

Data Driven Approaches to Crime *and* Traffic Safety

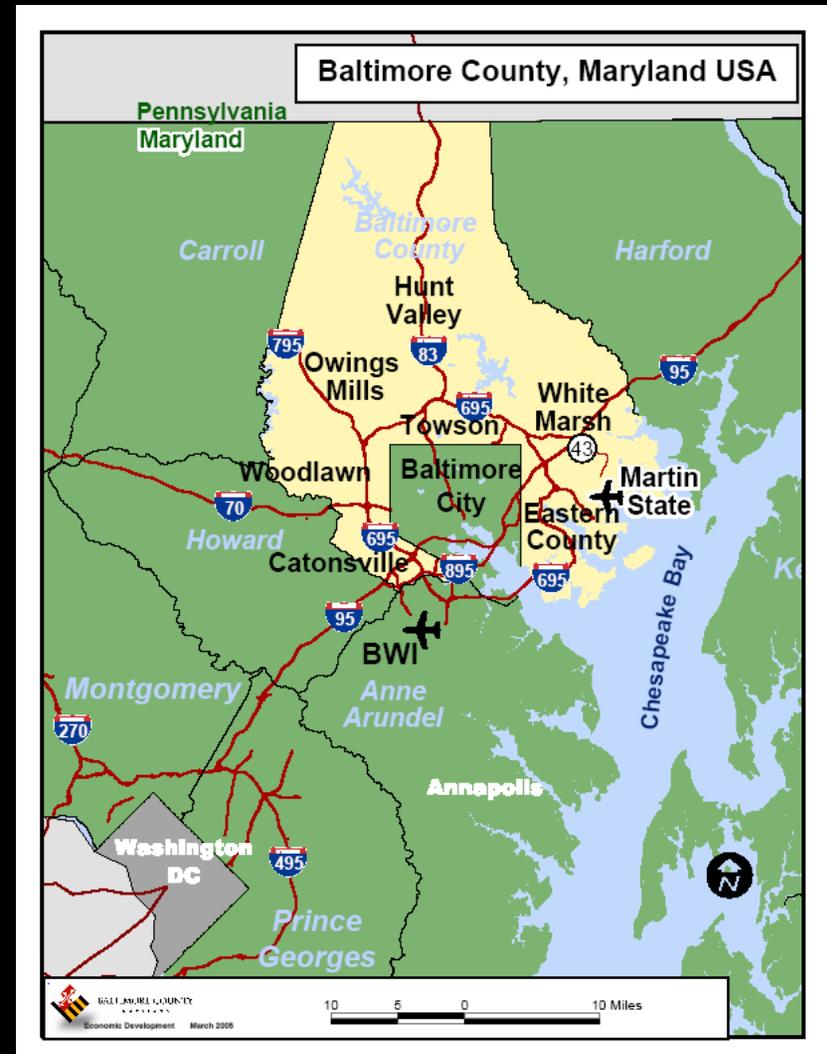


**Baltimore County Police
Department**

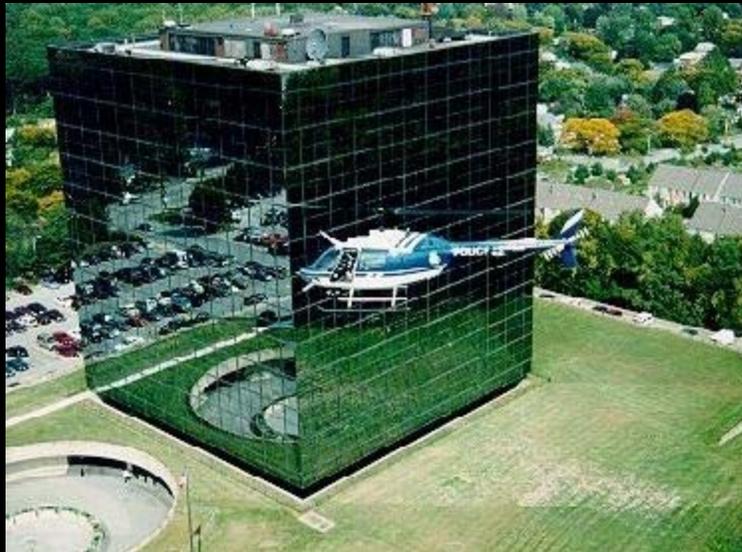
Traffic Safety is Public Safety

Overview of Baltimore County

- Population: 795,000
- Square miles: 610
- Waterfront: 173 miles
- Roads: 3028 miles
- Annual VMT: 8.3 billion

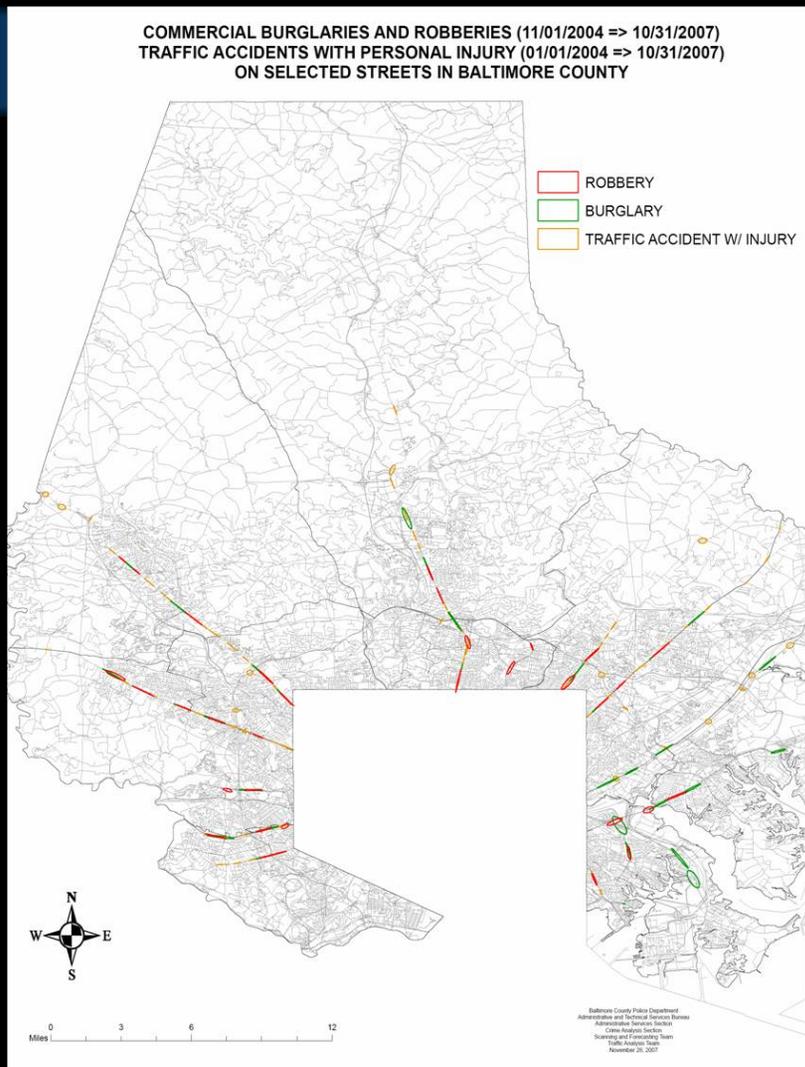


Baltimore County Police Department



- Sworn: 1915
- Total: 2586
- Precincts: 10
- Fatal Crashes: 75
- Reportable crashes: 18,000
- NR crashes: 19,000
- Part I Crime: 16,500
- Part II Crime: 18,700
- CFS: 600,000
- Arrests: 35,000

2008 Crash Crime Project

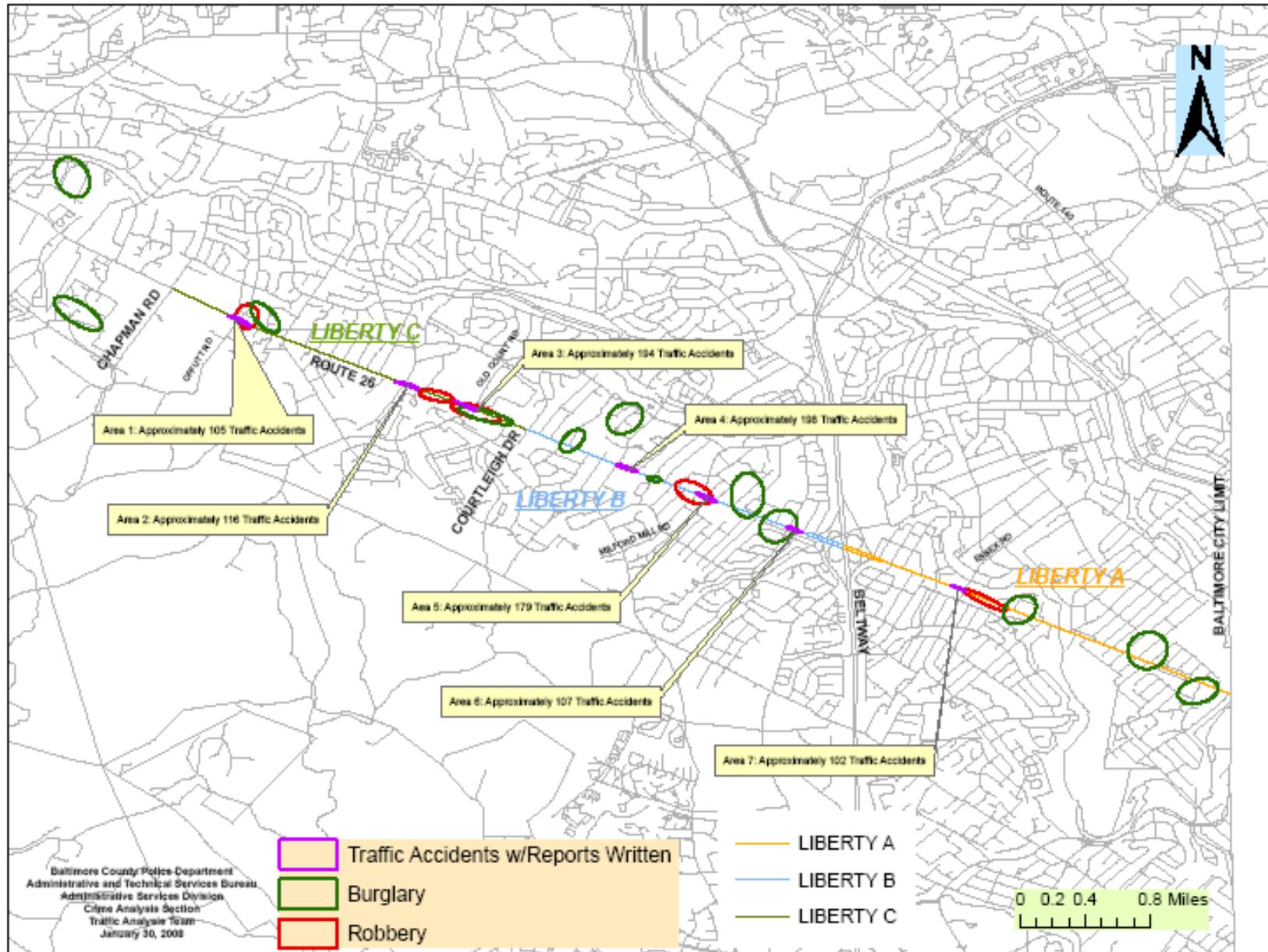


- **BALTIMORE NATIONAL PIKE**
- **LIBERTY ROAD**
- **REISTERSTOWN ROAD**
- **YORK ROAD**
- **BELAIR ROAD**
- **EASTERN BOULEVARD**



MAP 2

**TRAFFIC ACCIDENTS WITH REPORT WRITTEN ON LIBERTY ROAD (01/01/2004 => 11/30/2007)
SHOWING BURGLARIES AND ROBBERIES ON LIBERTY ROAD CORRIDOR (11/01/2004 => 10/31/2007)**



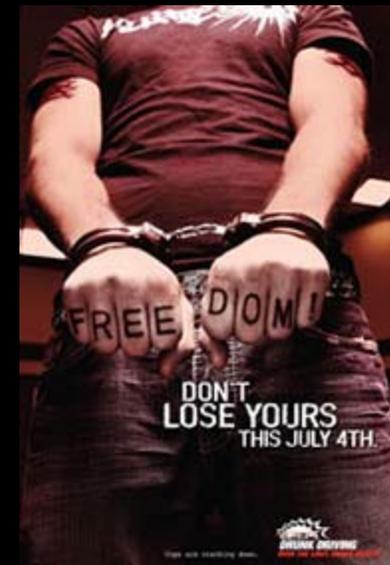
Deployment

- Precincts responsible for coordinating enforcement
- Grant funded overtime
- Incorporation of existing enforcement programs
- Enforcement hours assigned to patrol, traffic, BPI



Enforcement Benchmarks

● Baltimore National Pike	82
● Liberty Road	149
● Reisterstown Road	162
● York Road	213
● Belair Road	130
● Eastern Boulevard	164
● OSS Hours	<u>105</u>
● TOTAL	1005 hours per week

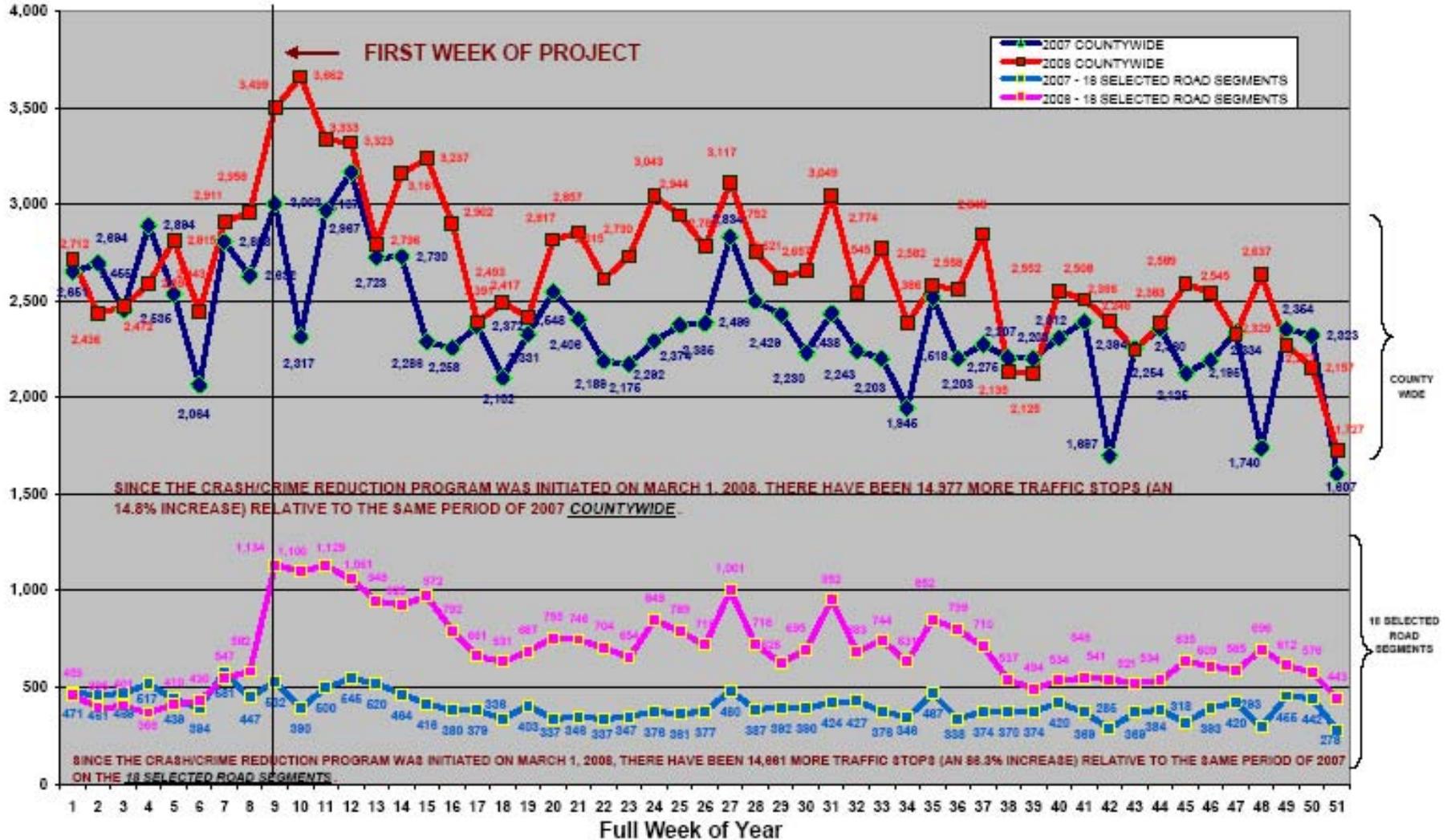


Enforcement Activity

- 51,598 on-duty hours
- 65,164 enforcement contacts
- 1169 arrests
- 4000+ overtime hours
- 10,106 enforcement contacts
- 75 arrests



**NUMBER OF TRAFFIC STOPS (F13) IN CALLS FOR SERVICE MODULE OF INPURSUIT RMS
FIRST 51 FULL WEEKS OF YEAR (2007 VS 2008)
COUNTYWIDE AND 18 SELECTED ROAD SEGMENTS**



NOTE: SINCE THE 9TH WEEK BEGAN ON MARCH 2, 2008 AND MARCH 4, 2007, THE DATA FOR MARCH 1, 2008 (418) AND MARCH 3, 2007 (388) ARE INCLUDED IN THE 8TH WEEK'S TOTAL. THE CALCULATION OF PERCENTAGE CHANGE INCLUDES THE 418 FOR 2008 AND THE 388 FOR 2007.

Evaluation Results

➤ **Robbery**

- ◆ Overall reduction of 13.6%
- ◆ Reductions on 5 roadways
- ◆ 13 of 18 segments

➤ **Burglary**

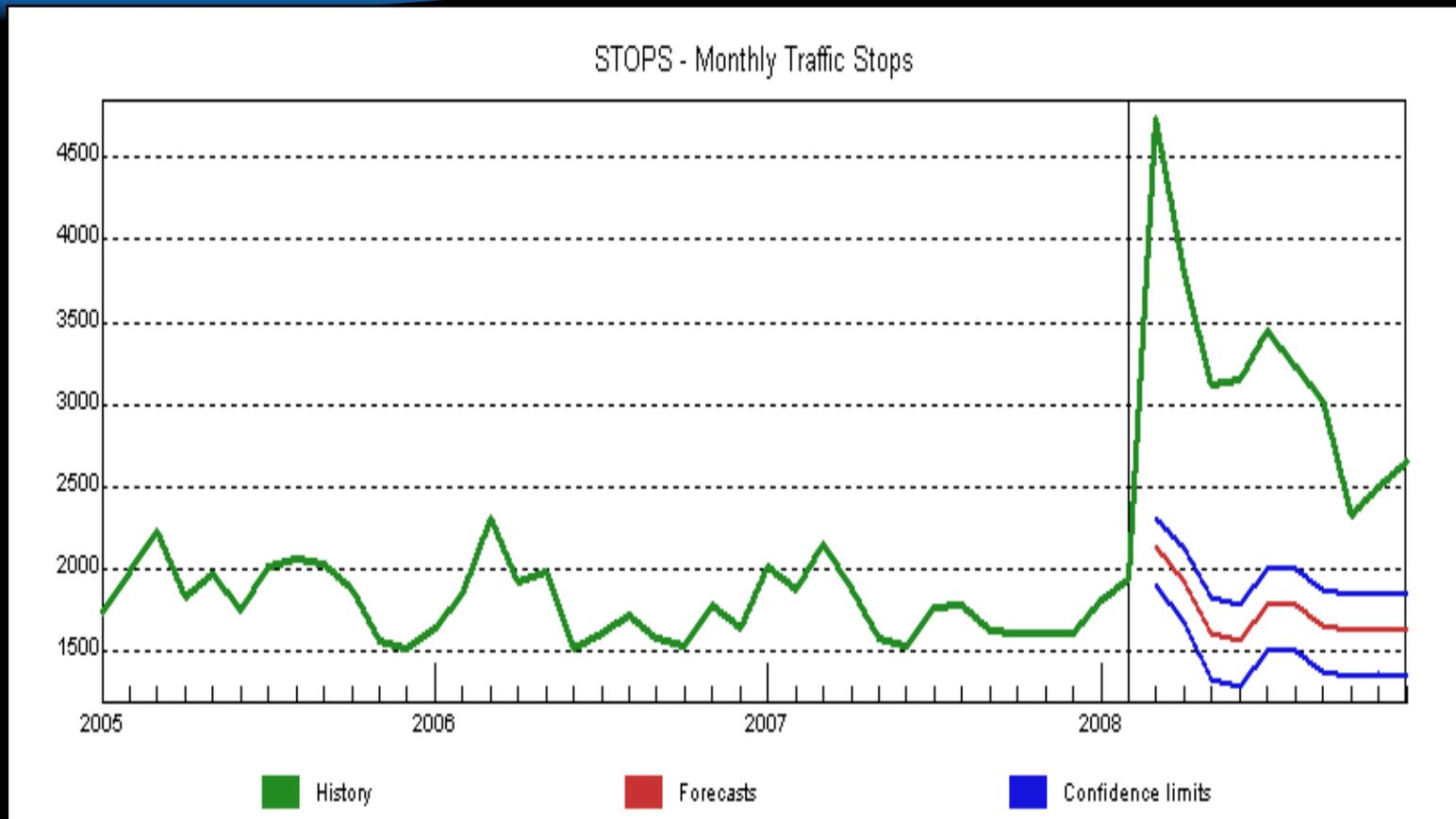
- ◆ Overall increase of 2.4%
- ◆ Reductions on 2 roadways
- ◆ 9 of 18 segments

➤ **Crashes**

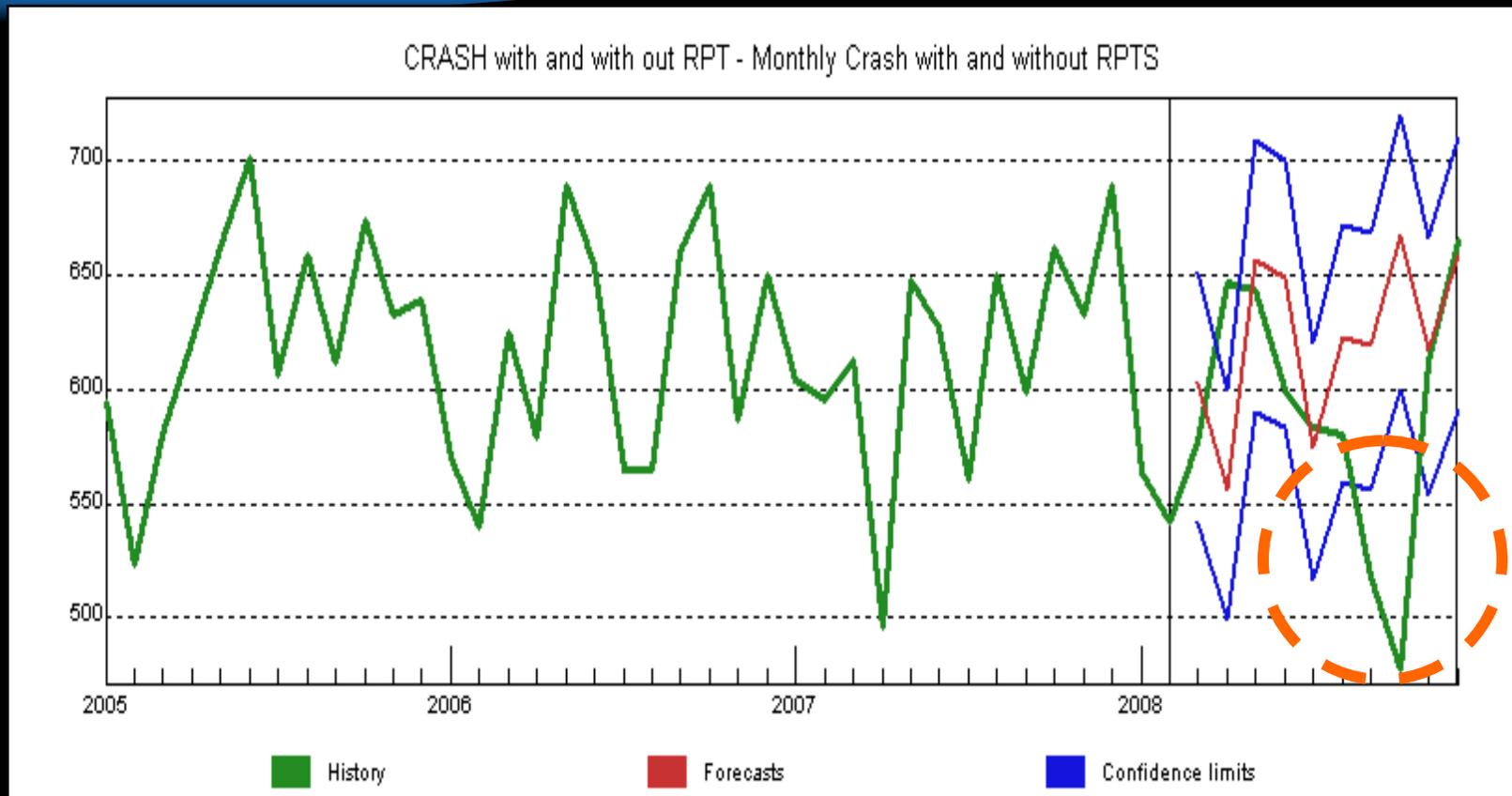
- ◆ Overall reduction of 6%
- ◆ Reductions on 5 roadways
- ◆ 13 of 18 segments
- ◆ Personal injury crashes declined 14.7%



TRAFFIC STOPS

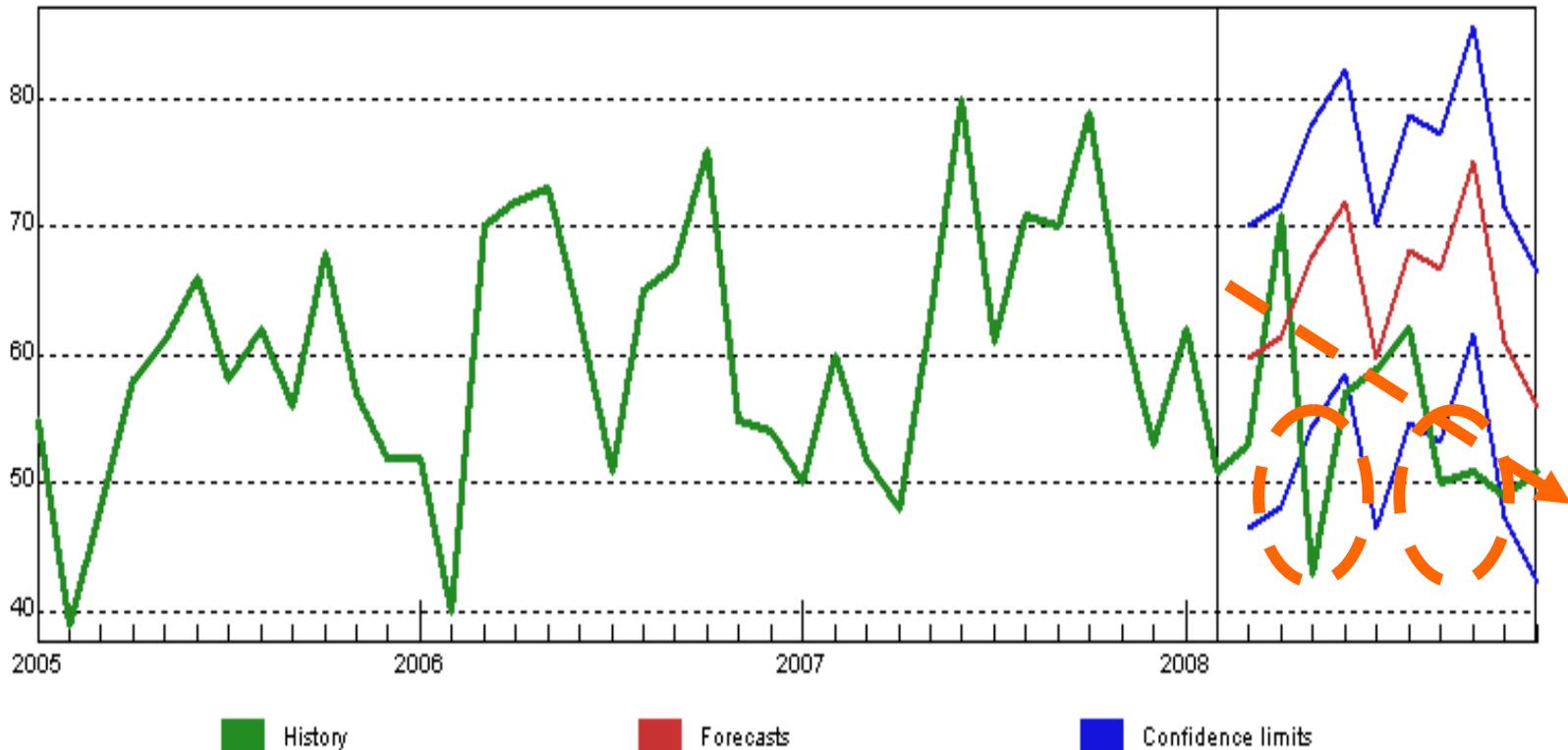


CRASHES



PERSONAL INJURY CRASHES

PERSONAL INJURY CRASHES - Monthly Personal Injury Crash



Sabra, Wang & Associates Speed Surveys

- ✓ 36 data points along the corridors
- ✓ 85th percentile speeds less than 10 mph over at 30 of the points
- ✓ Reduction in 85th percentile speeds at 22 points
- ✓ Decreases in the percentage of speeding vehicles at 27 points

Successes and Challenges



- ◆ Positive leadership
- ◆ Partnerships
- ◆ Enforcement activity
- ◆ Incorporation of programs
- ◆ Use of patrol time
- ◆ Crash data
- ◆ Data collection
- ◆ Consistency and focus
- ◆ Stop ratios
- ◆ Targeting enforcement
- ◆ Communications

Needs: Timely crash data
Automated citations
Technology/Equipment

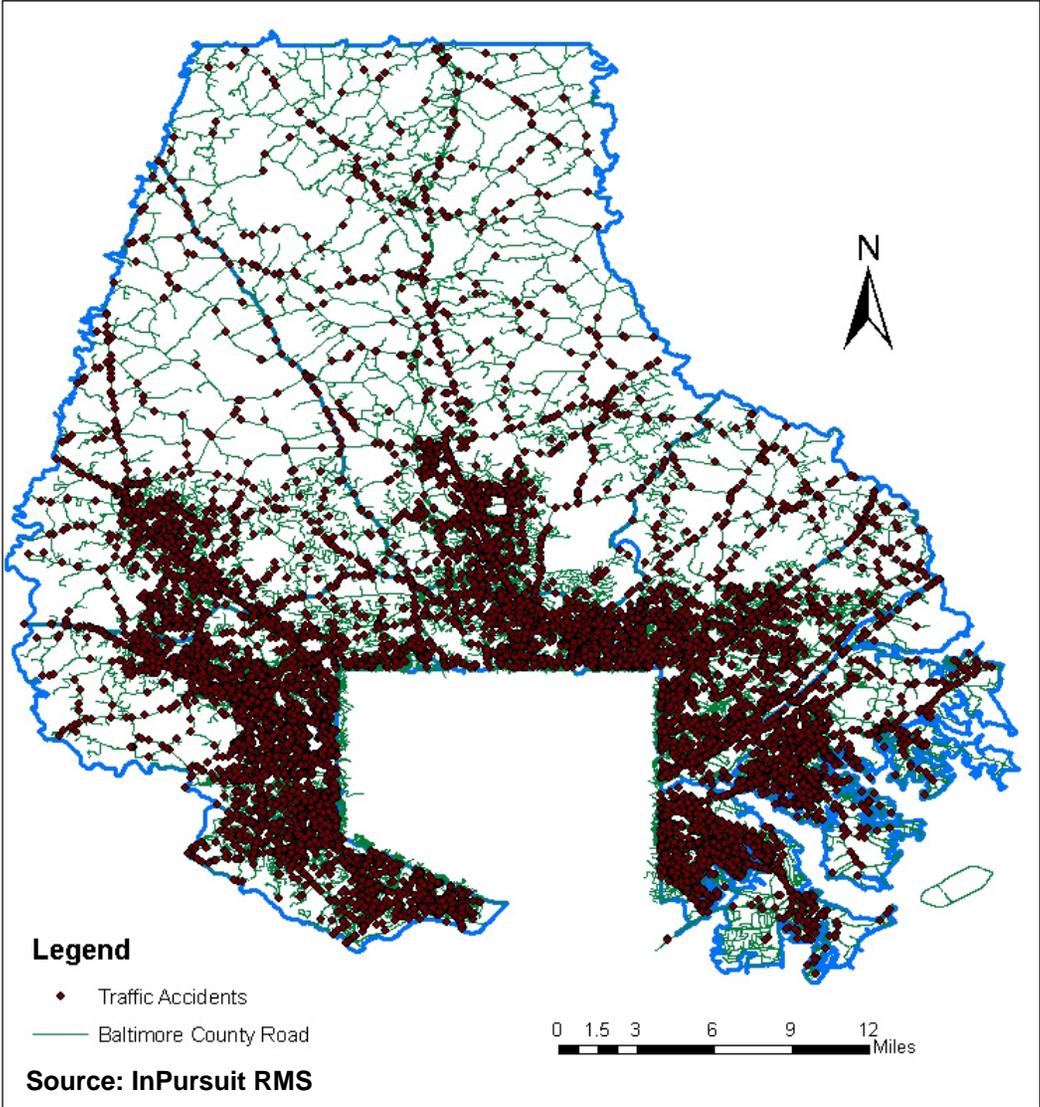


DDACTS in Baltimore County

- Analysis
- Site Selection
- Objectives/Action Plans
- Resources/Partners
- Data Collection
- Evaluation
- Communications

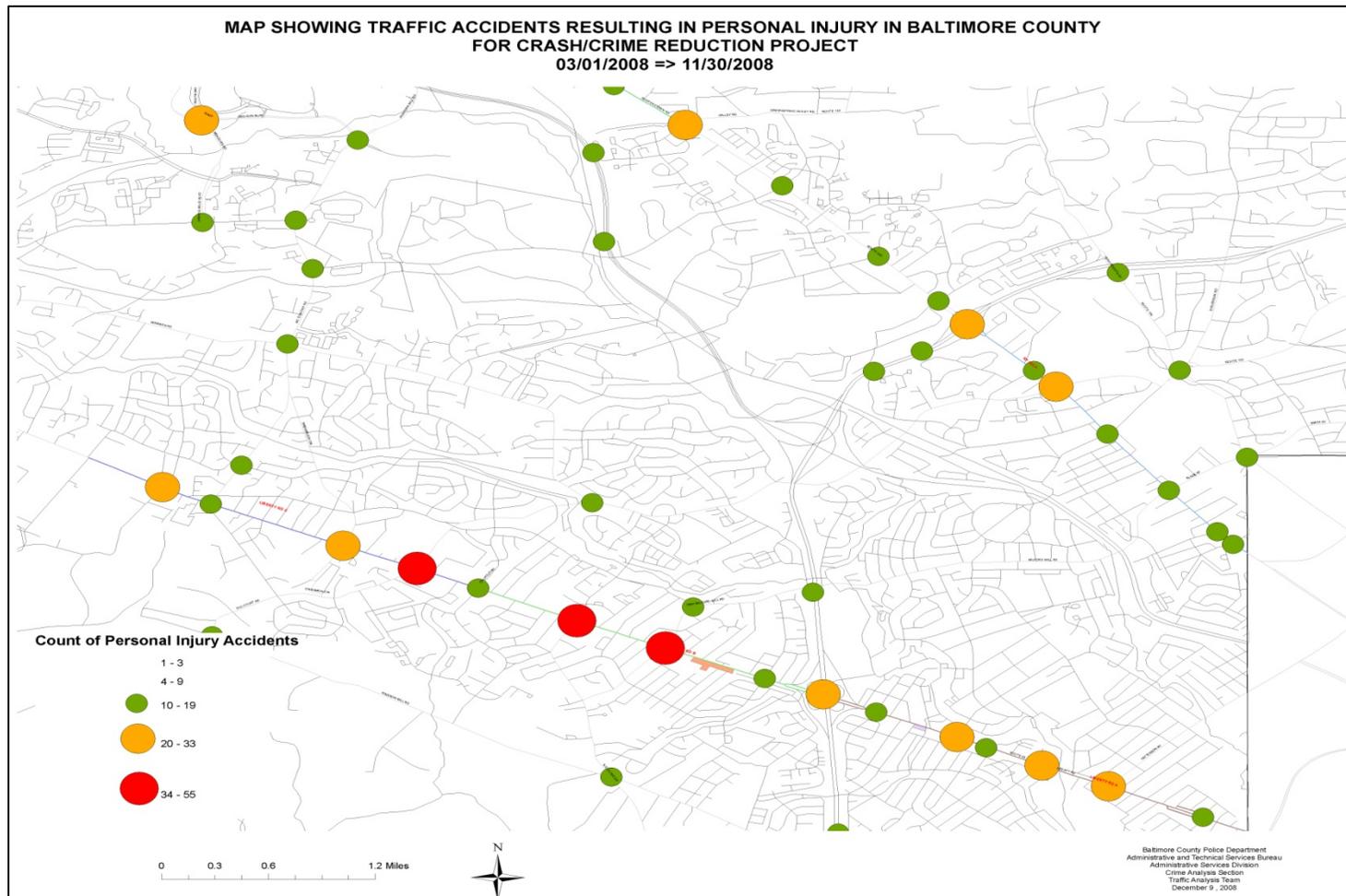


VEHICLE CRASHES IN BALTIMORE COUNTY 2008



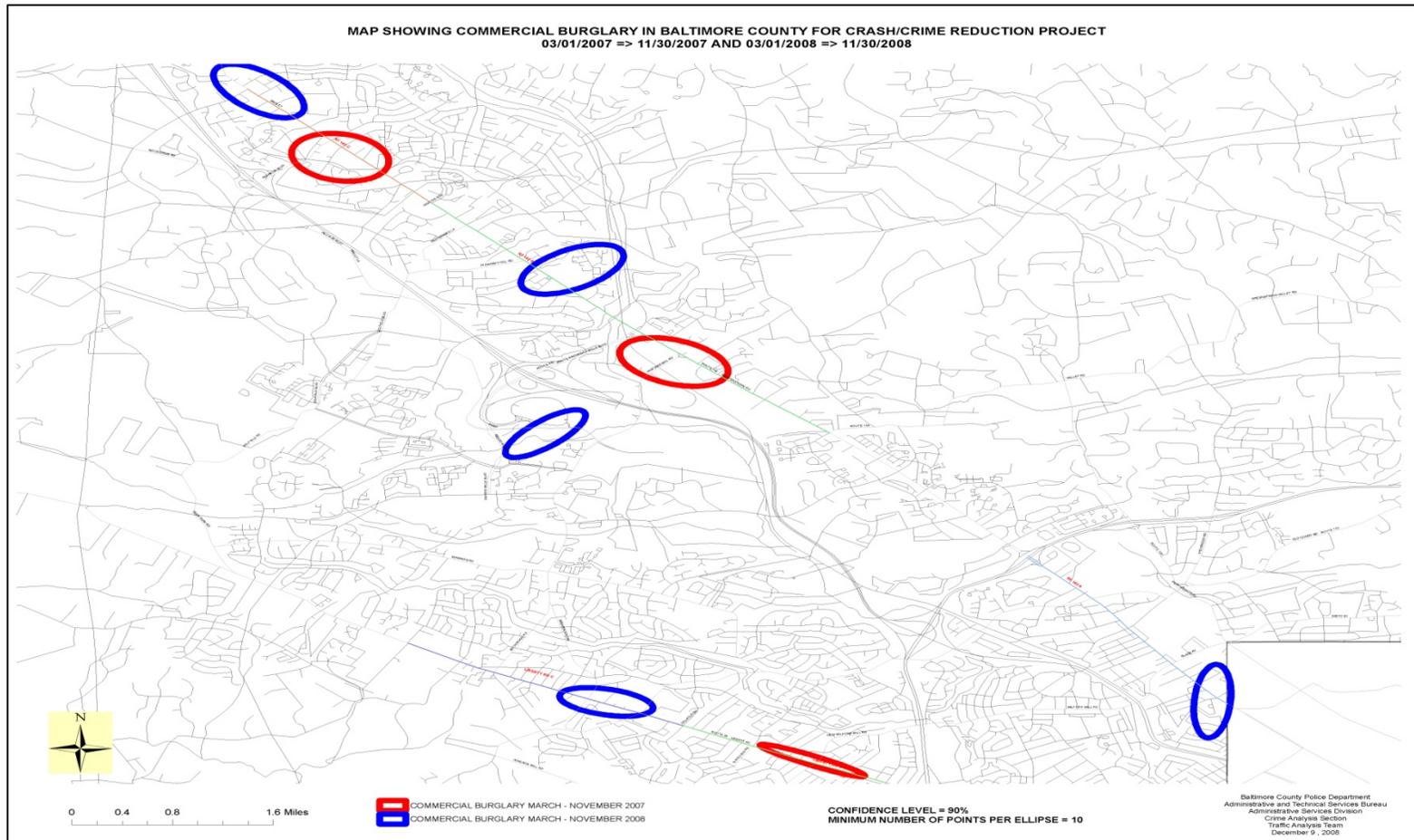
METHODS USED TO IDENTIFY AREAS EXPERIENCING HIGH AMOUNTS OF CRIME AND PERSONAL INJURY CRASHES

- Identified point locations for each crime type and personal injury crashes



NEAREST NEIGHBOR HIERARCHICAL ELLIPSES

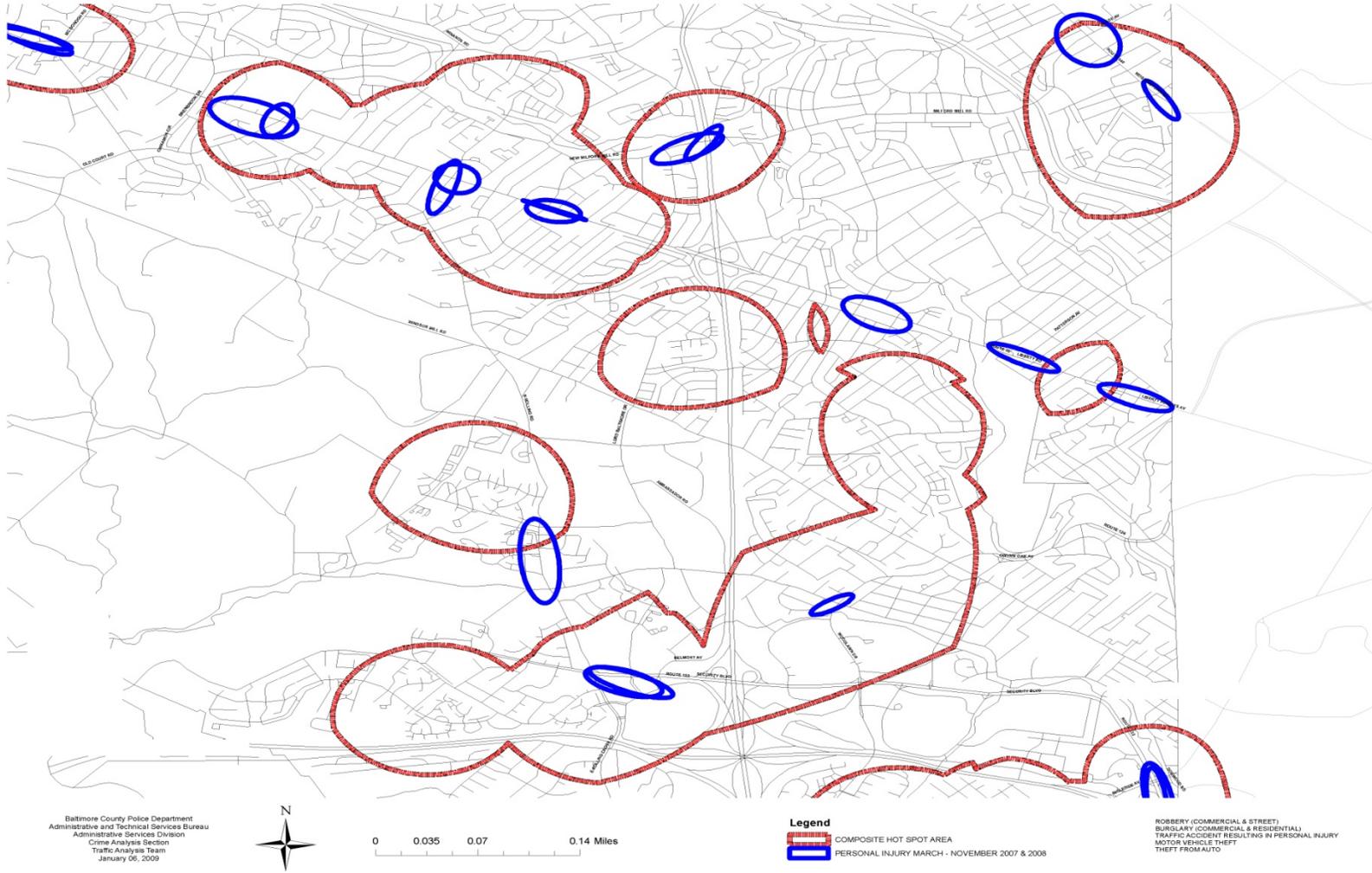
- Constructed Nearest Neighbor Hierarchical ellipses for each crime type and personal injury crashes from March to November of 2007 (red) and 2008 (blue), using CrimeStat III with 90% confidence interval and minimum of 10 incidents per ellipse except for commercial robbery (5 or more)



COMPOSITE HOT SPOT AREAS

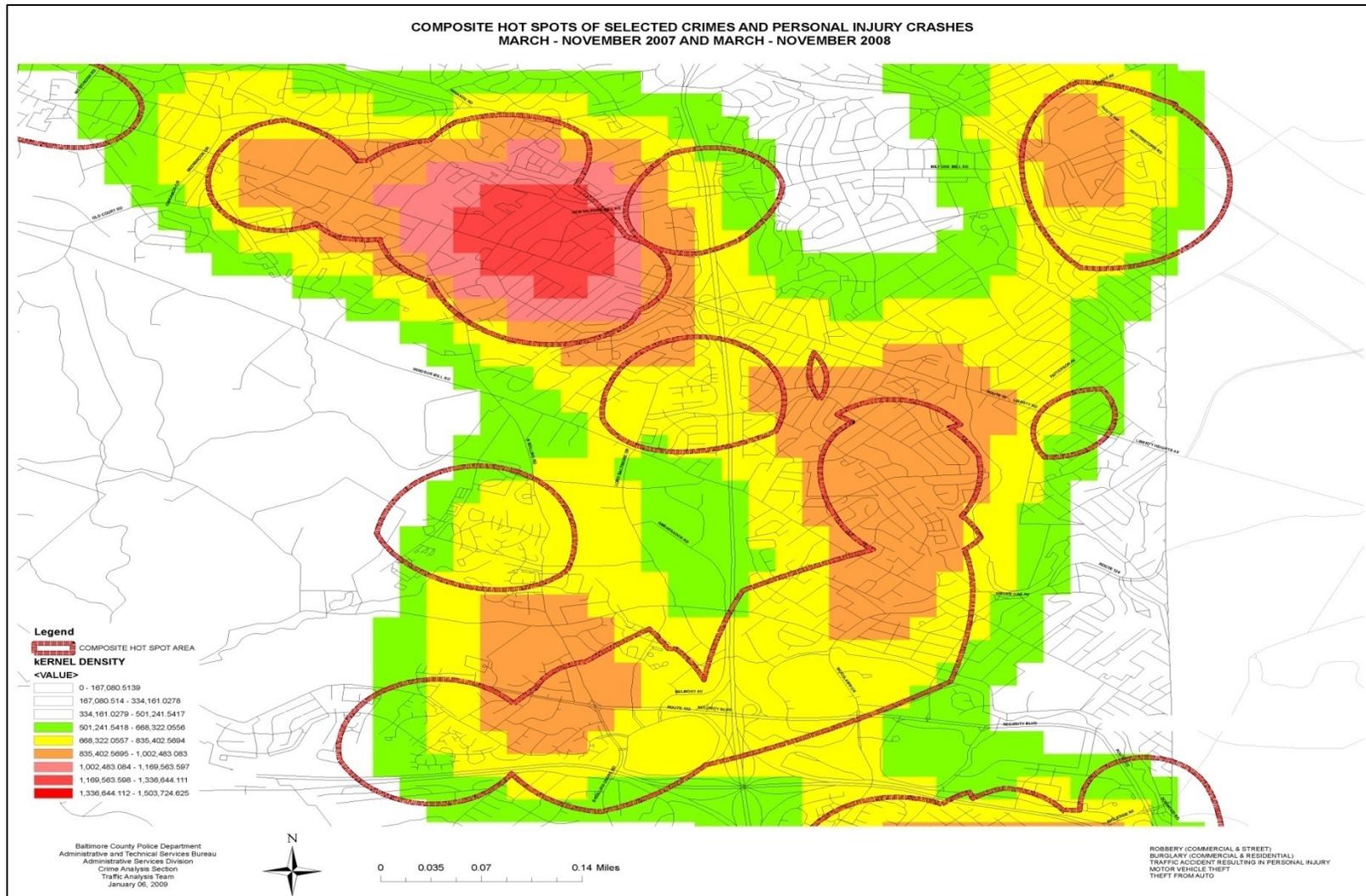
- Dissolved tool was used to make the composite hot spots

COMPOSITE HOT SPOTS OF SELECTED CRIMES AND PERSONAL INJURY CRASHES
MARCH - NOVEMBER 2007 AND MARCH - NOVEMBER 2008

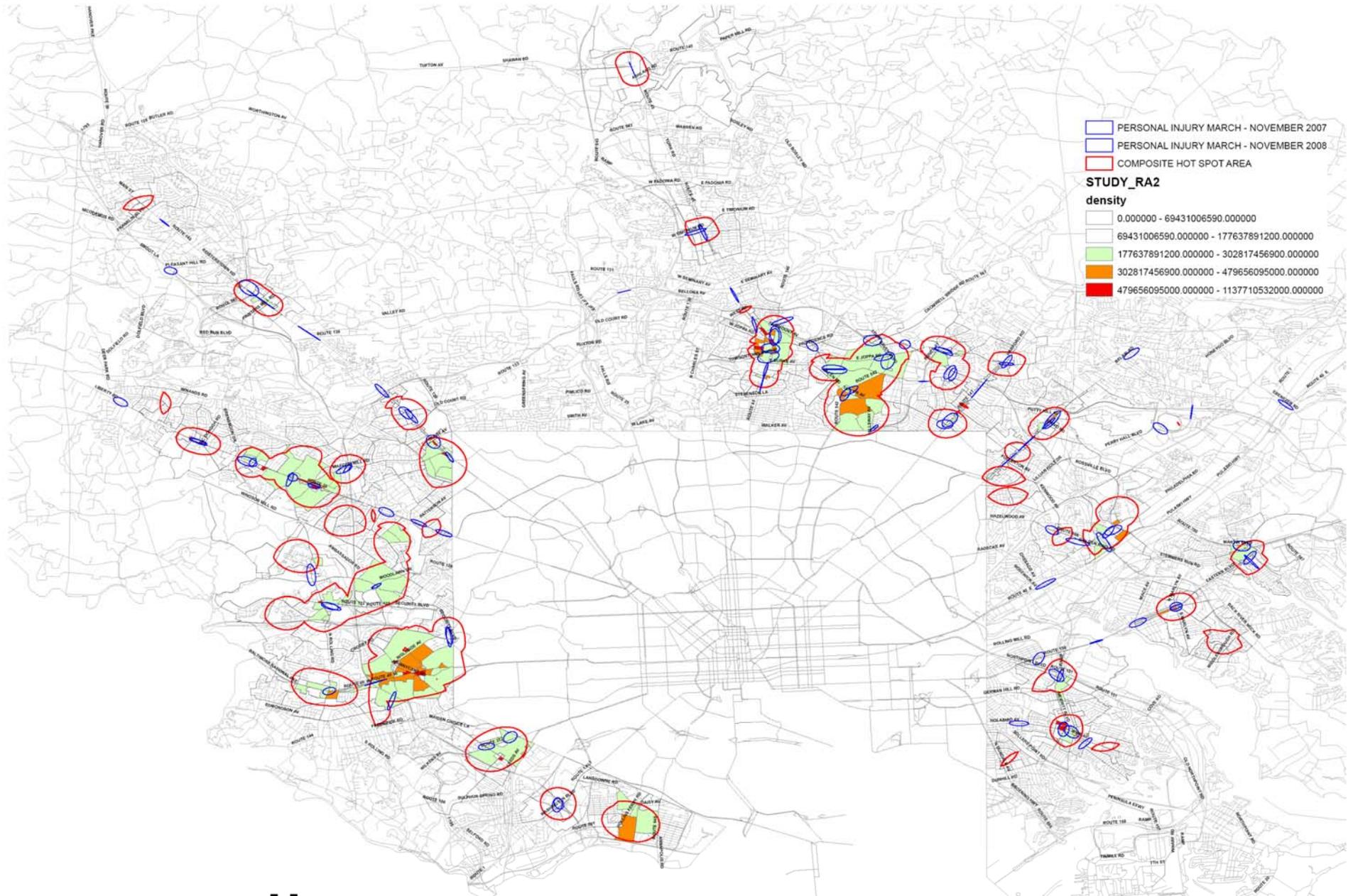


KERNEL DENSITY

- Applied Kernel Density method using point locations to identify active area within the composite hot spot polygons



COMPOSITE HOT SPOTS OF SELECTED CRIMES AND PERSONAL INJURY CRASHES
MARCH - NOVEMBER 2007 AND MARCH - NOVEMBER 2008



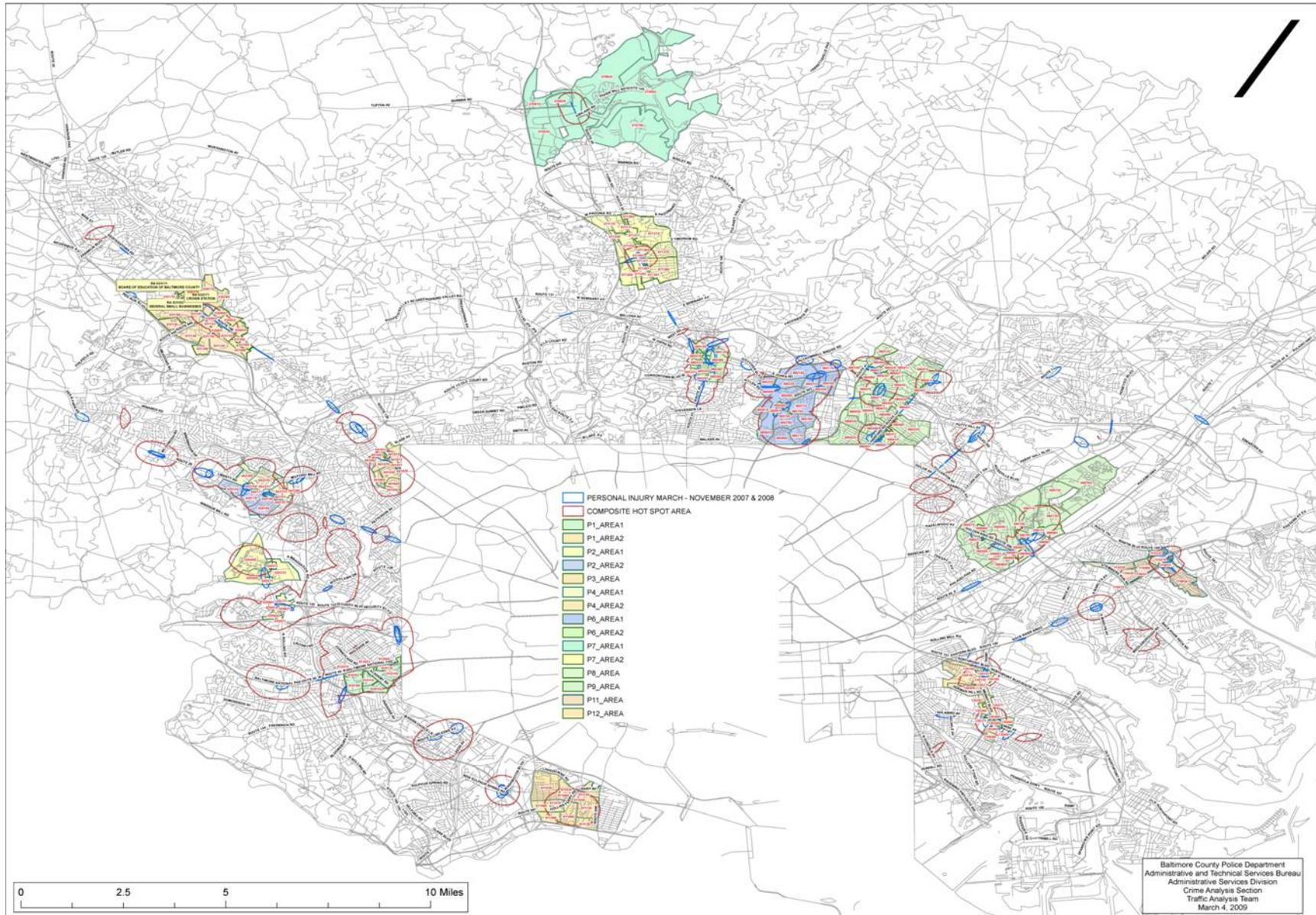
PERSONAL INJURY MARCH - NOVEMBER 2007
 PERSONAL INJURY MARCH - NOVEMBER 2008
 COMPOSITE HOT SPOT AREA
STUDY_RA2
density
 0.000000 - 69431006590.000000
 69431006590.000000 - 177637891200.000000
 177637891200.000000 - 302817456900.000000
 302817456900.000000 - 479656095000.000000
 479656095000.000000 - 1137710532000.000000

Baltimore County Police Department
Administrative and Technical Services Bureau
Administrative Services Division
Crime Analysis Section
Traffic Analysis Team
January 02, 2009

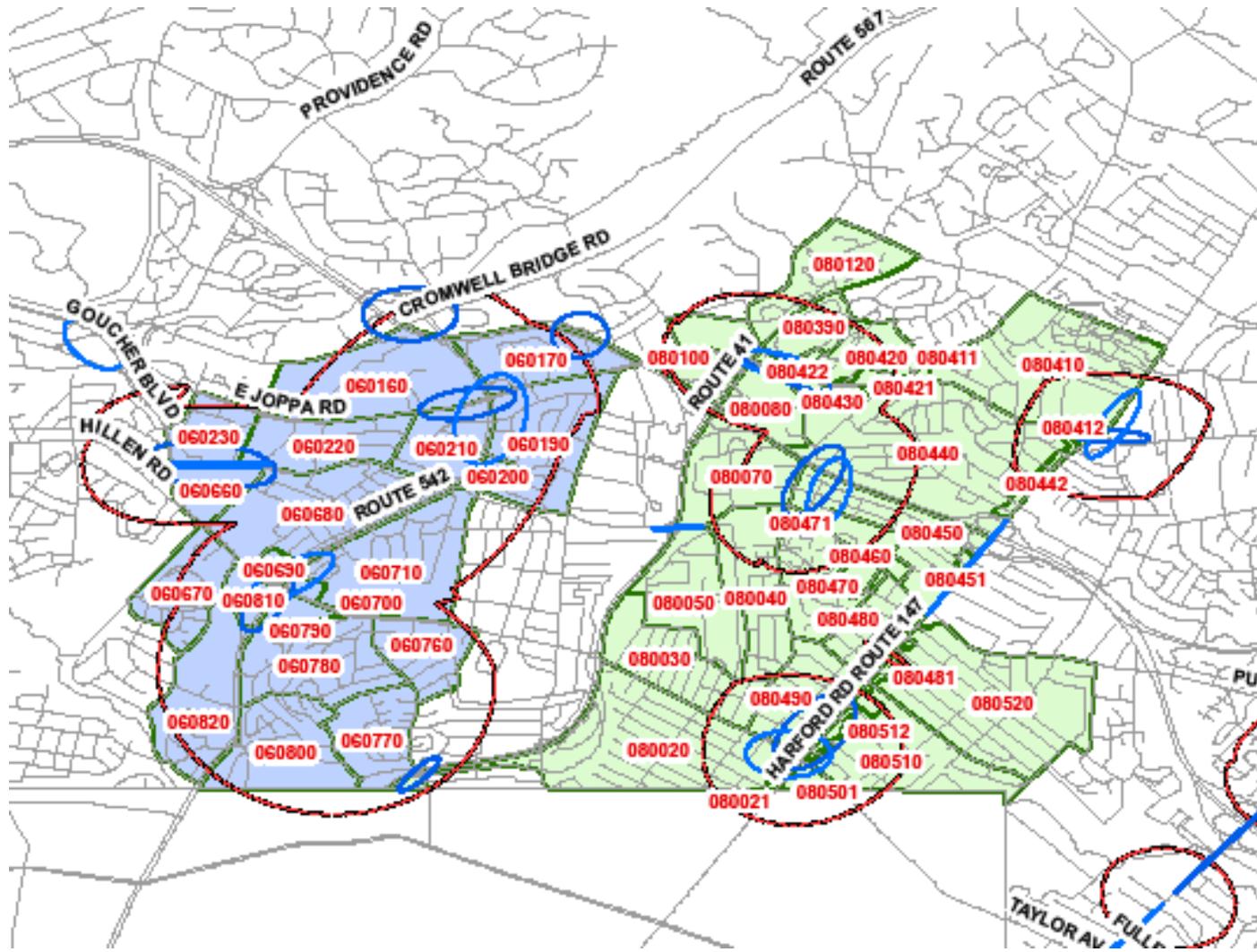


ROBBERY (COMMERCIAL & STREET)
 BURGLARY (COMMERCIAL & RESIDENTIAL)
 TRAFFIC ACCIDENT RESULTING IN PERSONAL INJURY
 MOTOR VEHICLE THEFT
 THEFT FROM AUTO

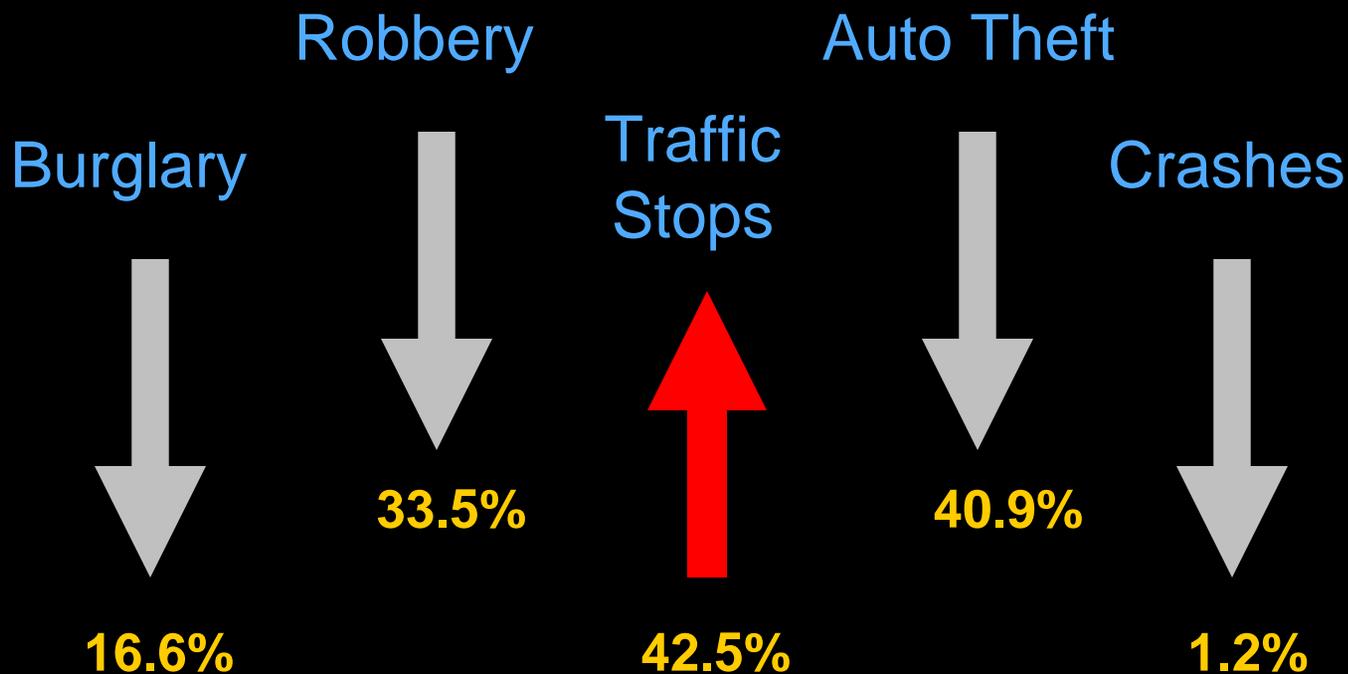
DATA DRIVEN APPROACHES TO CRIME AND TRAFFIC SAFETY SELECTED DDACTS AREAS



DDACTS Areas: Towson/Parkville



Results (April-Nov.)



On-Duty Hours in target areas (April-December): 54,414

Keys to Success

- ◆ Data and Analysis
- ◆ Flexibility
- ◆ Planning and Evaluation





Captain Howard B. Hall

Baltimore County Police Department
Operational Services Section
1747 Merritt Boulevard
Baltimore, MD 21222
(410) 887-7361
hhall@baltimorecountymd.gov