Pedestrian Safety

Initiative Meeting #3

October 21, 2008

CountyStat

CountyStat Principles

- Require Data Driven Performance
- Promote Strategic Governance
- Increase Government Transparency
- Foster a Culture of Accountability

Agenda

- **Introductions**
- **Follow-up items from April 18, 2008 meeting**
- **High Incidence Areas**
- **Patterns within pedestrian collisions**
  - Collisions 2004-2008
  - Collisions near schools and bus stops
  - Collisions by feature: alcohol, seniors, etc.
- **Wrap-up**

Follow-Up Items from April 18, 2008

- **Include MCFRS, Tom Street, and the Regional Service Center Directors in the Pedestrian Safety Steering Committee**

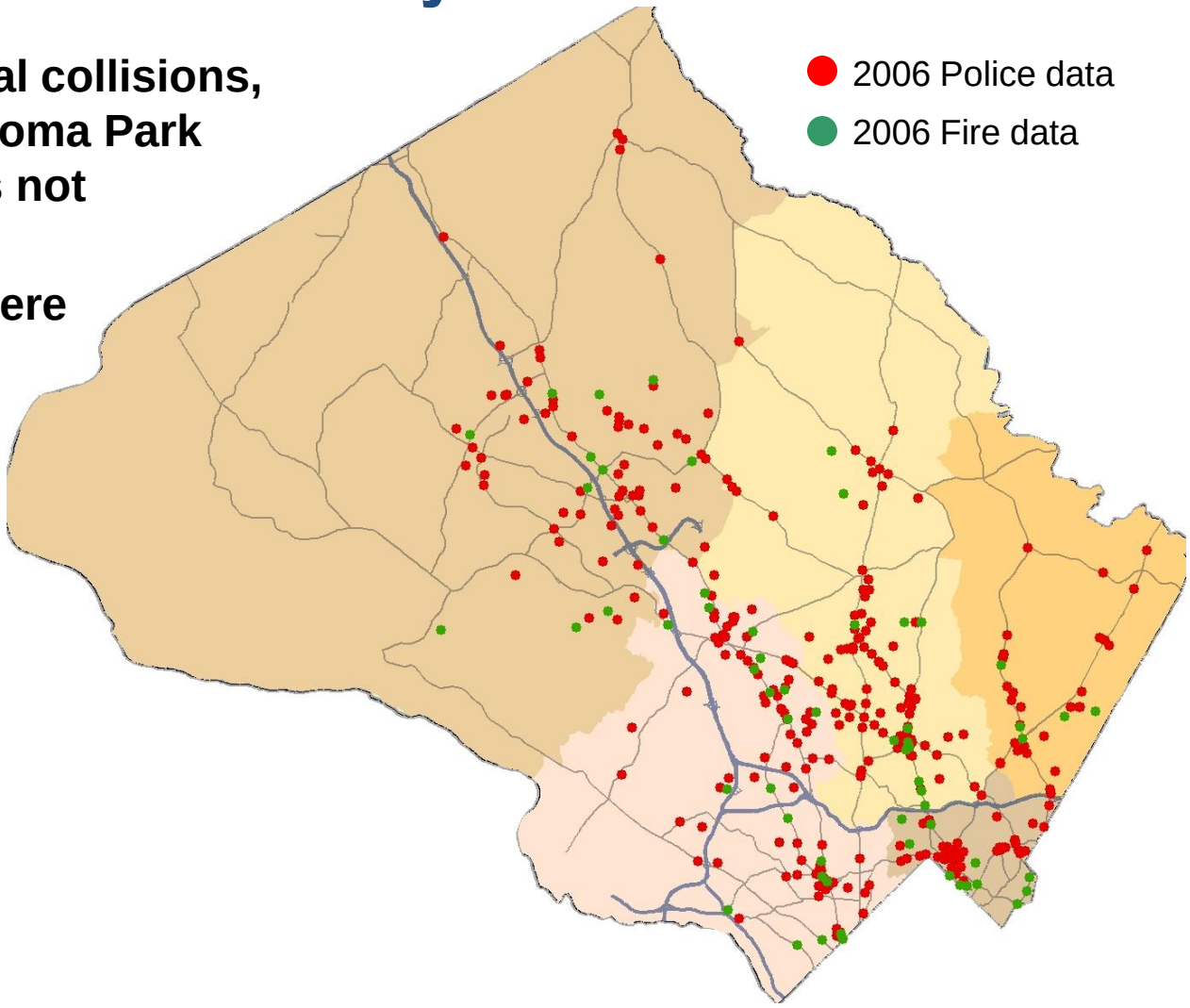
Complete

- **Reconcile MCPD and MCFRS pedestrian collision data and compare high incidence areas identified using MCPD data only to areas identified using both MCPD and MCFRS data**
  - Review of 2006 MCFRS data found 66 pedestrian collisions that were not included in MCPD data
  - Initial high incidence areas would not have changed with the inclusion of this data
  - Recommend not including MCFRS data on a regular basis at this point

Complete

Follow-Up Items from April 18, 2008: Additional Collisions Identified by MCFRS

- **Of the 66 additional collisions, only 6 were in Takoma Park where MCPD does not respond at all**
- **Other collisions were scattered and did not form additional high incidence areas**



Follow-Up Items from April 18, 2008

- **Develop a process and timeline for implementation, monitoring, and reporting of pedestrian safety strategies in high incident areas.**
  - Pedestrian Safety Action Plan covers all proposed strategies of the Pedestrian Safety Initiative
  - Developed in collaboration with implementing agencies
  - Reviewed with Steering Committee
  - For each strategy - identifies components and activities
  - Identifies performance measures
  - Identifies budget requirements: CIP, operating, and grants
  - Correlates to coordination report – tracking progress

Complete

High Incidence Areas

First Location: Piney Branch Road from Flower Avenue to the County Line

- Selected using Police data and CountyStat GIS-based analysis tool

Activities to date:

- National recognized expert contracted to conduct audit
- Audit team selected
- Base-line traffic, crash, geometric data collected
- Community input meeting conducted

Next steps:

- Audit scheduled for week of October 20th
- Develop report and recommendations

High Incidence Areas

Next Steps (cont.)

- **Program and implement audit recommendations**

- **Select next high incidence area and conduct pedestrian road safety audit**
  - Wisconsin Avenue from Montgomery Lane to Elm Street
  - Georgia Avenue from Thayer Avenue to Spring Street
  - Georgia Avenue from Arcola Avenue to Glenallan Avenue
  - Select next location incorporating 2008 crash data

High Incidence Areas

- **Measures will be collected before and after treatment**
  - Vehicular speed (85th percentile)
  - Traffic counts (base road and alternates)
  - Number of pedestrians on the street before and after improvements
  - Pedestrian perceptions of safety (survey)
  - Conflict analysis:
    - Percentage drivers yielding to pedestrians in crosswalks
    - Pedestrians utilizing crosswalks
    - Frequency of signal violations
    - Percentage of Pedestrians looking for vehicles before crossing

Patterns in Pedestrian Collisions

- **Distribution in time**
- **Distribution relative to locations**
  - Areas of high density *(done)*
  - Collisions near schools
  - Collisions near public transportation
- **Distribution of collision features**
  - Collisions that involved alcohol
  - Collisions that involved senior citizens
  - Collisions by pedestrian location
  - Collisions by party at fault
  - Collisions where dark clothing was a contributing factor
  - Collisions that involved juveniles
  - Collisions at night with no street lights

Pedestrian Collisions 2004 - 2008

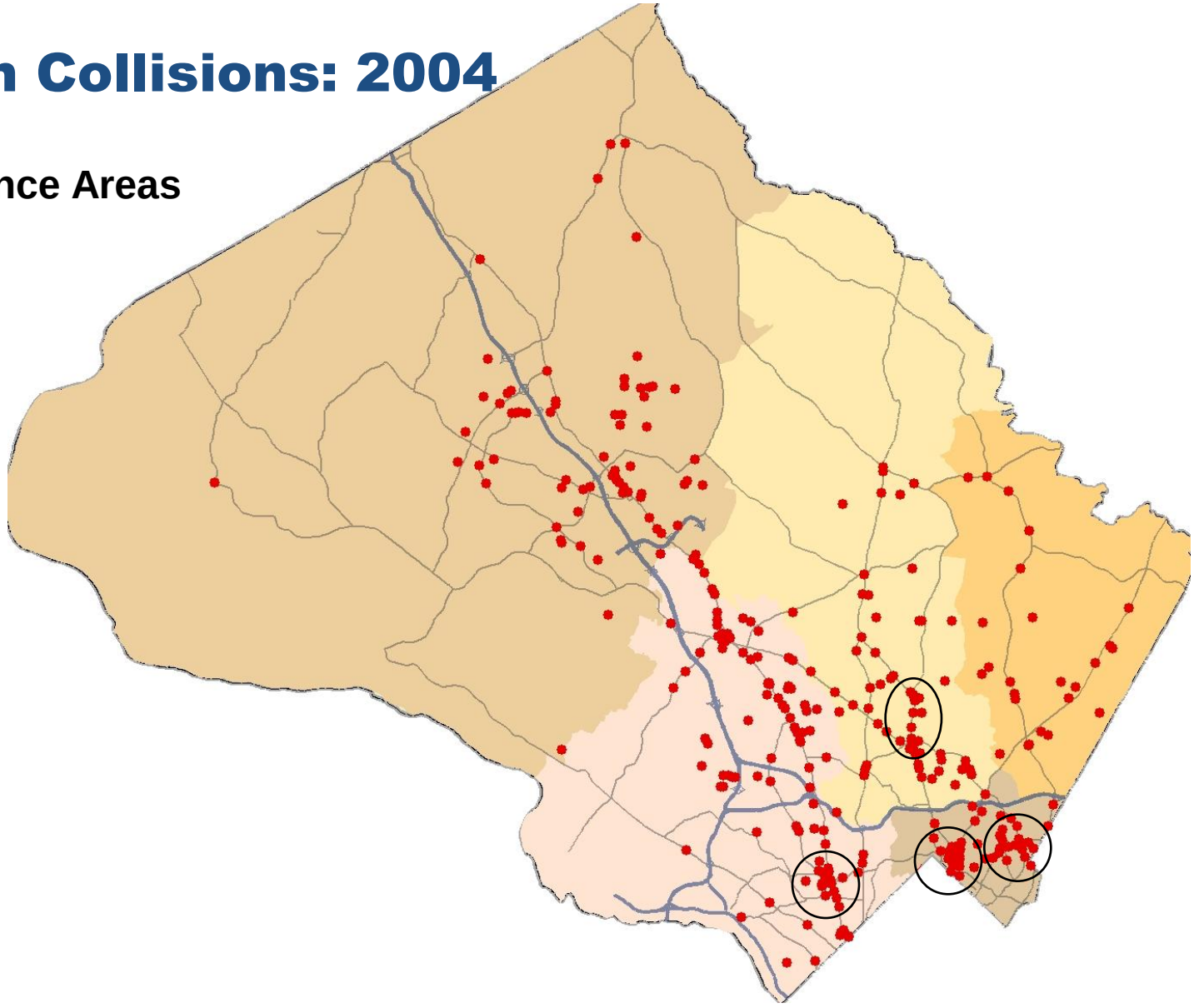
	2004	2005	2006	2007	2008
January	21	36	31	32	46
February	30	28	28	33	30
March	36	37	28	34	36
April	32	26	25	35	32
May	39	27	36	34	13
June	33	41	33	29	
July	33	24	29	20	
August	24	28	37	26	
September	31	39	39	38	
October	46	48	42	37	
November	52	48	49	60	
December	43	52	52	34	
Grand Total	420	434	429	412	157

- **Data comes from MCPD traffic collisions database**
- **Only January and February data is complete** (as of 9/30/2008)
- **Collisions January-April 2008 are higher than the averages for those months 2004-2007.**

Data source: MCPD traffic database

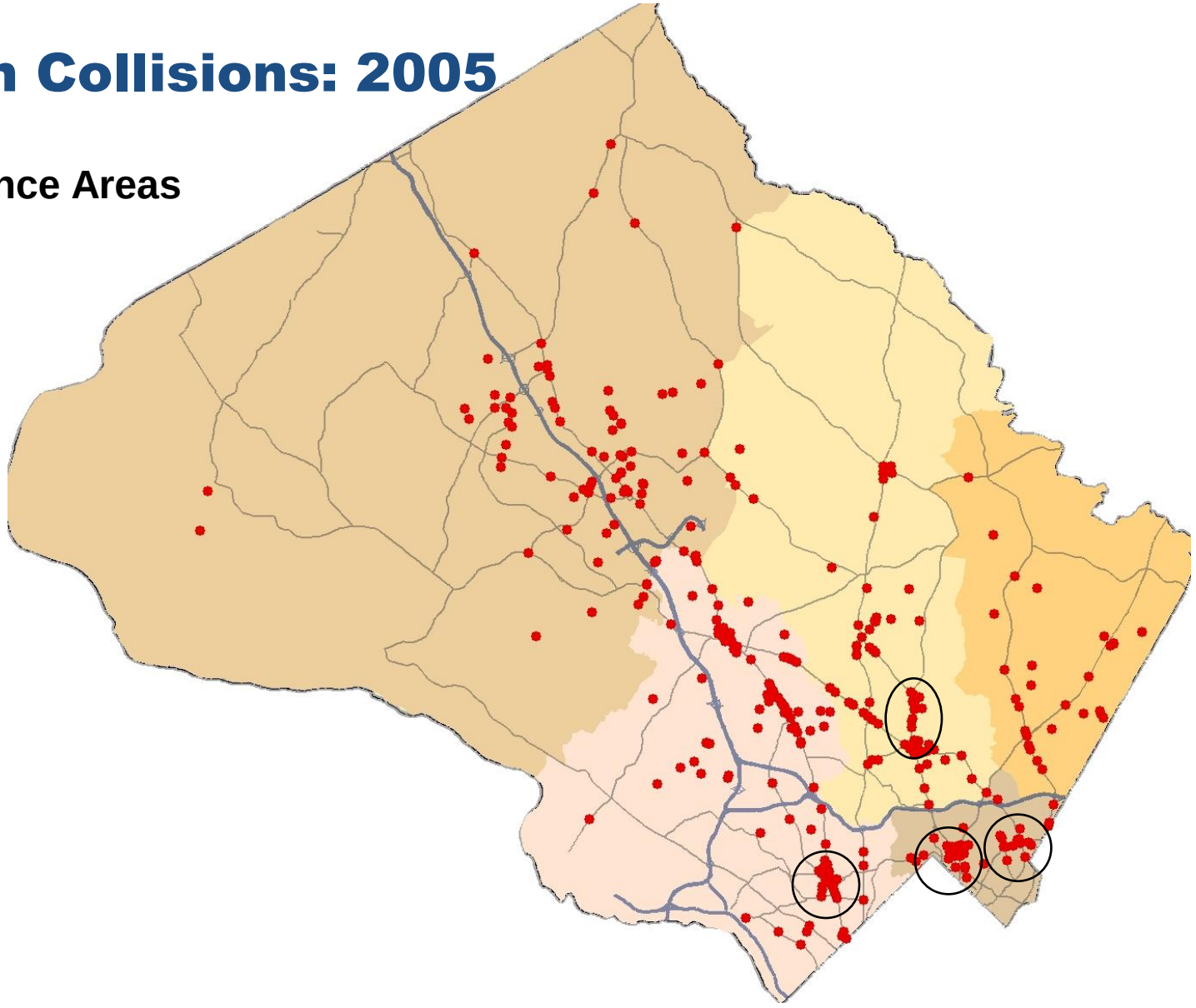
Pedestrian Collisions: 2004

- **High Incidence Areas are circled**



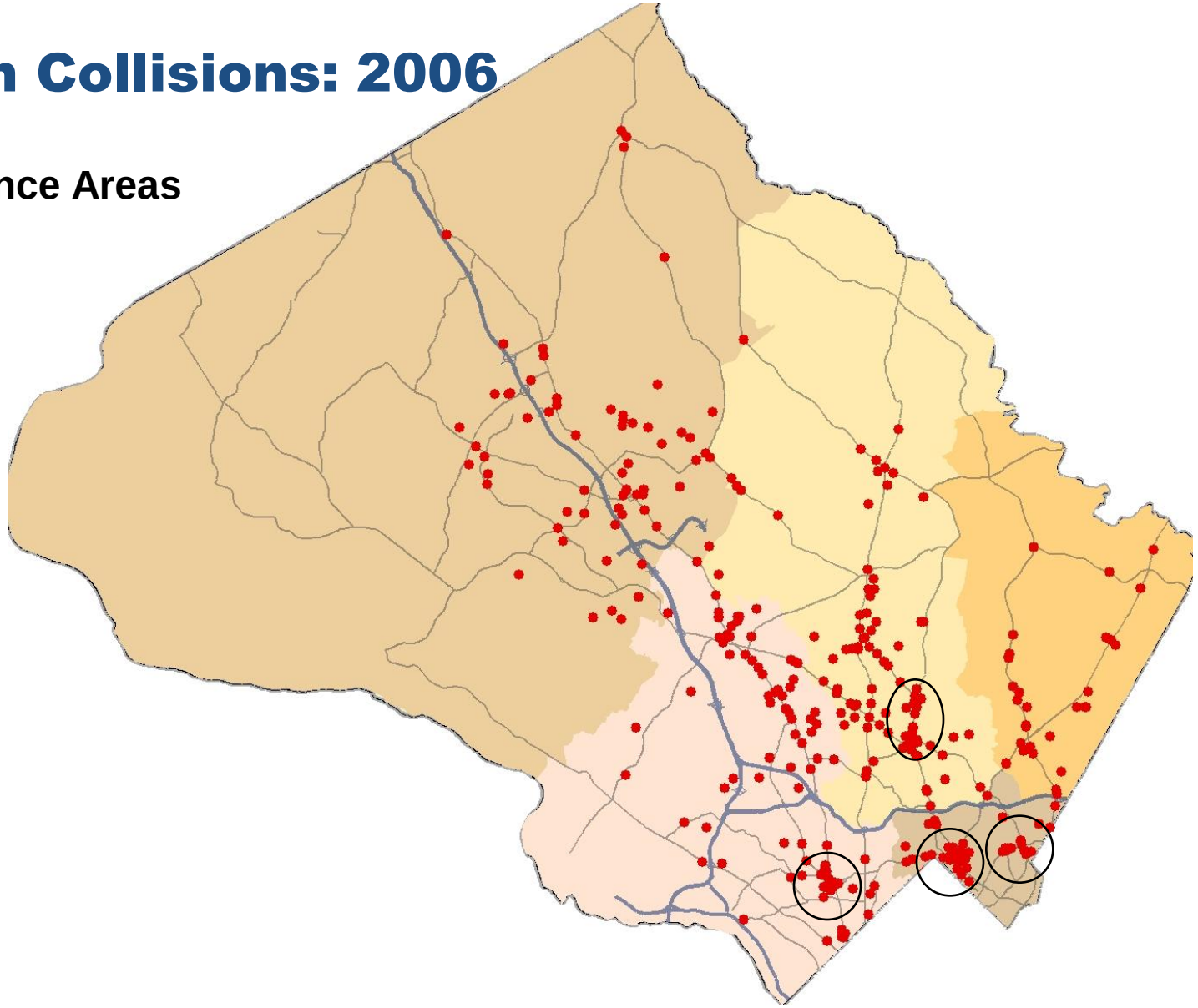
Pedestrian Collisions: 2005

- **High Incidence Areas are circled**



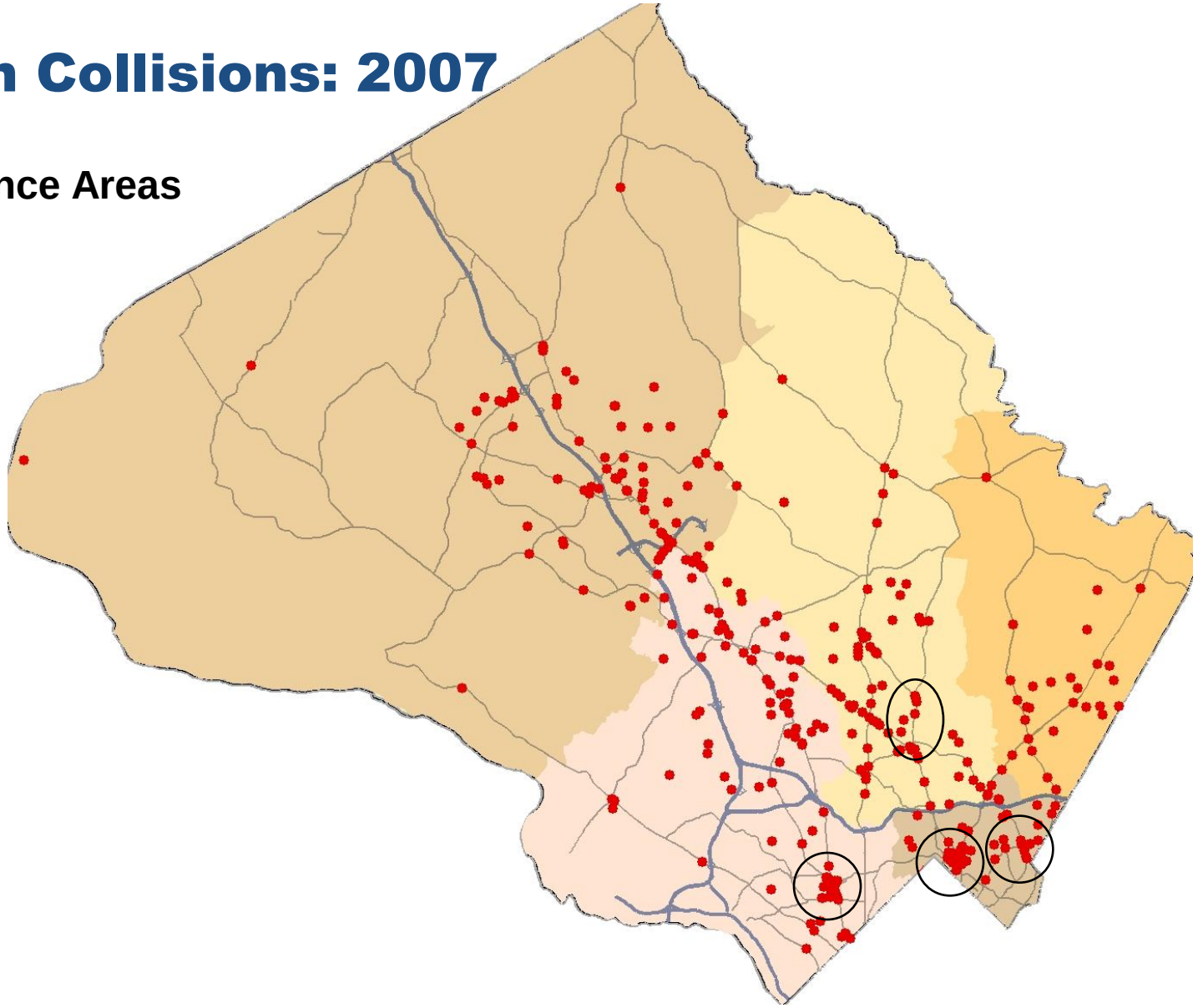
Pedestrian Collisions: 2006

- **High Incidence Areas are circled**



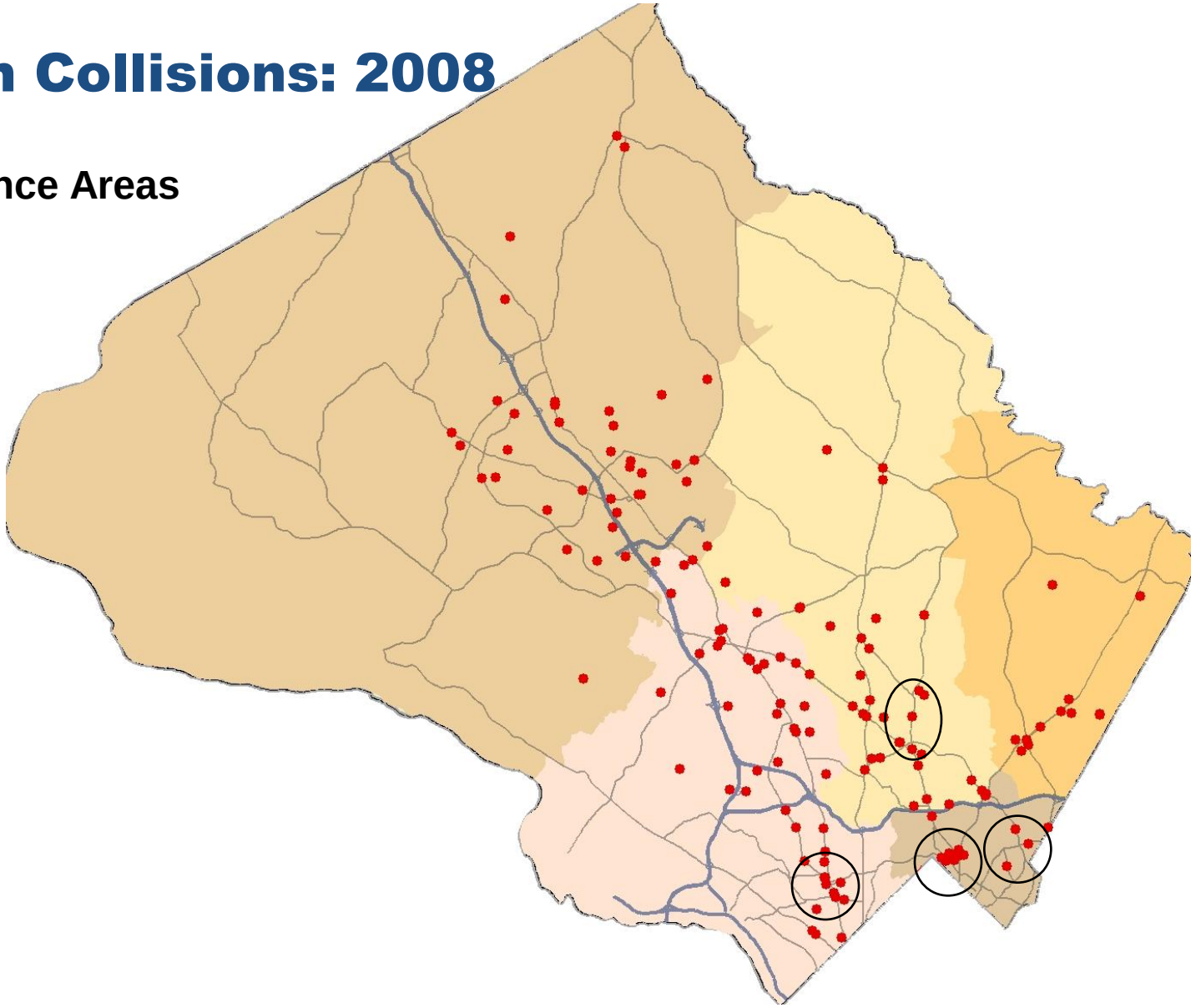
Pedestrian Collisions: 2007

- **High Incidence Areas are circled**



Pedestrian Collisions: 2008

- **High Incidence Areas are circled**



Patterns in Pedestrian Collisions: Collisions Near Schools

- **Shown are collisions within ¼ mile of a public school**
- **Most juveniles are involved in collisions away from schools**
  - Of the 413 collisions that involved juveniles as pedestrians from 2004-2008, 108 (26%) occurred within ¼ mile of a school
  - Of the 91 collisions that involved juveniles as drivers from 2004-2008, 18 (20%) occurred within ¼ mile of a school
- **102 of 193 public schools (53%) had at least one collision within ¼ mile of the school**

	2004	2005	2006	2007	2008	Total
# collisions near schools	**71**	**79**	**60**	**74**	**30**	**314**
# where a juvenile was a pedestrian	17	27	20	36	8	108
# where a juvenile was a driver	5	5	3	5	0	18
% collisions near schools	**17%**	**18%**	**14%**	**18%**	**19%**	**17%**

Patterns in Pedestrian Collisions: Collisions Near Schools

- **The ¼ mile around New Hampshire Estates ES includes the intersection of University Blvd. and Piney Branch Rd. (the first high incidence area being targeted)**

- **There is evidence that the Safe Routes to School (SRTS) program has decreased collisions near schools**
  - Bethesda-CC: 5 before, 3 after
  - Oak View: 5 before, 1 after

Schools with the Highest Number of Collisions, 2004-2008

School Name	# Collisions	SRTS Study
New Hampshire Estates ES	37	No
Bethesda ES	33	No
Blair HS	18	No
Gaithersburg ES	12	No
Stephen Knolls SP	10	No
Argyle MS	8	No
Bethesda-Chevy Chase HS	8	Yes
Sandburg SP	8	No
White Oak MS	8	No
Oak View ES	6	Yes

Patterns in Pedestrian Collisions: Collisions Near Schools

- **Safe Routes to School (SRTS) has focused on elementary and middle schools**
- **20 of 41 schools with SRTS studies had at least one collision 2004-2008 (49%)**
- **For 10 of these 20, CountyStat has collision data for the two years prior to the SRTS study and two years after the study**
  - 8 of 10 schools showed declines in collisions
  - One school had 1 collision in the two years before the study and 1 after
  - One school increased from 0 collisions before the study to 1 after

Schools with the Highest Number of Collisions, 2004-2008

# of Collisions 2004-2008	# Schools	# With SRTS Study	% With SRTS Study
0	91	21	23%
1	46	7	15%
2	20	5	25%
3	12	3	25%
4	6	1	17%
5-9	13	4	31%
10 or more	5	0	0%
Total	**193**	**41**	**21%**

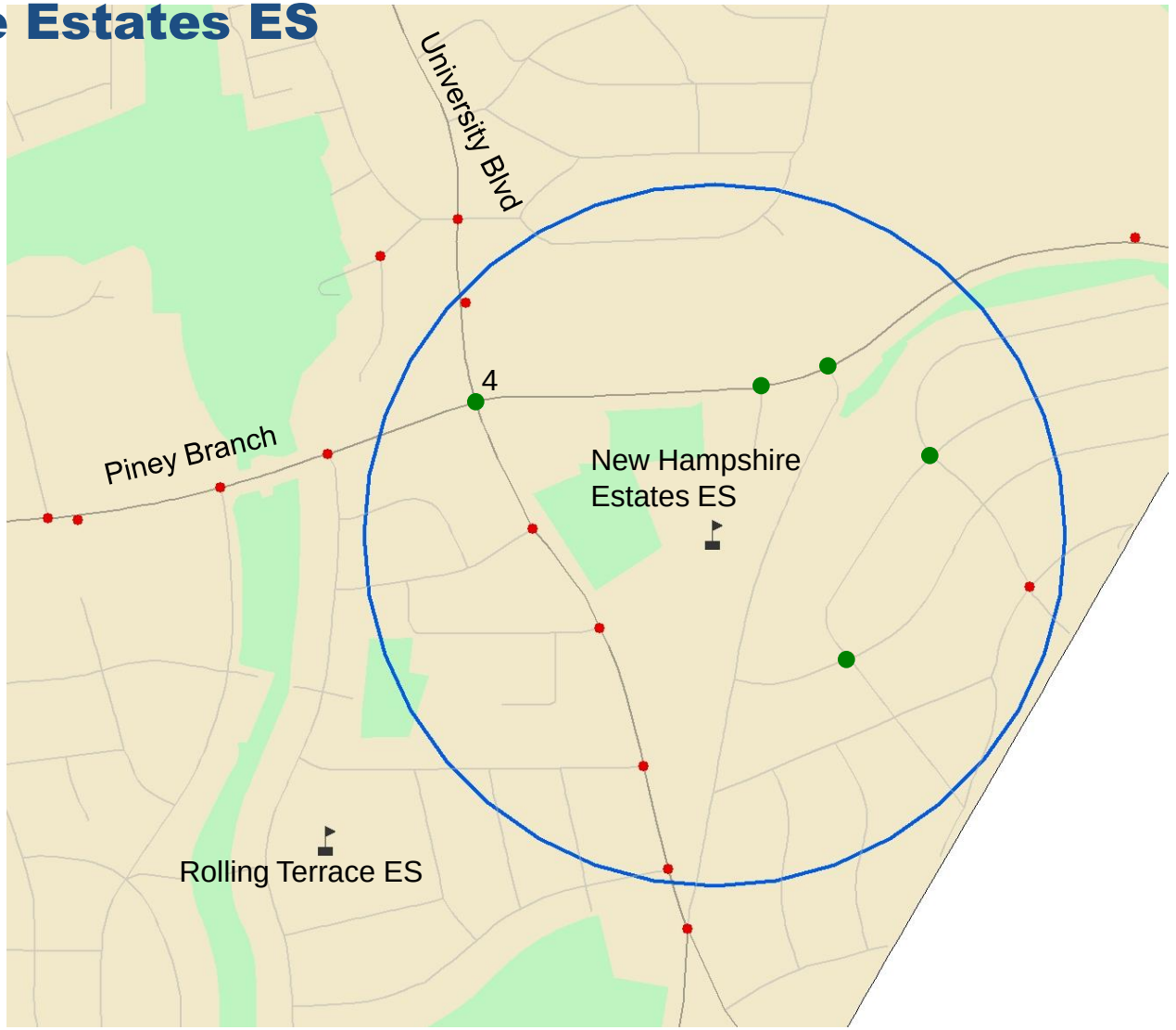
There were 23 pedestrian collisions in the two years prior to SRTS studies.
There were 9 pedestrian collisions in the two years after SRTS studies.

MCDOT current & future activities: Safe Routes to Schools

- On going program within Traffic Engineering division
- $80,000 in annual funding – DOT operating budget
- All middle & elementary schools have received preliminary safety assessments
- 46 schools to date received engineering improvements
- $331,700 in MHSO grant funding being invested this FY
- 11 schools targeted
- SRTS Coordinator just hired
- Example of educational activities: 31 schools participate in Oct “Walk To School Day”
- $229,500 in additional MHSO funding just obtained
- 6 more schools targeted

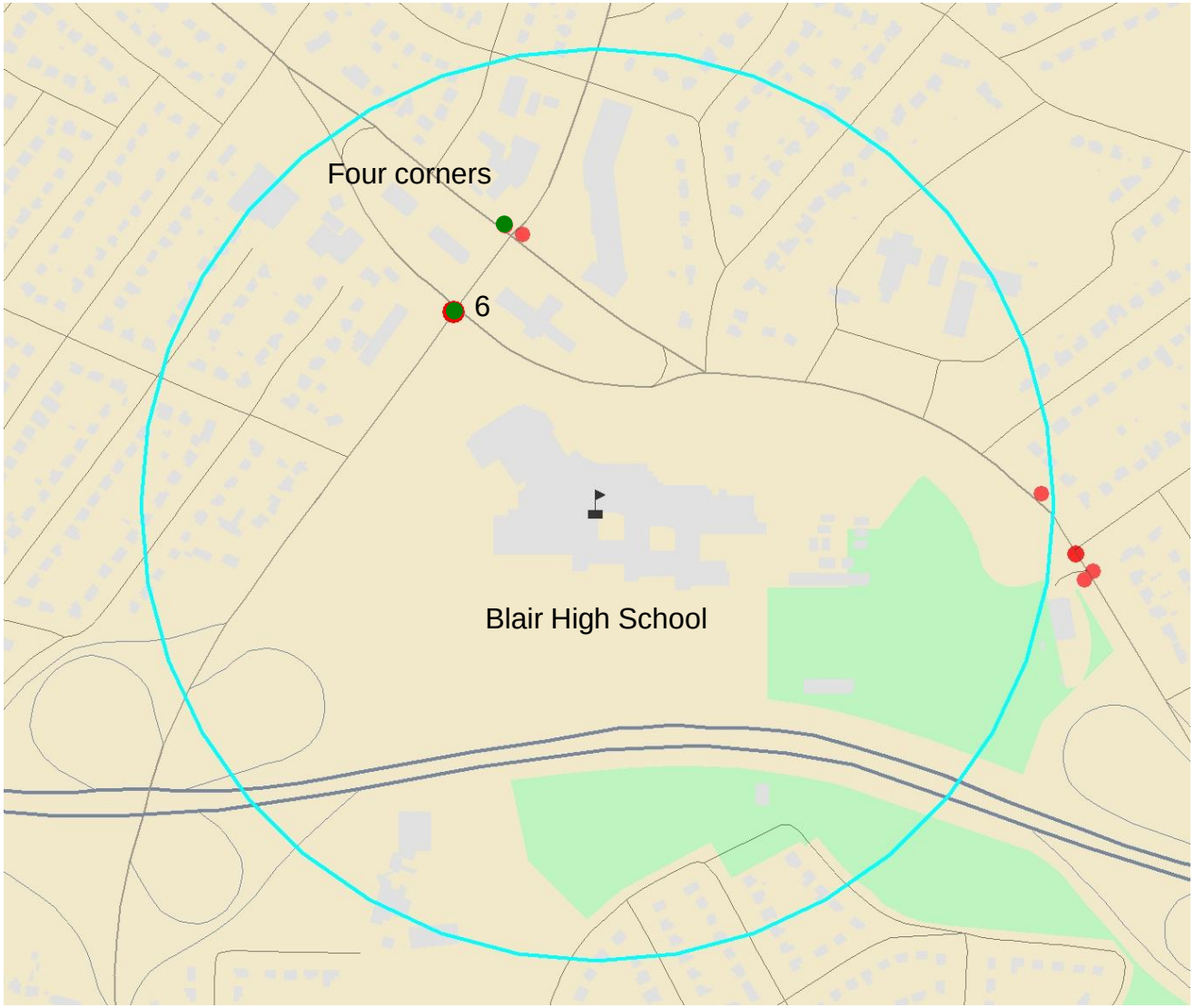
Patterns in Pedestrian Collisions: New Hampshire Estates ES

- **37 collisions 2004-2008**
- **8 juvenile pedestrians**



Patterns in Pedestrian Collisions: Blair HS

- **18 collisions 2004-2008**
- **7 juvenile pedestrians**



Patterns in Pedestrian Collisions: Bethesda ES

- **33 collisions 2004-2008**
- **1 juvenile pedestrian**

Patterns in Pedestrian Collisions: Collisions Near Ride-On Bus Stops

- **Shown are the number of collisions within 200 feet of a bus stop**
  - Also shown are the number of collisions around bus stops that were improved through the Bus Stop Improvement Program (BIP) in either 2006 or 2007
  - Improvements in 2006 did not include traffic calming measures
- **There is a decrease in collisions from the year before treatment (2005) to the year after treatment (2007)**

	2004	2005	2006	2007	2008	Total
# collisions near a bus stop	**280**	**286**	**290**	**267**	**109**	**1,232**
# collisions near 2006 BIP sites (67 sites)	6	9	6	6	3	30
# collisions near 2007 BIP sites (454 sites)	12	24	17	16	8	77
% of collisions near a bus stop	**67%**	**66%**	**68%**	**65%**	**69%**	**67%**

Patterns in Pedestrian Collisions: Collisions That Involved Alcohol

MCPD has conducted saturation patrols in the Bethesda and Silver Spring areas and has occasionally targeted enforcement in Piney Branch Road area and in Wheaton triangle

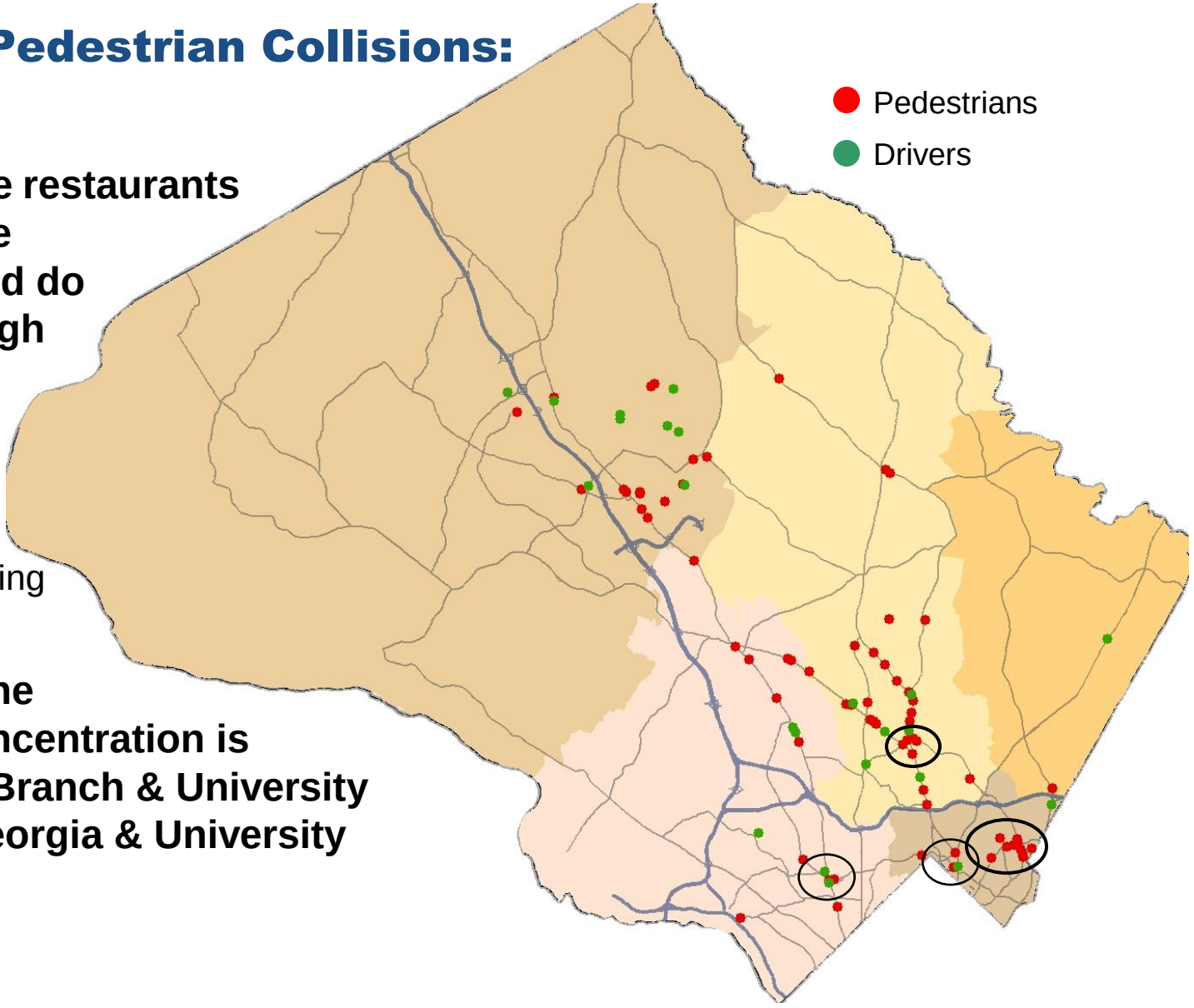
- **These are collisions where alcohol was either detected or was a contributing factor in the collision**
- **Relatively few collisions related to alcohol in Bethesda and Silver Spring**

	2004	2005	2006	2007	2008	Total
# collisions where alcohol detected	**29**	**24**	**35**	**26**	**8**	**122**
# where alcohol detected with ped.	20	21	30	22	8	101
# where alcohol detected with driver	10	5	6	5	0	26
% collisions that involved alcohol	**7%**	**6%**	**8%**	**6%**	**5%**	**7%**

Patterns in Pedestrian Collisions: Alcohol

- **Areas where restaurants and bars are concentrated do not show high collisions involving alcohol**
  - Bethesda
  - Silver Spring

- **Currently, the greatest concentration is near Piney Branch & University and near Georgia & University**



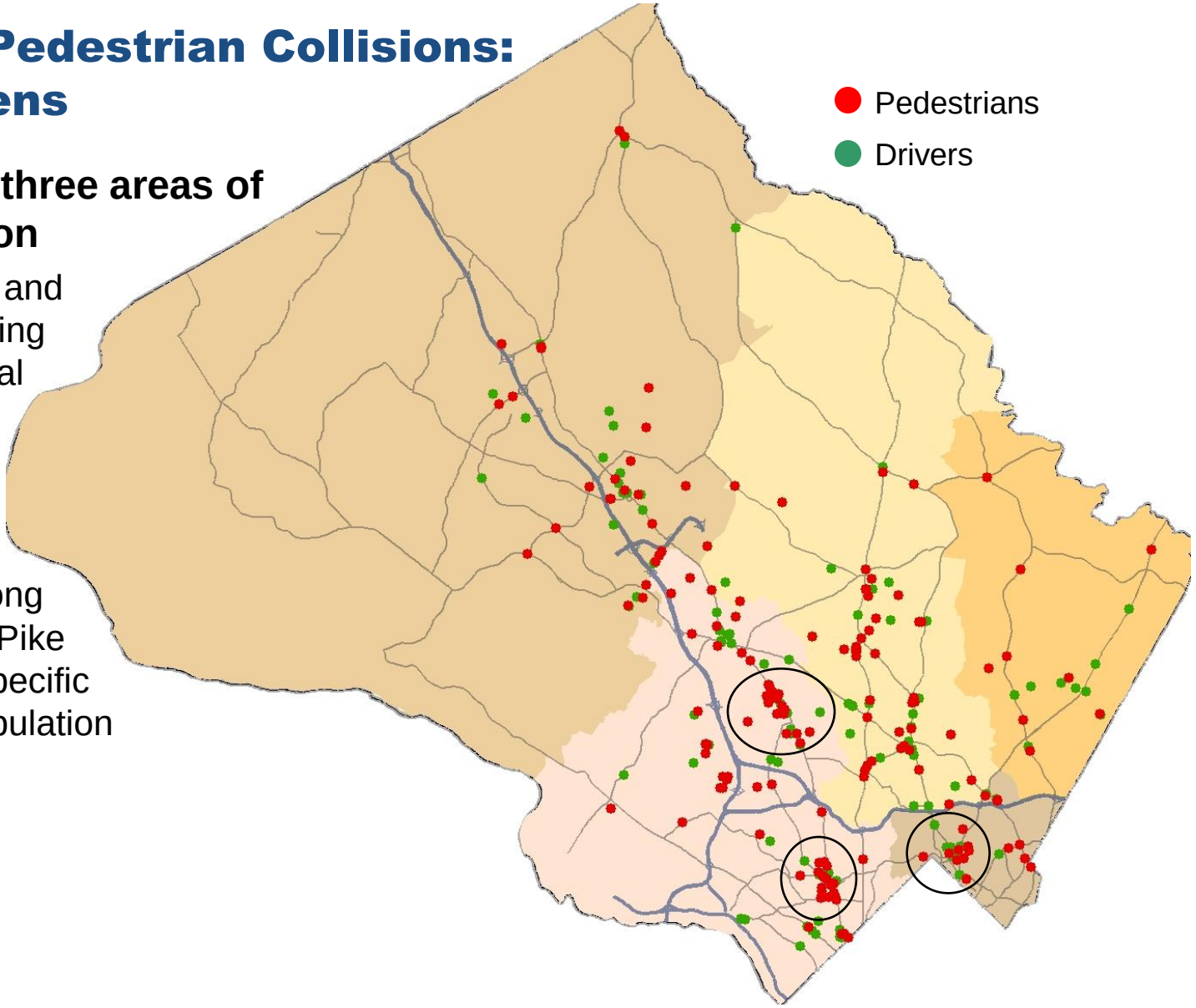
Patterns in Pedestrian Collisions: Collisions That Involved Senior Citizens

- **Seniors are defined as 65 years old or older**
  - Seniors make up about 12.2% of Montgomery County's population according to the Census Bureau's 2007 American Community Survey
- **67 out of the 317 collisions involving seniors (21%) occurred at night**
  - Overall, 34% of collisions occur between sunset and sunrise, so the incidence of night collisions is lower among seniors than among other age groups
  - There are equal numbers of collisions at night involving seniors as pedestrians as there are involving seniors as drivers (38 pedestrians and 36 drivers)

	2004	2005	2006	2007	2008	Total
# collisions that involved seniors	**56**	**90**	**66**	**80**	**25**	**317**
# senior pedestrian	33	51	37	49	14	184
# senior driver	27	53	40	36	14	170
% collisions that involved seniors	**13%**	**21%**	**15%**	**19%**	**16%**	**17%**
% collisions where pedestrian was senior	**8%**	**12%**	**9%**	**12%**	**9%**	**10%**

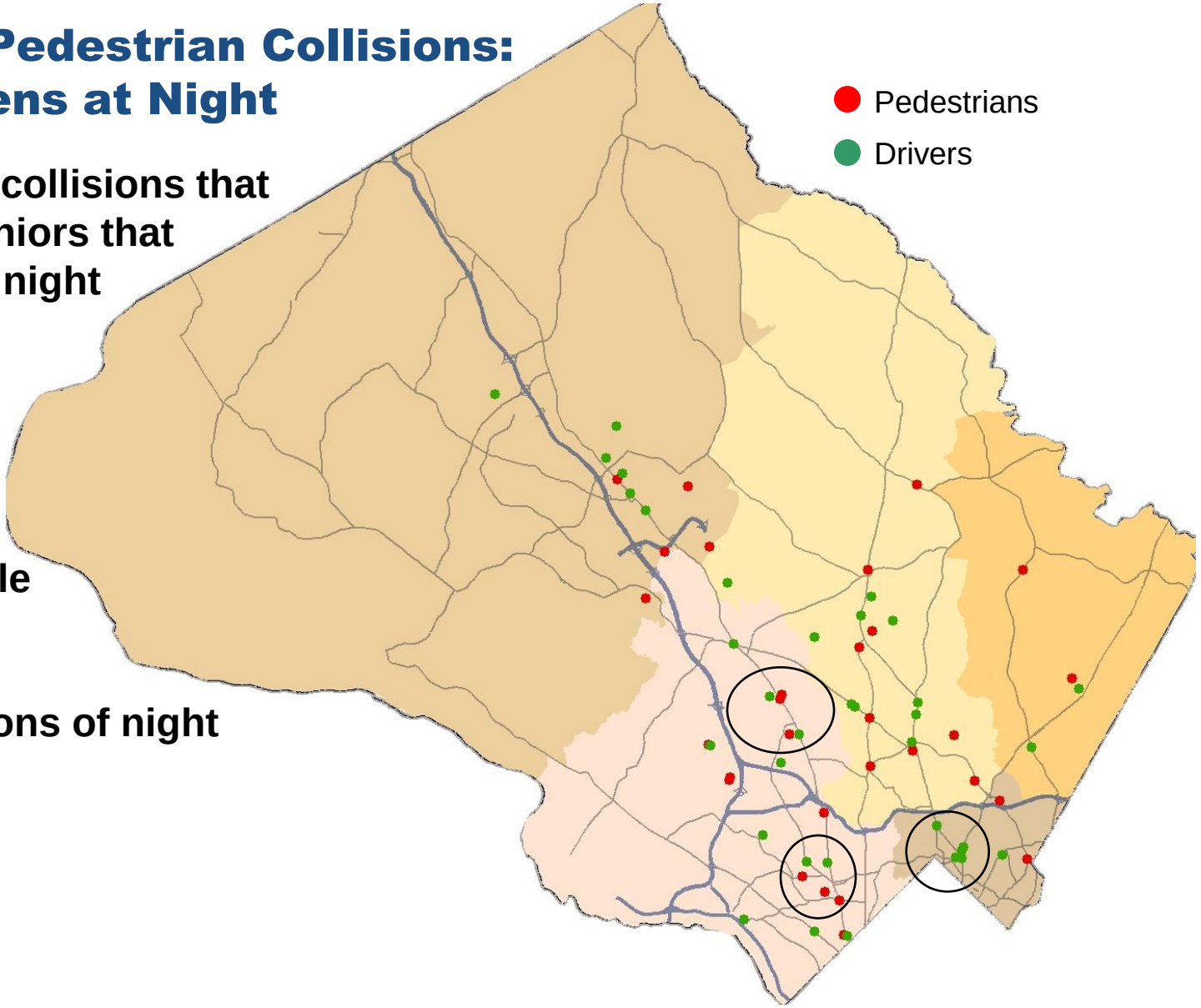
Patterns in Pedestrian Collisions: Senior Citizens

- **Map shows three areas of concentration**
  - Bethesda and Silver Spring are general high incidence areas
  - The area circled along Rockville Pike is more specific to this population



Patterns in Pedestrian Collisions: Senior Citizens at Night

- Map shows collisions that involved seniors that occurred at night (between sunset and sunrise)
- Downtown Bethesda and Rockville Pike do not show high concentrations of night collisions



Patterns in Pedestrian Collisions: Pedestrian Location

- **Pedestrian location as coded within the collision reports**
  - All other locations include: curb, in bikeway, in school bus zone, outside right of way, shoulder, and sidewalk
  - Proportion of reports with location coded as unknown or left blank has increased from 12% in 2004 to 25% so far in 2008

Pedestrian Location	2004	2005	2006	2007	2008	Total
On roadway at crosswalk	117	128	113	113	44	515
On roadway not at crosswalk	189	185	181	152	49	756
All other locations	63	64	51	47	16	241
Blank or unknown	52	57	82	99	40	330
% collisions on roadway not at crosswalk	**45%**	**43%**	**42%**	**37%**	**31%**	**41%**

Patterns in Pedestrian Collisions: Collisions and Fault

- **Party at fault for the collision as recorded in MCPD collision reports**
- **On a County-wide level, there is not an over-arching trend towards either pedestrians or drivers being at fault**

Party at fault was…	2004	2005	2006	2007	2008	Total
Pedestrian	179	169	186	162	57	753
Driver	154	160	159	156	67	696
Both	23	27	11	19	2	82
Neither/unknown	64	78	73	75	31	321
% of collisions where pedestrian at fault	**48%**	**45%**	**46%**	**44%**	**38%**	**45%**
% of collisions where driver at fault	**42%**	**43%**	**40%**	**42%**	**44%**	**42%**

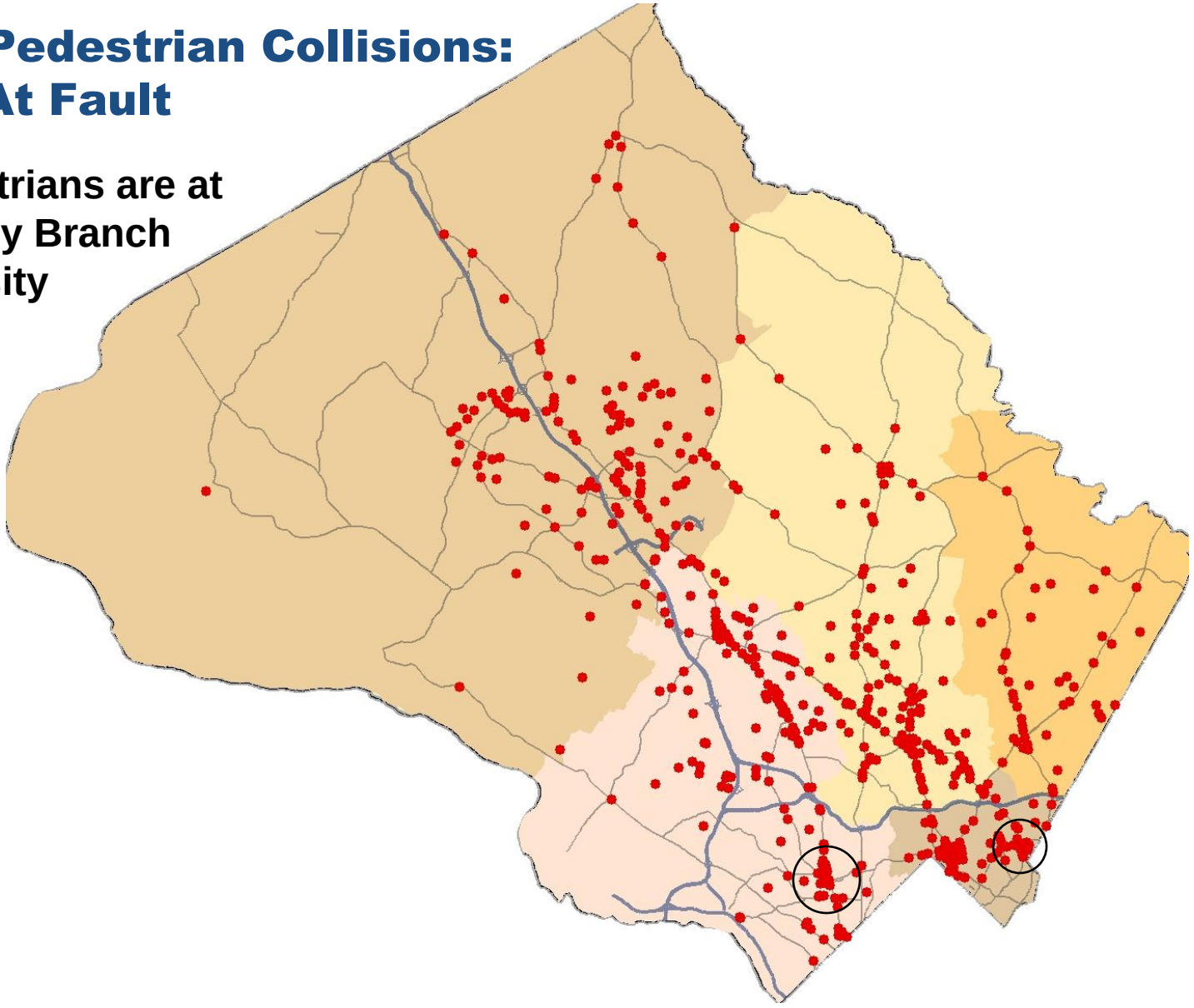
Patterns in Pedestrian Collisions: Pedestrian Location

- At a county-wide scale, maps do not show strong patterns
- A closer examination of collision data does reveal patterns and differences between areas
- At right is a comparison of the two highest-incidence intersection areas showing a clear difference in the crossing behaviors at these locations

	Bethesda (Hampden& Wisconsin)	Piney Branch & University
Location		
In crosswalk	**19**	**4**
Not in crosswalk	**2**	**15**
Movement		
Cross/enter at intersection	**19**	**2**
Cross/enter not at intersection	**1**	**13**
# of Pedestrians		
Involved	**22**	**20**
At fault	**3**	**18**
# of Drivers		
Involved	**21**	**18**
At fault	**17**	**0**

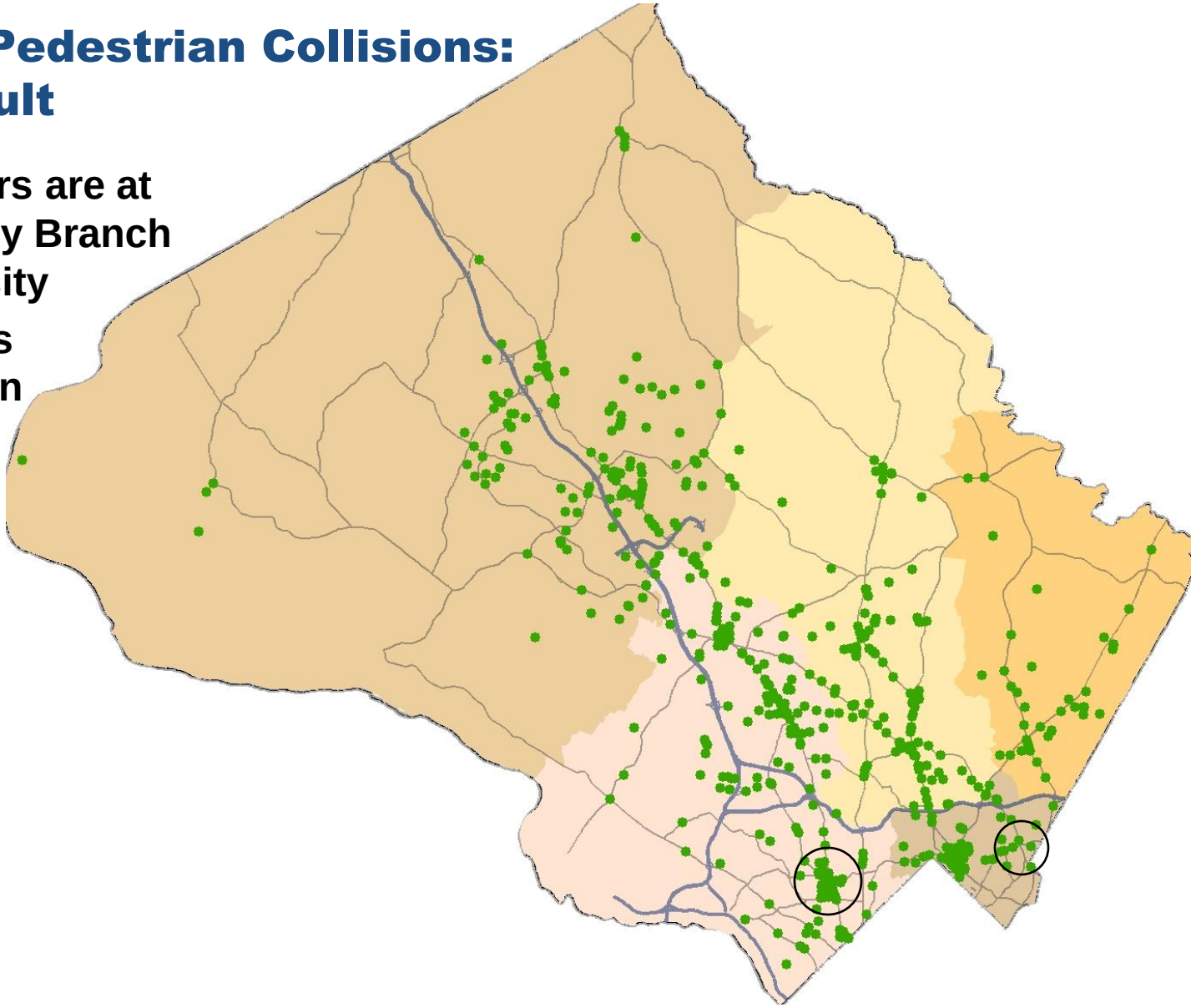
Patterns in Pedestrian Collisions: Pedestrian At Fault

- More pedestrians are at fault at Piney Branch and University
- Fewer pedestrians are at fault in downtown Bethesda



Patterns in Pedestrian Collisions: Driver At Fault

- Fewer drivers are at fault at Piney Branch and University
- More drivers are at fault in downtown Bethesda



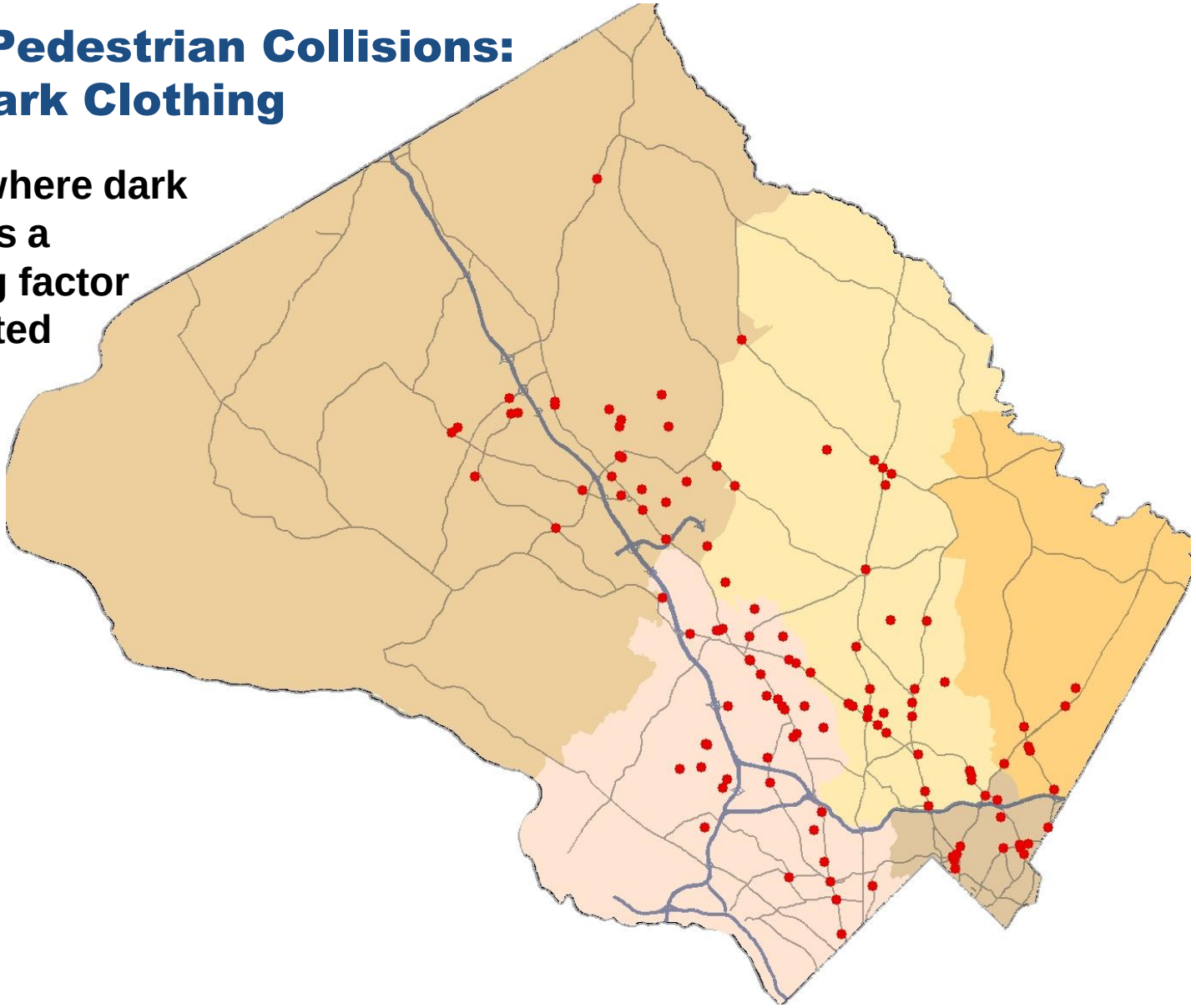
Patterns in Pedestrian Collisions: Collisions Where Dark Clothing was a Contributing Factor

- **These are collisions where wearing dark clothing was listed as a contributing factor in the collision**
  - In all years, there are more collisions in which dark clothing was listed as a contributing factor than collisions in which alcohol was detected
  - DOT is piloting a program in the Rockville Core to distribute reflective materials to pedestrians

	2004	2005	2006	2007	2008	Total
# collisions where dark clothing contributed	**42**	**39**	**50**	**38**	**12**	**181**
# where collision was between sunset and sunrise	33	31	41	35	9	149
# where light conditions were "Dark: no street lights"	5	5	3	9	3	25
% collisions where dark clothing contributed	**8%**	**7%**	**10%**	**8%**	**6%**	**8%**

Patterns in Pedestrian Collisions: Collisions Dark Clothing

- Collisions where dark clothing was a contributing factor are distributed across the County



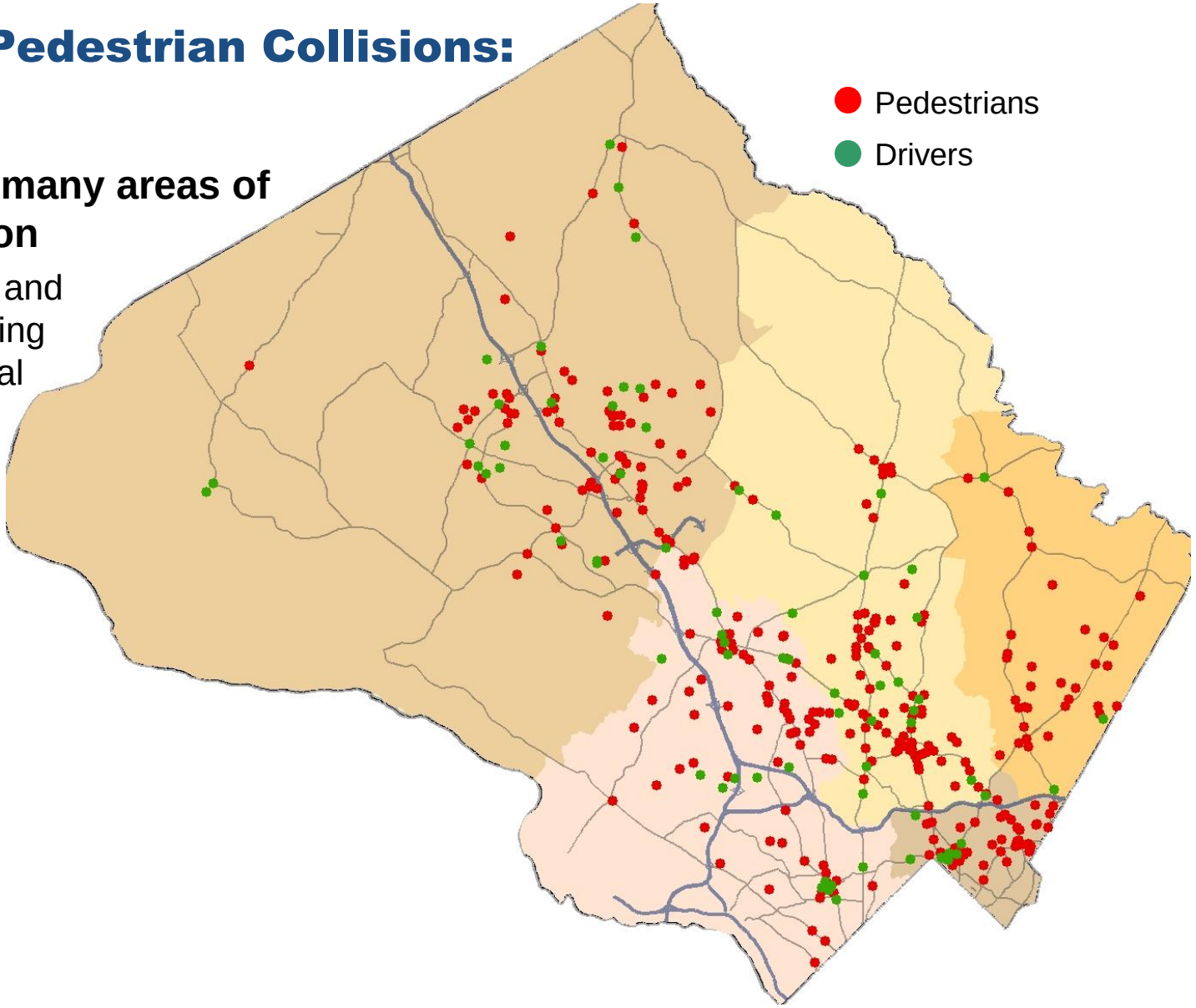
Patterns in Pedestrian Collisions: Collisions That Involved Juveniles

- **Juveniles are defined as 19 years old or younger**

	2004	2005	2006	2007	2008	Total
# collisions that involved juveniles	**79**	**113**	**124**	**115**	**39**	**470**
# where pedestrian was a juvenile	60	101	113	106	33	413
# where driver was a juvenile	29	21	18	16	7	91
% collisions that involved juveniles	**19%**	**26%**	**29%**	**28%**	**25%**	**25%**

Patterns in Pedestrian Collisions: Juveniles

- **Map shows many areas of concentration**
  - Bethesda and Silver Spring are general high incidence areas



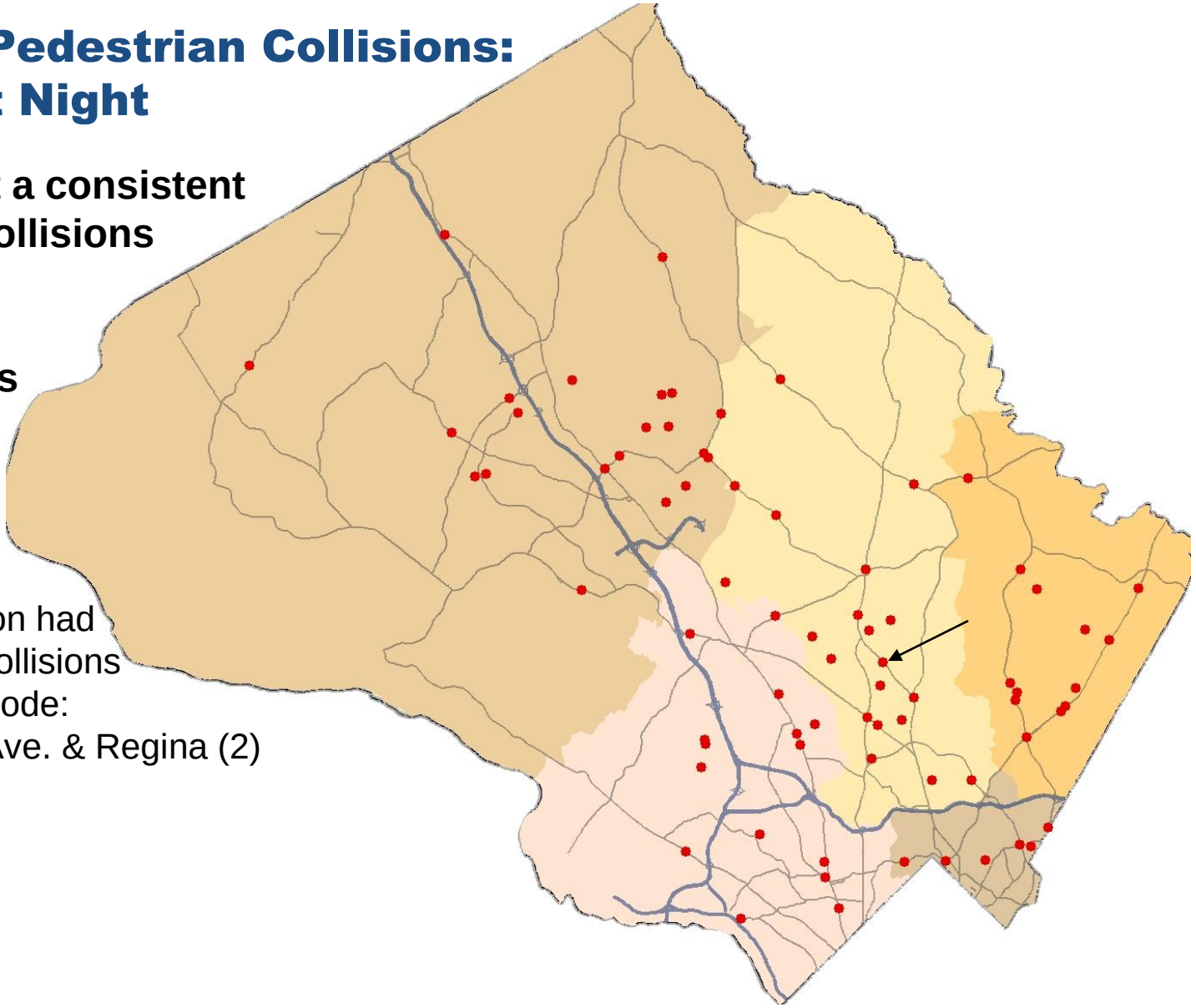
Patterns in Pedestrian Collisions: Collisions at Night

- **These are collisions where police reported light conditions as being "Dark: no street lights"**
- **Department of Transportation has developed rating system to prioritize lighting projects**
  - Still need to identify criteria for when pedestrian safety funding is appropriate

	2004	2005	2006	2007	2008	Total
# collisions with "Dark: no street lights"	19	12	19	24	7	81
% collisions with "Dark: no street lights"	5%	3%	4%	6%	4%	4%

Patterns in Pedestrian Collisions: Collisions at Night

- **There is not a consistent pattern of collisions where light conditions are coded as "Dark: no street lights"**
  - Only one intersection had multiple collisions with this code: Georgia Ave. & Regina (2)



Analytical Limitations

- **Analysis of collisions relative to features such as sidewalks and streetlights cannot be reliably done**
  - Some sections are completely missing in the GIS layers
  - Some characteristics such as sidewalk width have not been captured within the data
- **Pedestrian collision data is not widely available, so it is being used in limited ways**

CountyStat Recommendations

- **Areas with concentrated numbers of collisions are being addressed through the high incidence areas strategy, which should continue.**
- **The Safe Routes to School program appears to be effective in reducing collisions around schools. The next round of schools to participate in the program should include those with a high number of collisions.**
- **The Bus Stop Improvement Program should utilized collision data to guide selection of corridors for improvement and treatments to maximize its impact.**
- **The distribution of alcohol-related collisions and collisions involving seniors show specific areas that should be targeted for treatments aimed at these populations.**

Analysis of pedestrian collisions indicates that there are opportunities to target programs to maximize their effects.

Wrap-up

- **Confirmation of follow-up items**
- **Time frame for next meeting**