

PS COMMITTEE #2
September 24, 2018

MEMORANDUM

September 20, 2018

TO: Public Safety Committee

FROM: Susan J. Farag, Legislative Analyst *SJF*

SUBJECT: Update: Pedestrian Safety

PURPOSE: Update the Public Safety Committee on Pedestrian Safety

Today, the Committee will be updated on pedestrian safety initiatives, as well as current prevention and enforcement methods used by the Police Department. Those expected to brief the Committee include:

Captain Tom Didone, Director of Traffic Division, MCPD
Wade Holland, County State
Loraine Driscoll, Public Information Office
Chris Conklin, Department of Transportation
Nadji Kirby, Department of Transportation

OVERVIEW

In 2018, there have been 11 pedestrian deaths in the County, seven of which have occurred just since June 1. Of the 11 pedestrian deaths this year, seven involved pedestrians either crossing the road or they were intoxicated on a sidewalk. Five of these involved pedestrians crossing the roadway at points other than a crosswalk, at night, and wearing dark clothing. Another pedestrian crossed the road in a crosswalk but against the signal, attempting to catch a bus. Another pedestrian was intoxicated and fell, lying on the sidewalk, and subsequently hit by an intoxicated driver.

VISION ZERO

The County promotes a pedestrian safety initiative called Vision Zero, which attempts to reduce severe injuries and deaths by 35% by November 2019. Last year marked one of the worst years for pedestrian safety, with 4949 total collisions, of which 72 were serious pedestrian injuries, and included 11 fatalities. Historic data and trends are shown on © 19.

The County has a three-pronged approach to pedestrian safety, including Engineering, Education, and Enforcement. The Vision Zero FY19 Capital Improvements Program (CIP) and Operating Budget total \$117.5 million, and involve a variety of departments, including Maryland-National Capital Park and Planning Commission, Department of Transportation, MCPD, and the Public Information Office. Budget detail is attached at © 8.

Total MCPD funding includes \$26 million in FY19. Of this automated traffic enforcement is the largest item, totally \$19.8 million. The School Safety Program includes almost \$6 million. \$83,517 is included for a data analyst, and \$180,000 for overtime for Police enforcement in High Incident Areas (HIAs).

While the MCPD Traffic Division oversees Pedestrian Safety Initiatives, traffic and patrol officers conduct most of deterrent and enforcement operations out of the six district stations.

POLICE ENFORCEMENT/PREVENTION

In 2010, MCPD conducted an evaluation of its pedestrian safety initiatives and became much more data driven. In non-fatal pedestrian crashes, drivers are at fault approximately 60% of the time. In fatal pedestrian crashes, pedestrians are at fault approximately 70% of the time.

Police have adopted a zero-tolerance policy in enforcement, and all drivers and pedestrians in violation are issued citations during crosswalk stings. Plain clothes officers attempt to cross the road at cross walks, and drivers who failed to stop would be issued citations by officers who are located a short distance away in a safer location.

The \$180,000 overtime funding has been split evenly among the six district stations, patrol officers are required to conduct 225 work hours of pedestrian enforcement. Enforcement is focused not only in identified HIAs but also known problematic midblock crossing points, areas around schools, and District hotspots.

COLLISION DATA

Over the past 11 years, the County has averaged about 445 pedestrian-related collisions. In 2017, however, the number reached 497 (see © 19). MCPD advises that to date in 2018, the County is trending under the 2017 crash rate.

Generally, the final three months of the year generate the most pedestrian-related deaths. MCPD advises this seems to be due to shorter daylight hours, and declining weather conditions.

ADDITIONAL INITIATIVES

In response to the recent number of pedestrian collisions in the Wheaton area, the Public Information Office (PIO) developed a new flyer which illustrates four important safety points, in both English and Spanish (see ©24). The County also used community street teams to promote pedestrian awareness. The street teams were able to distribute over 2,000 flyers in the downtown

Wheaton area, and several thousand more are currenting in production to be distributed at a later date. Several other initiatives are listed on © 6.

This packet contains

	<u>©</u>
MCPD Response to Questions	1-7
Vision Zero FY19 CIP and Operating Budget	8
Pedestrian Safety Initiative in Montgomery County	9-17
Pedestrian Incident Map	18
Enforcement – Pedestrian Crash Data	19
Seven Pedestrian Fatal Collisions Since June 1 (Map)	20
Monthly Count of Pedestrian Related Collisions	21
Monthly Count of Pedestrian Related Serious Collisions	22
Monthly Count of Pedestrian Related Collisions Resulting in Fatalities	23
PIO Public Information Campaign Flyer	24

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Public Safety Workgroup on Pedestrian Safety

September 24th, 2018

The purpose of this document is to address the below listed questions that the Department was provided in preparation for the upcoming workgroup session:

- 1) How much funding is included in the police department budget for pedestrian safety in FY19?
- 2) Please provide an overview of pedestrian safety initiatives within the police department.
- 3) How are High Incident Areas determined, and how often does that assessment take place?
- 4) Were there any common trends in the seven pedestrian deaths this summer (i.e. jay walking, etc.?)
- 5) What are the statistics on pedestrian deaths/injuries over the past three years? Are they generally higher in the summer?
- 6) Has the department identified any additional or different approaches to increase pedestrian safety and pedestrian/driver education?

Overview

Overall, Montgomery County Police Department has been an active member of the collaborative effort focusing on pedestrian-safety that was established shortly after Mr. Leggett was elected as County Executive. In 2017, the County adopted the Vision Zero, and most of the County's pedestrian-safety initiatives have been refocused under that initiative.

In the police department, the Traffic Division has an oversight responsibility to serve as the liaison for the Vision Zero initiatives. Although it coordinates and manages the overtime and grant funding sources associated with traffic and pedestrian-safety, the traffic and patrol officers conduct the deterrent and enforcement operations out of the six district stations.

Question 1

How much funding is included in the police department budget for pedestrian safety in FY19?

The funding that is associated with pedestrian-safety is coordinated through the Vision Zero process. In attachment 1 (*Vision Zero Budget Document*), you will see that the department is allocated \$180,000 dollars to conduct pedestrian enforcement annually and \$83,000 dollars to fund the position of Traffic Analyst who works with the Director of the Traffic Division. The other two allocations listed are School Safety & Automated Traffic Enforcement who play a role in pedestrian-safety but are established sections in the Traffic Division.

Question 2

Please provide an overview of pedestrian safety initiatives within the police department.

Discussions about traffic or pedestrian-safety generally always begin with talking about the three-pronged approaches or the 3 E's (Engineering-Education-Enforcement) of traffic & pedestrian safety. In attachment 2 (*Pedestrian Safety Initiatives in Montgomery County*), our former Pedestrian Safety coordinator, Mr. Jeff Duncel, outlines the initiatives that Montgomery County has utilized to make us a regional-national model.

The police department is responsible for coordinating the enforcement-related initiatives associated with County Executive and Vision Zero plans. We also serve as the repository of the data that is captured in the automated collision reports completed in the county.

In 2010, the police department re-evaluated our pedestrian safety initiatives and adopted a data driven approach. Upon reviewing the data, we learned that drivers were primarily at fault in the non-fatal pedestrian-related crashes (60% driver; 40% pedestrian), and the pedestrians were at fault in most of the fatal crashes (70% pedestrian; 30% driver).

At that time, our enforcement approach was for officers to provide education pamphlets to pedestrians who were observed violating the law. Officers were to conduct routine traffic stops on drivers who were observed not yielding to pedestrians. We found that neither methods appeared to be effective, so we made a change.

Pedestrian enforcement details were coordinated out of the Traffic Division and a team-based deployment was utilized. Areas of emphasis were the High Incident Areas that were identified in the pedestrian safety audit program after the engineering improvements were concluded and a brief education plan was conducted. Because the education plan preceded, this coordinated effort, a zero-tolerance approach was utilized, and all drivers and pedestrians observed in violation were issued citations. In the team-based approach, pedestrians would be stopped and cited after they crossed the road and officers would be working on both sides of the street. Drivers too would be flagged over by officers staged to look for that violation.

The strategy of crosswalk-stings was developed and implemented to more efficiently identify and cite drivers who failed to yield to pedestrians. The department would receive complaints from citizens that drivers were not yielding to them as they crossed the roadway in certain locations, as well as the pedestrian HIA's. Traditionally, officers would be sent out to monitor for violations, but this was a "hit or miss operation". The crosswalk-sting operation would allow us to better evaluate the drivers' behavior and found to be more effective in stopping violators because a team of officers would be staged in a safe location to detain violators.

In the crosswalk-sting operation, plain-clothes officers wearing a bright colored shirt would establish themselves in the crosswalk and attempt to cross the road. The officer, via radio, would call out the vehicle information to drivers who failed to stop for them. The officers in the stop team, staged in a safe location down the road from the officer (but normally in sight of the officer) would flag the violator over and issue them citations. We have found this to be an effective operation at mid-block crossings like Veirs Mill and Turkey Branch Parkway which is the sight of two bicycle fatalities.

In FY 16, the Council provided an additional \$80,000 for pedestrian enforcement for a total of \$180,000. A decision was made in the police department to expand the effort to include the District Stations, so the additional monies were divided equally. Each District Commander was tasked to have their officers conduct 225 work hours of pedestrian enforcement annually so that our agency would generate an additional 1,300 work hours of pedestrian enforcement with the additional monies provided.

The Department has successfully met the expectation over the past three years and more officers have become involved in the pedestrian-safety effort. Deployments at the District levels would involve the identified HIA, problematic midblock crossings, areas around schools and at District Hotspots. Generally, District Hotspots are potential high pedestrian-vehicle conflict areas in which the Traffic Division's Traffic Analyst is consulted for data to assist in directing their operations (confirming conflicts, time of day and day of week information).

Question 3

How are High Incident Areas determined, and how often does that assessment take place?

As previously mentioned, there are currently 15 High Incident Areas (HIA's) in the County and they were determined by the Department of Transportation (DOT) after they reviewed traffic crash data and conducted a roadway safety audit (see attachment 3 Pedestrian Road Safety Audit map and chart). The hotspots identified in the pedestrian safety road audit map are still active. We have learned since the start of the pedestrian safety initiative that continuous education and enforcement are required, even after engineering improvements, to maintain the safety gains in the area. These HIAs and broader neighborhoods are reviewed annually with CountyStat to review results and monitor for emerging areas of concern.

Question 4

Were there any common trends in the seven pedestrian deaths this summer (i.e. jay walking, etc.?)

In 2018, eleven pedestrians have lost their lives in and along county roadways. Four of those crashes involved unusual circumstances which made them difficult to

assess under traditional prevention assessment. The remaining seven collisions involved pedestrians either crossing the road or they were intoxicated on a sidewalk.

In five of the crashes, the pedestrians were crossing the roadway not in a crosswalk at night and wearing dark clothes. During one event, the pedestrian was crossing the road in a crosswalk (against the signal) in the daylight hour and was trying to catch a Ride-on bus. In the final event, the intoxicated pedestrian fell and was lying on the sidewalk adjacent to a gas station driveway entrance and was run-over by an intoxicated driver who attempted to flee the scene.

All these events involved a State maintained, major arterial roadway in the County near the central business district or area near a transit stop or a station. All but one occurred at night and the victims were wearing dark or mixed color clothes. The demographics involved six males and one female. Five of the victims were Hispanic, one was Asian, and one was African American. Alcohol use by the victims is suspected in at least 3 events. (See Attachment 5 for location information)

Question 5

What are the statistics on pedestrian deaths/injuries over the past three years? Are they generally higher in the summer?

Traditionally, it is the final three months of the year that generate the most pedestrian-related fatalities. The time change with enhanced hours of darkness combined with declining weather conditions of late fall and winter are the factors that enhance the danger.

Conversely, the longer daylight hours combined with more people enjoying the outdoors and better weather (when it is not raining) create the potential for enhanced driver-pedestrian conflicts but the statistics do not support the case.

In attachment 4 (Enforcement- Pedestrian Crash Data), you can see the historical data regarding pedestrian-related crashes over the past 11 years. Annually for the past 11 years we have averaged approximately 445 pedestrian-related collisions. In 2017 we almost surpassed 500 collisions. However, on a more positive note, our serious crashes in which the pedestrians were killed or seriously injured (Level 5 & 4 respectively) has declined substantially over that period, which is a goal of Vision Zero. In 2018, we are trending below the 2017 crash rate.

In the attached PowerPoint presentation (Attachment 5), you will see a map illustrating the location of the seven pedestrian-related collisions and a series of data maps that discuss all pedestrian crashes, serious and fatal collisions.

Upon review of the data, you will notice that the later months of the year we traditionally experience the most pedestrian-related collisions and that 2017 was statistically the worse of the three years

Question 6

Has the department identified any additional or different approaches to increasing pedestrian safety and pedestrian/driver education?

In the Vision Zero Initiative, the County PIO Office and DOT lead the public awareness efforts. County DOT coordinates several pedestrian-related community and school-based initiatives. Both agencies promote pedestrian safety throughout the year in addition to the social media and press releases that all three departments distribute. In response to the recent rash of collisions in the Wheaton CBD, PIO developed a simple flyer (see attachment 6) which illustrates four important points in both English and Spanish. These points are: Use Crosswalks; Obey Signals; Be Alert; and Be Seen. Recognizing that we needed to get the community involved into solving this problem, we mobilized the community street teams which are under an existing DOT contract. These street teams were previously utilized and deemed effective in distributing pedestrian safety literature and discussing the issue with violators in other pedestrian safety campaigns. Ms. Montero from the Mid-County Regional Service Center and representatives from her Urban District Crew, oversaw the pedestrian awareness campaign and participated in the community awareness effort. In a weeks' time, over 2,000 flyers were distributed in the downtown Wheaton CBD area and several thousand more are being produced and delivered there soon.

The County is recognized as a regional leader in Pedestrian Safety and Vision Zero is the model program to have the highest chance of success.

As previously mentioned, pedestrian awareness is a year-round effort in the County. Some of the efforts launched by our PIO office includes:

- Continuous social media via Twitter and Facebook covering a broad range of priority traffic rules and safety tips. Messages are based on priority causes of crashes, calendared traffic safety promotions, and predicted weather-related issues.
- "Stay Alert, Stay Alive" Campaign Regarding Distracted Driving and Distracted Walking
- Radio ads – La Nueva 87.7 FM and 1540 AM (see attached)
- Palm cards
- Posters
- Beacon ad: Our Plan to Eliminate Fatalities and Severe Injuries Among Car Occupants, Bicyclists and Pedestrians
- Promotions of Ped Safety, e.g.,
 - Walk to School Day
 - Parking Lot Safety notices
 - All-pedestrian traffic signal in Bethesda
 - Pedestrian safety improvements in White Flint celebrated
 - Public feedback requested re: pedestrian and bikeway infrastructure

In addition to the PIO office, County DOT, Safe Routes to School, the coordinator, Nadji Kirby, advises the following efforts had been utilized:

❖ Held a County-wide naming contest for the Pedestrian Safety Zebra. Zeal the Zebra is used in the community to educate and engage kids of all ages about pedestrian safety. We also use Zeal with our social media campaigns.
❖ Held Teen Ped Safety Week in April for high schools. Revised the original YOLO campaign toolkit with new posters, yard signs, etc. for schools to use. Utilized social media and had various Facebook and Twitter posts. Also created a snapchat ad to run the entire week and had 170k impressions.
❖ Held annual Walk to School Day event, saw a 6% increase in the number of schools participating.
❖ Held our second <i>"Don't Be Distracted Creative Contest"</i> for students at all levels. Had an increase number of entries from the first year. The <i>Don't Be Distracted Contest</i> encourages students to create a 30-to 60-second public service announcement video or artwork piece about why students shouldn't walk or drive distracted.
❖ Pedestrian safety activity lesson plans were developed and disseminated to middle school health instructors. These lesson plans were developed to give middle school teachers easy ways to incorporate pedestrian safety education into their classroom activities.
❖ Utilized social media heavily in the Spring of 2018 via the <u>MoCoPedSafety</u> and <u>MoCoSRTS</u> twitter handles. Had close to 10,000 impressions for one tweet that was about the dangers of texting and driving. Develop calendar of safety themes to be used year-round on both Ped Safety and SRTS social media platforms.
❖ Pedestrian Safety Outreach Teams averaged 6-8 events in the fall and in the spring. These events included major events like the Silver Spring Health and Wellness Festival, Green Fest, and Olney Party in the Park to minor events like Farmers markets, Bethesda Concert Series, and Taste of the World. The teams also targeted outreach and education at Argyle MS and in that neighboring community on Bel Pre Road where we installed the RRFB's (Rectangular Rapid Flashing Beacons). These events totaled an estimated reach of approx. 7,000 people.

Conclusion:

I hope that this document provides you with the information that you have requested in preparation for the upcoming work session. I believe that the Vision Zero Initiative has been helpful to assist the agencies to work collaboratively and respond to these terrible tragedies that we have experienced over the summer. It is my belief that this is just the beginning of a long series of public awareness campaigns which need to be occurring and that additional support from our public relations company may be prudent to help frame and deliver the dialog, especially with the expected transition with in our government at the end of the year.

**County Executive's Vision Zero Initiative - All Funding Sources
FY19 CC Approved Capital Improvements Program and Operating Budget**

Department	Project/Program	FY19 Approved
Capital Improvements Program (CIP)		
Maryland-National Capital Park and Planning Commission	Trails: Hard Surface Design and Construction	\$ 300,000
	Trails: Natural Surface & Resource-based Recreation	350,000
	Trails: Hard Surface Renovation	450,000
	Vision Zero	200,000
	Total M-NCPPC	\$ 1,300,000
Department of Transportation	Pedestrian Facilities/Bikeways	55,403,000
	Intersection and Spot Improvements	1,844,000
	Pedestrian Safety Program	2,000,000
	Traffic Signals	5,335,000
	Guardrail Projects	315,000
	Neighborhood Traffic Calming	310,000
	Streetlighting	10,370,000
	Streetlight Enhancements CBD/Town Center	250,000
	Total Department of Transportation	\$ 75,827,000
Total FY19 CIP		\$ 77,127,000
Operating Budget (PSP)		
Department of Transportation	Snow Removal/Wind/Rain Storms	3,417,377
	Streetlighting	618,767
	Traffic Planning	650,495
	Traffic and Pedestrian Safety	1,998,579
	Traffic Sign and Marking	2,129,446
	Traffic Signals & Advanced Transportation Mgmt System	1,944,269
	Transportation Community Outreach	238,120
	Property Acquisition	89,256
	Transportation Planning	79,830
	Transportation Design	770,162
	Transportation Construction	172,417
	Traffic Management and Operations	1,674,956
	Transportation Policy	556,660
	Total Department of Transportation	\$ 14,340,334
Department of Police	Police Enforcement for HIAs - Overtime	180,000
	Police Enforcement for HIAs - Data Analyst	83,517
	School Safety Program/General Fund	5,943,322
	Automated Traffic Enforcement	19,808,050
	Total Department of Police	\$ 26,014,889
Public Information Office	Pedestrian Safety Outreach Education	50,000
Total FY19 PSP		\$ 40,405,223
TOTAL FY19 APPROVED EXPENDITURES (CIP & PSP)		\$ 117,532,223

Source: CC Approved FY19 Operating and Capital Budgets

Note: Safety is a central element of the mission of these departments and nearly all of their programs contribute to achieving Vision Zero. The programs with a significant emphasis on safety are listed above. It should be noted that these programs are also addressing other needs as well.

8

Pedestrian Safety Initiative in Montgomery County, Maryland

Data-Driven Approach to Coordinating Engineering, Education, and Enforcement

Jeff Dunckel, William Haynes, Joana Conklin, Susan Sharp, and Alexandra Cohen

The Pedestrian Safety Initiative in Montgomery County, Maryland, which was introduced in 2007, uses a data-driven approach to coordinate engineering, education, and enforcement to create a more pedestrian-friendly, walkable environment. From the geographic information system and data analysis of countywide pedestrian crashes from 2004 to 2008, 10 areas with a high incidence of pedestrian crashes were identified. Engineering, education, and enforcement programs targeted these 10 high incidence areas (HIAs). Pedestrian road safety audits were conducted at the HIAs to determine the most effective engineering improvements for each area. Traffic and pedestrian calming measures were subsequently implemented at these locations. Demographic analysis grouped the HIAs together to create more effective education campaigns, and community members were involved to reach a wider audience. Enforcement efforts targeted pedestrians and drivers in the HIAs with warnings and citations for those who violated pedestrian laws. Similar methodology has been used to target HIAs near schools as part of the initiative's Safe Routes to School program. This holistic Three E Approach (engineering, education, and enforcement) is continuously being refined to reflect emerging data trends in pedestrian collisions. Between 2009 and 2012, pedestrian collisions in the treated HIAs dropped 43%, pedestrian fatalities countywide dropped 38% from 2008 to 2012, and pedestrian collisions in a subset of the Safe Routes to School areas dropped 79%.

Montgomery County, Maryland, is a suburb of Washington, D.C., and is integral to the economic, social, and political landscape of the Washington, D.C., Metro Area. From 2000 to 2010, the county's population increased by 11% (1). The county's employment density continues to increase as well. Montgomery County is the region's third-highest employment base, accounting for 12% of the region's jobs. Between 2000 and 2010, the county added more than 35,000 jobs,

J. Dunckel, Montgomery County Department of Transportation, 101 Monroe Street, Rockville, MD 20850. W. Haynes, Montgomery County Department of Transportation, 100 Edison Park Drive, Gaithersburg, MD 20878. J. Conklin and A. Cohen, Foursquare Integrated Transportation Planning, 51 Monroe Place, Rockville, MD 20850. Current affiliation for J. Conklin: Montgomery County Department of Transportation, 101 Monroe Street, Rockville, MD 20850. S. Sharp, Sharp and Company, 794 Nelson Street, Rockville, MD 20850. Corresponding author: J. Conklin, joana.conklin@montgomerycountymd.gov.

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an increase of more than 8% (2). The county's density will continue to increase to accommodate a diversifying and growing population of just over one million people. The built environment ranges from dense urban to suburban to rural and includes three cities, 12 towns, and four villages. In addition, a quarter of the county is designated agricultural reserve. Public transportation options include Metro, MARC, and a local and regional bus service, connecting residents in the county and the larger regional area. However, with 3,028 mi of roadway, comprising 10% of all Maryland state roads, most of the county's transportation network and infrastructure remains automobile oriented. Historically, such a built environment has not reflected pedestrians' interests, but the county's densification inherently demands measures to improve pedestrian safety.

Montgomery County's current pedestrian safety program has its roots in a Blue Ribbon Panel formed 13 years ago. In 2000, County Executive Douglas Duncan responded to a major increase in pedestrian injuries by appointing a Blue Ribbon Panel on Pedestrian and Traffic Safety. The panel developed action-oriented recommendations addressing ways to create pedestrian-friendly, walkable communities. The panel's 2002 report cited the lack of a sustained county-led pedestrian safety education program, lack of an ongoing and highly visible county enforcement effort, and inadequate and outdated engineering across the county (3). The panel also created the Pedestrian and Traffic Safety Advisory Committee, a group of citizens, elected officials, and government representatives, to advise the county executive and council on the implementation of the goals of the Pedestrian Safety Initiative and to report any new pedestrian safety issues. Bicycle safety has recently become more of a priority with the advisory committee; in 2012, the county council voted to rename the committee the Pedestrian, Bicycle, and Traffic Safety Advisory Committee.

In 2007, County Executive Isiah Leggett announced a renewed focus on pedestrian safety with his release of the Pedestrian Safety Initiative (4). The initiative's strategies and goals were based on recommendations from the blue ribbon panel and the advisory committee. Although the county is always looking at best practices being conducted in other parts of the country and the world, the strategies developed by the committee have been largely original ones that have not been implemented or tested elsewhere. Montgomery County has been at the cutting edge with its use of a data-driven approach to target areas of the county where pedestrian safety strategies can have the most impact. The initiative is a strategic plan focused on reducing pedestrian-related crashes, injuries, and fatalities and their

associated social and economic costs, while ensuring all areas of the county provide a safe and convenient travel option for pedestrians.

The initiative outlines seven strategic approaches to improving pedestrian safety:

1. Target improvement in high incidence areas (HIAs),
2. Improve pedestrian networks and connectivity,
3. Emphasize pedestrians and bicyclists in planning,
4. Construct corridor and intersection improvements and traffic calming,
5. Upgrade pedestrian signals,
6. Enhance street lighting, and
7. Modify behaviors through enhanced enforcement and education.

The county has made improvements in all of these strategic areas. For example, data for three years before and after implementation have shown that traffic-calming projects resulted in speed decreases of more than 5 mph in most of the areas in which this countermeasure was constructed. The county has also improved the environment for pedestrians by building miles of new sidewalks. In 2012, the county constructed 5.5 mi of new sidewalk and 5.3 mi of reconstructed Americans with Disabilities Act compliant sidewalk. However, this study examined the data-driven education, engineering, and enforcement approach used in the improvement of the targeted HIAs (Strategy 1), where there has been a higher concentration of pedestrian collisions.

Figure 1 illustrates Montgomery County's use of crash data and geographic information system (GIS) analysis to identify the HIAs. The county examined all pedestrian crashes from 2004 to 2008 to create a countywide GIS collision map. Every roadway segment was reviewed for high concentrations of pedestrian crashes (i.e., clusters) to create a GIS-based collision density layer. Analysis of the crash data, map, and layer identified 30 subcorridors for further review.

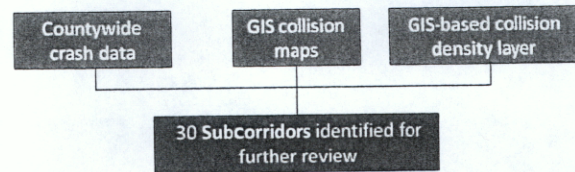


FIGURE 1 Montgomery County's methodology for identifying pedestrian HIAs.

The crash data for each subcorridor were examined and locations with multiple collisions were identified with a pedestrian-weighted GIS layer. Comparisons of total crashes and segment lengths (assigned minimums of 500 and 1,000 ft) determined the pedestrian density for each subcorridor. Based on collision concentrations, 19 segments were identified and ranked by density.

At present 10 formal HIAs have been further identified and studied. Figure 2 shows the first HIA identified in the county, Piney Branch Road in Silver Spring. Some of the HIAs (such as Piney Branch Road) are on state roads, while others are on county roads. Analysis of HIA crash data found that most crashes have been located in commercial areas, along transit corridors, and near high-density residential neighborhoods with high traffic and pedestrian volumes. Although these HIAs make up only 1% of roadways countywide, they accounted for 11% percent of all pedestrian collisions in 2008.

Targeting these specific areas ensures funding for the initiative is going where it is likely to have the greatest effect and creates an opportunity to leverage multiple projects with cost sharing between multiple agencies. In these HIAs, the county has focused on implementing the Three E Approach: education, engineering, and enforcement. This strategic, three-pronged approach has aimed to educate motorists and pedestrians, keep enforcement efforts visible and intensive, and apply

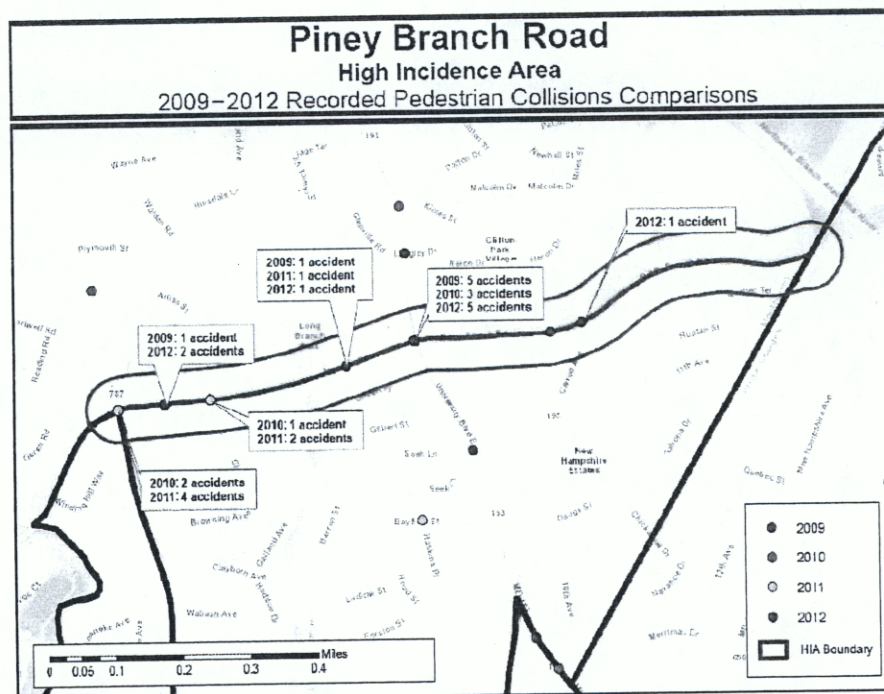


FIGURE 2 Depiction of Piney Branch Road HIA pedestrian collisions.

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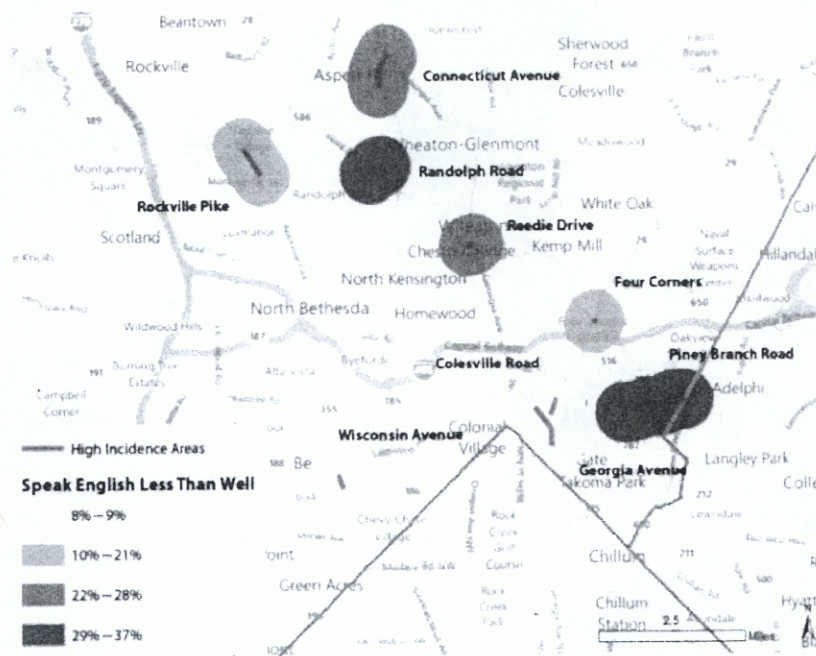


FIGURE 3 HIAs classified by percentage of households with English spoken less than well.

aggressively the most innovative, pedestrian-friendly road engineering designs. Furthermore, as shown in Figure 3, the county has recently used analysis of crash data, demographics, and land use to group the HIAs, further enabling leveraging of resources by targeting multiple HIAs with similar characteristics at the same time.

The initiative focuses on the use of a data-driven approach to target pedestrian safety efforts, as well as to monitor the progress of the strategies implemented. Data from before the initiative was in place, collected from 2005 to 2009, measured a yearly average of 435 pedestrian collisions, 46 collisions per 100,000 population. Of those collisions, 128 (29%) were Level 4 or Level 5, meaning they resulted in incapacitating injuries or death. Sixteen of the collisions resulted in fatalities. Through data analysis, the county identified key trends in the collisions. The analysis found crashes increased in

the fall and winter months and peaked during morning and evening hours, as well as at midday periods when schools get out of session.

The initiative's education campaigns were designed around the characteristics of the crashes and the people involved in them. In areas with a higher percentage of collisions involving pedestrians aged 18 years and under, education efforts involved nearby schools. Analysis of Montgomery County police assessments of pedestrian collisions in 2008, the first year of program implementation, found that pedestrians were at fault for the collision 44% of the time and drivers were at fault 41% of the time. The initiative's original effort focused on educating pedestrians.

However, education efforts have shifted to target drivers because the data now show drivers at fault in a majority of collisions, as shown in Figure 4. Given that the last two years of education and enforcement

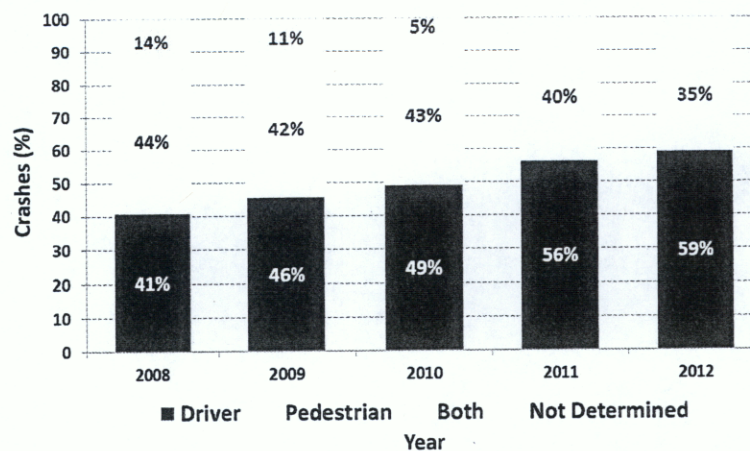


FIGURE 4 At-fault determination in Montgomery County pedestrian collisions, 2008–2012.

efforts have focused more heavily on pedestrians, it is possible that this shift in fault is indicative of more pedestrians exhibiting safe behavior. In addition, in the initiative's first five years, there was a 43% reduction in pedestrian collisions in HIAs, a 21% reduction in Level 4 and Level 5 pedestrian collisions, and a 38% reduction in pedestrian fatalities.

ENGINEERING

The engineering part of the Three E process in HIAs starts with a cost-effective, data-driven pedestrian road safety audit (PRSA) to target engineering improvements. A PRSA is a formal safety performance examination of an existing road or intersection by an independent audit team. PRSAs use similar methodology as road safety audits (RSAs) but with a pedestrian focus. A study of 19 RSA areas in the United Kingdom found that crashes dropped by an average of 1.23 per year after completion of an RSA, versus a drop of only 0.26 in crashes without an audit (5). The audit assesses the safety of the road for all its users, quantitatively estimates and reports on road safety issues, and recommends safety improvements. By analyzing pedestrian facilities, traffic, and traffic control devices, the audit examines pedestrian needs, connectivity and convenience of pedestrian facilities, traffic patterns, pedestrian and driver behavior, current construction, and school presence (6). Through this data collection, the audit addresses to whom specific road elements present a safety concern and engineering options to eliminate or mitigate identified concerns.

Montgomery County has followed the FHWA outlined instructions for PRSAs and has identified the project, selected a team, held a pre-audit meeting, conducted an audit analysis to assess findings, documented the results, and developed improvement projects. Since

2008, the county has conducted 10 PRSAs in HIAs, with future plans to complete PRSAs in all the identified HIAs.

Each PRSA takes a data-driven approach to the analysis. For example, prior to conducting the PRSA for the Four Corners intersection in Silver Spring, Maryland, the audit team examined characteristics of the intersection's pedestrian crashes from 2004 to 2008, as shown in Figure 5. The team analyzed the time, location, crash frequency, severity level, vehicle movement prior to crash, pedestrian age, and pedestrian crash by time of day and road surface. The road audit team then conducted the PRSA in January 2010. The PRSA team observed a large student population, many pedestrians crossing midblock, many commercial access points, and heavy bus transit usage. PRSA analysis for the Four Corners intersection found problems with pedestrian-vehicle conflict, unmarked crossings, adverse signage placement and conditions, and limited bus stop waiting areas.

Examination of the county's 10 PRSAs has identified illegal pedestrian midblock crossing, a lack of adherence to signals, and limited nighttime visibility as three major causes of pedestrian collisions in HIAs. Following the enforcement through engineering model, a phrase coined by the county's Transportation Director, Arthur Holmes, the county uses PRSA results to target engineering treatments. Two case studies highlight engineering improvements that were implemented directly because of the PRSA results:

1. A PRSA conducted in October 2008 at Piney Branch Road from Flower Avenue to the border with Prince George's County found problems with midblock crossings, pedestrians at fault in most crashes, limited roadway lighting, and narrow sidewalks. Since 2008, engineering improvements based on the PRSA recommendations have included installing countdown pedestrian signals, lighting upgrades, sidewalk improvements, midblock pedestrian crossings

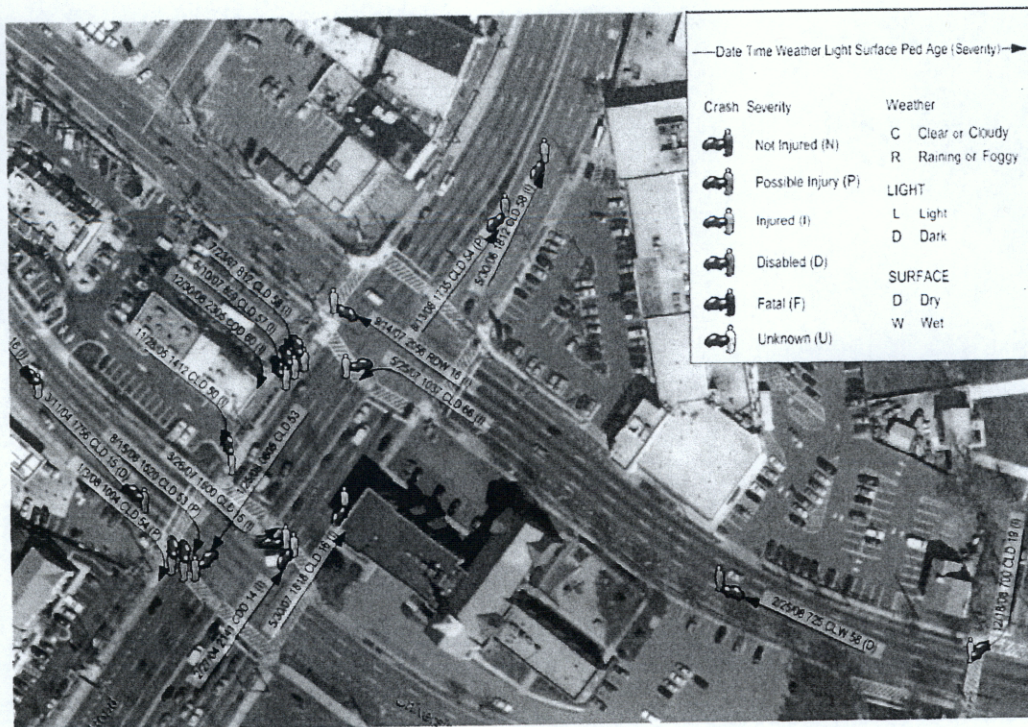


FIGURE 5 Example of pedestrian crash analysis conducted at Four Corners HIA (ped = pedestrian).

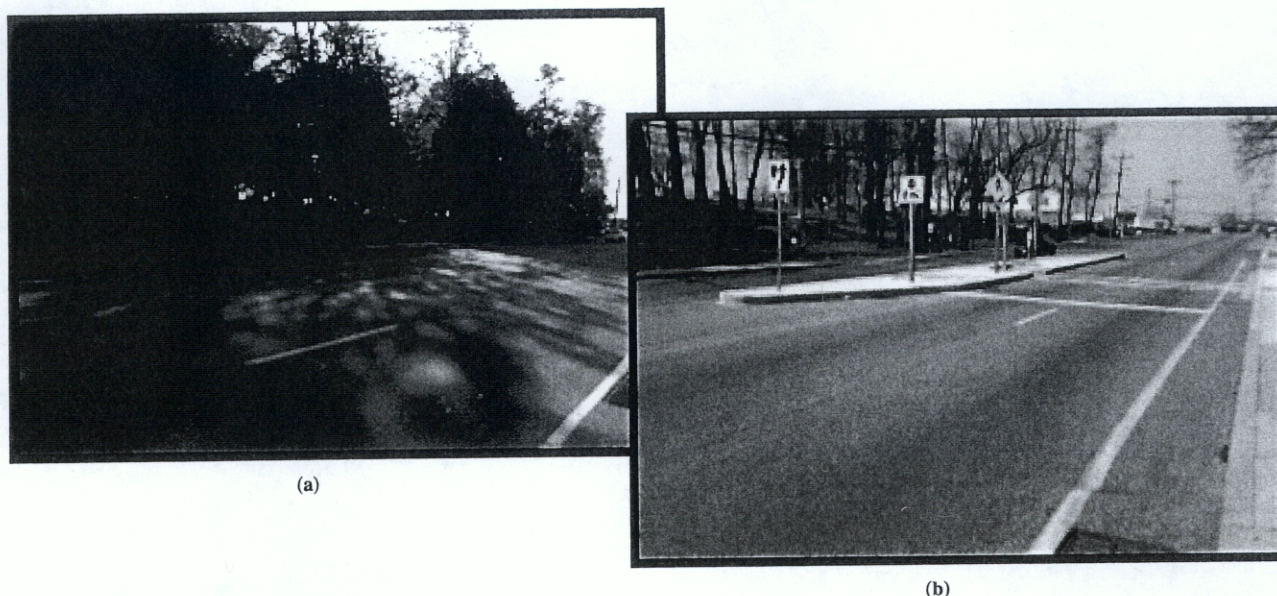


FIGURE 6 New midblock crosswalk installed on Piney Branch Road: (a) before and (b) after.

with high-intensity beacons (example shown in Figure 6), and bus stop and shelter consolidation.

2. A PRSA conducted in fall 2010 on Randolph Road found a high incidence of collisions involving pedestrians who had crossed the street midblock instead of at the marked crosswalks or intersections. As a result of this finding, the county installed fencing along the median of the roadway to channel pedestrians to the intersections, as shown in Figure 7.

In addition to engineering treatments in HIAs, the county has implemented pedestrian-oriented engineering improvements outside HIAs. In other parts of the county, traffic-calming measures designed specifically to reduce vehicle speeds have been constructed,

including curb extensions, road diets, median or pedestrian refuge islands, and modified edge lines. Other engineering treatments have included the following: chokers and chicanes, bump-outs and speed humps, enhanced signage and markings (e.g., high visibility crosswalks), new and reconstructed sidewalks, improved street lighting, improvement to bus stops to make them safer and more accessible, and pedestrian signal timing upgrades to meet the new 3.5-ft/s walking speed required in the FHWA's *Manual on Uniform Traffic Control Devices*. These countywide treatments demonstrate the county's commitment to improving walkability and pedestrian safety and promoting walking as a more viable mode of transportation.

Engineering treatments have also been targeted through the county's Safe Routes to School program. Pedestrian safety around

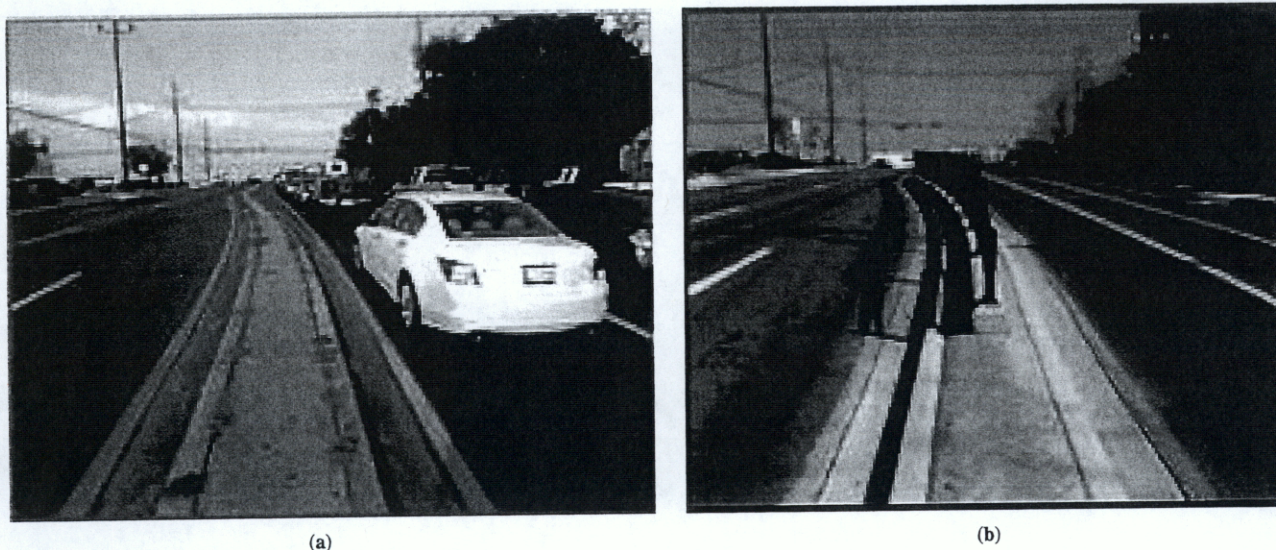


FIGURE 7 Pedestrian buffer installed on Randolph Road, 2011: (a) before and (b) after.

schools is a priority because the data show a peak in crashes when schools get out for the day and many collisions involving pedestrians younger than 20 years old. Since 2005, more than 160 schools have had comprehensive school zone traffic safety assessments, similar to PRSAs. The county used the crash data and findings from the school zone traffic safety assessments to prioritize schools for pedestrian safety improvements. Engineering treatments have been completed in 144 school zones to decrease vehicle speeds and enhance pedestrian infrastructure, creating safer built environments for drivers, bicyclists, and pedestrians.

EDUCATION

The county has been developing and implementing a pedestrian safety education program at the county's HIAs. For each of the HIAs, a strategic education campaign spanning a period of 24 months has been developed, guided by an overall strategic plan that utilizes analysis of crash data, survey data, and informal knowledge of education campaigns developed around the country to develop the outreach program. Education efforts focus on the moment of impulse, that instant when, without thinking, a pedestrian steps into traffic. Retraining behavior has required a disruptive approach. Therefore, the strategic plan called for each campaign to use three prongs focused on public events, street-level activity appropriate to that HIA, and information dissemination.

The campaign is tailored to each HIA depending on the nature of the pedestrian crashes that have occurred, the demographics of pedestrians being hit, and the nature and characteristics of the collisions. The plans are developed with input from key stakeholder groups, who also assist in the dissemination of the pedestrian safety message.

The first campaign implemented as part of the county's pedestrian safety program was for the HIAs at Piney Branch Road, Reddie Drive, Connecticut Avenue, and Randolph Road. The county focused first on Piney Branch Road, where part of the issue was cultural, where the large immigrant population that used this stretch of roadway came from countries where pedestrians and vehicles mingle in traffic. The county used curb markers to deploy an innovative treatment at the moment of impulse (as shown in Figure 8). Styled to look like police tape from a crime scene, the markers were placed at regular intervals so a pedestrian could see several at a glance. The yellow signs with messages in English and Spanish boldly instructed pedestrians not to cross midblock. At the traffic signals and where the crosswalks were located, green markings indicated that crossing

was okay. Before implementing the program, a group representing the immigrant community's interests was brought in to provide street-level education. As soon as the markers were installed, the Spanish-speaking safety promoters intercepted pedestrians and instructed them on proper behavior. Flyers were distributed at nearby apartments and stores notifying pedestrians that enforcement was going to be stepped up in the area. Police provided repeated waves of enforcement actions with multiple officers to reinforce the campaign.

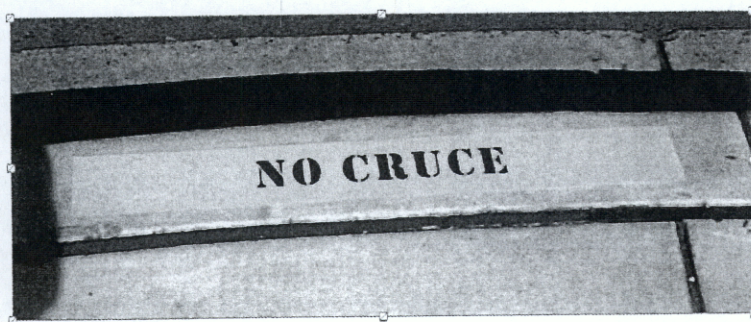
The next pedestrian safety campaign implemented was for Blair High School in Silver Spring, part of the Four Corners HIA. The strategy was based on knowledge that projects that actively engaged the Blair students were likely to be the most successful in capturing their attention about the important topic of pedestrian safety. Challenged to think about their own experiences and through group discussions about what would effectively reach students, a stakeholder group comprised of parents, teachers, and students helped develop strategies, messages, and activities. A pedestrian safety message for a poster prominently featuring Blair High School students' eyes encouraged the participation of Blair students.

The first event in the campaign was held in April during lunch. Representatives from the county set up a table in the Blair cafeteria to pass out giveaways, information materials, and permission slips and model releases for the students to be photographed for a best eyes contest. Announcements were made over the Blair High School morning television show, InfoFlow, inviting students to enter the Best Eyes in Montgomery Blair High School Contest by picking up a model release form for their parents to sign and bringing it in if they wanted to enter.

To catch the students' attention and reinforce safe pedestrian behaviors at the moment of impulse, the team developed silicone wristbands that combined the popular student jargon "swag" ("cool") and "fail" ("not cool") with pedestrian safety messages (Figure 9). The wristbands were color coded for swag and fail behavior and included the following messages:

- Make eye contact (swag),
- Looking both ways (swag),
- Use crosswalks (swag),
- Text + walk = fail,
- Get hit by a bus (fail), and
- Become road kill (fail).

A week later, an award-winning photographer took pictures of the students who wanted to participate in the contest at a second lunchtime event. A total of 37 students were photographed and from those



(a)



(b)

FIGURE 8 Bilingual curb markers installed along Piney Branch Road: (a) Spanish and (b) English.

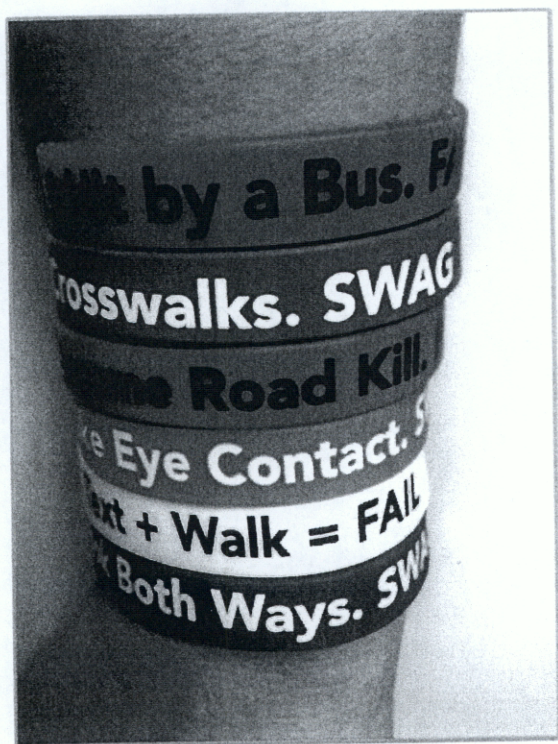


FIGURE 9 SWAG bracelets designed to educate Blair High School students.

photographs two were selected as the winners: one girl and one boy. The winning best eyes photos were featured in two 4-ft × 8-ft posters that used the message line, “Hey, you, I’m looking at you!” (Figure 10) and were hung in the Blair cafeteria throughout the months of May and June. The best eyes posters were deemed so effective and impactful that they were placed on local bus ads in fall and winter 2012.

Blair students were also encouraged to join a text message contest, the third component of the campaign. Information about joining the contest was included in the school’s morning announcements, as well as on posters created by the student workgroup, and posted around the school.

Students participating in the contest received a multiple-choice pedestrian safety–related question three times per week. Those students who submitted the correct answer received a confirmation and were entered into a drawing for a \$20 Chipotle gift card given weekly. Students who submitted the incorrect answer received a message indicating what the correct answer was. Including only correct contest entries in the drawing incentivized the students to



FIGURE 10 Best eyes pedestrian safety campaign advertisement.

research the correct answer on a pedestrian safety website created specifically for this project (www.blairwalkproject.com) and provided an opportunity to educate the students. The website also included the question of the day and allowed for an alternate method of contest entry via e-mail.

At the end of the contest, a grand prize winner was chosen from all of the correct entries received over the four-week contest duration. The grand prize was a new iPad. A total of 1,367 entries into the contest were received from 271 registered students. Approximately 75% of the entries received were correct responses.

The county also educated the public through an innovative, grassroots approach to disseminate the pedestrian safety message. A network of community volunteers, the swag team and the bilingual *Protectores del Camino*, distributed pedestrian safety messages on the street, at churches and community gathering locations, and at local events and festivals. In 2012, the community volunteers distributed more than 20,000 safety tips brochures, 5,000 reflective zipper pulls, and 9,000 bright yellow reusable shopping bags with the message “Can You See Me Now? Be Safe. Be Seen. Be StreetSmart.”

ENFORCEMENT

The Montgomery County Police Department has also used a data-driven approach to target enforcement efforts in HIAs. Police efforts focus on increasing driver compliance with state laws requiring drivers to stop for pedestrians at crosswalks and targeting pedestrians who violate traffic laws. Enforcement efforts aim to modify the perceptions of risk and responsibility when it comes to residents’ safety. At the beginning of the initiative, enforcement efforts targeted pedestrians because data showed more pedestrians at fault in collisions. New data showing more drivers at fault have led to recent changes in the enforcement strategy to target drivers. Reflecting data analysis, intensive enforcement efforts in HIAs occur from October to December because this time of year has a consistently higher rate of pedestrian crashes.

At the HIAs, enforcement efforts are zero tolerance, meaning that police give tickets to pedestrians for all midblock crossing (Figure 11), crossing against the pedestrian signals, and drivers not yielding to pedestrians in crosswalks. Working in teams of four to eight officers on three-hour details, police give out citations. As of June 2012, police had distributed more than 2,000 citations to drivers and pedestrians not obeying pedestrian safety laws in HIAs. In 20 locations across the county, police have also implemented stings, placing plainclothes officers as pedestrian decoys and ticketing drivers who do not yield to them when they cross at crosswalks. To date, 374 driver citations have been issued during these events.

Enforcement efforts near schools target the priority schools outlined in the Safe Routes to School program and focus on arrival and dismissal time, when data show the rates of crashes are highest. Enforcement efforts reflect the types of violations observed near schools: speeding in school zones, driving recklessly, failing in seatbelt compliance, obeying posted school and parking signs, and committing crosswalk violations by motorists. Enforcement works closely with specific schools to address their concerns. During the 2012–2013 school year, 839 citations were given out in school zones.

RESULTS

A review of crash statistics since 2007, when the Pedestrian Safety Initiative’s coordinated engineering, education, and enforcement approach was first implemented, has shown an encouraging indication of the effectiveness of the program. Through 2012, there has



FIGURE 11 Pedestrian being ticketed in Montgomery County.

been a 7% decrease in countywide pedestrian collisions (Figure 12). There has also been a 21% decrease in severe Level 4 and Level 5 pedestrian collisions and a 38% decrease in pedestrian fatalities.

Traffic-calming measures implemented in non-HIA areas where there was no targeted enforcement or education efforts saw a 50% decrease in the number of pedestrian collisions. These engineering measures have been successful in decreasing vehicle speed by more than 5 mph.

Collisions in targeted HIAs have declined 43% and now account for 7% of all crashes in the county, down from 11% before implementation of the program (Figure 13). At the Georgia Avenue HIA, there has been a reduction from 10 to two annual crashes. The Rockville Pike HIA shows similar results, with a reduction from eight to two crashes. Collisions within a quarter mile of targeted Safe Route to School areas have decreased 79%. Three years of posttreatment data in targeted Safe Route to School areas show that the collision rate declined from 1.45 to 0.21 incidents per year.

LESSONS LEARNED

The targeted and data-driven approach appears to have mitigated many pedestrian safety issues in the county and significantly reduced the number of pedestrian collisions. Lessons learned over the past five years will continue to guide the initiative's next steps. Moving forward, the county aims to add best practices and proven and innovative techniques to its toolbox. In addition, the county is in the process of conducting analysis to measure the effectiveness of program strategies, by measuring pedestrians' perceptions of safety and their behavior. The county hopes to be able to present the data analysis results in a follow-up paper next year.

To make sustainable change, the engineering, education, and enforcement aspects of this initiative must continue to be viewed

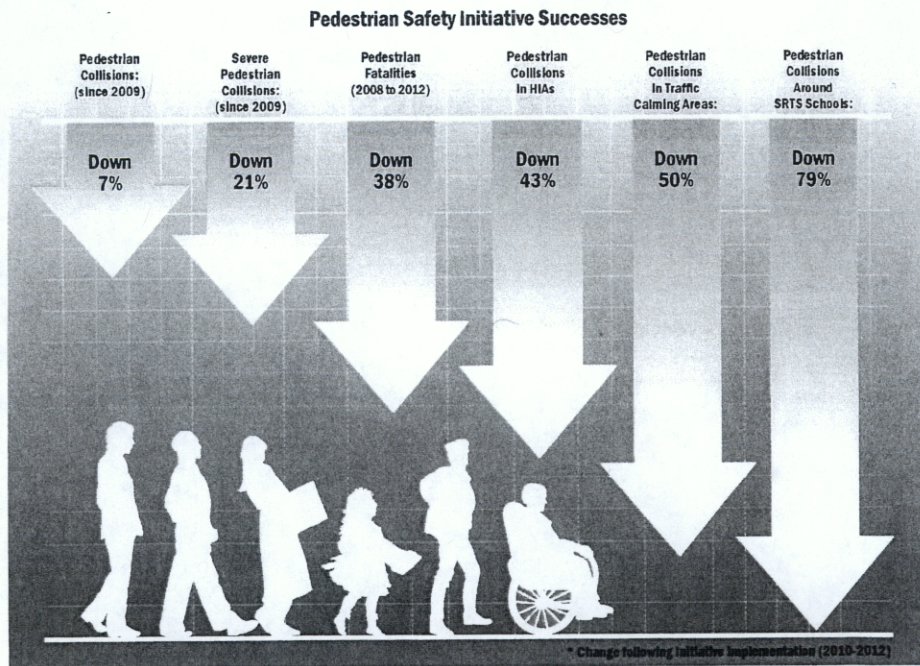


FIGURE 12 Montgomery County pedestrian data trends (SRTS = Safe Routes to School).

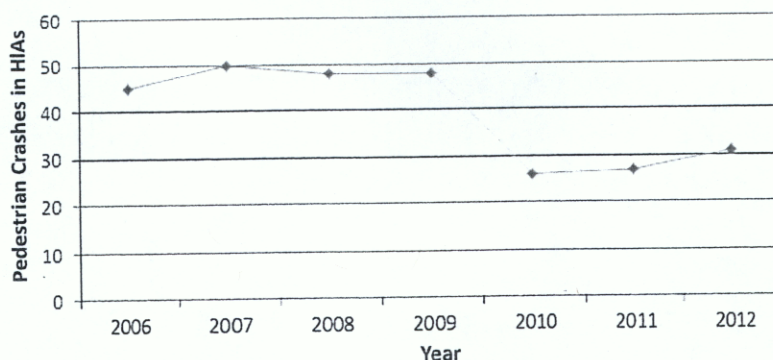


FIGURE 13 Reduction in pedestrian crashes in HIAs.

and implemented as a coordinated and comprehensive approach. Continuing the existing emphasis on data collection is essential in measuring the impact and assessing needed changes to the Three Es. For example, new at-fault crash statistics have led the county to focus the Three E Approach to target drivers at fault.

The county believes that developing memorandums of understanding and overall stronger partnerships between the federal, state, and local governments will help to streamline cooperation and implementation of joint pedestrian safety initiatives. The county has also realized the importance of leveraging planned pedestrian safety projects with the Maryland State Highway Administration and other interdivisional and interagency projects. Consistency among all interjurisdictional programs that focus on pedestrian safety will make the initiative more efficient and effective. Getting these parties to work together is imperative in conducting more PRSAs. In the past year, the State Highway Administration has begun implementing its own PRSA program on state roadways throughout Maryland, modeled on the Montgomery County program.

Although there have been significant reductions in pedestrian collisions where targeted engineering, education, and enforcement activities have been employed, not all areas of the county have seen such declines in collisions. Pedestrian crashes have increased in areas where the Three Es have not been implemented. Parking lots experienced a significant increase in pedestrian crashes in 2012 and now comprise 29% of all pedestrian collisions in the county. Fortunately, these increases have been offset by the reduction of collisions in targeted areas, resulting in an overall decline in collisions in the county. But the challenge remains as the program moves forward in addressing those locations with elevated pedestrian crashes: How can the momentum of pedestrian crash reduction be maintained after the most serious problem areas are addressed with countermeasures? What can be done to address the issue for the entire county once the most serious targeted locations are improved?

To date, much of the work has been remediating old highway infrastructure that was constructed before pedestrian safety was emphasized. The county is now addressing future construction to avoid past mistakes and incorporate safer pedestrian designs into new projects and developments. The county is beginning to take a proactive approach to PRSAs and the review and approval of new private development. Recently, county engineers have been involved in reviewing an RSA for a new interchange, to identify future opportunities to improve the pedestrian aspects of the project when it is constructed. This proactive approach to engineering creates the opportunity to be more successful at mitigating pedestrian safety problems by preventing a problem

before it occurs. The county began its emphasis on those locations with the highest incidence of pedestrian crashes.

As the county works down the list and begins to target locations with fewer crashes, the reduction of crashes resulting from safety improvements, as a percentage of total crashes, will be lower. This does not diminish the validity of the crash data-driven approach, but reflects the reality of expanding the county's efforts across more and more locations, with many of those being less severe than the initial set of HIAs. The county is evaluating other criteria to use in targeting locations for safety improvements and activities.

Targeting specific areas with elevated pedestrian crashes has decreased the number of pedestrian crashes in these areas. However, broader community outreach with an enhanced education and enforcement plan, coupled with a proactive approach to new project development and design, may be necessary to expand the initiative's reach in the future.

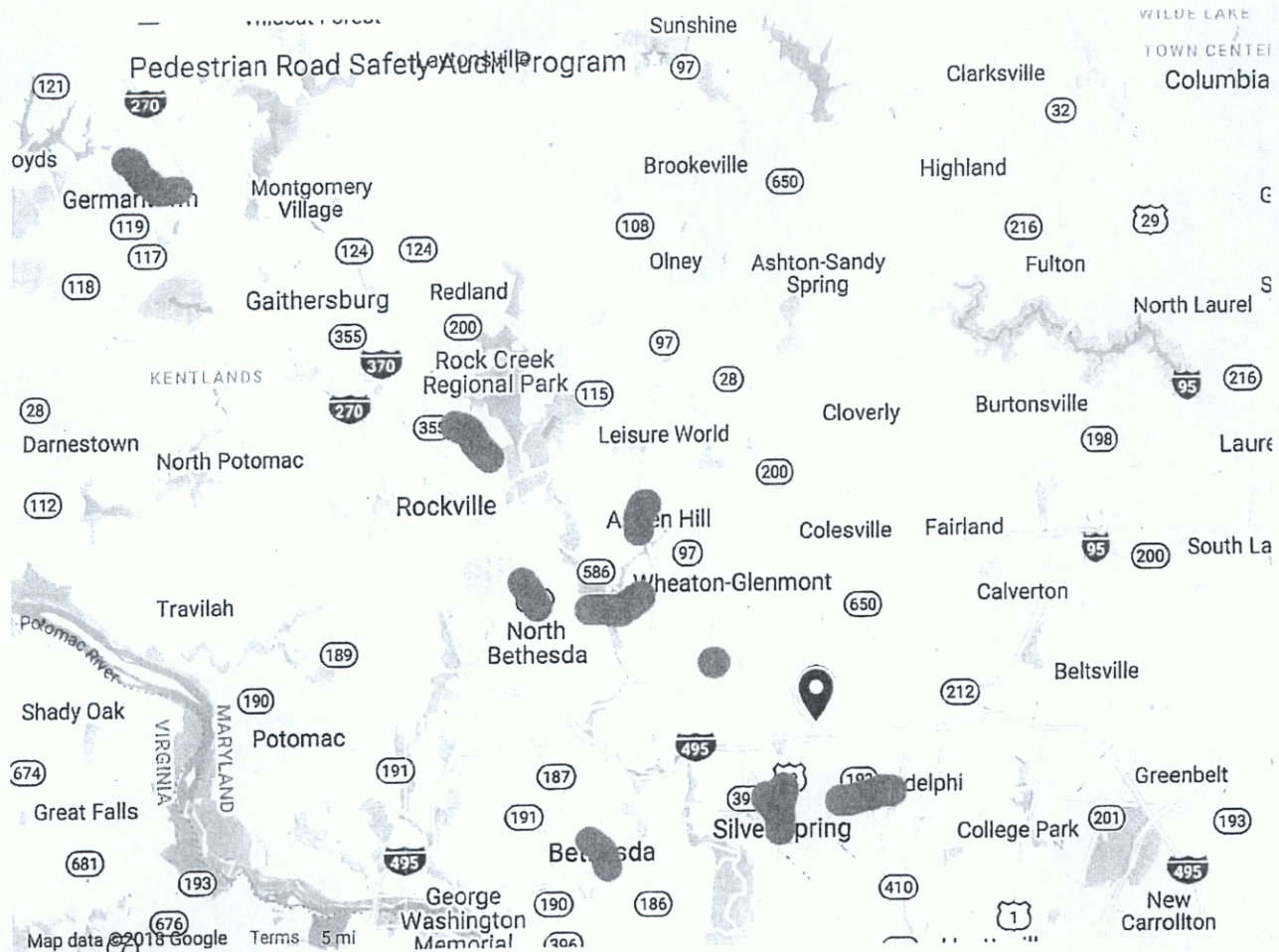
ACKNOWLEDGMENTS

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REFERENCES

1. *Population Density by Jurisdiction, 2010 and 2000*. Maryland Department of Planning Projections and Data Analysis/State Data Center, Baltimore. http://planning.maryland.gov/msdc/population_density/density_mdscnty_2000-10.pdf Accessed July 16, 2013.
2. *Montgomery County Snapshot: Council Districts by the Numbers*. Montgomery County Planning Department, Silver Spring, Md., 2010. http://www.montgomeryplanning.org/research/documents/Databookfinal_web.pdf.
3. *Setting Safety in Motion: Recommendations for Creating Walkable Communities in Montgomery County, Maryland*. Montgomery County Blue Ribbon Panel on Pedestrian and Traffic Safety, Bethesda, Md., 2002.
4. Leggett, I. *Pedestrian Safety Initiative*. Montgomery County Office of the County Executive, Rockville, Md., 2007. http://www.montgomerycountymd.gov/dot-dir/resources/files/ped_initiative.pdf.
5. *Road Safety Audit Guidelines*. FHWA. <http://safety.fhwa.dot.gov/rsa/guidelines/chapter2.htm#four>.
6. *FHWA Pedestrian Road Safety Audit Guidelines and Prompt Lists*. U.S. Department of Transportation, 2007.

The Pedestrians Committee peer-reviewed this paper.



View Pedestrian Road Safety Audit Program in a larger map

1. Colesville Rd (Fenton to N. Noyes)
2. Connecticut Ave (Georgia to Independence)
3. East Gude Dr (Southlawn Ln to Calhoun Dr)
4. Fenton Street (Cameron St to Wayne Ave)
5. Four Corners (Silver Spring)
6. Georgia Ave (Spring to Sligo)
7. Georgia Ave & Randolph Rd (Interchange)
8. Middlebrook Rd (Father Hurley to Waring Station)
9. Old Georgetown Rd (Cordell Ave to Wisconsin Ave)
10. Piney Branch Rd (Flower to PG County Line)
11. Randolph Rd (Colie to Selfridge)
12. Randolph Road (West) (Hunters to Selfridge)
13. Reedie Dr (Veirs Mill to Georgia)
14. Rockville Pk (Hubbard to Halpine)
15. Wisconsin Ave (Leland to Montgomery)



18



Enforcement - Pedestrian Crash Data

Pedestrian Safety Program

Source: Montgomery County Police Department

* All numbers reflect MCPD's number count of recorded pedestrian related vehicle accident reports provide should be considered preliminary.

		Pre-Pedestrian Safety Program				Post-Pedestrian Safety Program									
	2007 thru 2009 (Average)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2010 thru 2017 (Average)	2010 thru 2017 (Running Months Accumulative Average Total)
January	37.67	32	47	34	34	28	39	51	41	44	50	52	33	42.38	42
February	33.67	34	30	37	39	27	36	37	23	42	48	43	35	36.88	79
March	34.67	34	38	32	33	38	29	36	29	31	34	43	28	34.13	113
April	32.00	34	34	28	33	36	28	43	22	27	30	39	25	32.25	146
May	41.33	32	47	45	33	28	36	40	35	33	28	42	33	34.38	180
June	31.67	30	24	41	33	17	35	33	31	32	35	41	28	32.13	212
July	30.33	18	37	36	33	24	23	29	31	38	24	16	28	27.25	239
August	30.67	24	37	31	26	33	31	36	27	36	32	39	30	32.50	272
September	34.00	37	35	30	40	32	35	41	42	35	41	35	17	37.63	310
October	35.00	36	31	38	44	43	44	55	54	49	54	55		49.75	359
November	47.67	60	38	45	43	42	48	40	42	57	40	43		44.38	404
December	44.33	33	49	51	44	51	41	37	43	57	51	46		46.25	450
Total Collisions	433	404	447	448	434	399	425	478	420	481	467	494	257	450	
Per 100,000 (incl. Takoma Park)		42.9	46.9	46.1	44.5	40.2	42.2	47.0	40.9	46.4	44.7				
Serious Pedestrian Collisions Totals (Level 4 & 5)	123	122	116	132	119	103	83	86	76	75	52	72	44	83	
Serious Pedestrian Collisions as a % of All Pedestrian Collisions (Level 4 & 5)		30%	26%	29%	27%	26%	20%	18%	18%	16%	11%	15%	17%		
Total Fatalities (bodies)	17	17	19	14	13	11	6	13	9	13	8	11	11	11	
Per 100,000 (incl. Takoma Park)		1.8	2.0	1.4	1.3	1.1	0.6	1.3	0.9	1.3	0.8				

Red Text = The number is preliminary and could be subject to change.

"Level 4" Injury Severity (Suspected Serious Injured)= The person was recorded as being disabled (Incapacitated) or 'Suspected Serious Injured' due to the accident.

"Level 5" Injury Severity (Fatal Injury) = The person was recorded to be dead or died due to the accident.

CY2015 and moving forward will include related collision reports written by MCPD, RCPD, GCPD, and MNPP. Before CY2016 only MCPD, PCD, and GCPD were included.

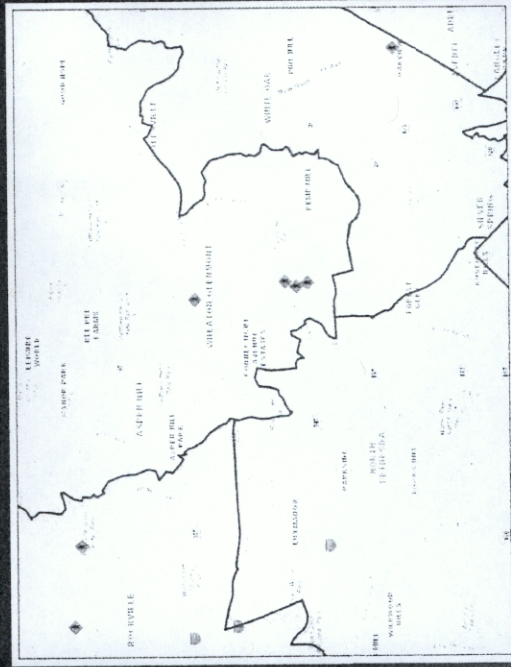
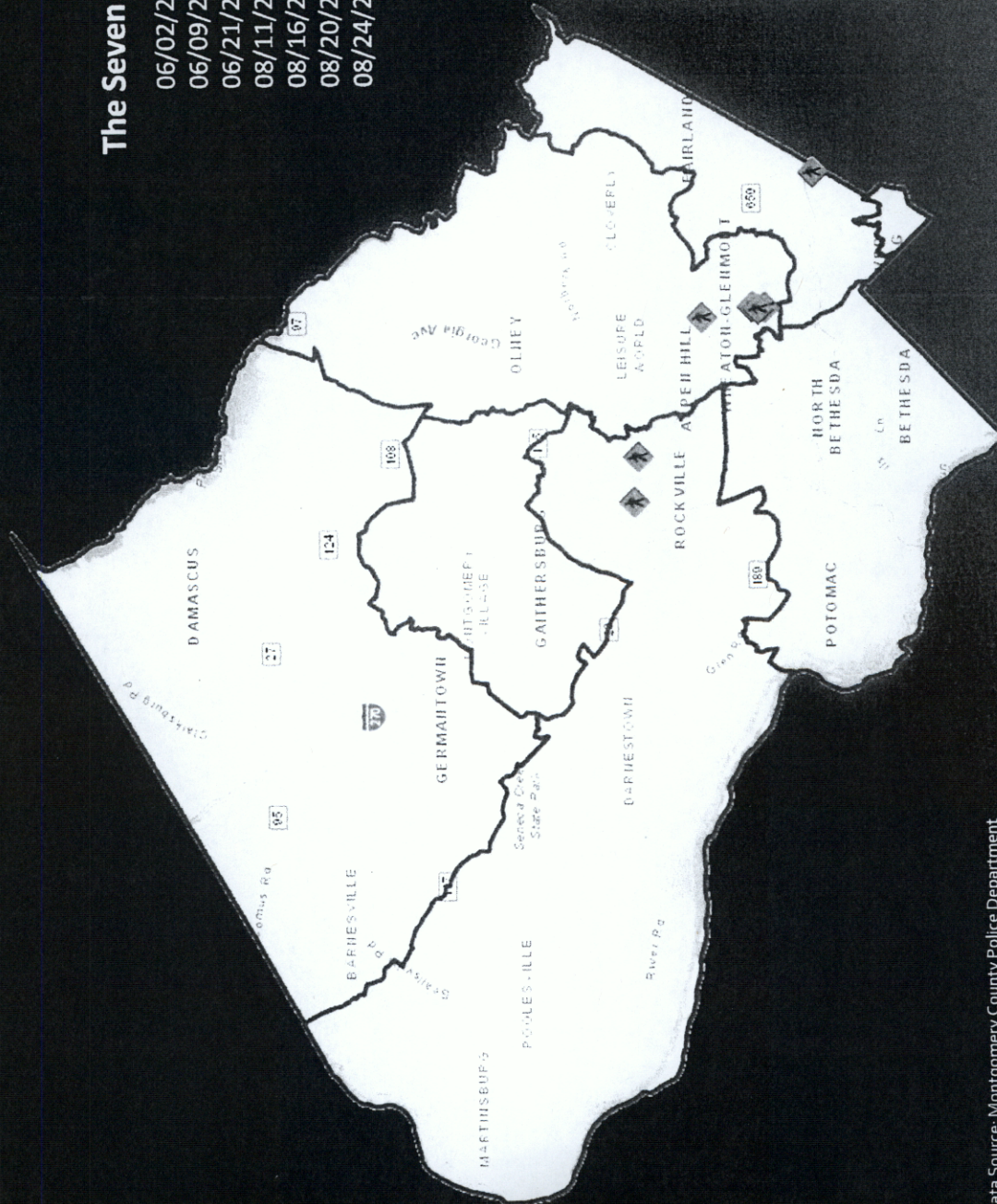
Pedestrian Type = 'Pedestrian', 'Other', 'Other Conveyance', and 'Machine Operator/Rider'

9/18/2018

19

The Seven Pedestrian Fatal Collisions Locations

06/02/2018 – Hungerford Dr & N Washington St
 06/09/2018 – University Blvd & Fern St
 06/21/2018 – New Hampshire Ave & Oakview Dr
 08/11/2018 – Georgia Ave & Veirs Mill Rd
 08/16/2018 – Norbeck Rd & E Gude Dr
 08/20/2018 – Georgia Ave & Glenallan Ave
 08/24/2018 – Georgia Ave & Reedie Dr



Monthly Count of Pedestrian Related Collisions

Month #	Month	Total			
		2015	2016	2017	2018
		Pedestrian Related	Pedestrian Related	Pedestrian Related	Pedestrian Related
1	January	44	50	52	33
2	February	42	48	43	35
3	March	31	34	43	28
4	April	27	30	39	25
5	May	33	28	42	33
6	June	32	35	41	28
7	July	38	24	16	28
8	August	36	32	39	30
9	September	35	41	35	17
10	October	49	54	55	
11	November	57	40	43	
12	December	57	51	46	
Total Collisions		481	467	494	257

January – August (Per Respected Calendar Year)

Percent Change:

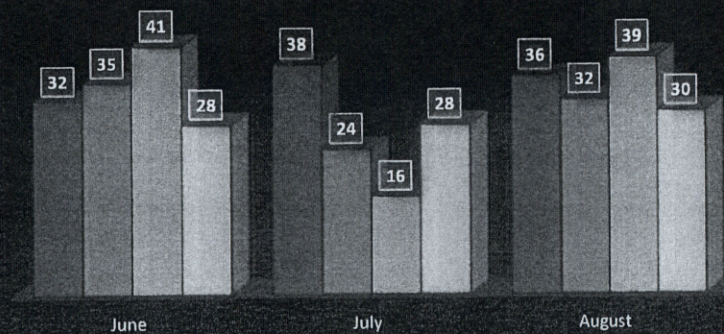
CY2015 to CY2016 = 0.71% decrease

CY2016 to CY2017 = 12.1% increase

CY2017 to CY2018 = 23.81 decrease

PEDESTRIAN RELATED COLLISIONS (SUMMER MONTHS) WITHIN CALENDAR YEAR

■ 2015 ■ 2016 ■ 2017 ■ 2018



20

Monthly Count of Pedestrian Related Serious Collisions (Level 4 & 5)

Month #	Month	Total			
		2015	2016	2017	2018
		Pedestrian Related	Pedestrian Related	Pedestrian Related	Pedestrian Related
1	January	6	5	5	5
2	February	6	5	9	6
3	March	6	4	5	2
4	April	5	2	0	2
5	May	5	1	6	5
6	June	8	5	6	9
7	July	5	1	5	8
8	August	3	4	11	6
9	September	6	7	10	1
10	October	8	7	6	
11	November	9	3	4	
12	December	8	8	5	
Total Serious Collisions		75	52	72	44

January – August (Per Respected Calendar Year)

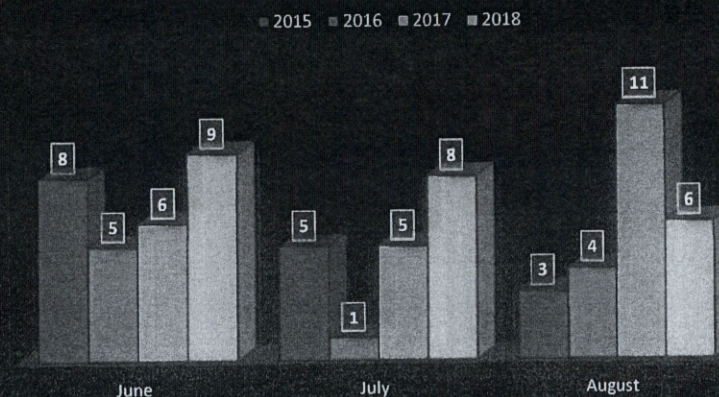
Percent Change:

CY2015 to CY2016 = 38.64% decrease

CY2016 to CY2017 = 74.07% increase

CY2017 to CY2018 = 8.51% decrease

SERIOUS PEDESTRIAN RELATED COLLISIONS
(SUMMER MONTHS) WITHIN CALENDAR YEAR



88

Monthly Count of Pedestrian Related Collisions Resulting in Fatalities (Bodies)

Month #	Month	Total			
		2015	2016	2017	2018
		Pedestrian Related	Pedestrian Related	Pedestrian Related	Pedestrian Related
1	January	1	1	1	0
2	February	1	0	1	0
3	March	3	1	1	0
4	April	0	1	0	0
5	May	0	0	1	1
6	June	1	0	1	3
7	July	1	0	0	1
8	August	0	2	0	4
9	September	1	0	1	
10	October	2	2	1	
11	November	1	0	2	
12	December	2	1	2	
Total Fatalities (Bodies)		13	8	11	11

January – August (Per Respected Calendar Year)

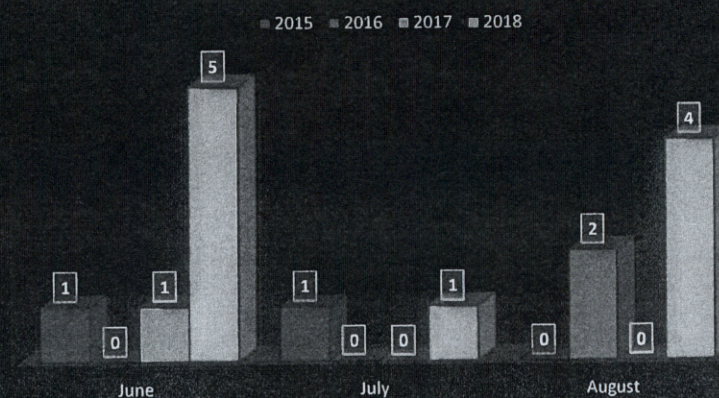
Percent Change:

CY2015 to CY2016 = 28.57% decrease

CY2016 to CY2017 = No change

CY2017 to CY2018 = 120% increase

PEDESTRIAN RELATED COLLISIONS (FATALITIES)
(SUMMER MONTHS) WITHIN CALENDAR YEAR

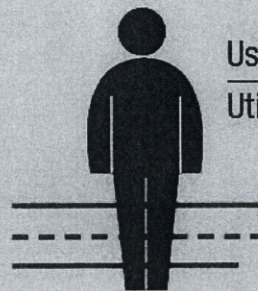




**USE THE
CROSSWALKS**
**CRUCE POR
EL PASO
DE PEATONES**

**DON'T GAMBLE WITH YOUR LIFE
LOOK BEFORE CROSSING**

**NO JUEGUE CON SU VIDA
MIRE ANTES DE CRUZAR**



Use the crosswalk

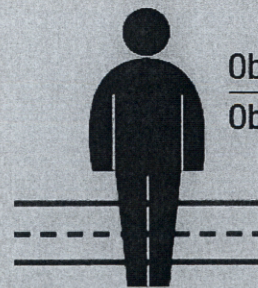
Utilize el paso peatonal

**Be alert
Esté alerta**



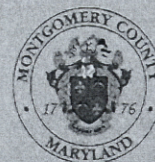
Be seen

Hágase visible



Obey the signals

Obedezca las señales



www.montgomerycountymd.gov/walk