

Beyond the Yellow Bus

Promising Practices for Maximizing Access to Opportunity
Through Innovations in Student Transportation



About the Center for Cities + Schools

The Center for Cities + Schools at the University of California, Berkeley is an action-oriented, policy and technical assistance center, whose mission is to promote high-quality education as an essential component of urban and metropolitan vitality to create equitable, healthy and sustainable communities for all.

<http://citiesandschools.berkeley.edu/>



About Mile High Connects

The Mile High Connects mission is to ensure that the Metro Denver regional transit system fosters communities that offer all residents the opportunity for a high quality of life.

<http://www.milehighconnects.org/>



Acknowledgements

The authors wish to thank the many individuals from across the country who spoke with us and shared their insights, experiences, and policy knowledge. Thanks also to Catherine Cox Blair, Sasha Forbes, Robert Hickey and Davian Gagne. Thanks to Mile High Connects for providing generous funding towards the research in this report. Any errors herein are the responsibility of the primary author.

Suggested Citation

Vincent, Jeffrey M., Carrie Makarewicz, Ruth Miller, Julia Ehrman and Deborah L. McKoy. 2014. *Beyond the Yellow Bus: Promising Practices for Maximizing Access to Opportunity Through Innovations in Student Transportation*. Berkeley, CA: Center for Cities + Schools, University of California.

Copyright 2014 Center for Cities + Schools, University of California, Berkeley

Layout by Alex Jonlin and Cailin Notch

Cover images (l-r): Jeff Vincent; flickr user 'Inspire Kelly'; flickr user 'Metro Cincinnati'

Table of Contents

Overview	4
Purpose	5
Methods	6
Structure of Report	6
State of the Field: Reviewing the Literature	7
Policy Context: State and Federal Rules	9
Operational Context: Shift Toward Service Privatization	11
Safety and Cost: Ongoing Debates on the Two Big Challenges	12
Case Studies	17
Polk County, Florida	18
Oakland, California	20
Portland, Oregon	22
Washington, D.C.	24
Baltimore, Maryland	26
Boston, Massachusetts	28
Charlottesville, Virginia	30
Medford, New Jersey	31
Discussion of Findings	33
Subsidized Youth Access to Public Transit	33
Tools to Encourage Use of Student Transportation	36
Programs to Increase School Attendance	37
Reduction in Cost and Environmental Impact	37
Lessons: Maximizing Opportunity Through Student Transportation Innovation	38
Conclusion: Combining Strategies	42
References	43

OVERVIEW

More than 25 million children, or 55.3% of the US public K–12 student population, ride one of 475,000 school buses each day, totaling more than a billion student trips per year (Wiegand 2010). Though the percentage of students riding school buses has slightly declined from a high of 60% in the 1980s (Safe Routes to School National Partnership 2010), the image of the “yellow school bus” remains an iconic component of the US K–12 educational experience. As a parent noted in a recent CBS interview, “You can’t take [buses] out of school. It’s like taking those No. 2 pencils out of there” (Van Ristell et al 2013). Many states provide local school districts with funding to help cover the costs of providing student transportation to school, even when it’s not mandated. Also, multiple professional organizations including the American School Bus Council, National Association for Pupil Transportation, and National School Transportation Association support the school bus industry, reassuring parents and taxpayers that “yellow buses” (as they are frequently called) are the safest and most cost-effective means to bring children to and from school.

The image of the “yellow school bus” remains an iconic component of the US K–12 educational experience.

The continued availability, affordability, and trustworthiness of yellow-bus service is threatened by a host of challenges. The rise of school consolidations and school choice programs makes routing increasingly complex and expensive (Killeen and Sipple 2000; Van Ristell et al. 2012) or even infeasible within certain constraints and school district policies (Killeen and Sipple 2000; Park and Kim 2010). State and federal mandates that require service for particular groups of students

The continued availability, affordability, and trustworthiness of yellow-bus service is threatened by a host of challenges.

and stricter motor vehicle safety standards for school bus designs and operators create additional challenges. Fuel costs continue to rise, more dispersed students require additional buses and drivers, and eventually buses need replacement (Park and Kim 2010; Thompson 2011; Van Ristell et al. 2012). Confronted with these challenges, many school districts across the country have begun to charge transportation fees to students, reduce service, or contract out service to private yellow-bus operators. Each of these options can be met with local opposition.

Faced with these challenges, some areas of the country are experimenting with new and innovative approaches to expanding service and improving the cost-effectiveness of student transportation. Sometimes these strategies include yellow buses; sometimes they do not. Sometimes school districts are involved; sometimes they are not. However, student transportation is a particularly difficult area to innovate within for a variety of reasons, including regulation from multiple levels of government, limited funding, a strong private-sector service-providing industry reinforced by policy, and perceptions and concerns from parents about

safety (Agency Council on Coordinated Transportation 2004; Federal Transit Administration 2005; McDonald and Howlett 2007; Price et al. 2012).

Purpose

Given the context of strain on conventional student transportation delivery, this study aims to understand what, if any, alternative approaches to student transportation are occurring across the US that expand regional transportation access for K–12 students and leverage interagency partnerships beyond the traditional yellow school bus. Our interest in this question is driven by two broad trends in metropolitan planning and regional equity: First is the increasing investment and prioritization of public transit infrastructure upgrades occurring in many metropolitan regions across the country in recent years (American Public Transportation Association 2010). Aims of these investments include reducing vehicular traffic and associated emissions and expanding mobility for residents in isolated neighborhoods. Second is the heightened understanding that transportation barriers are a factor in shaping the opportunity gap, mirrored in the student achievement gap; both are pernicious and deeply entrenched

New transit investments may present an opportunity to improve student access to school.

(Briggs 2005; Deshano da Silva et al. 2007; Mikulecky 2013). Thus, expanded transport options and access for K–12 students can be seen as contributing to enlarging the “geography of opportunity” for children and families (Bierbaum and Vincent 2013; McKoy et al. 2010; Center for Transit Oriented Development 2012). It may also benefit parents by giving them more flexibility in their schedules and work opportunities (Jarvis 2005). New transit investments may present an opportunity to improve student access to school.

This study aims to understand what, if any, alternative approaches to student transportation are occurring across the US that expand regional transportation access for K–12 students and leverage interagency partnerships beyond the traditional yellow school bus.

This paper provides a review of the “state of the field” of student transportation in the US to identify trends and opportunities for innovations. Primarily, these are our aims:

- Understand the current student transportation policy environment.
- Explore new models of collaboration on student transportation that might involve cities, school districts, regional transportationsdistricts, public transit agencies, private bus companies, and/or state education agencies.
- Identify the barriers to experimenting with or implementing innovations.
- Summarize and analyze ongoing innovative practices, with an eye toward recommendations and next steps.

Methods

Our research was conducted in four phases:

- First we conducted an initial scan of student transportation operations across the US. Methods included Internet news searches on changing student transportation methods; website review of state and regional transportation authorities' and school districts' information on student services; and phone interviews with administrators, program directors, and consultants identified in these sources. Following our findings from the initial national scan, we conducted more in-depth research on trends in Florida, Texas, California, and Washington, DC, metropolitan areas, involving web and news searches as well as 14 interviews with administrators, program directors, and consultants.
- Informed by these initial findings, we conducted an academic and "grey" literature review on the provision of student transportation.
- The literature review and follow-up conversations revealed 16 examples of interest from across the country. From these, we selected eight cases representing the trends seen in the larger national scan for a more thorough case study analysis, done through additional semistructured interviews and gathering of case documents.
- Finally, these case studies were analyzed to identify strategies, trends, and lessons.

Structure of Report

The report has three sections. The first describes the current state of student transportation through a review of the academic and "grey" literature. It includes an overview of the industry operations, identification of trends in operations and service delivery, and summary of the gaps in the literature and research. This review contextualizes the case studies we analyze and provides the backdrop for findings and recommendations. The second section details findings from our eight cases studies to demonstrate current innovations. To conclude, we consider lessons for policy stakeholders in replicating and advancing these innovations locally.

State of the Field: Reviewing the Literature

Overall, student transport, and particularly the associated costs, is a grossly under-researched issue, as other authors have noted (Galliger, Tisak, and Tisak 2009; McDonald and Howlett 2007; Van Ristell et al. 2013; Thompson 2011). However, a central challenge permeates nearly all academic and industry resources on the topic: providing student transportation to school is an increasingly challenging and expensive endeavor for school districts to provide. Education costs in general are on the rise, and transportation, like other elements of public education funding, has experienced ongoing cuts relative to demand—and in some cases discontinuation of service altogether (Hanushek and Rivkin 1996; Killeen and Sipple 2000). Thus, a pivotal question in the field of student transport is, “What is the most cost-effective approach?” This question has shaped a key debate in the field—that of whether school districts should manage and operate their own “in-house” yellow-bus fleets or whether it would be more cost-effective to contract out these services to private yellow-bus providers. In fact, this question shapes the entire landscape of the student transport issue.

A central challenge permeates nearly all academic and industry resources on the topic: providing student transportation to school is an increasingly challenging and expensive endeavor for school districts to provide.

Student transport is increasingly complicated and expensive for a variety of reasons largely outside of a school district’s control (Van Ristell et al. 2013; Agency Council on Coordinated Transportation 2004; Bogren 2013). These include high fuel prices, rising contracting costs (Cassell 2000; Thompson 2011; Price et al. 2012), expanding school choice and open enrollment policies that require more complex routing logistics to accommodate them (Van Ristell et al. 2013; Wilson et al. 2010), federal and state mandates to provide transit to certain groups of students (e.g., disabled students), stricter safety requirements for bus designs and their operations (Agency Council on Coordinated Transportation 2004), goals and regulations to reduce bus emissions, lack of capital to reinvest in school-owned buses, and state reimbursement policies for student transport. Because most school districts are required to provide some level of student transportation depending upon state and federal regulations about student characteristics (e.g., age, special needs, homelessness), distance from the school, and traffic hazards (McDonald and Howlett 2007), school districts are looking for ways to cut their transportation costs (Spence 2000; Zeitlin 1989; Alspaugh 1996; Price et al. 2012; McMahan 2013b). In many cases, districts are unable to find ways to provide the same level of service, at the same costs to parents, while saving money. Instead, many have started to charge students, reduce levels of service, or enter into different levels of contracting with private yellow-bus operators (Cassell 2000; McDonald and Howlett 2007; Thompson 2011).

In addition, school districts face challenges when considering alternatives to yellow-bus service. These challenges include federal regulations (e.g., the “tripper” rule) that prevent public transit agencies from competing with privately provided yellow-bus service; and opposition from parents regarding both real and perceived safety threats related to traffic, child abduction, sexual harassment, bullying, and other concerns (McDonald and Howlett 2007; Price et al. 2012; Van Ristell et al. 2013; deLara 2008; Allen et al. 2003).

A key concern in the field is that changes or cuts to student bus service, especially as districts are promoting school choice or closing neighborhood schools or both, may have inequitable impacts on students and families. For example, Wilson et al. (2009) found that nonwhite and low-income families were more likely to live farther from choice schools. Since the distances were too great to walk and their parents did not drive them—perhaps because of affordability or car availability—the students in two Minnesota cities studied were more reliant upon buses to get to distant schools. Lower-income students may not be able to fully take advantage of school choice options, especially if an alternative system of transportation is not present or affordable (Mikulecky 2013). However, this depends entirely on local context—particularly, the geographic distribution of an area’s most

A key concern in the field is that changes or cuts to student bus service, especially as districts are promoting school choice or closing neighborhood schools or both, may have inequitable impacts on students and families.

desirable schools, the residential location of lower-income families, school busing policies, local school attendance areas, and public transit fares and reliability. Studies have found that exercising school choice tends to yield greater commute distances and reduced walking and bicycling to school among students (Wilson et al. 2007; Wilson et al. 2009; Makarewicz 2013). In school-choice systems, high- and low-income families alike might choose magnet, charter, or traditional public schools for a variety of reasons: the school is more highly ranked; it was recommended by a friend or former teacher; the family is familiar with it or used to live near it; or they were assigned to it after a late enrollment.

Thus, there is no single policy related to school choice that would necessarily cause lower-income children to have to travel farther than children in families with higher incomes who also choose a non-neighborhood school. However, a combination of policies, including school closures in urban areas, school funding policies, affordable housing supply and policies, and crime may increase the likelihood that low-income families choose or use a non-neighborhood school; and by definition, these schools are likely to be farther from home. At the same time, despite the added time and cost to attend a non-neighborhood school, families exercising school choice do not necessarily obtain access to a higher performing school than their neighborhood school. Makarewicz’s (2013) study in Oakland, California, found that in only 30% of cases, a low-income family’s choice school ranked higher than their neighborhood school. As noted above, the reasons that families may choose or be assigned to a non-neighborhood school are varied. In general, studies suggest that for some low-income families, school choice is not possible

due to transport costs; but for low-income families in school districts providing busing or who can afford the transportation for their child to a choice school, the child will likely have a longer commute than a higher-income child in the school district.

A related aspect of the equity issue is if and how transportation affordability influences attendance rates. We are aware of only one study that has investigated the issue. Looking at results one year after implementation of a free youth bus pass program in Alameda County, California, McDonald et al. (2004) found increased student bus ridership and after-school participation but no increase in overall school attendance. Not surprisingly, increases in bus use were greater among pass holders, in areas with high levels of bus service, and among high school students. As the researchers note, school attendance is a complex issue with many interrelated factors operating over the long-term. Thus, isolating the effect of transportation changes becomes a difficult task, since it is only one of many factors affecting attendance.

However, as our case studies illustrate, locales are attempting to implement innovative student transport strategies that reduce geographic and mobility barriers for children and families. Although some of these innovations are limited, a few appear to be taking more comprehensive approaches. Next, we look to the literature to describe the policy and operational context of the challenges noted above.

Policy Context: State and Federal Rules

A patchwork of state and federal policies shapes student transport. Though schooling must be made available to all US school-age children, the Supreme Court has found multiple times that transportation to and from school is not a Constitutional requirement (McDonald and Howlett 2007).

State policies. Each state has its own unique laws and policies for student transportation. These primarily include details on what level of service school districts are required to provide (if any) and how much of the incurred transportation cost to the school district, if any, will be reimbursed by state funds. Most states require that school districts provide some busing service, especially for certain groups of students. California, Texas, and Michigan are notable for being among the few states that do not require busing, though they do offer some reimbursements to districts based on certain guidelines. Generally, state policies on student transport requirements and reimbursements are based on three criteria established in the 1940s (McDonald and Howlett 2007):

- Distance (from home to school)
- Traffic hazards (along the route from home to school)
- Student disability (now mandated by the Individuals with Disabilities Education Act)

In some states, busing requirements and the level of state funding reimbursement appear to be

**A patchwork
of state and
federal policies
shapes student
transport.**

unaligned with intended policy goals. For example, Ohio requires school districts to transport all K–8 students living more than two miles from their school but provides state funding reimbursement for students living more than one mile away. The state of New York also funds more than it requires local school districts to provide (McDonald and Howlett 2007). Even Texas, which does not require student transportation be provided, reimburses school districts for transporting students living more than 1.5 miles from school.

Rates of cost reimbursement also vary by state. Most common approaches appear to be based on area density (students over area), linear density (students by bus miles), or tied to a flat rate per enrolled student. Some examples of variation in state reimbursement approach include the following:

- Montana adjusts the linear density by bus capacity.
- Texas increases its per-mile reimbursement with distance, providing more funding for students living farther away. Texas also limits busing to overcome identified traffic hazards to 10% of its reimbursement, and a number of districts in the state have started to charge students for it.
- New York considers a wealth-based “sharing ratio,” and for equity reasons requires cities to provide transportation for both public and non-public school students if either are provided.
- California, which does not require student transportation be provided by school districts, has the lowest rate of bused students (15%). To compensate, districts are allowed to charge fares to students for round trips, capped at \$6.38 in 2007 (Agency Council on Coordinated Transportation 2004).

Federal policy: The “tripper” rule. In looking beyond yellow buses for transporting students, the federal “tripper” rule plays a key policy role. Established with the Federal Transit Administration’s (FTA) Federal Mass Transit Assistance Act of 1974, the rule prohibits the use of federal public transit funds for the provision of public bus service exclusively for students:

[N]o Federal financial assistance may be provided for the construction or operation of facilities and equipment for use in providing public mass transportation service to an applicant [transit agency] unless **the applicant and the Administrator enter into an agreement that the applicant will not engage in school bus operations exclusively for the transportation of students and school personnel, in competition with private school bus operators.** (49 U.S.C. § 5323[f]) (emphasis added)

The tripper rule applies to transportation to and from school as well as from school-sponsored activities or trips. The legislation allows private school bus providers to operate exclusive service for students without competition from government-funded public transit (Federal Transit Administration 2005).

The legislation, however, does allow public transit agencies to operate extra service on regular routes to accommodate student demands. Specifically, there are a number of exceptions to providing student service in the tripper rule, including the following:

- A transit agency may use buses, facilities, and equipment for the transportation of school students, personnel, and equipment for incidental charter bus operations, if the charter bus exceptions apply. For example, no private school-bus operator or charter service is able or

willing to provide services at a reasonable rate, or the trip involves a significant number of students with disabilities.

- In the event that a private school-bus operator cannot provide safe service at a reasonable rate or that no private bus operators exist in the urban area, a transit agency must either
 - o provide notice to all private school-bus operators in its urban area on the intent of the transit agency to provide student service or
 - o provide a certification to FTA that there are no private school-bus operators within the urban area.

For both options above, transit agencies can only use buses, equipment, and facilities purchased with non-FTA funds to provide exclusive transit services. It is therefore not likely that many agencies use this exception.

- On-demand and paratransit services can be used to transport students to schools. This is utilized in both urban and rural areas across the country (e.g., Washington, DC, only provides exclusive transit service for students with disabilities). Transporting disabled students to school through paratransit or on-demand service falls under Americans with Disabilities Act compliance.

Today, privately contracted yellow-bus service is an entrenched and competitive industry within the public service sector, and industry experts project that it will continue to grow (PR Newswire

Operational Context: Shift Toward Service Privatization

2011; Wallack 2013). Privatization of yellow-bus service ramped up in the 1980s just as many other public services became increasingly privatized. There are about 4,000 private companies providing student transportation services across the country (Price et al. 2012). These providers range from large national corporations (such as First Student, Student Transportation of America, and Durham-Stock) to small, locally owned operators, together running about 40% of the yellow buses in the US (Price et al. 2012).

However, states differ on their rates of yellow-bus privatization. For example, only 5% of yellow-bus service is privately contracted in Ohio, compared to 72% in Pennsylvania (Price et al. 2012). A recent debate in an Ohio district considering a contract with First Student, one of the largest national bus companies, raised local concerns over loss of the existing bus labor union, lack of community input in the decision, and the service quality of the contractor based on complaints in other districts (Wacker 2013). Concerns over mixed results in cost savings through contracting prompted the Virginia School Boards Association to issue white-paper guidance on how to avoid high contracting costs (Virginia School Board Association Insurance Services 2012).

There are about 4,000 private companies providing student transportation services across the country.

The large private yellow-bus providers are often nationally, or even internationally, owned. First Student, owned by FirstGroup, a UK company that owns Greyhound buses and Coach USA,

operates 211 public transit fixed-route services in the US, including in Phoenix and parts of Denver (Duncan and Mtar 2006; Thompson 2011). Seeking a toehold in the US market, FirstGroup purchased two large student-bus companies, Ryder and Bruce, in 1999. At the time, Ryder owned and operated 10,000 school buses in 30 states and maintained the fleets of several public transit agencies (Duncan and Mtar 2006). The UK's public transportation system is privatized, and FirstGroup's acquisition was hailed at the time as a successful start toward privatizing the North American school-bus industry: "Operating profit for the North American division has increased by 8.8% between 2001 and 2005. Between 1999 and 2004, turnover has grown by 73% and profit by 65%, generating a cash return on invested capital of 12%" (Duncan and Mtar 2006). FirstGroup has continued its North American acquisitions, most recently of Laidlaw, despite an antitrust suit filed by eleven states alleging a risk of monopolistic and oligopolistic bus service (Thompson 2011). FirstGroup now operates in 235 locations in 41 states, Canada, and Puerto Rico, providing student transport to 1,400 school districts (First Student Inc.).

Student Transportation Inc. (STI) is another large company that continues to acquire small companies to increase their market share. The profit potential identified by the private yellow-bus industry is illustrated in a press release by STI after acquiring Student Transportation Services, a competing company:

Management expects the deal to be immediately accretive to shareholders of its common stock....The "conversion" season is picking up again and we anticipate some of the 10,000 school districts who own and operate their own fleets to be calling us looking for creative solutions. They represent \$18 billion dollars of school transportation spending in the U.S. alone (PR Newswire 2011).

Debates about maximizing cost-effectiveness and ensuring student safety dominate the field

Safety and Cost: Ongoing Debates on the Two Big Challenges

of student transport. Research sheds light on these debates but provides mixed guidance. The field, too, is shaped by the narratives and beliefs about student transport held by parents, school districts, private providers, and policymakers.

Student safety: Multidimensional concerns. Understandably, student safety is an overriding focus in the student transportation field and among providers. This largely stems from common concerns of parents about multiple harms to their children, including abductions and kidnappings, among other safety concerns (Agency Council on Coordinated Transportation 2004; Wiegand 2010). The private school-bus industry maintains that yellow buses are the safest form of transportation for students, yet peer reviewed research on the topic has not reached that concrete conclusion. A Transportation Research Board Transit Cooperative Research Program study found that yellow buses are involved in only 2% of all student transportation fatalities (Fischbeck and Huey 2002). While this supports the industry's claim about the safety of yellow buses, researchers also found no difference in student fatalities per mile between public transit and yellow buses. The researchers found that the relatively more dangerous modes of transit in

Debates about maximizing cost-effectiveness and ensuring student safety dominate the field of student transport.

terms of fatal accidents were passenger vans and teen drivers. A study in 2004 reviewed nonfatal injuries on school buses nationally over three years and identified 17,000 injuries annually. They did not compare this rate to that of other transportation modes, but noted their study “identified a much greater annual number of school bus–related injuries to children than reported previously” (McGeehan et al. 2006).

The field has also seen debate about differences in safety by type of vehicle used to bus students. A typical yellow bus holds 66 passengers. Smaller vehicles, such as 12–15-passenger vans, became popular due to several advantages, including the following: cheaper to purchase and maintain; more flexible for routing and special events; seatbelts confer a sense of safety; no Commercial Driver’s License required to operate; easier to navigate tight urban places as well as rural, unpaved roads; more flexible for transporting special-needs and homeless students; and better student:cost ratio. However, the National Highway Transportation Safety Administration has prohibited the use of 12- and 15-passenger vans for the transport of students, citing safety concerns (McMahon 2013a). Not everyone agrees that 12- and 15-passenger vans are unacceptable. Voices from the private industry have argued that vans such as Ford E-series are necessary and better suited for special-needs students and difficult places to maneuver such as urban neighborhoods and rural roads (McMahon 2013a). Small-van proponents often claim that ample crash data on small vans is rarely collected to the extent that it is for traditional yellow buses, which may skew research findings (McMahon 2013a).

Related to vehicle type is the age of buses and how that relates to safety and cost. According to school-bus industry experts, more than 25,000 aging buses owned by school districts will have to be replaced in 2014 (Wallack 2013). Industry experts also claim that private operators tend to operate newer buses, which are often argued to be safer. However, this has not been studied. They also argue that newer buses have lower costs due to lower maintenance needs and better fuel efficiency.

Another key issue in the field is safety of students on the bus, at the bus stops, and in their interactions with other bus riders (Wiegand 2010). Because yellow-bus drivers are specifically trained to deal with children, yellow-bus advocates argue that they are better equipped to intervene and report incidents to the school, an argument often used against putting students on public transit (Allen et al. 2003; deLara 2008; Galliger, Tisak, and Tisak 2009). Some have further argued that school district–employed drivers are superior in promoting interpersonal student safety onboard because they have lower job turnover rates than private contractor–employed drivers, 10.7 years compared to 3.7 years, according to a 2007 Minnesota study by the SEIU (Thompson 2011). Being more familiar with the students on the route as well as the office administration at the school, school district–employed drivers may be able to resolve conflicts or alert the school of issues (Mathis and Jimerson 2009). Others argue that because public transit forces students to sit among neighbors and other adults, the atmosphere becomes less conducive to the unruly behavior often seen on yellow buses (Phillips 2013). However, it appears

that many of these claims have not been tested in the research literature.

Both school buses and public transit have had to increase safety measures related to terrorism threats, bus driver background checks, passenger conflicts, and vehicle accidents. School buses have taken some additional measures to reduce vehicle accidents and related injuries, including flashing lights, three-point lap-shoulder belts, and the side warning arm. Some school districts also employ a human monitor on buses to oversee student conduct. Public-transit buses use other safety measures, including infrastructure and traffic rules designed to increase overall safety such as bus lanes, bus stop infrastructure, and traffic rules; and bus size and design address passenger safety in other ways.

Funding shortfalls shape the field: Causes and consequences. Nationally, student transport accounts for roughly 4% of all school expenditures, though for some districts the figure is closer to 10% (Alspaugh 1996; Zeitlin 1989; Thompson 2011). In perspective, this is generally considered a small amount by education economists; student transportation is but one category in “other funding” in school-district budgets (Hanushek and Rivkin 1996), and education finance specialists tend to lack knowledge about transportation issues (McDonald and Howlett 2007). Nearly half of students (44.7%) do not take yellow buses to school. Still, news articles and student transportation–industry magazines convey great difficulties for school districts in keeping up with rising transportation costs over recent decades (Alexander 1990; Bogren 2013; Price et al. 2012; Roher 2013; Zeitlin 1989).

Because transportation spending has traditionally been a small part of school-district budgets, because some portion is mandated, and because most districts view it as a necessary support for their educational mandate, transportation tends not to be targeted for cost savings except in severe shortfalls (Agency Council on Coordinated Transportation 2004). But when budgets are tight, school districts do look toward reducing transport costs, particularly when cost savings can be redirected to the classroom. As McDonald and Howlett (2007) found, however, cutting bus service for students carries risks of negative outcomes, namely these:

- Students walk and may be exposed to traffic and other dangers; and/or
- Students are driven by their parents, increasing traffic and particulate matter (and parent time and expense).

Strong debate in the school-transport field has centered on whether or not contracting out yellow-bus service is cost-effective.

Another factor affecting costs is the consolidation of schools and school districts, which has increased distances to schools. Consolidations are typically proposed as mechanisms to enhance a school or district’s economy of scale, making it cheaper to operate in the long run. Unfortunately, little research on whether and how consolidation affects school transportation has been done (McDonald and Howlett 2007). There appears to be some association between reduction in the number of schools and increasing rates of student transportation by private automobile (Alspaugh 1996; Spence 2000).

Debates on cost-effectiveness. At the intersection of student safety and funding shortfalls is the key question of how best to provide cost-effective student transportation. In particular, strong debate in the school-transport field has centered on whether or not contracting out yellow-bus service is cost-effective. A central element in this debate is school district–owned, “in-house” fleets versus service or contracts with private yellow-bus providers. Several studies have compared the long-term costs of these two approaches; findings have been mixed, partially due to differing methodological approaches to studying the differences. A multiyear, statewide study in Minnesota found that returning to in-house service would be 15%–20% cheaper for school districts (Thompson 2011). This study found a counter-intuitive reduction in costs of labor produced mainly as a result of lower turnover among district-employed drivers, which reduced the longer-term cost of training and hiring as well as accident rates (Thompson 2011). Studies in Ohio (Cassell 2000) and Pennsylvania (Price et al. 2012) also both found in-house service to be the cheaper option for school districts.

However, Thompson noted four studies that found contracting out to be the cheaper option. Some of the difference may be attributed to the use of cross-sectional data, which does not capture costs over time, and comparing of different costs given accounting differences in the cases studied. Another factor, based on the privatization literature and reflected in the school-transportation field, is the bidding process. In general, researchers who have looked at private contracting of public services have found that it is not private contracting per se that is expensive, but how contracts are structured, what services are specified, and whether there was adequate competition (Boyne 1998; Sclar 2000). Thus, they argue, the key to getting private contractors to be more cost-effective is to enable true competition within bids and to be more cautious about specifics costs per service. In many school districts, only one viable contractor may exist, and districts do not always receive multiple bids. For instance, if one contractor already owns the bus yard, they will invariably win subsequent bids because of the difficulty in siting and building new facilities (Thompson 2011).

Student transportation is not the only privatized public service experiencing high costs (Price et al. 2012). Other frequently contracted services include vending, heating and ventilation, computer servicing, office machinery, food services, security, and custodial services. A 1994–1998 Ohio study found higher costs from contracting out other services (Cassell 2000). The American Association of School Administrators and the National Education Association have published reports on the downsides of different types of education outsourcing, including transportation (Mathis and Jimerson 2009; National Education Association).

Still, offers from private providers can be enticing to school districts. Take, for instance, an example that links both the cost and safety issues: In 2010, a large school-bus company, Student Transportation of America (STA), launched a \$100 million “Education Stimulus Plan” and offered to buy existing bus fleets from cash-strapped school districts in exchange for a bus-operating contract. STA promised to replace the old fleets with new, state-of-the-art, environmentally friendly buses (Wallack 2010). Though this type of offer is very attractive to school districts in

need of cash, some studies have found that the contract rates inevitably increase to compensate for this initial payout and to provide a profit for the private contractor (Cassell 2000; Price et al. 2012; National Education Association; Thompson 2011).

Overall, the debate in the student-transportation field and industry over school district–owned or privately contracted yellow-bus service largely ignores the other alternative: public transit. Many of the arguments that favor contracting or in-house provision (use of newer school buses, the superior safety of school-bus designs, driver background checks, student monitoring systems, routing systems, and so on) are things public-transit agencies are equipped to provide. In the effort to defend yellow buses and secure their business niche, broad language from the yellow-bus industry is often interpreted to discourage public transportation and emphasize safety over other alternatives. For example, “in the school bus industry, which has built an unparalleled safety record with its thorough driver requirements and strict vehicle construction standards, the thought of stepping outside of the school bus is disconcerting for many” (McMahon 2013b). Mark Aesch, formerly of New York’s Rochester-Genesee Transportation Authority, argues that these are “hollow arguments,” with no evidence that public transit cannot be safe for children (Aesch 2013).

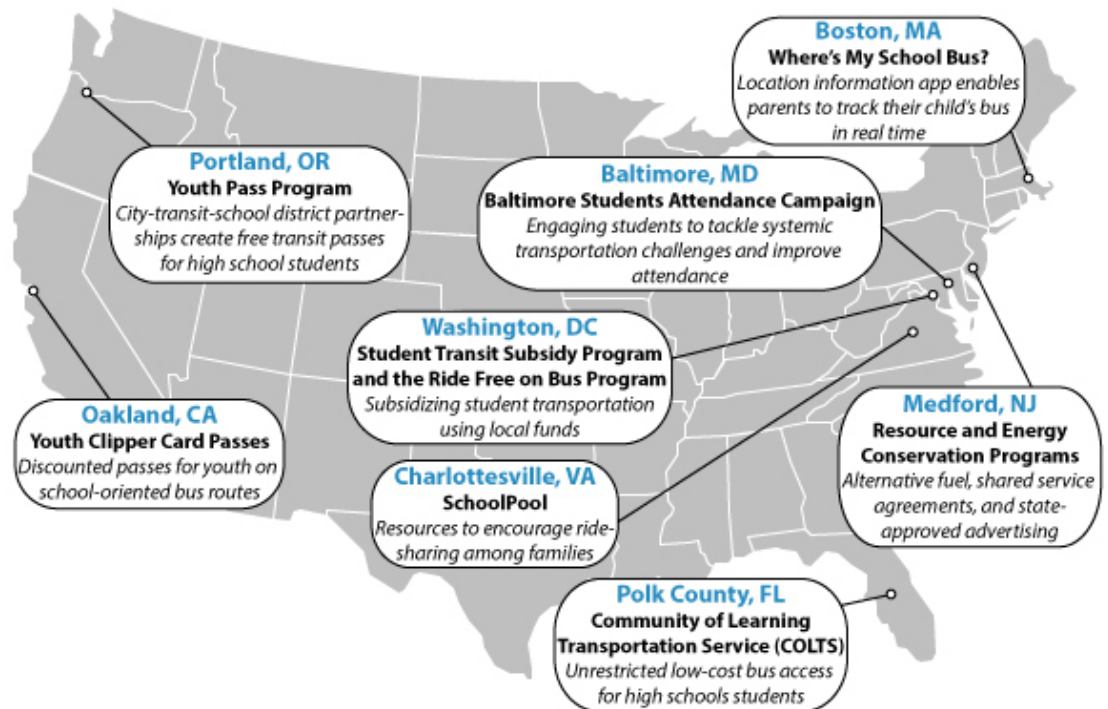
Overall, the debate in the student-transportation field and industry over school district–owned or privately contracted yellow-bus service largely ignores the other alternative: public transit.

Case Studies

Findings from our national scan of student transport practices reveal innovation in four categories:

- Subsidized youth access to public transit
- Tools to facilitate use of student transportation in place of the family auto
- Programs to increase school attendance through supportive transport
- Reduction in student-transport costs for school districts and environmental impacts

This section summarizes eight cases that illustrate these practices, with information collected through interviews, documents, and websites. Figure 1 shows the case locations, illustrating that our research found most of the student transportation innovations to be centered in coastal metropolitan areas, many with urban or suburban public-transportation networks. The initial pool of potential case studies included districts in Tennessee and Arkansas, but more advanced versions of these programs were identified in the coastal cities.



Polk County, Florida

Community of Learning Transportation Service (COLTS)

Unrestricted low-cost bus access for high school students in Polk County, FL

Overview

The COLTS program began as a pilot in summer 2013 for 300 high school students and was made available to all of Polk County's 25,000 high school students in fall 2013. Participating students pay an annual fee of \$2.14 and then may ride any bus in the Polk County system free of charge. Students who do not register and pay the annual fee must pay the standard fare (\$1.25 per student per ride). The program is administered by the transit authority, but it is supported financially through an agreement with the local school district.

Setting

Polk County, with its county seat of Lakeland, is in central Florida and covers 2,009 square miles. The service areas of the Polk County School System and Polk County Transit Service share aligned geographic borders with Polk County itself. Serving 90,000 students and 17 municipalities, Polk County Public Schools is among the largest school districts in the country. The school district does not provide alternative student transportation (i.e., yellow buses). Before the COLTS program, high school students got to school on their own, typically by private auto or by paying full fare on transit, which posed an equity concern to transit and education officials. COLTS proponents pitched the program on the basis of equity, arguing that lack of access to transportation is a barrier to academic success.

Participation

To participate, parents must opt in by completing a form and paying the small annual fee, which is a subsidized rate based on a negotiated payment between the school district and the transit agency (see Funding). More than 50% of eligible high school students have enrolled thus far. Participating students receive a sticker that goes on their student ID, allowing free access to any Polk County bus. Currently, the county's three charter schools have chosen not to pay for their students to participate. The program is currently limited to high school students but is planned to eventually serve grades 4–12.

Funding

The system is funded by the school district at a cost of \$46,000 per month. This cost is negotiated with the transit authority and is based on the number of eligible students enrolled in the district (regardless of how many students actually register for the passes). In deciding to move forward with the program, the school board felt it was promoting district-wide equity by having nonparticipating students subsidize participating students. The funding is allocated from the district's general fund and is not considered a specific reallocation.

Avoidance of Tripper Conflict

COLTS is careful to stay within the tripper regulation by using the existing public transportation system. Polk's bus routes already included mid-route stops at high schools before the COLTS system, and no routes were changed to accommodate the program. Students ride public buses

with other members of the public.

Public Perception

Though the system only just concluded its pilot, families are already asking for expanded service (early and later routes and expanded routes). The program's manager within the transit authority is confident that this support will translate to increased transit service overall, not just for school access, allowing the agency to stay on the right side of the tripper regulation.

Additional Resources

Tom Phillips, Director, Lakeland Area Mass Transit

Citrus Connection COLTS page:

<http://www.ridecitrus.com/content/interior.asp?section=about&body=colts.htm>

Lakeland Mass Transit Agreement Lets Summer School Students in Polk Ride Free:

<http://www.theledger.com/article/20130628/NEWS/130629449?tc=ar>

Oakland, California

Youth Clipper Card Passes

Discounted passes for youth on school-oriented public bus routes

Overview

Youth (5–18-year-olds) are eligible for unlimited bus passes for \$20 per month. Participants must first acquire a free Clipper card (the multiagency Bay Area transit pass) and then add an AC (Alameda County) Transit youth pass (sticker) to the card. AC Transit operates bus service throughout the East Bay region. The Clipper card also works on the BART (Bay Area Rapid Transit) regional light-rail system and other subregional transit providers, but students must add more fare to the card to use these other modes. To obtain a pass for the Clipper card, youths must provide government-issued identification in person at either the AC Transit office in Downtown Oakland or at one of about a dozen mobile registration events. The card is typically mailed out 14 days later. For students unable to acquire a Clipper card, the youth fare is \$1.05 per trip (compared to the full adult fare of \$2.10). AC Transit reports 23%, or about 43,300, of its 191,000 daily riders are between the ages of 13 and 17. The school district does not track how students get to school if they do not purchase the youth pass.

Setting

AC Transit serves both Alameda and Contra Costa Counties, including the City of Oakland, which is contiguous with Oakland Unified School District (OUSD). OUSD does not operate yellow buses, except for special-education students; instead, many of its 36,000 students are among the 60,000 total students in AC Transit's service area who ride public AC Transit buses between home, school, and other activities. Oakland's residents, in general, have higher transit usage to work (19.8%) than the United States overall (5.0%) (Census 2010), which may influence parents' acceptance of public transit for school transport. Some Oakland parents accompany their students on transit to school on their way to work (Makarewicz 2013).

Bus Routing and Avoidance of Tripper Conflict

Many OUSD schools are along major street corridors and thus have regular AC Transit service. School-specific routes, called "supplemental lines," are given a three-digit number starting with "6" (600–699) and operate once or twice a day in each direction in conjunction with the school schedule and calendar.

The supplemental routes are open to other AC Transit riders and are listed in public timetables and are open to all members of the public without exception, thereby avoiding conflict with the FTA. Bus stops are able to be located near schools because of schools' location on major streets with other nearby uses.

Enrollment Obstacles

AC Transit states the Clipper Card processing takes 14 days, but some school principals report delays of more than five weeks. OUSD also enrolls students over 18, but because eligibility is restricted to students 18 and under, OUSD's 800 students over 18 must pay the full adult fare.

AC Transit estimated in 2011 it would cost an additional \$625,000 a year to extend the youth pass to students over 18. At the time, AC Transit was operating under a financial crisis with a \$21 million deficit and decided not to extend the service beyond age 18. Currently, the discounted \$20 monthly youth pass is funded by voter-approved Measure BB, which sunsets in 2015.

References

AC Transit Youth Fares: <http://www.clippercard.com/ClipperWeb/actransit/fares.do>

School Attendance Clipped by New Transit Passes: <http://oaklandnorth.net/2010/10/06/school-attendance-clipped-by-new-transit-passes/>

AC Transit Board of Directors, 2011

http://www.actransit.org/wp-content/uploads/board_memos

[/GM%2011-077%20OUSD%20Fare%20Discounts%20for%20Pupils.pdf](http://www.actransit.org/wp-content/uploads/board_memos/GM%2011-077%20OUSD%20Fare%20Discounts%20for%20Pupils.pdf)

Portland, Oregon

Providing Free Transit Passes to High School Students

Creating city transit–school district partnerships amidst funding challenges

Overview

The Youth Pass program in Portland, Oregon, provides free transit passes to all high school students, regardless of economic background, in the Portland Public School (PPS) District during the school year. The program is a partnership between PPS, Portland TriMet regional transit agency, and the City of Portland. The city and the school district are separate entities but share geographic jurisdiction. The transit agency services the entire Multnomah County region. No other school districts or cities in the in the region provide school passes through the regional transit agency.

Setting

PPS is the largest school district in the Pacific Northwest, serving approximately 47,000 students in 81 schools. In 1992, the State of Oregon required public schools to provide free student transportation services to high school students living more than 1.5 miles from school and for students who received free or reduced-price lunch. Within PPS, about 40% of students qualify for free or reduced-price lunch. PPS provides transportation services to elementary and middle school students but receives a waiver for providing high school students with yellow-bus service on the premise that high school students can use Portland’s growing regional transit system. Until 2008, PPS purchased transit passes for low-income high school students living more than 1.5 miles from school. Middle-to-higher-income students living 1.5 miles from school relied on reduced-fare passes from TriMet (currently \$30/month). In 2008, the Youth Pass program was created to provide free passes to all high school students regardless of income.

Funding

Youth Pass was first funded as a pilot by the state under the Business Energy Tax Credit (or “Betsy Credits”) program, which provided \$2.5 million annually. In the 2011-2012 school year, Youth Pass was removed from the Betsy Credits eligibility list and TriMet and the City of Portland stepped in to continue the program in partnership with PPS. To offset the cost of subsidizing the passes, PPS reimburses TriMet approximately \$800,000—of which 70% (\$560,000) is a reimbursement credit from the state for running a student transportation system. TriMet estimates a revenue loss of \$1.9 million for students who would otherwise buy reduced-fare passes. The City of Portland contributed \$225,000 in 2012. For the 2013-2014 school year, the program’s estimated \$3 million cost will be shared across the three agencies.

Challenges

Youth Pass is at risk of being eliminated due to inconsistent and unsustainable funding. While program advocates see the benefits to providing more transportation options for all high school students and their families regardless of income, the cost is one that is hard to justify because it is limited to Portland and subsidizes all students, regardless of income. Both advocates and opponents of the program recognize the need for program restructuring, which could include

options such as providing passes only to low-income students or complete program elimination due to the financial burden on TriMet and the City of Portland. Program officials are reviewing the program to implement changes that will make the program financially feasible. Any program changes are expected by December 2013.

Usage

About 12,500 students receive the Youth Pass each year. Students make on average approximately 60 trips per month. Nearly 80% of the trips are for getting to jobs, visiting friends, and running errands. Less than 10% of students have never used the pass.

Equity Concerns

The program is only open to students in one school district in the three-county TriMet service area. It is important to note, however, that PPS is currently the only school district in the TriMet service area that does not provide yellow-bus service for high school students and that the TriMet service may be most useful for schools in Portland. Students attending private schools are not eligible for the program, although some have requested it.

Avoidance of Tripper Conflict

TriMet does not provide exclusive transit service to students; therefore Youth Pass does not conflict with federal regulation for providing transit service. The Youth Pass program operates on regular routes that serve the general public. The only potential concern relates to the equity comments above (re: subsidy from a regional agency and with state reimbursement funds for a service that is only available to students in the Portland Public School District).

References

Portland Afoot: <http://portlandafoot.org/w/YouthPass>

Portland, TriMet Delaying a Painful Decision on Youth Pass: http://www.oregonlive.com/opinion/index.ssf/2013/04/portland_trimet_delaying_a_pai.html

Washington, D.C.

Subsidizing Student Transportation Using Local Funds

Student Transit Subsidy Program and the Ride Free on Bus Program

Overview

Supported by the Student Transit Subsidy Act passed in 1978 for the District of Columbia and Washington metropolitan region's robust transit system, thousands of students in the District of Columbia rely on public transit to get to and from school using free or reduced-fare passes. Public, parochial, charter, and private school students benefit from a variety of transit subsidy programs administered by the District Department of Transportation (DDOT).

Setting

The Student Transit Subsidy Act requires the District of Columbia to provide transportation services at a subsidized rate to all students. Each year, the DC city government provides funding to DDOT to manage the Student Transit Subsidy Program in coordination with the Washington Metropolitan Area Transportation Authority (WMATA).

Programs

The District of Columbia offers two programs, the Student Transit Subsidy Program and the Ride Free on Bus Program. The Student Transit Subsidy Program is administered by DDOT and allows students to purchase reduced-fare monthly passes from WMATA for use on the bus, rail, or DC Circulator. A reduced-fare pass is issued to students who qualify on the basis of residency in the District of Columbia, enrollment in elementary or secondary school in the District, age under 22 (with exceptions for foster care youth), and the need to use transit to travel to and from school and related educational activities. Students in charter, parochial, public, and private schools are all eligible. A student monthly pass for unlimited trips on Metrorail and Metrobus is \$30, a 10-trip rail pass is \$9.50, and a 10-trip bus pass is \$7.50. Students who are disabled but able to travel on their own are eligible to participate in this program for free. The Office of the State Superintendent of Education (OSSE) requests the free transit passes for students from WMATA with DDOT's approval.

DDOT also operates a Ride Free on Bus Program, intended for school use and approved by the DC City Council in August 2013. While the \$30 monthly pass is good for all hours of the day, DC students can ride Metrobus for free between 5:30 and 9:00 am and from 2:00 to 8:00 pm on weekdays only. With this program, students would not need to purchase the monthly pass if they only use the bus during these days and hours.

For all trips, students are required to show a valid DC One card. DC public students access school buildings using the DC One card issued by the Office of the Chief Technology Officer. This is an identification card that gives students (and adults) access to a variety of government services such as libraries, recreational centers, government services, facilities, and the Metro. Starting in 2013, parochial, private, and charter school students will also be required to use the DC One (replacing the old Student Travel Card). The DC One card costs \$7.

Funding

The Student Transit Subsidy Program is a local initiative funded through the City's General Revenue Fund. For this fiscal year, the District allocated \$6.1 million to DDOT to administer the subsidy program. For each monthly \$30 student fare transit pass, DDOT pays an additional \$34 to WMATA to offset the total \$64 cost of the card. In addition, DDOT pays the Office of the Chief Technology Officer for the cost of the DC One card for private, parochial, and charter school students. The cost of the DC One card is not included in the \$6.1 million operating budget of the Student Transit Subsidy Program. DDOT is in the process of advocating for increased funding support from the DC government to cover unanticipated costs associated with expanding the DC One card to accommodate increased requests for the card because of the Ride Free on Bus Program. The District covers the cost of the Ride Free on Bus Program using additional city government funding.

DC Public Schools (DCPS) pays for the DC One Cards for all DCPS students, in part because DCPS students are required to have DC One cards to enter school facilities. That is, all DCPS students must have one regardless of a transit feature.

It should be noted that since the DC city government budget is overseen and approved by a US congressional committee, Congress—or at least some members of Congress—must be aware of this program and the reasons to implement and fund this type of public transit service for students.

Avoidance of Tripper Rules

WMATA does not contribute any funds to the Student Transit Subsidy Program nor do they operate any separate routes for students.

Additional Resources

2013 Student Transit Subsidy Program: <http://ddot.dc.gov/DC/DDOT/Services/Transit+Subsidies/School+Transit+Subsidy+Program#3>

Baltimore, Maryland

Baltimore Students Attendance Campaign

Engaging students to tackle systemic transportation challenges

Overview

In 2008, the Open Society Institute–Baltimore (OSI) found that one in six Baltimore elementary school students was missing at least 20 days per 180-day school year, as were 34% of middle and 44% of high school students. OSI funded a working group, the Baltimore Student Attendance Campaign, which launched several programs aimed at improving attendance against both excused and unexcused absences.

Setting

Baltimore City Schools is a citywide school district serving 86,000 K–12 students (84% eligible for free and reduced-price lunches) in 195 schools. Free yellow-bus and reduced-cost regional Maryland Transit Agency (MTA) access is available for elementary school students living more than one mile from their school and for middle and high school students living more than 1.5 miles from their school. With a valid Baltimore school ID, students are able to pay reduced fares for local buses (\$0.55 per ride, compared to a full fare of \$1.60).

Transportation-Focused Programs

In tandem with promoting other solutions to alleviate barriers to high daily attendance, the OSI working group has worked to improve public transit access for students:

- **Rate Your Ride.** The MTA partners with the Central Maryland Transportation Alliance to collect real-time feedback about students' experiences with public transportation, to then address those issues. The partners established a website (Rateyourride.org) that allows students to submit reviews through SMS, phone calls, or online. The aim is to take student rider feedback to improve their experience, which they hope will boost ridership.
- **Better information.** Each year, the school district launches a student transportation information blitz for parents and students, with particular focus on the transition years: kindergarten, sixth, and ninth grades. Throughout the year, each school is required to track attendance for the campus and individual students.

Outcomes

Through transportation improvements and coordination, as well as other programs to promote attendance, Baltimore was able to cut its middle school absences in half. It is not clear what percentage of the improvement can be attributed to improved transit access, but organizers are optimistic the program will continue to foster an environment of collaborative problem-solving.

Resources

Attendance Works: <http://www.attendanceworks.org/what-works/baltimore/>

Students Tackle Baltimore's Public Transportation System: <http://www.audaciousideas.org/2012/05/students-tackle-baltimores-public-transportation-system/>

Boston, Massachusetts

Where's My School Bus?

Location information app enabling parents to track their child's bus in real time

Overview

In 2010, Boston Public Schools (BPS) adopted a new bus routing program that grossly underestimated the time between stops, resulting in late buses (37% of routes were late once a month by more than an hour) and frustrated parents. In 2011, the city's Code for America fellows developed the Where's My School Bus app (mobile device application). The app allows parents to log in with their child's date of birth and identification number and see the current location of the bus and its route within the previous two minutes. It does not project arrival times.

Setting

BPS operates 127 schools across 48 square miles, serving 57,100 students in the 2013-2014 school year. Of those students, 75% are eligible for free and reduced-price meals. Approximately 57% of BPS students rely on yellow buses for transportation to school. BPS is unique in that it is a department within the City of Boston; thus, school and city funds are managed by the same government agency.

Public Transportation

Nearly a third of Bostonians use public transportation to get to work, and the city has the fifth highest rate of public transit usage in the United States. Children under 12 are eligible for free Massachusetts Bay Transportation Authority (MBTA) service when accompanied by a paying adult. All BPS students are eligible for discounted or free public transit and are eligible for yellow-bus transportation assistance if they live more than a certain distance from their assigned school (1 mile for elementary, 1.5 for middle, 2.0 for high school). K-5 transportation is exclusively operated by yellow buses, but middle and high school students are expected to make use of yellow buses or public transportation in their travel to school.

Participation and Perception

The app was tested with a few hundred families during the 2012-2013 school year and went live to all BPS families for 2013-2014. The app is available to all parents of city-run, independent charter, and private schools. Overall, participating parents are pleased with the information, though it is no substitute for on-time arrivals.

Development

Initially developed by Boston's Code for America fellows, the app was transitioned to Boston-based company Vermonster for refinement and maintenance.

Resources

Where's My School Bus: <https://schoolbus.bostonpublicschools.org>

BPS School Transportation: <http://www.bostonpublicschools.org/transportation>

New Website Tracks Stops by Boston School Buses: <http://www.bostonglobe.com/>

metro/2013/09/01/with-few-clicks-boston-parents
-can-locate-school-buses-computers-smartphones/qMoncRozbKBrbEPWGkXusl
/story.html

Charlottesville, Virginia

SchoolPool

Resources to encourage ridesharing

Overview

In 2003, the regional Thomas Jefferson Planning District Commission (TJPDC) began encouraging parents having similar schedules and neighborhoods to coordinate ridesharing. An online enrollment form was added in summer 2013 and is being piloted in Charlottesville and the nearby Albemarle County School District. In addition to SchoolPool, the TJPDC works with the Central Shenandoah Planning Commission to manage commuter carpools and vanpools, a Guaranteed Ride Home program, and various promotions such as RideShare week with free coffee at park-and-ride lots.

Setting

The TJPDC is a regional planning district serving Charlottesville and the surrounding five counties, totaling 2,169 square miles and more than 220,000 people. Charlottesville operates Charlottesville Area Transit and is home to the University of Virginia and the University Transit Service. Each of the six school districts within the region provides yellow-bus service to students living over a certain distance from their assigned school.

Eligibility

Any school in the planning district, including charter and private schools, is eligible to participate in SchoolPool, but schools must contact the TJPDC to do so. Currently, 8 of the 38 public schools in the participating school districts are enrolled, as are 6 private/charter schools.

How SchoolPool Works

Once a school has agreed to participate, parents can register online or by mail. Enrolled parents are then matched with others in their proximity with similar schedules and left to contact each other to arrange a mutually agreeable rideshare. Some parents also use the service to coordinate bike and walk pools. The website offers best practices and tips for a successful experience.

Impetus

The TJPDC's ridesharing programs were launched as part of a regional transportation management plan, with the explicit goal of reducing traffic congestion and pollution. This case is unique for not being driven by an education program, but by larger transportation-planning processes.

Resources

A Day On the Go (for kids): <http://www.adayonthego.org/>

Registration page, offered by Thomas Jefferson Planning District Commission: <http://www.rideshareinfo.org/schoolpool.shtml>

TJPDC e-newsletter: http://www.tjpd.org/newsletter/Enews_11_no4.htm

Medford, New Jersey

Resource and Energy Conservation

Alternative fuel, shared service agreements, and state-approved advertising

Overview

In a broad campaign to increase cost-effectiveness of its student transportation, Medford Township Public Schools embarked on a combination of programs in 1998. These include a New Jersey Clean Energy Program–funded demonstration biofuel bus, shared service agreements with the student transportation operators in neighboring towns' school districts, and carefully selected advertising on yellow buses.

Setting

A suburb of Philadelphia, the Township of Medford has 23,000 residents. Medford Township Public School District provides yellow-bus service to its seven K–12 public schools, with 3,500 students over a 42-square-mile service area.

Transportation-Focused Programs

- Biodiesel vehicles. Medford ran its first B20 biodiesel bus in 1998 as part of an alternative-fuel demonstration project. The district expanded the fuel type to its 75-bus fleet because the B20 was 2 cents cheaper per mile to operate than standard diesel (representing savings of about \$10,000 a year). This savings is largely due to the reduction of particulate emissions, which reduces wear on engines and extends the service life of each bus.
- Shared service agreements. Several years ago, unable to afford the replacement costs of a new bus, the school district reached out to neighboring districts that lacked sufficient bus drivers for their routes. The districts agreed to use Medford's drivers to operate the other townships' routes, and to allow Medford to use the school buses, reducing costs for all parties. Medford estimates they have saved \$250,000 under this agreement.
- Yellow-bus advertising. In early 2013, the district secured a four-year, \$48,000 sponsorship agreement with a local food-marketing firm to develop advertisements to be placed on the side of yellow buses. Half of the advertising revenue is used to offset the cost of student transportation, and the other half can be added to the school district's general fund. The state regulates advertising on school buses to ensure it is not distracting to other drivers, contributing to vehicular accidents.
- Solar electric generation. In 2011, the district entered a public-private partnership with an investment group to build a \$22 million solar electric generation panel system at seven locations including schools and the district's transportation center. The system generates just under 3 megawatts of power annually, enough to reduce the district's utility costs by about \$300,000. [This project is included in the report because it contributes to the district budget, which affects transportation funds and other programs. Most school districts have bus yards, so it appears to be an innovation worthy of exploration].

Outcomes

Medford Township Public Schools is working with the New Jersey Sustainable Schools Project

to develop a best practices model to help other school districts identify cost savings in resource use and energy conservation.

Resources

New Jersey district embraces new ideas and saves big: <http://www.schoolbusfleet.com/Channel/management-training/Articles/2013/08/new-jersey-district-embraces-new-ideas-and-saves-big/Page/1.aspx>

Medford Township Public Schools: <http://www.medford.k12.nj.us/>

Discussion of Findings

The innovative practices in student transport that we identified in our national scan and illustrated in the cases demonstrate the variety of responses occurring across the country aimed at expanded and cost-effective options for student transportation. In particular, we found innovations that focused on subsidized youth access to public transit; tools to encourage use of student transportation in place of the family auto; programs to increase school attendance through supportive transport; and reduction in district expenditures on student transport and environmental impacts. Next, we discuss each of these innovations and point to key issues within them, again drawing on the case documents and our interview data.

Subsidized Youth Access to Transit

Subsidized youth passes for using public transit appears to be the most common innovative approach to student transportation that aims to expand regional transportation access for K–12 students and leverage interagency partnerships. Though each is uniquely structured and implemented, several of our cases illustrated this approach (which is also found in other cities including Philadelphia, New York, and Columbus, Ohio). In areas fortunate enough to have reliable public transit systems, extending that service to students seems a logical cost-saving measure. Though school districts are wary of encountering legal action, many have successfully navigated tripper’s exceptions. Key operational distinctions of the applicable case studies are detailed in Table 1.

Degree of subsidy and community acceptance of transit. The level of subsidy is most strongly determined by the school district’s ability to afford the subsidy (because tripper prohibits the use of federal funds), the local public’s willingness and ability to cover the cost, and whether the district receives reimbursement for student transportation from the state. Oakland, Boston, and Washington, DC, have high levels of transit ridership generally, and its residents appear relatively accepting of its use for students. Communities like these are likely to see the value of transit in reducing traffic and be willing to subsidize transit to encourage this trend. Suburban Lakeland, Florida, does not have such a strong or positive culture of transit ridership but attributes its program’s success—measured by high demand and requests for expanded service—to the deep level of subsidy and a public-relations campaign focused on ensuring equitable access and affordability, along with shifting norms of public perception about transit.

Eligibility. Eligibility is generally limited to students enrolled in participating schools and may be limited by age, grade level, or distance between school and home. Students in Oakland, part of AC Transit’s two-county service area, are eligible for discounted youth passes if 18 years of age or younger. This creates problems for older students, as the maximum allowable age of a high school student in Oakland is 22. Washington, DC, extends its discounted pass to anyone under 22, capturing a fair number of college students, which is likely why the district requires proof of school enrollment for its free transit access during K–12 commute hours.

Table 1: Highlights of discount pass programs

Case	Cost to students for free or reduced-cost pass	Eligibility	Yellow bus available to general student population
Lakeland	\$2.14 per year	Students in participating high schools	No
Oakland	\$20 per month	Residents aged 5-18	No
Portland	Free	All public high school students	Elementary/middle only
Washington, DC	\$30 per month Free bus during school commute hours	Residents aged under 22 All students under age 22	No
Baltimore	\$0.55 per ride	All students	Yes
Boston	Free	Public school students living more than 1-2 miles from their school	Yes

Restrictions on number of trips per day. Another distinction among participating school districts is the choice to limit the amount of subsidized student trips per day. Among the examples above, only Washington limits free rides on buses (to 5:30 to 9:00 am and 2:00 to 8:00 pm weekdays). These hours are drawn broadly so that students can travel to and from after-school activities and employment in the evening. The choice to allow travel to destinations other than school and home is handled differently elsewhere. For example, Philadelphia’s SEPTA system allows only two subsidized trips per day, and New York City’s MTA allows up to three. Portland’s high percentage of student trips for things other than school implies that allowing more trips may lead to higher costs. In any case, it should be noted that these restrictions require a certain level of technology for enforcement. Lakeland students receive their discount by showing a student ID with a sticker, not tying the record of that trip to an individual student. New York City’s system requires an electronic pass to be swiped, logging the date, time, and participant ID of the trip.

Working with the federal tripper rule. Tripper service refers to regularly scheduled mass transportation service that is open to the general public and has been designed or modified to accommodate the needs of school students and personnel, using various fare collections or subsidy systems. Transit agencies may provide free or reduced-fare passes for students or operate additional buses (open to the public) during peak hours. These rules apply in addition:

- Buses may NOT carry designations such as “school special” or “school bus” but may use a school name as the final destination on a regular route open to the public.
- Buses may only stop at regular service stop.

- Buses must travel within regular service routes as indicated in their published route schedule.
- Buses must be accessible by the general public and not designed to create the appearance of “school service–only” buses.

Transit agencies have at times been charged with violating the tripper rule. For example, Bay Area Transportation Authority in Sutton Bay, Michigan, created a “Flex Route” that the FTA viewed as an exclusive bus service. The transit agency was ordered by the FTA to stop operations on the route. In another case, New York’s Rochester-Genesee Regional Transportation Authority (RGRTA) was taken to court in 2008 by union members of a private bus company charging that the agreement RGRTA entered into with the local school district to operate more than 240 express routes to area schools was unfairly competing with local private yellow-bus companies. The court ruled in favor of the RGRTA because the routes did not exclusively serve students, even though they were designed with students in mind. Thus, the contract and routes did not violate the exclusivity clause of the federal law.

Lakeland, Florida, made no changes to its bus routes or schedules when it enacted the student subsidy program; bus routes already passed by schools. Though buses are not queued waiting at schools when classes dismiss, participating students and their parents find that the bus system is satisfactory in getting them to school and other activities (Phillips 2013). Lakeland chose not to implement route or schedule changes specifically out of concern for the tripper rule. The service is funded by the district’s general fund, a mix of state and local revenue, avoiding conflict with the tripper rule. In Oakland, on the other hand, AC Transit did create new bus routes for schools. Though these buses are not specifically labeled for students and are open to any member of the public, they are distinguishable by their schedule (once or twice a day in each direction), destinations (ending or starting at schools), and route numbers (three digits, starting with a 6). This approach may be the riskiest of those in the cases studied, but is still allowable under tripper, in part because there is not another competing yellow-bus company in the area. Like all school districts in California, Oakland Unified School District is not required by the state to provide yellow-bus service for most students.

Enrollment. Programs that offer completely free rides to students coincide with school districts that provide student IDs (Portland; Washington, DC), avoiding the requirement to opt in to a special pass. Systems that require payment (Lakeland, Florida; Oakland) require varying degrees of effort on the part of students and their families to opt in. In Lakeland, parents must submit a form and payment to their child’s school, and the child receives a sticker for their student ID. Oakland is just one city within the two-county AC Transit district, and no special program exists to connect Oakland students with the transit district. Youths must first enroll to receive a Clipper card (electronic fare-payment card) and then show up in person at the AC Transit office or at one of a few dozen events per year to prove their age; they receive their free youth sticker in the mail 14 business days later.

A number of cities in the US—including one of the cases we studied, Charlottesville, Virginia—have public transit but do not appear to be specifically coordinating school transport with public transportation.

Tools to Encourage Use of Student Transportation

Where public transit is unavailable or levels of service are low, how can yellow buses and parent vehicles be more efficient? The cases above explore two approaches, both of which have a technology tool component: real-time yellow-bus arrival information for parents and parent ridesharing resources.

Safety concerns. The technologies used by the Boston and Charlottesville programs already existed for the general public (Nextbus and ZimRide, for example) but had to be adapted to address safety concerns related to tracking children's location. Boston's Where's My School Bus requires users to log in with a student's birthdate and ID number. Charlottesville's SchoolPool only allows parents of participating schools to register and gain access to other parents' information. Feedback on these and other student-serving systems suggests that these are necessary safeguards to gain parental acceptance and participation.

There are also electronic passes that students can scan on an onboard card reader when getting on and off a yellow school bus (Richtel 2004). These "electronic eyes" may help parents to feel more secure with their children using a yellow bus because parents can use the electronic tracking to follow their child's whereabouts.

Proliferation of school bus technology apps for users. The Boston and Charlottesville tools have been implemented at a school district level, but technically savvy and enterprising parents are not waiting for schools to offer these services. Many other tools exist in the marketplace, vying for similar exposure and use.

Challenges. These tools require a sizable community of users in order to be viable and useful. Bus tracking requires that a GPS device be installed and maintained on each bus, and thus must be implemented at a school or district level. These devices can be viewed as cost-prohibitive. Carpooling applications require enough users to potentially introduce suitable driver-rider matches, though once these relationships are formed, the tools can be useful purely for scheduling and communication.

Equity. Any tool requiring a smartphone or home Internet connection to operate is likely going to exclude some families. In 2011, 51.8% of US residents reported not owning a smartphone, 32.8% reported not having Internet access at home, and 24.1% reported having neither. This digital divide is particularly pronounced among people with below a high school education (of whom 64.8% have neither smartphones nor home Internet), African Americans (32.1%), and people living outside metropolitan areas (34.5%) (U.S. Census Bureau 2013).

Programs to Increase School Attendance

That adequate transportation to and from school exists is not enough to ensure it will aid in supporting educational outcomes. Poorly implemented transportation presents its own barriers, and as the Baltimore case shows, targeting those shortcomings can improve ridership and student attendance.

Students as stakeholders. Students can provide information on needs and help identify areas of service improvement. The Baltimore case's use of student feedback illustrates this. Such programs may have the added benefit of helping students gain agency in the world of public services.

Performance measures. Partially due to the nature of its funding and status as a demonstration project, the Baltimore case closely tracked the performance of its initiatives. Being able to claim a reduction in truancy may convince policymakers and funders to keep a successful program operating and may attract the attention of other school districts looking for similar solutions. Even when projects are less successful, tracking outcomes and measuring performance make it possible to adjust programs that have potential and reevaluate those that do not.

Reduction in Cost and Environment Impact

With cost being perhaps the main ongoing challenge to providing student transport, the cases all reflect different approaches to the challenge.

Shared service agreements. Particularly for smaller districts, maintaining, operating, and servicing a full bus fleet can be a financial challenge. Sharing elements of the service such as drivers, maintenance staff, buses, and even bus barns among districts can make student transportation services more resilient to tightening budgets. These agreements can be between school districts (as in the Medford, New Jersey, case) or even between a school district and a public transportation agency.

Lessons: Maximizing Opportunity through Student Transportation Innovation

The core issue in student transportation is managing costs from expanded service needs and increasing operational expense while meeting high parent expectations for safety and timeliness. Alongside this are equity concerns and efforts to support school choice and attendance.

Given the patchwork of regulations on student transportation, it should be no surprise that the landscape of local approaches is diverse and piecemeal. With competing mandates—including lower costs, higher safety, more complex routing, greater equity, and improved attendance—some individual locales are cautiously exploring innovative new approaches to student transportation.

The most promising approaches are those that are cross-sector (Agency Council on Coordinated Transportation 2004). Done right, a cross-sector approach not only leads to new operational efficiencies and the effective use of limited public resources, but also has important implications for how institutions respond to social equity issues. The new partnerships arising from these cross-sector approaches underscore the deep and fundamental connections among housing, neighborhood, school, and sustainability advocates, having shared goals that are often not supported by policies and practices when implemented by separate agencies.

Transportation plays a key role in the contemporary context of educational choice and opportunity. Many states and districts across the US agree that reliable and affordable transportation is essential to exercising school choice in our current public education system. When adequate transportation is not available, families bear undue financial burdens, students suffer unacceptable safety risks, and the ability to choose where to attend school is effectively lost.

Providing high-quality school facilities, affordable housing, and vibrant civic spaces is not enough if families cannot easily, affordably, and safely get to these places. Families need affordable transportation options to get to and from home, school, work, and recreation, and they should have options for taking transit, bicycling, walking, and driving. The increasing number of school choice options makes transportation even more important for young people who do not always attend their neighborhood school. Transport is also needed for the important supplements to education including internships, clubs, jobs, and recreational activities at schools or in other locations. For many students, reliable transportation makes the difference between participating and not participating in these kinds of productive, engaging, and academically enriching opportunities. Research has shown that these extracurricular activities constitute a “hidden curriculum” that accounts for much of the achievement gap between wealthy and poor students (Gordon, Bridgall, and Meroe 2005). This is especially true for high school students. A family’s ability to take advantage of increased educational options hinges on their access to safe, reliable, and affordable transportation. In this way, then, access to transportation often

determines which families have the opportunity to choose the most appropriate schools, other educational services, and learning and development experiences for their children.

The federal tripper rule shapes local innovations. As it stands today, the federal tripper rule protects private student-transportation operators from competition from school districts working with public transportation entities to provide direct school transport service to students. This policy creates challenges for school districts that might wish to experiment with collaborative service models. As our cases reveal, such models have been structured to abide by the law. It is unclear whether the student transport industry—and public transit in general—has changed beyond what the original authors of the tripper rule had imagined. Regardless, the policy understandably maintains support from a private-sector industry that is actively growing its market share in a highly profitable industry (Duncan and Mtar 2006; PR Newswire 2011; Wallack 2013). In cases where the public sector is funding overlapping school transit and public transit, we need to question whether it makes sense to keep these two systems separate in order to protect a publicly funded private industry, one that is increasingly monopolistic or oligopolistic in many districts, when publicly funded schools and transit districts are struggling to balance their budgets on limited public dollars.

Public transportation can—and should—be an important part of the mix of student transportation options. Where possible, subsidizing student access to public transportation appears to be a cost-effective supplement to yellow buses. This is more equitable and environmentally friendly than relying solely on parent vehicles or a fleet of yellow buses that operate along the same routes as public transit. Because many students do not have their own income and yet are dependent on transit, these pass programs may, in some cases, be the only way for students to get to and from school. Taking children to school also requires time and money for parents, which may cut into their work opportunities or budgets for other school activities. Affordable and convenient transportation for students will help families to use their limited resources for other educational opportunities.

Cost is clearly a barrier to transportation, and subsidizing youth passes has not been politically or financially feasible in some areas. Yet, given that money is being spent on student transport, there could be money to subsidize passes where practical if the tripper rule, yellow-bus industry, and state reimbursement programs did not prevent using the money on passes.

Ensuring student safety is paramount—and doable. Researchers have found minimal crash-related safety differences between yellow buses and public transit. However, comparing personal safety between the two transportation modes is complicated because some school districts have added human monitors on each bus and stop to watch the students, and school buses may provide more door-to-door service unless the school district has switched to pooled bus stops to decrease time and costs.

Mark Aesch, formerly of Rochester-Genessee, and Tom Philips of Lakeland Area Transit argue that public transportation operators are fingerprinted for background checks and that vehicles are safe and have more camera surveillance than school buses. Many are also already equipped

with GPS technology while school districts are still adding GPS. Also, parents can absorb liability from the school district by signing a waiver. Electronic eye programs have also been tested in some markets, and the technology could be added to public transit buses that service schools. An electronic eye is a card reader on the bus that the student swipes when they get on and off so the parent can track their students whereabouts and safety (Richtel 2004). The issue of safety in transporting students is partially one of perception, bias, and lack of familiarity in communities not accustomed to transit use. It is also worth noting, however, whether a public transit system has taken extra steps to implement systems to ensure student safety.

Contracting out yellow-bus service is a viable option, but structure contracts appropriately and consider public ownership of certain capital assets. Contracting to private providers is an attractive solution to the cost challenge, but research suggests that its long-term affordability (based on the contract details and ongoing competition) should be carefully assessed by school districts. School districts need the knowledge and capacity to conduct such analyses. Shared-service agreements among school districts and student passes for public transit have the potential to offer greater cost-effectiveness and equal or higher quality service unless contracts with private providers are appropriately structured to ensure cost reductions, limit cost increases, and maintain competition. Multiple studies show that contracting can be more expensive for some school districts, but a strong lobby and principled beliefs in privatization of certain government operations keep these private contracts and regulations in place. Given the size and entrenchment of the industry, a federal or multistate task force may be required to study the industry in order to assist local districts in negotiating with global firms through policies, regulations, or tactics; and to identify ways to make the industry more accountable to containing its costs since it is funded completely by public dollars. The 12-state antitrust settlement against First Student/Laidlaw included a provision that allows school districts to retain ownership of a bus yard and then lease it to the provider. Such an innovation requires changes to laws and policy that may exceed a school district's authority or capability.

Create incentives for multimodal transportation choices by students and families. Once transportation options are available, students and families may require incentives to use them. Incentives that inspire students and families to bicycle, walk, or take transit to school do not need to cost additional money. Urban design elements and neighborhood infrastructure that create safe and vibrant environments are critical to getting families out of their cars. For example, reliable and affordable transit with well-marked, safe, and well-lit stations and shelters with real-time bus information support ridership and are key features for families and young people. Many transit agencies offer low-cost or free transit passes for students or low-income riders.

Whenever possible, site schools along existing transit lines or in places where transit can reach efficiently. The location of a school affects many community elements including walkability, traffic congestion, neighborhood desirability, social cohesion, and even housing prices (U.S. Environmental Protection Agency 2003). How and where school districts choose to build these new schools invariably affects other public infrastructure needs such as roads and sidewalks, and this often determines whether students and families can walk, bike, or ride transit to school. The EPA (2011) recently released Voluntary School Siting Guidelines to support such

outcomes. Also, strategically locating schools and community facilities allows schools to serve as the home base for a range of academic and extracurricular activities. For example, strategic school siting might mean that students more easily and safely get to after-school programs, nearby recreation centers, or an internship at a local business. Likewise, parents may walk their children to school on the way to their jobs or pick up children on their way home, making balancing responsibilities more manageable. Strategic colocation is not enough, however. Capital projects must also consider the pathways and access between facilities. Coordinating streets, sidewalks, transit, and other transportation improvements will leverage limited public dollars and ensure people can get to and from the school and city facilities.

Recommendations for school districts:

1. When adequate local transit service is available, collaborate with local transportation agencies to offer youth and other student passes as a cost-effective traffic-reducing and equity-enhancing supplement to yellow buses and parent vehicles.
2. Explore shared-service agreements among transportation providers, including public transportation, community/health and human service transportation, and school transportation.
3. Use technologies to improve safety, service levels, and student tracking.

Recommendations for state and federal policymakers:

1. Considering the protected status of the private yellow-bus industry and explore options to modify the tripper rule to enable more innovative and cost-effective student transportation programs.
2. Provide technical guidance to school districts in contracting with private companies to ensure they limit cost increases.
3. Review state funding and reimbursement formulas for school transport to identify opportunities for cost-sharing and to ensure the long-term cost-effectiveness of vendor selections.

Recommendations for local elected officials and planning departments:

1. Collaborate with school districts to locate new school sites in efficient locations near students' homes, after-school programs, job centers, and other prominent destinations to maximize efficiency and convenience.
2. Collaborate with school districts to create district-wide facility master plans that promote adequate capital investment in maintaining (and perhaps expanding capacity) of schools already located in transit-rich areas.
3. Improve pedestrian infrastructure between transit stops and schools to promote safety and walkability.
4. Focus new family housing development in areas within walking distance of schools.

Conclusion: Combining Strategies

Each of the different programs identified in the case studies targets different barriers to safe, affordable, efficient, and supportive school transportation. Few school districts appear to be trying multiple strategies (e.g., bus passes, tracking technologies, cost-sharing with other districts or agencies, public transit routing, and/or astute contracting with yellow-bus providers). The most effective way for a school district to innovate in student transportation may be to use multiple strategies that target each of the issues: safety, service quality, school and non-school activities, attendance, cost to districts, and affordability to families.

Our study revealed a number of issues that additional research should investigate. Research into the long-term cost-effectiveness of privatized yellow-bus transportation is needed, as is a better understanding of ways to reduce costs and maintain competitiveness, such as public ownership and leasing of bus yards. Researchers should seek to identify the actual safety differences among yellow buses, smaller vans, and public transportation. Researchers should also identify ways for public transit systems to incorporate some of the safety provisions yellow buses have incorporated to protect students and allay parent fears, such as electronic eye tags, cameras, safety arms, and school crossings (but these are only possible if not funded by federal funds until tripper is relaxed or removed). Additionally, studies could perform scenario analysis to show differences in yellow bus service, no-bus (private auto) service, and collaboration with public transit. Finally, research could shed light on how school choice and transportation interact to affect lower-income families. What financial cost burdens are these families taking on to exercise school choice? Are programs to expand public transit access for students—such as those profiled in our study—reducing transportation expenses for participating families and increasing their exercise of school choice? And, perhaps most importantly, are these efforts leading to improved student outcomes?

REFERENCES

- "A Day on the Go." <http://www.adayonthego.org/>.
- "About Polk Transit." <http://www.ridecitrus.com/content/interior.asp?section=about&body=colts.htm>.
- "AC Transit Youth Fares." <http://www.clippercard.com/ClipperWeb/actransit/fares.do>
- Aesch, Mark. 2013. Interview by Julia Ehrman. Telephone.
- Agency Council on Coordinated Transportation. 2004. "Building a Community Bus: Guide to Coordinating Pupil and Public Transportation". Washington State Department of Transportation. http://www.wsdot.wa.gov/acct/library/community_bus.pdf.
- Alexander, M.D. 1990. "Public School Pupil Transportation: Rural Schools." *Journal of Education Finance* 16 (2): 226–246.
- Allen, M, E.L. Young, B.Y. Ashbaker, E Heaton, and M Parkinson. 2003. "Sexual Harassment on the School Bus." *Journal of School Violence* 2 (4): 101–109.
- Alspaugh, John W. 1996. "The Effects of Geographic and Management Factors on the Cost of Pupil Transportation." *Journal of Education Finance* 22 (2) (October 1): 180–194.
- American Public Transportation Association. 2010. "2010 Public Transportation Fact Book." Washington, D.C.: American Public Transportation Association.
- "Baltimore, Md." <http://www.attendanceworks.org/what-works/baltimore/>.
- Bierbaum, Ariel H. and Jeffrey M. Vincent. 2013. "Putting Schools on the Map: Linking Transit-Oriented Development, Families, and Schools in the San Francisco Bay Area." *Journal of the Transportation Research Board* no. 2357. 77–85.
- Bogren, Scott. 2013. "Go Public: Two Recent FTA School Transportation Rulings Reveal Transit's Solution." *Transit to School* Spring 2013. <http://trid.trb.org/view/1252649>.
- Boyne, George A. 1998. "Bureaucratic Theory Meets Reality: Public Choice and Service Contracting in U. S. Local Government." *Public Administration Review* 58 (6) (November 1): 474–484.
- Briggs, Xavier de Souza. 2005. *The Geography of Opportunity: Race and Housing Choice in Metropolitan America*. Washington, D.C.: Brookings Institution Press. <http://www.brookings.edu/research/books/2005/geographyofopportunity>.
- "Bus Transportation." Boston Public Schools. <http://www.bostonpublicschools.org/transportation>.
- Cassell, M. 2000. "Taking Them for a Ride: An Assessment of the Privatization of School Transportation in Ohio's Public School Districts." *AFSCME*. <http://www.afscme.org/news/publications/privatization/taking-them-for-a-ride-an-assessment-of-the-privatization-of-school-transportation-in-ohios-public-school-districts>.
- Center for Transit Oriented Development. 2012. *Families and Transit-Oriented Development: Creating Complete Communities for All*. Berkeley: Center for Cities & Schools, University of California.
- Chin, Teresa and Ted Trautman. 2010. "School attendance clipped by new transit passes." OaklandNorth. <http://oaklandnorth.net/2010/10/06/school-attendance-clipped-by-new-transit-passes/>.
- deLara, Ellen W. 2008. "Bullying and Aggression on the School Bus: School Bus Drivers'

- Observations and Suggestions." *Journal of School Violence* 7 (3): 48–70.
- Deshano da Silva, Carol, James Philip Huguley, Zenub Kakli, and Radhika Rao, ed. 2007. *The Opportunity Gap: Achievement and Inequality in Education*. Cambridge, MA: Harvard Education Publishing Group.
- District Department of Transportation. "School Transit Subsidy Program." The District of Columbia. <http://ddot.dc.gov/DC/DDOT/Services/Transit+Subsidies/School+Transit+Subsidy+Program#3>.
- Duncan, Catriona, and Monia Mtar. 2006. "Determinants of International Acquisition Success: Lessons from FirstGroup in North America." *European Management Journal* 24 (6) (December): 396–410.
- "enews." 2011. Thomas Jefferson Planning District Commission. http://www.tjpc.org/newsletter/Enews_11_no4.htm.
- Federal Transit Administration. 2005. "Public Transportation and School Buses: Questions and Answers". U.S. Department of Transportation: Office of the Chief Counsel. <http://www.fta.dot.gov/documents/SchoolBusBrochureJanuary19-2005.pdf>.
- "First Student, Inc." <http://www.firststudentinc.com/>.
- Fischbeck, P.S., and B.M. Huey. 2002. "Special Report 269: The Relative Risks of School Travel: A National Perspective and Guidance for Local Community Risk Assessment." *Transportation Research Board of the National Academies*. <http://onlinepubs.trb.org/onlinepubs/sr/sr269.pdf>.
- Galliger, Courtney C., Marie S. Tisak, and John Tisak. 2009. "When the Wheels on the Bus Go Round: Social Interactions on the School Bus." *Social Psychology of Education* 12 (1) (March 1): 43–62.
- Gordon, Edmund W., Beatrice L. Bridgall, and Aundra Saa Meroe. 2005. *Supplementary Education: The Hidden Curriculum of High Academic Achievement*. Lanham, Maryland: Rowman & Littlefield Publishers.
- Green, Merissa. 2013. "Lakeland Mass Transit Agreement Lets Summer School Students in Polk Ride Free." *The Ledger*. <http://www.theledger.com/article/20130628/NEWS/130629449?tc=ar>.
- Hanushek, Eric A., and Steven G. Rivkin. 1996. "Understanding the 20th Century Growth in U.S. School Spending". Working Paper 5547. National Bureau of Economic Research. <http://www.nber.org/papers/w5547>.
- Jarvis, Helen. 2005. "Moving to London Time Household Co-Ordination and the Infrastructure of Everyday Life." *Time & Society* 14 (1) (March 1): 133–154.
- Killeen, Kieran, and John Sipple. 2000. "School Consolidation and Transportation Policy: An Empirical and Institutional Analysis. A Working Paper. Revised." *Rural Challenge* (April 24). <http://eric.ed.gov/?id=ED447979>.
- Makarewicz, Carrie. 2013. "Vouchers, Magnet Schools, Charter Schools, and Options: Analyzing the Effects of School and Housing Choices on Mode Choice to School." *Transportation Research Record: Journal of the Transportation Research Board* 2327 (1) (December 1): 1–8.
- Malone, Susan. 2012. "Students Tackle Baltimore's Public Transportation System." *Open Society Institute-Baltimore*. <http://www.audaciousideas.org/2012/05/students-tackle-baltimores-public-transportation-system/>.

- Mathis, William J., and Lorna Jimerson. 2009. "Weighing Outsourcing: You May Save Money on School Services for the District, yet Does It Come with Unintended Consequences?" *The School Administrator* 66 (9): 10–15.
- McDonald, Noreen, and Marc Howlett. 2007. "Funding for Pupil Transportation: Framework for Analysis." *Transportation Research Record* 2009 (1) (January 1): 98–103.
- McGeehan, Jennifer, Joseph L. Annest, Madhavi Vajani, Marilyn J. Bull, Phyllis E. Agran, and Gary A. Smith. 2006. "School Bus–Related Injuries Among Children and Teenagers in the United States, 2001–2003." *Pediatrics* 118 (5) (November 1): 1978–1984.
- McKoy, Deborah L., Jeffrey M. Vincent and Ariel H. Bierbaum. 2011. *Opportunity-Rich Schools and Sustainable Communities*. Berkeley: Center for Cities & Schools, University of California.
- McMahon, Thomas. 2013a. "Gauging the Safety of School Bus Alternatives." *School Bus Fleet*. <http://www.schoolbusfleet.com/channel/school-bus-safety/articles/2013/10/gauging-the-safety-of-school-bus-alternatives.aspx>.
- . 2013b. "Thinking Outside the Bus." *Along for the Ride*. <http://blogs.schoolbusfleet.com/AlongForTheRide/archive/2013/10/16/Thinking-outside-the-bus.aspx>.
- "Medford Township Public Schools." <http://www.medford.k12.nj.us/site/default.aspx?PageID=1>.
- Mikulecky, Marga Torrence. 2013. "Open Enrollment Is on the Menu--But Can You Order It?" Denver, CO: Education Commission of the States.
- National Education Association. "The Case Against Privatizing School Support Services." *NEA*. <http://www.nea.org//home/29420.htm>.
- Oregonian Editorial Board. 2013. "Portland, TriMet delaying a painful decision on Youth Pass." *The Oregonian*. http://www.oregonlive.com/opinion/index.ssf/2013/04/portland_trimet_delaying_a_pai.html.
- Park, Junhyuk, and Byung-In Kim. 2010. "The School Bus Routing Problem: A Review." *European Journal of Operational Research* 202 (2) (April 16): 311–319.
- Phillips, Tom. 2013. Interview by Ruth Miller. Telephone.
- PR Newswire. 2011. "Student Transportation Completes Acquisition; Fourth Previously Announced Deal Closes, Creates Synergies". PR Newswire Association LLC.
- Price, Mark, Stephen Herzneberg, Teresa Herzenberg, and Sean Brandon. 2012. "Runaway Spending: Private Contractors Increase the Cost of School Student Transportation Services in Pennsylvania". Keystone Research Center.
- Richtel, Matt. 2004. "In Texas, 28,000 Students Test an Electronic Eye." *The New York Times*, November 17, sec. Technology. <http://www.nytimes.com/2004/11/17/technology/17tag.html>.
- Roher, Kelly. 2013. "New Jersey District Embraces New Ideas and Saves Big." *School Bus Fleet*. <http://www.schoolbusfleet.com/channel/management-training/articles/2013/08/new-jersey-district-embraces-new-ideas-and-saves-big.aspx>.
- "Schoolpools." <http://www.rideshareinfo.org/schoolpool.shtml>.
- Sclar, Elliott D. 2000. *Privatization: You Don't Always Get What You Pay For: The Economics of Privatization*. Ithaca, New York: Cornell University Press.
- Spence, Beth. 2000. "Long School Bus Rides: Their Effect on School Budgets, Family Life, and Student Achievement." *Rural Education Issue Digest*. Rural Education Issue Digest.

- <http://eric.ed.gov/?id=ED448955>.
- Thompson, Owen. 2011. "The Estimated Cost Impact of Privatizing Student Transportation in Minnesota School Districts." *Public Choice* 146 (3-4): 319–339.
- U.S. Environmental Protection Agency. 2003. *Travel and Environmental Implications of School Siting*. Washington, D.C.: EPA.
- Van Ristell, Jessica, Marcus Enoch, Peter Hardy, and Mohammed Quddus. 2013. "Expert Perspectives on the Role of the Bus in School Travel." *Proceedings of the ICE - Municipal Engineer* 166 (1) (March 1): 53–58.
- Van Ristell, Jessica, Mohammed Quddus, Marcus Enoch, Chao Wang, and Peter Hardy. 2012. "Quantifying the Transport-Related Impacts of Parental School Choice in England." *Transportation* 40 (1) (June 2): 69–90.
- Vaznis, James. 2013. "New website tracks stops by Boston school buses." *The Boston Globe*. <http://www.bostonglobe.com/metro/2013/09/01/with-few-clicks-boston-parents-can-locate-school-buses-computers-smartphones/qMoncRozbKBrbEPWGkXusl/story.html>.
- Virginia School Board Association Insurance Services. 2012. Virginia School Board Association Insurance Services. http://www.vaschoolboards.org/images/uploads/VSBInsurance_WhitePaper_Outourcing.pdf.
- Wacker, Darrell. 2013. "School District Should Slow Down on Transportation Outsourcing." *Vandalia Drummer News*, August 2.
- Wallack, Howard. 2010. "STA offers 'stimulus plan' to school districts." *Along for the Ride*. <http://www.schoolbusfleet.com/Channel/Contractors/News/2010/02/17/STA-stimulus-plan-enables-districts-to-reinvest-in-education.aspx>.
- . 2013. "Why the Future of Contracting Looks Bright." *Along for the Ride*. <http://blogs.schoolbusfleet.com/AlongForTheRide/archive/2013/10/11/Why-the-future-of-contracting-looks-bright.aspx>.
- "Where's My Schools Bus?" <https://schoolbus.bostonpublicschools.org>.
- Wiegand, Douglas M. 2010. "Special Safety Concerns of the School Bus Industry." *Transportation Research Board* 17. http://onlinepubs.trb.org/onlinepubs/ctbssp/ctbssp_syn_17.pdf.
- Wilson, Elizabeth J., Julian Marshall, Ryan Wilson, and Kevin J. Krizek. 2010. "By Foot, Bus or Car: Children's School Travel and School Choice Policy." *Environment and Planning A* 42 (9): 2168 – 2185.
- "Youth Pass." <http://portlandafoot.org/w/YouthPass>.
- Zeitlin, Laurie S. 1989. "Pupil Transportation and Fiscal Responsibility." *School Business Affairs* 55 (4): 35–39.

