



New Findings from the Smart Policing Initiative

East Palo Alto SPI, Indio SPI, Pullman SPI, and Shawnee SPI

November 21, 2014

This project was supported by Grant No. 2009-DG-BX-K021 awarded by the Bureau of Justice Assistance. The Bureau of Justice Assistance is a component of the Office of Justice Programs, which also includes the Bureau of Justice Statistics, the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime. Points of view or opinions in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Department of Justice.



Using a Place-Based Technology to Address Shootings in East Palo Alto, CA

Melvin Gaines, East Palo Alto Police Department
Sarah Lawrence, UC Berkeley

November 21, 2014

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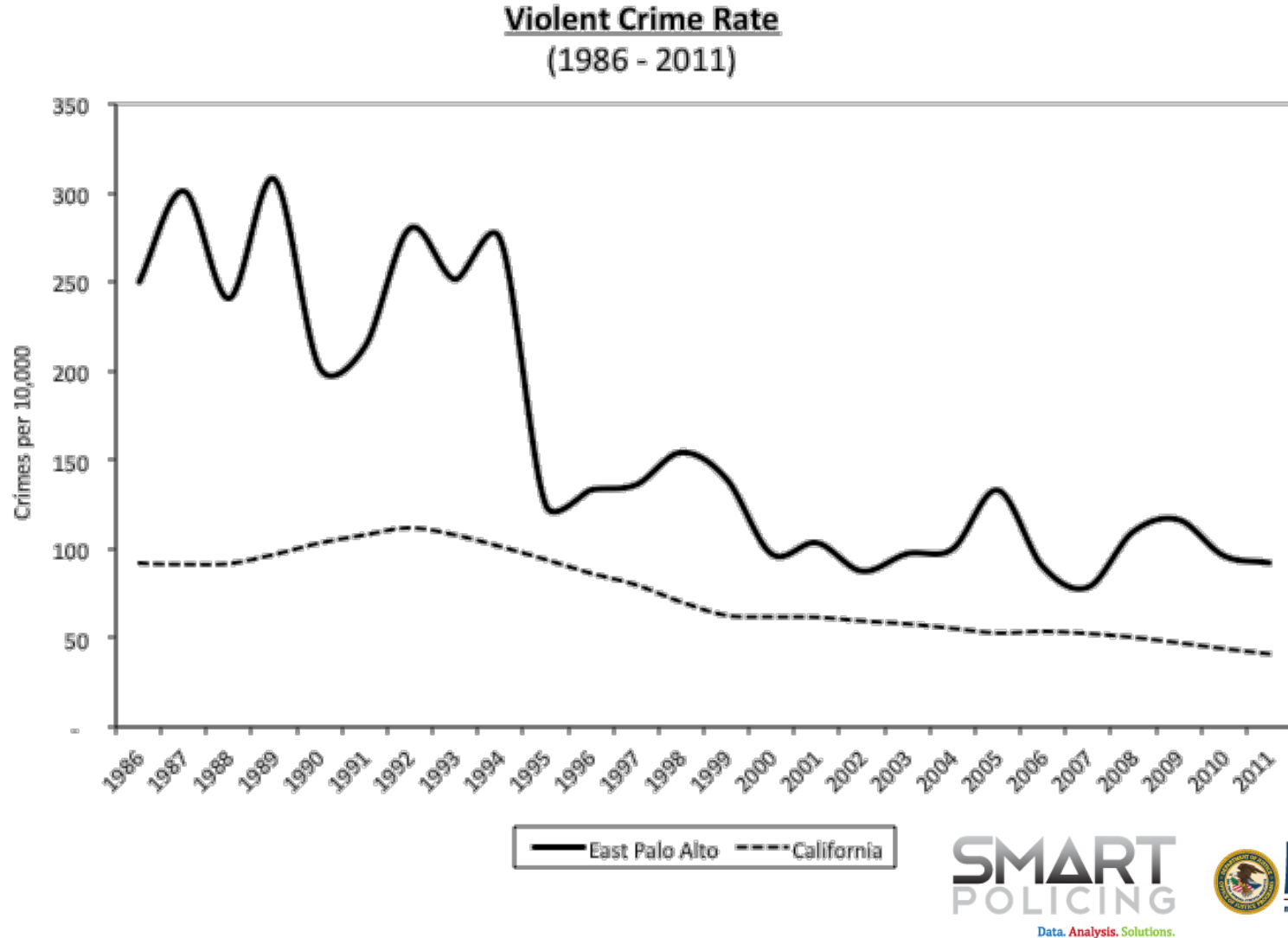
Presentation overview

- Targeted problem
- Overview of GLDS technology
- Analysis of shootings
- Implementation strategy
- Challenges and lessons learned

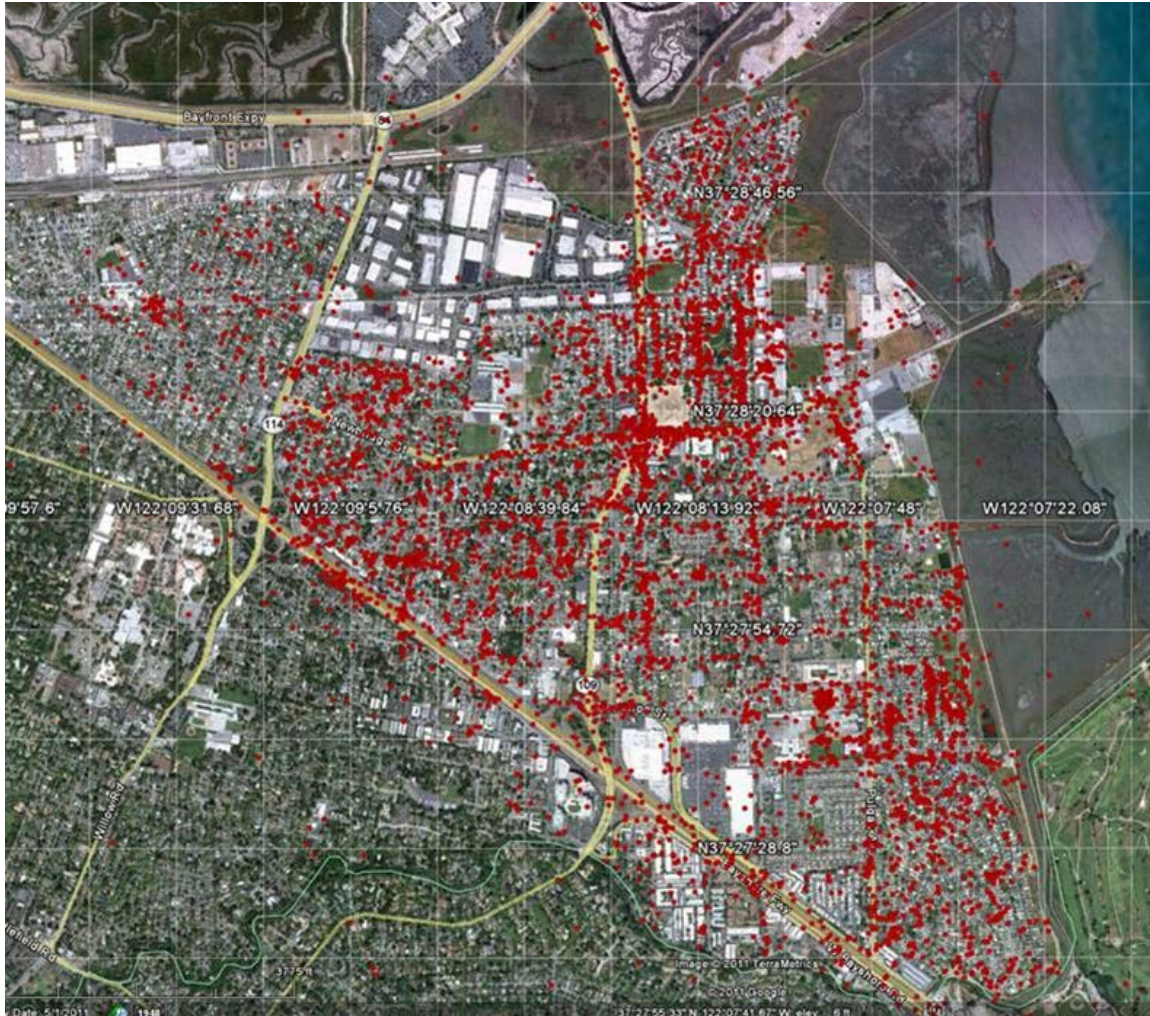
Project overview

- East Palo Alto
 - Approximately 29,000 residents
 - 65% Latino, 17% African-American, 7.5% Pacific Islander, 29% White, 41% foreign born
 - 2.6 square miles
- Citywide coverage of gunshot location detection system (GLDS) since January 2009
- Goal: To use GLDS above and beyond rapid response tool to help design POP strategies to reduce shootings

Serious and longstanding problem with violent crime and shootings



Targeted problem: shooting incidents



- About 500 dispatched calls for service involving a firearm annually
- Between 1,500 – 2,000 shooting incidents detected by GLDS annually

Overview of the technology

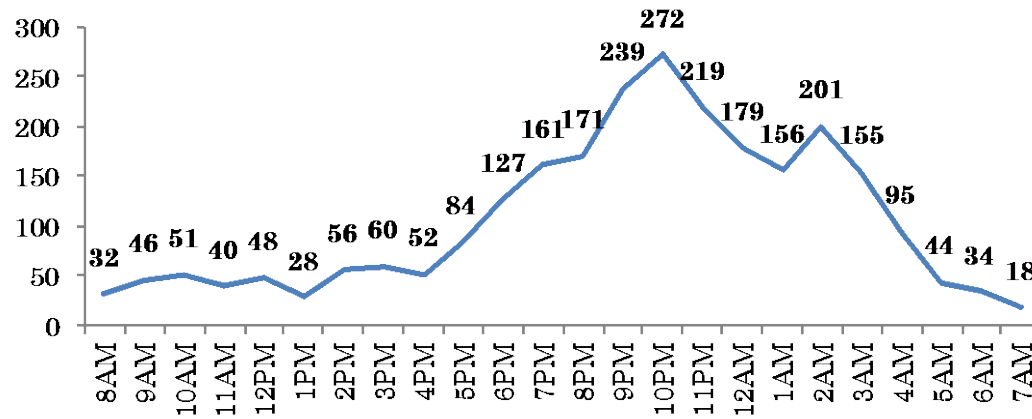
- System of acoustic sensors detects and locates gunshots
- Information immediately transmitted to dispatchers before 911 calls are received
- GLDS collects data on the universe of shooting incidents including time, location, duration, rounds
- Millions of dollars spent on GLDS with little independent evaluation
- Over 70 police departments using technology in some capacity in the U.S.

Analysis of shooting incidents

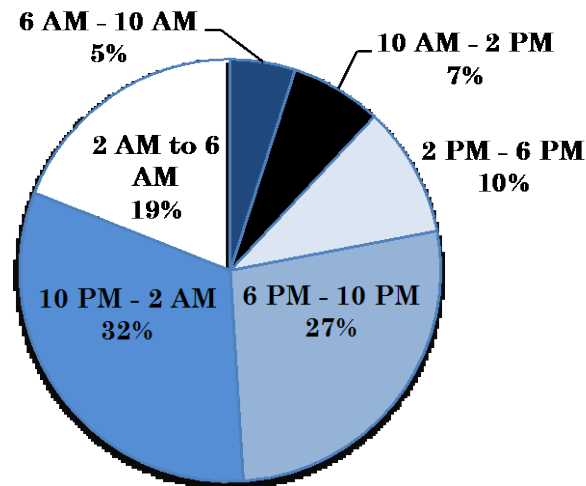
- Research questions
 - How has the level of shootings changed over since the system was launched?
 - What are the patterns in shootings in terms of time of day, day of week, seasonal fluctuations?
 - Where are the shooting hot spots and to what extent do they change in size and location?
- Activities
 - Descriptive analysis of 4 years of GLDS data
 - Mapping shooting hot spots

Shooting incidents peak between 10 pm and 2 am

Citywide Gunshot Activations by Hour, July 2011 - June 2013

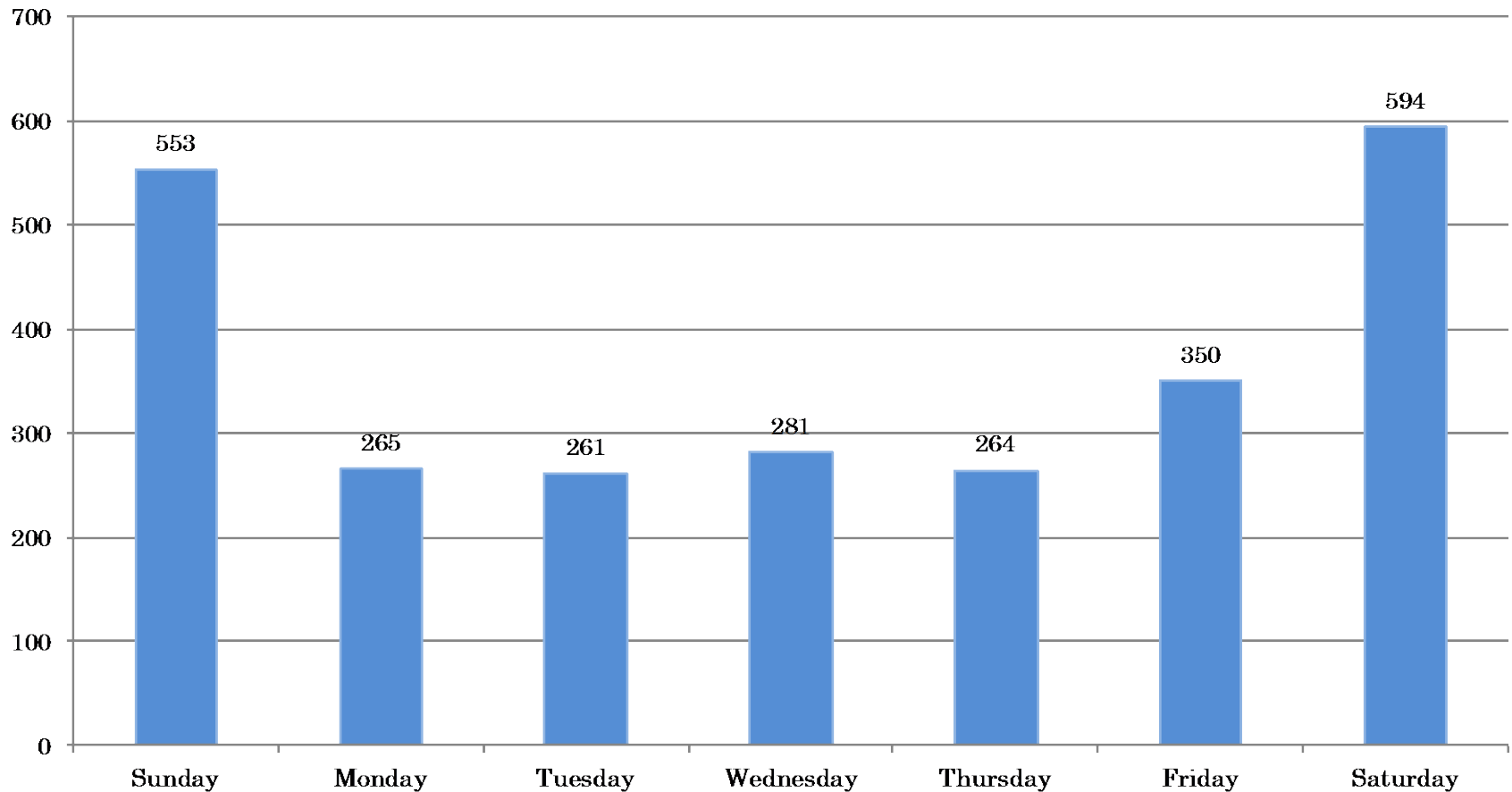


Citywide Gunshot Activations by 4-Hour Blocks, July 2011 - June 2013



Shooting incidents peak on weekends

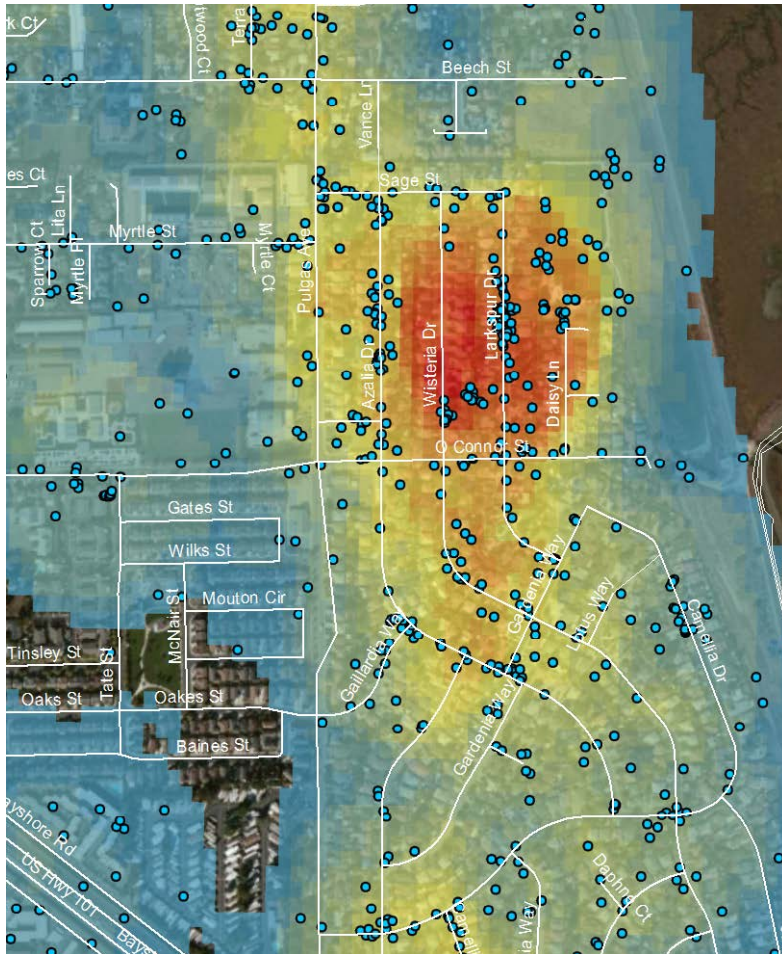
Citywide Gunshot Activations by Day of Week, July 2011 - June 2013



11



Shooting incidents concentrated in a few blocks



Findings drove law enforcement and community outreach interventions

- Formed gunshot reduction team
- Reviewed analysis and shooting hot spot maps
- Compared gunshot data to case files
- Launched law enforcement interventions
- Launched community outreach based interventions

Law enforcement interventions

- Increased police presence
 - Additional focused patrols in hot spot Thurs, Fri and Sat, 6:00 pm to 4:00 am
- Conducted targeted home searches
 - Probation/parole searches of people who live and hang out in hot spots and have gun-related offenses
- Intelligence gathering
 - Increased field interviews in hot spots during peak times
- Targeted law enforcement activities deployed 44 nights since May 2014

Community outreach interventions

- Knock and talks
- Block meetings
- Anonymous tip communication
 - Phone tip line and TipNow mobile application
- Social media use
 - Nextdoor, Twitter, Facebook
- Community outreach activities on 13 days since June 2014

Challenge: Learning curve with untested data source

Assumption	Reality
Citywide coverage	Weak (and therefore inaccurate) in parts of the city
Consistent technology since 2009	Changed the “classifier” and system could be down for maintenance and repairs
Consistent process since 2009	ShotSpotter took over review from county dispatch in 2012
Clean data	Includes “noise” such as construction hot spots, duck hunting in wildlife preserve, and celebratory gunfire on holidays

Challenge: Significant and ongoing changes in PD personnel

- Four interim chiefs and three captains since November 2013
- Recent departure of City Manager
- Staffing constraints with sworn officers in small police department

Summary

- GLDS can be used above and beyond rapid response
- Still learning about the strengths and weaknesses of this untested data source
- Instability with personnel has had ripple effects on operations
- Too early to say anything about impact on public safety

Contact information

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The Indio, Calif. Smart Policing Initiative (SPI): Using a multivariate spatial modeling approach to reduce burglary crime.

This project was supported by Grant No. 2010DBBX0006 awarded by the Bureau of Justice Assistance (BJA). The BJA is a component of the Office of Justice Programs, which also includes the Bureau of Justice Statistics, the National Institute of Justice, the Office of Juvenile Justice & Delinquency Prevention, and the Office of Victims of Crime. Points of view or opinions in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Dept. of Justice.

Indio SPI Project Snapshot

- **Background:** Project supported by FY10 Smart Policing Initiative (SPI) grant from the Bureau of Justice Assistance (BJA)
- **Project Goal:** To better predict burglary patterns in the City of Indio by enhancing the hot spots approach to create a predictive profile of potential hot spots
- **Findings:** Indio's SPI research findings show a link between truancy rates and burglary crime in specific parts of the city

Figure 1: Prediction Equation for Burglary in Indio, CA, 2002-2009

- Predicted Burglary Rate 2010 =
 $1.64 + (21 * \text{Percent aged 15-29}) +$
 $(-53.99 * \text{Percent Female Headed Households with Children under 18}) +$
 $(-8.86 * \text{Percent of Housing Units Owner Occupied}) +$
 $(.349 * \text{Truancy (including lags at 2006 and 2007)}) +$
 $(3.47 * \text{Percent Latino}) +$
 $(.942 * \text{Lagged Burglary 2006})$

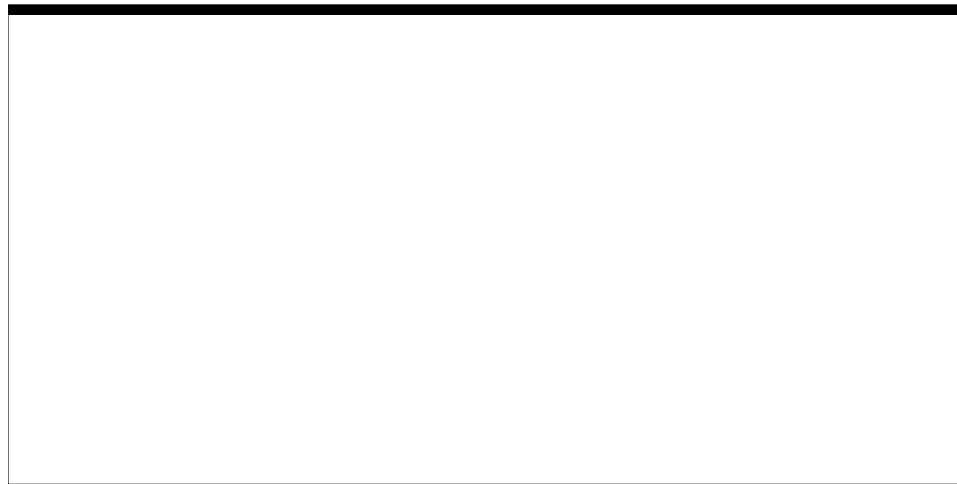
Figure 2: Predicted Burglary Rates, Indio, 2010



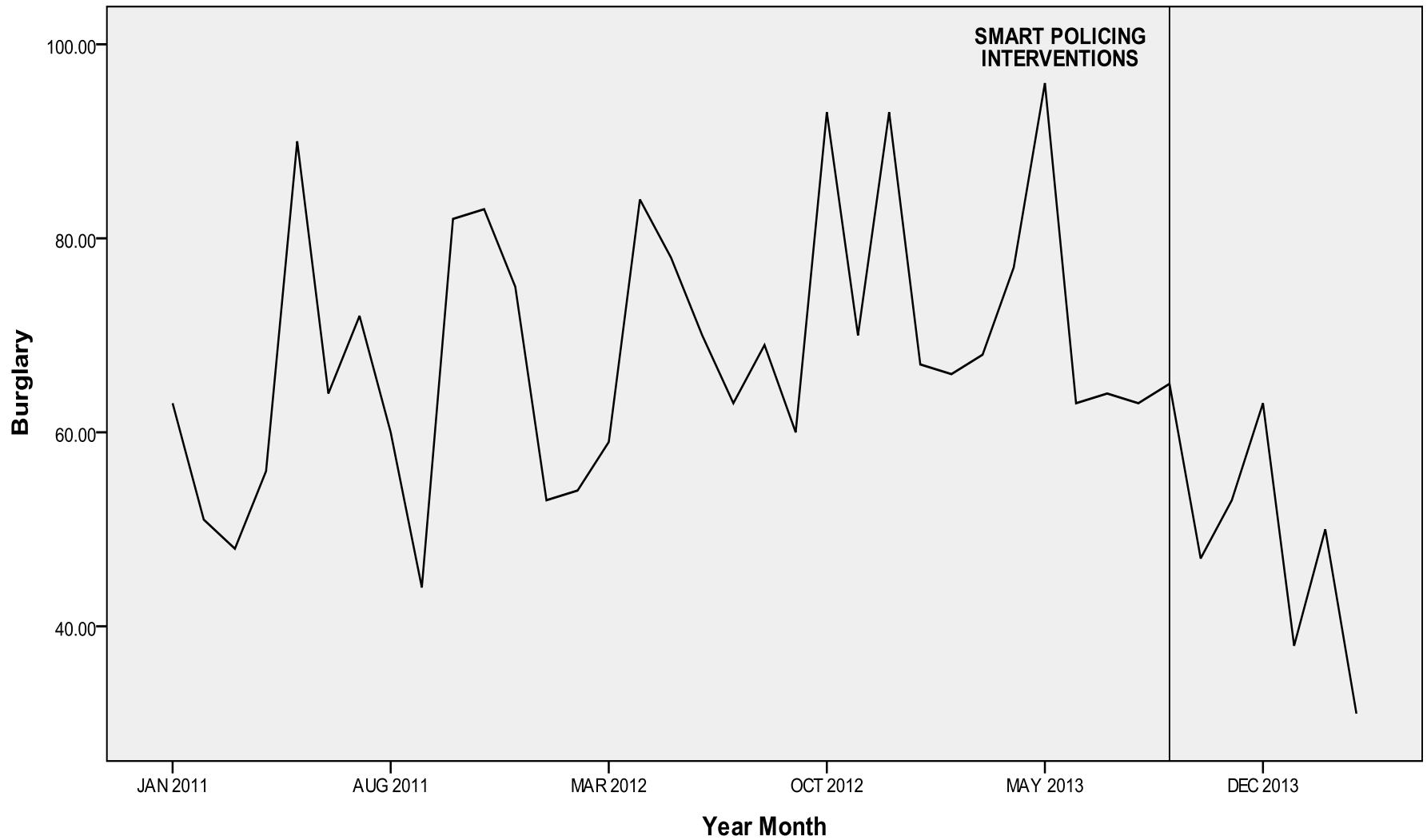
Figure 3: Actual Burglary Rates, Indio, CA 2009



Figure 4: Actual and Predicted Burglary Rates, Indio, CA 2010



INDIO BURGLARY COUNT 2011 TO 2014



Interrupted Time Series Model

Results – Smart Policing Intervention

ARIMA MODEL	PARAMETER TYPE	PARAMETER ESTIMATE	STANDARD ERROR	T TEST	SIGNIFICANCE
BURGLARY	AR, LAG 3	-.495	.168	2.585	.014
DIFFERENCE	LAG 1	---	---	---	---
BURGLARY	MA, LAG 1	.816	.144	5.674	.000
SPI INTERVENTION	INTERRUPTED LAG 0	-4.987	1.219	4.091	.000
R-SQUARE: .509		LJUNG BOX CHI SQUARE		13.799; 14 DF; SIG: .465	

Indio Police Department - FBI Uniformed Crime Reporting Statistics (UCR), 2013 year-end stats

Homicide	Robbery	Aggravated Assault	Overall Violent Crime	Burglary	Theft	Overall Property Crime	Overall Total Crime
-40%	-14%	-6%	-6%	-5%	-9%	-1%	-2%

- As of July 2014, IPD reports a 43% drop in Burglary, 14% drop in Theft and a 27% overall decrease in Property Crime, compared with the same period last year.

Strategic Targeting: Indio's Burglary Prevention Activities

- Community outreach & cross-sector collaboration with the local school district, residents, business owners, Homeowners Associations (HOAs), non-profit and faith-based organizations, and other governmental agencies
- Media Campaign Efforts & Public “Buy In”

Strategic Targeting: Indio's Burglary Prevention Activities, Cont'd

- Truancy Prevention Strategies
 - School Resource Officer (SROs) & *The Parent Project* 2014
 - Daytime Curfew Enforcement Detail
- Burglary Prevention Task Force
 - Street Crime Unit (SCU) & Crime Prevention Through Environmental Design (CPTED)

Indio SPI 2014 Cross-Sector Community Outreach Events



Parenting Manual
The Manual the Hospital Forgot to Give You.
Revised Edition



**Indio Police Department
The Parent Project®**

Empowering Parents. Transforming Teens.

- * Improve school attendance & performance
- * Prevent future court intervention
- * Prevent or intervene in alcohol and other drug use

To inquire about upcoming classes and registration please contact:

Ivan Carrillo
SPI Community Outreach Coordinator
icarrillo@indiopd.org or
(760)342-4063 ext.4020



Registration is required prior to first class session. Space is limited.

Indio SPI Partnering Agencies

Government Agencies

Bureau of Justice Assistance (BJA)
California Office of the Attorney General
City of Indio (Fire Dept., Teen Center)
Juvenile Justice & Delinquency Prevention
Commission (JJDP)
Riverside County District Attorney's Office
Riverside County Fourth District-Youth Advisory
Council
Riverside County Mental Health Department
Riverside County Probation Department

School Districts/Local Universities

Coachella Valley School District
Desert Sands Unified School District
Riverside County Office of Education
University of California, Riverside

Community-Based Organizations

Arbor Win Youth Opportunity Center
Boys & Girls Clubs of Coachella Valley
Big Brothers Big Sisters of the Desert
CASA for Riverside County, Inc.

Community-Based Organizations, Cont.

Center for Employment Training
Coachella Valley Community Trust
Coachella Valley Housing Coalition
Coachella Valley Rescue Mission
CNA
Desert Recreation District
El Sol Neighborhood Educational Center
Esperanza Youth & Family
Indio Chamber of Commerce
Safe House of the Desert

Faith-Based Organizations

First AME Church
First Baptist Church
Trinity Baptist Church
Our Lady of Perpetual Help

Business Partners

Alliance Protection
Servpro
The Home Depot

Q & A



Lessons from the Pullman Safety Camera Initiative:

Advantages of a Strong Department/Researcher Collaboration

Zachary Hays CSUB, Gary Jenkins Pullman PD, Michael Gaffney DGSS WSU,

ASC, 2014

This project was supported by Grant No. 2013-DP-BX-K006 awarded by the Bureau of Justice Assistance. The Bureau of Justice Assistance is a component of the Office of Justice Programs, which also includes the Bureau of Justice Statistics, the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime. Points of view or opinions in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Department of Justice.

Pullman Safety Camera Initiative

- Project Summary
 - Installed CCTV cameras throughout high crime area of the WSU campus
 - Three Goals
 1. Deter Criminal Behavior
 2. Increase Investigation of Unreported Crime
 3. Increase police case clearance rate
 - Plus a three-wave community survey to assess public's satisfaction with the police during project
 - Before camera installation
 - 6 months after installation
 - 18 months after installation

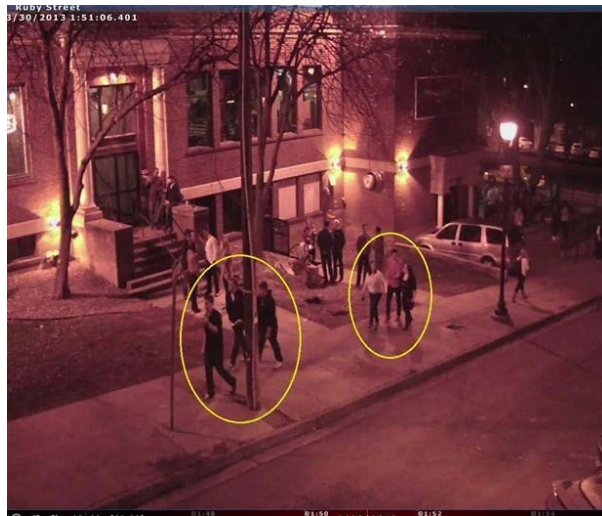
College Hill Public Safety Camera Locations



Results: Camera Effectiveness

- Originally intended to conduct a before & after analysis, plus a spatial analysis
 - But, only 38 criminal incidents occurred during the 18 month period that the cameras were active
 - Not sufficient for statistical analysis
 - Therefore, we conducted interviews with Pullman PD officers & city prosecutors office
 - Five officers, one shift sergeant, & one detective
 - Found that cameras played an important role in handling of multiple cases
 - City attorney & officers support continued use
 - Best example – Dr. David Warner case

Assault Case Captured on Cameras



College Hill Public Safety Camera Locations



Results: Public Satisfaction Survey

- Three Wave Community Survey
 - Multi-Level Modeling Analysis
 - Level 1 (Micro) – Survey Respondents
 - Level 2 (Macro) – Survey Wave
 - Examined four outcomes
 1. Satisfaction with Police
 2. Satisfaction with Camera Project
 3. Perceived Effectiveness of Cameras
 4. Fear of Crime
 - Found that public satisfaction with the police and camera project increased over grant period
 - Respondents also felt that the cameras affected crime in a positive way
 - Although fear of crime did increase

Community Survey Results

Table 1.2. Multi-Level Analyses of Satisfaction with Police, Satisfaction with SCI Project, Effectiveness of Cameras, & Fear of Crime

Dependent Variable	Model 1 Satisfaction with Police		Model 2 Satisfaction with Project		Model 3 Effectiveness of Cameras		Model 4 Fear of Crime	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Respondent-Level Variables								
Intercept	3.90 **	(0.06)	3.30 ***	(0.13)	3.11 ***	(0.05)	1.52 ***	(0.03)
Satisfaction with Police	-	-	0.12 **	(0.04)	0.14 ***	(0.03)	-0.18 ***	(0.03)
Satisfaction with Project	0.14 **	(0.05)	-	-	0.56 ***	(0.02)	-0.08 *	(0.03)
Effectiveness of Cameras	0.26 ***	(0.06)	0.86 ***	(0.04)	-	-	0.22 ***	(0.04)
Fear of Crime	-0.34 ***	(0.06)	-0.12 *	(0.05)	0.22 ***	(0.04)	-	-
Frequency of Visits to Adams Mall	-0.12 ***	(0.03)	0.08 *	(0.03)	-0.05 †	(0.03)	-0.06 *	(0.03)
Respondent's Age	0.00	(0.01)	0.01	(0.01)	-0.01	(0.01)	0.01	(0.01)
Respondent Male	-0.20 **	(0.07)	-0.03	(0.06)	-0.07	(0.05)	-0.31 ***	(0.05)
Respondent Hispanic	0.21	(0.19)	0.15	(0.17)	-0.10	(0.14)	0.30 *	(0.14)
Respondent Black	-0.19	(0.32)	0.33	(0.29)	-0.34	(0.23)	0.16	(0.24)
Respondent Other Race	-0.03	(0.10)	-0.18 *	(0.09)	0.15 *	(0.07)	0.05	(0.07)
Wave-Level Variables								
Crime Rate (per 10,000 population)	-0.02	(0.03)	0.06	(0.04)	-0.02	(0.02)	-0.01	(0.01)
Model Fit Statistics								
Chi-Square	465.60 ***		811.80 ***		831.65 ***		376.52 ***	
Respondent-Level Pseudo R-Square	0.212		0.606		0.558		0.230	
Wave-Level Pseudo R-Square	0.534		0.718		0.477		0.510	

NOTE: † p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.01

SCI Moving Forward

- Sustainability is prime focus
 - Future collaborative evaluations planned
 - Once large enough sample size is achieved
 - To quantitatively determine effectiveness of cameras
 - Additional community surveys also planned
 - Assess any potential changes in attitudes toward police
 - WSU Camera Monitoring Internship Program
 - Through Criminal Justice & Criminology program
 - Future collaborative research and evaluative projects
 - Internship program
 - Body-worn cameras

Challenges to sustainability

- Technological Challenges
 - Camera & network maintenance & lifespans
 - In-house support vs. external contract for any repairs
 - Vandalism
- Monitoring the Cameras
 - WSU internship program vs. alternatives
- Effectiveness of Cameras
 - Continued acceptance of cameras may depend on perceived and actual effectiveness on crime
- Public acceptance
 - Outreach and public information efforts must continue

Additional Benefits/Outputs

- Joint Public Engagement
- Robust working relationship
 - Additional Research:
 - Case-level “Precursor Identification,” Officer Support for Body Cameras, Camera Efficiencies
- Student Intern Program
 - Active Camera Monitoring
- Direct Application of Cameras to Crimes
 - David Warner Case Example
- Benefits to Other Arenas – Emergency Management

Questions?



An Evaluation of Data-Driven Approaches to Crime and Traffic Safety (DDACTS) in Shawnee, Kansas: 2010-2013

Dr. Kevin Bryant and Greg Collins

November 21, 2014

This project was supported by Grant No. 2009-DG-BX-K021 awarded by the Bureau of Justice Assistance. The Bureau of Justice Assistance is a component of the Office of Justice Programs, which also includes the Bureau of Justice Statistics, the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime. Points of view or opinions in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Department of Justice.

Problem

- Between 2007 and 2009, Shawnee witnessed an *increase* in Part I Violent Crime, while nationally, during the same time period, there had been a *decline* in these types of crime.
- Due to economic conditions at the time, the department eliminated some specialized positions; officers who occupied those positions filled openings in the patrol division. This resulted in a 4.5% reduction in the number of sworn officers.

DDACTS in Shawnee

- **Data-Driven Approaches to Crime and Traffic Safety (DDACTS) initiative as Smart Policing**
- **Goals**
 - Reduce crime and traffic accidents in the DDACTS Zone using high-visibility traffic enforcement
 - Inform community stakeholders and partners of data driven approach to reduce crime and crashes
 - Change the (police) culture
 - Expect diffusion of benefits

Introduction to the DDACTS Concept

- **Shawnee became aware of DDACTS in August 2009 while it was being developed by NHTSA**
 - Looking for a way to implement “data-driven” decision making into department operations
- **Attended Kansas Traffic Safety Conference – DDACTS Presentation, March 30, 2010**
- **Hosted NHTSA’s first DDACTS Implementation Workshop, June 8-9, 2010**
 - SPD DDACTS Block Training June 22-24, 2010
 - SPD DDACTS Implementation July 6, 2010

DDACTS as a Policing Philosophy

- **DDACTS represents a sea change in the way we police.**
 - We understood officers can't be everywhere all of the time.
 - We realized a need to be smarter in the use of resources to reduce the social harm of crime and crashes.
- **Based on data, rather than completely random patrol, officers conduct high visibility traffic enforcement at a specified location, at specified “target” times.**
- **Used existing staff**

Stakeholder Involvement

- **Introduced DDACTS concept to the businesses in the target area.**
 - Special Investigations Officer contacted business owners and managers prior to launch
- **Introduced DDACTS concept to multi-housing complex managers**
 - Our Crime Resistant Community Program (CRCP) coordinator met with apartment managers to make them aware of increased police visibility.
- **Multiple media releases**

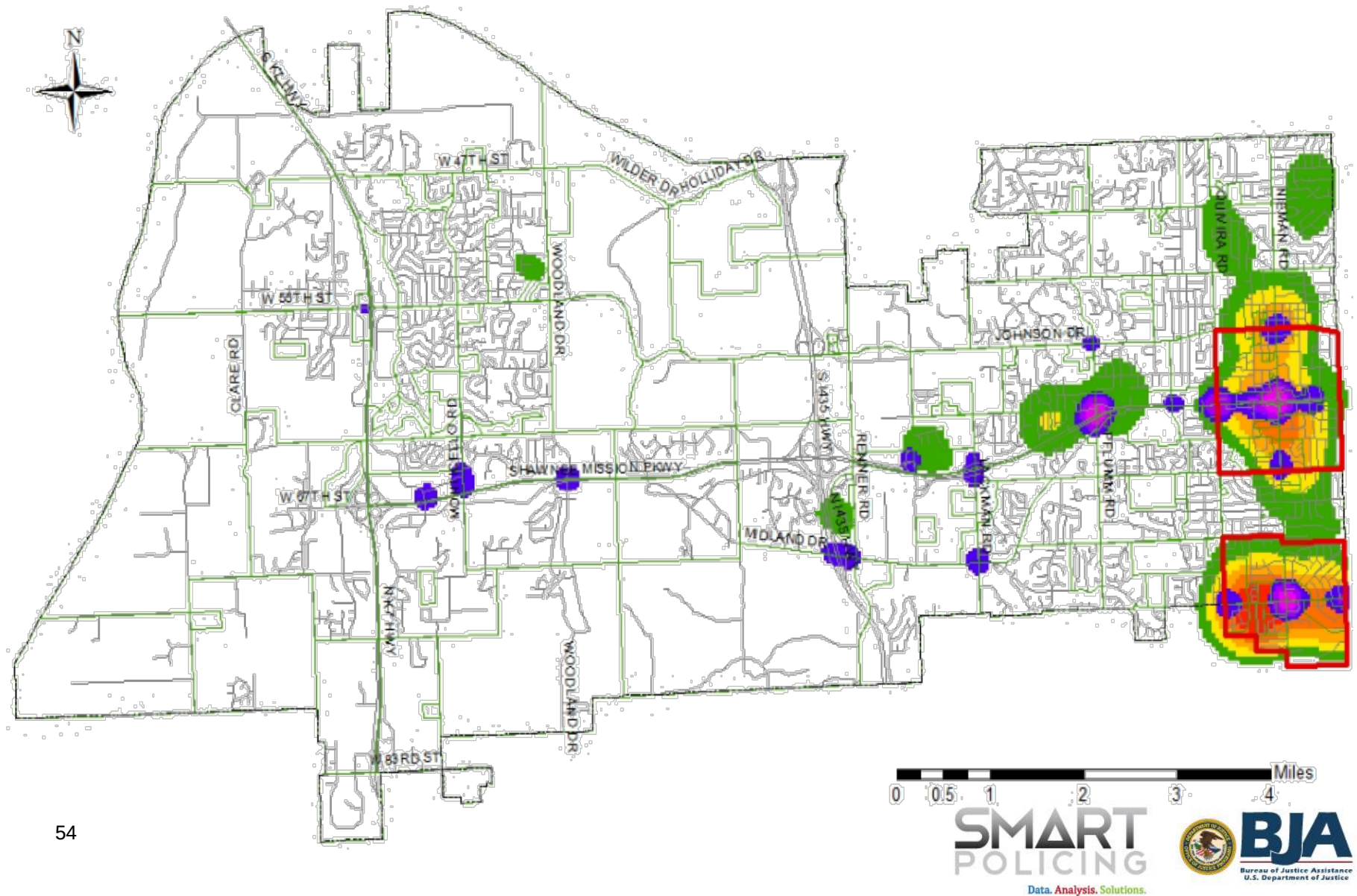
Research Design

- **Pre and post test comparison of means between a treatment area and a control zone. Police tactics within the control zone (and the rest of the city) were conducted as usual.**
- **Compared three year average of target crimes and collisions from prior the introduction of DDACTS to the three years following the introduction.**
 - Comparisons were made for three areas in the city.
 - Treatment area, control zone, and the remainder of the city.

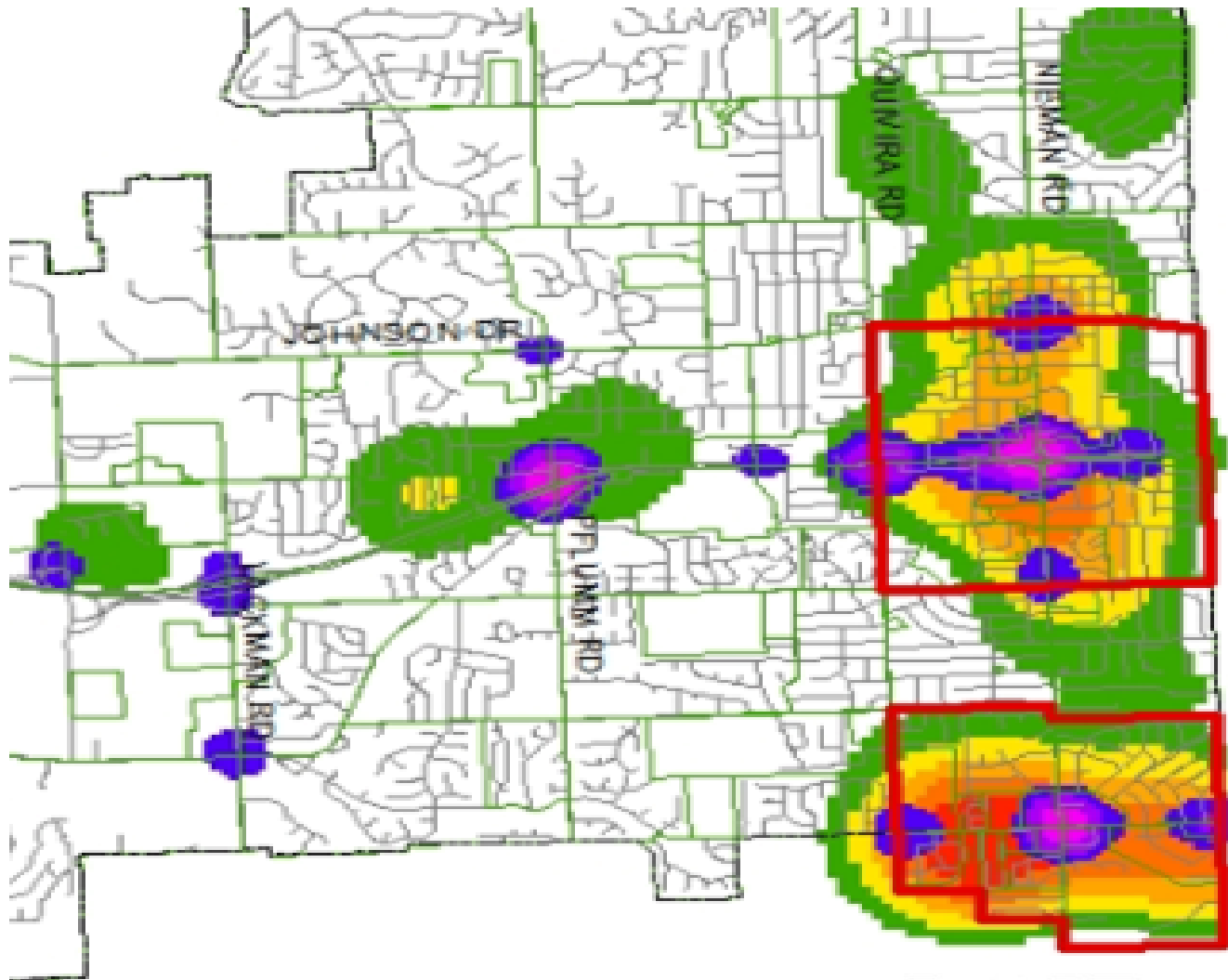
Treatment and Control Zones

- The next slide has a density map of crime and collisions in Shawnee from 7/6/2007 to 7/5/2010.
- The map also outlines the treatment and control zones, with crimes and collisions depicted as:
 - Robbery, Vehicle Burglary, and Vehicle Theft
 - Crime density color key: Green, Yellow, Orange, Red
 - Fatal Accidents, Injury Accidents, and Accidents that Cause Property Damage Only
 - Collision density color key: Blue, Purple, Pink

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Isolated View of Treatment and Control Areas



Treatment and Control Area Comparisons: Area and Population

	75 th St.	% of City Total	Control Zone	% of City Total
Area	.88 Sq. Mi.	2.05%	1.0 Sq. Mi.	2.3%
Population Estimate Current	5,004	7.73%	3,732	5.76%

Treatment and Control Area Comparisons: Land Use

Land Use Categories	Number in 75 th	% of total	Number in Control	% of total
Single Family	610	23%	775	40%
Duplex	162	6%	70	4%
Multi-Family Units	1825	68%	1009	53%
Business Licenses	104	4%	64	3%

Treatment and Control Area Comparisons: Total Crimes and Collisions, Pre-DDACTS

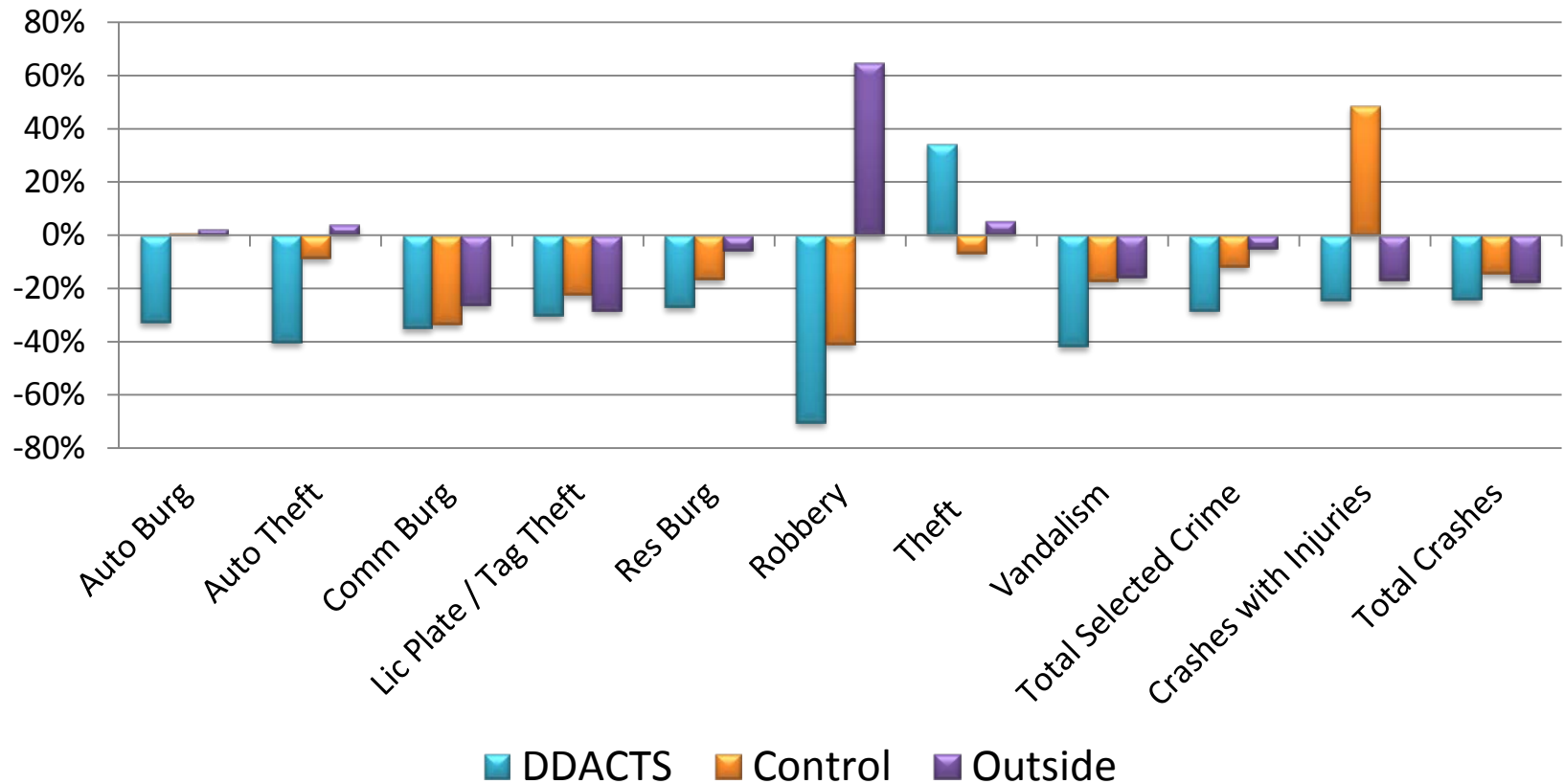
	75 th	% of City	Control	% of City
Total Target Crime-Pretest 3 yr. avg.	97	38.4%	70	27.7%
Total Collisions-Pretest 3 yr. avg.	104.67	14.8%	161.33	22.88%

Study Findings

- **Three-year findings:**
 - Total targeted crime: down 25.9% (-13.4% in control)
 - Collisions: down 22.6% (-15.8 in control zone)
 - Robbery: down 70.4% (-41.2% in control)
 - Vehicle Theft: down 40.3% (-8.5% in control)
 - Commercial Burglary: down 34.8% (-33.3% in control)
 - Residential Burglary: down 27.1% (-16.7 in control)
 - Vehicle Burglary: down 32.9% (+0.9% in control)

Graph of All Areas

Percent changes in reported crimes three years post implementation of DDACTS



Other Findings

- **Officer perceptions and attitudes toward DDACTS (focus groups)**
 - DDACTS as a department-wide initiative
 - Evidence of culture change
- **Community survey**
- **Business survey**
- **Displacement / Diffusion of Benefits**

Focus Groups

- **Research Project Focus Groups**

- Line officers, supervisors, investigators, commanders, communications personnel
 - Line officers had two randomly selected groups.
- Gain insight into officer/personnel perception of DDACTS

- **Department Focus Group**

- Work group created by Deputy Chief
- Selected officers and supervisors
- Intended to improve officer understanding and performance during targeted times.

- **Some crossover between the two groups.**

Business Survey

- **92 surveys delivered, received 57 responses**
- **Discover their knowledge of DDACTS**
 - 73% said they were not aware of the initiative
- **Have they noticed more officers**
 - However 86% noticed an increase in officer presence
- **Have they noticed more traffic enforcement**
 - 52% have noticed more traffic stops.
- **What is their perception of effective police tactics**
 - 80% believe targeted enforcement is effective or very effective.

Community Survey

- **307 responses received**
 - 51% apartments, 41% single family, 8% duplexes.
- **Discover their knowledge of DDACTS**
 - 58% not aware of the initiative
- **Have they noticed more officers**
 - However, 89% have noticed greater police presence
- **Have they noticed more traffic enforcement**
 - 81% have noticed more traffic stops
- **What is their perception of effective police tactics**
 - 77% believe targeted enforcement is effective or very effective.

Lessons Learned

- **Involve your Staff, Top to Bottom, from the Start**
 - In most cases it means a change in “CULTURE”
 - Explain how it affects each members’ job responsibilities
 - Advocate Strategic Approach vs. Tactical Operations
- **Develop a Clear and Specific Operations Plan**
 - Set a “GOAL” (i.e. 25 hours per week, 85% annually)
 - Specific as to Why, Who, Where, When, How Much...
 - Let the staff develop the operations plan (Ownership)
- **Monitoring, Adjustments and Accountability**
 - “It’s only practice if you’re not keeping score.”
 - Make adjustments when needed
 - Make sure they know this approach is “IMPORTANT”