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**Program of Research for  
Traffic Law Enforcement**



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## PROGRAM OF RESEARCH FOR TRAFFIC LAW ENFORCEMENT

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## **SUMMARY**

This document proposes a national research program in Traffic Law Enforcement. It is the product of extensive deliberations by the members and friends of the Traffic Law Enforcement Committee of the Transportation Research Board (TRB), presentations and discussions at open forums conducted at National TRB Conferences, and the work of individual members of the Committee charged with the assignment of developing research project statements.

The program recommends the conduct of fourteen (14) separate research studies to remedy current deficiencies in data accuracy and consistency, investigate a variety of law enforcement techniques, explore the relationship between law enforcement and transportation system performance, and address several management issues. The total cost of the research program is estimated to be 2.55 million dollars.

## **PROGRAM DEVELOPMENT**

The proposed research program was developed over a period of years by members of the Transportation Law Enforcement Committee of the Transportation Research Board. At the annual Committee meeting in January 1990, members of the Traffic Law Enforcement Committee, whose ranks include representatives from law enforcement agencies, academic institutions, consulting firms, and government agencies, proposed a series of ten research topics. These topics were fleshed out with short summary statements which were subsequently circulated to the full Committee for review and prioritization. The results of the prioritization process were presented at the annual meeting in January 1991, and members' comments were incorporated into the research statements for subsequent review. The revised statements underwent further review at the 1992 meeting, and were expanded into full-blown research problem statements fitting the TRB format for Committee review at the annual meeting in 1993. Following this review, Committee members added five new statements to the project list and dropped one statement which was already underway as the focus of research sponsored by the National Highway Traffic Safety Administration. This process resulted in the fourteen statements contained in this document, which was finalized and approved at the 1994 meeting of the TRB Committee.

## **PROBLEM CONTENT**

The fourteen problem statements comprising the proposed program fall into four general topic areas:

1. Enforcement data;
2. Enforcement techniques;
3. Enforcement impacts; and
4. Enforcement management.

**Enforcement Data.** Two proposed projects address the need to improve the accuracy and consistency of accident and enforcement data by identifying critical data elements, documenting the range of variability in these elements, isolating the causes of variability, defining uniform data standards, and developing improved recording and reporting techniques. The titles and costs of the two proposed projects are:

<u>Number</u> *	<u>Title</u>	<u>Cost</u>
1	Improving the Accuracy and Consistency of Accident Data	\$400,000
2	Improving the Accuracy and Consistency of Enforcement Data	<u>\$200,000</u>
	Subtotal	\$600,000

**Enforcement Techniques.** Four proposed projects address the need to investigate particular enforcement techniques. These techniques involve new technologies, including IVHS technologies; high speed pursuits; and preventive measures. The titles and costs of the four projects focusing on enforcement techniques are:

<u>Number</u>	<u>Title</u>	<u>Cost</u>
5	Adapting IVHS Technology for Law Enforcement Use	\$200,000
6	Investigating Innovative Enforcement Techniques	\$200,000
7	Exploring the Costs and Benefits of High Speed Police Pursuits	\$100,000
11	Investigating and Evaluating Pre-Arrest Means of Influencing Driver Behavior	<u>\$150,000</u>
	Subtotal	\$650,000

**Enforcement Impacts.** Three proposed projects address the impacts of particular enforcement activities. The first seeks to explore the relationship between speed, speed laws, accidents and enforcement, while the second proposes to explore the impact of traffic law enforcement on criminal activities in urban areas, and the third addresses the impact of parking enforcement on urban street capacity.

<u>Number</u>	<u>Title</u>	<u>Cost</u>
3	Exploring the Relationship Between Speed, Speed Laws, Accidents and Enforcement	\$300,000
10	Analyzing the Impact of Traffic Law Enforcement on Criminal Activity	\$150,000
12	Parking Enforcement and Its Impact on Urban Street Capacity	<u>\$150,000</u>
	Subtotal	\$600,000

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\*The project numbers refer to the numbers assigned to the individual project statements appended to this report.

**Enforcement Management.** Five proposed projects address various aspects of law enforcement management. Management topics include the use of strategic planning approaches and range from such broad questions as the role of law enforcement in IVHS to more specific issues involving the competition for personnel between traffic law enforcement and criminal law enforcement and the assignment of traffic law enforcement personnel to ancillary duties. The titles and costs of the five projects focusing on the management of law enforcement resources are:

<u>Number</u>	<u>Title</u>	<u>Cost</u>
4	Planning for the Role of Law Enforcement in IVHS	\$200,000
8	Demonstrating Strategic Transportation Approaches Using Multidisciplinary Teams	\$100,000
9	Analyzing Traffic Enforcement Duties in a Crime-Ridden Urban Environment	\$150,000
13	Measuring the Performance of Traffic Law Enforcement Personnel in an Urban/Suburban Setting	\$150,000
14	Exploring the Management and Information Needs of First-Line Supervisors	<u>\$100,000</u>
	Subtotal	\$700,000

## PROJECT PRIORITIES

In reviewing the project statements, Committee members assigned a numerical ranking ranging from 5 (Urgent, Immediate Priority) to 1 (Low Priority) to each proposed project. The individual rankings assigned by members were averaged to obtain an overall priority rating for the projects comprising the proposed program. In the research statements which follow, projects are listed in order of priority, with priorities groups in the following categories.

<u>Urgency/Priority Rating</u>	<u>Corresponding Numerical Range</u>
Immediate	4.1 to 5
Near-Term	3.1 to 4
Mid-Term	2.1 to 3
Long-Term	1.1 to 2

A list of all projects appears below, along with the average ranking assigned by Committee members and the estimated cost of the research.

## TRB LAW ENFORCEMENT PROBLEM STATEMENTS

<u>No.</u>	<u>Statement Title</u>	<u>Urgency</u>	<u>Priority Rating</u>	<u>Cost</u>
1.	Improving the Accuracy and Consistency of Accident Data	Immediate	4.5	\$400,000
2.	Improving the Accuracy and Consistency of Enforcement Data	Immediate	4.4	\$200,000
3.	Exploring the Relationship Between Speed, Speed Laws, Accidents and Enforcement	Immediate	4.4	\$300,000
4.	Planning for the Role of Law Enforcement in IVHS	Immediate	4.3	\$200,000
5.	Adapting IVHS Technology for Law Enforcement Use	Immediate	4.3	\$200,000
6.	Investigating Innovative Enforcement Techniques	Immediate	4.2	\$200,000
7.	Exploring the Cost and Benefits of High Speed Police Pursuits	Near-Term	4.0	\$100,000
8.	Demonstrating Strategic Transportation Planning Approaches Using Multidisciplinary Teams	Near-Term	3.7	\$100,000
9.	Analyzing Traffic Enforcement Duties in a Crime-Ridden Urban Environment	Near-Term	3.5	\$150,000
10.	Analyzing the Impact of Traffic Law Enforcement on Criminal Activity	Near-Term	3.3	\$150,000
11.	Investigating and Evaluating Pre-Arrest Means of Influencing Driver Behavior	Near-Term	3.1	\$150,000
12.	Parking Enforcement and Its impact on Urban Street Capacity	Mid-Term	3.0	\$150,000
13.	Measuring the Performance of Traffic Law Enforcement Personnel in an Urban/Suburban Setting	Mid-Term	3.0	\$150,000
14.	Exploring the Management and Information Needs of First-Line Supervisors	Mid-Term	2.3	<u>\$100,000</u>
TOTAL				\$2,550,000

## PROJECT STATEMENTS

Individual project statements follow, listed in order of the priority reflected in the above table.

**PROBLEM NUMBER 1**

<b>TITLE</b>	Improving the Accuracy and Consistency of Accident Data
<b>PROBLEM</b>	<p>The quality, accuracy, and consistency of accident data varies considerably from jurisdiction to jurisdiction. Research is needed to explore techniques for recording and reporting data that will improve accuracy and consistency. Such techniques might include:</p> <ul style="list-style-type: none"><li>• training officers;</li><li>• developing handbooks;</li><li>• using videotape;</li><li>• developing computer-assisted data collection techniques; and</li><li>• streamlining data collection activities.</li></ul>
<b>OBJECTIVE</b>	Improve the accuracy and consistency of accident data by identifying critical data elements; documenting the range of variation in these elements; isolating the causes of variability; defining uniform data standards; and developing accident recording and reporting techniques that will improve accuracy and consistency.
<b>KEY WORDS</b>	Accident reporting; accident data; data accuracy; data collection; officer training; data management.
<b>RELATED WORK</b>	NHTSA's CADRE Project; FHWA's Demonstration of Emerging Technology Clipboard Computer Study; IACP's Traffic Data Survey.
<b>URGENCY/PRIORITY</b>	Immediate. This problem should have the highest priority, since critical decisions to improve highway safety are made from accident data. It is necessary to find a way to convince management of the importance of data, both its consistency and its accuracy. Uniform, consistent efforts are needed so that cross-jurisdictional comparisons can be made.
<b>COSTS</b>	\$400,000.
<b>USER COMMUNITY</b>	Traffic enforcement agencies; NHTSA; state and local transportation professionals; FHWA.
<b>IMPLEMENTATION</b>	Development of consistent standards and guidelines for accident reporting; preparation of handbooks and training curricula for law enforcement officers; identification of computer-assisted data collection and processing techniques.
<b>EFFECTIVENESS</b>	Consistency of accident data reporting will improve the decisions in highway design and enforcement personnel allocations made from these data and provide a basis for cross-jurisdictional comparisons.

## **PROBLEM NUMBER 2**

<b>TITLE</b>	Improving the Accuracy and Consistency of Enforcement Data
<b>PROBLEM</b>	<p>The accuracy and consistency of enforcement data varies considerably from jurisdiction to jurisdiction. Research is needed to (1) Document the range of variation and identify causes and (2) Explore techniques for recording and reporting data that will improve accuracy and consistency. Such techniques might include:</p> <ul style="list-style-type: none"><li>• training officers;</li><li>• developing handbooks;</li><li>• using videotape;</li><li>• developing computer-assisted citation and data collection techniques; and</li><li>• streamlining data collection and analysis activities.</li></ul>
<b>OBJECTIVE</b>	Improve the accuracy and consistency of enforcement data by identifying critical data elements; documenting the range of variation in these elements; isolating the causes of variability; defining uniform data standards; and developing recording and reporting techniques that will improve accuracy and consistency.
<b>KEY WORDS</b>	Personnel planning; citation records; data accuracy; data collection; office training; computer-assisted data collection; data management.
<b>RELATED WORK</b>	NHTSA's CADRE Project and Clipboard Computer Study; CHP/SYSTAN Study of HOV lane enforcement.
<b>URGENCY/PRIORITY</b>	Immediate. This problem should have high priority, since critical personnel assignments are made from accident and enforcement data. It is necessary to find a way to convince management of the importance of data, both its consistency and its accuracy. Uniform, consistent efforts are needed so that cross-jurisdictional comparisons can be made.
<b>COSTS</b>	\$200,000.
<b>USER COMMUNITY</b>	Traffic enforcement agencies; NHTSA; state and local transportation professionals; FHWA.
<b>IMPLEMENTATION</b>	Development of consistent standards and guidelines for reporting personnel assignments and citations; preparation of handbooks and training curricula for law enforcement officers; identification of computer-assisted data collection and processing techniques.
<b>EFFECTIVENESS</b>	Consistency of enforcement data will improve the decisions in enforcement personnel allocations made from these data and provide a basis for cross-jurisdictional comparisons.



### **PROBLEM NUMBER 3**

<b>TITLE</b>	Exploring the Relationship Between Speed, Speed Laws, Accidents, and Enforcement
<b>PROBLEM</b>	The continued emphasis on speed control of the traffic stream and the relaxation of the 55 mph speed limit on rural interstates has led to a resurgence of questions regarding the relationships among speed, speed laws, accidents and enforcement. Of particular interest is the effect of speed enforcement on fatal accidents.
<b>OBJECTIVE</b>	Compare data on speed, accidents, and enforcement efforts on comparable roadways in an effort to isolate the contribution of speed enforcement to the control of speed and the reduction of accidents.
<b>KEY WORDS</b>	Speed; 55 mph NMSL; accidents; accident causes; enforcement; speed citations; speed compliance.
<b>RELATED WORK</b>	CHP Radar Program; National Maximum Speed Law Study; Rudy Lamm study on "Impact of Traffic Warning Devices on Operating Speeds and Accident Rates on Two-Lane Rural Highway Curves"; Current NHTSA Municipal Speed Enforcement Study.
<b>URGENCY/PRIORITY</b>	Immediate. Much needs to be done in this area. Research to date leaves many unanswered questions. Research is needed to relate fatality and serious injury rates for various types of crashes and various rates of speed to the total spectrum of enforcement activities, including speed enforcement, DUI programs, and seat belt sanctions.
<b>COSTS</b>	\$300,000.
<b>USER COMMUNITY</b>	Traffic engineers; state and local enforcement agencies; FHWA; NHTSA; IACP; IIHS.
<b>IMPLEMENTATION</b>	Guidelines for enforcement programs; rationale for establishing freeway speed limits.
<b>EFFECTIVENESS</b>	More efficient allocation of enforcement personnel; improved speed compliance; potential reduction of freeway accidents.

#### **PROBLEM NUMBER 4**

<b>TITLE</b>	Planning for the Role of Law Enforcement in IVHS
<b>PROBLEM</b>	In a large measure, the success of the IVHS concept depends on the compliance of motorist with the control devices regulating traffic flow. Means of ensuring compliance and methods for dealing with the potentially catastrophic results of non-compliance need to be considered early in planning and development of IVHS systems.
<b>OBJECTIVE</b>	Determine role and needs of law enforcement in corridors that utilizes advanced traffic information and management concepts.
<b>KEY WORDS</b>	IVHS, law enforcement.
<b>RELATED WORK</b>	Compliance with ramp metering, HOV lane compliance, freeway incident management.
<b>URGENCY/PRIORITY</b>	Immediate. This activity needs to be undertaken well before plans for IVHS systems are developed. Failure to undertake this level of planning during the early stages of development could result in degraded or inoperable systems.
<b>COSTS</b>	\$200,000.
<b>USER COMMUNITY</b>	Police and other agencies charged with traffic law enforcement responsibilities, traffic engineers, and city legal staff members.
<b>IMPLEMENTATION</b>	Develop guidelines for law enforcement requirements (fiscal, technological, space, procedural, etc.) and define limitation of capabilities.
<b>EFFECTIVENESS</b>	The results will improve the likelihood of success of IVHS efforts.

**PROBLEM NUMBER 5**

<b>TITLE</b>	Adapting IVHS Technology for Law Enforcement Use
<b>PROBLEM</b>	Technological advancement in communications and identification mechanisms related to IVHS operations have direct application to law enforcement. Rather than wait until the developers of these technologies to identify alternative uses, a proactive approach should be taken to apply the technology contemporaneously.
<b>OBJECTIVE</b>	Determine how new technologies related to IVHS can be applied to the functions performed by law enforcement.
<b>KEY WORDS</b>	IVHS, law enforcement.
<b>RELATED WORK</b>	Automated law enforcement, electronic vehicle identification, driver identification, remote vehicle control devices, etc.
<b>URGENCY/PRIORITY</b>	Immediate. This activity needs to be undertaken as the technology emerges.
<b>COSTS</b>	\$200,000.
<b>USER COMMUNITY</b>	Police and other agencies charged with traffic law enforcement responsibilities, traffic engineers, and city legal staff members.
<b>IMPLEMENTATION</b>	Identify uses and potential uses of new technology to tasks performed by traffic and criminal law enforcement agencies.
<b>EFFECTIVENESS</b>	The results will improve the effectiveness and efficiency of law enforcement agencies and improve safety.

## **PROBLEM NUMBER 6**

<b>TITLE</b>	Investigating Innovative Enforcement Techniques
<b>PROBLEM</b>	<p>With technological advances being applied to the development of Intelligent Vehicle Highway Systems (IVHS), it is imperative that potential technological contributions to enforcement procedures be identified, tested, and evaluated. Possible avenues of exploration include:</p> <ul style="list-style-type: none"><li>• digital driver's license data;</li><li>• automated surveillance and enforcement;</li><li>• drone aircraft applications;</li><li>• automatic vehicle identification;</li><li>• ticketing by mail.</li></ul>
<b>OBJECTIVE</b>	Test and evaluate the impact of specific innovative enforcement techniques on personnel requirements, violation rates, and public response.
<b>KEY WORDS</b>	Enforcement; videotape surveillance; photo radar; IVHS; drone aircraft; AVI; ticketing by mail.
<b>RELATED WORK</b>	CHP laptop computer and software applications; automated citation device; SYSTAN study of "Use of Videotape in HOV Lane Enforcement" for CALTRANS and CHP; Current NHTSA Municipal Speed Enforcement Study.
<b>URGENCY/PRIORITY</b>	Immediate. Advances in enforcement should parallel similar advance in transportation. If enforcement lags behind transportation technology, new sets of problems will emerge. The impacts of technology currently in use (i.e. photo radar, airplane speed enforcement) have not been fully documented, and public acceptance can be an issue with approaches (video surveillance, photo radar) which appear intrusive. The impacts of these approaches on enforcement personnel requirements are not well understood.
<b>COSTS</b>	\$200,000 (Average cost – will vary with specific technology to be tested).
<b>USER COMMUNITY</b>	State and local law enforcement agencies; traffic engineers; FHWA; NHTSA; researchers; consultants, IACP.
<b>IMPLEMENTATION</b>	Widescale introduction, use and acceptance of innovative enforcement techniques.
<b>EFFECTIVENESS</b>	More efficient and effective enforcement procedures; reduced requirements for enforcement personnel; improved enforcement documentation.

**PROBLEM NUMBER 7**

<b>TITLE</b>	Exploring the Cost and Benefits of High Speed Police Pursuits
<b>PROBLEM</b>	High-speed police pursuits pose an increased risk to life and property for all in the path of the operation. Increased attention given to police pursuits by the courts and the media, raises the dilemma of suspect apprehension versus high civil judgments and loss of community support. Research is needed to (1) quantify the costs and benefits of police pursuits and (2) identify methods to reduce costs and increase benefits.
<b>OBJECTIVE</b>	Determine the costs of police pursuits in terms of loss of life and property, civil judgments, and loss of public support. Determine the deterrent effect of pursuit versus nonpursuit policies. To what extent do non-pursuit policies increase the likelihood of flight and subsequent escape? Determine the benefits of police pursuits in terms of suspect apprehension. Develop methods to reduce the costs and increase the benefits.
<b>KEY WORDS</b>	Pursuits, high-speed pursuits, chases, police pursuits.
<b>RELATED WORK</b>	National Institute of Justice (1989); Center for the Environment and Man (July, 1970); Journal of Police Science and Administration (1987); California Highway Patrol Study (July 1983); American Journal of Police (1988).
<b>URGENCY/PRIORITY</b>	Near-Term. The frequency of high-speed police pursuits and the associated risks represent an urgent need for effective research in this area.
<b>COSTS</b>	\$100,000.
<b>USER COMMUNITY</b>	Enforcement agencies, courts, researchers, legislators.
<b>IMPLEMENTATION</b>	Development of consistent standards and guidelines for engaging in high-speed police pursuits.
<b>EFFECTIVENESS</b>	Increased awareness of the costs and benefits of police pursuits and improved policy development.

## **PROBLEM NUMBER 8**

<b>TITLE</b>	Demonstrating Strategic Transportation Planning Approaches Using Multidisciplinary Teams
<b>PROBLEM</b>	Too often enforcement agencies and other experts are not consulted at the planning stages of transportation projects which will eventually require significant commitment of enforcement resources. HOV lanes are an example of such projects. Demonstration projects are needed that combine the talents of law enforcement officers, engineers, planners, traffic experts, administrators, and record-keeping personnel in strategic transportation planning activities.
<b>OBJECTIVE</b>	To demonstrate and document the effectiveness of a multidisciplinary approach to strategic transportation planning on projects requiring a significant commitment of enforcement resources.
<b>KEY WORDS</b>	Multidisciplinary; strategic planning; enforcement.
<b>RELATED WORK</b>	California HOV lane planning; Pennsylvania Corridor project; Illinois Arterial Incident Management Study.
<b>URGENCY/PRIORITY</b>	Near-Term. It is important to recognize the importance of the multidisciplinary team approach in all situations involving strategic transportation planning. When HOV lanes were first developed, in many areas in California law enforcement representation was excluded from the planning stages and, as a result, key concerns (i.e. the safety of officers and the public at enforcement stops were not considered.
<b>COSTS</b>	\$100,000.
<b>USER COMMUNITY</b>	State and local law enforcement agencies; traffic engineers; planners; administrators; FHWA; AICP.
<b>IMPLEMENTATION</b>	Guidelines for identifying and involving the necessary parties in carrying out the multidisciplinary approach in strategic transportation planning.
<b>EFFECTIVENESS</b>	Improved planning practices; projects better adapted to the needs of enforcement personnel; enhanced safety for officers and public.

## **PROBLEM NUMBER 9**

<b>TITLE</b>	Analyzing Traffic Enforcement Duties in a Crime-Ridden Urban Environment
<b>PROBLEM</b>	Due to sharp increases in violent crime, drugs, and social dysfunction, urban police agencies have become call or incident driven, and the number of hours devoted to traffic law enforcement has dropped in spite of increases in traffic density. Yet traffic law enforcement provides the potential deterrent of a visible police presence, and many felony arrests are made subsequent to traffic stops. Research is needed to document the relationship between traffic law enforcement, urban police duties, criminal activity, traffic accidents, and calls for service.
<b>OBJECTIVE</b>	Document the relationship between urban patrol officers, traffic enforcement, criminal activity, calls for service and accidents.
<b>KEY WORDS</b>	Urban criminal activity, traffic citations, urban police officers, calls for service, accidents, traffic enforcement.
<b>RELATED WORK</b>	Northwestern University Traffic Institute "Effect of Traffic Enforcement on Crime" (funded by NHTSA); NHTSA Municipal Speed Enforcement Study; IIHS Study "Police Enforcement Resources in Relation to Need: Changes During 1978-1989."
<b>URGENCY/PRIORITY</b>	Near-Term. Of primary interest to urban law enforcement agencies. The accelerating slide in traffic enforcement in urban areas may suggest that this has significant safety implications.
<b>COSTS</b>	\$150,000.
<b>USER COMMUNITY</b>	Urban law enforcement agencies; legislators; state and local traffic safety personnel; IACP; IIHS.
<b>IMPLEMENTATION</b>	Development of consistent standards and guidelines for reporting personnel assignments and citations; preparation of training curriculum for law enforcement managers and officers; improved allocation of personnel; increased priority for urban police traffic patrols.
<b>EFFECTIVENESS</b>	Increased traffic citations; possible lowering of traffic accident rates; more cost effective personnel allocation.

## **PROBLEM NUMBER 10**

<b>TITLE</b>	Analyzing the Impact of Traffic Law Enforcement on Criminal Activity
<b>PROBLEM</b>	The presence of marked patrol vehicles in a given area during periods of concentrated enforcement should also reduce crime in that area. If possible, the extent of this reduction should be documented to provide an incentive for increasing the priority given to police traffic services.
<b>OBJECTIVE</b>	Document the relationship between traffic enforcement patrols, reported criminal activity, and criminal arrests in specific urban areas.
<b>KEY WORDS</b>	Criminal activity; criminal arrests; traffic citations; personnel allocation; marked patrol vehicles.
<b>RELATED WORK</b>	Northwestern University Traffic Institute's study of "Effect of Traffic Enforcement on Crime" under NHTSA sponsorship; past studies in Kansas City and other municipalities have shown a positive relationship between traffic law enforcement and criminal arrest activities.
<b>URGENCY/PRIORITY</b>	Near-Term. Primarily of interest to municipal agencies, documentation of a positive relationship between traffic law enforcement and criminal arrests could lead to more effective and efficient allocation of traffic patrols and other law enforcement personnel.
<b>COSTS</b>	\$150,000.
<b>USER COMMUNITY</b>	Municipal law enforcement agencies; legislators.
<b>IMPLEMENTATION</b>	Increased priority for police traffic patrols; improved personnel allocation.
<b>EFFECTIVENESS</b>	More cost effective personnel allocation; increased traffic citations and criminal arrests; possible lowering of traffic accident rates and criminal activity.



## **PROBLEM NUMBER 11**

<b>TITLE</b>	Investigating and Evaluating Pre-Arrest Means of Influencing Driver Behavior
<b>PROBLEM</b>	The personnel limitations of law enforcement agencies tend to restrict their efforts to after-the-fact enforcement. As such, these efforts serve to punish the offender rather than to prevent the offense from occurring. Many programs have attempted to influence driver behavior prior to the commission of a violation. In the traffic enforcement field, these include public information and education campaigns, high-visibility patrol tactics, and reinforcement of good driving behavior.
<b>OBJECTIVE</b>	Demonstrate and evaluate techniques for influencing driver behavior which do not involve after-the-fact enforcement.
<b>KEY WORDS</b>	Public information and education, high-visibility patrols; safe driving campaigns; driver training; licensing tests.
<b>RELATED WORK</b>	Evaluations of specific public information campaigns (i.e. the NHTSA-sponsored DRIVER project, the CHP's Sober Graduation Campaign); Deterrent models; Evaluations of Sobriety Check Points in Maryland and California; NHTSA evaluation of designated driver programs.
<b>URGENCY/PRIORITY</b>	Near-Term. Proactive law enforcement agencies <u>must</u> attempt to bring about voluntary compliance. The critical need is to identify which programs work best and disseminate information on effective approaches. While general deterrence is well-covered territory, solid evaluations of such programs are generally lacking.
<b>COSTS</b>	\$100,000 to \$200,000, depending on the program.
<b>USER COMMUNITY</b>	State and local law enforcement agencies; researchers; consultants; traffic safety agencies; motor vehicle departments; NHTSA; FHWA.
<b>IMPLEMENTATION</b>	Guidelines documenting the contact and results of successful programs resulting in widespread dissemination of effective approaches.
<b>EFFECTIVENESS</b>	Heightened public awareness; increased levels of voluntary compliance; potentially reduced accident rates.

## **PROBLEM NUMBER 12**

<b>TITLE</b>	Parking Enforcement and Its Impact on Urban Street Capacity
<b>PROBLEM</b>	The movement of traffic on urban streets, particularly during peak hours, is directly related to the amount of traffic capacity available. The number of lanes open to traffic is related to parking. If parking is eliminated by enforcement on a continuous basis, particularly double parking, capacity increases. As delays are eliminated and traffic moves more smoothly, air quality will increase.
<b>OBJECTIVE</b>	Quantify how much an effect parking enforcement can have on improving urban street capacity. Also quantify how much an effect parking enforcement can reduce accidents by reducing double parking and lane blockages. Public perceptions of parking policies and parking enforcement should also be monitored.
<b>KEY WORDS</b>	Accidents, highway capacity, parking, enforcement.
<b>RELATED WORK</b>	Transport Research Laboratory (TRL) "Parking Enforcement Code of Practice;" Transport Reviews "Illegal Parking and the Enforcement of Parking Regulations: Causes, Effects, and Interactions;" TRL "A Cost/Benefit Study of Parking Enforcement."
<b>URGENCY/PRIORITY</b>	Mid-Term. As urban capacity becomes more of a problem, the use of innovative techniques will become more important.
<b>COSTS</b>	\$150,000.
<b>USER COMMUNITY</b>	Urban traffic engineer/law enforcement.
<b>IMPLEMENTATION</b>	Development of recommendations on levels of enforcement which are likely to influence available capacity.
<b>EFFECTIVENESS</b>	Based on reports which have not been quantified, it would appear a potential self-supporting method of improving urban street capacity has not been fully explored.

## **PROBLEM NUMBER 13**

<b>TITLE</b>	Measuring the Performance of Traffic Law Enforcement Personnel in an Urban/Suburban Setting
<b>PROBLEM</b>	In addition to traffic enforcement duties, traffic squad members of major police departments spend time on a variety of other tasks such as traffic control for community events, public relations work, parking lot security, and school crossing control. Research is needed to determine the number of personnel hours actually devoted to traffic law enforcement and to evaluate the productivity of these hours in terms of such specific enforcement activities as citations issued, accidents worked, speed checks recorded, etc.
<b>OBJECTIVE</b>	Document the time spent by traffic law enforcement personnel on off-patrol duties (i.e. educational programs, public relations work) and assess the effectiveness of these programs.
<b>KEY WORDS</b>	Public information and education; public relations; parking lot security; special events; personnel assignments.
<b>RELATED WORK</b>	Northwestern University Traffic Institute "Development of Performance Measures for Police Traffic Services" (funded by NHTSA); German study of 50 urban/suburban settings, Universteet Karlsruhe.
<b>URGENCY/PRIORITY</b>	Mid-Term. Reliable personnel formulas are needed so that law enforcement agencies can make effective decisions regarding the allocation of officers to non-patrol activities such as public relations and public information.
<b>COSTS</b>	\$150,000.
<b>USER COMMUNITY</b>	State and local law enforcement agencies; traffic safety agencies.
<b>IMPLEMENTATION</b>	Personnel allocation guidelines.
<b>EFFECTIVENESS</b>	Improved personnel allocation.

**PROBLEM NUMBER 14**

<b>TITLE</b>	Exploring the Management and Information Needs of First-Line Supervisors
<b>PROBLEM</b>	Different agencies use different algorithms for assigning personnel to traffic duties and different guidelines for evaluating personnel performance. Research is needed to (1) document the key management and information needs of first line supervisors; (2) identify the means of providing that information efficiently and accurately; and (3) assess the effectiveness of different algorithms for applying the information to personnel assignments.
<b>OBJECTIVE</b>	Document the key management and information needs of first-line supervisors; identify the means of providing that information efficiently and accurately; and assess the effectiveness of different algorithms for applying the information to personnel assignments.
<b>KEY WORDS</b>	Personnel assignments; management information; personnel allocation algorithms; manpower formulas.
<b>RELATED WORK</b>	Northwestern University Manpower Formula for Law Enforcement Agencies (NHTSA-funded); California Statewide Integrated Traffic Records System (SWITRS) Quarterly Output Reports; The ranking of high DUI accident locations for DUI checkpoint validation; CHP formulas for allocating HOV enforcement on basis of violation rates.
<b>URGENCY/PRIORITY</b>	Mid-Term. Several general models have been developed for allocating resources to problem areas. These and others should be applied to traffic law enforcement so that they can be evaluated and improved. Every agency has some means of allocating personnel. Rules need to be examined and evaluated periodically in the light of available models and information. If an agency places a high priority on traffic law enforcement, the necessary information will be self-generating.
<b>COSTS</b>	\$100,000.
<b>USER COMMUNITY</b>	State and local law enforcement agencies.
<b>IMPLEMENTATION</b>	Standardized information procedures; personnel allocation guidelines.
<b>EFFECTIVENESS</b>	Improved personnel allocation.