DATA-DRIVEN APPROACHES TO CRIME AND TRAFFIC SAFETY (DDACTS)

CASE STUDY OF THE

BALTIMORE COUNTY POLICE DEPARTMENT'S
DDACTS PROGRAM

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BY

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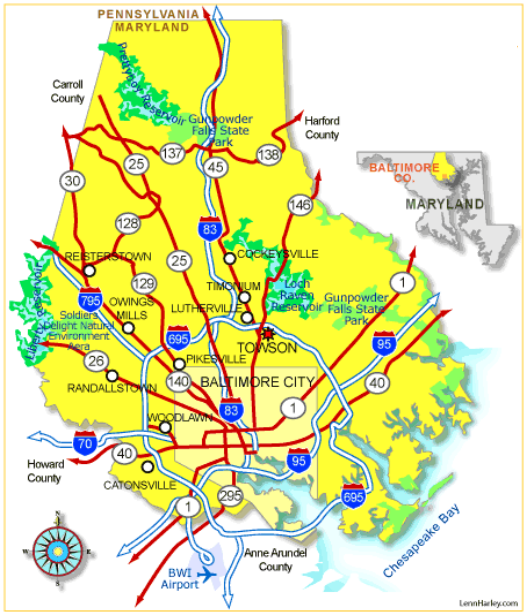
DISTINGUISHING FEATURES

Sometimes the stars align: Proximity to a major crime center, traffic safety issues, and a law enforcement agency with innovative leaders, a highly-skilled analysis unit, and a new chief. The Baltimore County Police Department's DDACTS program is an example of what can be achieved when agency managers understand the capabilities of modern crime and crash analysis and then apply them in a new way to counter the full range of law enforcement problems.

SETTING

The population of Baltimore County has increased steadily during the past two decades, unlike many areas in the Northeastern United States, and is estimated to reach 800,000 by the 2010 Census. The county is an appealing place to live, consisting of 682 square miles that encompass rolling hills and deciduous forests in the north, more than 170 miles of Chesapeake Bay shore in the east, major suburbs in the central and southwest regions, and a transportation network that enables mobility throughout the Washington-Baltimore Metropolitan Area. Baltimore County surrounds the City of Baltimore on all but the bay side, but the city is a separate entity. There are, in fact, no incorporated municipalities within Baltimore County, even though there are 30 named communities that are recognized by the Census Bureau and another 30 that are known locally, many of which have post offices and appear on maps. Even Towson, the county seat, is unincorporated.



Headquarters of the U.S. Social Security Administration, located in the Woodlawn area of Baltimore County, Maryland.

Baltimore County's economy is based primarily on the service sector, which represents 70 percent of employment, with health care and education the largest contributors. Several biomedical firms, light industrial facilities, and world headquarters of the Black and Decker Corporation are located within the county, as are the Centers for Medicare and Medicaid Services and the headquarters of the U.S. Social Security Administration, which together employ more than 12,700 people.

BACKGROUND

The Baltimore County Police Department (BCPD) is responsible for an unusually large geographic area. If it were a city, Baltimore County would be the fifth largest in the 48 contiguous United States in land area, with a population greater than the four (geographically) larger cities combined.[1] The BCPD supports its mission with a force of more than 1,900 sworn officers and a fleet of 860 marked and unmarked vehicles, including the full range of specialty and tactical equipment (e.g., forensic and prisoner transport vans; armored, underwater rescue, and hazardous material vehicles; a mobile laboratory; and a mobile command post, among others). The BCPD has only six motorcycles, which are used for escort duty, rather than traffic enforcement, but the department maintains an equal number of boats for maritime and inland waterway operations, and three helicopters that provide a rapid response capability throughout the jurisdiction.

The BCPD possesses other resources that are, arguably, more important than its entire collection of modern law enforcement equipment. Among those resources are police managers who recognize the contributions of traffic enforcement to the agency's overall mission, and a cadre of highly-skilled crime and crash analysts. A synthesis of these two elements occurred in late 2007 after the chief of 11 years resigned to become Superintendant of the Maryland State Police and his replacement was selected from within the ranks of the BCPD. There are many advantages to promoting from within an organization, not the least of which can be a candidate's familiarity with local conditions and knowledge of the agency's strengths and weaknesses.[2] At the time of his promotion, a local newspaper reported that police pilot and White Marsh patrolman were about the only positions that the new chief had not held during his 28 years with the Baltimore County Police Department. He had most recently served as colonel in charge of the Operations Bureau, overseeing the patrol and investigative divisions, and as a consequence, was intimately familiar with the county's crime and traffic safety issues and particularly aware of the special analytical capabilities that had been fostered by the department during the preceding years.

Like many new chiefs, James Johnson had a plan when he assumed leadership of the BCPD. He promptly tasked Captain Howard Hall with a research assignment: Direct the analysis unit to study the incidence of crime and crashes throughout the county to determine if there are locations where the two problems overlap; if any doubly problematic areas emerge from the analysis, develop an enforcement strategy that addresses both issues with the same resources. In other words, the chief directed Captain Hall to test a hypothesis and then if the evidence supports the hypothesis, to implement a data-driven approach to crime and traffic safety. Neither Chief Johnson nor any other member of the BCPD had ever heard of DDACTS before. Independent invention is the hallmark of a good idea.

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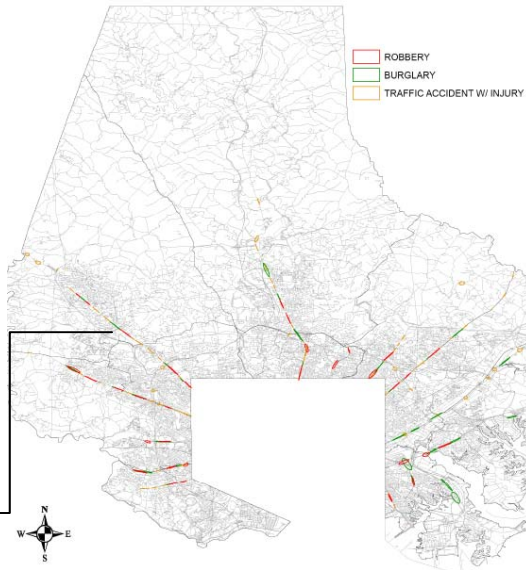
[1] Jacksonville, Florida is the largest city in area in the contiguous 48 states. At 758 square miles and 740,000 residents, Jacksonville includes all of Duval County, with the exception of four incorporated communities. Jacksonville's geographic size and population are comparable to those of Baltimore County, but unlike the Jacksonville Police Department, the BCPD is solely responsible for providing law enforcement services throughout Baltimore County. Anaconda and Butte, Montana, and Willow, Arkansas, are the other larger cities in land area (715 to 757 square miles each), but their populations are small (9,400, 34,000, and 1,700, respectively), as are the populations of Sitka, Juneau, and Anchorage, Alaska (1,697 to 2,874 square miles each) which makes the BCPD's responsibilities unique among law enforcement agencies in the U.S.

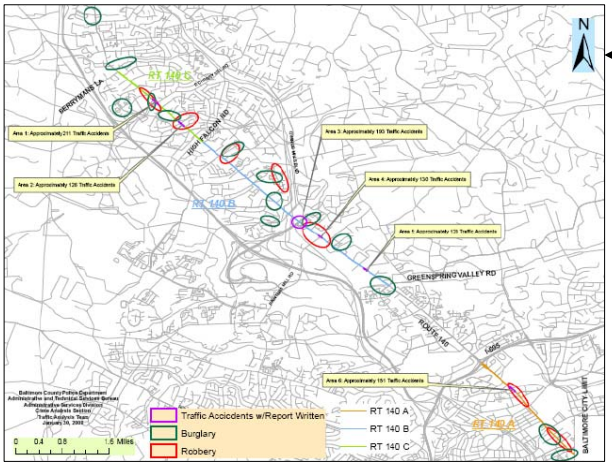
[2] Promoting from within also can avoid the erosion of morale among senior managers that often accompanies the overlooking of local talent and loyalty.

PLANNING PROCESS

The Crime Analysis Section of the Baltimore County Police Department has a reputation within the agency and beyond for its uncanny ability to help solve serial crimes. For example, during the early 1990s bandits armed with shotguns were robbing supermarkets and other retail outlets on the corridors leading out of Baltimore City, on some days staging hold-ups in the city and on other days in the county. The crimes baffled police until the analysts in both jurisdictions got involved and began sharing their data and plotting the incidents on maps. A pattern emerged almost immediately from what had previously appeared to be random events, which enabled the analysts to predict when and where the next robbery was likely to occur. The crimes that had become known as the "shotgun robberies" ended abruptly as a result of stakeouts that were conducted in response to the analysts' data-driven predictions.[3] A similar collaboration led Phil Canter, Director of the BCPD's Crime Analysis Section, to identify the neighborhood in which the locally notorious "red glove robber" probably lived and to predict that he would return there following his next crime. Detectives responded promptly when alerted to the incident and observed a vehicle entering the predicted neighborhood that matched the description of the getaway car provided by previous witnesses. More recently, BCPD analysts studied a series of grocery store robberies that occurred over a several month period in 2007. They plotted the incidents on maps and found temporal and geographic patterns that allowed them to specify when and where the stakeouts should be conducted. The prediction was accurate and the case ended in a dramatic exchange of gunfire. These and many other examples of analytical success have contributed to the BCPD's reputation for excellence in the application of statistical and computational methods in law enforcement.

Knowledge of this history of success in criminal cases led the new chief to direct Captain Hall and the analysis section to test the hypothesis concerning crime and crash incidence. The Crime Analysis Section reviewed data from all 10 BCPD precincts to determine if a correlation exists between areas with disproportionate numbers of traffic crashes and crimes, specifically robberies and burglaries. The analysts mapped the locations of the target crimes and serious traffic crashes using ArcGIS and identified several major roadways where substantial crash problems coincided with high numbers of robberies and burglaries.





Maps illustrating the clusters of serious crashes and the incidence of robberies and burglaries during the preceding three years were prepared for each road segment identified by the geospatial and temporal analysis of archival data.

[3] This collaboration led directly to the creation of the Baltimore-Washington Regional Crime Analysis System.

Mission Statement and Goals

The Operational Services Section reviewed the results of the analysis and developed the 2008 Crash/Crime Reduction Project, which was adopted as an Operations Bureau priority for the year. The purpose of the project was to maximize the effects of traffic enforcement on road safety and at the same time reduce the incidence of crime by strategically targeting enforcement along the designated corridors.

Goals related to crashes and criminal acts in the target areas were identified during the development of the project to serve as objective outcome measures. Compliance with posted speed limits and use of occupant restraints were added to the plan as important secondary measures of traffic safety. Specific objectives of the project are listed below.

Reduce traffic crashes in the target areas by 5%
(compared to the average of the preceding three-years).

Reduce robberies in the target areas by 5%
(compared to the average of the preceding three-years).

Reduce burglaries in the target areas by 5%
(compared to the average of the preceding three-years).

Reduce excessive speed in target areas
(85^{th} percentile speeds less than 10 mph over the posted limits).

Increase seat belt usage by 2 percentage points in the target areas
(based on pre-, during, and post-program survey data).

Operational Plan

An Operational Plan composed of specific actions was developed and enforcement responsibility was assigned to each precinct and to the Operational Services Section. Also, each roadway was divided into three segments for enforcement and data collection, as listed below.

Baltimore National Pike (2.9 miles)
- Segment A: Baltimore City Line to Academy Rd. (0.7 miles)
- Segment B: Academy Rd. to I-695 (0.8 miles)
- Segment C: I-695 to Nuwood Rd. (1.4 miles)

Liberty Road (5.6 miles)
- Segment A: Baltimore City Line to I-695 (2 miles)
- Segment B: I-695 to Courtleigh Dr. (1.7 miles)
- Segment C: Courtleigh Dr. to Chapman Rd. (1.9 miles)

Reisterstown Road (7 miles)
- Segment A: Baltimore City Line to I-695 (2 miles)
- Segment B: Green Spring Valley Rd. to High Falcon Rd. (3.4 miles)
- Segment C: High Falcon Rd. to Berrymans Rd. (1.6 miles)

York Road (9.4 miles)
- Segment A: Baltimore City Line to I-695 (3.1 miles)
- Segment B: I-695 to Padonia Rd. (3.1 miles)
- Segment C: Padonia Rd. to McCormick Rd. (3.2 miles)

Belair Road (5.7 miles)
- Segment A: Baltimore City Line to I-695 (1.3 miles)
- Segment B: I-695 to MD 43 (0.7 miles)
- Segment C: Necker Ave. to Gunpowder Park (3.7 miles)

Eastern Boulevard (5.8 miles)
- Segment A: Baltimore City Line to the Back River Bridge (2.2 miles)
- Segment B: Back River Bridge to MD 702 (1.9 miles)
- Segment C: MD 702 to Emala Ave. (1.7 miles)

ENFORCEMENT METHODS

The primary enforcement method during the BCPD's Crash/Crime Reduction Project was to conduct focused traffic patrols on the 18 road segments identified by the analysis of crime and crash data. Officers were encouraged to make as many enforcement stops and other contacts with the public as possible during their deployments. In addition, the BCPD's Training Section, in conjunction with the Maryland Highway Safety Office and NHTSA, conducted three sessions of the training program, "It All Starts with a Traffic Stop," which is designed to instruct officers in the use of traffic stops to identify criminal activity and reduce crashes. More than 120 Baltimore County officers completed the class. The officers' evaluations of the sessions were very positive and, for this reason, additional sessions will be offered in 2009.

FREQUENCY OF OPERATIONS/DURATION OF PROGRAM

The Operational Plan directed the precinct commanders to use all uniformed personnel assigned to the designated areas for increased enforcement patrols focusing on occupant restraint use and hazardous traffic violations and other driving behaviors that contribute to crashes. Weekly benchmarks for patrol time devoted to the project were assigned to each precinct, but field supervisors were responsible for developing specific deployment plans for their areas of operation; benchmarks totaled 1005 hours of on-duty time per week (countywide). Activity data were collected on a continuous basis and progress was tracked weekly to ensure that the operational commitment was maintained. The Crime Analysis Section monitored traffic stops and crash/crime incidents along the targeted corridors and produced weekly and monthly reports.

The Crash/Crime Reduction Project was conducted between March 1, 2008 and January 2, 2009; 51,598 hours of special enforcement patrols were performed during this 44-week period. The total hours of patrol time devoted to the project represents 118 percent of the benchmark established by the Operational Plan. A breakdown by command is presented below.

TABLE 1

SPECIAL ENFORCEMENT PATROL HOURS BY PRECINCT / COMMAND

Precinct / Command	Total Hours	Benchmark	Percentage
Wilkens	3951	3567	111%
Woodlawn	4319	3610	119%
Franklin	8780	4350	201%
Pikesville	7007	5504	127%
Towson	4633	4393	105%
Cockeysville	6118	4872	125%
Parkville	3692	3132	118%
White Marsh	2431	2349	103%
Essex	3840	4176	92%
North Point	1784	2958	60%
Traffic Management	4985	4567	109%

Source: Baltimore County Police Department

The CAD records show that 14,661 more traffic stops were made in the target areas during the project than in the same period one year earlier. The difference represents an 86.3 percent increase in focused enforcement activity and reflects the sincere commitment of BCPD officers and managers to a data-driven approach to reducing crime and improving traffic safety.

All ongoing BCPD traffic enforcement programs were directed to the Crash/Crime Reduction Project target areas. The largest contributor of patrol effort in this regard was the Smooth Operator Program, which is intended to reduce aggressive driving. The Maryland Highway Safety Office designated Smooth Operator enforcement zones within each of the six target areas. Signs were posted in the designated areas and an extensive advertising campaign was funded in the Baltimore area.

PARTICIPATION

For the first time in many years, State Troopers worked alongside BCPD officers conducting focused traffic enforcement in the target areas. Although limited, the participation of the Maryland State Police in the 2008 Crash/Crime Reduction Project is considered to be an important development and BCPD managers are hopeful that the experience will lead to further cooperation in the future.

In addition to the enforcement activity, the State Highway Administration coordinated roadway safety audits along three of the designated corridors. The audit teams consisted of traffic and highway engineers, human factors experts, and traffic safety specialists. They reviewed crash data from the target areas and conducted extensive on-site observations and reviews. The audit reports included recommendations related to vehicle and pedestrian safety that range from maintenance issues, such as the need for re-striping and signal timing adjustments, to the need for significant roadway modifications. The reports also suggested increasing enforcement efforts in certain areas. Engineering improvements are subject to budget availability; however, the State Highway Administration District 4 has begun the process of issuing work orders to address the maintenance issues identified in the audit reports.

The Maryland Highway Safety Office conducted a focus group of police personnel to gather feedback about the program; the sessions were conducted away from BCPD facilities and supervision to encourage candor. The participants' comments confirmed that project activities were not delaying responses to calls for service, most of the officers' (patrol/traffic officers) criminal arrests result from traffic stops, and supervisors were reviewing enforcement activity. There was less agreement concerning the effectiveness of the project and the need to conduct focused traffic enforcement patrols. Perhaps most important, the focus group discussions revealed that officers were not fully informed of the purpose of the Crash/Crime Reduction Project or the detailed analyses of crime and crash data that specified the road segments for targeted enforcement. Some officers reported that they were simply assigned to patrol the target segments without explanation and would have performed their tasks with greater enthusiasm if they had understood the project's goals and theoretical basis.

The Maryland Highway Safety Office also offered to fund a recognition program for personnel involved in the project. The resulting Traffic Safety Award has been incorporated in the BCPD's formal awards program. The Traffic Safety Award will be presented to officers who make significant contributions to the agency's traffic safety efforts. In addition, several items were purchased to present to BCPD personnel to recognize their contributions to the 2008 Crash-Crime Reduction Project.

PUBLIC AWARENESS/PROGRAM VISIBILITY

A press conference was held to formally announce the BCPD's 2008 Crash / Crime Reduction Project. The event attracted the attention of television and print media and resulted in a lengthy article on the first page of the Maryland Section of the *Baltimore Sun.* Also, radio advertising in the Baltimore metropolitan area was purchased at a cost of approximately $100,000. The 60-second public service announcements targeted male drivers between the ages of 18 and 34 and were broadcast 20 to 30 times per week on five to six radio stations during the summer months, specifically during the designated enforcement waves.

- The Maryland Highway Safety Office funded an extensive media campaign in the Baltimore area during the Smooth Operator Program; the campaign included:
- Four billboards announcing the Smooth Operator Program were placed for one month each along York Road, Liberty Road, Reisterstown Road, and Belair Road; cost $43,172.
- Advertising on 100 MTA busses that travel on or near the target corridors appeared during June, July, and August; cost of $47,980.
- Signs designating "Smooth Operator-Aggressive Driving Enforcement Zone" were placed along all of the target corridors.

Information describing the project and target areas was provided to each precinct to share with their communities. The Commander of the Operational Services Section and/or the CTSP Coordinator attended Police Community Relations Council meetings in Precincts 2 and 6 to explain the program. Members of the communities provided positive feedback at both meetings.

The BCPD maintains an information-rich website that includes video presentations concerning a variety of law enforcement issues and news about the department. Visit the first of the following two URLs to hear Chief Johnson describe the BCPD's homegrown DDACTS project; the second item presents excellent news coverage of the department's efforts.

http://www.youtube.com/watch?v=8YQYXXESRJ0
http://wjz.com/video/?id=58945@wjz.dayport.com

FUNDING

All available highway safety grant funds for overtime enforcement were dedicated to special enforcement patrols on the target roadways. After initiation of the project, an additional $50,000 was provided by the Maryland Highway Safety Office for the Smooth Operator Program to counter aggressive driving, resulting in a total of $185,168 spent on enforcement. The amounts listed in the previous section for program publicity are in addition to the funds spent on enforcement labor.

LESSONS LEARNED

Funds were requested to purchase monitoring devices to collect speed survey data. Although the request was made before the project began, the procurement process was lengthy, which required the initial surveys to be conducted manually. This method of data collection is limited by available time and can be affected by human error. However, the Maryland Highway Safety Office obtained the assistance of the Baltimore Metropolitan Council to provide the speed data. A consultant was hired to conduct pre- and post-project surveys along all six corridors, which provided comprehensive and reliable data for the evaluation. Lesson: Either begin the procurement of any equipment or services needed, or look for outside sources of support, well in advance of the program's start date.

Seatbelt surveys were conducted by members of the BCPD Auxiliary Team. They readily accepted this task and provided valuable assistance to the project. Lesson: Consider using non-traditional resources, such as volunteers, to perform certain functions; however, prepare clearly written instructions and devote sufficient time to training to ensure that all participants perform their tasks correctly.

Although enforcement benchmarks were exceeded in nearly all precincts, it was found that personnel were not necessarily deployed at the optimum times and locations to achieve the maximum deterrence effects. Lesson: Devote more effort to planning the patrol deployments.

The Maryland State Police was not involved in the planning of the BCPD's Crash/Crime Reduction Project and the MSP's willingness to help was, for the most part, unanticipated. Lesson: Invite law enforcement agencies and other organizations with relevant resources to participate in the planning and implementation of projects.

Project planners predicted accurately that burglary would be difficult to deter with traffic enforcement that is conducted primarily during daytime hours. Lesson: Employ a more time directed approach to patrol scheduling, combined with crime prevention and investigative efforts aimed at the target areas with the highest burglary rates.

OBSTACLES

The BCPD's analysts found that crash data from 2006 was the most recent available from the State of Maryland when the project began (in 2008), and data from 2007 did not become available until the end of 2008.[4] The availability of timely and accurate crash data, derived ultimately from MAARS reports, is a critical requirement for a data-driven approach to crime and traffic safety. It is not feasible for local personnel to manually enter the information contained on more than 18,000 collision reports each year. Presently, the State of Maryland is developing an electronic MAARS report that promises to speed the process by eliminating manual data entry. However, the planned system will require officers to collect more information than they presently collect for each crash and to transmit the electronic records via a mobile internet capability.

The analysts also discovered that the predominant Primary Collision Factor (PCF) throughout Baltimore County was, "Failure to pay full time and attention," which is a general description of a contributing factor to a crash, but does not provide specific information about causation. For this reason, the Maryland State Police asked that it no longer be used as a PCF. This change in collision reporting procedures was not implemented until 2008.

[4] Many states are three or more years behind in their entry and reporting of annual statistics, which makes the absence of timely crash data an obstacle that is confronted by all traffic safety researchers.

PROGRAM STRENGTHS

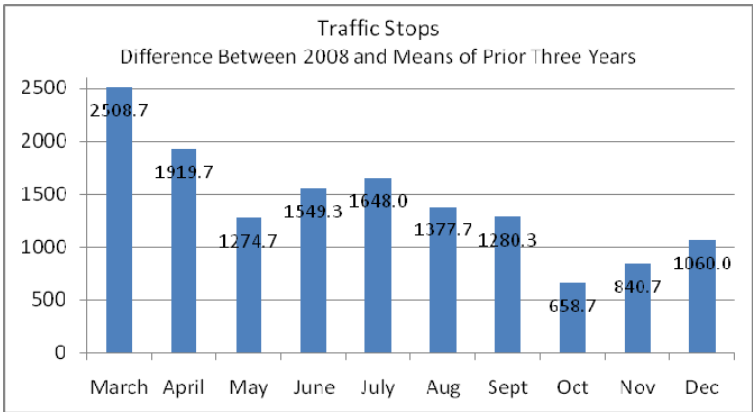
The primary strengths of the BCPD's 2008 Crash/Crime Reduction Project are, 1) skilled analysts, 2) police managers who understand the analysts' capabilities and are willing to apply those resources creatively, and 3) the use of on-duty time to conduct special enforcement. The BCPD has cultivated analytical expertise for at least three decades, a tradition that has spanned the tenures of several chiefs. Throughout this period, the department's approach has been to recruit qualified statisticians and then to train them to become crime and traffic analysts, rather than hiring personnel who are already familiar with crimes and crashes and hoping they will learn how to perform statistical procedures on the job. The result of this policy is evident in the department's current cadre of nine tactical, strategic, and traffic analysts who routinely perform the most sophisticated inferential tests of significance to identify problems, establish objectives, and evaluate performance. In contrast, it is unclear how the BCPD developed a management culture that encourages a creative approach to solving law enforcement problems. The residents of Baltimore County clearly benefit from this tradition, whatever its origins might be. An example of this creativity is the department's use of officers' regularly scheduled duty hours, rather than overtime assignments, to perform special enforcement tasks. The 51,000+ hours of on-duty time represent a substantial enforcement effort at no additional cost to the County. Use of on-duty time makes the DDACTS approach affordable and the significant reductions in crashes and crime demonstrate that enforcement focused on target areas is effective.

SUGGESTIONS FROM THE PROGRAM ORGANIZERS

Senior managers of the BCPD meet each week to review the events of the preceding seven days, discuss issues and trends, and learn about department initiatives and programs. The Crash/Crime Reduction Project had been described in detail on several occasions during the weekly meetings; for this reason, project managers assumed that all precinct commanders would uniformly convey the purpose and details of the project to their officers. However, the focus group research discovered that many officers were unaware of the reasons for the special traffic enforcement patrols and almost certainly would have performed better if they had been informed. The implications are clear: Ensure that the full message about a data-driven approach to crime and traffic safety reaches all participants.

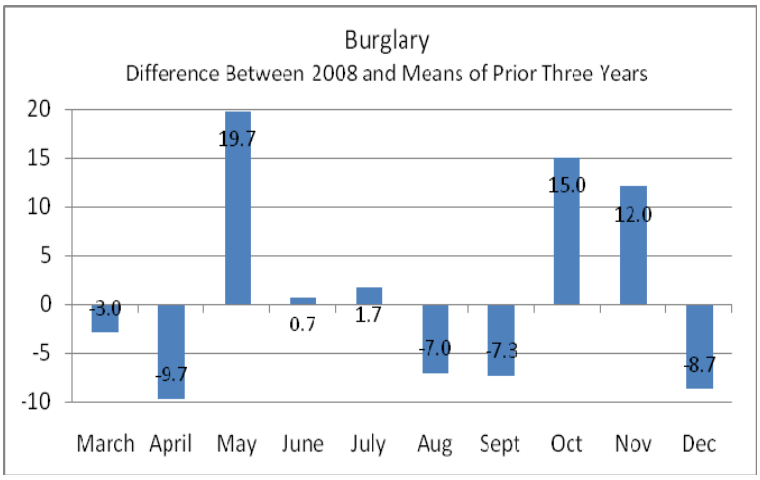
EVIDENCE OF PROGRAM EFFECTS

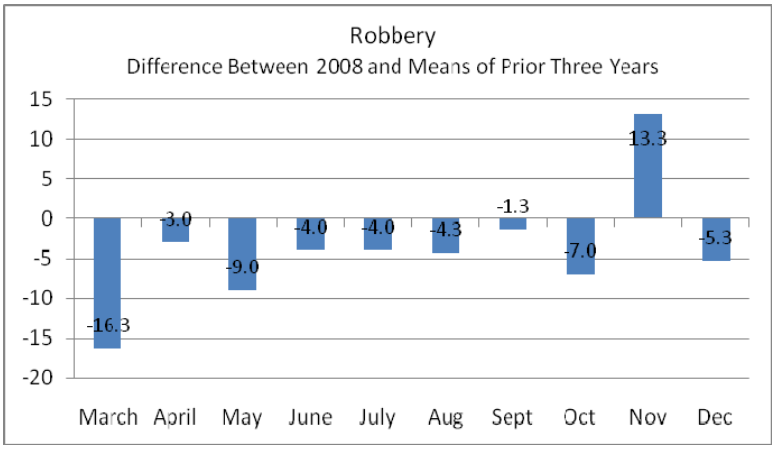
An enforcement data sheet was developed during the planning process for field personnel to use while working in the target areas. Manual data collection is not the most desirable method, but it was the only means available to record the many categories of information necessary to evaluate the Crash/Crime Reduction Project. A database was developed to store the information and permit tabulation. Field personnel submitted the individual reports, which were collected at the precinct level and forwarded to the Traffic Management Division where they were entered into the database. Traffic Management personnel prepared and distributed weekly reports to track the progress of the enforcement effort. The reports included the numbers of patrol hours, traffic stops, crashes, and crimes, and compared those statistics to the numbers from the same period of the previous year. The progress reports were discussed at the BCPD's weekly management meetings.



CRIME DATA

The number of burglaries reported in the vicinity of the target roadways (all segments combined) increased by 2.4 percent, or a total of 13 incidents, compared to the average of the preceding 3 years for the same 10-month period. Burglaries on Baltimore National Pike and Eastern Boulevard decreased by five percent or more; burglaries increased on the remaining target roadways. Overall, burglaries decreased on nine of the 18 road segments and during five months of the program period.

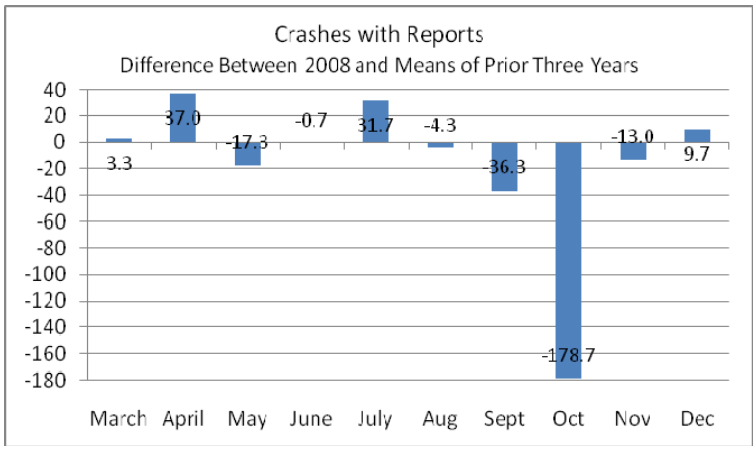




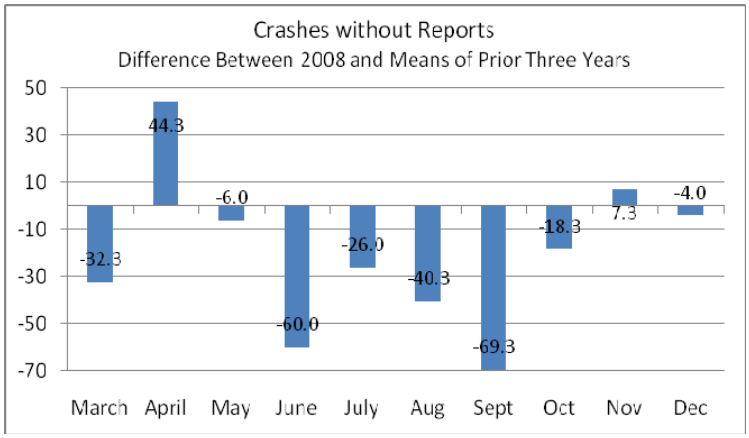
The number of robberies reported in the vicinity of the target roadways (all segments combined) decreased by 13.6 percent or a total of 40.7 incidents during the 10-month project, compared to the preceding three year average for the same period. The numbers of robberies declined on Liberty Road, Reisterstown Road, York Road, and Belair Road by greater than five percent and by three percent on Eastern Boulevard. Robberies on Baltimore National Pike increased by two percent. Overall, the number of robberies declined on 13 of the 18 selected road segments and during eight months of the 10-month program period. It is notable that, despite the considerable overall reduction in robberies in the vicinity of the targeted roadways, the number of robberies increased by 25.8 percent along Eastern Boulevard's Segment A. Records show that the number of enforcement hours devoted to this road segment were substantially below the assigned level of effort, particularly towards the end of the year, which might have contributed to the disproportionate increase in robberies in that area.

Analysts performed an interrupted time series analysis to determine whether the numbers of robberies changed significantly during the study period. This highly sensitive inferential test found the change in incidence to be within the 90 percent confidence interval. Program managers are encouraged by the direction and consistency of the decline in robberies, despite the absence of statistical significance.

TRAFFIC SAFETY DATA



There were 94 fewer crashes that resulted in personal injury on the targeted roadways during the 10-month project, compared to the average for the same period during the preceding three years. The numbers of crashes declined on all six corridors and on 13 of the 18 road segments for a 15 percent drop in personal injury crashes during the BCPD's Crash / Crime Reduction Project. Overall, there were 374 fewer crashes reported on the targeted roadways during the 10-month project compared to the three-year average for the same period. The total numbers of crashes declined on 13 of the 18 road segments for a six percent decline in all crashes.



BCPD statisticians subjected the crash data to two separate inferential tests of significance. Mann-Whitney (Kruskal-Wallis One Way Analysis of Variance) tests found significant declines in personal injury crashes and in all reported crashes combined during the special enforcement project. These results were confirmed by more sensitive interrupted time series analyses, which showed that crashes began to decrease shortly after the program started and continued throughout the duration of the study period; the data suggest a cumulative deterrence effect in response to the special enforcement patrols.

Seatbelt surveys were conducted on 13 of the 18 targeted road segments at the beginning of the project which observed usage rates ranging from 83 to 97 percent. Surveys conducted on 14 of the 18 segments at the conclusion of the project found usage rates from 74 to 98 percent; increases were identified on only four of the segments. The range of usage recorded in the initial surveys was consistent with prior surveys conducted by the BCPD and, for this reason, project managers were disappointed with the results of the post-treatment surveys. Possible explanations include, 1) failure to conduct both pre- and post-program surveys systematically (different volunteers performed the tasks at different times and on different days of the week), and 2) a "ceiling effect" (i.e., the pre-treatment usage rates already were high, which constrains the possible magnitude of an experimental effect).

The Baltimore Metropolitan Council sponsored independent speed studies involving 36 data collection points on the six corridors. The 85th percentile speed was documented at fewer than 10 mph above the posted limit at 30 of these points and reductions in 85th percentile speeds were documented at 22 of the data points. Decreases in the percentage of vehicles exceeding the posted speed limit were documented at 27 of the data points.

FINAL NOTE

The Baltimore County Police Department responds to approximately 18,000 reportable traffic crashes each year. In 2007, crashes resulted in 75 deaths and thousands of injuries in addition to millions of dollars in property damage. Preventing crashes is part of the BCPD's mission to ensure public safety. Reducing serious crime is another component of the mission and the BCPD's managers and officers are convinced that traffic enforcement is an effective tool to reduce crime as well as to improve traffic safety. The BCPD has adopted DDACTS terminology and modified certain procedures in response to lessons learned during the 2008 Crime/Crash Reduction Project. Beginning in 2009, responsibility for the scheduling and tactical deployment of patrols within the road segments identified by the analysts has been shifted to the precinct commanders. BCPD managers intend to refine the methods incrementally and incorporate a data-driven approach to crime and traffic safety as their standard operating procedure by the year 2010.

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