DATA-DRIVEN APPROACHES TO CRIME AND TRAFFIC SAFETY

CASE STUDIES OF SIX PROGRAMS

PREPARED FOR THE

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16. Abstract

This document presents a collection of six case studies of programmatic efforts conducted by law enforcement agencies following a data-driven approach to crime and traffic safety (DDACTS). DDACTS is a method in which the locations of crimes and motor vehicle crashes are plotted geographically and temporally to identify areas and times of overlapping high incidence. Special enforcement is then focused on these "hot spots" to achieve synergistic results. The six case studies presented here include information about: Distinguishing Features; Setting; Background and Planning; Special Enforcement Methods; Frequency of Operations and Duration of Program; Participation; Public Awareness and Program Visibility; Funding; Lessons Learned; Evidence of Program Effect; and, Contacts. The document also includes an introduction that describes the DDACTS method and an appendix prepared by Drs. Robert Worden and Sarah McLean that discusses DDACTS in theory and practice.

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DATA-DRIVEN APPROACHES TO CRIME AND TRAFFIC SAFETY:
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INTRODUCTION

This document presents six case studies of programs that were conducted to reduce the incidence of crime and motor vehicle crashes. The purpose of the document is to provide examples of promising programs that might encourage law enforcement managers and others to consider developing similar programs in their jurisdictions. A flowchart is provided at the end of this introduction that illustrates a sequence of steps that might be followed to plan and implement a DDACTS program. Appendix A is a paper prepared by Drs. Robert Worden and Sarah McLean that discusses DDACTS in theory and practice.

BACKGROUND

Increasing demands on limited resources require law enforcement managers to seek innovative means to improve operational efficiency and effectiveness. One method is to combine previously separate enforcement activities to derive synergistic benefits. Another is to base the deployment of law enforcement effort on systematic analyses of objective data. Previous research has shown that sustained, high-visibility traffic enforcement can significantly reduce the numbers of speed-related traffic crashes and the incidence of certain categories of crimes in the vicinity of the enforcement.[1] Additional studies have found that many of the areas that are characterized by disproportionate criminal activity are also the locations of disproportionate numbers of traffic crashes. Further, focusing traffic enforcement in the overlap areas has been shown to result in significant reductions in both crime and crashes.[2]

The National Highway Traffic Safety Administration (NHTSA) in conjunction with the Bureau of Justice Assistance (BJA) and the National Institute of Justice (NIJ) has developed a method for allocating law enforcement effort based on the concepts of synergy and data-driven decision-making. Data-Driven Approaches to Crime and Traffic Safety (DDACTS) is a process in which the locations of crimes and motor vehicle crashes are plotted geographically and temporally in order to identify areas and times of overlapping high incidence. Special enforcement is then focused on these "hot spots" to achieve synergistic results by deterring crime and the traffic violations that contribute to crashes.[3] A DDACTS program can be planned using paper maps and old-fashioned push pins, but law enforcement agencies increasingly are aided in this task by sophisticated analytical capabilities and mapping software. Both methods are represented in the case studies presented here.

OBJECTIVES

This collection of case studies provides examples of data-driven approaches to reducing crime and motor vehicle crashes. The ultimate objectives of the case studies are to stimulate interest in the method and encourage law enforcement managers to give it a try by describing how others have planned and implemented DDACTS programs. A description of a single exemplary program might provide sufficient inspiration and/or guidance for some. However, law enforcement agencies vary in size, mission, and capabilities and for an example to provide a useful model it must first be perceived as relevant. For this reason, the six DDACTS programs described here represent a broad range of agencies, environments, and local issues.

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[1] Stuster, J. (1995). *Experimental Evaluation of Two Municipal Speed Enforcement Programs: Final Report.* US Department of Transportation, National Highway Traffic Safety Administration, Wash, DC, No. DOT HS 808 325.

[2] Stuster, J. (2001). *The Albuquerque Police Department's Safe Streets Program.* US Department of Transportation, National Highway Traffic Safety Administration, Washington, DC, DOT-HS-809-278, (June). (http://www.nhtsa.dot.gov/people/injury/research/ss7.pdf)

[3] In addition to achieving greater efficiency by combining crime and traffic enforcement effort, a data-driven approach is inherently rational and, therefore, defensible without reservation.

All six of the programs described here followed the DDACTS model by first assembling geographic and temporal data about crimes and motor vehicle crashes, and then representing the information graphically to identify areas of disproportionate and overlapping crime and crash incidence. Despite this fundamental similarity, each of the programs is unique in its combination of agency type, resources available, environmental conditions, enforcement methods, and frequency of operations. The programs represent a broad spectrum of special enforcement activities conducted by a variety of agencies, including county sheriffs, municipal police departments, a state patrol, and a multi-agency task force. In short, this collection of case studies provides at least one example of a data-driven approach to crime and traffic safety that is relevant to any law enforcement agency in the nation.

A common format is used to describe the programs. Each case study begins with a statement of the program's Distinguishing Features, followed by a description of the Setting, or location, of the program; then, Background information and a discussion of the Planning Process are provided. Next, the program is described in sections devoted to the Special Enforcement Methods, Frequency of Operations and Duration of the Program, Participation, Public Awareness/Program Visibility, and Funding. Perhaps most useful, the case studies also include sections listing the Lessons Learned during the program, which are presented in terms of Obstacles encountered (and solutions to the problems), Program Strengths, and specific Suggestions From the Program Organizers. Each case study concludes with a brief discussion of the Evidence of Program Effects and the program liaison's Contact information.

THE CASE STUDIES

The locations of the six DDACTS programs described in this collection are illustrated on the map of the United States, inserted below. Summaries of the programs are provided in the following paragraphs.
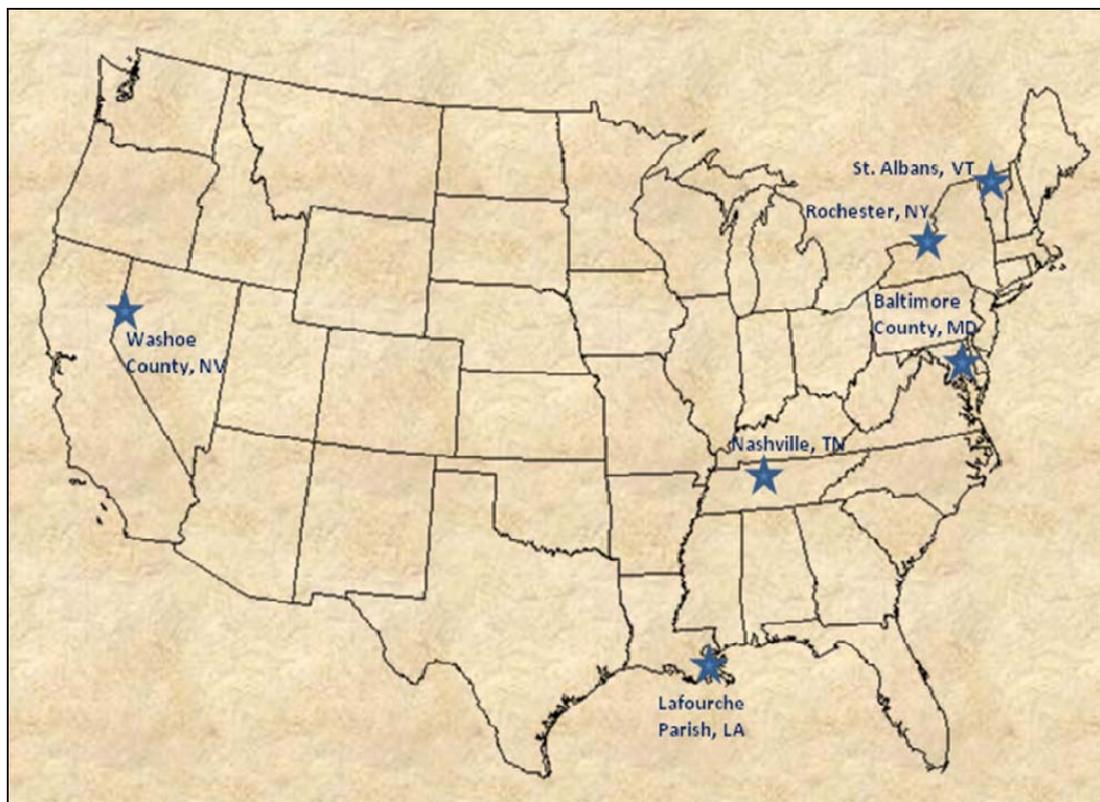
ST. ALBANS, VERMONT

Alert law enforcement officers in rural Vermont linked an increase in crimes and crashes to an emerging drug problem and responded by studying the crime and crash data and then implementing a special enforcement program to counter the drug, crime, and traffic safety issues together.

BALTIMORE COUNTY, MARYLAND

A new chief who had previously helped build the department's analysis unit directed a captain to lead the analysts in plotting the locations of crimes and crashes to identify areas of overlapping high incidence, and then to deploy patrol personnel to those areas. Neither the chief nor anyone else in the Baltimore County Police Department had heard of DDACTS until long after they had independently invented the method.

WASHOE COUNTY, NEVADA

The national economic recession has affected all law enforcement agencies, but some more than others. The Washoe County Sheriff's Office used the DDACTS method as a force multiplier to deter crime and unsafe driving behaviors with the same focused patrol effort.

ROCHESTER, NEW YORK

The Rochester Police Department possesses extensive analytical capabilities that were developed primarily to counter the culture of gun violence that plagues the northeastern region of the U.S. The agency applied the DDACTS method as the latest in a series of attempts to address this dangerous and seemingly intractable problem.

LAFOURCHE PARISH, LOUISIANA

A reluctance to alienate voters prevents some sheriffs from conducting vigorous traffic enforcement programs, but not the sheriff of Lafourche Parish in rural Louisiana. The agency lacked mapping and analytical software, so a captain assembled crime and crash data manually and plotted the locations on a paper map to identify hot spots of overlapping high incidence where special enforcement patrols were then deployed.

NASHVILLE, TENNESSEE

The Nashville Metropolitan Police Department has incorporated a data-driven approach in all aspects of the agency's operations with the objective of reducing the numbers of crimes and crashes. The method for achieving this objective is a chain of personal accountability that links all levels of the organization, from officer to chief, and all divisions of the MNPD together. Data—information about the time and location of incidents—fuels the enterprise.

NOTE ABOUT EVIDENCE OF PROGRAM EFFECTS

The number of crimes and crashes that occurred during or following a program period can be compared to crime and crash incidence in the area during the same months of the previous year and/or to comparable areas during the same year. If a substantial improvement in a measure of crime or traffic safety occurs following implementation of a local program and there is little or no change in that measure elsewhere (e.g., in the jurisdiction, state or nation), it is reasonable to infer that the program might have contributed to the improved condition. Although crime and crash data are presented in the six case studies contained in this document, it is not possible to attribute with certainty the differences or changes in the measures to the special enforcement programs. The programs were conducted in the real world, rather than a laboratory, and the dependent measures may have been influenced by variables that cannot be controlled under field conditions.

FLOWCHART ILLUSTRATING THE STEPS TO PLAN AND IMPLEMENT A DDACTS PROGRAM