

Prioritizing Pedestrian Safety in Montgomery County, Maryland

Webinar for the Safe Routes to School National Partnership
Greater Washington Region
June 5, 2013



Webinar Presenters

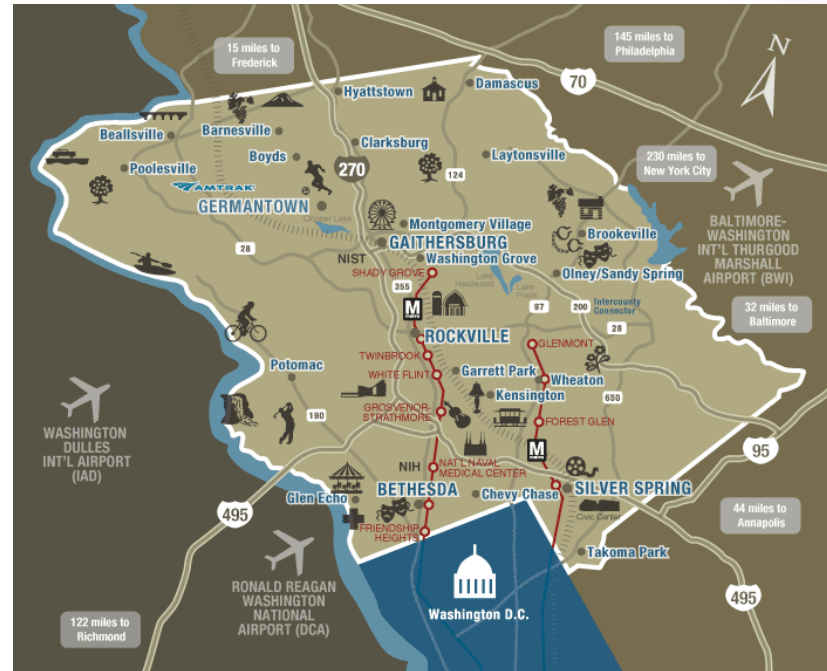
- **Jeff Duncel**, MCDOT Pedestrian Safety Coordinator
- **Nadji Kirby**, MCDOT Safe Routes to School Coordinator
- **Sergeant James Whalen**, MCPD School Safety
- **William Haynes**, MCDOT Engineer III – Pedestrian Safety
- **Joana Conklin**, Foursquare ITP / MCDOT Pedestrian Safety Education Specialist
- **Captain Thomas Didone**, MCPD Traffic Division

Webinar Agenda

- Montgomery County Overview
- County Executive's Pedestrian Safety Initiative
- Summary of Pedestrian Crash Trends
- Safe Routes to School Program Highlights
- Engineering, Education, and Enforcement in High Incidence Areas (HIAs)
- Lessons Learned and Wrap-Up
- Questions

Where in the World is Montgomery County, Maryland?

- Washington DC Metropolitan Area
- Suburban county with increasingly dense land use
- 507 square miles; Population of just over 1 million
- 3,028 miles of roadway (approximately 10% of roads in State of Maryland)
- Shared Jurisdiction of Roads: State, County, Municipalities
- Served by Metro, MARC, and local/regional bus service



Source: Montgomery County, MD Conference and Visitor's Bureau

Montgomery County Characteristics

- County ranges from dense urban areas to rural/agricultural
 - 3 cities, 12 towns, 4 villages
 - Agricultural Reserve covers approximately $\frac{1}{4}$ of the County
- Diverse Population*
 - 49% non-Hispanic White
 - 17% Hispanic or Latino
 - 17% Black
 - 14% Asian



View from Sugarloaf Mountain



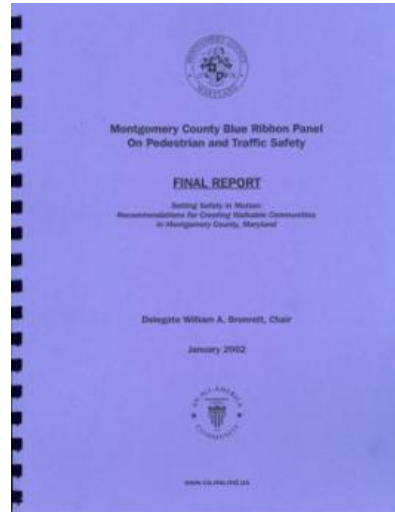
Rockville (County Seat)



Downtown Bethesda

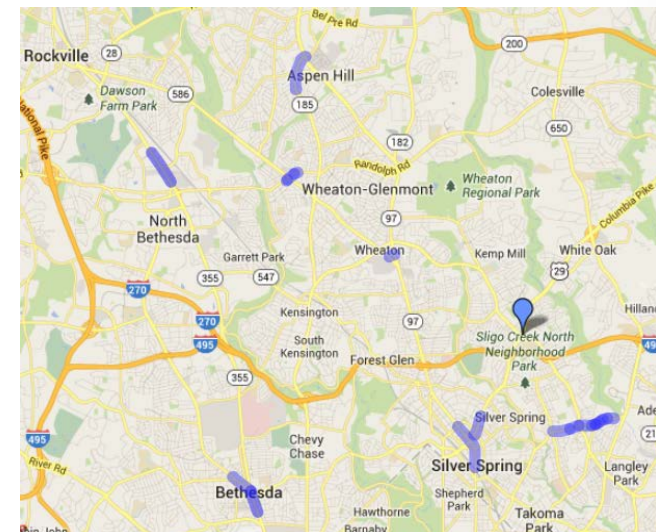
Pedestrian Safety – 14 Year History In Montgomery County

- 2000 – Blue Ribbon Committee Assembled by County Executive
- 2002 – Blue Ribbon Committee Report
- 2007 – Pedestrian Safety Initiative, a Strategic Plan

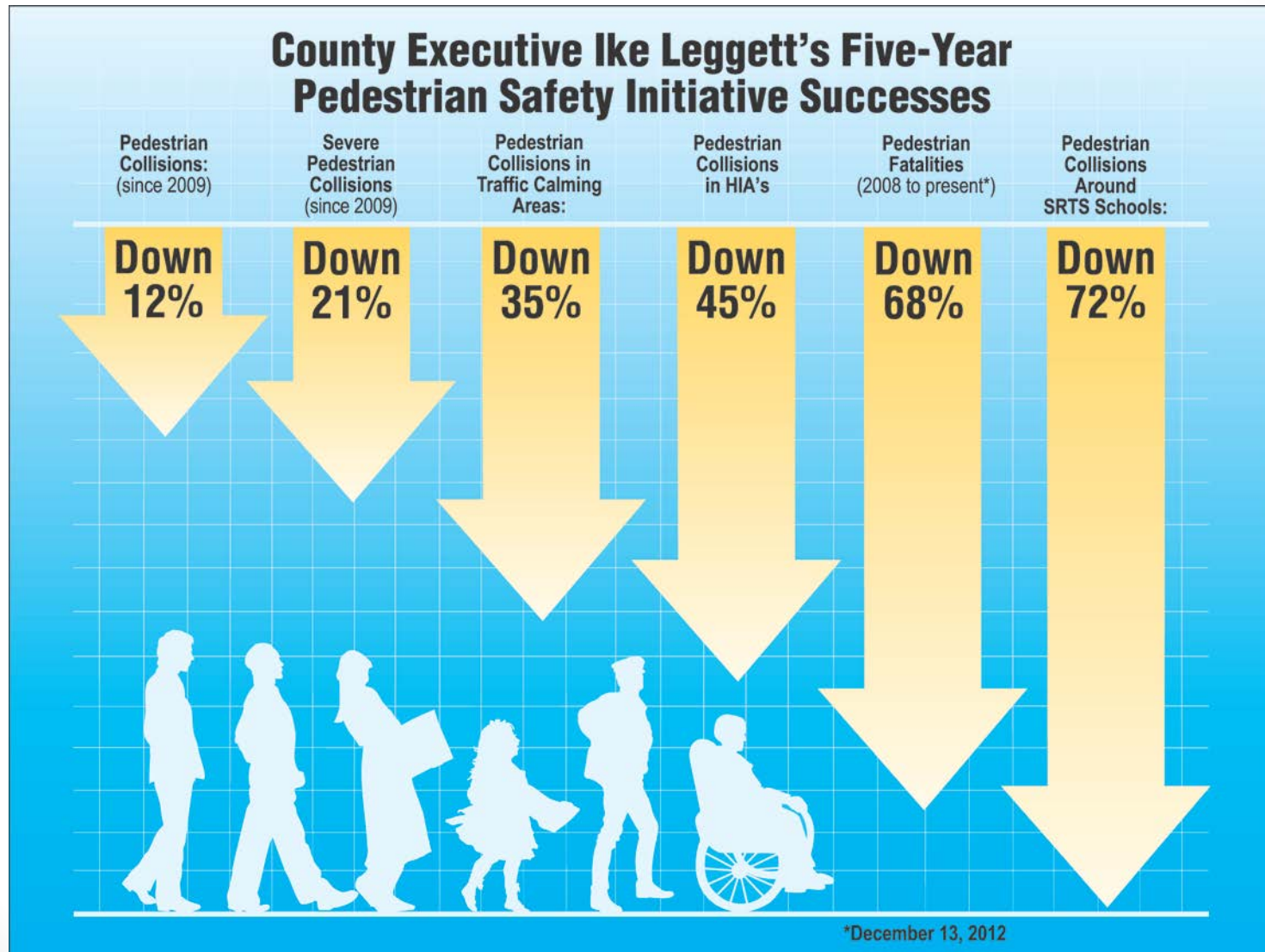


County Executive's Pedestrian Safety Initiative

- Seven Strategies
- Targeted
- Data Driven
- Political Will
- Resources:
 - Budget
 - Personnel

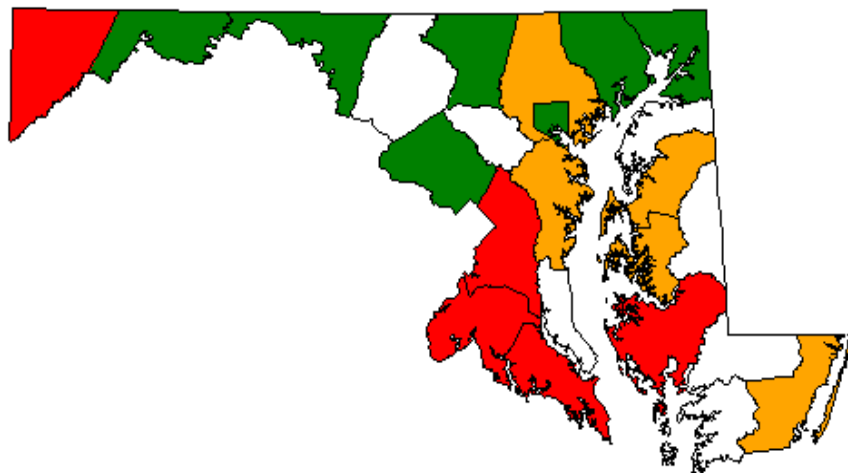


Pedestrian Safety Initiative - Results



Pedestrian Fatalities – National and Statewide Comparison

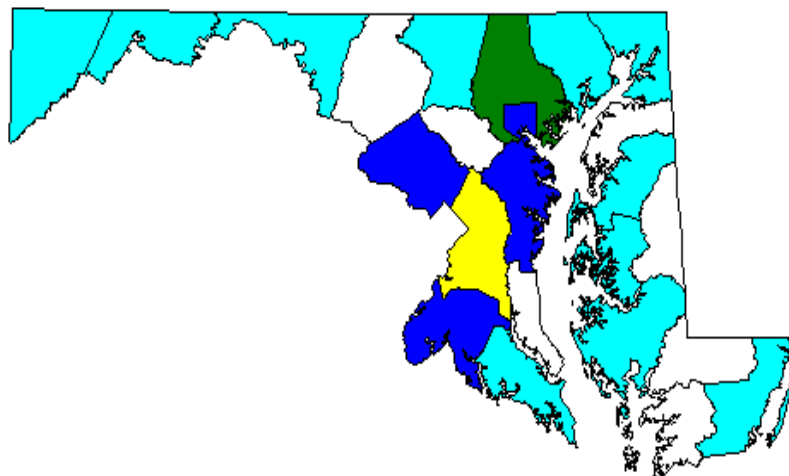
2011 Pedestrian Fatalities per 100,000
(National Comparison)



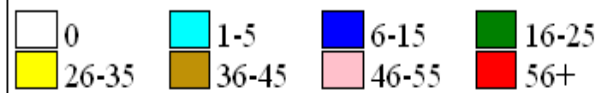
Compare Individual County Rate to the Rates of all US Counties



2011 Pedestrian Fatalities
(Statewide Comparison)



Fatalities



Montgomery County is in the lower third of national pedestrian fatality rates and in the middle of the spectrum statewide.

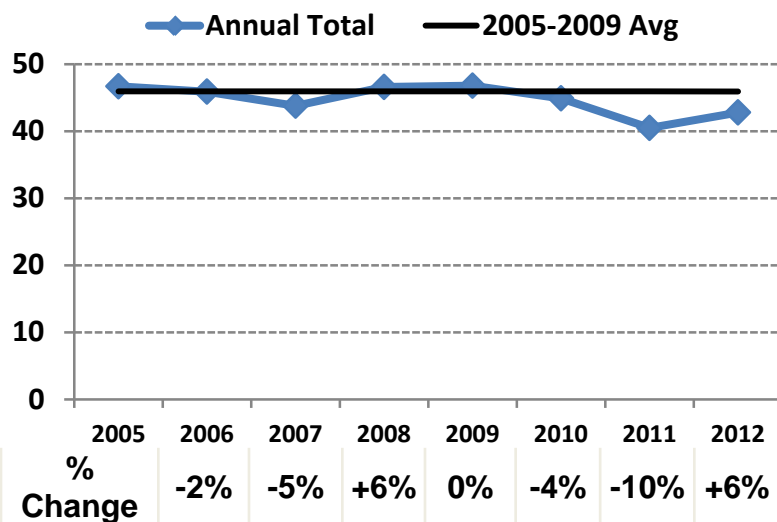
Source: National Highway Traffic Safety Administration: Fatality Analysis Reporting System
Data may vary from local jurisdiction's reported figures

Montgomery County Pedestrian Collisions and Fatalities

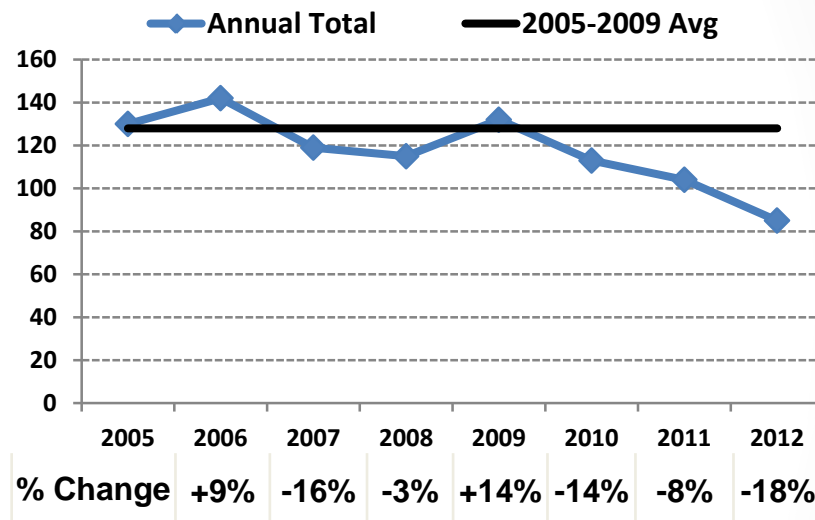
| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Pre-Initiative Average (2005-2009) | Post-Initiative Average (2010-2012) | Change |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|--|---|-------------|
| January | 36 | 31 | 32 | 48 | 34 | 34 | 28 | 40 | 36 | 34 | -6% |
| February | 28 | 28 | 33 | 30 | 37 | 39 | 27 | 36 | 31 | 34 | +10% |
| March | 37 | 28 | 34 | 37 | 31 | 33 | 38 | 27 | 33 | 33 | 0% |
| April | 26 | 25 | 35 | 34 | 28 | 33 | 36 | 27 | 30 | 32 | +7% |
| May | 27 | 36 | 34 | 47 | 46 | 33 | 28 | 36 | 38 | 32 | -16% |
| June | 41 | 33 | 29 | 24 | 41 | 33 | 17 | 35 | 34 | 28 | -18% |
| July | 24 | 29 | 20 | 37 | 36 | 33 | 24 | 23 | 29 | 27 | -7% |
| August | 28 | 37 | 26 | 36 | 32 | 26 | 33 | 31 | 32 | 30 | -6% |
| September | 39 | 39 | 38 | 35 | 30 | 41 | 32 | 35 | 36 | 36 | 0% |
| October | 48 | 42 | 37 | 31 | 41 | 44 | 43 | 44 | 40 | 44 | +10% |
| November | 48 | 49 | 60 | 38 | 46 | 43 | 42 | 48 | 48 | 44 | -8% |
| December | 52 | 52 | 34 | 47 | 52 | 44 | 51 | 41 | 47 | 45 | -4% |
| Total Collisions | 434 | 429 | 412 | 444 | 454 | 436 | 399 | 423 | 435 | 419 | -4% |
| Per 100,000 | 46.7 | 45.9 | 43.8 | 46.6 | 46.8 | 44.9 | 40.5 | 42.8 | 46 | 43 | -7% |
| Level 4 & 5 Collisions (% of total) | 130 (30%) | 142 (33%) | 119 (29%) | 115 (26%) | 132 (29%) | 113 (26%) | 104 (26%) | 85 (20%) | 128 | 101 | -21% |
| Total Fatalities | 10 | 18 | 17 | 19 | 14 | 13 | 11 | 6 | 16 | 10 | -38% |
| Per 100,000 | 1.1 | 1.9 | 1.8 | 2 | 1.4 | 1.3 | 1.1 | 0.6 | 2 | 1 | -50% |

Pedestrian Collision Annual Trends

Total Collisions Per 100,000 Population



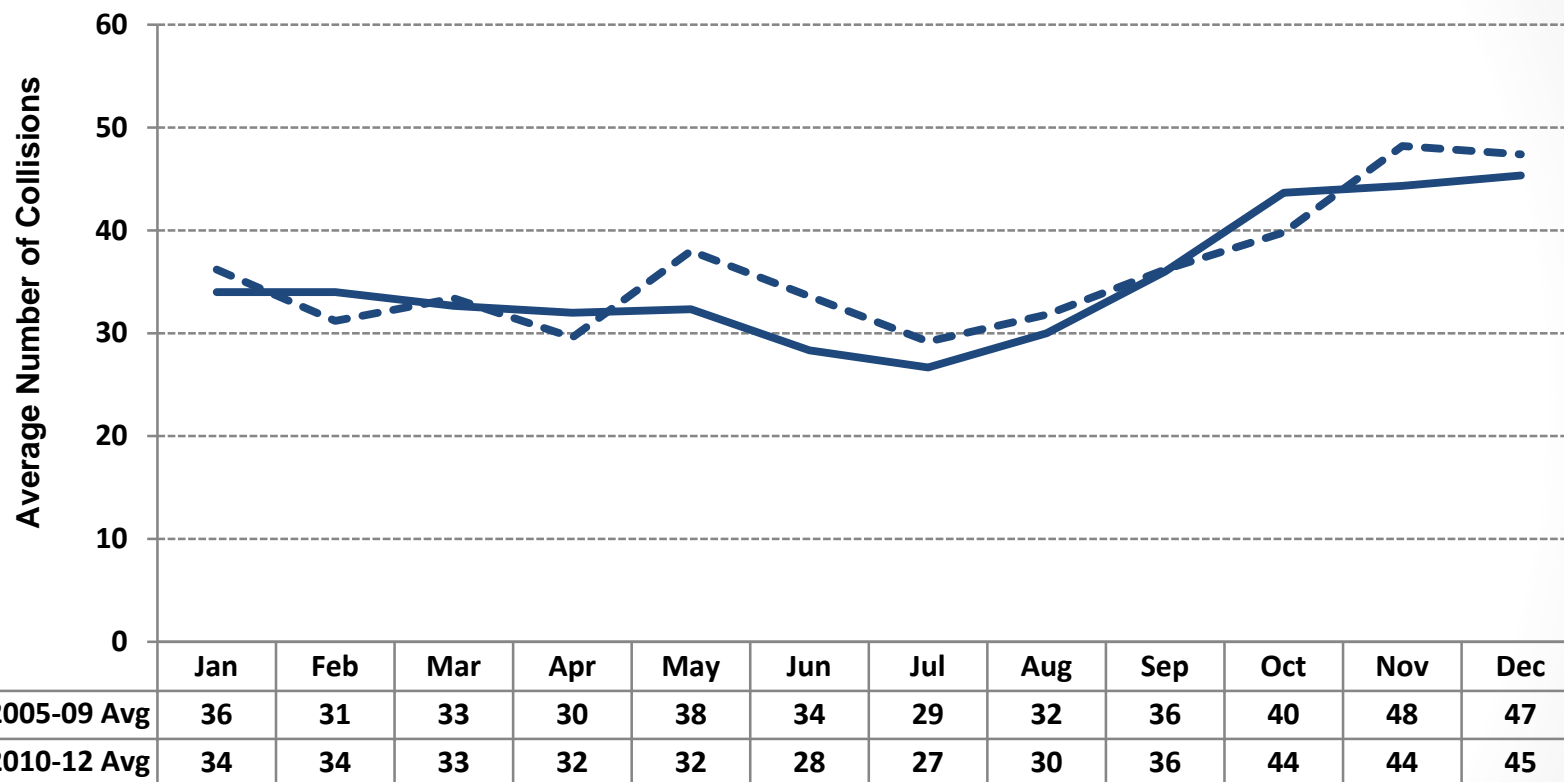
Total Level 4-5 Collisions



Total collisions per 100,000 population increased by 6% after a 10% drop in 2011. The total remains below the pre-initiative (prior to 2010) average.

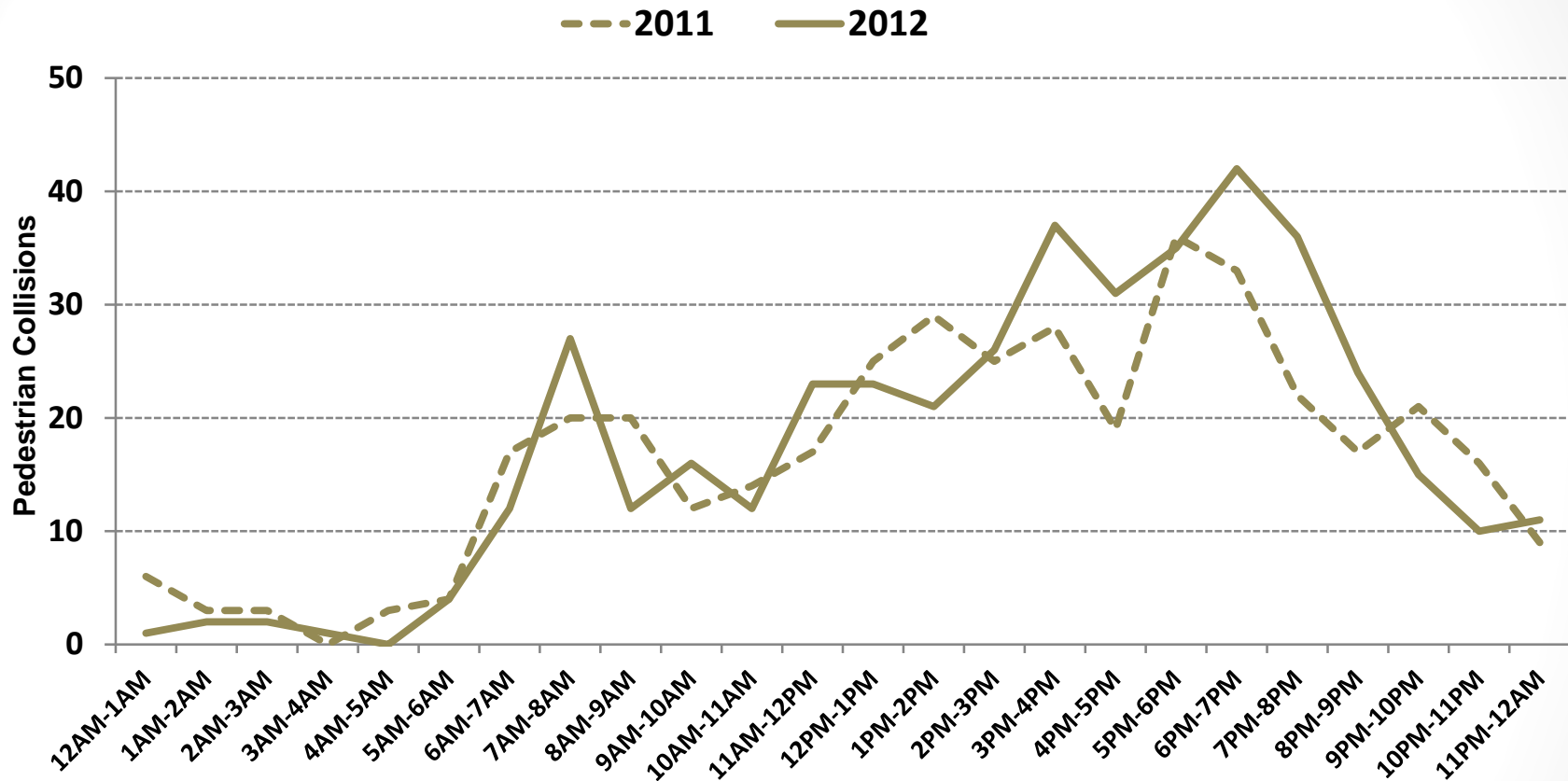
Percent of level 4-5 collisions dropped by 18% from 2011 and by 35% from 2005-2009 (pre-initiative) average.

Pedestrian Collisions – Monthly Trend



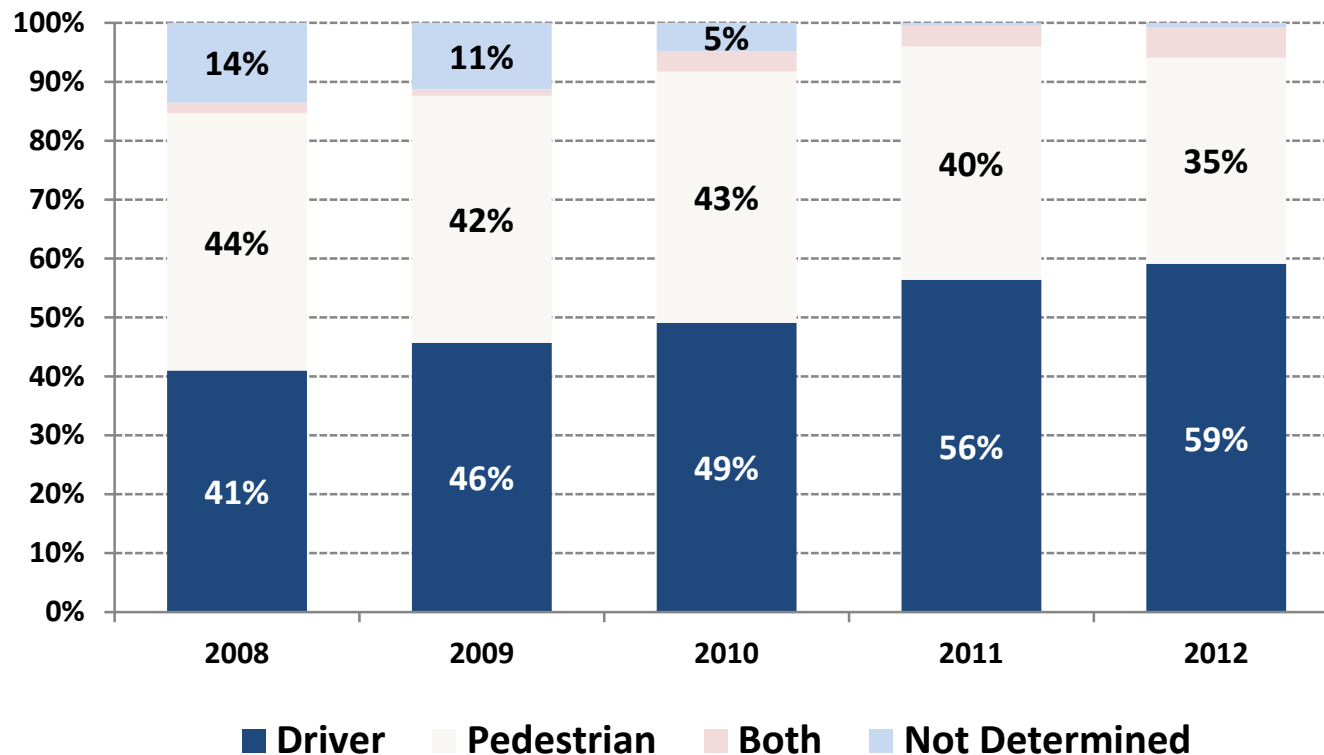
There tends to be an increase in pedestrian collisions in Fall and Winter. The average number of collisions occurring in the spring and summer (May - August) and in the early winter (November - January) months has decreased since the pedestrian safety initiative was launched.

Pedestrian Collisions by Time of Day



There is an elevated number of pedestrian collisions during the morning and evening peak hours. A spike is also seen during the mid-day period (when schools get out).

Pedestrian Collisions by Fault



Since 2008 there has been an increase in the percentage of collisions in which the driver was determined to be at fault.

Safe Routes to School Program Highlights



Safe Routes to Schools Prioritization

Started in 2005, over 160 schools have had comprehensive school zone traffic safety assessments conducted and improvements implemented.

- **ENGINEERING: Reprioritized to weight pedestrian collisions**
 - Weighted scores with pedestrian collisions - used to prioritize schools
 - Factored into engineering evaluation criteria for overall score
 - Safe Routes to School (SRTS) list reprioritized using crash data weighting factor
 - SRTS Grant Applications now reflect reprioritization
- **EDUCATION: Increased at schools with high ped collisions**
 - SRTS Coordinator working with Elementary, Middle, and High Schools
 - SRTS Coordinator placing highest priority on schools with pedestrian collisions within 1/4 mile
- **ENFORCEMENT: Increase at schools with high ped collisions**
 - Enforcement actions targeted at schools with higher number of pedestrian collisions

Focused resources that improve pedestrian safety and mobility have resulted in the evaluation of numerous safety concerns and the reduction of pedestrian collisions.

Safe Routes to School: Engineering

School Zone Pedestrian Treatments Activities

| | Total FY08 – FY13* |
|---------------------------|-----------------------|
| Targeted Assessments | 104 |
| Comprehensive Assessments | 85 |
| Total Assessments | 189 |
| Improvements Implemented | 144 |

* FY13 Year to Date



Safe Routes to School: Bicycle and Pedestrian Education

Bicycle Rodeo

- To empower young cyclists with a set of skills for on-road riding and includes helmet fitting and bike safety inspection.



Crosswalk Simulation

- Simulated real world experience of crossing a street.
- Kids practice approaching the street, looking left, right, and left again and crossing in the middle of the crosswalk.



Train-the-Trainer

- High School students are trained to conduct the crosswalk simulation activity for elementary school students.



Safe Routes to School Enforcement

- Conducted by Montgomery County Traffic Division officers and District motorcycle officers
- Enforcement during arrival and dismissal times
 - 839 citations given in the 2012-2013 school year
- Types of violations:
 - Speeding in school zones (#1 priority)
 - Reckless driving
 - Seatbelt compliance
 - Obeying posted school and parking signs
 - Crosswalk violations (by motorists)
- Work closely with schools to address specific concerns



“The most dangerous part of a student’s day is the trip to and from school. Officers are aware of the importance of making the roadways safe for school children.”

-Sgt. J. Whalen

Safe Routes to School: Collision Update (Grant B Schools)

| School Name | 3 Years Before Treatment | 3 Year After treatment |
|-----------------------|--------------------------|------------------------|
| | # of ped collisions | # of ped collisions |
| Stone Mill ES | 2 | 0 |
| Olney ES | 1 | 3 |
| Georgian Forest ES | 6 | 0 |
| Kingsview MS | 12 | 1 |
| Thurgood Marshall ES | 1 | 0 |
| Martin Luther King MS | 11 | 1 |
| Flower Hill ES | 7 | 0 |
| Greenwood ES | 2 | 1 |
| Rosa Parks MS | 2 | 0 |
| Cannon Road ES | 3 | 0 |
| Clearspring ES | 1 | 1 |
| Total | 48 | 7 |

Three years of post-treatment data indicates that the collision rate has declined from 1.45 to .21 incidents per year.

Engineering, Education, and Enforcement in High Incidence Areas (HIAs)

High Incidence Areas Strategy Overview

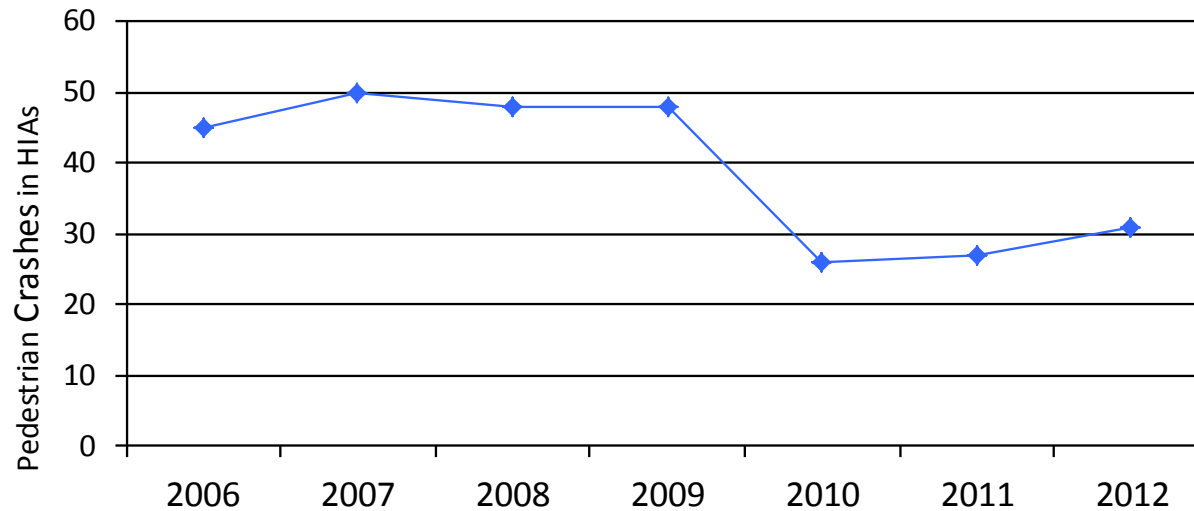
- Targets funding for engineering, education, and enforcement (the 3 Es) where it can have the greatest effect on reducing pedestrian collisions
- The highest rate of pedestrian collisions has been along State roads, so this strategy engages the State in targeting pedestrian safety activities within the County where the rate of collisions and severity are highest
- Creates opportunities to leverage multiple projects in target areas with cost-sharing between multiple agencies



- | | |
|--------------------------------|----------------------------|
| 1. Piney Branch Rd | 7. Randolph Rd |
| 2. Wisconsin Ave | 8. Connecticut Ave |
| 3. Georgia Ave (Silver Spring) | 9. Colesville Rd |
| 4. Rockville Pike | 10. Old Georgetown Rd |
| 5. Four Corners | 11. Georgia Ave (Wheaton)* |
| 6. Reddie Dr | 12. Randolph Rd (Wheaton)* |

* MD 97 & Randolph Road Interchange Project RSA

Collisions in High Incidence Areas: Annual Trend



| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|-------------------|------|------|------|------|------|------|------|
| HIA | 45 | 50 | 48 | 48 | 26 | 27 | 30 |
| Countywide | 429 | 412 | 444 | 454 | 436 | 399 | 423 |
| HIA as % of Total | 10% | 12% | 11% | 11% | 6% | 7% | 7% |

From 2010 through 2012, HIA collisions as a percentage of total pedestrian collisions has seen a notable decrease. In earlier years, the HIA's accounted for roughly 11% of all pedestrian crashes, despite only consisting of approximately 1% of roadways County-wide.

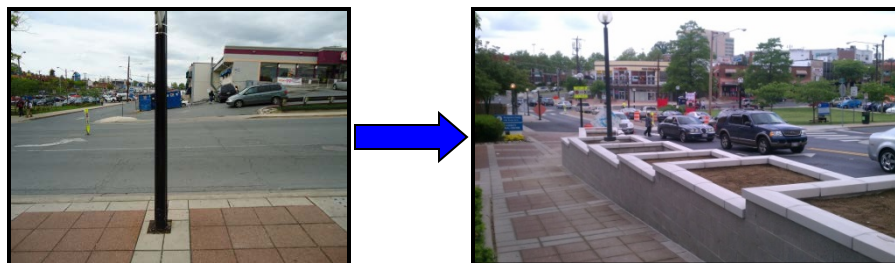
High Incidence Areas: Reddie Drive

Background

- Reddie Drive **from Georgia Ave to Veirs Mill Rd** in Wheaton CBD
- PRSA conducted in April 2010
- 1st County roadway PRSA

Observations

- Mid-block crossing encouraged by adjacent developments
- Numerous pedestrian/vehicle conflicts
- Many pedestrians cross at non-designated locations

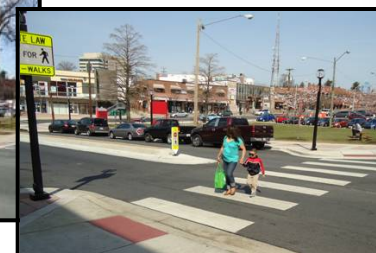


Engineering Accomplishments

- Streetscape Improvement Project (90% Construction)
- Lighting Maintenance
- Minor Drainage Structure Improvements



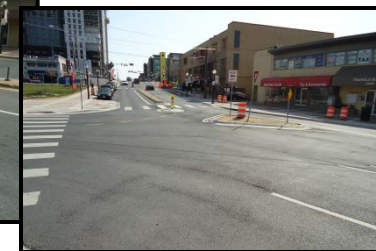
Before



After



Before



After

| 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Total |
|------|------|------|------|------|------|------|-------|
| 0 | 3 | 3 | 7 | 2 | 1 | 2 | 18 |

High Incidence Areas: Randolph Road

Background

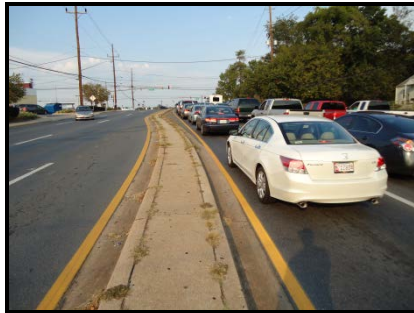
- Randolph Road **from Colie Dr to Selfridge Rd**
- PRSA conducted in Sept 2010 (2nd County Road)

Observations

- Heavy ped/bike demand and transit usage
- Numerous pedestrian/vehicle conflicts
- Both drivers and pedestrians fail to obey
- Mid-block crossing encouraged by adjacent developments and bus transfers

Engineering Accomplishments

- Randolph Road Pedestrian Barriers
- Sidewalk Installations & Improvements
- Randolph Road/Veirs Mill Road Lighting Improvements (Fall 2013)
- Veirs Mill Road & Randolph Road Traffic Signal Upgrade (90% MCDOT Participation)
- Randolph Road & Selfridge Road Traffic Signal Reconstruction (In Design)



Before



Construction



After



Before



After

| 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Total |
|------|------|------|------|------|------|------|-------|
| 2 | 1 | 4 | 4 | 1 | 2 | 3 | 17 |

High Incidence Areas: Piney Branch Road

Background

- 1st HIA: Piney Branch Road from Flower Ave to the PGC/MC line
- PRSA conducted in Oct. 2008



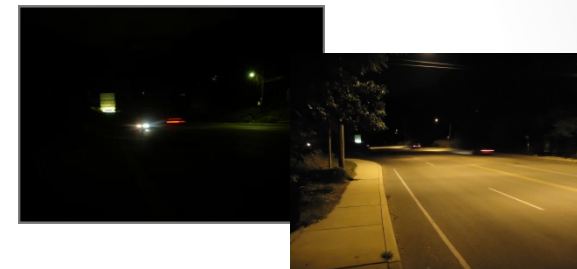
Sidewalk Improvements

Observations

- Many mid-block crossings
- Pedestrian at fault in most crashes
- Limited roadway lighting
- Narrow sidewalks



CPS Upgrades



Lighting Improvements

Engineering Accomplishments

- Installed two mid-block pedestrian crossings with flashers
- Bus shelter consolidation
- Installed Countdown Pedestrian Signals
- Lighting Upgrades
- Sidewalk Improvements



Audible
Push
Button



Flashing Beacons

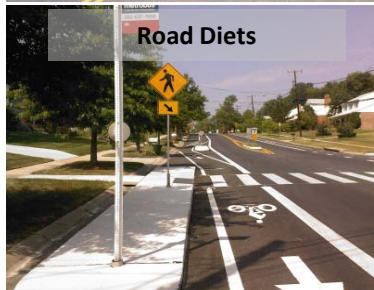


Regulatory
and
Warning
Signs

| 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Total |
|------|------|------|------|------|------|------|-------|
| 10 | 8 | 7 | 8 | 3 | 5 | 9 | 50 |

Other Pedestrian Safety-Related Efforts:

Traffic Calming



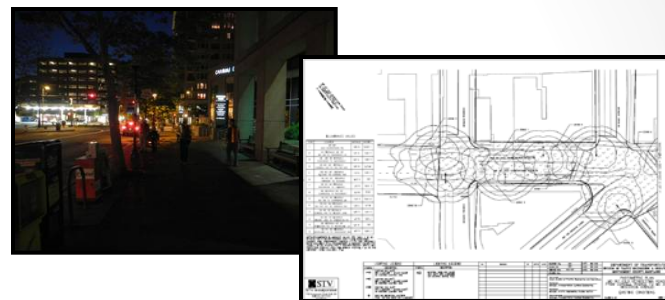
| Project Name | Speeds (MPH) | | | Collisions 3 Years Before Treatment | Time period Since Treatment | Collisions Since Treatment |
|-------------------|--------------|-------------|------------|-------------------------------------|-----------------------------|----------------------------|
| | Posted | Avg. Before | Avg. After | | | |
| Fairland Rd | 40 | 53 | 42 | 2 | 3 yrs. | 0 |
| Calverton Blvd | 30 | 41 | 35 | 1 | 3 yrs. | 0 |
| Lockwood Dr | 30 | 40 | 30 | 0 | 3 yrs. | 0 |
| Sligo Ave | 30 | 34 | 31 | 1 | 3 yrs. | 4 |
| Carroll Ave | 25 | 33 | 27 | 2 | 3 yrs. | 0 |
| Spartan Rd | 30 | 40 | 33 | 0 | 3 yrs. | 0 |
| Dale Dr | 30 | 39 | 34 | 0 | 2 yrs. - 4 mos. | 0 |
| Prince Phillip Dr | 30 | 36 | 31 | 0 | 1 yr. - 6 mos. | 0 |
| Waring Station Rd | 30 | 38 | 34 | 4 | 8 mos. | 1 |
| Cedar Ln | 30 | 36 | 30 | 0 | 7 mos. | 0 |
| Jones Bridge Rd | 30 | 36 | 30 | 0 | 7 mos. | 0 |
| Rainbow Dr | 25 | 31 | 26 | 0 | 7 mos. | 0 |
| Franklin Ave | 30 | 34 | 33 | 0 | 4 mos. | 0 |

Speed decline \geq 5mph

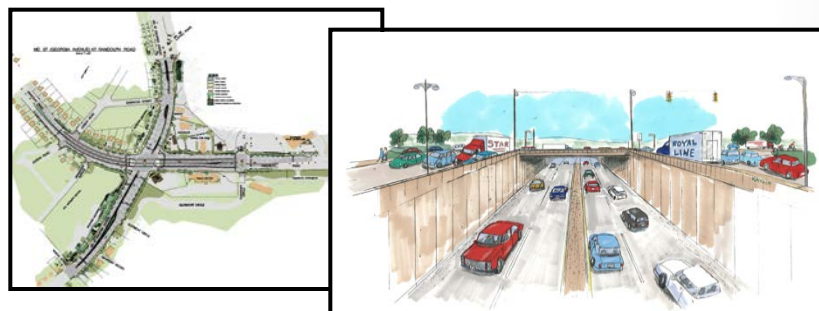
Other Pedestrian Safety-Related Efforts (cont'd)

- Traffic Signal Upgrades and Reconstruction
- Lighting Improvements
- Sidewalk Connectivity
- Bus Stop Improvements
- Pedestrian Signal Timing Upgrades
- Other Studies: Road Safety Audits
- Development Review Process

Lighting Analysis and Improvements



Road Safety Audit - MD 97 & Georgia Avenue Interchange



Gardiner Avenue Sidewalk



Before



After

Pedestrian-Related Traffic Signal Improvements

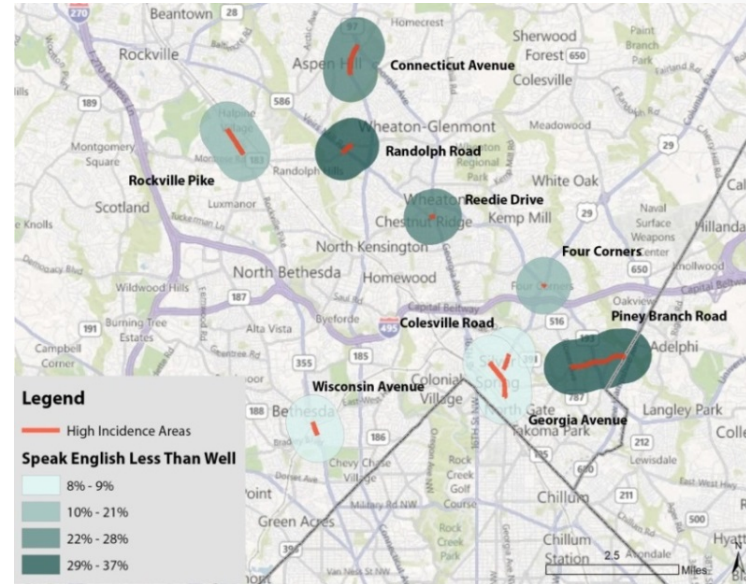


High Incidence Areas: Education

Grouping Similar HIAs

Data-driven approach to grouping HIAs using:

- Crash characteristics
- Demographics
- Land Use



Percent of Households that Speak English
“Less Than Well”

Group 1 (FY 2012-2013)

- Piney Branch
- Randolph Road
- Reddie Drive
- Connecticut Avenue
- Four Corners

Group 2 (FY 2014-2015)

- Wisconsin Avenue
- Rockville Pike
- Colesville Road
- Georgia Avenue
- Old Georgetown Road

High Incidence Areas: Group 1 Education

Piney Branch, Randolph, Reedie, Connecticut

- Curb Markers
- Safety Promotion Teams
- Volunteers at festivals
- Outreach to local business
- Shopping center intercepts



Four Corners (Blair High School)

- “Best Eyes” Campaign
- SWAG bracelets
- Text message contest
- Train-the-Trainer
- Fall “See Them See You” Campaign



Piney Branch HIA: Curb Markers

- Concept developed by education team – designed to mimic police caution tape
- Approved by SHA as “Experimental Traffic Control Device”
- “Do Not Cross” and “No Cruce” installed every 20-30-feet
- “Cross Here” installed at crosswalks



Safety Promotion Teams

- Intercept pedestrians on the street
 - Discuss pedestrian safety tips
 - Distribute reflective/visible materials
- In Group 1 HIAs, distributed approximately:
 - 8,000 Safety Tips brochures
 - 2,200 Light-Up Reflectors
 - 3,000 Shopping bags



Community Volunteer Brigade

- Group of volunteers reaching out to their community about pedestrian safety
 - SWAG Team (English)
 - Protectores del Camino (Spanish)
- Community festivals and pedestrian safety events
- To date, distributed approximately:
 - 11,000 Safety Tips brochures
 - 3,000 Reflective Zipper Pulls
 - 6,000 Shopping bags



Four Corners HIA: Blair High School Education Campaign

- Why the focus on Blair High School?
 - PRSA: 39% of pedestrian crashes involved individuals under age 20
 - Pedestrian survey: approximately 60% of respondents were high school students
 - Well-defined audience/demographic
- Formed working group to develop campaign concepts:
 - Blair High School Students
 - School Administration & Staff
 - PTSA Representative



Blair High School Best Eyes Contest

- Initial recruiting event
- Photo shoot event
- Special student-created giveaways



Four Corners Spring Education Campaign: SWAG Bracelets

- Bracelet concept originated by students
- Reinforce good behavior (**SWAG**) and bad behavior (**FAIL**)
- Build on overall campaign message:

See them See you

Wait for the Walk

Always Use Crosswalks

Go Reflective!



Use Crosswalks. SWAG

Look Both Ways. SWAG

Make Eye Contact. SWAG

Become Road Kill. FAIL

Get Hit by a Bus. FAIL

Text + Walk = FAIL

Four Corners Spring Education Campaign: Text Message Contest

Students answer 3 questions/week in May via text message to be entered into prize drawing

Win the New iPad!

**PEDESTRIAN SAFETY
MESSAGE CONTEST**

Answer pedestrian safety questions and be entered to win:
• Gift Cards • The New iPad

**PEDE
TEXT M**

Answer pedestrian s
• Chinotl

Blair Walk
Project
Website

Text Message Sample Question

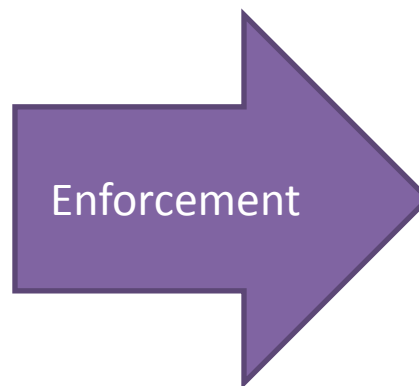
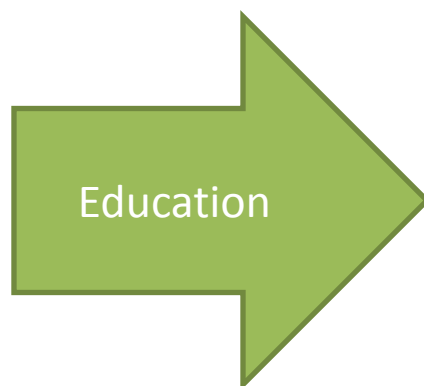
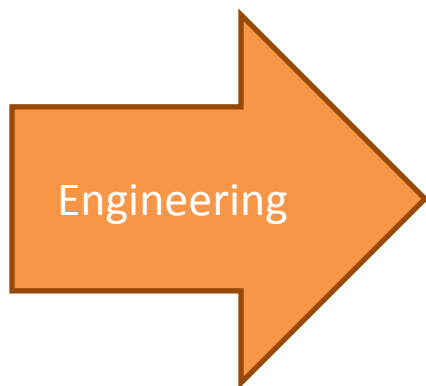
About how many pedestrians were struck by vehicles last year in Montgomery County?

- A) 20
- B) 100
- C) 400
- D) 2,000

Correct! Remember to make eye contact with drivers when you're walking so you don't get hit. C them C U!

Incorrect! The answer was 400. Remember to make eye contact with drivers when you're walking so you don't get hit. C them C U!

Close Coordination of Engineering, Education, and Enforcement



Changing
Pedestrian and
Driver
Behavior

High Incidence Area Enforcement Efforts

- MCPD conducted targeted enforcement of drivers and pedestrians at HIAs
- Tickets for violations such as:
 - Midblock crossing
 - Crossing against pedestrian signal
 - Drivers not yielding to pedestrians
- HIA Efforts to Date
 - 715 warnings
 - 2,001 citations
- Citation details
 - 90 driver citations
 - 1,851 pedestrian citations
 - 60 undetermined (driver/ped)



| HIA | Citations | Warnings |
|--------------------|-----------|----------|
| Connecticut Avenue | 277 | 57 |
| Four Corners | 458 | 180 |
| Piney Branch | 819 | 405 |
| Randolph Road | 420 | 53 |
| Rockville Pike | 27 | 20 |

Pedestrian Enforcement “Stings”

- What is a “Pedestrian Sting”?
 - Police decoy in visible clothing crosses at a crosswalk
 - Drivers who do not stop for the pedestrian are ticketed
- 15-20 locations across the County, including crosswalks in:
 - Aspen Hill
 - Bethesda
 - Gaithersburg
 - Germantown
 - Rockville
 - Silver Spring
 - Wheaton
- 206 driver citations issued to date



Lessons Learned

- Close coordination of engineering, education, and enforcement
- Developing a tactical toolbox; Utilizing economies of scale
- Leveraging opportunities, partnerships, and media coverage
- Including affected groups in planning and implementation (i.e. students, residents)
- Citations more effective than warnings
- Engineering projects may have long lead times; education and enforcement have shorter lead times



Contact info

More information on the program at
www.montgomerycountymd.gov/walk

Montgomery County Pedestrian Safety Program

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