
 Manufacture Date: August 1999

Range: 500 miles
 Service Life: 20 years or 400,000 miles
 Capacity: 37 Passenger (36 seated plus one wheelchair station)

Unladen Weight: 24,695 pounds
 Turning Radius: 75 feet
 Length: 40 feet
 Height: 138 inches (top of air conditioners)
 Width: 102 inches (overall)

More information can be found at: <http://www.cde.ca.gov/ls/tn/or/concept.asp>

Massachusetts General Law

Along with federal regulations on accessibility and school bus design/build standards, the state of Massachusetts also has design and operational regulations for yellow school buses. Chapter 90 of the Massachusetts General Laws regulates school buses under the following sections:

- Section 7B:
 - The words “School Bus” shall be painted or otherwise displayed on the front and rear of the vehicle. School buses being operated on a public highway and transporting primarily passengers other than pupils will cover up the words “School Bus”, and stop arms will be deactivated.
 - The number of pupils on the bus cannot exceed the seating capacity. If the bus has proper handles or straps for standing pupils, the bus cannot have more than three pupils standing at any one time and for a period not to exceed five school days.
 - All doors are to be kept closed while the bus is in motion.
 - The school bus shall be operated by a person over 18 who is licensed under section 8A or 9 of chapter 159A and subject to annual physical examination which conforms with the qualifications of the job.
 - No fueling will take place while the bus is occupied by any passengers.
 - The school bus body will be painted in accordance with the color known as “National School Bus Glossy Yellow” with bumpers, lettering, wheels, and trim painted in black.
 - Each school bus will be equipped with an eight lamp system which provides the various flashers and warning lights to create safer crossings for students. Students needing to cross the street shall do so in front of the bus.
 - Every school bus shall be equipped with front windshield wipers.
 - Buses must be equipped with the octagonal stop

warning device with red lights and mounted according to regulations.

- Every bus must be equipped with an interior mirror and a system of mirrors that allow the driver to see the roadway to each side of the bus and in front of the bus.
- Every bus must be equipped with a first aid kit.
- Any school bus converted for non-pupil transportation must be painted in a contrasting color from School Bus Yellow and have it’s stop arms and stop sign removed.
- Bus drivers must perform inspections before and after school bus use.
- Any school bus carrying more than 16 passengers that includes passenger restraints must ensure those restraints meet FMVSS standards.
- No person shall operate a moving school bus while using a mobile phone except in the case of an emergency.

Some of the regulations under Section 7B could make it challenging to operate a school bus that also accommodates the public because of the differences in school bus design regulations for pupil vs. non-pupil transportation. For instance, would the school district need to paint their school buses yellow or another color depending on if they were transporting more pupils or public passengers? Would the district need to keep or remove the stop arms or stop signals from a school bus depending on how many pupils and public passengers were on board? It is likely that the general laws would need to be revised to allow for co-mingling pupils and the public on school buses.

One positive piece of legislation in Massachusetts regarding multiple uses for school buses can be found in Chapter 159A Section 32 which mentions school departments of any town may make vehicles under their control available to transport senior citizen groups, little league teams and town recreational groups. Under this regulation, the school department may charge the group an amount sufficient to cover its costs. This regulation at least lays the groundwork in Massachusetts for groups other than the school district to use the buses for transportation. This language is only available in about 50% of states across the country.

The language in Chapter 159A Section 32 is generic enough that the school department has a significant amount of control over how school buses can be used in off-peak times. The language states that the school department can make the vehicles available to a “community group” but is not limited to the examples provided in the general laws. The discretion is really given to the school department to decide what is an applicable and appropriate use of school buses, as well as the fee amount associated with chartering the bus for uses other than pupil transportation. Municipalities that are interested in using school buses as an after school transportation option should work with their school department.

Since states that have this language included in their general laws provide permission directly to local school districts for contracting out the use of school buses for non-pupil transportation, few case studies turned up in MAPC’s search. One case study that we came across was in Bonifay, Florida at the Tri-County Community Council where the Council works with the local school district and local agencies and companies to “charter” the school district’s buses for non-pupil trips. At the time the case study was written, buses were chartered at a discounted rate of 0.45 cents per mile⁵.

Key Factor #6: Safety and Comfort

The final key factor for school districts and municipalities to consider when thinking about combining pupil and public transportation are in the areas of safety and comfort. These two areas aren’t as heavy on the regulation as funding and legal requirements, but can oftentimes be a larger barrier due to public perception about co-mingling children and adults. Comfort on school buses can also be a key concern on the part of adults who may be riding the bus. School buses are not designed like traditional public transit buses, and can be uncomfortable for taller adults riding the bus. It is important to remember that many transit riders are choice riders, and may be dissuaded from riding a bus that’s uncomfortable.

Safety Issues

Driver Qualifications and Training

There are already many commonalities between public transit and school bus drivers including driver training, first aid, vehicle checks, and maintenance. School bus drivers usually go through additional training to better deal with discipline of school children and dealing with special needs children. Most transit drivers do not go through these specific trainings, so it will be important that any plan to co-mingle adults and children include a comprehensive training for new drivers. Some states also require more in-depth background checks for school bus drivers which some transit drivers may not receive. It will be important to make sure any new drivers go through the appropriate background checks before engaging with students.

Insurance and Liability

Under most school insurance policies, the school district is responsible for safely transporting children from their home or pick-up location to school and back again at the end of the day. The school district and/or municipality would want to investigate how an insurance policy would work under a shared school bus program with adults and children. It is possible that the insurance premiums could increase costs to the school district by co-mingling adults and children.

Safety Equipment on Buses

As was noted in the previous section, there are federal and state regulations that dictate the exterior safety elements school buses must include such as flashers, lights, stop arms for traffic, and a mechanized stop sign on the left side of the bus. Under Massachusetts Law, these elements are supposed to be disabled or covered up if the bus is primarily being used to transport non-students. This brings up the question of how to ensure safety under the law for those students who may still be riding the bus, especially younger students who rely on those safety mechanisms for safely crossing the street after exiting the bus.

⁵Transportation Research Board, TCRP Report 56: Integrating School Bus and Public Transportation Services in Non-Urban Communities, 1999.

Perceived Safety Issues

One of the biggest deterrents to utilizing school buses for public transportation has been the issue of perceived safety concerns with co-mingling adults and children. In much of the literature and case studies on this subject, this has been a large hurdle to overcome in suburban communities with larger populations. In rural areas where many residents know each other, co-mingling is much less of an issue. Where population numbers are higher, the chances of children interacting with “strangers” increases.

Some communities have thought about ways around this issue which include things like placing a bus monitor on board to watch over the children, only allowing the general public to ride on buses with middle school or high school age students, and mandating background checks for any adult who signs up to ride on the buses with children. Placing a monitor on board or mandating background checks for adults would add to the cost of running the service, but limiting the public to buses that contain middle and high school age children could be one potential low-cost solution to this issue.

Comfort Concerns

Interior Design

There are several comfort issues that are brought up when discussing co-mingling on school buses. The first issue is the physical design and standards for school buses compared to public transit buses. Aside from the FMVSS regulations noted in the previous section, the interior designs of school buses are more restrictive for adult riders. The US DOT has determined that “compartmentalizing” school children in cushioned high back seats is safer than requiring safety belts in every seat during a crash event. Children may forget to put on safety belts while riding, but compartmentalization is always present through the design of the seats in the school bus to provide safety during a crash event. By requiring compartmentalization of school buses, designers are creating seats with high, straight backs that are uncomfortable to most adults. The seats also have much less leg room than traditional transit seats.

Other issues with the interior design of the buses include lower ceiling heights, narrower aisle widths, higher step heights, and the lack of low-floor buses for elderly or disabled individuals. All these issues can deter transit riders from wanting to get on a school bus for their trip. Table 3.1 shows some of the general difference between school bus and public transit bus designs⁶.

Table 3.1: Bus Physical Specifications

Comparison of School Bus and Transit Bus Physical Specs		
Characteristic	School Bus	Transit Bus
Aisle Width	12”	18” - 20”
Seat Width	39”	36”
Headroom	72” - 74”	78”
Seat Pitch	28”	30”
Step Height	12” - 16”	12” - 14”
Door Arrangement	Front	Front and Rear
Seating Capacity	66 Children	45 - 50 Adults
	56 Adults	(standees permitted)

Air Conditioning

Adults have concerns about the air temperature comfort levels on transit vehicles, especially those commuting to jobs in the morning and not wanting to arrive at work sweaty. School buses are not designed with air conditioning units for the children and would therefore not have them available for the general public.

Noise Levels

Although a majority of the concern about co-mingling on school buses does come from parents, adult riders also have concerns particularly around noise. Younger children can often be noisy, especially on the way home from school which could inconvenience adult riders. Middle school and high school age children can also be rude to other riders which could cause some hesitancy on the part of adult riders. With only one bus driver

⁶Transportation Research Board, TCRP Report 56: Integrating School Bus and Public Transportation Services in Non-Urban Communities, 1999.

on board to both operate the bus and watch over the riders, the driver cannot always be monitoring the road and the riders at the same time.

Opportunities for Improvement

Two ways other communities have begun to address the safety and comfort concerns have been through the design and purchase of utility buses that have wider aisles, alternative seat designs, low floors, and air conditioning. These buses are more expensive to purchase than traditional school buses, but are less expensive than the traditional transit buses. Some communities are also engaging in travel training programs and safety programs for children and adults to help with things like crossing the street, walking to bus stops, learning the schedules and routes of the buses, and teaching children how to interact with adults on the bus. These two items have been successful in some cases to foster the integration of adults onto school buses.

Case Study

During MAPC's search for applicable case studies, one came across as having similar elements to what some MAGIC communities have expressed interest in investigating. The Chesterfield County Coordinating Council (CCCC) in Cheraw, South Carolina is an agency formed in 1993 to work on the coordination of services being provided by government, non-profit and human service agencies to reduce duplication and work on common challenges in a coordinated manner. The Council also works on transportation issues and helped to establish a coordinated paratransit service operated by the local regional transit authority.

The Council, along with the local school district, also worked on a project to allow for the co-mingling of adults and students on local school buses. The state legislature approved a trial period where the Council could transport adults on the school buses during regular bus operation hours and along the existing school bus routes. Very few adults utilized this transportation option because the routes were limited and the bus only made runs in the morning and afternoon when it was regularly scheduled to pick up and drop off students. This limited schedule would leave an adult rider at their destination for hours until the next school bus run came through. The service was primarily used by seniors who wanted to access the downtown area for shopping trips and had the ability to wait several hours between rides.

In speaking with staff at the Council, they were unsuccessful at getting a legislative extension to the program and did come up against some resistance from parents who did not want school buses open for adult riders. South Carolina did pass legislation to allow parents and adult school volunteers or employees to ride school buses in conjunction with special programs sponsored by the school district. As a first step in Massachusetts, this could be a way to begin integrating adults and students on school buses.

MAPC found very few examples of successful case studies where school buses were opened up to adults as a form of public transit, and even

fewer failed cases have been reported. The idea of opening up an existing school bus system to the public seems to be an area where relatively few have made an attempt and even fewer have been successful.

Conclusion

While the idea of combining pupil and public transportation may seem relatively simple to accomplish, there are many different factors that the school district and municipality must take into consideration before attempting it. The structural and operational challenges, as well as the perceived safety issues can derail even the best of intentions. If your school district and municipality are considering a combined transportation system, here are a few things that should be considered beforehand:

- How many school buses does the community have, what is the capacity of those buses and what is the utilization rate of the buses compared to the current student population?
- Does your school district own and operate the buses or is the service contracted to a third party operator?
- If your school district has a third party contractor, when is that contract up for renegotiation?
- If your school district runs the service themselves, do they have a labor contract and what is stipulated in the driver and maintenance portions of the contract?
- What are the current bell schedules for each of the schools in your district and how would they work with the buses if bussing was opened up to the public? Would your school district consider flexible bell times?
- How would parents react to co-mingling students and adults? Would you have to restrict co-mingling to buses with middle and high school students only, and if so, how would that impact bussing and bell times at those schools?
- Are you a member of a regional school district, and if so would the other municipalities be willing to engage in a combined bus service? If so, how would costs and revenues be shared?

A major hurdle for co-mingling students and adults are the federal and state regulations that currently set conflicting laws for the design and operation of school buses that transport both students and adults. State regulations would need to be revised to allow for a utility school bus design, similar to the California model, that would have the safety and comfort factors common to transit buses and school buses. This could be a relatively easy change in language to at least provide the option to municipalities and school districts that may want to purchase and operate a utility bus design.

Combining pupil and public transportation can be a worthwhile effort in communities that have a willing school district and a population willing to share a bus with children. Utilizing an existing rolling stock like school buses can be a more cost-efficient way to implement a transportation network in your community.

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