MEMORANDUM

Date:	February 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 2: Existing Conditions Analysis and Baseline Assessment, Summary of Deliverables

Introduction

This memo provides an overview of the findings from the Existing Conditions Analysis (Task 2) of APS GO!, a transportation demand management program and master plan for Arlington Public Schools (APS). Transportation Demand Management (TDM) is defined by Arlington County as "a bundle of strategies that influence travel behavior in order to improve both mobility and system efficiency" (Arlington County, *CommuterPage.com*). TDM strategies often focus on increasing people's travel choices and reducing driving, resulting in better environmental outcomes, improved public health and stronger communities. TDM can also provide cost-effective alternatives to meeting a community's mobility needs and increasing the capacity of the transportation system.

The APS GO! project was launched in July 2013 and will result in recommendations for new or revised policies, programs, and job positions aimed at reducing traffic congestion, improving safety and reducing greenhouse gas emissions related to APS transportation. The Plan will address budget considerations for TDM strategies, outline a process for individual schools to develop TDM Plans, and recommend criteria for new school site selection. The draft APS GO! Plan will be presented for school board adoption in the late spring of 2014.

Task 2, the Existing Conditions Analysis and Baseline Assessment, involved a review of available transportation-related data, an evaluation of current travel habits and preferences of the APS community, and an analysis of existing practices, policies and responsibilities related to transportation. The APS GO! project includes student and staff travel to and from 41 APS sites, including both school and non-school locations.

The findings from Task 2 are organized and presented in four sections:

- Section 2.1: Analysis of Existing Data and Travel Surveys
  - Section 2.1 Appendix: Survey Summary Reports
- Section 2.2: Greenhouse Gas Emissions
- Section 2.3: Multimodal Access Scores
  - Section 2.3 Appendix: Site Profiles
- Section 2.4: APS Policy Review

A summary and key takeaways from each section are provided below. Attached to this summary memo are the full reports for each of the sections outlined above, each of which provides a detailed overview of the methodology and findings. All of the findings from Task 2 will inform subsequent tasks as part of developing the TDM Master Plan, including drafting goals and performance targets, proposing criteria for new school site selection, and recommending programs, policies and procedures related to TDM.

Task 2: Summary of Findings

Section 2.1: Analysis of Existing Data and Travel Surveys

Section 2.1 provides the findings from the analysis of existing APS data on sites, staff, students and current TDM programs, as well as findings from a series of travel surveys that were conducted as part of this project. Four travel surveys were conducted in October and November of 2013 in order to evaluate the travel modes, habits and opinions of APS students and staff. Staff surveys were administered via an online survey, delivered to staff through email, and through paper surveys made available by department heads. Staff surveys were conducted with all APS employees (at both school and non-school sites) and were completed by 51.4% of APS staff. Student travel was measured using three parallel processes: student travel tallies, parent surveys and a student survey of a sample of 11th and 12th graders. Student travel tallies were conducted in Physical Education class with students grade K-10, and focused on student's transportation mode to and from school on the day of the survey as well as on a "typical" day. Parent surveys were conducted online (distributed by email) and on paper (available in school main offices), and asked parents 31 questions about their child's travel habits and related factors. The response rate to the parent survey was 30.1% of APS students. Last, the 11th and 12th grade survey was conducted in-class with a sample group of students, selected by APS Planning and Evaluation based on a variety of factors to ensure adequate representation of the 11th and 12th grade population at each school. The sample group included roughly 40% of 11th and 12th graders and, of this group, 88% responded to the survey. The 11th and 12th grade survey included 16 questions about student's travel habits and preferences.

There were a number of notable findings from the analysis of existing data and travel surveys that can be used to help guide the development of TDM goals, targets and priority strategies. First, existing walk and bike rates for APS students are relatively high (See Table 1). The greatest opportunity to increase active transportation (walking and bicycling) may exist in the lower grade levels, where students are more likely to live closer to their schools. Bus rates vary based on student distance from school, which is a reflection of the APS busing policy; however, APS data shows that 60% of students who are eligible for busing are actually riding. This indicates that there may be opportunities to encourage more busing within eligible students or examine the bus eligibility policy.

Table 1. Student Travel Modes, 2013 APS GO! Surveys

Most Common Mode	Student Travel Tally (K-10)	Parent Survey (PreK-10)
Walk	20%	20.1%
Bike	2%	1.9%
School Bus	40%	46.4%
Drive/Personal Vehicle/Family Vehicle	34%	27.3%
Carpool	3%	2.1%
Public Transit	0.4%	1.9%

Looking at the travel mode results from the 11th and 12th grade survey (Table 2), it is notable that the public transit rate (6.2%) of students is relatively high compared to staff transit use (shown in Table 3), and there may be opportunity to impact the drive and carpool rates among high school students. APS data also shows that there may also be opportunity to increase participation in the existing student iRide transit pass program, which was launched in 2013 and provides discounted ART bus fares to APS students.

Table 2. Student (11th and 12th Grade) Travel Modes, 2013 APS GO! Surveys

Most Common Mode	11th/12th
Walk	14.9%
Bike	2.8%
School Bus	30.9%
Drive/Personal Vehicle/Family Vehicle	50.1%
Carpool	7.8%
Public Transit	6.2%

The staff surveys (Table 3) indicate that an estimated 88% of APS staff drive to work most days. Survey questions about factors that impact staff travel choices indicate that there may be potential to influence travel modes through incentives, education and programs to support multimodal transportation. A review of APS data shows that free parking is provided for staff, which may contribute to travel mode choice. There may also be opportunity to increase staff participation in the existing travel benefits programs, which provide subsidies for eligible APS employees who walk, bike, carpool, vanpool or take transit to work.

Table 3. Staff Travel Modes, 2013 APS GO! Surveys

Most Common Mode	Staff
Walk	3.2%
Bike	1.5%
School Bus	N/A
Drive/Personal Vehicle/Family Vehicle	88.0%
Carpool	1.6%
Public Transit	3.6%

Section 2.2: Greenhouse Gas Emissions

Because TDM strategies help people and organizations reduce driving, they can lead to lower levels of transportation-related greenhouse gas (GHG) emissions. For this reason, Toole Design Group (TDG) was tasked with estimating the GHG emissions related to transportation at Arlington Public Schools. The findings can serve as a baseline for measuring the impact of transportation demand management strategies on GHG emissions over time.

This estimate of greenhouse gas emissions includes transportation-related emissions from student driving, staff driving and school vehicles (buses and other APS fleet vehicles). Because the focus of APS GO! is transportation demand management, other emission sources like utilities, building energy and lighting are not included in this calculation. The calculation was completed using data for the 2013 school year, including:

- driving rates for students and staff from the APS GO! travel surveys
- driving distances for students from the travel surveys and from anonymous student address data
- driving distances for staff from anonymous staff zip code data
- bus and vehicle fleet data from the 2012 Arlington County Government Operations Greenhouse Gas Inventory[1]
- Environmental Protection Agency (EPA) estimates for average vehicle emissions[2]

APS greenhouse gas emissions from transportation sources are currently estimated to be 10,398 metric tons of carbon dioxide equivalent (CO_2e) per year. Considering that the APS community includes 28,128 people (students and staff), this is an estimated 370 kilograms of CO_2e per person per year. If APS begins to collect school-based travel data for students and staff in the future, the baseline for GHG emissions may need to be updated using new data.

Source	Emissions (mtCO$_2$e per year)
Student and Staff Driving	7,684
APS vehicle fleet (non-bus)	359
Buses	2,354
TOTAL	10,398 metric tons of CO_2e per year

Section 2.3: Multimodal Access Scores

Although the goal of the APS GO! Plan is to develop division-wide TDM strategies, it is important to acknowledge that not all sites/schools have the same opportunity for multimodal transportation. A range of characteristics specific to each site will influence how people travel to that site, including:
- "Permanent" physical conditions, like the geographic location of the site and major physical barriers in the area,
- "Variable" local conditions like the presence of crossing guards and crosswalks, and
- "Cultural" elements like education and encouragement programs offered at school.

It was beyond the scope of this project to develop site-specific program and improvement recommendations for individual locations; however, it was important to gain a general understanding of how each site's location and physical surroundings might support or inhibit TDM. For this reason, Toole Design Group developed a Multimodal Access Opportunity scoring system for the sites. The Multimodal Access Opportunity Scores focused on the "permanent" conditions described above and were designed to get a sense of each site's opportunity for multimodal transportation. A simple set of criteria was used to develop two Opportunity Scores for each site: a Walk/Bike Score and a Transit/Bike Share Score. (See the full Section 2.3 report for scores and details.) Input for the scores came from APS data and a field scan of each site, conducted by Toole Design Group in Fall 2013.

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[1] SAIC and Arlington County, *2012 Government Operations Greenhouse Gas Inventory*, May 2013. http://freshaireva.us/wp-content/uploads/2013/05/2012-ArCo-Gov-Ops-Inventory-with-cover.pdf

[2] U.S. Environmental Protection Agency, *Greenhouse Gas Emissions from a Typical Passenger Vehicle*, December 2011. http://www.epa.gov/otaq/climate/documents/420f11041.pdf and U.S. Environmental Protection Agency, *Emission Factors for Greenhouse Gas Inventories*, November 2011. http://www.epa.gov/climateleadership/documents/emission-factors.pdf

These scores will be used to help APS set realistic performance targets in the next stage of this project. Toole Design Group also developed a profile for each APS sites/schools, to provide more detail on the physical surroundings of the site (as observed in the field scan). Profiles also include information on student and staff mode share, as reported in the APS GO! travel surveys. Site profiles are presented as the Section 2.3 Appendix.

Section 2.4: Policy Review

Section 2.4 provides the findings from the review of existing APS policies which may impact travel to school. This task was not intended to identify specific policy recommendations, but to gain an understanding of the existing policy framework available to support TDM strategies, and identify possible areas of opportunity for APS. Specific policy recommendations will follow APS's identification of desired goals and performance targets for the APS GO! TDM Master Plan.

All APS School Board Policies and Policy Implementation Procedures were reviewed, and over 30 APS policies were identified that directly relate to staff and student transportation, as well as policies related to health and wellness, APS facilities, or general APS goals and priorities that could indirectly impact transportation. Generally, it was found that APS has a strong existing policy framework related to Transportation Demand Management. No significant policy barriers were identified and APS has policies that address multimodal transportation in several areas, including student and staff wellness and TDM policies, school safety, pupil transportation (including transit), staff telecommuting and local travel reimbursement policies and school boundary policy. In addition, School Board priorities and the charge of several Councils and Committees provide top-down structures to support multimodal transportation among students and staff.

Several high-level opportunities were identified to improve APS policies related to multimodal transportation. To improve clarity and ease of use, APS may be able to streamline and consolidate policies related to transportation and TDM. *Pupil Transportation* and *Transportation Services* policies could be expanded to address all modes (not just busing) and there may be an opportunity to add a policy related to student and staff transportation data collection and evaluation. For more information and findings, see the full Section 2.4 memo.