Montgomery County Pedestrian Safety Program
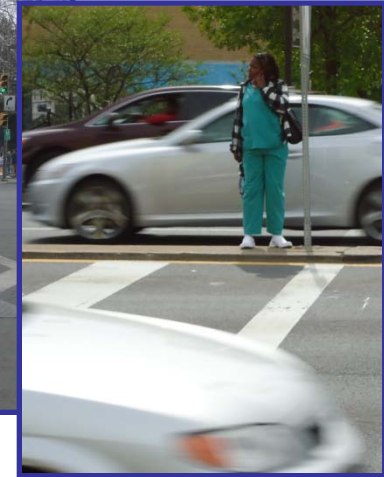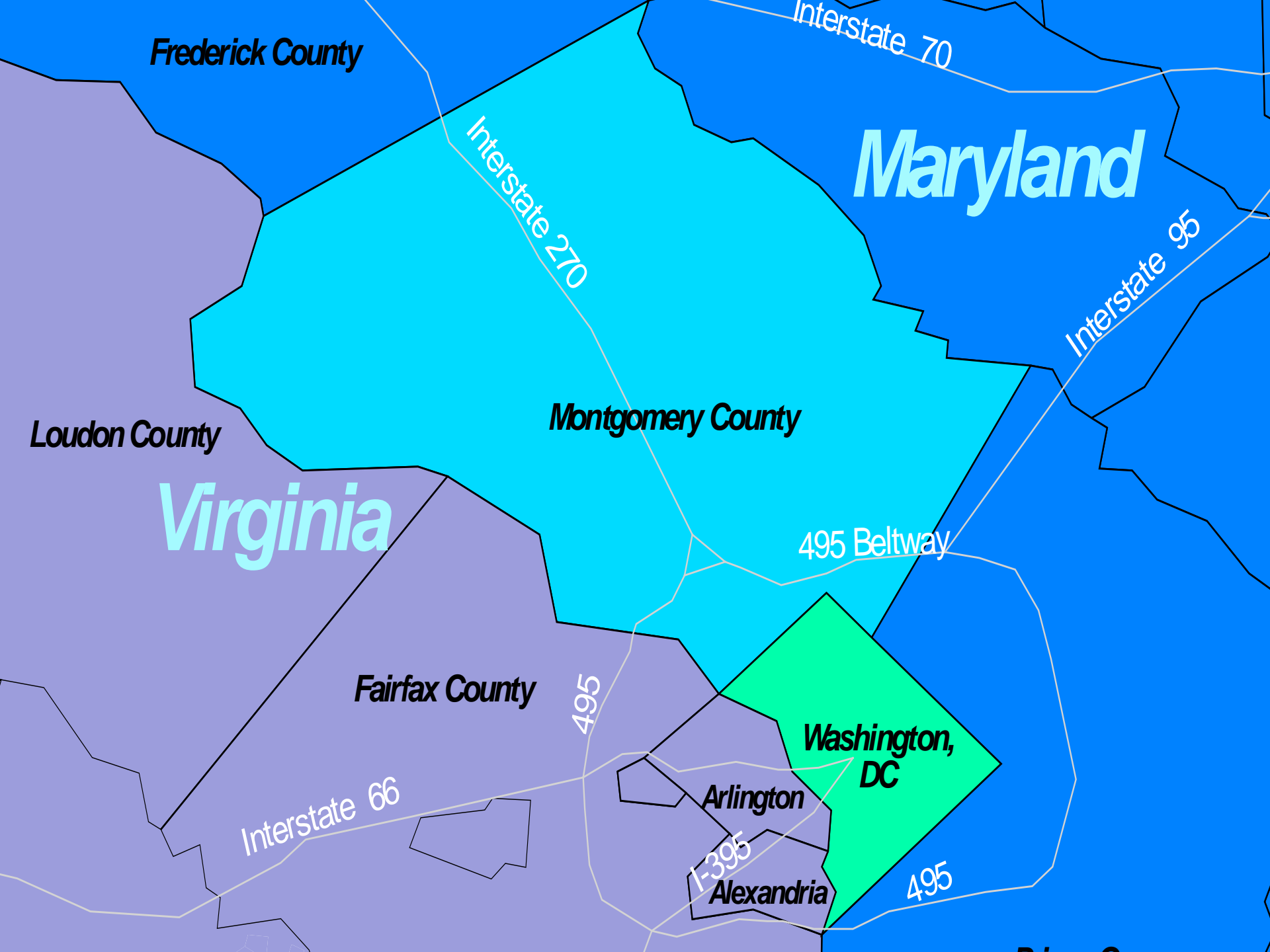
Bad Days

- When a car and a pedestrian try to occupy the same space.

- Car always wins over 2,600 vs 0

- We experience 12,000 crashes annually and over 400 pedestrians

- The County is suburban and not "Planned"

- Statistics show downward trend

Frederick County

Interstate 70

Maryland

Interstate 270

Interstate 95

Loudon County

Montgomery County

Virginia

495 Beltway

Fairfax County

495

Washington, DC

Arlington

Interstate 66

I-395

495

Alexandria

Pedestrian Crash Trends - Severity

Number of Fatal & Serious Injury Crashes

Chart showing Number of Fatal/Serious Injury Crashes by Year (2005–2010) with data series "No. Fatal & Serious Injury Crashes" and linear trendline.
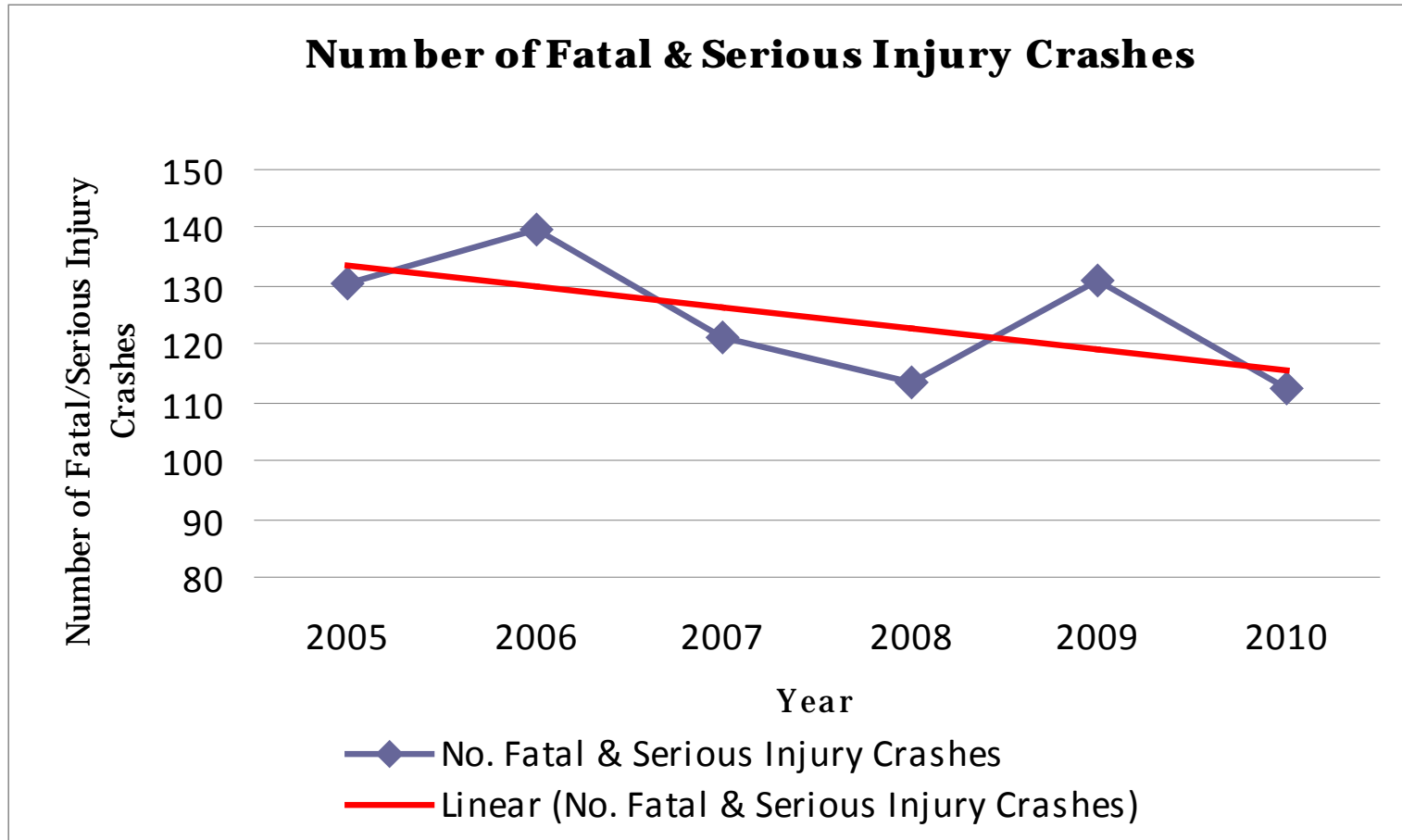
The 3 E Approach
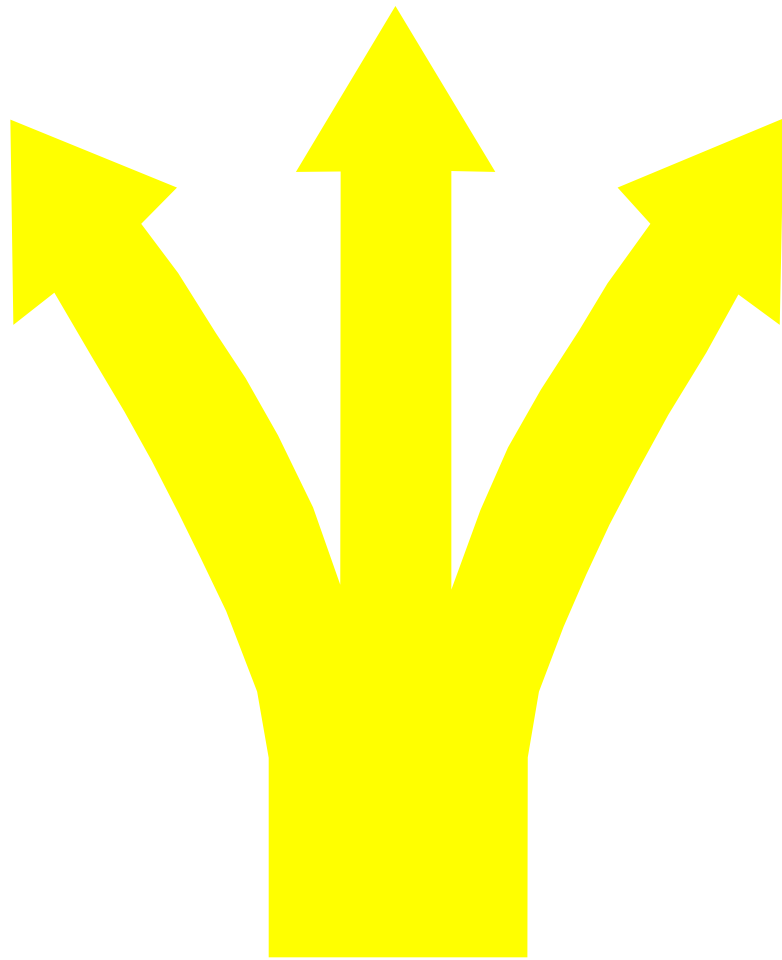
- Engineering
- Education
- Enforcement

Pedestrian Safety Program

- ***Engineering***

- Education
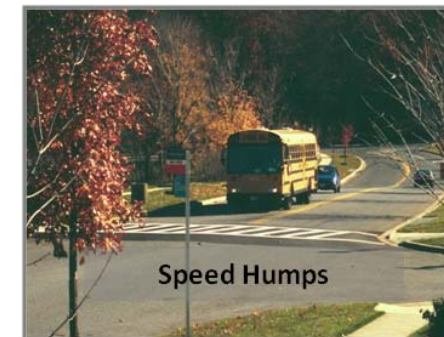
- Enforcement

Engineering Strategies

- Traffic Calming

- Safe Routes to School

- High Incident Areas (HIA's)

Traffic Calming: Typical Treatments

- Roundabouts

- Pedestrian Refuge Islands

- Curb Extensions

- Chicanes / Chokers

- Enhance signing and marking

- Speed Humps

- Edgelines

Road Diet

Curb Extensions

Median or Pedestrian Refuge Islands

Edgelines

Speed Humps
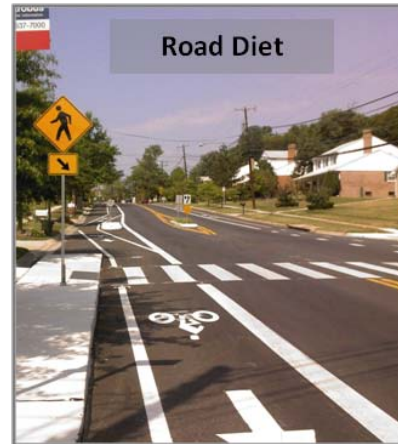
Traffic Calming: Project Locations

Traffic Calming Intersection Improvements
- FY10
- FY11

Traffic Calming Corridor Improvements
- FY10
- FY11

Traffic Calming: Results

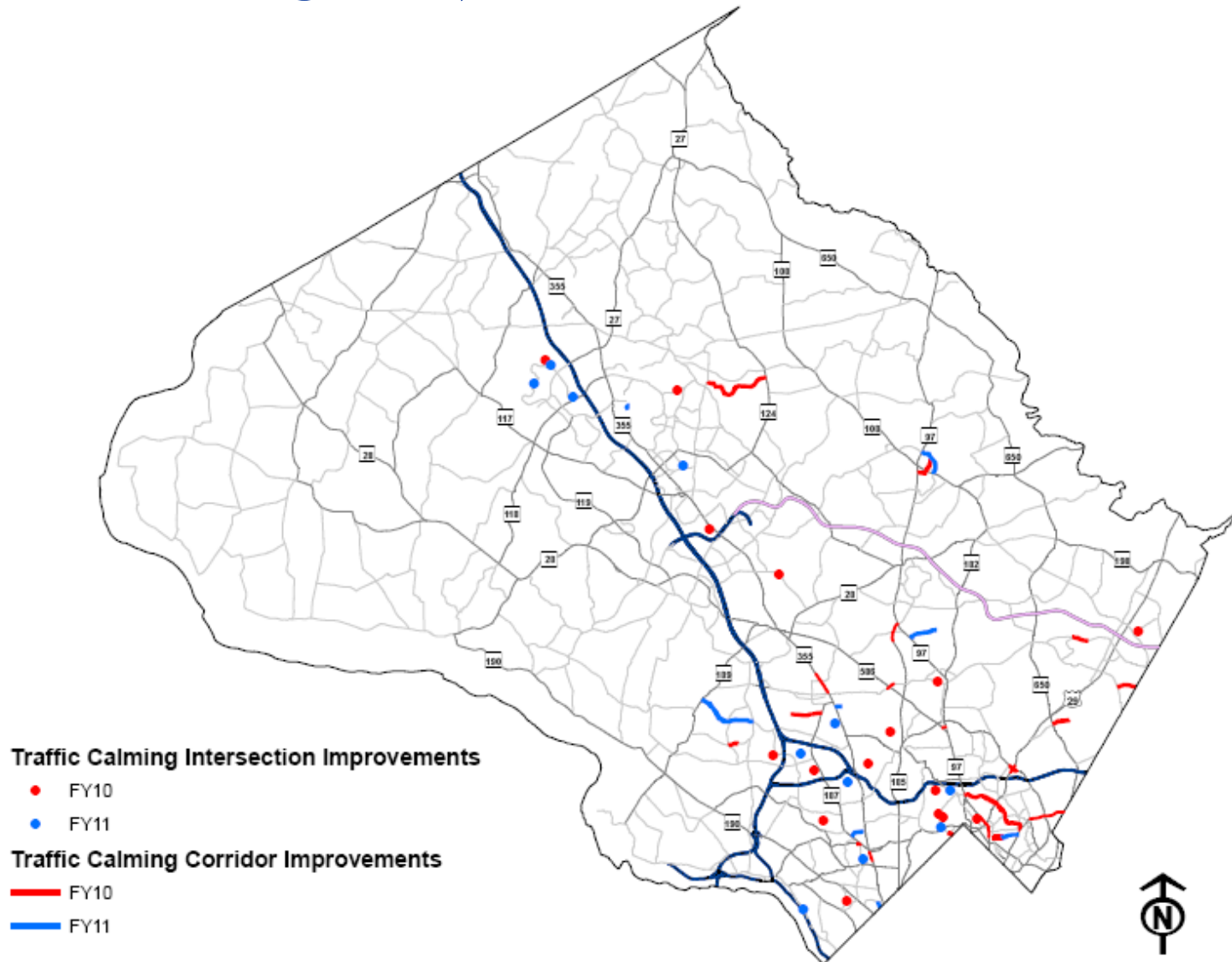| Project Name	Completion Date	Speeds (MPH)			Collisions 3 Years Before Treatment	Time period Since Treatment	Collisions Since Treatment
		Posted	Avg. Before	Avg. After			
Connecticut Ave	July-07	40	48	40	10	3 yrs.	4
Aspen Hill Rd	May-08	30	35	34	14	3 yrs.	3
Arcola Ave	Aug-08	30	42	32	3	2 yrs. 10 mos.	3
Fairland Rd	July-09	40	53	42	2	1 yr. 11 mos.	0
Calverton Blvd	July-09	30	41	35	1	1 yr. 11 mos.	1
Lockwood Dr	July-09	30	40	30	0	1 yr. 11 mos.	1
Sligo Ave	Sept-09	30	34	31	1	1 yr. 9 mos.	3
Carroll Ave	Nov-09	25	33	27	2	1 yr. 7 mos.	1
Spartan Rd	Nov-09	30	40	33	0	1 yr. 7 mos.	0
Dale Dr	Aug-10	30	39	34	0	10 mos.	0
Prince Phillip Dr	Jun-11	30	36	31	0	1 mo.	0

> or = 5 mph reduction

Safe Routes to School: Overview

Since 2005, over 80 schools have had comprehensive assessments conducted and improvements implemented.

SRTS activities include:

- ENGINEERING

    - Evaluate signing and marking for upgrades

    - Establish suitable walking routes

    - Work with schools to improve drop-off/pick-up operations

    - Provide ADA ramps and improve sidewalk connectivity

    - Install curb extensions and pedestrian refuge islands

    - Consider parking restrictions to reduce pedestrian/vehicle conflicts

- EDUCATION

    - Coordinate with schools to promote involvement in pedestrian safety activities and programs (109 Elementary Schools & 31 Middle Schools).

- ENFORCEMENT

    - Work with the police to implement targeted enforcement at schools during arrival/dismissal.

Focused resources that improve pedestrian safety and mobility have resulted in the evaluation of over 100 specific safety concerns and reducing pedestrian collisions.

Safe Routes to School: Observations

- Demonstrated success of reducing pedestrian collisions.

- Working relationship between SRTS Coordinator and school officials, such as transportation representatives, principals, and safety officers.

- Increased opportunities for children to walk and bicycle to school.

- Benefiting schools, crossing guards and the greater community.

Safe Routes to School: Results

School Name	3 Years Before Treatment		After treatment	
	Time period	# of ped collisions	Time period (up to Jun 2011)	# of ped collisions
Stone Mill ES	3/2006 – 3/2009	2	2 yrs - 3 mos.	0
Olney ES	2/2006 – 2/2009	1	2 yrs - 4 mos.	4
Georgian Forest ES	3/2006 – 3/2009	6	2 yrs - 3 mos.	1
Kingsview MS	3/2006 – 3/2009	12	2 yrs - 3 mos.	1
Thurgood Marshall ES	3/2006 – 3/2009	1	2 yrs - 3 mos.	0
Flower Hill ES	6/2006 – 6/2009	7	2 yr - 0 mos.	0
Greenwood ES	4/2006 – 4/2009	2	2 yr - 2 mos.	1
Rosa Parks MS	4/2006 – 4/2009	2	2 yr - 2 mos.	0
Cannon Road ES	6/2006 – 6/2009	3	2 yr - 0 mos.	0
Clearspring ES	4/2006 – 4/2009	1	2 yr - 2 mos.	1
Total	360 Months	37	262 Months	8

Although ¾ of the 3-year "after" period has passed for the schools above, only ¼ the total number of pedestrian crashes have occurred when compared with the "before" period.

High Incidence Areas: Strategy

- Examine crash data yearly to identify HIA's.

- Conduct Pedestrian Road Safety Audits based on FHWA Pedestrian Road Safety Audit Guidelines.

- Implement physical improvements in HIA's in partnership with the MDSHA and others.

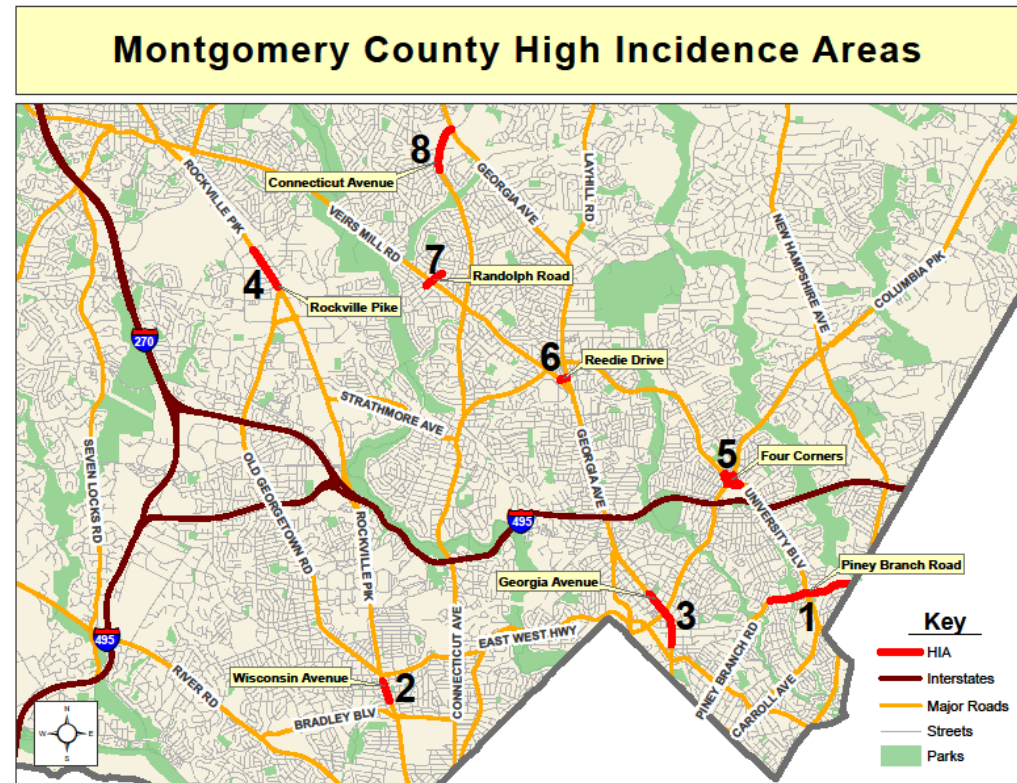- Conduct Enforcement and Education targeting the HIA's.
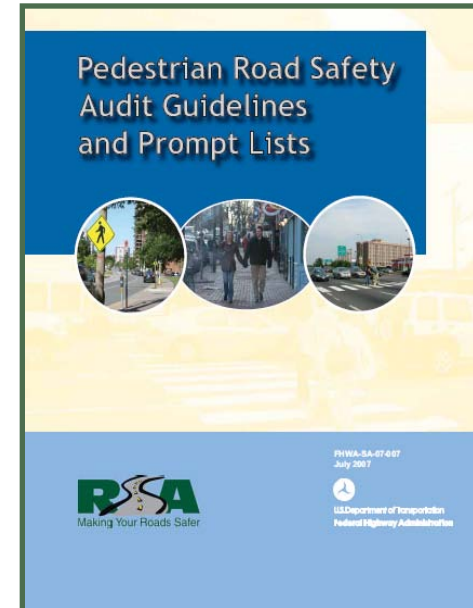
A pedestrian road safety audit is a <u>formal safety performance</u> examination of an existing or future road or intersection from a pedestrian perspective by an <u>independent audit team</u>.

High Incidence Areas: Strategy Overview

- Targets funding for <u>Engineering</u>, <u>Education</u>, and <u>Enforcement</u> (the 3 Es) where it can have the greatest effect on reducing pedestrian collisions

- The highest rate of pedestrian collisions is 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

Montgomery County High Incidence Areas

1. **Piney Branch Rd**
2. **Wisconsin Ave**
3. **Georgia Ave**
4. **Rockville Pike**
5. **Four Corners**
6. **Reedie Dr**
7. **Randolph Rd**
8. **Connecticut Ave**

High Incidence Areas: Wisconsin Avenue

Background

- Wisconsin Ave **from Montgomery Ave to Leland Ave** in Bethesda CBD
- PRSA conducted in Dec 2008

Observations

- Drivers at fault in most crashes
- Crashes mostly at intersections
- Most crashes involved turning vehicles
- High concentration at Montgomery Ave

Updates

- Countdown Pedestrian Signal Upgrades (5 intersections)
- Pursuing other traffic signal improvements with MDSHA
- MDSHA resurfacing project (Fall 2011)
- Education & Outreach Plan (In Development)
- PRSA Report approved by MDSHA

Countdown Pedestrian Signal Upgrade: Bethesda Ave (2010)

MD 355 Resurfacing Project (2011) MDSHA

Countdown Pedestrian Signal Upgrade: Waverly St (2010)

2005	2006	2007	2008	2009	2010
6	6	10	3	4	3
Pre-Audit Avg = **7.3**				Post- Audit Avg = **3.5**	

High Incidence Areas: Piney Branch Road

Background

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

Observations

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

Updates

- Two sidewalk improvement projects completed
- Lighting upgrades (17 streetlights)
- Two pedestrian crossings with flashers (Under Design)
- MDSHA resurfacing project (Fall 2011)
- PRSA Report approved by MDSHA
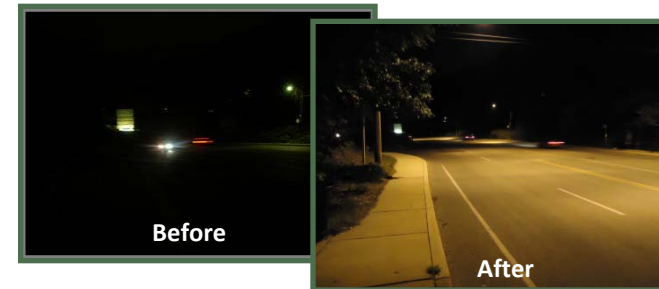- Education & Outreach – Phase II

Countdown Pedestrian Signal
Upgrade at Carroll Ave (2011)
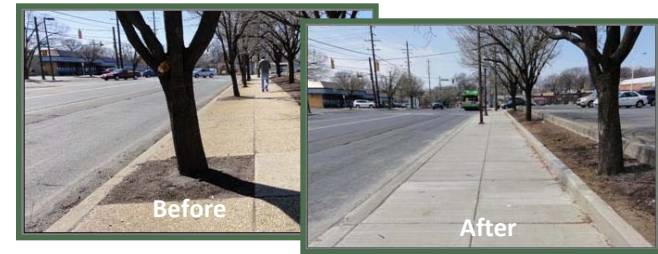
Sidewalk Improvement Projects:
Flower Ave to Greenwood Ave (2010)
Greenwood Ave to Arliss St (2011)

MDSHA Piney Branch Rd & University Blvd
Intersection Improvements (2009)

Lighting Improvements:
University Blvd to PGC Line (2011)

2005	2006	2007	2008	2009	2010
10	10	8	7	8	3
Pre-Audit Avg = **8.8**				Post Audit Avg = **5.5**	

High Incidence Areas: Collisions

High Incidence Area	Date of PRSA	Number of Pedestrian Collisions						TOTAL
		2005	2006	2007	2008	2009	2010	
Piney Branch	**Oct 2008**	10	10	8	7	8	3	46
Wisconsin Ave	**Dec 2008**	6	6	10	3	4	3	32
Georgia Ave	**Mar 2009**	4	7	5	7	10	4	37
Rockville Pike	**June 2009**	11	4	3	9	8	2	37
Four Corners	**Jan 2010**	4	4	7	5	0	1	21
Reedie Drive	**Apr 2010**	2	0	3	3	7	2	17
Randolph Road	**Sep 2010**	3	2	1	4	4	1	15
Connecticut Ave	**May 2011**	6	4	5	6	2	2	25
Total		46	37	42	44	43	18	

Year of PRSA Audit

Although there is a documented history of pedestrian crashes, the audits for these HIAs were conducted relatively recently.

Pedestrian Safety Program

- Engineering

- *Education*

- Enforcement

Education: Activities

- **Pedestrian Surveys within HIA's**
  - Piney Branch Road (2009)
  - Four Corners (2011)
  - Wisconsin Avenue (2011)

- **Police Outreach – "Shop with a Cop" Promotes Parking Lot Pedestrian Safety**

- **Street Smart Campaign**

- **Transit Shelter and Bus Advertising**

- **Pedestrian Safety Movie Ads - Innovative Strategies**

- **Variable Message Boards Flash Safety Message**

Education: Outreach Strategies

- **Pedestrian Safety Promotion Teams- Bilingual**

  - Teams Intercept Pedestrians

  - Address Unsafe Behaviors

  - Explain How To Be Safe

- **Coordination with Schools**

  - Involves youth demographic in message development

  - Currently developing Outreach & Education plan with Montgomery Blair H.S.

Education: Innovative Strategies
Curb Markings with Pedestrian Safety Warnings

- State endorsement for experimental use
- Use pedestrian safety promotion teams
- Coordinated education & enforcement
- Record measurable results

Pedestrian Safety Program

- Engineering

- Education

- *Enforcement*

Enforcement: Pedestrian Crash Totals

	2005	2006	2007	2008	2009	2010	2011
January	36	31	32	48	34	34	28
February	28	28	33	30	37	39	27
March	37	28	34	37	31	33	38
April	26	25	35	34	28	33	36
May	27	36	34	47	46	33	28
June	41	33	29	24	41	33	17
Jan-Jun Subtotal	195	181	197	220	217	205	174
July	24	29	20	37	36	33	
August	28	37	26	36	32	26	
September	39	39	38	35	30	41	NA
October	48	42	37	31	41	44	
November	48	49	60	38	46	43	
December	52	52	34	47	52	44	
Total Collisions	434	429	412	444	454	436	174
Per 100,000	46.7	45.9	43.8	46.6	46.8	44.9	NA
% Level 4 & 5 (serious	30%	33%	29%	26%	29%	26%	24%
Total Fatalities	10	18	17	19	14	13	4
Per 100,000	1.1	1.9	1.8	2.0	1.4	1.3	NA

Source: Population estimates based on US Census data.

Enforcement: Pedestrian Crash Totals

Percentage of Pedestrian Collisions by Controlling Jurisdiction

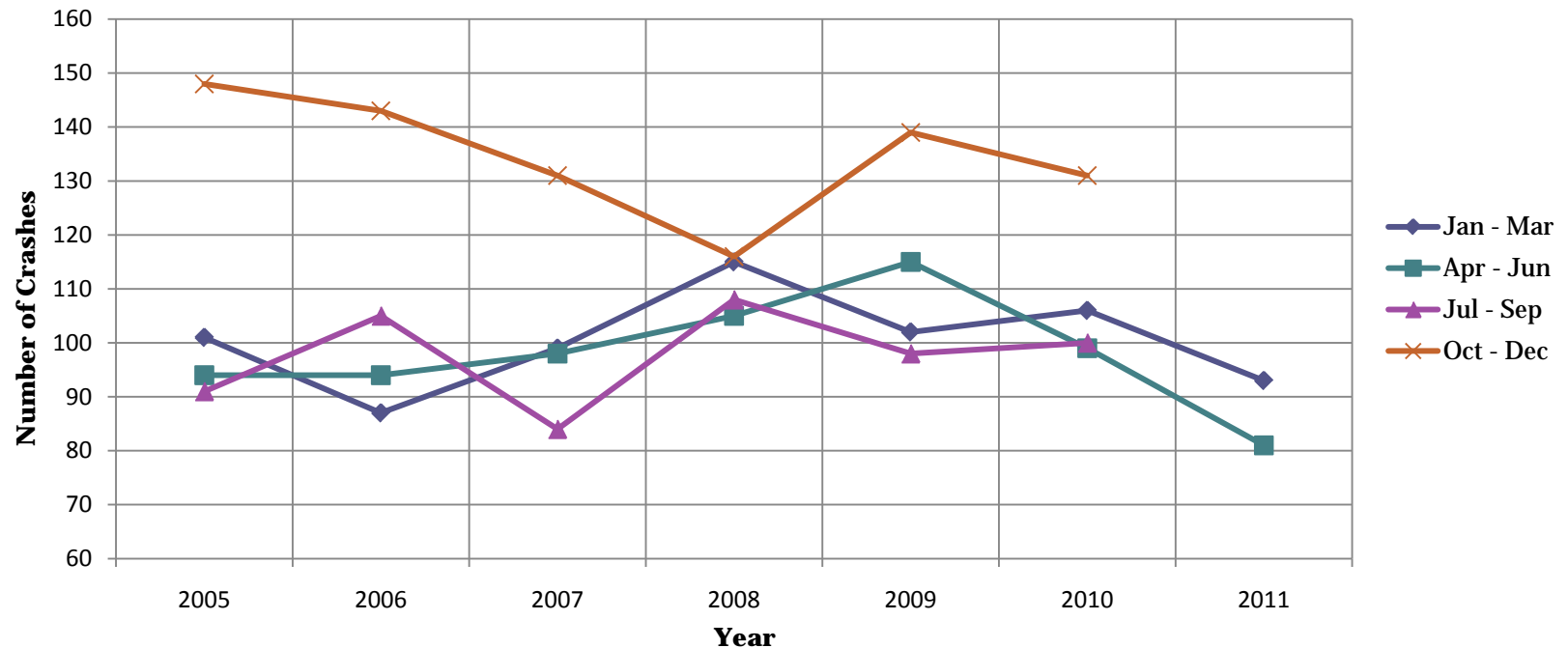Legend: State, County, Parking Lot and Driveway, Municipal
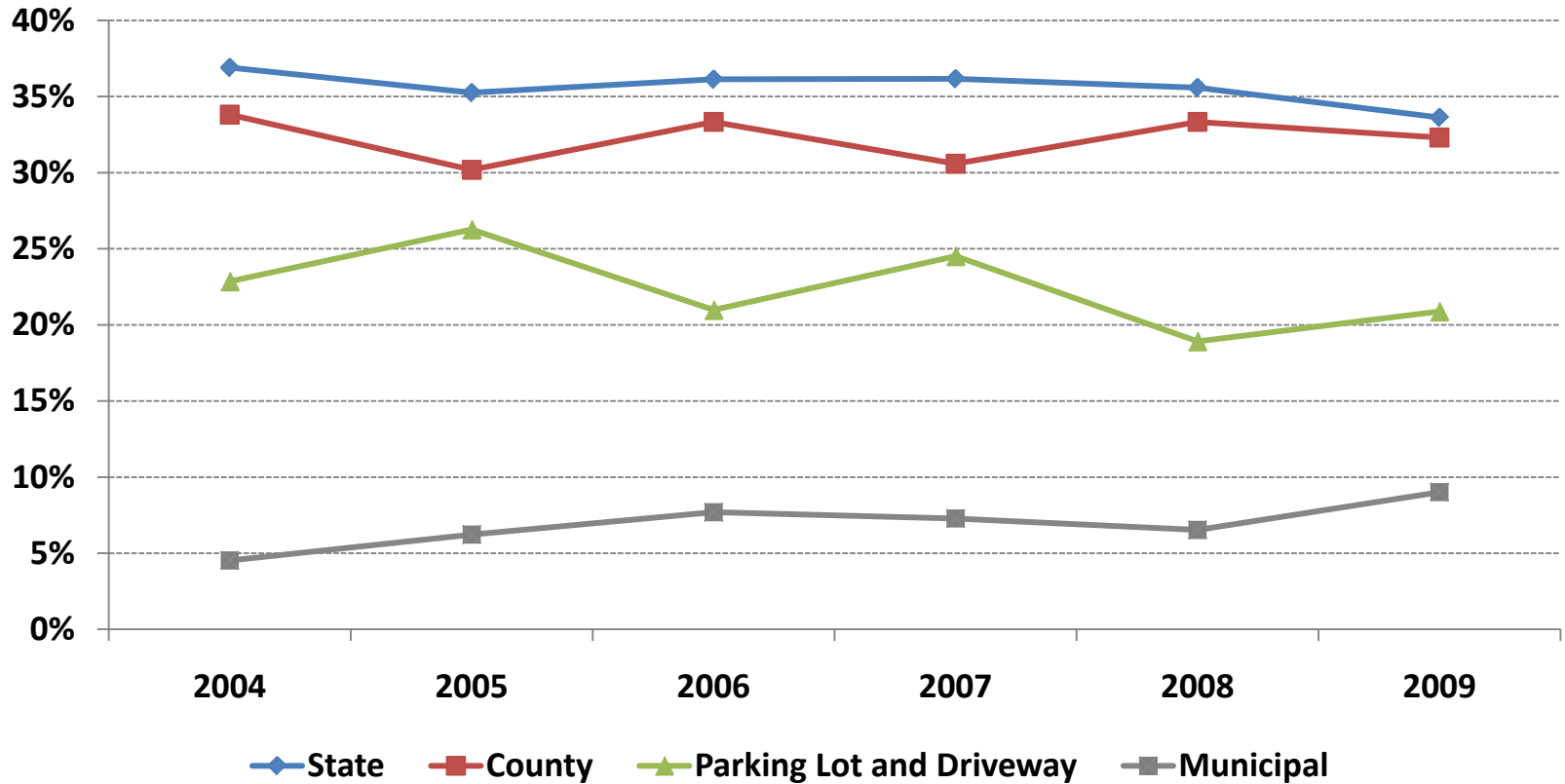
MCPD Observations: The percentage of pedestrian collisions by controlling jurisdictions is consistent over time and location type.

Enforcement: Pedestrian Crash Totals

Pedestrian Crashes by Quarter

The months of October through December consistently have a greater rate of pedestrian crashes. Recent enforcement and education efforts are taking these seasonal patterns into consideration.

Enforcement: High Incidence Areas
Highlights and Recent Developments

- **Pedestrian Safety Enforcement Strategy – Two Phases**

  - **Phase 1:** "Contacts"
  - **Phase 2:** Augment "Contacts" with Citations

- **Pedestrian Safety Enforcement Strategy – Four Elements**

  - Pedestrian Safety Initiative (Street Smart)
  - Rotating Monthly Enforcement
  - Random Enforcement
  - SRTS Enforcement

Pedestrian Safety Initiative Enforcement Statistics (FY11)

Drivers	Oct-Dec	Jan-Mar	Apr-June	Total
Contacts	30	39	47	116
Citations	2	4	5	11
Total Intercepts	32	43	52	127
Pedestrians	Oct-Dec	Jan-Mar	Apr-June	Total
Contacts	476	926	1196	2598
Citations	2	6	3	11
Total Intercepts	478	932	1199	2609

While enforcement occurred in previous quarters, documentation of these efforts began in the 2nd quarter of FY11.

After an emphasis on "contacts" with drivers and pedestrians about appropriate behaviors, MCPD is entering the next phase which has a greater emphasis on citations (active enforcement) as part of a new Team-Based, Zero Tolerance strategy.

Summary

- **Declining** pedestrian collisions, fatalities, and accident severity

- **Targeted resources** – engineering, education, & enforcement – producing results in specific locations

- **Close collaboration** with State resulting in leveraged investments

- **Better analysis** helping to facilitate data-driven decision making

- **Multi-agency team** contributes to success and momentum

Questions