

Impact of Montgomery County's Safe Routes to School Program

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Safe Routes to School is a national and international model for making walking and bicycling to school safer and more accessible for children and for increasing the number of children who choose to walk or bicycle. Montgomery County initiated its Safe Routes to School (SRTS) program in 2004.

The Council requested this study to understand the impact of SRTS in the County and whether the program should be expanded. OLO found that pedestrian and bicycle collisions near schools decreased following SRTS engineering improvements, and that this decrease differed from Countywide trends. OLO, however, was unable to discern whether the SRTS program changed the number of students that walked or biked to school.

Background on Pedestrian and Bicycle Safety Around Schools

DOT, the Police Department and MCPS each play a role in addressing safety issues around schools. Generally,

- MCPS distinguishes between bus riders and walkers and evaluates bus stops and recommended walking routes to schools that ensure student safety;
- DOT responds to MCPS requests for physical improvements to infrastructure that promote pedestrian and driver safety around schools as needed; and
- The Police School Safety Section oversees the Crossing Guard Program and School Safety Patrols.

SRTS in Montgomery County

In 2004, the County initiated SRTS. DOT leads SRTS in collaboration with the Police Department and MCPS. Consistent with Federal Highway Administration guidelines, the County’s SRTS program incorporates activities in the “5 E’s”: Education, Encouragement, Enforcement, Engineering and Evaluation, as outlined below.

The “5 E’s” of the Montgomery County Safe Routes to School Program

Component	Description
Engineering	DOT assessments of areas around schools to identify and implement engineering improvements that facilitate walking and bicycling to school, such as crosswalks, flashers and signs.
Education	DOT provision of safety programs in school and outreach to school staff to promote pedestrian and bicycle safety, focused on 40 targeted elementary and middle schools.
Encouragement	DOT promotion of activities intended to encourage walking or bicycling to school, such as Walk to School Day, walking school buses and bicycle trains, and Bike to School Day.
Enforcement	Police enforcement activities around 40 targeted elementary and middle schools.
Evaluation	Data collection and analysis by DOT, Police and CountyStat to monitor SRTS outcomes.

SRTS Budget. Over the past ten years, the annual budget for SRTS totaled \$200,000 or less. The majority (82% in FY16) of funding was allocated to engineering improvements, which cost an average of \$7,000 per school. This represents a small share of the County’s budget for pedestrian safety, which totaled \$8.1 million in the operating budget and \$58.6 billion in the Capital Improvements Program for FY16. On the whole, the SRTS program accounts for less than 1% of the County’s planned expenditures for pedestrian safety in FY16.

Impact of SRTS on Pedestrian and Bicycle Safety

To assess the impact of the SRTS engineering component on safety, OLO examined data on pedestrian-vehicle and bicycle-vehicle collisions around schools before and after SRTS engineering improvements. OLO was unable to assess the impact of other SRTS activities on safety, or the impact of SRTS on school walker and biker trends.

Overall, OLO found that pedestrian and bicycle collisions within a quarter-mile from public schools decreased following SRTS engineering improvements, and that this decrease differed from Countywide trends. While OLO cannot conclude whether the SRTS program *caused* the observed decreases, the table below shows that for three out of four assessment years (2009, 2010, and 2011), collisions within a quarter-mile of schools decreased following engineering improvements, while collisions in other parts of the County remained flat.

Pedestrian and Bicycle Collisions per 100,000 County Resident Population, Within and Outside the ¼-Mile Radii Around Public Schools, by Year of Assessment

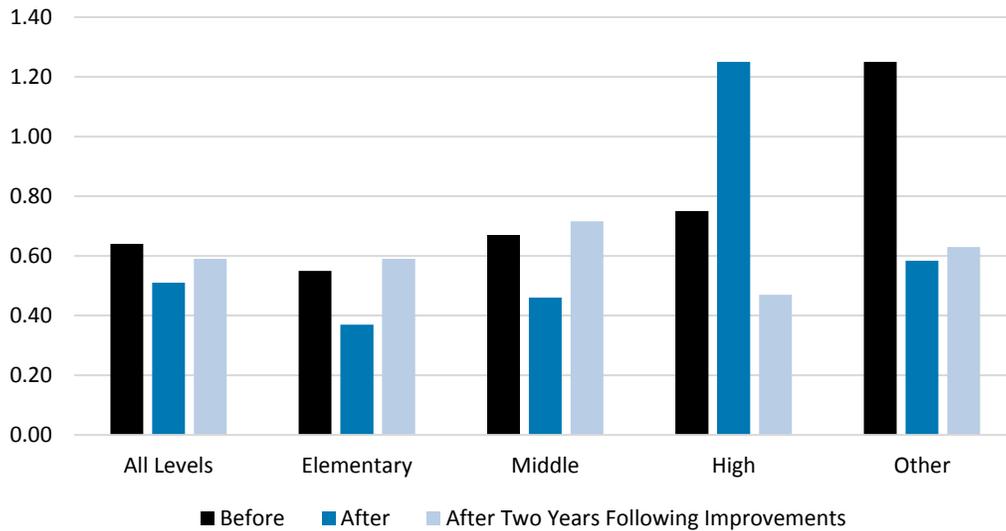
Year of SRTS Engineering Assessment*	2009	2010	2011	2012
# Schools Assessed	23	29	29	25
"Before" Period	2007 to 2008	2008 to 2009	2009 to 2010	2010 to 2011
"After" Period	2011 to 2012	2012 to 2013	2013 to 2014	2014 to 2015
Collisions Within ¼-Mile of Assessed Schools				
# Collisions Per 100,000 Before	4.8	4.5	2.8	2.0
# Collisions Per 100,000 After	3.1	2.6	1.8	2.5
Difference	-1.7	-1.9	-1	0.5
% Change	-35%	-42%	-36%	25%
Collisions Not Within ¼-Mile Radius of Any School				
# Collisions Per 100,000 Before	91.1	94.2	94.3	91.9
# Collisions Per 100,000 After	93.2	96.2	91.5	92.7
Difference	2.1	2	-2.8	0.8
% Change	2%	2%	-3%	1%

* OLO excluded from its analysis 96 schools assessed before 2009 or after 2012, to ensure that collision data were available for both two years before the assessment and two years after the estimated completion of improvements.

OLO also examined changes in average annual collisions by school type and whether decreases in collisions near schools persisted beyond two years, as shown on the chart on the next page. Two findings emerged:

- In the two years following engineering improvements, pedestrian and bicycle collisions schools decreased near elementary and middle schools but increased near high schools; and
- After two years, collisions near elementary and middle schools generally returned to their pre-engineering improvement levels for both elementary and middle schools.

Average Annual Collisions Within 1/4-Mile Radii of Schools Before and After SRTS Improvements



OLO’s Recommended Discussion Questions

Overall, OLO finds that SRTS engineering improvements may have reduced pedestrian and bicycle collisions near schools, though this impact may not persist in the long term. However, any impact from this fairly small program, which accounts for less than one percent of the County’s pedestrian safety investments, suggests that there may be value in continuing the program and expanding it where warranted.

OLO offers two recommended discussion questions for the Council to raise with DOT, MCPS and the Police Department during worksession:

1. What opportunities exist to further support pedestrian and bicycle safety around schools?

The Council may wish to discuss with agency staffs potential strategies for further supporting pedestrian and bicycle safety around schools, including strategies targeted at students who reside further than a quarter-mile from schools and ways to maintain safety gains from SRTS engineering improvements. The Council may also wish to discuss whether opportunities exist to improve collaboration between MCPS, DOT and the Police Department to support pedestrian and bicycle safety.

2. Given that the SRTS program is a low-cost intervention that appears to have generated results, do opportunities exist to expand the use of SRTS concepts?

As noted above, the SRTS program accounts for less than 1% of the County’s pedestrian safety expenditures, which also include the Crossing Guard Program and the education, engineering and enforcement activities that form part of the Pedestrian Safety Initiative.

The Council may wish to discuss with Executive Branch staff how other pedestrian safety interventions compare with the SRTS program in regards to their effectiveness and whether opportunities exist to implement SRTS concepts around other places that attract pedestrian traffic, such as libraries and public transit facilities.

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Impact of Montgomery County’s Safe Routes to School Program

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Introduction

Safe Routes to School is a national and international model for making walking and bicycling to school safer and more accessible for children and for increasing the number of children who choose to walk or bicycle. Potential outcomes of Safe Routes to School programs include increased physical activity, safer walking and bicycling conditions, and reduced traffic congestion. Montgomery County initiated its Safe Routes to School program in 2004. The Council requested this OLO report to better understand the impact that this program has had and whether it should be expanded. In particular, this report:

- Describes Montgomery County's Safe Routes to School program and related initiatives; and
- Examines data on the impact of the Safe Routes to School program on motor vehicle collisions with pedestrians and bicycles.

OLO staff members Natalia Carrizosa and Carl Scruggs conducted this study, with assistance from Dr. Elaine Bonner-Tompkins, by reviewing program information and analyzing data on pedestrian and bicycle collisions. OLO received a high level of cooperation from everyone involved in this study. In particular, OLO thanks: Venu Nemani, Fred Lees, Boris Calderon, Nadji Kirby and Joe Pospisil from the Department of Transportation; Captain Tom Didone, Ti Lor and Devang Dave from the Police Department; and Todd Watkins and Angel Garcia-Ablanque from Montgomery County Public Schools.

Chapter 1. Safe Routes to School in Montgomery County

The national percentage of children walking or bicycling to school declined from 48% of K-8th grade students in 1969 to 13% in 2009.¹ Safe Routes to School is a national and international model for making walking and bicycling to school safer and more accessible for children and for increasing the number of children who choose to walk or bicycle. Safe Routes to School incorporates activities in the “5 E’s”:

1. Engineering
2. Education
3. Encouragement
4. Enforcement
5. Evaluation

Potential outcomes of Safe Routes to School programs include increased physical activity, safer walking and bicycling conditions, and reduced traffic congestion.² In 2004, the County initiated its Safe Routes to School program (SRTS), which is led by DOT in collaboration with the Police Department and MCPS. This chapter describes the SRTS program and related programs and policies, and is organized as follows:

- **Section A** provides an overview of MCPS student transportation policies;
- **Section B** summarizes the national Safe Routes to School model;
- **Section C** describes the County’s Safe Routes to School activities; and
- **Section D** provides an overview of other County programs that relate to pedestrian safety.

A. Board of Education Student Transportation and Safety Policies

To provide context for the County’s SRTS program, this section summarizes Montgomery County Board of Education policy with respect to student transportation, including the operation of MCPS buses and student safety.³

Eligibility for Transportation. Board of Education policy (see Appendix A) establishes that MCPS will provide transportation services for students traveling to and from school as follows:

- For elementary school students residing in areas beyond a 1-mile radius of the school;
- For middle school students residing in areas beyond a 1.5-mile radius of the school;
- For high school students residing in areas beyond a 2-mile radius of the school;

¹ “How Children Get to School: School Travel Patterns from 1969 to 2009,” National Center for Safe Routes to School, November 2011, < http://saferoutesinfo.org/sites/default/files/resources/NHTS_school_travel_report_2011_0.pdf > accessed 6/16/2016.

² “Build and Sustain a Program,” National Center for Safe Routes to School of the University of North Carolina Highway Safety Research Center < <http://saferoutesinfo.org/program-tools/build-sustain-program> > accessed 6/16/2016; and “Safe Routes to School Programs at Part of the Solution,” *Safe Routes to School Online Guide*, University of North Carolina Highway Safety Research Center, last updated July, 2015, < <http://guide.saferoutesinfo.org/> > accessed 6/16/2016.

³ Board of Education of Montgomery County Policy EEA, “Student Transportation” < <http://www.montgomeryschoolsmd.org/departments/policy/pdf/eea.pdf> > accessed 9/14/2016

- For students residing closer to schools than the distances defined above where conditions are considered hazardous for children walking to and from school;
- For students enrolled in consortia high schools and magnet, gifted and talented, International Baccalaureate, language immersion, alternative or other programs as deemed necessary; and
- For students eligible for enhanced transportation services under federal and state laws, such as students with disabilities.

Student Safety. Board of Education policy also states that MCPS is responsible for designing traffic control patterns for new and renovated schools and for evaluating bus stops and recommended walking routes to ensure student safety. This policy establishes guidelines for walkable routes to and from school or bus stops, as listed below:

- In residential areas, students can be expected to walk along and across streets, with or without sidewalks;
- Along primary roadways, students can be expected to walk if a sidewalk or sufficient shoulder is available;
- At controlled intersections with traffic signals or crosswalks, middle and high school students may be required to cross the road;
- A crossing guard must be present for elementary school students to cross a primary roadway;
- Elementary and middle school students may only be required to cross railroad tracks if a pedestrian overpass, underpass or crossing guard is present; and
- Students may be expected to walk along pedestrian routes such as private or public pathways.

Of note, DOT and MCPS staff report that they collaborate to address safety issues around schools. For example, DOT responds to MCPS requests for physical improvements to infrastructure around schools on an ongoing basis outside of the SRTS program (see pages 6 and 7 for a description of SRTS engineering improvements).

Finally, Board of Education policy calls for a “systemwide outreach and education program” to promote safety by teaching safe walking practices and encouraging safe bus-riding behavior. Parents are responsible for students’ safety when walking to and from school or their bus stop and when riding the bus.

B. The National Safe Routes to School Model

The Safe Routes to School concept originated in Denmark in the 1970s. In 1997, the Bronx in New York City created the first Safe Routes to School program in the United States. Subsequently, additional Safe Routes to School efforts began across the United States, including two pilot programs funded through the National Highway Traffic Safety Administration in 2000.

In 2005, Congress created the Federal Safe Routes to School Program, providing nearly \$1 billion in funding for states between 2005 and 2012. Following this period, the Moving Ahead for Progress in the 21st Century Act of 2012 made Safe Routes to School activities eligible for federal funding through the Transportation Alternatives

Program.⁴ The Federal Highway Administration recommends that Safe Routes to School programs incorporate five components known as the “5 E’s”, defined in Table 1: engineering, education, enforcement, encouragement and evaluation. Additionally, the Safe Routes to School National Partnership notes that some jurisdictions have begun incorporating a sixth component, equity, to ensure that initiatives benefit all demographic groups.⁵

Table 1. The “5 E’s” of Safe Routes to School Programs

Component	Description
Engineering	Operational and physical improvements to infrastructure surrounding schools in order to (1) reduce speeds and limit conflicts with motor vehicle traffic; and (2) make crossings, walkways, trails and bikeways safer and more accessible.
Education	Activities that teach children about their transportation choices and instruct them in bicycling and walking safety skills, and driver safety campaigns for areas around schools.
Encouragement	Events and activities aimed at promoting walking and bicycling, such as International Walk to School Day, walking school buses and bike trains.
Enforcement	Partnerships with local law enforcement and crossing guard programs to ensure compliance with traffic laws among drivers, pedestrians and cyclists in areas around schools.
Evaluation	Data collection and analysis to monitor and document outcomes and trends

Source: Federal Highway Administration, *Guidance for the Safe Routes to School Program*, updated 10/10/2014

A 2015 research review summarizing evidence on the impact of Safe Routes to School programs found that these programs have been effective at increasing walking and bicycling to school and at reducing accidents and injuries. More specifically:

- Engineering improvements led to an 18% increase in the share of children walking or bicycling to school over five years in the District of Columbia, Florida, Oregon and Texas;
- Education and encouragement activities increased the share of children walking and bicycling to school by 25% over five years in the District of Columbia, Florida, Oregon and Texas; and
- Safe Routes to School efforts in New York City led to a 44% reduction in injury rates among child pedestrians during school travel hours.⁶

C. Montgomery County’s Safe Routes to School Program

In 2002, the Montgomery County Blue Ribbon Panel on Pedestrian and Traffic Safety released its final report, with recommendations for creating pedestrian-friendly communities. The report included a recommendation that the County, “carry out a countywide ‘Safe Routes to Schools’ program to maximize safety and access for students at all schools for limits set for bus service (i.e. two miles for high schools).” The County initiated its Safe Routes to School (SRTS) program in 2004 with the first engineering assessments around schools. The DOT

⁴ “History of Safe Routes to School,” *Safe Routes to School Online Guide*.

⁵ “The 6 E’s of Safe Routes to School: Embracing Equity,” Safe Routes to School National Partnership Blog, 11-4-2015.

⁶ McDonald, N., “Impact of Safe Routes to School programs on walking and biking,” San Diego, CA: Active Living Research; 2015, < http://activelivingresearch.org/sites/default/files/ALR_Review_SRTS_May2015_0.pdf > accessed 6-29-2016.

Division of Traffic Engineering and Operations leads the SRTS program in collaboration with the Police Department and MCPS. The seven objectives of the County’s SRTS program are to:

- Document existing conditions;
- Identify and enhance school walking routes;
- Minimize vehicle-student interaction;
- Increase student visibility at schools;
- Organize and control traffic in school zones;
- Control arrivals and departures; and
- Enhance traffic safety education for students.

SRTS includes activities in each of the “5 E’s”: (1) engineering, (2) education, (3) encouragement, (4) enforcement, and (5) evaluation. Of note, between FY08 and FY16, DOT received grant funding from the Maryland Highway Safety Office for the non-infrastructure aspects of the County’s SRTS program. For each of five grant periods, grant funding was awarded for specific schools based on initial engineering assessments conducted by DOT (see following page). In later years, DOT incorporated pedestrian collision data into its prioritization for schools for grant funding. Appendix B lists the schools for which the County received grant funding in each grant period.

Table 2 displays data on County funding and grant funding from the Maryland Highway Safety Office for SRTS between FY06 and FY16. As shown on the table, the County funded SRTS engineering interventions, and State grant funding supported education, encouragement and enforcement activities. Significantly, education, encouragement and enforcement activities were targeted at elementary and middle schools in compliance with Federal Safe Routes to School requirements. The remainder of this section summarizes SRTS activities in each of these five areas.

Table 2. Montgomery County SRTS Funding, FY06-FY16

Funding Type	FY06	FY07	FY08	FY09	FY10	FY11
County Funding						
Engineering (DOT)	\$80,000	\$80,000	\$80,000	\$80,000	\$156,240	\$156,240
Maryland Highway Safety Administration Grant						
Education & Encouragement (DOT)	\$0	\$0	\$27,875	\$56,852	\$40,376	\$33,952
Enforcement (Police)	\$0	\$0	\$0	\$10,900	\$12,800	\$12,200
Total	\$80,000	\$80,000	\$107,875	\$147,752	\$209,416	\$202,392
Funding Type	FY12	FY13	FY14	FY15	FY16	Total
County Funding						
Engineering (DOT)	\$156,240	\$156,240	\$156,240	\$156,240	\$156,240	\$1,413,680
Maryland Highway Safety Administration Grant						
Education & Encouragement (DOT)	\$53,090	\$28,000	\$44,399	\$40,532	\$20,266	\$345,342
Enforcement (Police)	\$25,200	\$15,200	\$29,200	\$28,800	\$14,400	\$148,700
Total	\$234,530	\$199,440	\$229,839	\$225,572	\$190,906	
Eleven-Year Total						\$1,907,722

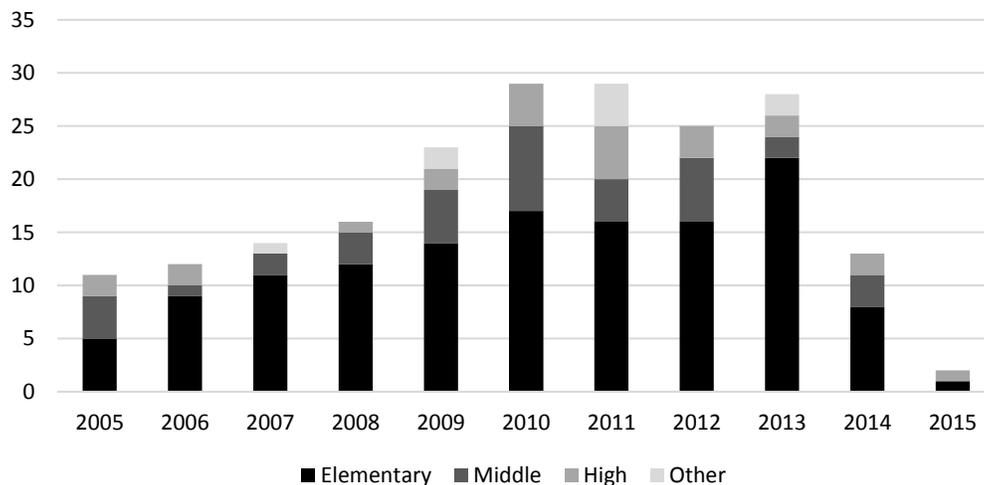
1. Engineering

DOT works collaboratively with MCPS to identify and address school-related traffic problems on an ongoing basis. Additionally, through the SRTS program, DOT conducts systematic assessments of areas around schools with the goals of identifying engineering improvements to facilitate walking and bicycling to school and improve safety. DOT received a total of \$1.4 million for this purpose between FY06 and FY16. DOT conducted initial assessments of public schools from 2004 to 2005 to prioritize schools, and then conducted comprehensive assessments between 2005 and 2014 to inform engineering improvements. DOT is currently in the process of conducting assessments for private schools.

Initial assessments. From 2004 to 2005, DOT examined the roughly quarter-mile radius around each public school and generated an Initial Safety Score for each school. The score was based on existing physical infrastructure such as signs, markings, sidewalk network and crosswalk inventory. Schools with low initial safety scores were given priority for comprehensive assessments and for State grant funding for education, encouragement and enforcement activities (see pages 7-9).

Comprehensive assessments and engineering improvements for public schools. Comprehensive assessments of public schools, which were conducted between 2005 and 2015, covered up to the half-mile radii around schools, with a focus on areas within the quarter-mile radii. 202 public schools and holding sites were assessed during this period.⁷ Chart 1 below shows that DOT conducted the largest numbers of assessments in the years between 2009 and 2013, coinciding with the implementation of the County Executive’s Pedestrian Safety Initiative beginning in 2009.

Chart 1. Numbers of SRTS Comprehensive Assessments by Year



As part of each assessment, DOT staff met with school staff to discuss safety issues and physically examined the area around the school to produce a map of existing roads, sidewalks and traffic control devices such as signs and crosswalks. As part of the assessments, DOT sought to identify appropriate locations for controlled crossings and other improvements with the goal of encouraging students to cross roads at the most appropriate locations for their route to school.

⁷ No comprehensive assessments have been conducted for Belmont Elementary School or Paint Branch High School. Additionally, DOT conducted a comprehensive assessment of Rolling Terrace Elementary School in 2002, prior to the creation of the SRTS program.

Initially, DOT used assessments primarily to update signs and markings to current standards and improve sidewalk connectivity. For example, the assessments identified signs that were not in compliance with the current standard of black text on fluorescent yellow-green, or places where sidewalk gaps existed or crosswalks were needed. The assessments also examined parking and stopping rules in front of schools. More recent assessments have also identified areas where traffic calming measures are needed, such as curb extensions and crosswalks with pedestrian refuge islands. Recommended engineering improvements were typically completed within a year of the assessment.

DOT provided OLO with information on over 1,000 improvements recommended as a result of SRTS assessments. Table 3 displays information on the most common types of recommended improvements.

Table 3. Improvements Frequently Recommended Following SRTS Assessments

Category	Description
Crosswalks and Stop Lines	Installation, remarking or removal of crosswalks, stop lines, or crosswalk-related signage
School Zone	Establishment or removal of a School Zone, which is an area where speeding fines are doubled, including installation or removal of School Zone-related signage or flashers
Parking and Stopping Regulations	Installation, modification or removal of signs establishing regulations regarding parking or stopping along the road
Other Signage	Installation, modification, repair, replacement or removal of signage including stop signs, speed limit signs, school warning or school directional signs

2. Education

Although Board of Education policy calls for a system-wide outreach and education program to promote safe walking practices, schools are not required to provide pedestrian or bicycle safety education. DOT’s Safe Routes to School Coordinator conducts outreach to school staff to promote pedestrian and bicycle safety education and provides safety programs in schools. DOT has focused its outreach efforts on 40 schools for which State grant funds were awarded (see Appendix B for a list of schools in each grant period). DOT staff report that additional schools have proactively contacted DOT to request assistance with safety education.

DOT received a total of \$345,000 between FY06 and FY16 for education and encouragement (see next section) activities. In total, 47 elementary schools, 5 middle schools and 6 high schools have offered at least one pedestrian or bicycle safety activity in 2014 or 2015. DOT’s education interventions include:

- Provision of activity books, coloring books and other educational materials to schools;
- Provision of pedestrian and bicycle safety activities such as “bike rodeos”, which teach and assess students on safe bicycling skills, and crosswalk simulation activities at schools and community events;
- Development of bicycle and crosswalk training certifications for crossing guards and police;
- Collaboration with Safe Kids Montgomery County, a program of the Fire and Rescue Service, to store and maintain bicycles and provide bicycle and pedestrian safety education during Safe Kids Montgomery events; and
- Training of Montgomery Blair High School and Bethesda-Chevy Chase High School students to facilitate crosswalk simulations during safety events.

3. Encouragement

The SRTS program promotes a wide variety of activities and events intended to encourage walking or bicycling to school. Schools are not required to provide encouragement events or activities or report the activities that they offer. DOT staff encourage schools to participate in the activities described below, with a focus on the 40 schools for which grant funds were awarded (see Appendix B):

- **Walk to School Day.** On the first Wednesday of October, communities in over 40 countries hold events to encourage walking and bicycling to school. DOT staff encourage schools to register for and participate in Walk to School Day. A Walk to School Day event can incorporate the other activities listed below as part of the day. DOT staff report that participation in this event increased from 23 schools in 2009 to 46 schools in 2015.
- **Mileage Clubs and Contests.** To encourage children to begin walking or bicycling or increase physical activity, schools can have children track the number of miles they walk or bicycle. Children may receive a small gift or a chance to win a prize after a certain mileage goal is reached.
- **Walking School Buses and Bicycle Trains.** Schools can organize groups of students accompanied by adults to walk or bicycle a pre-planned route to school. Routes can originate from a particular neighborhood or, in order to include children that live too far to walk or bicycle, begin from a parking lot. They may operate daily, weekly or monthly. Often, they are started in order to address parents' concerns about traffic and personal safety while providing a chance for parents and children to socialize.
- **Park and Walk.** To reduce traffic congestion around a school and encourage physical activity for parents and children, schools can designate a parking lot to which families can drive and then walk the remaining distance to school.
- **Morning Mile/On-Campus Walking Activities.** In places where it is unsafe or difficult to walk to school, communities can encourage walking on the school campus. For example, school officials can establish walking activities before or after school or during recess, physical education or health class. Walk routes on the school grounds provide all students an opportunity to walk a safe route and increase their physical activity.
- **Walking Wednesday.** Schools can encourage students and parents to make every effort to walk or bike to school on a designated day of the week. This can be any day of the week or combined with a week of pedestrian and bicycle safety activities.
- **Bike to School Day.** The first ever national Bike to School Day (BTSD) began in 2012. Because fewer students bike to school than walk and some schools do not have bike racks, DOT staff report that promotion of this event is challenging. Despite that, staff report an increase in the number of schools that have registered their participation in BTSD, from one school in 2012 to nine schools in 2015.

4. Enforcement

The Police Department is responsible for enforcement of traffic laws in the County. Between FY09 and FY16, Police received a total of \$149,000 from the Maryland Highway Safety Office for overtime hours to conduct enforcement activities in the quarter-mile radius around the 40 elementary and middle schools identified as SRTS grant schools. Data on enforcement activities are not available for the period prior to FY12. Staff report the data listed below on grant-funded activities for the period from July, 2011 to December, 2015, noting that

the most common reasons for citations during these enforcement activities were failure to stop at a stop sign and speeding:

- July 1, 2011 to December 31, 2013 Grant Period: 541 enforcement hours resulted in 732 citations; and
- October 1, 2013 to December 31, 2015 Grant Period: 1,065 enforcement hours resulted in 1,325 citations.

The Police Department operates additional programs and initiatives, outside of SRTS, that incorporate school-related traffic enforcement and other pedestrian and bicycle safety activities, including the Crossing Guard Program and the Safety Patrol Program. These programs are described on page 11.

5. Evaluation

DOT, the Police Department and CountyStat collect data to monitor outcomes of the SRTS program and analyze trends by (1) collecting data from students and parents in schools for which State grant funds were awarded and (2) analyzing data on pedestrian collisions around schools and involving school-age pedestrians.

Student tally forms and parent surveys. For the grant schools, DOT collected data through tally forms filled out by teachers based on student answers and parent surveys to understand children’s travel mode of choice to and from school as well as parents’ knowledge and attitude towards walking and bicycling. Data were only collected for grant schools during the applicable two-year grant period, and schools did not consistently collect data. As a result, sufficient data are not available to assess the long-term results of the program. However, staff report using qualitative data collected from surveys, such as parents’ responses regarding why they decided to allow or not allow their children to walk to school, to inform the design of education and encouragement activities.

Pedestrian collision data. CountyStat collaborates with DOT and Police to analyze pedestrian collision data for areas around schools as part of its review of the County’s Pedestrian Safety Initiative (see page 10). CountyStat’s analyses focus on areas within the quarter-mile radii around schools. The July 2014 Pedestrian Safety Initiative Update examined monthly pedestrian collisions near schools for which State grant funds were awarded (see Appendix B for a list of schools).⁸ CountyStat compared the three-year period prior to the dates of completion of engineering improvements to the period after improvements were completed. The impact of the engineering improvements on pedestrian safety was mixed:

- For 16 “Grant B” and “Grant D” schools, monthly pedestrian collisions decreased after completion of improvements;
- Yet, for six “Grant C” schools, pedestrian collisions increased after completion of improvements.

As shown in the November 2015 Pedestrian Safety Update, 25 collisions involving school-age pedestrians near 206 public schools occurred from 2012 to 2014, a reduction from the 31 collisions that occurred between 2009 and 2011.⁹

⁸ Montgomery County CountyStat, “Pedestrian Safety Initiative Update,” July 23, 2014, pp. 39-41, available at: < <https://reports.data.montgomerycountymd.gov/en/dataset/Ped-Safety-Web-Version/fmkw-w6ux> > accessed 8/11/2016

⁹ Montgomery County CountyStat, “Pedestrian Safety Initiative Update,” November 10, 2015, pp. 31, available at: < <https://reports.data.montgomerycountymd.gov/en/dataset/Nov-2015-Ped-Safety-Update/5m9f-6wrk> > accessed 8/11/2016

D. Additional County Pedestrian and Bicycle Safety Programs

The County Government and MCPS operate other programs beyond SRTS that promote pedestrian and bicycle safety at schools and throughout the County. For FY16, the County Council approved \$8.1 million in operating budget expenditures and \$58.6 million in Capital Improvements Program expenditures for pedestrian safety.¹⁰

1. Pedestrian Safety Initiative

The County’s Pedestrian Safety Initiative is a collaborative effort of the County Executive, the County Council, the Maryland-National Capital Park and Planning Commission’s (M-NCPPC) Planning Board, the Maryland Highway Safety Office, the Maryland State Highway Administration, and MCPS. This initiative was announced in 2007 and now serves as the umbrella for DOT, Public Information Office (PIO) and Police pedestrian safety efforts, including the SRTS program. Table 4 discusses additional pedestrian safety activities.

Of note, the targeting of engineering, education and enforcement activities to 15 locations identified as High Incidence Areas (HIAs) represents a key component of the initiative. The Police Department and CountyStat have identified HIAs based on collision data.

Table 4. Additional Pedestrian Safety Initiative Activities

Category	Activities
Engineering	<ul style="list-style-type: none"> • Conduct safety audits of roadways with high concentrations of pedestrian collisions and implement appropriate countermeasures to reduce collisions (HIA Program) • Traffic calming improvements (e.g. pedestrian refuge islands, curb extensions, speed humps, and improved signage) • Pedestrian signal timing improvements • Sidewalk and bicycle connectivity projects • Americans with Disabilities (ADA) Compliance (e.g. curb ramps for sidewalks and accessible pedestrian signals) • Parking lot improvements in collaboration with property managers and owners • Upgrade street lighting and pavement markings (i.e. crosswalks to improve visibility)
Education	<ul style="list-style-type: none"> • Regional Street Smart campaign, which raises awareness among drivers and pedestrians about bicycle and pedestrian safety • Countywide and targeted bilingual pedestrian safety education campaigns • YOLO (“You Only Live Once”) campaign and toolkit for high schools in partnership with MCPS to encourage safe pedestrian practices • “Walk Your Way” grants for high school teams to create, design and implement pedestrian safety education programs • “Shop A Cop” program to disseminate safety information in parking lots • Social media and grassroots outreach campaigns to targeted groups
Enforcement	<ul style="list-style-type: none"> • Targeted enforcement of traffic laws in HIAs and other hot spot locations • Automated enforcement of traffic laws using speed cameras and red-light cameras

Source: “Pedestrian Safety”, FY17 Operating Budget and Public Services Program FY17-22

¹⁰ “Pedestrian Safety”, FY16 Operating Budget and Public Services Program FY16-21

2. Crossing Guard Program

Crossing guards are responsible for directing traffic at school crossings in order to provide safe crossing for students walking to and from school. The School Safety Unit of the Police Field Services Division is responsible for oversight of the County's Crossing Guard Program, with a current budget of \$5.8 million. The Crossing Guard Program employs 170 crossing guard positions, including 27 substitutes, to direct traffic at 164 school crossings.

Crossing guard locations are determined each year through an assessment process that considers busing plans and types of roads and crossings. In FY16, crossing guards were posted at 92 out of 133 public elementary schools. At 41 elementary schools, no crossing guards were posted, either because all students are bused to school, too few students walk to school or there are no major roads where a crossing guard would be required. The Police Department also posted crossing guards at 19 out of 37 public middle schools and six private schools. The Police Department does not post crossing guards at public high schools.¹¹

3. School Safety Patrol Program

School safety patrols are elementary school students who are responsible for facilitating safe movement of students on sidewalks and street crossings. Safety patrols are typically students in Grades Four and Five and are supervised by school staff and police. The School Safety Unit of the MCPD Field Services Division is responsible for oversight of the Safety Patrol Program. Safety patrols receive training on the fundamentals of patrol operation, including where and how to stand when on post and what constitutes a sufficient gap in vehicular traffic to permit safe crossing by students, with emphasis being placed on special hazards and need for constant alertness. In FY16, approximately 7,000 students participated in the Safety Patrol Program.¹²

4. MCPS Capital Improvements Program: Improved (Safe) Access to School Project

Infrastructure improvements on public school grounds are funded as part of the MCPS Capital Improvements Program. The Improved Access to School project began in FY11 to address issues with vehicular and pedestrian access to schools. Improvements can include widening of a street or a roadway, obtaining rights-of-way for school access or exit, or changing or adding entrances or exits at various schools. The MCPS FY17-22 Capital Improvements Program includes \$2 million in FY17 to address access, circulation, and vehicular and pedestrian traffic issues at schools; and to modify and expand parking lots to provide staff parking at schools.¹³

¹¹ MCPD Crossing Guard Manual, Update November 2014; and Presentation by Cpt. Didone, MCPD Field Services Division, April 11, 2016 GO Committee Worksession

¹² "Regulation: School Safety Patrol," Montgomery County Public Schools, Regulation EBC-RA; and Presentation by Cpt. Didone, MCPD Field Services Division, April 11, 2016 GO Committee Worksession

¹³ "Improved (Safe) Access to Schools (P975051)," MCPS FY 2017 Educational Facilities Master Plan and the FY 2017-2022 Capital Improvements Program, p.6-51

Chapter 2. Impact of the Safe Routes to School Program

As noted in Chapter 1, the County's SRTS program incorporates activities in the areas of engineering, education, encouragement, and enforcement. The program is intended to promote pedestrian and bicycle safety and increase the number of students who walk or bicycle to school. To evaluate the program, Executive Branch staff collect data from student tally forms and parent surveys and analyze data on pedestrian-vehicle collisions near schools. This chapter responds to the Council's request to study the impact of the SRTS program as follows:

- **Section A** describes data on pedestrian-vehicle and bicycle-vehicle collisions;
- **Section B** presents OLO's analysis of the impact of SRTS engineering improvements; and
- **Section C** examines data on the impact of grant-funded SRTS education, encouragement and enforcement activities.

Of note, OLO used collision data provided by the Police Department to assess changes in pedestrian and bicycle safety. In particular, OLO examined data on pedestrian-vehicle and bicycle-vehicle collisions in areas around public schools before and after the implementation of the SRTS program, with a focus on engineering improvements. OLO, however, was unable to assess the SRTS program's potential impact on numbers of students who walked or bicycled to school because of insufficient data.

Overall, OLO found that pedestrian and bicycle collision data offer evidence that SRTS engineering improvements were associated with decreases in pedestrian and bicycle collisions. However, OLO's analysis does not control for factors external to the SRTS program and cannot definitively conclude that SRTS program *caused* the observed decreases.

A Note on the Collision Data Used in This Chapter

The Police Department provided OLO with data on motor vehicle collisions involving pedestrians and bicycles in Montgomery County from 2005 to 2015. No collision data were available for the period prior to 2005. For the purposes of clarity and simplicity, OLO uses the terms "pedestrian collisions" and "bicycle collisions" to refer to collisions between motor vehicles and pedestrians and between motor vehicles and bicycles. These data do not include collisions that did not involve motor vehicles (such as a collision between a bicycle and a pedestrian). These data have limitations, described below.

- Staff report that prior to 2009 and particularly prior to 2007, limited oversight over collision data existed, leading to errors and omissions in the data.
- Police officers are not required to write reports on pedestrian and bicycle collisions that did not result in injuries. Since 2010, the Police Department has highly encouraged officers to write reports regardless of whether or not an injury occurred.
- For significant numbers of collisions between 2005 and 2013, data on the ages of pedestrians and bicyclists involved are not available. As a result, it is not possible to discern accurate trends in the numbers of school-age pedestrians and bicyclists involved in collisions.

A. Pedestrian and Bicycle Collisions

To provide context for OLO’s analysis of pedestrian and bicycle collisions near schools before and after SRTS improvements and activities, OLO examined all collisions from 2005 to 2015.

Countywide collisions. Table 5 shows annual Countywide pedestrian and bicycle collisions per 100,000 population during this time frame. The table includes data on “severe” pedestrian and bicycle collisions, which include collisions that caused disabling injuries or were fatal. Of note:

- Between 2005 and 2015, pedestrian collisions per 100,000 population remained virtually unchanged, while bicycle collisions increased somewhat;
- Yet, severe pedestrian and bicycle collisions decreased during this time frame; and
- Pedestrian collisions reached their lowest point in 2011.

Table 5. Countywide Collisions Involving Pedestrians or Bicycles Per 100,000 Population, 2005-2015

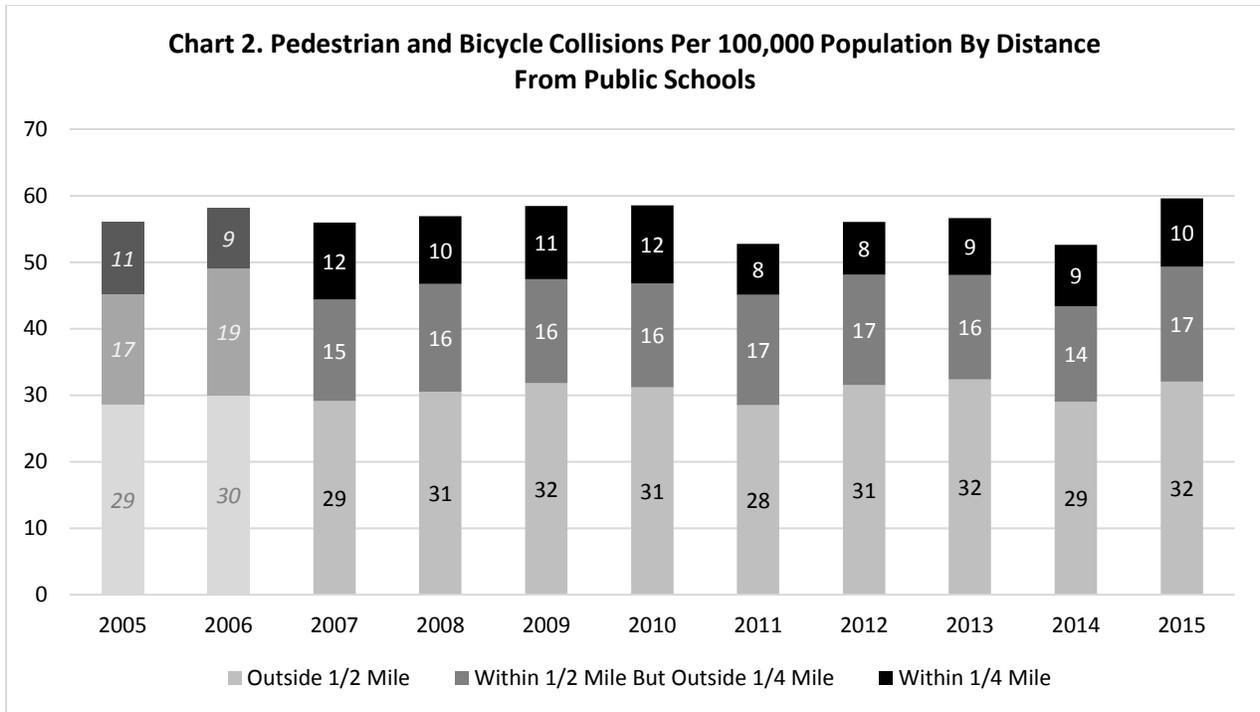
Type	2005**	2006**	2007	2008	2009	2010	2011	2012	2013	2014	2015
Pedestrian	46.6	45.3	43.4	46.9	46.5	44.8	40.2	42.0	46.7	40.8	45.5
Severe Pedestrian*	13.7	15.0	13.0	12.1	13.6	12.0	10.2	8.1	8.4	7.3	7.1
Bicycle	9.5	12.9	12.6	10.0	11.9	13.8	12.6	14.0	9.9	11.8	14.1
Severe Bicycle*	2.0	2.4	2.1	1.4	2.3	1.7	1.3	1.9	1.6	1.6	1.3

*Includes collisions where injuries were categorized as level 4 (incapacitating or disabling) or level 5 (fatal).

** Police staff report that data from 2005 and 2006 may contain significant inaccuracies due to limited oversight over the data.

Collisions near schools. The remainder of this chapter examines data on pedestrian and bicycle collisions that occurred within a half-mile and within a quarter-mile of public schools, to reflect the areas covered by DOT’s comprehensive assessments of schools as part of the SRTS program. Chart 2 displays bicycle and pedestrian collisions per 100,000 population by their distance from public schools from 2005 to 2015. Of note:

- 2,806 out of 6,083 pedestrian and bicycle collisions between 2005 and 2015 (46% of the total) occurred within a half-mile of schools, and 1,056 (17% of the total) occurred within a quarter-mile of schools.
- Collisions per 100,000 population within a quarter-mile of schools were somewhat lower between 2011 to 2014 compared with the previous four years, whereas collisions further than a quarter-mile from schools remained nearly flat.



*Data from 2005 and 2006 may contain significant inaccuracies

B. SRTS Engineering Improvements and Pedestrian and Bicycle Collisions Near Public Schools

As noted in Chapter 1, as part of the SRTS program, DOT conducted comprehensive assessments of the areas around public schools to develop recommendations for engineering improvements (see pages 6-7 for a description of the types of improvements made). In this section, OLO presents data on numbers of pedestrian and bicycle collisions near schools before and after the implementation of SRTS engineering improvements. Appendix C provides the results of tests of statistical significance associated with this analysis.

1. Methodology and Limitations

To measure the impact of the Safe Routes to School Program, OLO compared numbers of collisions from the two years before each school's comprehensive assessment to the two years after the estimated date of completion of engineering improvements following the assessments. OLO examined numbers of collisions within the half- and quarter-mile radii of schools to reflect the areas covered by the SRTS comprehensive assessments. This approach is similar to that used by CountyStat to measure the impact of the Safe Routes to School program for certain schools for which the County received grant funding from the State (see Appendix B).

Since DOT has now completed comprehensive assessments for the vast majority of public schools, OLO examined data for all public schools for which sufficient data were available. Additionally, OLO compared collisions near schools to collisions beyond the quarter- and half-mile radii around schools to assess whether trends in collisions near schools were similar to Countywide trends.

Limitations. OLO's analysis has several limitations, listed below.

- **Geographical scope.** OLO focused its analysis on collisions within the quarter- and half-mile radii around public schools. These distances reflect the fact that DOT's comprehensive assessments of schools covered up to the half-mile radii around schools, with a focus on areas within the quarter-mile radii. These radii represent estimates of the areas that would have been covered by the comprehensive assessments, and are not exact or specific to individual schools. As a result, some areas within the quarter- or particularly the half-mile radii around schools may not have been covered by the comprehensive assessments.
- **External factors.** OLO's analysis cannot be used to definitively determine whether the SRTS program *caused* decreases in pedestrian and bicycle collisions. OLO's analysis does not control for environmental factors and policy interventions external to the SRTS engineering improvements that impact pedestrian and bicycle safety (see page 16). To address this issue, OLO compared collisions near schools to those in areas further from schools. This comparison, while imperfect, is intended to show whether changes in numbers of collisions near schools reflect broader trends or were specific to areas where the SRTS program was implemented.
- **Inclusion of all ages and times.** Although the SRTS program is targeted at students in public schools, OLO did not specifically examine collisions involving school-age pedestrians and bicyclists or collisions occurring during hours when students would be walking or bicycling to and from school. Many of the engineering improvements made by DOT, including crosswalks, signs and traffic calming measures (see page 7) are available to all pedestrians and bicyclists, not just students traveling to and from school. Additionally, since age data are not consistently available for collisions prior to 2014, OLO cannot discern accurate trends in collisions involving school-age pedestrians and bicyclists.
- **Schools included in the analysis.** OLO did not include every public school with a comprehensive assessment in its analysis. Comprehensive assessments were conducted between 2005 and 2015. Collision data are available for this same period, but Police staff reported to OLO that collision data prior to 2007 may contain significant inaccuracies due to limited oversight of the data. As a result, OLO used collision data for the period from 2007 to 2015. OLO only included in its analysis the 106 public schools for which assessments were conducted between 2009 and 2012, in order to ensure that at least two years of collision data were available for the period prior to the comprehensive assessment and for the period following the estimated date that improvements were completed. OLO's analysis therefore excludes 96 public schools for which assessments were completed, but for which sufficient collision data for the before-after comparison was not available.
- **Improvement completion assumption.** OLO was not able to obtain data from DOT on the specific dates that improvements were completed following comprehensive assessments for non-grant schools. DOT staff report that improvements were not tracked or billed by school, with the exception of certain grant schools. For grant schools, improvements were tracked in more detail because it was expected that the costs would be reimbursed by the State. As a result, OLO estimated, based on advice from DOT staff, that the majority of improvements would have been completed within a year of the comprehensive assessment. OLO notes that this is not true for every school. Improvements for six out of 21 grant schools for which improvement completion dates were available were completed over a year and up to almost three years after the schools' comprehensive assessments.

Examples of External Factors Not Controlled For in This Study

As noted above, OLO's analysis does not control for environmental factors and other policy interventions in addition to the SRTS program that impact pedestrian and bicycle safety. Examples of environmental factors include traffic congestion, volumes of pedestrians and bicyclists, and the weather. OLO heard feedback from Police that they have observed a significant increase in recent years in the numbers of children being driven to school by parents or guardians, instead of taking the bus, walking or bicycling. Local data are not available to quantify this increase, but it is consistent with national trends. This trend suggests both a decrease in the numbers of students walking to school and increased traffic congestion around schools.

Other policy interventions include additional engineering improvements around schools made by DOT on request from MCPS, the Crossing Guard Program, and the engineering, education and enforcement interventions in 15 High Incidence Areas as part of the County's broader Pedestrian Safety Initiative. OLO notes that the SRTS program, which had a budget of \$190,000 in FY16, is a relatively small piece of the broader pedestrian safety picture. As noted on page 10, the County Council approved a total of \$8.1 million in FY16 operating budget expenditures and \$58.6 million in FY16 Capital Improvements Program expenditures in support of pedestrian safety.

2. Collisions Before and After SRTS Comprehensive Engineering Assessments of Public Schools

OLO examined collisions within the quarter-mile radius and the half-mile radius of each public school. OLO compared the average annual collisions per school during the two years before each school's comprehensive assessment to the two years after the estimated date of completion of the recommended improvements (one year after the assessment). OLO excluded from its analysis the one-year period after each school's assessment, since improvements may have been completed at any point during this period. Table 6 displays a summary of OLO's results (Appendices D and E display disaggregated data for each school). Of note:

- For the 106 public schools included in the analysis, average annual pedestrian and bicycle collisions within the quarter-mile radii around schools decreased from 0.64 before schools' comprehensive assessments to 0.51 after completion of improvements; and
- The data show increases in average annual collisions within both the quarter-mile and half-mile radii around high schools following SRTS improvements.

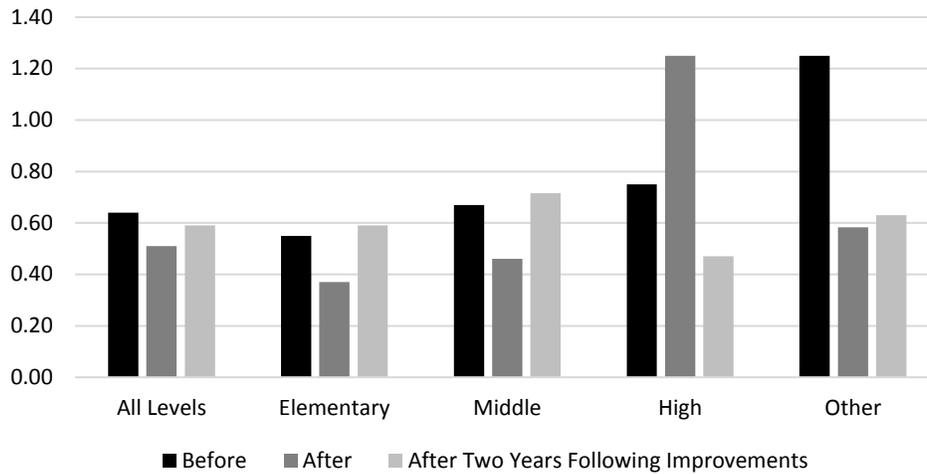
Table 6. Changes in Average Annual Pedestrian and Bicycle Collisions Within the Half- And Quarter-Mile Radii of Public Schools After SRTS Engineering Improvements

	1/4 Mile Radius	1/2 Mile Radius
All School Levels (106 Schools)		
Change in Yearly Collisions	-0.13	-0.01
Average Yearly Collisions Before Assessment	0.64	1.76
Average Yearly Collisions After Improvements	0.51	1.75
# Schools Where Collisions Reduced	32	42
# Schools Where Collisions Increased	23	37
# Schools Where Collisions Did Not Change	51	27
# Schools With No Collisions	36	11
Elementary (63 Schools)		
Change in Yearly Collisions	-0.18	-0.03
Average Yearly Collisions Before Assessment	0.55	1.70
Average Yearly Collisions After Improvements	0.37	1.67
Middle (23 Schools)		
Change in Yearly Collisions	-0.21	-0.48
Average Yearly Collisions Before Assessment	0.67	1.41
Average Yearly Collisions After Improvements	0.46	0.93
High (14 Schools)		
Change in Yearly Collisions	0.50	1.00
Average Yearly Collisions Before Assessment	0.75	2.00
Average Yearly Collisions After Improvements	1.25	3.00
Special Schools and Holding Sites (6 Schools)		
Change in Yearly Collisions	-0.67	-0.42
Average Yearly Collisions Before Assessment	1.25	3.25
Average Yearly Collisions After Improvements	0.58	2.83

*Data for the ½-mile radius includes collisions within ¼ mile radius and up to the ½ mile radius around each school

Collisions after two-year period. OLO also sought to ascertain whether decreases in annual pedestrian and bicycle collisions within the quarter-mile radii of schools persisted after the two-year period following the completion of SRTS improvements. Chart 3 shows average annual collisions during the two-year period before assessments (“Before”), the two-year period after completion of improvements (“After”) and the period following the two-year period after improvements. Overall, pedestrian and bicycle collisions increased again after the two-year period. However, in areas near high schools, where collisions increased in the two years after SRTS improvements, collisions decreased again after that two-year period.

Chart 3. Average Annual Collisions Within 1/4-Mile Radii of Schools Before and After SRTS Improvements



3. Comparison of Collisions Near Schools With Collisions Further From Schools

To better understand changes in pedestrian and bicycle collisions following SRTS improvements, OLO grouped schools by year of assessment and compared changes in numbers of collisions near those schools with changes in numbers of collisions further from schools. On the following page, Table 7 displays how many schools were assessed in each year between 2009 and 2012. For each group of schools, OLO examined pedestrian and bicycle collisions in the two years before the assessment and in the two years after expected completion of improvements (one year after the assessment year), as shown in the table.

Table 8 displays the results of OLO’s analysis of the grouped schools for both the quarter-mile and half-mile radii around public schools. For example, in the first column, collisions that occurred within the quarter-mile radii of schools assessed in 2009 are compared with collisions that occurred further than a quarter-mile from any school. In each column, the “before” and “after” periods are the same for both categories of collisions and correspond to the periods listed in Table 7. For example, in the column for schools assessed in 2009, the “before” period is 2007-2008 and the “after” period is 2011-2012. Collisions are expressed as collisions per 100,000 County resident population to adjust for population growth. Of note:

- Pedestrian and bicycle collisions per 100,000 population within a quarter-mile of public schools assessed in three out of four assessment years decreased substantially after SRTS improvements, while collisions further than a quarter-mile from public schools remained nearly flat during the same periods.
- Following SRTS improvements, collisions per 100,000 population within a half-mile from schools decreased near schools assessed in 2010 and 2011, in contrast to collisions further from schools, which remained nearly flat.

These data indicate that decreases in pedestrian and bicycle collisions near schools, and particularly those within quarter-mile from schools, were not consistent with Countywide trends. In other words, collisions decreased near schools after SRTS improvements were made, while during the same periods collisions further from schools remained flat. This suggests that decreases in collisions were specific to areas where SRTS improvements were implemented.

Table 7. Public Schools by Year of Assessment, 2009-2012

Year of Assessment	2009	2010	2011	2012
# Schools Assessed	23	29	29	25
Elementary	14	17	16	16
Middle	5	8	4	6
High	2	4	5	3
Other	2	0	4	0
"Before" Period	2007 to 2008	2008 to 2009	2009 to 2010	2010 to 2011
"After" Period	2011 to 2012	2012 to 2013	2013 to 2014	2014 to 2015

Table 8. Pedestrian and Bicycle Collisions Per 100,000 County Resident Population Near Schools and Further From Schools by Year of Assessment

Year of Assessment	1/4-Mile Radius				1/2-Mile Radius			
	2009	2010	2011	2012	2009	2010	2011	2012
Collisions Near Schools								
<i># Schools Assessed</i>	23	29	29	25	23	29	29	25
# Collisions Per 100,000 Before (Two Years)	4.8	4.5	2.8	2.0	13.2	10.3	7.3	5.3
# Collisions Per 100,000 After (Two Years)	3.1	2.6	1.8	2.5	13.1	9.4	6.1	7.2
Difference	-1.7	-1.9	-1	0.5	-0.1	-0.9	-1.2	1.9
% Change	-35%	-42%	-36%	25%	-1%	-9%	-16%	36%
Collisions Not Within ¼- or ½-Mile Radius of Any School								
# Collisions Per 100,000 Before (Two Years)	91.1	94.2	94.3	91.9	59.6	62.3	63.0	59.7
# Collisions Per 100,000 After (Two Years)	93.2	96.2	91.5	92.7	60.0	63.9	61.4	61.0
Difference	2.1	2	-2.8	0.8	0.4	1.6	-1.6	1.3
% Change	2%	2%	-3%	1%	1%	3%	-3%	2%

C. Impact of Grant-Funded Education, Encouragement and Enforcement Activities

As noted in Chapter 1, the County received grant funding from the Maryland Highway Safety Office (MHSO) for SRTS education, encouragement and enforcement activities between FY08 and FY16. During each of five two-year grant periods, certain elementary and middle schools were identified for targeting of education, encouragement and enforcement activities (see Appendix B for a full list of schools). Schools were initially identified for grant funding based on DOT’s initial engineering assessments of schools. In later years, DOT also used collision data to identify schools for grant-funded activities. High schools were not eligible to be included in the targeted groups because of Federal funding requirements associated with the MHSO grants. Table 9 on the following page displays the numbers of schools targeted in each grant period.

Table 9. Public Schools Targeted for MHSO Grant Funding for Safe Routes to School Activities

Grant	Grant B*	Grant C	Grant D	Grant E	Grant F
Grant Period Start	2/1/2008	1/1/2009	1/1/2010	7/1/2011	10/1/2013
Grant Period End	12/31/2009	12/31/2010	12/31/2011	12/31/2013	12/31/2015
# of Schools	11	6	8	9	6
Elementary	8	4	7	8	4
Middle	3	2	1	1	2

*Grant B is the first grant awarded to the County; no Grant “A” exists

OLO conducted an analysis for grant-funded activities similar to the analysis of the engineering improvements. In this case, OLO compared numbers of pedestrian and bicycle collisions before the grant period began with collisions during the grant period and collisions in the two years after the grant period. As with the analysis of the engineering improvements, OLO limited its analysis to those grant periods for which a sufficient amount of collision data were available to compare collisions before, during and after the grant period. As a result, OLO excluded from its analysis the first and last grant periods (grants “B” and “F”). Table 10 displays the results of the analysis, which includes 23 grant schools targeted during three grant periods. Of note:

- Schools included in Grants D and E show higher collision rates prior to the grant period than Grant C schools; and
- Average annual collisions within a quarter-mile of grant schools tended to decrease from previous levels during the grant period, but increased again after two out of the three grant periods studied.

Table 10. Average Annual Pedestrian and Bicycle Collisions Before, During and After SRTS Grant Periods

Grant	1/4 Mile Radius			1/2 Mile Radius		
	Grant C	Grant D	Grant E	Grant C	Grant D	Grant E
# of Schools	6	8	9	6	8	9
Average Annual Collisions Per School						
Before Grant (two years)	0.75	1.08	1.21	2.50	1.69	1.44
During Grant	0.67	0.75	0.97	2.17	1.81	2.05
After Grant (two years)	0.75	1.17	0.93	2.42	1.38	1.56

However, OLO notes that limited conclusions can be drawn from this analysis. As noted above, in later grant periods, schools were selected based in part on numbers of collisions. As shown in the table above, schools included in Grants D and E had higher collision rates within their quarter-mile radii prior to the grant period compared with schools in Grant C and for all public schools (see page 17). High collision rates around schools in Grants D and E may be indicative of unsafe conditions around those schools, or they may simply reflect the fact that those particular schools experienced unusually high numbers of collisions in those years due to random chance.

Subsequent decreases in collision rates could be the result of the impact of SRTS activities, or they could be the result of a phenomenon known as *regression toward the mean*. Regression toward the mean refers to the fact that when the first observation of a variable – such as the number of collisions – is extreme (higher or lower than the average), the next observation is likely to be closer to average, and vice versa.

D. Conclusions

As noted on page 15, OLO's analysis has several limitations. In particular, OLO cannot conclude whether or not SRTS program *caused* decreases in pedestrian and bicycle collisions in areas near public schools. However, available data do offer evidence that SRTS engineering improvements *may* have resulted in decreases in pedestrian and bicycle collisions in the quarter-mile radii of public schools, particularly around elementary and middle schools. Significantly, OLO's comparison of collisions near schools with collisions further from schools suggests that decreases in collisions near schools were not simply the result of Countywide trends, since collisions near schools decreased when other collisions remained nearly flat.

The data offer less evidence that SRTS engineering improvements impacted collisions within the half-mile radii around schools, and no evidence that decreases in collision rates persisted beyond the two years following SRTS improvements. Additionally, OLO is not able to draw conclusions regarding the impact of the grant-funded SRTS education, encouragement and enforcement activities on collision rates.

Chapter 3. OLO Findings and Recommended Discussion Questions

This chapter summarizes the major findings of this report and presents recommended discussion questions developed by the Office of Legislative Oversight (OLO) based on the findings.

A. Findings

Finding #1: Montgomery County’s Safe Routes to School (SRTS) Program builds on existing collaboration between DOT, Police and MCPS in addressing safety issues around schools.

DOT, the Police Department and MCPS each play a role in addressing safety issues around schools. MCPS is responsible for distinguishing between bus riders and school walkers and for evaluating bus stops and recommended walking routes to ensure student safety. Generally, Board of Education policy establishes that elementary students are walkers if they live within a 1-mile radius of schools, middle school students are walkers within a 1.5-mile radius, and high school students are walkers within a 2-mile radius. DOT responds to MCPS requests for physical improvements to infrastructure around schools on an ongoing basis. Additionally, the Police Department’s School Safety Section oversees the Crossing Guard Program and School Safety Patrols.

In 2004, the County initiated its Safe Routes to School program (SRTS). This program is led by DOT in collaboration with the Police Department and MCPS. Consistent with Federal Highway Administration guidelines, the County’s SRTS program incorporates activities in the “5 E’s”: Education, Encouragement, Enforcement, Engineering and Evaluation, as detailed in the table below.

The “5 E’s” of the Montgomery County Safe Routes to School Program

Component	Description
Engineering	DOT conducts systematic assessments of areas around schools to identify engineering improvements to facilitate walking and bicycling to school and improve safety. Between 2005 and 2015, DOT completed 202 comprehensive assessments of areas near public schools and recommended improvements including crosswalks, flashers and signage. DOT is currently in the process of conducting assessments for private schools.
Education	DOT’s Safe Routes to School Coordinator conducts outreach to school staff to promote pedestrian and bicycle safety education and provides safety programs in schools. DOT’s outreach has focused on 40 targeted elementary and middle schools.
Encouragement	DOT staff promote a wide variety of activities intended to encourage walking or bicycling to school. Examples of encouragement activities include Walk to School Day, walking school buses and bicycle trains, and Bike to School Day. DOT outreach is focused on 40 targeted elementary and middle schools.
Enforcement	Between 2008 and 2015, the Police Department received State funding for overtime hours to conduct enforcement activities around 40 targeted elementary and middle schools.
Evaluation	DOT, Police and CountyStat collect data to monitor outcomes of the SRTS program by (1) collecting data from students and parents in schools for which State grant funds were awarded for education, encouragement and enforcement efforts and (2) analyzing data on pedestrian collisions around schools.

Finding #2: SRTS engineering improvements around public schools covered up to the half-mile radius around each school, with a focus on areas within the quarter-mile radius.

DOT conducted comprehensive engineering assessments of public schools between 2005 and 2015. These assessments covered up to the half-mile radii around schools, with a focus on areas within the quarter-mile radii. As part of each assessment, DOT staff met with school staff to discuss safety issues and physically examined the area around the school to produce a map of existing roads, sidewalks and traffic control devices such as signs and crosswalks.

Initially, DOT aimed to use this process primarily to update signs and markings to current standards and improve sidewalk connectivity. The assessments also examined parking and stopping rules in front of schools. More recent assessments have also identified areas where traffic calming measures are needed, such as curb extensions and pedestrian refuge islands. Recommended engineering improvements were typically completed within a year of the assessment. The table below describes the most frequently recommended improvements.

Improvements Frequently Recommended Following SRTS Assessments

Category	Description
Crosswalks and Stop Lines	Installation, remarking or removal of crosswalks, stop lines, or crosswalk-related signage
School Zone	Establishment or removal of a School Zone, which is an area where speeding fines are doubled, including installation or removal of School Zone-related signage or flashers
Parking and Stopping Regulations	Installation, modification or removal of signs establishing regulations regarding parking or stopping along the road
Other Signage	Installation, modification, repair, replacement or removal of signage including stop signs, speed limit signs, school warning signs or school directional signs

Finding #3: SRTS in Montgomery County is a small program, accounting for less than 1% of the County’s pedestrian safety investments.

The table on the following page displays data on SRTS program funding from the County and the State since FY06. As shown in the table, County-funded engineering interventions accounted for three-quarters of the SRTS budget, while State-funded education, encouragement and enforcement activities accounted for the remaining budget. In most years, the annual budget for SRTS totaled \$200,000 or less. This represents a small share of the County’s budget for pedestrian safety, which totaled \$8.1 million in the operating budget and \$58.6 billion in the Capital Improvements Program for FY16. On the whole, the SRTS program accounts for less than 1% of the County’s planned expenditures for pedestrian safety in FY16.

Montgomery County SRTS Funding, FY06-FY16

Funding Type	FY06	FY07	FY08	FY09	FY10	FY11
County Funding						
Engineering (DOT)	\$80,000	\$80,000	\$80,000	\$80,000	\$156,240	\$156,240
Maryland Highway Safety Administration Grant						
Education & Encouragement (DOT)	\$0	\$0	\$27,875	\$56,852	\$40,376	\$33,952
Enforcement (MCPD)	\$0	\$0	\$0	\$10,900	\$12,800	\$12,200
Total	\$80,000	\$80,000	\$107,875	\$147,752	\$209,416	\$202,392
Funding Type	FY12	FY13	FY14	FY15	FY16	Grand Total
County Funding						
Engineering (DOT)	\$156,240	\$156,240	\$156,240	\$156,240	\$156,240	\$1,413,680
Maryland Highway Safety Administration Grant						
Education & Encouragement (DOT)	\$53,090	\$28,000	\$44,399	\$40,532	\$20,266	\$345,342
Enforcement (MCPD)	\$25,200	\$15,200	\$29,200	\$28,800	\$14,400	\$148,700
Total	\$234,530	\$199,440	\$229,839	\$225,572	\$190,906	
Eleven-Year Total						\$1,907,722

Finding #4: The County’s pedestrian safety efforts in 12 High Incidence Areas incorporate some similar components to those included in the SRTS program.

The County’s Pedestrian Safety Initiative is a collaborative effort of the County Executive, the County Council, the Maryland-National Capital Park and Planning Commission’s (M-NCPPC) Planning Board and the Maryland State Highway Administration. This initiative began in 2007 and now serves as the umbrella for DOT, Public Information Office (PIO) and Police pedestrian safety efforts.

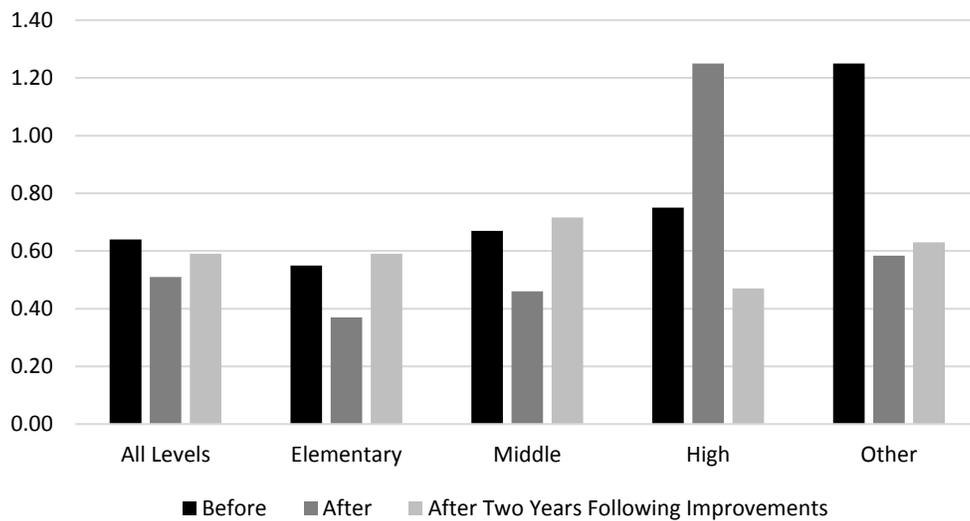
Of note, a key element of the Pedestrian Safety Initiative is the targeting of engineering, education and enforcement activities to 15 locations identified as High Incidence Areas (HIAs). Police and CountyStat analyze collision data to identify HIAs, inform other program and policy decisions, and measure the impact of pedestrian safety improvements and activities.

Finding #5: On average, pedestrian and bicycle collisions within a quarter-mile from public schools decreased following completion of SRTS engineering improvements. However, evidence suggests that safety gains did not persist beyond two years.

OLO examined pedestrian and bicycle collisions within the quarter- and half-mile radius of each public school. As shown in the chart below, OLO compared the average annual collisions per school during the two years before each school’s comprehensive assessment (“Before”) to the two years after the estimated date of completion of the recommended improvements (“After”). OLO also examined collisions following the two-year period after improvements, as shown in the chart.

For the 106 public schools included in the analysis, average annual pedestrian and bicycle collisions within the quarter-mile radius of schools decreased from 0.64 before schools’ comprehensive assessments to 0.51 after completion of improvements. However, pedestrian and bicycle collisions increased again after the two-year period following improvements. Additionally, OLO did not observe a significant decrease in collisions within the half-mile radii around schools.

Average Annual Collisions Within 1/4-Mile Radii of Schools Before and After SRTS Improvements



Finding #6: Decreases in pedestrian and bicycle collisions near schools following SRTS engineering improvements differ from Countywide trends during the same time periods.

To better understand changes in pedestrian and bicycle collisions following SRTS improvements, OLO grouped schools by year of assessment and compared changes in the numbers of collisions near those schools with changes in numbers of collisions further from schools. The data shown in the table on the following page indicate that decreases in pedestrian and bicycle collisions near schools following SRTS improvements were not consistent with Countywide trends. Collisions decreased near schools after SRTS improvements were made, while during the same period collisions further from schools were flat. This suggests that decreases in collisions were specific to areas where SRTS improvements were implemented.

Pedestrian and Bicycle Collisions Per 100,000 County Resident Population, Near Schools and Further From Schools by Year of Assessment

Year of Assessment	1/4-Mile Radius				1/2-Mile Radius			
	2009	2010	2011	2012	2009	2010	2011	2012
Collisions Near Schools								
<i># Schools Assessed</i>	23	29	29	25	23	29	29	25
# Collisions Per 100,000 Before (Two Years)	4.8	4.5	2.8	2.0	13.2	10.3	7.3	5.3
# Collisions Per 100,000 After (Two Years)	3.1	2.6	1.8	2.5	13.1	9.4	6.1	7.2
Difference	-1.7	-1.9	-1	0.5	-0.1	-0.9	-1.2	1.9
% Change	-35%	-42%	-36%	25%	-1%	-9%	-16%	36%
Collisions Not Within ¼- or ½-Mile Radius of Any School								
# Collisions Per 100,000 Before (Two Years)	91.1	94.2	94.3	91.9	59.6	62.3	63.0	59.7
# Collisions Per 100,000 After (Two Years)	93.2	96.2	91.5	92.7	60.0	63.9	61.4	61.0
Difference	2.1	2	-2.8	0.8	0.4	1.6	-1.6	1.3
% Change	2%	2%	-3%	1%	1%	3%	-3%	2%

Note: In each column, the “before” period includes the two years before the assessment year, while the “after” period represents the two years following expected completion of improvements. For example, in the column for schools assessed in 2009, the “before” period is 2007-2008 and the “after” period is 2011-2012.

Finding #7: The above data offer evidence that SRTS engineering improvements were associated with decreases in pedestrian and bicycle collisions. However, OLO cannot conclude whether the SRTS program *caused* the observed decreases.

OLO’s analysis did not control for environmental factors, such as changes in traffic congestion, or for policy interventions external to the SRTS program that impact pedestrian and bicycle safety. OLO’s comparison of collisions near schools to collisions beyond the half- and quarter-mile radii around public schools demonstrates that decreases in collisions were specific to areas where the SRTS program was implemented.

Nonetheless, OLO was not able to control for factors specifically impacting areas around schools, such as increases in traffic congestion due to increased numbers of students being driven or school, or the impact of the County’s Crossing Guard Program. OLO cannot conclude whether or not SRTS engineering improvements *caused* observed decreases in pedestrian and bicycle collisions, due to an inability to control for other potential drivers of increased safety, such as other County investments in pedestrian safety.

B. Recommended Discussion Questions

OLO found evidence that SRTS engineering improvements may have resulted in decreases in pedestrian and bicycle collisions within the quarter-mile radii around public schools, particularly around elementary and middle schools. OLO offers two recommended discussion questions for the Council to raise with DOT, MCPS and the Police Department during worksession.

Question #1: What opportunities exist to further support pedestrian and bicycle safety around schools?

The SRTS program's engineering improvements covered areas up to a half-mile from schools, with a focus on areas within a quarter-mile. Available data indicate that SRTS engineering improvements were associated with decreases in pedestrian and bicycle collisions within the quarter-mile radii around public schools, particularly around elementary and middle schools. The data offer less evidence that SRTS engineering improvements impacted collisions within the half-mile radii around schools, and no evidence that decreases in collision rates persisted beyond the two years following SRTS improvements. The Council may wish to pose the following questions to agency staffs:

- What are the best strategies for making walking and bicycling to school safer and more accessible for students who reside further than a quarter-mile from public schools?
- Does DOT intend to repeat engineering assessments of schools to maintain safety gains?
- Do opportunities exist to improve collaboration between MCPS, DOT and the Police Department to support pedestrian and bicycle safety?

Question #2: Given that the SRTS program is a low-cost intervention that appears to have generated results, do opportunities exist to expand the use of SRTS concepts?

OLO found that SRTS in Montgomery County accounts for less than 1% of the County's pedestrian safety investments. Given evidence that this program was associated with safety gains, the Council may wish to discuss with Executive Branch staff the following questions:

- How do other pedestrian safety interventions in the County compare with the SRTS program with respect to their effectiveness?
- Do opportunities exist to implement SRTS concepts around other places that attract pedestrian traffic, such as libraries and public transit facilities?

Chapter 4. Agency Comments

The Office of Legislative Oversight circulated a final draft of this report to the Chief Administrative Officer for Montgomery County and to the Chief Operating Officer for Montgomery County Public Schools. OLO appreciates the time taken by County Government and MCPS representatives to review the draft report and provide comments. OLO's final report incorporates technical corrections provided by agency staffs. The written comments received from the Chief Administrative Officer and the Chief Operating Officer are attached in their entirety on the following pages.



OFFICE OF THE COUNTY EXECUTIVE

Isiah Leggett
County Executive

Timothy L. Firestine
Chief Administrative Officer

MEMORANDUM

October 19, 2016

To: Chris Cihlar, Director, Office of Legislative Oversight

From: Timothy L. Firestine, Chief Administrative Officer *Timothy L. Firestine*

Subject: Draft OLO Report 2017-1: Impact of Montgomery County's Safe Routes to School Program

Thank you for the opportunity to comment on the Office of Legislative Oversight's (OLO) Draft Report 2017-1: Impact of Montgomery County's Safe Routes to School (SRTS) Program. We agree that implementing the SRTS program influences or contributes to the decrease in pedestrian and bicycle collisions, specifically in the areas around schools. There will be a continuing demand for the SRTS program as the emphasis on biking and walking increases in the County and school student population turns over each academic year.

We also concur that the SRTS engineering improvements contribute to the decrease in pedestrian and bicycle collisions within a ¼ mile of schools, but that is only one component of the SRTS model. The Montgomery County Department of Transportation (MCDOT), Montgomery County Police Department (MCPD), and the Montgomery County Public Schools (MCPS) collectively believe that the other elements of the SRTS program - education, encouragement, enforcement, and evaluation - are also key to addressing pedestrian and bicycle safety issues.

Following are the answers to the Discussion Questions in the report:

Question #1: What opportunities exist to further support pedestrian and bicycle safety around schools?

- What are the best strategies for making walking and bicycling to school safer and more accessible for students who reside further than a quarter-mile from public schools?

CAO Response: Currently, MCDOT has one dedicated staff person focused on the SRTS's education and encouragement activities. The staff person uses information from crash reports, engineering assessments, and requests from school principals to identify and target schools for education and encouragement activities. This data is used, in part,

to decide how to best allocate the resources available to make walking and bicycling to school safer and more accessible to students who reside within the initial ¼ mile radius assessment zone. This same approach implemented outside of the initial ¼ mile radius assessment zone could prove to make walking and bicycling to school safer and more accessible for students who reside further than a ¼ mile from public schools.

- Does DOT intend to repeat engineering assessments of schools to maintain safety gains?

CAO Response: Yes, MCDOT intends to repeat engineering assessments of schools to maintain safety gains. Initial assessments were completed to address issues that were identified through a school safety inventory developed in 2004. The primary focus of that effort was to bring school safety related signage and pavement marking in line with current standards at that time. However, over the years the scope of the evaluation has expanded to include additional safety measures such as traffic calming, parking regulations, access management, etc. Those safety measures will now be included and expanded upon during this re-evaluation, especially at the schools that were assessed in the early years of the program, and will include the full extent of the walking areas recently identified by MCPS for each school.

- Do opportunities exist to improve collaboration between MCPS, DOT and the Police Department to support pedestrian and bicycle safety?

CAO Response: Opportunities exist to improve collaboration among MCPS, MCDOT, and MCPD to support pedestrian and bicycle safety. MCPS can help with gathering additional data regarding students who currently walk and bike to school and the willingness of parents to let their children walk or bike to school in the future. MCPD can continue to supply crash statistics and identify if/when a crash involves a student or a parent walking or biking to school and/or any other school related crashes; and, MCPD can continue enforcing areas around schools and high incidence and target areas. MCPS and MCDOT can consider going beyond just working with schools “interested” in pedestrian and bicycle safety to collaborate on a Countywide safety education curriculum at all schools. MCDOT can also help with re-evaluation of all schools and their designated walking areas to identify further engineering improvements. Finally, the County has adopted the Vision Zero action plan, another avenue where we can continue and expand our collaborative efforts and channel resources towards supporting pedestrian and bicycle safety.

Question #2: Given that the SRTS program is a low-cost intervention that appears to have generated results, do opportunities exist to expand the use of SRTS concepts?

- How do other pedestrian safety interventions in the County compare with the SRTS program with respect to their effectiveness?

CAO Response: CountyStat has been conducting evaluations of the County's Pedestrian Safety Initiative on an annual basis since it was introduced in December 2007. The results of these evaluations have shown clearly that where pedestrian safety improvements, education, and enforcement actions are targeted, there have been significant declines in the number and severity of pedestrian collisions. Based on the last CountyStat evaluation, conducted November 2015, comparing the 5-year average of numbers of collisions before and after implementation of targeted safety actions, there has been an overall 33% reduction of collisions in the County's high incidence areas (areas with a higher concentration of pedestrian collisions) and a 44% reduction of collisions in areas where traffic calming features have been installed. In fact, comparing the 5-year average before and after the Pedestrian Safety Initiative was implemented, there has been a 38% decline overall in pedestrian fatalities. Many of the improvements made under these other two Pedestrian Safety Initiative programs are identical to those made as part of the SRTS program. There are considerable declines in the number and severity of collisions where the County implements the three E's: engineering, education, and enforcement.

Since the data confirms that where engineering improvements and education and enforcement actions are targeted collisions decline, we can deduce that where we do not target our efforts, the numbers of collisions remain unchanged or have increased. Therefore, expanding the program with the resources to enable the targeting actions in more areas should reduce the number of pedestrian collisions and fatalities in the entire County.

- Do opportunities exist to implement SRTS concepts in other places that attract pedestrian traffic, such as libraries and public transit facilities?

CAO Response: Yes, given that the SRTS program influences and/or decreases the number of collisions, opportunities exist to implement SRTS concepts and to achieve similar results in other places that attract pedestrian traffic, such as libraries and public transit facilities. Two major components of the County's Pedestrian Safety Initiative include the same targeted approach to improving pedestrian safety that has proven so successful with SRTS. They are: (1) High Incidence Areas where safety audits are conducted and engineering improvements with education and enforcement actions are targeted; and, (2) Traffic Calming at intersections and along corridors where speeding, cut-through traffic, and safety for pedestrians and bicyclists are a concern. All three programs (SRTS, HIA and Traffic Calming) employ similar approaches to render safe walking and biking environments, and to reduce pedestrian and vehicular conflicts. In addition, the newly created Bicycle and Pedestrian Priority Areas (BiPPA), which evaluate and improve pedestrian and bicycle access, also employs a similar approach to enhancing safety.

Chris Cihlar, Director, Office of Legislative Oversight
October 19, 2016
Page 4

Thank you again for your work on this report. If you have any questions or need additional information, please contact Al Roshdieh, Director, Department of Transportation, at 240-777-7175 or al.roshdieh@montgomerycountymd.gov.

TLF:vn

cc: Fariba Kassiri, Assistant Chief Administrative Officer
Al Roshdieh, Director, Department of Transportation
Thomas Manger, Chief, Department of Police
David Gottesman, Manager, CountyStat



MONTGOMERY COUNTY PUBLIC SCHOOLS

www.montgomeryschoolsmd.org

MARYLAND

October 19, 2016

Dr. Chris Cihlar, Director
Montgomery County Office of Legislative Oversight
Stella B. Werner Council Office Building
100 Maryland Avenue
Rockville, Maryland 20850



Dear Dr. Cihlar:

Thank you for the opportunity to comment on Office of Legislative Oversight (OLO) Report 2017-1, *Impact of Montgomery County's Safe Routes to School Program*. The report thoroughly details and analyzes the wide range of interagency efforts dedicated through this program to ensure students' safety as they travel to school.

Montgomery County Public Schools (MCPS) values our institutional partnership with the Montgomery County Police Department (MCPD) and the Montgomery County Department of Transportation (MCDOT). Our close and effective working relationships with these agencies is critical to accomplish our collective goal of increasing student safety. As a result, we are continually looking for new approaches that can improve our collaboration, and we appreciate the report's emphasis on identifying ways to maintain safety gains and ensure that comprehensive assessments are up-to-date. We will continue to work with our partners to follow up on these suggested areas.

The topic of school participation in education and outreach programming on pedestrian and bicycle safety has been discussed in our conversations with the County Council and the Education Committee. As the report notes, participation varies on an individual school basis, and initial efforts have focused on reaching the schools with low initial safety scores. MCPS shares the view that all schools and every student can benefit from additional pedestrian and bicycle safety education. Therefore, we are discussing ways to expand participation, including central coordination to assist in connecting programs with schools.

We appreciate the collaborative, professional, and thorough approach that OLO brings to this and other reports, and we look forward to continuing this conversation about improving safe routes to school for students with OLO and with our interagency partners.

Sincerely,

Andrew M. Zuckerman, Ed.D.
Chief Operating Officer

AMZ:em

Copy to:

Members of the Board of Education
Dr. Smith

Dr. Navarro
Dr. Statham

Mr. Watkins
Mr. Ikheloa

Office of the Chief Operating Officer

List of Appendices

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A	Board of Education of Montgomery County Policy EEA, "Student Transportation"	©1
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D	Annual Pedestrian and Bicycle Collisions By School	©9
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POLICY BOARD OF EDUCATION OF MONTGOMERY COUNTY

Related Entries: EEA-RA, EBH-RA, JEE, JEE-RA, JFA-RA, KLA
Related Sources: *Annotated Code of Maryland, Education Article, §3-903(c); Code of Maryland Regulations §13A.06.07.09 Instructional Content Requirements; Montgomery County Code, Article II, §44-7 Denominational and parochial school students entitled to transportation; and Montgomery County Code, Article II, §44-8, Cost of transportation of students; levy and appropriation; charge to students.*
Responsible Office: Chief Operating Officer
 Department of Transportation

Student Transportation

A. PURPOSE

To establish safe, responsive, and accountable operation of the Montgomery County Public Schools (MCPS) student transportation system, in partnership with parents and students, and to delineate the services provided.

B. ISSUE

MCPS is authorized by the regulations of the State of Maryland to provide safe and efficient transportation to the students residing within Montgomery County. The Montgomery County Board of Education is responsible for establishing the operational expectations and eligibility criteria for its student transportation services. It is the responsibility of the Montgomery County Board of Education to work with other agencies when needed and to consider the safety of students when designing school site plans including pedestrian and vehicular traffic patterns; assessing routes for walking to and from school and school bus stops; and, establishing bus routes and locations of school bus stops.

C. POSITION

1. Eligibility for Transportation
 - a) The Board of Education adopted attendance areas for each school are the basis upon which transported areas are defined. Students attending their home school who reside beyond the distances defined below will receive transportation services.

- (1) Transported areas surrounding MCPS schools are as follows:
 - Elementary Schools—beyond 1 mile
 - Middle Schools—beyond 1.5 miles
 - High Schools—beyond 2.0 miles
 - (2) The superintendent of schools is authorized to extend these distances by one-tenth of a mile to establish a reasonable line of demarcation between transported and non-transported areas.
 - (3) Transportation may be provided for distances less than that authorized by Board policy if a condition is considered hazardous to the safety of students walking to or from school, or to establish a reasonable boundary consistent with the safety criteria outlined in C.2.
- b) The Board of Education may establish transportation services for certain consortia schools, magnet, gifted and talented, International Baccalaureate, language immersion, alternative, or other programs based on the purposes of the programs, attendance areas, and available funding.
 - c) Enhanced levels of transportation services will be provided to those students, such as special education students, who meet the eligibility requirements of federal and state laws. Commercial carriers may be used to provide required services.
 - d) Students who attend denominational and parochial schools may be transported as specified under provisions of the Montgomery County Code. This service will be provided only on a space-available basis along established bus routes designed to serve public schools in keeping with the terms and conditions as set forth in this policy.
 - e) Under special circumstances, students may ride established bus routes across attendance boundaries for valid educational reasons.
 - f) Mixed grade/age level student loads are permitted.
 - g) Every effort is made to balance ride times and resources.
 - h) Buses may be used for educationally valuable purposes other than transporting students to and from the regular school day, such as field trips, extracurricular events, interscholastic sports, and outdoor education or

academic programs. Unless otherwise approved by the superintendent or his or her designee, use of MCPS buses is limited to MCPS and other governmental agencies. MCPS will establish criteria and rates for the use of MCPS transportation services for purposes other than transporting students to and from school on the regular school day.

- i) In exigent circumstances, the superintendent may apply to the Board of Education for a waiver to temporarily adjust transported distances. Board action on the waiver request can be taken after allowing at least 21 days for public comment following publication of the waiver request. If the Board deems an emergency exists, this notification provision may be waived without notice if all Board members are present and there is unanimous agreement.

2. Student Safety

- a) MCPS is responsible for routing buses in a manner that maximizes safety and efficiency.
- b) MCPS buses will not cross a main line railroad at grade crossing while in Montgomery County.
- c) MCPS is responsible for designing traffic control patterns for new and renovated schools prior to the completion of construction. MCPS will assess the safety of proposed traffic control patterns taking into consideration safe approaches by pedestrians, bicyclists, and motorists.
- d) MCPS is responsible for conducting safety evaluations of bus stops and recommended walking routes. The following criteria will apply to students walking to schools or school bus stops:
 - (1) Students are expected to walk in residential areas along and across streets, with or without sidewalks.
 - (2) Students are expected to walk along primary roadways with sidewalks or shoulders of sufficient width to allow walking off the main road.
 - (3) Middle and high school students are expected to cross all controlled intersections where traffic signals, lined crosswalks, or other traffic control devices are available.

- (4) Elementary school students may be required to cross primary roadways where an adult crossing guard is present.
 - (5) Elementary and middle school students are not expected to cross mainline railroad tracks unless a pedestrian underpass, overpass or adult crossing guard is present.
 - (6) Students are expected to walk along public or private pathways or other pedestrian routes.
- e) MCPS will follow an effective process for handling and investigating accidents so that injured students and staff are cared for promptly, further injury is prevented, and correct and timely information is disseminated to all necessary parties.
 - f) Student safety, security, and comfort depend on appropriate behavior on MCPS buses identical to that expected of students in school. The Board of Education affirms that, while riding the bus, students are on school property, and disciplinary infractions are handled in accordance with Regulation JFA-RA: *Student Rights and Responsibilities* and other related policies and regulations.

3. Community Partnerships

- a) MCPS will encourage a partnership of students, parents, and school staff to teach and enforce safe transportation practices.
 - (1) MCPS will implement a systemwide outreach and education program to teach safe walking practices en route to and from school, encourage safe bus-riding behavior, and reinforce appropriate student conduct while riding the bus.
 - (2) School staffs will encourage parents to teach their students safe walking practices en route to and from school.
 - (3) Bus operators and attendants are responsible for maintaining safe conditions for students boarding, riding, and exiting the bus. MCPS will provide preservice and in-service instruction to bus operators and attendants, consistent with COMAR 13A.06.07.09.
 - (4) Parents will be responsible for their child's safety along their walking route and at the bus stop. While waiting at bus stops, students should

observe safe practices, respect persons and private property, and stand well off the traveled portion of the road.

- b) Principals and the leadership of PTAs or parent teacher organizations at special programs located at special centers that operate in lieu of nationally affiliated PTAs will be notified in advance of routing changes that involve reductions of service, as described in Regulation EEA-RA.

4. Identification and Resolution of Transportation and Safety Issues

Members of the public are encouraged to address inquiries, concerns, or complaints regarding student transportation as set forth in Policy KLA: *Responding to Inquiries and Complaints from the Public*. Complaints not resolved through the cluster transportation supervisor or other department staff, including the director of transportation may be appealed to the chief operating officer who will render a decision on behalf of the superintendent of schools, advising the appellant of the right to further appeal to the Board of Education consistent with the Education Article, *Annotated Code of Maryland*, Section 3-903(c).

5. Environmental and Economic Considerations

MCPS will balance environmental and economic factors when operating and maintaining its vehicles.

D. DESIRED OUTCOME

MCPS will have an efficient system of student transportation that provides an appropriate means of travel to and from school, is responsive to community input, and, in partnership with parents and students, coordinates effective community participation in the safe movement of students on a daily basis.

E. IMPLEMENTATION STRATEGIES

The superintendent will develop regulations to implement this policy as needed.

F. REVIEW AND REPORTING

This policy will be reviewed on an ongoing basis in accordance with the Board of Education policy review process.

EEA

Policy History: Adopted by Resolution No. 89-78, February 13, 1978; amended by Resolution No. 219-78, March 14, 1978, Resolution No. 718-78, October 10, 1978, and Resolution No. 725-79, August 20, 1979; amended by Resolution No. 403-84, July 23, 1984; reformatted in accordance with Resolution No. 333-86, June 12, 1986, and Resolution No. 438-86, August 12, 1986, and accepted by Resolution No. 147-87, February 25, 1987; amended by Resolution No. 284-97, May 13, 1997; amended by Resolution No. 616-01, November 13, 2001; amended by Resolution No. 252-08, June 23, 2008.

Appendix B. Schools Targeted for Safe Routes to School Grant Funding From the Maryland Highway Safety Office

Grant B (2/1/2008 - 12/31/2009)

Cannon Road ES
Clearspring ES
Flower Hill ES
Georgian Forest ES
Greenwood ES
Olney ES
Stone Mill ES
Thurgood Marshall ES
Kingsview MS
Martin Luther King, Jr. MS
Rosa Parks MS

Grant C (1/1/2009 - 12/31/2010)

Jackson Road ES
Rock View ES
Westbrook ES
Woodlin ES
Argyle MS
Earle B. Wood MS

Grant D (1/1/2010 - 12/31/2011)

Captain James Daly ES
Glenallan ES
Judith A. Resnik ES
Kensington–Parkwood ES
Little Bennett ES
Viers Mill ES
William B. Gibbs Jr. ES
Montgomery Village MS

Grant E (7/1/2011 - 12/31/2013)

Bells Mill ES
Dr. Charles R. Drew ES
Greencastle ES
New Hampshire Estates ES
Oakland Terrace ES
Stonegate ES
Strawberry Knoll ES
Wayside ES
North Bethesda MS

Grant F (10/1/2013-12/31/2015)

Flora M. Singer ES
Fox Chapel ES
S. Christa McAuliffe ES
Roberto Clemente MS
Watkins Mill ES
Rocky Hill MS

Appendix C. Tests of Statistical Significance

OLO conducted statistical tests to assess whether the differences in average annual collisions observed by OLO are statistically significant. In the context of OLO's analysis, tests of statistical significance provide information about the probability of observing decreases in annual collisions described on Table 6 on page 17 if the decreases were due purely to random chance. This probability is often expressed as a "p-value". A *higher* p-value is associated with a *lower* level of statistical significance. P-values of 5% or less are typically considered to indicate a "statistically significant" result, but this threshold is considered to be arbitrary.¹ OLO's tests of statistical significance found the following:

- A p-value of 12% for the differences in annual collisions within the quarter-mile radius of public schools; and
- A p-value of 47% for the differences in annual collisions within the half-mile radius of public schools.²

These results show that it is possible that the decreases in annual collisions observed were due to random chance, particularly for collisions within the half-mile radius of schools. OLO emphasizes that, as noted in Chapter 2 of the report, OLO's analysis does not control for external factors that impact safety such as levels of traffic congestion, the numbers of pedestrians and bicyclists, and the weather, all of which can impact numbers of collisions. Tests of statistical significance do not control for these factors, and cannot be used to isolate the impact of the SRTS program.

¹ Wasserstein, R. L. & Lazar, N. A., (2016) "The ASA's Statement on p-Values: Context, Process, and Purpose," *The American Statistician*, 70:2, 129-133, <
<http://amstat.tandfonline.com/doi/pdf/10.1080/00031305.2016.1154108?needAccess=true> >

² Based on one-tailed t-tests of the differences between paired annual collisions before and after SRTS improvements.

Appendix D. Annual Pedestrian and Bicycle Collisions Near Public Schools

The tables on the following pages display annual pedestrian and bicycle collisions within the quarter-mile and half-mile radii around public schools. Data for the half-mile radii are inclusive of collisions within the quarter-mile radii.

Schools are grouped by school level (elementary, middle, high, and special schools and holding sites). All schools, including three schools that did not receive a comprehensive Safe Routes to School assessment between 2005 and 2015, are included in these tables.

Annual Pedestrian and Bicycle Collisions Within a Quarter-Mile of Elementary Schools

School	Assessment Date	Grant	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Arcola ES	6/2/2007		1	1	0	0	0	0	0	0	0	0	1
Ashburton ES	7/1/2009		0	0	0	0	0	0	0	0	1	0	1
Bannockburn ES	6/10/2013		0	0	0	0	0	0	0	0	0	0	0
Beall ES	3/4/2011		0	0	0	0	0	0	0	0	0	0	1
Bel Pre ES	11/28/2011		0	0	0	0	0	0	0	0	0	0	0
Bells Mill ES	10/15/2010	Grant E	2	0	0	1	0	1	0	0	1	0	0
Belmont ES	N/A		0	0	0	0	0	0	0	0	0	0	0
Bethesda ES	3/26/2009		11	9	10	7	10	3	3	5	10	9	6
Beverly Farms ES	3/29/2011		0	0	0	0	0	1	0	0	1	1	0
Bradley Hills ES	7/22/2013		0	1	0	0	1	0	0	2	0	0	0
Brooke Grove ES	8/20/2014		0	0	0	0	0	0	0	0	0	0	0
Brookhaven ES	5/7/2007		0	0	0	0	0	0	0	1	0	0	1
Brown Station ES	1/26/2010		1	0	0	0	0	0	0	0	0	1	0
Burning Tree ES	7/3/2007		0	0	0	0	0	0	0	0	0	0	0
Burnt Mills ES	12/28/2006		0	1	1	0	0	1	1	0	1	2	0
Burtonsville ES	11/22/2013		0	0	0	0	0	0	1	1	1	0	2
Candlewood ES	1/24/2007		0	0	0	0	0	0	0	0	0	0	0
Cannon Road ES	12/13/2011	Grant B	0	0	0	0	0	0	0	0	0	0	1
Captain James Daly ES	8/28/2010	Grant D	0	0	2	0	0	1	0	0	0	0	0
Carderock Springs ES	7/26/2010		0	0	0	0	0	0	0	0	0	0	0
Cashell ES	8/10/2009		0	0	0	0	0	0	0	0	0	0	0
Cedar Grove ES	5/30/2012		0	0	0	0	0	0	0	0	0	0	0
Chevy Chase ES	2/7/2013		3	1	0	0	1	1	0	0	0	2	0
Clarksburg ES	6/16/2011		1	0	0	0	0	0	1	0	0	0	0
Clearspring ES	12/30/2008	Grant B	0	0	1	0	0	1	0	0	0	0	0
Clopper Mill ES	2/10/2012		1	0	0	1	1	1	0	0	0	0	0
Cloverly ES	11/7/2013		1	0	1	0	1	0	2	0	0	0	0
Cold Spring ES	1/3/2007		1	0	0	0	0	0	0	0	0	0	0
College Gardens ES	4/16/2009		0	0	0	0	0	0	0	0	0	0	1
Cresthaven ES	7/29/2010		0	0	0	0	0	0	1	0	0	0	1

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School	Assessment Date	Grant	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Damascus ES	9/21/2012		1	0	0	0	0	0	1	0	0	1	0
Darnestown ES	8/1/2011		0	0	0	0	0	1	0	0	0	0	1
Diamond ES	1/6/2012		0	0	0	1	0	0	0	0	0	0	0
Dr. Charles R. Drew ES	1/10/2008	Grant E	0	0	0	0	0	0	0	0	0	0	0
Dr. Sally K. Ride ES	3/30/2012		0	0	0	0	0	1	0	0	0	1	0
Duffie ES	8/12/2014		0	0	0	0	0	0	0	0	0	0	0
East Silver Spring ES	9/30/2005		1	0	0	0	1	1	1	0	0	1	1
Fairland ES	2/7/2008		0	0	0	0	0	0	0	0	0	0	1
Fallsmead ES	1/21/2011		0	0	0	0	0	0	0	0	0	0	0
Farmland ES	8/1/2011		0	0	0	0	0	1	0	0	0	0	0
Fields Road ES	2/3/2010		0	0	0	0	1	1	1	0	1	1	0
Flora M. Singer ES	9/13/2012	Grant F	0	0	0	0	0	0	0	0	0	0	0
Flower Hill ES	7/2/2008	Grant B	1	0	0	0	0	0	0	0	0	1	0
Flower Valley ES	9/12/2007		0	0	0	0	0	0	0	0	0	0	0
Forest Knolls ES	10/19/2005		0	0	1	0	1	1	0	3	2	2	3
Fox Chapel ES	3/29/2012	Grant F	0	1	0	0	1	0	1	0	0	1	1
Gaithersburg ES	1/22/2010		3	5	7	4	4	4	0	0	3	3	3
Galway ES	11/14/2008		0	0	1	0	1	0	1	0	0	1	0
Garrett Park ES	5/1/2009		0	1	0	0	2	0	0	1	0	0	0
Georgian Forest ES	1/10/2008	Grant B	0	0	0	0	0	0	0	0	0	0	0
Germantown ES	2/6/2009		0	0	0	0	0	2	0	1	0	0	0
Glen Haven ES	12/9/2013		1	1	0	1	2	1	0	0	0	0	2
Glenallan ES	4/28/2011	Grant D	0	0	1	3	0	1	3	4	3	2	2
Goshen ES	1/10/2013		0	0	0	0	0	0	0	0	0	0	0
Great Seneca Creek ES	10/2/2013		1	0	0	1	0	2	1	1	0	0	0
Greencastle ES	5/28/2010	Grant E	2	2	0	2	1	0	1	1	1	2	1
Greenwood ES	7/21/2008	Grant B	0	0	0	0	0	1	0	0	0	0	0
Harmony Hills ES	12/23/2005		3	1	2	3	1	4	2	1	2	1	2
Highland ES	5/11/2011		0	1	1	1	1	1	0	0	0	0	2
Highland View ES	2/6/2013		0	0	0	1	0	0	0	1	1	0	0

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School	Assessment Date	Grant	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Jackson Road ES	1/6/2010	Grant C	1	1	3	0	0	1	0	0	0	1	0
JoAnn Leleck ES	4/25/2006		0	2	1	0	1	1	0	1	0	0	1
Jones Lane ES	10/19/2012		0	0	0	0	0	0	0	0	0	0	0
Judith A. Resnik ES	7/14/2010	Grant D	0	0	0	0	0	0	0	0	1	1	0
Kemp Mill ES	5/8/2005		0	0	0	0	0	0	0	0	0	0	0
Kensington-Parkwood ES	12/12/2005	Grant D	0	0	0	0	0	0	0	0	0	0	0
Lake Seneca ES	10/16/2012		0	1	0	0	0	1	0	0	0	0	0
Lakewood ES	3/25/2009		0	0	0	0	0	0	0	0	0	0	0
Laytonville ES	6/13/2012		0	1	0	3	0	0	0	0	1	1	0
Little Bennett ES	11/21/2014	Grant D	0	0	0	0	1	0	0	1	0	0	0
Lois P. Rockwell ES	8/30/2007		0	0	0	0	0	0	0	0	0	0	0
Lucy V. Barnsley ES	1/30/2006		0	0	0	0	0	0	0	0	0	0	0
Luxmanor ES	1/8/2014		0	0	0	0	0	1	0	0	0	0	0
Maryvale ES	4/16/2009		0	0	0	1	0	0	0	0	0	1	0
Meadow Hall ES	11/3/2010		1	0	1	1	0	0	0	0	0	0	0
Mill Creek Towne ES	1/18/2013		0	0	0	0	0	0	0	0	0	0	0
Monocacy ES	6/17/2011		0	0	0	0	0	0	0	0	0	0	0
Montgomery Knolls ES	4/28/2009		1	0	0	1	1	0	2	1	0	0	3
New Hampshire Estates ES	12/2/2009	Grant E	8	8	8	6	8	6	1	6	5	6	1
North Chevy Chase ES	10/19/2007		0	0	0	1	1	0	1	0	1	0	0
Oak View ES	2/3/2006		2	0	1	0	1	1	0	0	0	0	0
Oakland Terrace ES	9/14/2010	Grant E	0	0	0	0	0	1	0	0	0	0	0
Olney ES	8/27/2008	Grant B	3	1	0	1	1	3	2	1	1	2	2
Pine Crest ES	5/20/2011		0	0	0	1	1	0	0	0	0	0	0
Piney Branch ES	5/1/2013		0	0	0	0	0	0	0	0	0	0	0
Poolsville ES	2/29/2008		0	0	0	0	0	0	1	0	0	1	0
Potomac ES	8/22/2013		0	0	1	0	0	0	0	0	0	0	0
Rachel Carson ES	4/2/2012		0	1	0	1	0	0	0	1	0	1	2
Ritchie Park ES	1/30/2009		0	0	0	1	0	1	0	0	0	0	0
Rock Creek Forest ES	10/15/2007		2	2	1	1	3	2	0	1	0	1	1

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Rock Creek Valley ES	9/25/2013		0	1	0	0	0	0	0	0	0	0	0
Rock View ES	1/7/2010	Grant C	0	0	1	0	2	0	2	0	1	0	1
Rolling Terrace ES	11/6/2002		0	3	3	1	1	0	1	0	0	0	2
Ronald McNair ES	5/18/2006		0	1	1	1	0	0	0	0	0	0	0
Roscoe R. Nix ES	5/26/2006		0	1	1	0	1	0	0	0	0	0	0
Rosemary Hills ES	12/18/2012		0	0	0	0	0	1	0	0	0	1	0
Rosemont ES	6/14/2010		0	0	2	0	2	1	2	1	0	0	4
S. Christa McAuliffe ES	9/4/2014	Grant F	1	0	1	0	0	0	0	1	2	0	0
Sargent Shriver ES	3/14/2006		0	0	0	0	0	0	0	0	0	0	0
Sequoyah ES	4/17/2008		0	1	1	0	0	0	0	0	0	0	0
Seven Locks ES	7/7/2006		0	0	0	0	0	0	0	0	1	1	0
Sherwood ES	1/18/2013		0	0	0	0	0	0	1	0	0	0	0
Sligo Creek ES	1/16/2014		1	0	0	0	0	0	1	0	1	0	0
Somerset ES	5/14/2013		0	0	0	0	1	0	1	1	1	1	1
South Lake ES	10/26/2007		1	2	0	2	0	2	3	3	3	1	5
Spark M. Matsunaga ES	1/14/2013		0	0	0	1	0	0	0	0	0	0	0
Stedwick ES	9/15/2014		2	1	0	2	2	0	0	0	2	1	1
Stone Mill ES	11/26/2007	Grant B	0	0	0	1	0	0	0	0	0	0	0
Stonagate ES	2/2/2012	Grant E	0	0	0	0	0	0	0	0	0	0	0
Strathmore ES	11/28/2011		0	1	0	1	0	0	0	0	0	0	0
Strawberry Knoll ES	4/4/2011	Grant E	0	1	0	0	0	0	1	0	0	0	0
Summit Hall ES	2/5/2010		0	0	0	0	2	0	1	1	0	0	0
Takoma Park ES	9/4/2013		0	0	1	0	0	0	0	0	0	1	0
Thurgood Marshall ES	4/1/2008	Grant B	0	0	0	1	0	0	0	0	0	0	0
Travilah ES	9/19/2011		1	0	0	0	0	0	0	0	0	1	0
Twinbrook ES	11/3/2010		0	0	1	0	2	1	0	0	0	0	0
Viers Mill ES	3/22/2013	Grant D	0	1	0	1	1	1	0	2	0	0	0
Washington Grove ES	7/25/2011		0	0	1	0	0	0	0	0	0	0	0
Waters Landing ES	3/2/2009		0	0	0	1	1	0	0	0	0	0	0
Watkins Mill ES	5/3/2012	Grant F	3	0	0	1	0	1	0	0	0	0	0

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Wayside ES	7/27/2010	Grant E	0	0	0	0	0	1	0	0	0	0	1
Weller Road ES	7/22/2013		0	0	1	1	1	0	1	1	0	1	0
Westbrook ES	12/30/2008	Grant C	0	0	1	0	0	0	0	2	0	0	0
Westover ES	5/3/2013		0	0	0	0	0	1	0	0	0	0	0
Wheaton Woods ES	3/4/2006		0	0	0	0	0	0	0	0	0	0	1
Whetstone ES	1/16/2014		0	1	0	0	0	0	0	0	0	0	0
William B. Gibbs Jr. ES	7/10/2009	Grant D	0	0	0	0	0	0	0	0	0	0	0
William T. Page ES	11/5/2013		0	0	0	0	0	0	0	0	1	0	0
Wilson Wims ES	2/9/2015		0	1	0	0	0	0	0	0	0	0	0
Wood Acres ES	2/29/2012		0	0	0	0	0	0	0	0	0	0	1
Woodfield ES	5/20/2013		1	0	0	0	0	0	0	0	0	0	0
Woodlin ES	12/24/2009	Grant C	1	1	0	0	0	0	1	1	1	0	1
Wyngate ES	1/13/2012		0	0	0	0	0	0	0	0	0	0	1

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Arcola ES	6/2/2007		2	3	1	0	1	1	0	0	0	1	4
Ashburton ES	7/1/2009		1	0	4	3	2	3	3	3	2	1	5
Bannockburn ES	6/10/2013		3	1	0	0	1	2	3	0	2	1	0
Beall ES	3/4/2011		0	0	2	0	2	1	0	0	1	1	1
Bel Pre ES	11/28/2011		0	1	0	0	0	1	0	0	0	0	0
Bells Mill ES	10/15/2010	Grant E	2	0	0	1	0	1	0	1	1	0	0
Belmont ES	N/A		0	1	0	0	0	0	0	0	0	0	0
Bethesda ES	3/26/2009		22	21	17	20	21	19	18	23	27	25	17
Beverly Farms ES	3/29/2011		0	0	0	1	0	1	0	0	1	1	0
Bradley Hills ES	7/22/2013		0	1	0	0	3	2	1	3	1	1	0
Brooke Grove ES	8/20/2014		1	0	0	0	0	0	0	0	0	0	0
Brookhaven ES	5/7/2007		0	4	2	1	0	2	2	5	0	0	1
Brown Station ES	1/26/2010		1	2	0	0	0	0	1	0	2	1	1
Burning Tree ES	7/3/2007		0	0	0	0	0	1	0	0	0	0	0
Burnt Mills ES	12/28/2006		0	4	1	2	0	3	4	2	2	4	1
Burtonsville ES	11/22/2013		0	0	1	0	1	0	1	1	1	0	2
Candlewood ES	1/24/2007		0	0	0	0	0	0	0	1	0	0	0
Cannon Road ES	12/13/2011	Grant B	2	3	1	2	3	1	1	0	0	1	2
Captain James Daly ES	8/28/2010	Grant D	0	0	2	0	1	1	0	0	0	0	0
Carderock Springs ES	7/26/2010		0	0	0	0	0	0	0	0	0	0	0
Cashell ES	8/10/2009		0	0	0	0	1	0	1	0	0	0	0
Cedar Grove ES	5/30/2012		0	0	0	0	0	0	0	0	0	0	0
Chevy Chase ES	2/7/2013		3	4	0	2	1	1	0	0	2	2	1
Clarksburg ES	6/16/2011		1	0	0	0	0	0	2	0	0	2	2
Clearspring ES	12/30/2008	Grant B	0	0	1	1	0	1	0	0	0	0	0
Clopper Mill ES	2/10/2012		3	0	0	3	2	2	0	1	2	1	2
Cloverly ES	11/7/2013		1	0	1	0	1	0	2	0	1	0	0
Cold Spring ES	1/3/2007		1	0	0	1	0	0	0	0	0	0	0
College Gardens ES	4/16/2009		3	0	2	2	0	1	3	3	1	4	2
Cresthaven ES	7/29/2010		2	0	1	0	1	1	3	0	1	0	3

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Damascus ES	9/21/2012		1	0	0	4	1	0	3	1	0	2	1
Darnestown ES	8/1/2011		0	0	0	0	0	1	0	0	0	0	1
Diamond ES	1/6/2012		0	2	0	1	0	0	0	0	0	0	0
Dr. Charles R. Drew ES	1/10/2008	Grant E	0	1	0	0	0	0	0	0	0	0	0
Dr. Sally K. Ride ES	3/30/2012		0	0	0	0	0	1	0	0	0	1	0
Duffield ES	8/12/2014		0	0	0	0	0	0	1	0	0	0	0
East Silver Spring ES	9/30/2005		3	3	2	1	4	1	2	1	1	1	3
Fairland ES	2/7/2008		0	0	1	0	0	0	0	0	0	0	1
Fallsmead ES	1/21/2011		0	0	1	0	0	3	1	1	2	0	0
Farmland ES	8/1/2011		0	0	0	0	0	1	0	0	0	0	0
Fields Road ES	2/3/2010		1	1	1	3	5	1	5	5	3	1	3
Flora M. Singer ES	9/13/2012	Grant F	1	0	1	1	1	0	0	0	0	2	0
Flower Hill ES	7/2/2008	Grant B	2	4	2	3	3	5	1	3	4	2	2
Flower Valley ES	9/12/2007		1	0	0	0	0	0	0	1	0	0	0
Forest Knolls ES	10/19/2005		2	2	2	1	2	3	1	3	2	4	4
Fox Chapel ES	3/29/2012	Grant F	2	2	0	2	1	2	1	1	1	3	3
Gaithersburg ES	1/22/2010		4	6	8	7	7	10	0	3	6	4	7
Galway ES	11/14/2008		0	0	1	0	1	0	1	0	0	1	0
Garrett Park ES	5/1/2009		0	2	0	2	2	0	0	1	0	0	0
Georgian Forest ES	1/10/2008	Grant B	1	5	0	3	1	2	1	1	0	1	0
Germantown ES	2/6/2009		0	0	1	2	1	2	0	1	0	0	1
Glen Haven ES	12/9/2013		4	1	0	3	2	3	1	1	1	0	3
Glenallan ES	4/28/2011	Grant D	2	5	1	5	0	3	7	4	3	4	6
Goshen ES	1/10/2013		0	0	0	0	0	1	0	0	0	1	1
Great Seneca Creek ES	10/2/2013		2	1	1	3	0	3	1	2	1	0	2
Greencastle ES	5/28/2010	Grant E	3	3	0	3	2	0	1	5	5	4	2
Greenwood ES	7/21/2008	Grant B	0	1	0	0	0	1	0	0	0	2	1
Harmony Hills ES	12/23/2005		12	9	12	7	6	8	9	5	12	2	11
Highland ES	5/11/2011		2	3	7	4	4	2	1	3	1	3	4
Highland View ES	2/6/2013		4	0	2	2	2	2	0	1	1	1	1

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Jackson Road ES	1/6/2010	Grant C	2	3	5	0	1	1	1	1	0	2	0
JoAnn Leleck ES	4/25/2006		2	3	3	3	3	1	2	2	2	2	2
Jones Lane ES	10/19/2012		0	0	0	0	0	0	0	0	0	0	0
Judith A. Resnik ES	7/14/2010	Grant D	0	0	2	1	1	1	1	1	1	1	2
Kemp Mill ES	5/8/2005		0	2	0	0	0	0	0	0	0	0	0
Kensington-Parkwood ES	12/12/2005	Grant D	0	0	0	1	0	0	0	0	0	0	0
Lake Seneca ES	10/16/2012		2	1	0	0	1	1	0	0	1	1	0
Lakewood ES	3/25/2009		0	1	0	1	0	0	0	1	1	0	3
Laytonsville ES	6/13/2012		0	1	0	3	0	0	0	0	1	2	1
Little Bennett ES	11/21/2014	Grant D	0	0	0	0	1	0	0	1	0	1	2
Lois P. Rockwell ES	8/30/2007		1	0	0	0	0	0	0	0	0	0	0
Lucy V. Barnsley ES	1/30/2006		0	0	0	2	1	2	0	0	3	3	0
Luxmanor ES	1/8/2014		2	0	0	0	0	1	1	0	1	1	1
Maryvale ES	4/16/2009		2	5	0	5	2	2	0	5	1	4	2
Meadow Hall ES	11/3/2010		1	1	1	1	0	2	0	0	0	0	1
Mill Creek Towne ES	1/18/2013		1	1	2	0	0	1	2	1	0	2	1
Monocacy ES	6/17/2011		0	0	0	0	0	0	0	0	0	0	0
Montgomery Knolls ES	4/28/2009		10	5	8	7	8	7	2	9	5	5	4
New Hampshire Estates ES	12/2/2009	Grant E	14	10	11	11	10	9	4	12	10	8	7
North Chevy Chase ES	10/19/2007		1	1	0	2	1	0	1	1	1	0	1
Oak View ES	2/3/2006		6	5	5	7	4	8	10	6	10	2	4
Oakland Terrace ES	9/14/2010	Grant E	0	0	0	0	0	1	0	0	0	1	0
Olney ES	8/27/2008	Grant B	7	6	4	3	4	6	6	2	5	5	5
Pine Crest ES	5/20/2011		0	1	3	1	3	1	1	1	2	4	1
Piney Branch ES	5/1/2013		0	0	1	0	0	0	0	0	0	1	0
Poolesville ES	2/29/2008		0	0	0	0	1	0	1	0	0	1	0
Potomac ES	8/22/2013		0	1	3	1	1	3	1	3	0	3	0
Rachel Carson ES	4/2/2012		2	1	2	1	2	2	3	2	3	2	4
Ritchie Park ES	1/30/2009		0	1	0	1	0	1	0	0	0	0	0
Rock Creek Forest ES	10/15/2007		4	5	2	4	6	3	0	1	0	1	2

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Rock Creek Valley ES	9/25/2013		0	1	0	0	0	0	0	1	0	0	0
Rock View ES	1/7/2010	Grant C	2	1	1	3	3	0	6	3	4	3	1
Rolling Terrace ES	11/6/2002		14	14	11	13	11	9	12	15	10	6	10
Ronald McNair ES	5/18/2006		0	1	1	1	0	1	0	0	0	1	0
Roscoe R. Nix ES	5/26/2006		0	1	1	1	2	0	1	0	1	0	1
Rosemary Hills ES	12/18/2012		4	6	0	5	4	3	0	1	2	5	3
Rosemont ES	6/14/2010		0	1	6	1	3	1	2	3	1	2	5
S. Christa McAuliffe ES	9/4/2014	Grant F	3	1	1	1	2	0	2	1	2	2	2
Sargent Shriver ES	3/14/2006		9	8	5	6	4	8	8	8	6	0	5
Sequoyah ES	4/17/2008		0	2	1	0	0	0	0	0	0	0	0
Seven Locks ES	7/7/2006		0	1	0	0	0	0	0	1	1	2	0
Sherwood ES	1/18/2013		0	0	0	0	0	0	1	0	0	0	1
Sligo Creek ES	1/16/2014		4	0	1	1	1	2	2	1	1	3	2
Somerset ES	5/14/2013		0	3	0	2	3	4	1	1	3	1	5
South Lake ES	10/26/2007		3	4	3	5	2	4	5	7	7	2	6
Spark M. Matsunaga ES	1/14/2013		0	0	0	1	0	0	0	0	1	0	0
Stedwick ES	9/15/2014		6	1	3	5	3	1	0	1	3	4	2
Stone Mill ES	11/26/2007	Grant B	1	2	0	2	0	0	0	0	1	0	2
Stonegate ES	2/2/2012	Grant E	0	0	0	0	0	0	0	0	0	0	0
Strathmore ES	11/28/2011		4	2	3	2	2	3	0	1	5	1	0
Strawberry Knoll ES	4/4/2011	Grant E	0	1	1	0	0	0	1	0	0	0	0
Summit Hall ES	2/5/2010		0	0	0	0	3	0	1	1	0	1	3
Takoma Park ES	9/4/2013		0	0	1	0	0	0	0	0	0	1	1
Thurgood Marshall ES	4/1/2008	Grant B	0	0	1	1	0	0	0	2	0	0	0
Travilah ES	9/19/2011		1	0	0	0	0	0	0	0	0	1	0
Twinbrook ES	11/3/2010		1	7	5	4	4	1	5	7	3	3	3
Viers Mill ES	3/22/2013	Grant D	0	3	2	3	4	4	3	4	0	2	1
Washington Grove ES	7/25/2011		0	0	2	0	2	0	1	1	1	1	0
Waters Landing ES	3/2/2009		1	2	1	2	2	5	2	2	0	0	4
Watkins Mill ES	5/3/2012	Grant F	4	0	2	6	3	4	0	5	0	1	4

Annual Pedestrian and Bicycle Collisions Within a Half-Mile of Elementary Schools

School	Assessment Date	Grant	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Wayside ES	7/27/2010	Grant E	0	0	0	0	1	1	0	0	1	0	1
Weller Road ES	7/22/2013		0	1	5	5	2	5	2	3	1	2	4
Westbrook ES	12/30/2008	Grant C	2	1	5	5	3	1	4	3	6	2	2
Westover ES	5/3/2013		0	0	0	0	0	2	1	0	0	0	0
Wheaton Woods ES	3/4/2006		3	2	2	3	2	2	2	0	3	1	2
Whetstone ES	1/16/2014		1	5	2	1	1	4	1	2	0	0	4
William B. Gibbs Jr. ES	7/10/2009	Grant D	0	1	0	0	0	0	0	1	0	0	0
William T. Page ES	11/5/2013		1	1	0	1	1	2	0	0	1	2	1
Wilson Wims ES	2/9/2015		0	1	0	0	1	0	0	0	0	0	0
Wood Acres ES	2/29/2012		1	0	0	1	2	0	1	1	0	0	3
Woodfield ES	5/20/2013		1	0	0	0	0	0	0	0	0	0	0
Woodlin ES	12/24/2009	Grant C	1	5	4	0	5	6	4	3	2	2	3
Wyngate ES	1/13/2012		1	0	0	0	0	1	1	0	0	0	1

Annual Pedestrian and Bicycle Collisions Within a Quarter-Mile of Middle Schools

School	Assessment Date	Grant	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
A. Mario Loiederman MS	11/16/2005		0	2	4	0	2	2	4	0	2	0	4
Argyle MS	11/23/2009	Grant C	2	4	4	0	0	4	2	2	4	8	2
Benjamin Banneker MS	8/30/2005		0	0	0	0	0	0	0	0	0	0	0
Briggs Chaney MS	5/29/2009		0	0	0	0	0	2	0	0	0	0	0
Cabin John MS	3/14/2006		2	0	0	2	0	0	0	0	2	0	0
Col. E. Brooke Lee MS	6/2/2007		0	0	0	0	0	0	0	0	2	0	0
Earle B. Wood MS	3/9/2010	Grant C	0	0	0	4	2	4	0	0	0	4	0
Eastern MS	3/23/2010		0	2	4	0	0	0	0	2	4	0	0
Forest Oak MS	3/1/2012		0	0	0	0	0	0	0	0	0	0	0
Francis Scott Key MS	5/7/2009		0	0	0	0	0	0	0	0	0	0	2
Gaithersburg MS	3/8/2010		0	0	0	2	0	0	0	0	2	0	2
Herbert Hoover MS	3/29/2011		0	0	0	2	0	0	0	0	0	0	2
John Poole MS	2/29/2008		0	0	0	0	0	0	0	0	0	0	0
John T Baker MS	11/1/2005		0	0	0	0	0	0	0	0	0	0	0
Julius West MS	3/25/2009		0	0	2	2	0	0	0	0	2	0	0
Kingsview MS	1/10/2008	Grant B	0	0	0	2	0	2	0	0	0	2	2
Lakelands Park MS	9/2/2005		0	0	0	0	4	4	2	0	2	0	0
Martin Luther King, Jr MS	2/6/2009	Grant B	0	0	0	0	0	2	0	0	0	2	0
Montgomery Village MS	7/1/2010	Grant D	2	0	0	4	4	2	0	2	2	0	2
Neelsville MS	5/24/2010		4	0	0	0	2	2	2	0	0	0	4
Newport Mill MS	11/24/2010		0	0	0	0	2	0	2	0	0	0	0
North Bethesda MS	3/28/2011	Grant E	0	0	2	0	0	0	0	0	0	0	0
Parkland MS	5/7/2007		0	0	0	0	0	0	0	2	0	0	2
Redland MS	8/21/2013		2	0	0	2	0	0	0	0	0	0	2
Ridgeview MS	7/15/2010		0	0	2	2	0	0	0	0	2	0	0
Robert Frost MS	9/17/2014		0	0	0	0	0	0	0	0	0	0	0
Roberto Clemente MS	1/23/2012	Grant F	0	0	0	0	4	2	2	2	2	0	0
Rocky Hill MS	6/14/2012	Grant F	0	0	0	2	0	2	0	0	0	0	0
Rosa Parks MS	5/12/2008	Grant B	0	0	0	0	2	0	0	0	0	0	0
Shady Grove MS	3/7/2011		0	0	0	0	0	2	0	4	0	0	0

Annual Pedestrian and Bicycle Collisions Within a Quarter-Mile of Middle Schools

School	Assessment Date	Grant	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Silver Spring International MS	1/24/2014		0	0	0	0	0	0	0	0	2	0	0
Sligo MS	1/10/2014		0	2	0	0	0	0	0	0	0	0	0
Takoma Park MS	9/4/2013		0	0	2	0	0	0	0	0	0	2	0
Thomas W. Pyle MS	6/27/2012		0	0	0	2	0	0	2	0	0	0	0
Tilden MS	11/15/2012		0	0	0	0	0	0	0	0	2	0	0
Westland MS	8/24/2012		2	0	2	2	0	2	0	0	0	0	2
White Oak MS	1/6/2010		4	4	6	0	2	2	0	0	0	4	0
William H. Farquhar MS	1/6/2011		0	0	0	0	0	0	0	0	0	0	0

Annual Pedestrian and Bicycle Collisions Within a Half-Mile of Middle Schools

School	Assessment Date	Grant	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
A. Mario Loiederman MS	11/16/2005		0	1	3	2	3	6	3	0	3	2	2
Argyle MS	11/23/2009	Grant C	1	2	4	1	0	2	2	2	4	4	2
Benjamin Banneker MS	8/30/2005		0	0	1	1	0	0	0	0	0	0	0
Briggs Chaney MS	5/29/2009		0	0	0	0	0	2	0	0	0	0	0
Cabin John MS	3/14/2006		2	0	1	1	0	1	0	1	1	0	0
Col. E. Brooke Lee MS	6/2/2007		0	2	1	0	0	1	0	1	1	0	2
Earle B. Wood MS	3/9/2010	Grant C	0	0	0	2	1	3	0	0	1	2	0
Eastern MS	3/23/2010		0	1	2	2	0	0	3	2	3	0	2
Forest Oak MS	3/1/2012		0	0	0	1	0	0	0	0	1	0	0
Francis Scott Key MS	5/7/2009		0	0	0	0	1	0	2	0	1	0	2
Gaithersburg MS	3/8/2010		3	5	7	5	5	8	0	1	3	3	6
Herbert Hoover MS	3/29/2011		0	0	0	1	2	1	0	0	0	0	2
John Poole MS	2/29/2008		0	0	0	0	0	0	0	1	0	0	0
John T Baker MS	11/1/2005		0	0	0	0	1	0	0	0	0	0	0
Julius West MS	3/25/2009		0	0	1	1	0	0	1	0	1	0	0
Kingsview MS	1/10/2008	Grant B	1	2	2	6	1	2	1	1	2	2	1
Lakelands Park MS	9/2/2005		0	0	2	1	4	2	1	0	2	1	0
Martin Luther King, Jr MS	2/6/2009	Grant B	1	1	0	0	0	1	0	0	1	1	0
Montgomery Village MS	7/1/2010	Grant D	8	5	6	6	4	8	1	4	3	2	8
Neelsville MS	5/24/2010		4	1	0	0	2	1	3	1	1	0	3
Newport Mill MS	11/24/2010		2	2	4	3	6	2	3	0	3	0	1
North Bethesda MS	3/28/2011	Grant E	1	1	1	0	1	1	0	1	0	1	1
Parkland MS	5/7/2007		0	3	1	1	0	1	2	5	0	0	1
Redland MS	8/21/2013		1	0	0	1	0	0	0	0	1	0	1
Ridgeview MS	7/15/2010		0	1	2	1	0	0	0	0	1	0	3
Robert Frost MS	9/17/2014		0	0	1	0	1	2	1	1	1	0	1
Roberto Clemente MS	1/23/2012	Grant F	0	0	0	0	2	2	2	1	2	0	1
Rocky Hill MS	6/14/2012	Grant F	0	0	0	1	0	1	0	1	0	0	0
Rosa Parks MS	5/12/2008	Grant B	0	0	0	0	1	0	0	0	0	0	0
Shady Grove MS	3/7/2011		1	0	0	0	0	2	0	2	0	0	1

Annual Pedestrian and Bicycle Collisions Within a Half-Mile of Middle Schools

School	Assessment Date	Grant	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Silver Spring International MS	1/24/2014		4	0	2	1	1	2	2	2	2	3	4
Sligo MS	1/10/2014		1	1	1	0	0	0	0	0	1	0	0
Takoma Park MS	9/4/2013		2	1	1	0	1	1	1	0	0	2	1
Thomas W. Pyle MS	6/27/2012		0	0	0	1	0	1	3	2	0	0	1
Tilden MS	11/15/2012		1	2	1	2	0	1	0	2	2	1	1
Westland MS	8/24/2012		3	3	4	3	5	2	4	4	2	1	3
White Oak MS	1/6/2010		2	4	5	0	2	1	1	1	0	2	0
William H. Farquhar MS	1/6/2011		0	1	0	0	0	0	0	0	0	0	0

Annual Pedestrian and Bicycle Collisions Within a Quarter-Mile of High Schools

School	Assessment Date	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Albert Einstein HS	11/24/2010	0	0	0	0	0	0	1	0	0	0	0
Bethesda-Chevy Chase HS	7/7/2006	4	1	2	2	1	3	1	1	2	4	1
Clarksburg HS	7/6/2006	0	0	0	0	0	0	0	1	0	0	0
Col. Zadok Magruder HS	8/21/2013	0	0	0	0	0	0	0	0	0	0	0
Damascus HS	3/25/2011	1	0	0	1	0	0	2	0	0	1	0
Gaithersburg HS	5/26/2011	1	1	3	1	3	2	0	1	0	0	0
James Blake HS	1/13/2012	0	0	0	0	0	0	0	0	0	0	0
John F. Kennedy HS	8/31/2011	0	0	0	0	0	1	1	3	3	1	1
Montgomery Blair HS	7/30/2012	3	3	9	5	2	2	4	1	4	8	3
Northwest HS	12/7/2010	0	1	1	0	0	0	0	1	0	0	0
Northwood HS	1/23/2015	1	0	1	0	1	2	0	2	2	3	4
Paint Branch HS	N/A	1	0	0	0	0	0	0	0	0	0	0
Poolesville HS	2/29/2008	2	0	0	0	0	0	0	0	0	2	1
Quince Orchard HS	4/21/2010	1	0	2	0	2	2	2	0	2	2	1
Richard Montgomery HS	4/15/2009	3	1	1	1	0	4	0	0	2	0	1
Rockville HS	3/10/2011	1	0	1	1	0	0	0	0	0	0	0
Seneca Valley HS	1/29/2010	2	0	0	2	0	0	5	0	1	1	1
Sherwood HS	8/27/2013	1	0	0	0	0	1	0	0	0	0	1
Springbrook HS	1/8/2014	0	0	0	1	1	1	0	1	0	0	0
Thomas S. Wootton HS	3/3/2009	0	0	1	0	0	2	1	1	1	0	0
Walt Whitman HS	8/22/2005	0	0	1	0	0	0	1	0	1	0	1
Walter Johnson HS	8/13/2012	0	1	4	0	1	1	0	0	0	1	0
Watkins Mill HS	1/8/2014	0	0	0	0	0	0	1	0	1	1	0
Wheaton HS	9/30/2005	0	0	1	0	2	2	1	1	0	1	2
Winston Churchill HS	3/29/2011	0	0	0	0	1	0	1	0	0	0	2

Annual Pedestrian and Bicycle Collisions Within a Half-Mile of High Schools

School	Assessment Date	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Albert Einstein HS	11/24/2010	1	1	1	3	4	2	3	1	2	0	0
Bethesda—Chevy Chase HS	7/7/2006	14	13	14	7	11	15	9	15	12	19	10
Clarksburg HS	7/6/2006	0	0	0	1	0	2	0	1	0	0	1
Col. Zadok Magruder HS	8/21/2013	0	1	0	0	0	0	0	0	0	0	0
Damascus HS	3/25/2011	1	1	0	1	0	0	2	0	0	1	0
Gaithersburg HS	5/26/2011	1	2	4	2	4	4	0	4	2	3	4
James Blake HS	1/13/2012	0	0	0	0	0	0	0	0	0	0	0
John F. Kennedy HS	8/31/2011	0	0	0	0	0	2	1	4	4	3	1
Montgomery Blair HS	7/30/2012	4	5	13	6	5	2	5	1	8	12	8
Northwest HS	12/7/2010	0	4	2	1	2	0	0	4	0	0	1
Northwood HS	1/23/2015	1	2	1	0	2	4	1	3	2	3	5
Paint Branch HS	N/A	2	3	0	2	1	0	0	4	6	5	4
Poolesville HS	2/29/2008	2	0	0	0	0	0	0	0	0	2	1
Quince Orchard HS	4/21/2010	1	0	2	0	2	2	2	1	3	2	2
Richard Montgomery HS	4/15/2009	8	8	3	6	4	6	6	3	5	5	7
Rockville HS	3/10/2011	1	0	1	1	0	1	0	0	0	0	1
Seneca Valley HS	1/29/2010	7	1	5	4	6	6	11	6	3	11	11
Sherwood HS	8/27/2013	1	0	1	0	1	1	0	2	0	0	1
Springbrook HS	1/8/2014	0	0	0	1	1	1	0	1	0	0	0
Thomas S. Wootton HS	3/3/2009	0	0	1	0	1	2	1	1	2	0	1
Walt Whitman HS	8/22/2005	0	0	1	1	0	0	2	2	1	0	1
Walter Johnson HS	8/13/2012	2	1	6	4	3	1	4	3	1	2	4
Watkins Mill HS	1/8/2014	1	0	0	1	0	0	1	1	1	4	0
Wheaton HS	9/30/2005	0	1	2	2	5	4	2	3	2	3	7
Winston Churchill HS	3/29/2011	0	0	0	1	3	0	1	0	0	0	3

Annual Pedestrian and Bicycle Collisions Within a Quarter-Mile of Special Schools and Holding Sites

School	Assessment Date	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Carl Sandburg Learning Center	3/4/2011	3	4	1	3	1	5	3	2	0	1	0
Emory Grove Holding School	5/14/2013	1	3	2	3	4	3	1	3	4	2	2
Fairland Center Holding Site	7/5/2007	0	0	1	1	2	0	0	1	0	1	0
Longview School	1/14/2013	0	0	0	0	0	0	0	0	0	0	0
Blair G. Ewing Center	3/4/2011	0	0	2	0	1	1	0	0	0	1	0
Radnor Center Holding Site	1/13/2009	0	0	0	0	1	0	0	1	0	0	0
RICA	3/10/2011	0	1	1	0	0	0	1	0	3	0	0
Rock Terrace School	3/10/2011	0	0	1	0	2	0	0	1	0	2	0
Stephen Knolls	3/20/2009	1	0	1	2	5	0	1	1	0	2	3

Annual Pedestrian and Bicycle Collisions Within a Half-Mile of Special Schools and Holding Sites

School	Assessment Date	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Carl Sandburg Learning Center	3/4/2011	9	7	3	6	2	8	5	4	1	2	1
Emory Grove Holding School	5/14/2013	3	5	3	5	5	3	4	4	6	4	5
Fairland Center Holding Site	7/5/2007	1	0	1	1	2	0	1	1	2	1	1
Longview School	1/14/2013	0	0	0	0	0	0	0	0	0	0	0
Blair G. Ewing Center	3/4/2011	0	0	3	1	1	1	0	0	1	1	0
Radnor Center Holding Site	1/13/2009	1	3	0	0	1	0	1	1	0	0	0
RICA	3/10/2011	0	4	1	0	0	0	3	0	3	0	0
Rock Terrace School	3/10/2011	3	5	5	1	5	5	2	3	5	7	4
Stephen Knolls	3/20/2009	11	4	8	7	14	9	9	9	8	13	16

Appendix E. Average Annual Pedestrian and Bicycle Collisions Near Public Schools Before and After SRTS Engineering Improvements

The tables on the following pages display average annual pedestrian and bicycle collisions within the quarter-mile and half-mile radii around public schools for the two years before and the two years after Safe Routes to School engineering improvements. Data for the half-mile radii are inclusive of collisions within the quarter-mile radii.

Schools are grouped by school level (elementary, middle, high, and special schools and holding sites). Only schools that received a comprehensive Safe Routes to School assessment between 2009 and 2012 are included in these tables. Schools assessed before 2009 or after 2012 were not included because OLO only included in its analysis schools for which collision data were available for a full two years before the assessment and a full two years after the estimated completion of improvements (one year after the assessment).

**Pedestrian and Bicycle Collisions Before SRTS Assessment and After the Estimated Completion of Improvements
Within a Quarter-Mile of Elementary Schools**

School	Assessment Date	Grant	Before Period	After Period	Annual Collisions Before	Annual Collisions After	Change in Collisions	Annual Collisions After 2 Years
Ashburton ES	7/1/2009		7/2/2007 to 7/1/2009	7/1/2010 to 6/30/2012	0.0	0.0	0.0	0.6
Beall ES	3/4/2011		3/4/2009 to 3/4/2011	3/3/2012 to 3/3/2014	0.0	0.0	0.0	0.5
Bel Pre ES	11/28/2011		11/28/2009 to 11/28/2011	11/27/2012 to 11/27/2014	0.0	0.0	0.0	0.0
Bells Mill ES	10/15/2010	Grant E	10/15/2008 to 10/15/2010	10/15/2011 to 10/14/2013	0.5	0.5	0.0	0.0
Bethesda ES	3/26/2009		3/27/2007 to 3/26/2009	3/26/2010 to 3/25/2012	9.0	3.0	-6.0	8.0
Beverly Farms ES	3/29/2011		3/29/2009 to 3/29/2011	3/28/2012 to 3/28/2014	0.5	0.5	0.0	0.6
Brown Station ES	1/26/2010		1/27/2008 to 1/26/2010	1/26/2011 to 1/25/2013	0.0	0.0	0.0	0.3
Cannon Road ES	12/13/2011	Grant B	12/13/2009 to 12/13/2011	12/12/2012 to 12/12/2014	0.0	0.0	0.0	1.0
Captain James Daly ES	8/28/2010	Grant D	8/28/2008 to 8/28/2010	8/28/2011 to 8/27/2013	0.0	0.0	0.0	0.0
Carderock Springs ES	7/26/2010		7/26/2008 to 7/26/2010	7/26/2011 to 7/25/2013	0.0	0.0	0.0	0.0
Cashell ES	8/10/2009		8/11/2007 to 8/10/2009	8/10/2010 to 8/9/2012	0.0	0.0	0.0	0.0
Cedar Grove ES	5/30/2012		5/31/2010 to 5/30/2012	5/30/2013 to 5/30/2015	0.0	0.0	0.0	0.0
Clarksburg ES	6/16/2011		6/16/2009 to 6/16/2011	6/15/2012 to 6/15/2014	0.5	0.0	-0.5	0.0
Clopper Mill ES	2/10/2012		2/10/2010 to 2/10/2012	2/9/2013 to 2/9/2015	0.5	0.0	-0.5	0.0
College Gardens ES	4/16/2009		4/17/2007 to 4/16/2009	4/16/2010 to 4/15/2012	0.0	0.0	0.0	0.3
Cresthaven ES	7/29/2010		7/29/2008 to 7/29/2010	7/29/2011 to 7/28/2013	0.0	0.0	0.0	0.4
Damascus ES	9/21/2012		9/22/2010 to 9/21/2012	9/21/2013 to 9/21/2015	0.5	0.5	0.0	0.0
Darnestown ES	8/1/2011		8/1/2009 to 8/1/2011	7/31/2012 to 7/31/2014	0.5	0.0	-0.5	0.7
Diamond ES	1/6/2012		1/6/2010 to 1/6/2012	1/5/2013 to 1/5/2015	0.0	0.0	0.0	0.0
Dr. Sally K. Ride ES	3/30/2012		3/31/2010 to 3/30/2012	3/30/2013 to 3/30/2015	0.5	0.5	0.0	0.0
Fallsmead ES	1/21/2011		1/21/2009 to 1/21/2011	1/21/2012 to 1/20/2014	0.0	0.0	0.0	0.0
Farmland ES	8/1/2011		8/1/2009 to 8/1/2011	7/31/2012 to 7/31/2014	0.5	0.0	-0.5	0.0
Fields Road ES	2/3/2010		2/4/2008 to 2/3/2010	2/3/2011 to 2/2/2013	0.5	0.5	0.0	0.7
Flora M. Singer ES	9/13/2012	Grant F	9/14/2010 to 9/13/2012	9/13/2013 to 9/13/2015	0.0	0.0	0.0	0.0
Fox Chapel ES	3/29/2012	Grant F	3/30/2010 to 3/29/2012	3/29/2013 to 3/29/2015	0.5	0.5	0.0	1.3
Gaithersburg ES	1/22/2010		1/23/2008 to 1/22/2010	1/22/2011 to 1/21/2013	3.5	0.0	-3.5	3.1
Garrett Park ES	5/1/2009		5/2/2007 to 5/1/2009	5/1/2010 to 4/30/2012	0.0	0.5	0.5	0.0
Germentown ES	2/6/2009		2/7/2007 to 2/6/2009	2/6/2010 to 2/6/2012	0.0	1.0	1.0	0.3
Glenallan ES	4/28/2011	Grant D	4/28/2009 to 4/28/2011	4/27/2012 to 4/27/2014	0.5	3.0	2.5	2.4
Greencastle ES	5/28/2010	Grant E	5/28/2008 to 5/28/2010	5/28/2011 to 5/27/2013	1.0	1.0	0.0	1.5
Highland ES	5/11/2011		5/11/2009 to 5/11/2011	5/10/2012 to 5/10/2014	0.5	0.0	-0.5	1.2
Jackson Road ES	1/6/2010	Grant C	1/7/2008 to 1/6/2010	1/6/2011 to 1/5/2013	0.0	0.0	0.0	0.3

OLO excluded 69 elementary schools from this analysis due to insufficient data.

**Pedestrian and Bicycle Collisions Before SRTS Assessment and After the Estimated Completion of Improvements
Within a Quarter-Mile of Elementary Schools**

School	Assessment Date	Grant	Before Period	After Period	Annual Collisions Before	Annual Collisions After	Change in Collisions	Annual Collisions After 2 Years
Jones Lane ES	10/19/2012		10/20/2010 to 10/19/2012	10/19/2013 to 10/19/2015	0.0	0.0	0.0	0.0
Judith A. Resnik ES	7/14/2010	Grant D	7/14/2008 to 7/14/2010	7/14/2011 to 7/13/2013	0.0	0.0	0.0	0.8
Lake Seneca ES	10/16/2012		10/17/2010 to 10/16/2012	10/16/2013 to 10/16/2015	0.0	0.0	0.0	0.0
Lakewood ES	3/25/2009		3/26/2007 to 3/25/2009	3/25/2010 to 3/24/2012	0.0	0.0	0.0	0.0
Laytonville ES	6/13/2012		6/14/2010 to 6/13/2012	6/13/2013 to 6/13/2015	0.0	1.0	1.0	0.0
Maryvale ES	4/16/2009		4/17/2007 to 4/16/2009	4/16/2010 to 4/15/2012	0.5	0.0	-0.5	0.3
Meadow Hall ES	11/3/2010		11/3/2008 to 11/3/2010	11/3/2011 to 11/2/2013	0.0	0.0	0.0	0.0
Monocacy ES	6/17/2011		6/17/2009 to 6/17/2011	6/16/2012 to 6/16/2014	0.0	0.0	0.0	0.0
Montgomery Knolls ES	4/28/2009		4/29/2007 to 4/28/2009	4/28/2010 to 4/27/2012	0.5	1.0	0.5	1.1
New Hampshire Estates ES	12/2/2009	Grant E	12/3/2007 to 12/2/2009	12/2/2010 to 12/1/2012	6.5	3.5	-3.0	3.9
Oakland Terrace ES	9/14/2010	Grant E	9/14/2008 to 9/14/2010	9/14/2011 to 9/13/2013	0.5	0.0	-0.5	0.0
Pine Crest ES	5/20/2011		5/20/2009 to 5/20/2011	5/19/2012 to 5/19/2014	0.0	0.0	0.0	0.0
Rachel Carson ES	4/2/2012		4/3/2010 to 4/2/2012	4/2/2013 to 4/2/2015	0.0	0.5	0.5	2.7
Ritchie Park ES	1/30/2009		1/31/2007 to 1/30/2009	1/30/2010 to 1/30/2012	0.5	0.5	0.0	0.0
Rock View ES	1/7/2010	Grant C	1/8/2008 to 1/7/2010	1/7/2011 to 1/6/2013	1.0	1.0	0.0	0.7
Rosemary Hills ES	12/18/2012		12/19/2010 to 12/18/2012	12/18/2013 to 12/18/2015	0.0	0.5	0.5	0.0
Rosemont ES	6/14/2010		6/14/2008 to 6/14/2010	6/14/2011 to 6/13/2013	1.5	1.0	-0.5	1.6
Stonegate ES	2/2/2012	Grant E	2/2/2010 to 2/2/2012	2/1/2013 to 2/1/2015	0.0	0.0	0.0	0.0
Strathmore ES	11/28/2011		11/28/2009 to 11/28/2011	11/27/2012 to 11/27/2014	0.0	0.0	0.0	0.0
Strawberry Knoll ES	4/4/2011	Grant E	4/4/2009 to 4/4/2011	4/3/2012 to 4/3/2014	0.0	0.0	0.0	0.0
Summit Hall ES	2/5/2010		2/6/2008 to 2/5/2010	2/5/2011 to 2/4/2013	1.0	1.0	0.0	0.0
Travilah ES	9/19/2011		9/19/2009 to 9/19/2011	9/18/2012 to 9/18/2014	0.0	0.5	0.5	0.0
Twinbrook ES	11/3/2010		11/3/2008 to 11/3/2010	11/3/2011 to 11/2/2013	1.5	0.0	-1.5	0.0
Washington Grove ES	7/25/2011		7/25/2009 to 7/25/2011	7/24/2012 to 7/24/2014	0.0	0.0	0.0	0.0
Waters Landing ES	3/2/2009		3/3/2007 to 3/2/2009	3/2/2010 to 3/1/2012	0.5	0.0	-0.5	0.0
Watkins Mill ES	5/3/2012	Grant F	5/4/2010 to 5/3/2012	5/3/2013 to 5/3/2015	0.5	0.0	-0.5	0.0
Wayside ES	7/27/2010	Grant E	7/27/2008 to 7/27/2010	7/27/2011 to 7/26/2013	0.5	0.0	-0.5	0.4
William B. Gibbs Jr. ES	7/10/2009	Grant D	7/11/2007 to 7/10/2009	7/10/2010 to 7/9/2012	0.0	0.0	0.0	0.0
Wood Acres ES	2/29/2012		3/1/2010 to 2/29/2012	2/28/2013 to 2/28/2015	0.0	0.0	0.0	1.2
Woodlin ES	12/24/2009	Grant C	12/25/2007 to 12/24/2009	12/24/2010 to 12/23/2012	0.0	1.0	1.0	0.7
Wyngate ES	1/13/2012		1/13/2010 to 1/13/2012	1/12/2013 to 1/12/2015	0.0	0.0	0.0	1.0

OLO excluded 69 elementary schools from this analysis due to insufficient data.

**Pedestrian and Bicycle Collisions Before SRTS Assessment and After the Estimated Completion of Improvements
Within a Half-Mile of Elementary Schools**

School	Assessment Date	Grant	Before Period	After Period	Annual Collisions Before	Annual Collisions After	Change in Collisions	Annual Collisions After 2 Years
Ashburton ES	7/1/2009		7/2/2007 to 7/1/2009	7/1/2010 to 6/30/2012	3.0	3.0	0.0	2.6
Beall ES	3/4/2011		3/4/2009 to 3/4/2011	3/3/2012 to 3/3/2014	1.5	0.5	-1.0	1.1
Bel Pre ES	11/28/2011		11/28/2009 to 11/28/2011	11/27/2012 to 11/27/2014	0.5	0.0	-0.5	0.0
Bells Mill ES	10/15/2010	Grant E	10/15/2008 to 10/15/2010	10/15/2011 to 10/14/2013	0.5	1.0	0.5	0.0
Bethesda ES	3/26/2009		3/27/2007 to 3/26/2009	3/26/2010 to 3/25/2012	19.0	18.5	-0.5	23.9
Beverly Farms ES	3/29/2011		3/29/2009 to 3/29/2011	3/28/2012 to 3/28/2014	0.5	0.5	0.0	0.6
Brown Station ES	1/26/2010		1/27/2008 to 1/26/2010	1/26/2011 to 1/25/2013	0.0	0.5	0.5	1.4
Cannon Road ES	12/13/2011	Grant B	12/13/2009 to 12/13/2011	12/12/2012 to 12/12/2014	1.5	0.5	-1.0	1.9
Captain James Daly ES	8/28/2010	Grant D	8/28/2008 to 8/28/2010	8/28/2011 to 8/27/2013	0.5	0.0	-0.5	0.0
Carderock Springs ES	7/26/2010		7/26/2008 to 7/26/2010	7/26/2011 to 7/25/2013	0.0	0.0	0.0	0.0
Cashell ES	8/10/2009		8/11/2007 to 8/10/2009	8/10/2010 to 8/9/2012	0.5	0.5	0.0	0.0
Cedar Grove ES	5/30/2012		5/31/2010 to 5/30/2012	5/30/2013 to 5/30/2015	0.0	0.0	0.0	0.0
Clarksburg ES	6/16/2011		6/16/2009 to 6/16/2011	6/15/2012 to 6/15/2014	1.0	1.0	0.0	1.3
Clopper Mill ES	2/10/2012		2/10/2010 to 2/10/2012	2/9/2013 to 2/9/2015	1.0	2.0	1.0	1.1
College Gardens ES	4/16/2009		4/17/2007 to 4/16/2009	4/16/2010 to 4/15/2012	2.0	1.5	-0.5	2.7
Cresthaven ES	7/29/2010		7/29/2008 to 7/29/2010	7/29/2011 to 7/28/2013	1.0	0.5	-0.5	1.2
Damascus ES	9/21/2012		9/22/2010 to 9/21/2012	9/21/2013 to 9/21/2015	1.5	1.5	0.0	0.0
Darnestown ES	8/1/2011		8/1/2009 to 8/1/2011	7/31/2012 to 7/31/2014	0.5	0.0	-0.5	0.7
Diamond ES	1/6/2012		1/6/2010 to 1/6/2012	1/5/2013 to 1/5/2015	0.0	0.0	0.0	0.0
Dr. Sally K. Ride ES	3/30/2012		3/31/2010 to 3/30/2012	3/30/2013 to 3/30/2015	0.5	0.5	0.0	0.0
Fallsmead ES	1/21/2011		1/21/2009 to 1/21/2011	1/21/2012 to 1/20/2014	1.5	1.5	0.0	0.0
Farmland ES	8/1/2011		8/1/2009 to 8/1/2011	7/31/2012 to 7/31/2014	0.5	0.0	-0.5	0.0
Fields Road ES	2/3/2010		2/4/2008 to 2/3/2010	2/3/2011 to 2/2/2013	4.0	5.0	1.0	2.4
Flora M. Singer ES	9/13/2012	Grant F	9/14/2010 to 9/13/2012	9/13/2013 to 9/13/2015	0.0	1.0	1.0	0.0
Fox Chapel ES	3/29/2012	Grant F	3/30/2010 to 3/29/2012	3/29/2013 to 3/29/2015	1.0	2.0	1.0	4.0
Gaithersburg ES	1/22/2010		1/23/2008 to 1/22/2010	1/22/2011 to 1/21/2013	6.5	1.5	-5.0	5.8
Garrett Park ES	5/1/2009		5/2/2007 to 5/1/2009	5/1/2010 to 4/30/2012	1.0	0.5	-0.5	0.0
Germentown ES	2/6/2009		2/7/2007 to 2/6/2009	2/6/2010 to 2/6/2012	1.5	1.0	-0.5	0.5
Glenallen ES	4/28/2011	Grant D	4/28/2009 to 4/28/2011	4/27/2012 to 4/27/2014	1.5	3.0	1.5	6.0
Greencastle ES	5/28/2010	Grant E	5/28/2008 to 5/28/2010	5/28/2011 to 5/27/2013	1.5	4.0	2.5	3.5
Highland ES	5/11/2011		5/11/2009 to 5/11/2011	5/10/2012 to 5/10/2014	2.5	2.0	-0.5	4.3
Jackson Road ES	1/6/2010	Grant C	1/7/2008 to 1/6/2010	1/6/2011 to 1/5/2013	0.5	1.0	0.5	0.7

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**Pedestrian and Bicycle Collisions Before SRTS Assessment and After the Estimated Completion of Improvements
Within a Half-Mile of Elementary Schools**

School	Assessment Date	Grant	Before Period	After Period	Annual Collisions Before	Annual Collisions After	Change in Collisions	Annual Collisions After 2 Years
Jones Lane ES	10/19/2012		10/20/2010 to 10/19/2012	10/19/2013 to 10/19/2015	0.0	0.0	0.0	0.0
Judith A. Resnik ES	7/14/2010	Grant D	7/14/2008 to 7/14/2010	7/14/2011 to 7/13/2013	1.0	1.0	0.0	1.6
Lake Seneca ES	10/16/2012		10/17/2010 to 10/16/2012	10/16/2013 to 10/16/2015	0.0	0.5	0.5	0.0
Lakewood ES	3/25/2009		3/26/2007 to 3/25/2009	3/25/2010 to 3/24/2012	0.5	0.5	0.0	1.1
Laytonsville ES	6/13/2012		6/14/2010 to 6/13/2012	6/13/2013 to 6/13/2015	0.0	1.5	1.5	1.8
Maryvale ES	4/16/2009		4/17/2007 to 4/16/2009	4/16/2010 to 4/15/2012	3.5	2.0	-1.5	2.7
Meadow Hall ES	11/3/2010		11/3/2008 to 11/3/2010	11/3/2011 to 11/2/2013	1.0	0.0	-1.0	0.5
Monocacy ES	6/17/2011		6/17/2009 to 6/17/2011	6/16/2012 to 6/16/2014	0.0	0.0	0.0	0.0
Montgomery Knolls ES	4/28/2009		4/29/2007 to 4/28/2009	4/28/2010 to 4/27/2012	7.0	4.0	-3.0	6.0
New Hampshire Estates ES	12/2/2009	Grant E	12/3/2007 to 12/2/2009	12/2/2010 to 12/1/2012	10.0	7.0	-3.0	8.8
Oakland Terrace ES	9/14/2010	Grant E	9/14/2008 to 9/14/2010	9/14/2011 to 9/13/2013	0.5	0.0	-0.5	0.4
Pine Crest ES	5/20/2011		5/20/2009 to 5/20/2011	5/19/2012 to 5/19/2014	1.5	1.5	0.0	3.1
Rachel Carson ES	4/2/2012		4/3/2010 to 4/2/2012	4/2/2013 to 4/2/2015	2.5	2.5	0.0	5.3
Ritchie Park ES	1/30/2009		1/31/2007 to 1/30/2009	1/30/2010 to 1/30/2012	0.5	0.5	0.0	0.0
Rock View ES	1/7/2010	Grant C	1/8/2008 to 1/7/2010	1/7/2011 to 1/6/2013	3.0	4.5	1.5	2.7
Rosemary Hills ES	12/18/2012		12/19/2010 to 12/18/2012	12/18/2013 to 12/18/2015	0.5	3.5	3.0	28.1
Rosemont ES	6/14/2010		6/14/2008 to 6/14/2010	6/14/2011 to 6/13/2013	2.5	2.0	-0.5	3.1
Stonagate ES	2/2/2012	Grant E	2/2/2010 to 2/2/2012	2/1/2013 to 2/1/2015	0.0	0.0	0.0	0.0
Strathmore ES	11/28/2011		11/28/2009 to 11/28/2011	11/27/2012 to 11/27/2014	1.5	3.5	2.0	0.0
Strawberry Knoll ES	4/4/2011	Grant E	4/4/2009 to 4/4/2011	4/3/2012 to 4/3/2014	0.0	0.0	0.0	0.0
Summit Hall ES	2/5/2010		2/6/2008 to 2/5/2010	2/5/2011 to 2/4/2013	1.5	1.0	-0.5	1.4
Travilah ES	9/19/2011		9/19/2009 to 9/19/2011	9/18/2012 to 9/18/2014	0.0	0.5	0.5	0.0
Twinbrook ES	11/3/2010		11/3/2008 to 11/3/2010	11/3/2011 to 11/2/2013	4.0	6.0	2.0	2.8
Washington Grove ES	7/25/2011		7/25/2009 to 7/25/2011	7/24/2012 to 7/24/2014	0.0	0.5	0.5	0.7
Waters Landing ES	3/2/2009		3/3/2007 to 3/2/2009	3/2/2010 to 3/1/2012	1.5	3.0	1.5	1.6
Watkins Mill ES	5/3/2012	Grant F	5/4/2010 to 5/3/2012	5/3/2013 to 5/3/2015	2.0	0.5	-1.5	6.0
Wayside ES	7/27/2010	Grant E	7/27/2008 to 7/27/2010	7/27/2011 to 7/26/2013	1.0	0.5	-0.5	0.4
William B. Gibbs Jr. ES	7/10/2009	Grant D	7/11/2007 to 7/10/2009	7/10/2010 to 7/9/2012	0.0	0.5	0.5	0.0
Wood Acres ES	2/29/2012		3/1/2010 to 2/29/2012	2/28/2013 to 2/28/2015	0.5	0.0	-0.5	3.6
Woodlin ES	12/24/2009	Grant C	12/25/2007 to 12/24/2009	12/24/2010 to 12/23/2012	3.0	4.0	1.0	2.3
Wyngate ES	1/13/2012		1/13/2010 to 1/13/2012	1/12/2013 to 1/12/2015	1.0	0.0	-1.0	1.0

OLO excluded 69 elementary schools from this analysis due to insufficient data.

**Pedestrian and Bicycle Collisions Before SRTS Assessment and After the Estimated Completion of Improvements
Within a Quarter-Mile of Middle Schools**

School	Assessment Date	Grant	Before Period	After Period	Annual Collisions Before	Annual Collisions After	Change in Collisions	Annual Collisions After 2 Years
Argyle MS	11/23/2009	Grant C	11/24/2007 to 11/23/2009	11/23/2010 to 11/22/2012	0.0	1.5	1.5	2.9
Briggs Chaney MS	5/29/2009		5/30/2007 to 5/29/2009	5/29/2010 to 5/28/2012	0.0	0.5	0.5	0.0
Earle B. Wood MS	3/9/2010	Grant C	3/9/2008 to 3/9/2010	3/9/2011 to 3/8/2013	1.5	0.0	-1.5	0.7
Eastern MS	3/23/2010		3/23/2008 to 3/23/2010	3/23/2011 to 3/22/2013	0.0	2.0	2.0	0.7
Forest Oak MS	3/1/2012		3/2/2010 to 3/1/2012	3/1/2013 to 3/1/2015	0.0	0.0	0.0	0.0
Francis Scott Key MS	5/7/2009		5/8/2007 to 5/7/2009	5/7/2010 to 5/6/2012	0.0	0.5	0.5	0.3
Gaithersburg MS	3/8/2010		3/8/2008 to 3/8/2010	3/8/2011 to 3/7/2013	2.0	0.0	-2.0	1.4
Herbert Hoover MS	3/29/2011		3/29/2009 to 3/29/2011	3/28/2012 to 3/28/2014	0.5	0.0	-0.5	0.6
Julius West MS	3/25/2009		3/26/2007 to 3/25/2009	3/25/2010 to 3/24/2012	1.0	0.0	-1.0	0.3
Martin Luther King, Jr MS	2/6/2009	Grant B	2/7/2007 to 2/6/2009	2/6/2010 to 2/6/2012	0.0	0.0	0.0	0.3
Montgomery Village MS	7/1/2010	Grant D	7/1/2008 to 7/1/2010	7/1/2011 to 6/30/2013	3.0	1.5	-1.5	2.0
Neelsville MS	5/24/2010		5/24/2008 to 5/24/2010	5/24/2011 to 5/23/2013	1.0	0.0	-1.0	1.2
Newport Mill MS	11/24/2010		11/24/2008 to 11/24/2010	11/24/2011 to 11/23/2013	1.0	0.5	-0.5	0.5
North Bethesda MS	3/28/2011	Grant E	3/28/2009 to 3/28/2011	3/27/2012 to 3/27/2014	0.0	1.0	1.0	0.6
Ridgeview MS	7/15/2010		7/15/2008 to 7/15/2010	7/15/2011 to 7/14/2013	0.5	0.5	0.0	0.4
Roberto Clemente MS	1/23/2012	Grant F	1/23/2010 to 1/23/2012	1/22/2013 to 1/22/2015	1.5	0.5	-1.0	0.0
Rocky Hill MS	6/14/2012	Grant F	6/15/2010 to 6/14/2012	6/14/2013 to 6/14/2015	0.0	0.0	0.0	0.0
Shady Grove MS	3/7/2011		3/7/2009 to 3/7/2011	3/6/2012 to 3/6/2014	1.0	0.5	-0.5	0.5
Thomas W. Pyle MS	6/27/2012		6/28/2010 to 6/27/2012	6/27/2013 to 6/27/2015	1.0	0.0	-1.0	0.0
Tilden MS	11/15/2012		11/16/2010 to 11/15/2012	11/15/2013 to 11/15/2015	0.5	0.5	0.0	0.0
Westland MS	8/24/2012		8/25/2010 to 8/24/2012	8/24/2013 to 8/24/2015	0.5	0.5	0.0	2.8
White Oak MS	1/6/2010		1/7/2008 to 1/6/2010	1/6/2011 to 1/5/2013	0.5	0.5	0.0	0.7
William H. Farquhar MS	1/6/2011		1/6/2009 to 1/6/2011	1/6/2012 to 1/5/2014	0.0	0.0	0.0	0.0

**Pedestrian and Bicycle Collisions Before SRTS Assessment and After the Estimated Completion of Improvements
Within a Half-Mile of Middle Schools**

School	Assessment Date	Grant	Before Period	After Period	Annual Collisions Before	Annual Collisions After	Change in Collisions	Annual Collisions After 2 Years
Argyle MS	11/23/2009	Grant C	11/24/2007 to 11/23/2009	11/23/2010 to 11/22/2012	1.0	2.0	1.0	3.5
Briggs Chaney MS	5/29/2009		5/30/2007 to 5/29/2009	5/29/2010 to 5/28/2012	0.0	0.5	0.5	0.0
Earle B. Wood MS	3/9/2010	Grant C	3/9/2008 to 3/9/2010	3/9/2011 to 3/8/2013	2.0	0.0	-2.0	1.1
Eastern MS	3/23/2010		3/23/2008 to 3/23/2010	3/23/2011 to 3/22/2013	0.5	3.5	3.0	1.1
Forest Oak MS	3/1/2012		3/2/2010 to 3/1/2012	3/1/2013 to 3/1/2015	0.0	0.5	0.5	0.0
Francis Scott Key MS	5/7/2009		5/8/2007 to 5/7/2009	5/7/2010 to 5/6/2012	0.0	1.0	1.0	0.8
Gaithersburg MS	3/8/2010		3/8/2008 to 3/8/2010	3/8/2011 to 3/7/2013	5.0	0.5	-4.5	4.3
Herbert Hoover MS	3/29/2011		3/29/2009 to 3/29/2011	3/28/2012 to 3/28/2014	1.5	0.0	-1.5	1.1
Julius West MS	3/25/2009		3/26/2007 to 3/25/2009	3/25/2010 to 3/24/2012	1.0	0.5	-0.5	0.3
Martin Luther King, Jr MS	2/6/2009	Grant B	2/7/2007 to 2/6/2009	2/6/2010 to 2/6/2012	0.0	0.0	0.0	0.5
Montgomery Village MS	7/1/2010	Grant D	7/1/2008 to 7/1/2010	7/1/2011 to 6/30/2013	4.5	3.5	-1.0	4.4
Neelsville MS	5/24/2010		5/24/2008 to 5/24/2010	5/24/2011 to 5/23/2013	1.5	1.5	0.0	1.5
Newport Mill MS	11/24/2010		11/24/2008 to 11/24/2010	11/24/2011 to 11/23/2013	4.0	1.5	-2.5	0.5
North Bethesda MS	3/28/2011	Grant E	3/28/2009 to 3/28/2011	3/27/2012 to 3/27/2014	0.5	1.0	0.5	0.6
Ridgeview MS	7/15/2010		7/15/2008 to 7/15/2010	7/15/2011 to 7/14/2013	0.5	0.5	0.0	1.2
Roberto Clemente MS	1/23/2012	Grant F	1/23/2010 to 1/23/2012	1/22/2013 to 1/22/2015	2.0	1.0	-1.0	1.1
Rocky Hill MS	6/14/2012	Grant F	6/15/2010 to 6/14/2012	6/14/2013 to 6/14/2015	0.0	0.0	0.0	0.0
Shady Grove MS	3/7/2011		3/7/2009 to 3/7/2011	3/6/2012 to 3/6/2014	1.0	0.5	-0.5	0.5
Thomas W. Pyle MS	6/27/2012		6/28/2010 to 6/27/2012	6/27/2013 to 6/27/2015	2.5	0.0	-2.5	2.0
Tilden MS	11/15/2012		11/16/2010 to 11/15/2012	11/15/2013 to 11/15/2015	1.0	0.5	-0.5	7.9
Westland MS	8/24/2012		8/25/2010 to 8/24/2012	8/24/2013 to 8/24/2015	3.0	2.0	-1.0	2.8
White Oak MS	1/6/2010		1/7/2008 to 1/6/2010	1/6/2011 to 1/5/2013	1.0	1.0	0.0	0.7
William H. Farquhar MS	1/6/2011		1/6/2009 to 1/6/2011	1/6/2012 to 1/5/2014	0.0	0.0	0.0	0.0

OLO excluded 69 elementary schools from this analysis due to insufficient data.

**Pedestrian and Bicycle Collisions Before SRTS Assessment and After the Estimated Completion of Improvements
Within a Quarter-Mile of High Schools**

School	Assessment Date	Before Period	After Period	Annual Collisions Before	Annual Collisions After	Change in Collisions	Annual Collisions After 2 Years
Albert Einstein HS	11/24/2010	11/24/2008 to 11/24/2010	11/24/2011 to 11/23/2013	0.0	0.0	0.0	0.0
Damascus HS	3/25/2011	3/25/2009 to 3/25/2011	3/24/2012 to 3/24/2014	0.5	0.0	-0.5	0.6
Gaithersburg HS	5/26/2011	5/26/2009 to 5/26/2011	5/25/2012 to 5/25/2014	2.0	0.5	-1.5	0.0
James Blake HS	1/13/2012	1/13/2010 to 1/13/2012	1/12/2013 to 1/12/2015	0.0	0.0	0.0	0.0
John F. Kennedy HS	8/31/2011	8/31/2009 to 8/31/2011	8/30/2012 to 8/30/2014	1.0	3.0	2.0	0.7
Montgomery Blair HS	7/30/2012	7/31/2010 to 7/30/2012	7/30/2013 to 7/30/2015	3.0	6.5	3.5	0.0
Northwest HS	12/7/2010	12/7/2008 to 12/7/2010	12/7/2011 to 12/6/2013	0.0	0.5	0.5	0.0
Quince Orchard HS	4/21/2010	4/21/2008 to 4/21/2010	4/21/2011 to 4/20/2013	1.0	1.0	0.0	1.9
Richard Montgomery HS	4/15/2009	4/16/2007 to 4/15/2009	4/15/2010 to 4/14/2012	1.0	1.5	0.5	0.8
Rockville HS	3/10/2011	3/10/2009 to 3/10/2011	3/9/2012 to 3/9/2014	0.0	0.0	0.0	0.0
Seneca Valley HS	1/29/2010	1/30/2008 to 1/29/2010	1/29/2011 to 1/28/2013	1.0	2.5	1.5	1.0
Thomas S. Wootton HS	3/3/2009	3/4/2007 to 3/3/2009	3/3/2010 to 3/2/2012	0.0	1.5	1.5	0.5
Walter Johnson HS	8/13/2012	8/14/2010 to 8/13/2012	8/13/2013 to 8/13/2015	0.0	0.5	0.5	0.0
Winston Churchill HS	3/29/2011	3/29/2009 to 3/29/2011	3/28/2012 to 3/28/2014	1.0	0.0	-1.0	1.1

OLO excluded 69 elementary schools from this analysis due to insufficient data.

**Pedestrian and Bicycle Collisions Before SRTS Assessment and After the Estimated Completion of Improvements
Within a Half-Mile of High Schools**

School	Assessment Date	Before Period	After Period	Annual Collisions Before	Annual Collisions After	Change in Collisions	Annual Collisions After 2 Years
Albert Einstein HS	11/24/2010	11/24/2008 to 11/24/2010	11/24/2011 to 11/23/2013	3.0	2.0	-1.0	0.0
Damascus HS	3/25/2011	3/25/2009 to 3/25/2011	3/24/2012 to 3/24/2014	0.5	0.0	-0.5	0.6
Gaithersburg HS	5/26/2011	5/26/2009 to 5/26/2011	5/25/2012 to 5/25/2014	3.5	4.0	0.5	3.1
James Blake HS	1/13/2012	1/13/2010 to 1/13/2012	1/12/2013 to 1/12/2015	0.0	0.0	0.0	0.0
John F. Kennedy HS	8/31/2011	8/31/2009 to 8/31/2011	8/30/2012 to 8/30/2014	1.5	4.0	2.5	1.5
Montgomery Blair HS	7/30/2012	7/31/2010 to 7/30/2012	7/30/2013 to 7/30/2015	3.5	9.5	6.0	9.5
Northwest HS	12/7/2010	12/7/2008 to 12/7/2010	12/7/2011 to 12/6/2013	1.0	2.0	1.0	0.5
Quince Orchard HS	4/21/2010	4/21/2008 to 4/21/2010	4/21/2011 to 4/20/2013	1.0	1.5	0.5	2.6
Richard Montgomery HS	4/15/2009	4/16/2007 to 4/15/2009	4/15/2010 to 4/14/2012	4.0	5.5	1.5	5.4
Rockville HS	3/10/2011	3/10/2009 to 3/10/2011	3/9/2012 to 3/9/2014	0.5	0.0	-0.5	0.6
Seneca Valley HS	1/29/2010	1/30/2008 to 1/29/2010	1/29/2011 to 1/28/2013	5.0	9.0	4.0	8.2
Thomas S. Wootton HS	3/3/2009	3/4/2007 to 3/3/2009	3/3/2010 to 3/2/2012	0.0	1.5	1.5	1.0
Walter Johnson HS	8/13/2012	8/14/2010 to 8/13/2012	8/13/2013 to 8/13/2015	3.0	3.0	0.0	0.0
Winston Churchill HS	3/29/2011	3/29/2009 to 3/29/2011	3/28/2012 to 3/28/2014	1.5	0.0	-1.5	1.7

OLO excluded 69 elementary schools from this analysis due to insufficient data.

**Pedestrian and Bicycle Collisions Before SRTS Assessment and After the Estimated Completion of Improvements
Within a Quarter-Mile of Special Schools and Holding Sites**

School	Assessment Date	Before Period	After Period	Annual Collisions Before	Annual Collisions After	Change in Collisions	Annual Collisions After 2 Years
Carl Sandburg Learning Center	3/4/2011	3/4/2009 to 3/4/2011	3/3/2012 to 3/3/2014	3.5	0.5	-3.0	0.5
Blair G. Ewing Center	3/4/2011	3/4/2009 to 3/4/2011	3/3/2012 to 3/3/2014	1.0	0.0	-1.0	0.5
Radnor Center Holding Site	1/13/2009	1/14/2007 to 1/13/2009	1/13/2010 to 1/13/2012	0.0	0.5	0.5	0.0
RICA	3/10/2011	3/10/2009 to 3/10/2011	3/9/2012 to 3/9/2014	0.5	1.5	1.0	0.0
Rock Terrace School	3/10/2011	3/10/2009 to 3/10/2011	3/9/2012 to 3/9/2014	1.0	0.5	-0.5	1.1
Stephen Knolls	3/20/2009	3/21/2007 to 3/20/2009	3/20/2010 to 3/19/2012	1.5	0.5	-1.0	1.6

OLO excluded 69 elementary schools from this analysis due to insufficient data.

**Pedestrian and Bicycle Collisions Before SRTS Assessment and After the Estimated Completion of Improvements
Within a Half-Mile of Special Schools and Holding Sites**

School	Assessment Date	Before Period	After Period	Annual Collisions Before	Annual Collisions After	Change in Collisions	Annual Collisions After 2 Years
Carl Sandburg Learning Center	3/4/2011	3/4/2009 to 3/4/2011	3/3/2012 to 3/3/2014	5.5	1.5	-4.0	1.6
Blair G. Ewing Center	3/4/2011	3/4/2009 to 3/4/2011	3/3/2012 to 3/3/2014	1.0	0.5	-0.5	0.5
Radnor Center Holding Site	1/13/2009	1/14/2007 to 1/13/2009	1/13/2010 to 1/13/2012	0.0	1.0	1.0	0.0
RICA	3/10/2011	3/10/2009 to 3/10/2011	3/9/2012 to 3/9/2014	1.0	1.5	0.5	0.0
Rock Terrace School	3/10/2011	3/10/2009 to 3/10/2011	3/9/2012 to 3/9/2014	5.5	4.0	-1.5	6.1
Stephen Knolls	3/20/2009	3/21/2007 to 3/20/2009	3/20/2010 to 3/19/2012	6.5	8.5	2.0	11.6

OLO excluded 69 elementary schools from this analysis due to insufficient data.