



MEMORANDUM

Date: January 26, 2014
To: Scott Prisco
Organization: Arlington Public Schools
From: Diane Lambert, Senior Planner and Alia Anderson, Deputy
Director of Planning, Toole Design Group
Project: APS GO! Transportation Demand Management Master Plan
Re: Task 3: State of the Practice Research

Introduction

As part of the development of the Arlington Public Schools (APS) Transportation Demand Management (TDM) Master Plan, Toole Design Group was tasked with conducting research on the state of the practice related to TDM programs at the school division level. Work for this task included a literature review of existing research on TDM strategies for schools, a review of existing TDM programs (both school- and non-school programs), and the development of a matrix of possible TDM strategies for consideration by APS.

In general, this task revealed few school-oriented TDM programs in the U.S., and no programs in primary or secondary schools that addressed both student and staff travel. While programs of interest and specific strategies are highlighted in Section 3.3, there are limited examples that might serve as a clear model for APS. Safe Routes to School (SRTS) programs that aim to impact student and parent travel to school are far more common in the U.S., largely due to the establishment of a Federal SRTS program in August 2005 as part of the SAFETEA-LU transportation bill. These programs usually focus on increasing student physical activity and often achieve traffic reduction as a secondary benefit.¹ But with notable exceptions in the Toronto and Miami regions, most SRTS programs are coordinated at individual schools and comprehensive, district-wide programs are not as prevalent.

The research conducted for this task indicates that APS is serving as a national leader by taking a division-wide approach to TDM and integrating both student and staff travel in one planning effort. APS already has an active Safe Routes to School program overseen by a full-time SRTS coordinator. At the same time, Arlington County has a very sophisticated and successful countywide TDM program which aims to improve travel choices for county commuters and employers. Through this planning process, APS has the opportunity to enhance its Safe Routes to School efforts, take full advantage of the TDM program opportunities provided by Arlington County, and launch new strategies that aim to improve mobility and environmental outcomes, reduce congestion and support efficient transportation for students and staff.

¹ National Center for Safe Routes to School, *Getting Results: SRTS Programs That Reduce Traffic*.
http://www.saferoutesinfo.org/sites/default/files/resources/getting_results_reduce_traffic_0.pdf

Section 3.1: Literature Review of Existing Research

A review of existing research identified a few comprehensive resources on best practices in school TDM, three of which are summarized below. This memo will highlight key takeaways from these resources while including online links to the resources for continued review and exploration.

Online TDM Encyclopedia (www.vtpi.org/tdm)

This online resource was compiled by the Victoria Transportation Policy Institute and includes useful information about TDM strategies organized by goals, user groups and evaluation. It provides easy access to a wide variety of information and case studies about Transportation Demand Management practices. The Online TDM Encyclopedia includes a School Transport Management page (www.vtpi.org/tdm/tdm36.htm), which includes a comprehensive overview of school transportation management, including a description of program elements, example benefits and costs, possible barriers to implementation, among other things.

Of interest is a listing of best practices summarized from existing resources, all of which will be included for discussion when developing APS's TDM strategies:

- Involve school officials, parents, students and local transportation officials.
- Tailor programs to meet the needs of each specific school.
- Survey students and parents to identify barriers to walking, cycling and transit.
- Integrate programs into school curriculum if possible.
- Implement traffic safety improvements, pedestrian and bicycle safety audits, traffic calming and safety education.
- Address security concerns.
- Include both fun and educational components.
- Implement policies that favor more accessible, pedestrian friendly school design and location, and encourage the preservation of older schools.

The Online Encyclopedia includes many case studies and example programs, but unfortunately most of them are dated and focus almost entirely on Safe Routes to School programs. Follow up research was conducted on several of these case studies, and one relevant example study from Contra Costa County in the San Francisco Bay Area is included in Section 3.3 below.

Finally, the VTPI Online Encyclopedia includes a comprehensive list of over 140 individual TDM strategies and concepts with recommendations on the type of organization (regional, local government, campus, etc.) might be most appropriate to lead each strategy (<http://www.vtpi.org/tdm/index.php#stakeholders>). Examples of the types of strategies that VTPI catalogued include bicycle parking policies, HOV priority lanes and parking, ridesharing programs, telework, and many others. This list of strategies and concepts may prove useful when refining specific strategies appropriate for the APS TDM Master Plan.

Transportation Demand Strategies for Schools/Phase I & II (Research papers, Washington State)

Two research papers on TDM strategies for schools were developed and published in 2007 and 2009 for the Washington State Department of Transportation in response to the state's Commute Trip Reduction (CTR) Law. THE CTR Law was passed in 1991 and calls on employers to encourage their workers to drive alone less, reduce

carbon emissions and help keep traffic flowing on busy commute routes.² The Phase 1 paper includes a very well-researched section discussing how transportation mode choice is affected by school siting guidelines. It provides a good review of the literature (as of 2007) on what factors influence student trips to school, including summaries of studies that address attitudes and the built environment surrounding schools. The studies of attitudes find that distance and traffic are given as primarily barriers to children walking or bicycling to school; fear of kidnapping and crime is also commonly cited by parents, and is difficult to address even when such crimes are rare. Studies of the built environment that are reviewed find that in addition to distance, the quality of the walking environment between school and home is a factor in mode choice. The review also notes that some studies suggest that personal factors, such as the number of cars in the household or the convenience of dropping kids on the way to work, are major reasons children do not walk to school.

The bulk of the Phase 1 paper discusses individual strategies that can reduce single-occupancy vehicle trips to and from school, with examples from across the country. Strategies discussed include several Safe Routes to School programs, transit pass programs, SchoolPool ride-matching programs, use of yellow school buses, and bicycle skills training. The paper then recommends a number of model programs organized by grade level, listing barriers and factors leading to success for each. These programs include two Washington State University-level travel pass programs (UW and WWU) that offer deep discounts to students and staff; Roosevelt High School's (Seattle) multi-faceted TDM pilot program; a Vancouver, BC travel training program for teen leaders; several Safe Routes to School programs in Washington State and California; and California's Cash Out for Parking. Unfortunately, several of these programs appear to have been discontinued. According to the Washington State report, barriers that inhibited the success of these programs include free parking (and its use in the recruitment of new staff and students), limited transit access, long commutes, and cost. The report identifies that programs were more successful when the school controls and/or charges for parking, has extensive transit access, combines the program with other TDM strategies, and manages programs that requires students and staff to opt-out.

The Phase 2 paper provides case studies and results for several Washington State school-based 'programs of interest', and ends with a set of recommendations. The identified programs of interest include Safe Routes to School efforts, high-school and college transit pass programs, and mobility education and encouragement programs. The most interesting program described was a demonstration program to launch a commuter-reduction program at an elementary school located inside a state-designated "commute reduction zone." These zones are designated under the state's Growth Management Act. The program targeted Madison Elementary School in Olympia and conducted typical student encouragement and education programs. The researchers concluded that while the effort demonstrated that an outside organization could work effectively with schools on TDM strategies, the effort did not result in any "innovative ways to capitalize on the GTEC designation, beyond the benefits that are inherent in being located in an area with well-developed transportation facilities."³

The Phase 2 paper summarizes that their research indicates that "No single program or tool universally reduces auto congestion around schools. The Programs of Interest revealed no silver bullet. Rather, a variety of tools exist that schools, other civic institutions, parents, and students can employ or adapt singly and in combination to reduce auto congestion around schools".

The Phase 2 paper concludes with a useful set of recommendations that may be useful for APS consideration:

- Set auto use reduction targets for schools

² Washington State Department of Transportation, *Commute Trip Reduction* website, <http://www.wsdot.wa.gov/transit/CTR>

³ Washington State Department of Transportation, *TDM Strategies for Schools, Phase 2* (2009). Page 45.

- Set walking/bicycling targets for schools
- Expand Safe Routes to School and exploit it as an auto congestion reduction program
- Relate school siting and performance standards to state laws reducing VMT, GHG emissions, and commute trips

Coordinating School and Public Transportation: Assessing Opportunities in New Jersey

This 2012 paper by the Alan M. Voorhees Transportation Center zeroes in on a specific aspect of the trip to school: the coordination of public transportation and school bus trips. The report includes background information and an up-to-date literature review, drawing out the themes of economic benefits and costs; accommodating special needs populations; and safety.

The paper defines effective coordination between school bus and public transportation as that which:

“...results in both agencies increasing ridership, increasing revenue and/or decreasing costs, providing better service, or some combination of these benefits (Andrle et al. 2003). Without these factors, agencies will not be interested in entering a coordination agreement. Coordination has shared objectives, such as eliminating redundant route services or optimizing under-utilized vehicles, and each agency participating in the coordination must share the responsibility of reaching those objectives (Kroger 2005). When implemented effectively, coordination can result in better or equivalent services, lower costs and/or increased revenue for transportation providers who are constantly under pressure by management, officials and tax-paying residents to cut costs and produce revenues.”

Citing examples from across the country, the report outlines different types of coordination, including:

- **Service Coordination**
Includes some element of using an agency’s modes of transportation such as buses, subways and rail lines, to serve the riders of another agency.
- **Transit Pass Programs**
Allows selected students to ride public transit, while the school district pays for their fares in lieu of providing separate school bus service.
- **Para-Transit Services**
School districts can coordinate to share vehicles and mix riders for para-transit shuttles with public transportation agencies, human services providers, or both.
- **Managing Peak Demand**
Takes advantage of varying peak demand times for school buses and public transit. School buses can be utilized by the public transit agency during peak commuting times, particularly the evening rush hour. Alternately, ridership on public transit is low during school dismissal and some starting times, and public transit can be utilized by students for transportation to and from school.
- **Management and Administrative Coordination**
Sharing resources between agencies or consolidating staff required to manage the logistics of route designations and dispatch services, and sharing daily maintenance and storage of vehicles, driver background checks, drug screening and driving training.
- **Physical Stock Coordination**
Consolidating fuel sales, and the purchasing of vehicles, tires and parts, to secure better prices from suppliers.

The researchers enumerate the benefits and barriers related to coordination between various agencies in order to provide these types of programs.

Benefits include:

- Expands fleet size & seating capacity
- Utilizes/fills empty buses during nonpeak hours
- Shares facility, fuel, parts, equipment, maintenance, operational, management & administrative costs
- Increases efficiency by reducing or eliminating duplicate services
- Increases mobility & accessibility of underserved populations

Barriers include:

- Contractual Agreements
- Loss of management control/Reluctance to change
- Liability/Insurance and Legal/Regulatory issues
- Strict vehicle safety standards on school busses & perceptions of “stranger danger” on public transit
- Different ADA requirements
- Mixing of students with general public

Section 3.2: Research on Existing TDM Programs

Following the literature review of existing research, additional research was conducted looking specifically for examples of school districts or divisions in the United States that have launched integrated Transportation Demand Management (TDM) strategies that address both the student and staff trip to school. For this research, Toole Design Group:

- Researched databases maintained by the Transportation Research Board, including Transportation Research Information Services (TRIS), the TRB Publications Index, and Practice Ready Papers Index
- Researched databases and archive of the National TDM and Telework Clearinghouse, contacted their staff, and posted queries on their active list-serve
- Contacted staff at the Association for Commuter Transportation and searched their website
- Contacted officials at the Federal Transit Administration
- Followed leads from the Transportation Demand Management Encyclopedia, maintained by the Victoria Transportation Policy Institute; contacted the Encyclopedia’s author
- Contacted the Community Transportation Association of America and followed suggested leads
- Followed individual leads mentioned in some of the research summaries discussed in Section 3.1 of this memo
- Conducted internet searches
- Researched written materials and interviewed practitioners at a number of existing TDM programs

The research did not uncover a single district-wide school TDM program, and only a few school programs that focused on commute trip reduction. Most school-based transportation programs are Safe Routes to School programs that focus narrowly on increasing student walk and bicycle trips to school, with a primary focus on improving student physical activity and health. Some schools have launched commute-reduction programs that aim to educate and encourage students, sometimes providing incentives such as bus passes and preferential parking for carpoolers. Many universities have TDM programs that cover both students and staff, but these campuses are quite different from a public school setting. Attempts to find TDM programs for a single institution with dispersed neighborhood-based campuses also did not turn up examples relevant to APS. In addition, we found that a number of the programs discovered through the literature review have been scaled back or discontinued.

From this research, a few programs were identified that may offer APS some useful lessons and best practices. Brief case studies for these programs are provided below in Section 3.3.

Section 3.3: Programs of Interest

Research conducted as part of the literature review and the search for similar programs revealed three programs in the United States that contain strategies or experiences that may be informative to APS. In addition, discussions with staff from Arlington County's Commuter Services and a thorough review of their various TDM programs and services provided a wealth of information on existing local programs and potential partnership opportunities for APS; therefore, Arlington County's Commuter Services is included in the following list of programs of interest.

Atlanta's Clean Air Schools – "Clean Commutes", Toolkits, Education and School recognition

Atlanta's Clean Air Campaign is a statewide TDM effort funded through state and federal funds and corporate sponsorships, and supported by Georgia Department of Transportation. In addition to reaching more than 1,600 employers, the campaign includes a robust Clean Air Schools program, with over 300 participating schools in 35 school districts across the region.

The program is centered around air-quality improvement, with most of the focus on education and encouragement for the student's trip to school. In most schools a teacher has been the primary contact and driver of the campaigns. Toolkits, all of which are tied to state education standards of learning, are available to promote carpooling, air quality, and school bus ridership. School participation is acknowledged through a recognition program based on level of commitment from the schools. One-star schools get involved by agreeing to receive smog alerts by reporting the daily Air Quality Index at school; two-star schools take part in week-long events, such as Clean Commute Week; three-star schools participate in month-long campaigns such as the October Bike Challenge, and four-star schools conduct outreach into the surrounding school community. Participating schools receive a metal sign and community recognition handled by a PR firm, but receive no financial subsidy or reward for participation.

The Clean Air Campaign engages with school staff through its TDM outreach program, which targets all employers. In the case of schools, the program usually starts with school administrative offices and works with Human Resources, with a heavy emphasis on arranging carpools and having commuters (teachers and staff) log their clean commutes through an online system. The program offers incentives such as cash rewards, gas cards, and recognition. The Clean Air Campaign also collaborates closely with the Georgia Safe Routes to School program.

511 Contra Costa School Pool program

The 511 Contra Costa is a comprehensive TDM program in Contra Costa County, California, a suburban County on the eastern side of the San Francisco Bay area. The program promotes alternatives to single occupancy vehicles and has been engaged in working to reduce school transportation trips for over a decade. 511 Contra Costa currently manages and coordinates several programs including a Safe Routes to School educational program, walk and bike to school encouragement programs, and a program providing free transit passes to school children. The organization also serves as a portal for two multi-district school bus programs aimed specifically at reducing the number of school transportation trips by parents. All of these programs are funded out of a half-cent sales tax, Measure J, passed in 2004. Contra Costa County is a primarily suburban County on the eastern side of the San Francisco Bay Area.

SchoolPool

The school transit pass program is called “SchoolPool,” as it started out as a ride-matching service in the early 2000s but converted to a transit ticket program at a later date. Outcomes related to carpooling and the transit ticket program were reported in the VTPI TDM Encyclopedia, including:

Carpooling

- In 2002, 321 ride-match requests were received.
- Based on survey responses, it is estimated that of these 321 requests, 177 formed carpools resulting in an estimated reduction of 564 one-way trips.
- A follow-up phone survey was also conducted of participants from the 2001 SchoolPool program indicated that 42% continued to carpool.
- Generally when carpools are formed in Kindergarten, they continue through elementary school, indicating that the program can have long-term benefits.

Transit Tickets

- Of the 559 parents who received bus tickets, the agency was able to contact 163.
- Of those, 98% said that they continued to have their children ride the bus through the year, which represents 548 students who continued to take the bus.
- Since there are two round-trips needed to get children to and from school, and assuming that one of those four segments is a drop-off or walk home, this totals 3 reduced trips per student per day or roughly 1,644 reduced trips.

The Washington State school TDM Phase I case study describes how the Contra Costa program was administered, and notes that it required a full-time employee for 6 months or a half-time employee on an annual basis, with intensive work between April and October during outreach and registration. The total program cost for SchoolPool during the 2002 school year was \$95,000. At that time, the program provided bus tickets only for students whose parents could not identify a ride-match partner, but eventually the ride-matching portion of the program was discontinued due to low utilization. Issues and findings related to the ride-share program included:

- More people wanted rides than could give rides.
- Many participants seemed more motivated to join the program in order to obtain additional child care rather than to reduce transportation costs, relieve congestion or protect the environment. Because of differences in parental work schedules, parents would often need to drop their child off early or pick them up late from the carpooler’s house. This was a significant barrier because parents who were willing to carpool often were not willing to also babysit before and after the ride.
- Program administrators felt that carpooling worked best in wealthier communities where one parent did not work and would be able to have a flexible schedule. It also worked better with private schools to which children came from long distances.
- Program administrators felt that parents were more resistant to getting involved in something that was agency-driven than a program that was school- or parent-driven.
- Carpooling was quite successful at three high schools that provided priority parking to student carpools. All of these schools had very constrained parking. The key to making this work was ongoing regulation of the carpool parking lot so that student drivers could not cheat. Carpoolers had to get a parking permit and list the names of their fellow carpoolers, and a school staff person monitored the parking lot every morning.

Recent research on the SchoolPool program indicates that it has been scaled back even further; no high schools currently take part in the carpool/preferential parking program. Transit tickets are provided up to two students per household in grades 6-12 on a first-come, first-served basis at the beginning of the school year and they are good for two weeks, with the intent of encouraging students to try the bus. Their parents must sign a pledge that their children will take the bus to school and must take a fill out a follow up survey. In 2011-2012, 2,220 students received the transit tickets.

School Bus Programs

511 Contra Costa provides links to two multi-jurisdiction school bus programs that were launched specifically to reduce automobile traffic to schools. Note that in California, school bus fees are commonly paid by parents as many school districts have discontinued free bus service due to budget constraints. Brief descriptions from these programs' websites are below:

[The Lamorinda School Bus Program](#): In 1994 the municipalities and school districts in Lamorinda collaborated to establish a school bus program for the purpose of traffic mitigation. The majority of program funds come from Measure J, a 1/2 cent sales tax in Contra Costa County distributed by the Contra Costa Transportation Authority. Currently the program operates twenty-one buses serving 1,500 students in the Lafayette, Moraga, Orinda Union and Acalanes Union High School Districts. During the 2012-13 school year, the program reports successfully eliminating 630,180 vehicle trips.

[TRAFFIX](#) is a traffic congestion relief program funded by Measure J, the 1/2 cent sales tax approved by Contra Costa voters in 2004. Its sole purpose is to reduce traffic congestion caused by parents driving their children to and from school through some of the San Ramon Valley's most congested intersections. To determine where the program would reduce the most traffic, TRAFFIX conducted comprehensive traffic studies throughout the Valley, and surveyed parents at all San Ramon Valley schools. After careful analysis, TRAFFIX began service in August 2009 with a fleet of new clean-burning buses with state-of-the-art safety features. To encourage parents to stop driving their kids to school, TRAFFIX provides this service at less than half the cost of traditional school bus programs, only \$275 for an entire school year. Parents who register early (by the end of the current school year) get the pass for only \$200, or roughly \$1 a day.

Toronto's Stepping It Up Pilot Project and subsequent TDM efforts

Ontario, Canada established an agency, Metrolinx, with the mission of improving coordination and integration of all modes of transportation in the Greater Toronto and Hamilton area. This agency has been working with local school districts on school travel planning, which generally focuses on Safe Routes to School activities. But one pilot program, Stepping It Up, deserves attention because it covered a large number of schools, focused on sustainability concerns and led to a "Smart Commute" component for staff.

Stepping It Up was led by Metrolinx in partnership with the Region of Peel, the City of Hamilton, Green Communities Canada, and the University of Toronto, with funding from Transport Canada's ecoMOBILITY program. The core of the program was launched through facilitators who worked with 30 elementary schools over 2 and a half years (200-2011), using the 5 "Es" model common in SRTS programs.

The pilot program began with baseline surveys directed at students, families, and staff, as well as traffic counts, a school profile, and a walking audit. The staff survey found that 85 percent of teachers, administrators and support staff reporting driving alone to work; only 2 percent use public transportation regularly. They named barriers to alternative modes such as distance; working in two different schools; and the desire to run errands after school.

Most were satisfied or very satisfied with their commute method. The staff reported they would be more likely to try other modes if they had help in finding carpool partners; had safe non-motorized infrastructure on the way to work and showers and lockers at work; convenient public transportation; and guaranteed rides home.

School Travel Plans were created for 20 schools, but the major activities were all SRTS activities, such as walking school buses and traffic safety education. According to Jennifer Lay, the manager of the program, the intent to include activities for staff was not realized during the pilot, primarily because of the small size of the staff of the elementary schools. Metrolinx could not find a way to effectively serve such small sites; they offered their existing carpool resource for staff but only a few individuals signed up. "SchoolPool" services were not offered for students.

The Stepping It Up pilot program inspired Metrolinx and Transportation Management Associations in the region to focus on school districts as institutions, and two school districts (known in Canadian parlance as 'school boards') have signed up for TDM services. Most activities at this point are focused on the district's administrative offices, which have a greater concentration of workers with more conventional commuting needs. A high school and several elementary schools which participated in "Stepping It Up" are also taking part. Lay says a district-wide emphasis has been key to engaging more staff in carpooling. Teachers and other school-based staff are encouraged to find carpool partners among those at nearby schools – including both the public school system and private schools.

One school district in the region - the Toronto Catholic District School Board - has subsequently begun development of a Transportation Demand Management Plan that applies to both students and staff. The Plan, in draft form as of October 19, 2013, calls for School Travel Plans to be developed at each school, but takes a regional approach. It includes region-wide surveys and data on current conditions, and it recommends hiring a system-wide School Travel Plan Facilitator to help individual schools. For staff, the plan proposes that the school district formally join and use services provided by Metrolinx, including the regional carpool portal and the volume transit pass discount program, and the Emergency Ride Home program. It recommends that the Board contract with bike- and car-sharing vendors to provide non-driving staff with access to cars during the day. It also recommends charging for parking at administrative centers. There is no proposed budget currently attached to the draft.

Lay suggests that the first steps to developing a district-wide TDM program should focus on adopting a clear policy statement, conducting surveys, and then focusing early efforts on school administrative offices. One TDM consultant in the region, Aaron Gaul of Urbantrans, believes that engaging staff in TDM programs improves their ability to persuade students to take part in clean commute efforts – because the teachers become "brand ambassadors" for the new behavior.

Arlington County Commuter Services

As mentioned previously, Arlington County's Commuter Services program provides a wealth of information and services that may be helpful to APS in the development of the TDM Master Plan.

Arlington County Commuter Services (ACCS) was founded in 1989 and its multi-pronged approach has had a major impact: its research arm, Mobility Lab, has documented that in a single day the program shifts more than 40,000 automobile trips to more efficient travel modes, including public transportation, car and vanpools, and bicycling and walking.

ACCS approaches its work to encourage adoption of alternative travel modes primarily as a marketing effort, and then backs up the marketing with support services and incentives. The **Arlington Transportation Partners** division (ATP), with ten sales and marketing professionals, works with large employers to provide customized marketing

products and collaborating with designated commute managers to design, evaluate, and maintain programs within these businesses. Lois DeMeester, Director of ATP, says their strategy is to “always have a reason to go back and talk again to an employer.” She says they learned early that a few brochures are not enough to change habits.

ACCS’s marketing efforts are not limited to large employers and go far beyond brochures. The marketing department oversees the creation of web resources, advertising, direct mail, maps, events, contests, videos (including a comedy show), and campaigns aimed at different demographics. The County has learned that a variety of messages are necessary to reach the county’s diverse residents and workforce, so marketing efforts are carefully segmented. At the same time ACCS strives to make the marketing of alternative transportation information ubiquitous and accessible to all residents, and so maintains travel information kiosks at multiple retail locations and small businesses.

This marketing work has already touched APS in a few ways. Several schools have commuter information kiosks, and materials developed for the “Car Free Diet” campaign are clearly appealing to young people. The “**iRide**” program was launched in 2006 and has been the county’s signature effort to engage teenagers. The program started off with a 2006 survey⁴ of teen travel behaviors and attitudes toward transit; a youth advisory committee guided the initiatives’ work which included a promotional contest and other outreach. Its centerpiece has been a County Council mandated student half-price fare for the county bus system, Arlington Transit (ART). The cost of this discount has been absorbed by the County. The program was initially administered through tokens and lagged after the initial teen advisory committee disbanded. But it has gotten a boost this year with a technological change: the discounts are now available through a specially designed Smart Card that automatically takes the discount. The cards are being marketed at schools partly through visits by the county’s mobile commuter store, and more recently by Arlington Public Schools Safe Routes to School Coordinator.

Two specialized offshoots of ACCS’s marketing effort are BikeArlington and WalkArlington. **BikeArlington’s** three-person staff produce a regularly updated bike suitability map, oversee the Capital BikeShare program, and provide a bicycle issues on-line forum. They have worked with APS on Bike to School Day events in the spring and fall, but have had their most extensive APS contact through bicycle education classes held at schools.

WalkArlington’s two part-time staff people estimate that 70 percent of their work is with schools. In past years the focus has been on Walk to School Day events at a single school, and was handled through APS’s marketing division. But more recently the effort has been expanding system-wide. The staff and Dennis Leach, Director of Transportation for the County, noted that engagement of a school’s leadership makes an enormous difference in the impact of these events. Leach noted in particular the “sea change” he saw at Swanson Middle school, where an energized principal helped create an event that mobilized the school community and made the event feel like an important part of the school day.

ACCS backs up its marketing by making it easy for employers, workers, and residents to access information and incentives for alternative commutes. The website **Commuterpage.com** provides extensive information and resources, as well as links to all of the programs mentioned here, and directs many visitors to **CommuterDirect.com**, a place to buy fare media for all regional public transportation services and sign up for commute benefit programs. The **Commuter Store** is a bricks-and-mortar version, with five locations with standard hours, as well a mobile store that visits many sites (including schools). The stores sell transit fares for all transit services in the region and give away maps and timetables, and the staff help customers with many commute services, such as signing up for the Guaranteed Ride Home program. It is notable that most of the users of the

⁴ Arlington County Commuter Services, “Arlington County Teen Transit Initiative Study,” August 2006

online system do not live in Arlington, and 35 percent of visitors to The Commuter Store neither live nor work in the County. These resources clearly serve a regional customer base.

ACCS's Mobility Lab conducts research and has produced multiple studies⁵ that in many ways document best practices for TDM not just in Arlington, but nationally. Its survey for the launch of the iRide program is the only marketing it has done specifically for a school-age population, but its research on ridesharing, bikesharing, carsharing, commute patterns, and on the effectiveness of its various programs will be useful to APS' efforts. Mobility Lab has produced four short "knowledge papers" that summarize its key insights on TDM. Findings from these knowledge papers that are of particular relevance for APS include:

- **Let employers advance the cause**⁶
 - Employees whose workplaces offer commute assistance services (primarily transit subsidies) are much less likely to drive alone. Employers in Arlington are offering these services to provide an important employee benefit and to improve morale. Forty-five percent (45%) of the businesses say the benefits make recruitment easier.
 - 28 percent of Arlington residents who drive alone to work say they would like to try a commute alternative.
 - The biggest barrier to ride-sharing is not knowing how to find a carpool partner or a vanpool.
- **Run continuous education campaigns: build awareness of options and how to use them**⁷
 - Every five years the County turns over 50% of its population base.
 - Almost half of teen riders say that a lack of information and knowledge may be a barrier for riding the bus. Thirty-five percent said they don't know where the bus stops are, and 32% said they can't find bus info.
 - A lack of clear transit information is a barrier to riding the bus for all residents.
- **Make travel options easy to use: shop online or in a commuter store**⁸
 - More than half of the visitors to the umbrella CommuterPage.com website say they made a change in how they travel to work since visiting the site, and 70 percent of them say the site was instrumental in their changed commute.
- **Support Arlington's Urban Villages: Cars not required**⁹
 - Proximity of origins and destinations to a bus or rail stop increases the likelihood that people will choose the bus or train. A 1999 survey found that 94 percent of MetroBus users walk less than five blocks to the bus stop.

All of this takes staff time and resources: Arlington expects to spend about \$11 million on TDM in 2014, including \$1.1 million on marketing, \$2.2 million on its retail stores, and almost \$2 million helping employers through Arlington Transportation Partners. Mobility Lab has documented the benefits of this investment in more than six areas: transportation efficiency, environmental improvements, public health and safety, economic development,

⁵ Mobility Lab Research Catalogue available at: http://mobilitylab.org/research/mobility-lab-research-catalog/#key_research_based_insights

⁶ Available at: http://mobilitylab.org/wp-content/uploads/2013/03/KnowledgePapers_LetEmployersAdvancetheCause.pdf

⁷ Available at: <http://mobilitylab.org/2007/02/01/run-continuous-education-campaigns-%E2%80%94-build-awareness-of-the-transportation-system-how-to-use-its-services/>

⁸ Available at: <http://mobilitylab.org/2008/02/01/make-travel-options-easy-to-use-%E2%80%94-shop-online-or-in-a-store/>

⁹ Available at: <http://mobilitylab.org/2007/02/01/support-arlington%E2%80%99s-urban-villages-%E2%80%94-cars-not-required/>

quality of life, and livability and affordability. The program is supported through a variety of sources; the two largest are federal transportation funds and local fees.

Working with APS

At a meeting between APS and ACCS on November 19, 2013, the County's transportation leadership expressed strong support for working more closely and collaboratively with APS to shift more school transportation to active and efficient travel modes. While ACCS has interacted with APS in the past as mentioned above, these interactions have been somewhat disjointed, involving a variety of different departments in APS, and in some cases have not been sustained. ACCS staff mentioned that arranging school visits was a challenge; schools are justifiably protected of students' time; arrangements for each school require multiple contacts with multiple people.

The meeting ended with several big picture takeaways:

- ACCS leaders and staff are excited and ready to collaborate to help make *APS Go!* a success.
- The extent of ACCS programs is a highly valuable resource for APS, but the ACCS staff is already quite busy and any increase in their workload will need to be negotiated.
- An effective and sustainable program will require staff: both full-time hires, such as the new SRTS coordinator, and designated employees across APS's marketing, transportation, and other departments. School-level coordinators, who are trained and contacted regularly, will likely also be important in the interface between ACCS and APS TDM programs.
- Arlington's culture is highly competitive, and this could be used to spur a successful APS program: both by encouraging schools to compete against each other in changing commute rates, and by gaining national attention for what will undoubtedly be a groundbreaking program.

APPENDIX A: SELECTED TDM RESOURCES

511 Contra Costa organizational website: <http://511contracosta.org/about/>

Arlington County Commuter Services: *Teen Transit Initiative Study*. Sept. 2009. Mobility Lab.
<http://mobilitylab.org/2006/09/11/2006-arlington-county-teen-transit-initiative-study/>

Arlington County Commuter Services background web page:
<http://www.commuterpage.com/pages/about/arlington-county-commuter-services/>

Atlanta Clean Air Campaign Clean Air Schools webpage: <http://www.cleanaircampaign.org/Your-Schools>

Carlson, Daniel, and Malia Langworthy, Jana Wright, Deric Gruen. *Transportation Demand Management Strategies for Schools: Phase I*. Nov. 2007, Evans School of Public Affairs University of Washington.

Carlson, Daniel, and Deric Gruen, Jennifer Thacker. *Transportation Demand Strategies for Schools: Phase II Report: Reducing Auto Congestion Around Schools*. Jan. 2009, Washington State Transportation Center, University of Washington

Center for Urban Transportation Research: <http://www.cutr.usf.edu/> which operates the TDM and Telework Clearinghouse: http://usf-cutr.custhelp.com/app/answers/detail/a_id/2610/~school-pool-programs

Litman, Todd. *Transportation Demand Management Encyclopedia*. March 2013. Victoria Transportation Policy Institute <http://www.vtpi.org/tdm/index.php>

Meehan, Sean and Trish Sanchez. *Coordinating School and Public Transportation: Assessing Opportunities in New Jersey* May 2012 Alan M. Voorhees Transportation Center, Rutgers University

Metrolinx School Travel Resources webpage (Toronto):
http://www.metrolinx.com/en/projectsandprograms/schooltravel/school_travel_resources.aspx which includes the Metrolinx Toronto “Stepping it Up: Final Report”:
<http://www.metrolinx.com/en/projectsandprograms/schooltravel/SteppingItUpReportENG.pdf>

National Center for Safe Routes to School, *Case Study: Miami and Dade County, FL*
<http://www.saferoutesinfo.org/program-tools/case-study-miami-and-dade-county-fl>

Toronto Catholic District School Board Transportation Demand Management Plan:
<http://www.tcdsb.org/ProgramsServices/BoardServices/studenttransportation/Documents/TDMP%20December%202013%20small.pdf>

APPENDIX B: MATRIX OF EXAMPLE TDM STRATEGIES

This table includes a subset of TDM strategies selected for potential relevance to APS. For a more extensive compendium of TDM Strategies, see the VTPI TDM Encyclopedia (<http://www.vtpi.org/tdm>).

TDM PROGRAM/STRATEGY	EXAMPLE	TYPE	TARGET POPULATION
Custom school ride-match program	Atlanta Regional Commission/Clean Air campaign	Coordination	Student
School pool-student carpool coordination	Santa Cruz/Atlanta Clean Air Campaign	Coordination	Student
Service coordination with public transportation	NJ TRB paper	Coordination	Student
Discourage high school driving	many	Education	Student
Classroom environmental impact education programs	Atlanta Clean Air Campaign, NJ TransOptions	Encourage	Student
High school month-long bike challenge	many	Encourage	Student
Hydrogen Fuel Cell Model Car Challenge (high school)	NJ TransOptions	Encourage	Student
Junior Solar Sprints (middle school)	NJ TransOptions	Encourage	Student
Teacher-led walking/biking buses	New Hampshire	Encourage	Student
Young Lungs at Work Art Competition	Atlanta Clean Air Campaign	Encourage	Student
Youth-oriented VMT reduction program	Atlanta Clean Air Campaign	Encourage	Student
Free or reduced school transit pass	many, APS iRide	Incentive	Student
Free transit passes or punchcards	Contra Costa Cty	Incentive	Student
Transportation Access Guides (Alternative Commute Maps)	ACCS	Information	Student
Encourage school bus use	Atlanta Clean Air Campaign/Flippen Elementary Henry Cty.	Encourage	Students
Require permits for school drop-offs	City of Wilmington, DE	Incentive	Students
Automated “tag in” system that alerts parents when walk/bike students arrive at school, tracks mileage, and more (http://active4.me/)	National City (San Diego, CA)	Information, Encourage	Students
Commute options awareness fairs	many	Education	Staff
Commuter incentive club	Lebanon NH	Incentive	Staff
Parking cash out programs	California and RI state laws	Incentive	Staff
Provide adequate bike parking for employees	Lebanon NH	Infrastructure	Staff
Contract with bike/car sharing for mid-day trips	Toronto	Service/Support	Staff
Guaranteed ride home	many	Service/Support	Staff
Staff showers and lockers for active commuters	Portland OR	Service/Support	Staff
Instant-carpool phone/website apps (e.g.,	many, Arlington County	Coordination	Student & Staff

Carma and Ridescout)			
Bicycle skills certification	many	Education	Student & Staff
Transit use education and training	many	Education	Student & Staff
Classroom competitions for cleanest commutes	Atlanta Clean Air Campaign/Big Shanty Intermediate	Encourage	Student & Staff
Clean Air mascot	Atlanta Clean Air Campaign (Clean Air BAIR)	Encourage	Student & Staff
Week-long clean air awareness week, with commute log	Atlanta Clean Air Campaign	Encourage	Student & Staff
Charge for school parking	Washington state study	Incentive	Student & Staff
Priority parking for carpools	Contra Costa County, Toronto	Incentive	Student & Staff
Bike sharing stations and membership	many, Arlington County	Infrastructure	Student & Staff
Secure bicycle parking at schools	many	Infrastructure	Student & Staff
TDM marketing	many, ACCS	Encourage	Student & Staff
Better transit information - apps (OneBusAway)	Arlington Mobility Lab	Information	Student & Staff
Enhanced crosswalks, traffic calming, etc near schools	many	Infrastructure	Student & Staff
Administrative coordination with public transportation	NJ TRB paper	Coordination	Administrators
Clean Air School with graduated partner levels	Atlanta Clean Air Campaign	Encourage	Administrators
Schools sharing parking space with churches to reduce campus size	Seattle	Infrastructure	Administrators
Use public transportation for school transportation	NJ TRB report	Infrastructure	Administrators
School travel plans	Pell & Hamilton ONT	Planning	Administrators
School siting policies	many (explored further in APS GO! Task 5)	Policy	Administrators

APPENDIX C: TDM RESOURCES AVAILABLE IN ARLINGTON COUNTY

TDM RESOURCE	DETAILS	TYPE
ACCS/Arlington Transportation Partners		
ATP Website	Extensive portal for information on every aspect of alternative transportation (www.arlingtontransportationpartners.com)	Information
Workplace commute champions	Recognizes employers with strong TDM programs	Encourage-competition
Capital Bikeshare corporate membership	Corporate sponsors get free or discounted bikeshare memberships/usage fees for employees	Incentive
Transit information displays: static & digital	Digital displays using large, flat-panel LCD screens to provide transit information specific to each location, including bikeshare & carshare	Information
Transportation concierge training	Trains property managers on local transportation options so they can answer tenants' questions effectively	Education
Rideshare support & matching	Helps firms set up benefits program, but does not offer direct ridematch services. WMCOG is the provider, and Commuter.com page lists dozens of other ridematching services, including just-in-time apps	Coordination
Emergency commute planning	Helps businesses create plans for getting home during a storm or other emergencies	Planning
Employee transportation survey	Develops surveys to help employers understand your employee's commuter patterns	Research
Customized marketing materials & info events	Customized brochures for employer and office location(s); conduct seminars, brown bag lunches, workshops to provide commute option info	Marketing
Business-oriented assistance on transit benefits, bikeshare, etc.	Provides information employers need to offer employee transit benefits, take advantage of bikeshare, get a Bicycle Friendly Business designation, more.	Education
ACCS/BikeArlington		
BikeArlington website	Website provides bike map, group rides, capital bikeshare info; education info (http://www.bikearlington.com/)	Information
Bicycle education classes for adults	Two-Wheeled Tuesday are casual classes; more formal classes teach basic riding skills and confident city cycling to adults, as well as commuter seminars. APS Adult Education provides traffic skills and maintenance & repair classes.	Education
ACCS/commuterpage.com		
Be a PAL street behavior campaign	Education for all users to be predictable, alert, and lawful. More accessible videos, would work with kids.	Education
Moving Words poetry competition	Posts poems on Metro buses; Selected from APS students in partnership with APS Humanities project	Encourage-competition

ACCS/The Commuter Store, CommuterDirect.com		
Commuter Store & Commuter Direct one-stop shopping for transit fares	Covers Metro, VRE, MARC, Circulator, DASH; five in-person stores, website, and a mobile store that moves around on a schedule, mostly at Metro Stations	Information
ACCS/iRide for Teens		
Discount student smart card on ART buses	Cards cost \$2.00, valid until student's 19th birthday, student loads money, users pay half-price (\$.75) fare	Incentive
School route maps	School-specific maps showing bus and bike trails nearby	Information
ARTists for PAL design contest	Held a contest to design a bus wrap promoting PALS program	Encourage-competition
ACCS/TDM for Site Plan Development		
Establishes Property Transportation Coordinators (PTCs)	PTCs are designated by the developer and responsible for reporting compliance annually through an on-line reporting system; they are also expected to be knowledgeable about transportation options; required through 1990 County ordinance	Coordination
Provide carpool and rideshare benefits	Convenient and free parking for car and vanpools; parking subsidy	Incentive
Provides property-specific fact sheets of benefits	Yorktown High School has a handout generated: benefits include: capacity for 90 bicycles; PE training for students on safe bike use; school buses; iRide reduced fare on ART; #60 monthly commute benefit for carpool, transit, non-motorized commute; reserved carpool spaces	Information
ACCS/WalkArlington		
Site provides encouragement information; walkabout maps; SRTS resources & info; walking workday program	Early SRTS conducted school site visits; most of site now seems to link to national resources; site emphasizes health benefits	Information
Arlington County Police Department		
Bicycle education classes for youth	Officers provide education to school age children	Education
Arlington's Car-Free Diet		
Program Website	Site profiles Arlington's urban villages; social-media encouragement; sketch comedy; sign-up & make pledge; calculator for \$/calorie/emissions savings; transport options info; transit how-to guide (http://www.carfreediet.com/)	Encouragement
Mobility Lab		
OneBusAway transit information apps	Provide real time bus arrival information on smart phones	Information
Program website	Research collection & results; evaluation of Arlington programs impacts and benefits; business survey; blog with a national scope; Studies of mode use and potential in Arlington: carsharing, bikeshare; travel pattern surveys; employer surveys; and surveys of TDM program elements and benefits; marketing studies	Research

MWCOG: Commuter Connections		
Guaranteed Ride Home	Pays for taxi, transit fare, or rental car to get home from work in an emergency for those not driving to work.	Service
Pool Rewards	New carpoolers during rush hour earn \$2 per day for 90 days in exchange for logging their experience	Incentive
Ridesharing Bulletin Board	Online forum-style method for finding a commute partner for both vanpools and carpools; users must register	Coordination