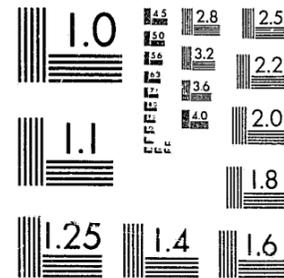


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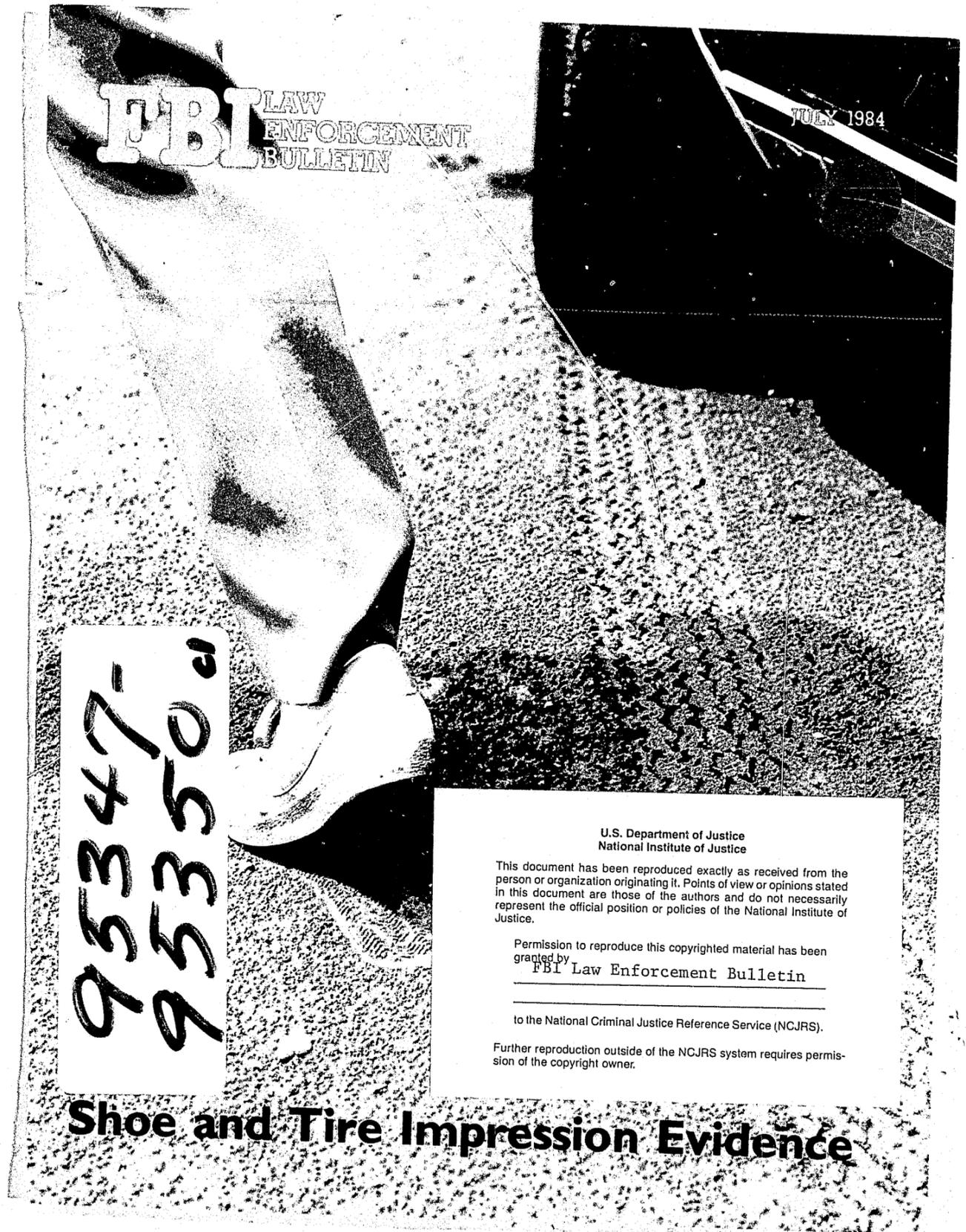
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FBI LAW ENFORCEMENT BULLETIN

JULY 1984

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Shoe and Tire Impression Evidence

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ACQUISITIONS

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can be important in
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the crime scene.
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Federal Bureau of Investigation
United States Department of Justice
Washington, D.C. 20535

William H. Webster, Director

The Attorney General has determined that the publication of this periodical is necessary in the transaction of the public business required by law of the Department of Justice. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through June 6, 1988.

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Director's Message

For the first time since 1960, this country experienced a significant decrease in crime reported to police for a second consecutive year. The 1983 decline in crime was 7 percent, the greatest in any year since 1960.

This may signal that crime, as measured by the Uniform Crime Reporting system, is being managed more effectively by our law enforcement community.

All categories of the Crime Index—murder, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson—decreased in 1983; violent crime declined by 5 percent, property crime by 7 percent. In contrast, the volume of reported crime reached an all-time high in 1980, which continued through the following year. But in 1982, decreases in the amount of crime reported were experienced.

During the first quarter of 1983, a decrease of 2 percent was reported. Then, in the second and third quarters, 8-percent declines were recorded. In the last quarter of 1983, there was a 10-percent drop, for a year-long average drop of 7 percent.

While there are many influences affecting the volume of crime, there are indications that the criminal justice system is beginning to function with a higher degree of effectiveness, which is reflected in our crime figures.

Especially noteworthy, too, is the fact that while crime counts for the past 2 years have diminished, the number of persons arrested for crime continues to rise. Recent efforts by law

enforcement to concentrate on the "career criminal," coupled with better prosecutive and judicial handling of those who commit large numbers of crimes, whether to support narcotics habits or for other reasons, have resulted in jail populations reaching new highs, while reported crime has declined.

Increased citizen involvement in community action groups, such as neighborhood watch and similar programs, has also favorably affected these crime statistics, as have the actions of individuals concerned with their potential of becoming the victims of crime.

Attorney General William French Smith noted that today, criminals are more likely to be arrested and incarcerated than they were in 1980. He pointed out the "tighter coordination within federal law enforcement and among federal, state and local law enforcement agencies."

While these crime figures are a sign of hope—larger cities and suburban and rural areas alike recorded similar declines—this trend does not mean that the law enforcement community can relax. Even the statistically valid decline in the percentage of the arrest-prone age group of 15-24 years is not overly reassuring, as the number of older people being arrested for property crimes is increasing.

Increased emphasis, by law enforcement and community together, on successful programs that demonstrate the ability to reduce crime is still needed if we are to envisage a time when our children can live relatively free of crime.

William H. Webster

William H. Webster
Director
July 1, 1984

95349

ANALYZING COSTS

An Aid to Effective Police Decisionmaking

By
JAMES K. STEWART
*Director
National Institute of Justice
Washington, D.C.*

Police managers face a dual challenge in the 1980's. High crime rates and the fear they spawn mean heavy public demand for crime fighting will continue. At the same time, fiscal problems caused by shrinking tax bases in many jurisdictions and taxpayer revolts in others beset many agencies.

These constraints translate into hard choices for law enforcement. Many departments have had to cut back, sometimes drastically, as a result of fiscal stringencies. Yet, most are being asked to provide the same level of service—or even higher—without raising costs.

Police managers face equally onerous choices. Police must focus on the priorities—the serious crime about which the public is so concerned. But often they must cut personnel assigned to many important support functions to meet the public's expectations.

More than ever, such tough decisions must be based on reliable, accurate information on the real costs of police services. Unfortunately, however, existing accounting systems in

most departments simply do not mirror reality.

Suppose you, as a police manager, were asked the question: What is the hourly cost of a patrol unit? To derive an answer, you might begin with the hourly wage of a patrol officer, gasoline costs for a patrol vehicle, and a fraction of the costs for vehicle maintenance. But what about the officer's uniform, weapon, or ammunition? There is also the communication equipment linking the patrol car to the dispatch unit. Even a portion of the dispatcher's time could be included.

All of these incremental costs add up to the real cost of a function rather than the more obvious or direct "line item" costs usually associated with delivery or deployment. Personnel overhead, dispatcher time, and building maintenance are among the costs that lie outside the boundaries of the patrol division's budget, but they are just as essential to service delivery as the line items for wages and gasoline. Equally important, they exact a cumulative toll, whether as actual deficits in this year's budget or through depreciation as a lump sum

for replacement some time in the future.

How do you calculate these hidden expenditures? How do you uncover a fuller picture of the price of police services? A report recently published by the National Institute of Justice (NIJ) measuring the costs of police service answers these questions and suggests ways in which you, as police managers, can obtain the cost information you need for efficient and effective administration.¹ This publication borrows some techniques from private industry for capturing the full costs of a police service. Specifically aimed at police managers, but also of interest to mayors and other municipal officials, the report presents simple cost analysis techniques. The procedures are applicable to a broad spectrum of police agencies, regardless of their size or whether they use sophisticated data processing systems. Ranging from simple techniques, such as rules of thumb for estimating overhead, building maintenance, and similar factors, to more complex approaches involving computer applications, the document is

"In today's fiscal climate, neither agencies nor individual managers can afford to overlook cost analysis as a vital aspect of managerial decisionmaking."



Mr. Stewart

tailored to varying levels of knowledge and skills.

To make sure the techniques presented in the report are appropriate to the organizational and political realities police face, the institute surveyed 50 police agencies to learn about their cost information systems and how they suited their purposes. We found that more than half the agencies rated their cost analysis capability as either fair or poor. Only 27 percent acknowledged using cost information to examine the merits of alternative strategies for meeting departmental objectives.

Even where automated data processing systems for financial purposes exist—as they do in 91 percent of the departments we surveyed—serious problems exist. The system may be under the direct control of a central computer staff, or the computer programs may not be adequate for the level of cost information that police managers need.

Traditionally, financial management has fallen to the budget bureau of the finance department—some place other than the police department. Relying on other agencies for such a critical management function masks the real contributions cost data can make to the work of police managers. Cost analysis can help with key management tasks, such as monitoring line operations, justifying budgetary requests, and evaluating alternative ways to deliver services.

These and other benefits of cost information have yet to be realized in many departments. Almost all agencies routinely monitor and regularly report on crime rates, crimes cleared by arrest or conviction, response time to calls for service, and other statistics. But few accurately and regularly track the costs of patrol, investigations, and the other police services required to maintain favorable statistics and a safe environment.

Cost information is a crucial tool for the effective manager. It is a potent weapon that significantly improves the police manager's influence.

There is no "best way" to measure costs. Rather, there are various strategies that can be applied at different levels of complexity, depending on the particular situation or problem that confronts your police department. At a minimum, however, cost analysis would start with a plan that defines the purpose and intended users of cost information, the service to be costed, and the capacity of existing accounting systems.

The planning also will have to weigh the trade-offs involved in deciding how extensive the cost analysis should be. Is it necessary to know the total cost of a given service, including both direct and indirect costs, or would estimates based only on direct costs meet your management needs? Depending on the level of complexity you require, your steps will include:

- 1) Measuring direct personnel costs by computing the time required to deliver the service and then calculating the cost of that time in salaries and fringe benefits;
- 2) Determining direct nonpersonnel costs such as materials and supplies, fixed assets—buildings and equipment—and costs such as uniforms, weapons, badges, handcuffs, etc.; and
- 3) Tracking indirect costs such as capital and operating costs, utilities, data processing, and other staff support functions. (Many jurisdictions have a set indirect cost rate that can save cost analysts considerable time.)

The final steps in the analysis involve calculating the total cost of the service, then reporting these results in a format decisionmakers can both understand and use.

Capturing the costs of services in this manner gives managers a decisionmaking tool for planning expenditures, for reviewing alternative approaches to service delivery, and for justifying expenses. In short, there is good management of resources before any expenditures or before the risk of a serious cost overrun. A reli-

able cost analysis system also reveals critical relationships among individual budget items, preventing elimination of cutbacks of line items because of a failure to recognize their impact on total service delivery.

Suppose the city council, for example, asks the police department to develop a budget for a 1-year burglary prevention program that would provide 24-hour surveillance in selected business districts. What would you include in the budget? You might start with the hourly costs for the patrolman's wages plus some estimate of the vehicle costs—a figure totaling perhaps \$12. Using this basic figure, your budget request for the burglary prevention program might total about \$105,000 (24 hours x 365 days x \$12).

If the council, however, chose to implement the new program while cutting the police budget in other areas, would the program be able to function at its maximum? What if cuts were imposed on the city garage that services the program's vehicle? Would this result in unforeseen downtime for the car and the program? What about communications and the other items noted earlier that represent the real costs of the function?

In actuality, the true costs of the burglary prevention program would probably run closer to \$200,000 when one includes related costs, such as fringe benefits, vehicle maintenance, inservice training, and other cost elements. The impact of cuts in other areas on the program's performance may seriously increase the risks of program failure.

These considerations are highlighted in the NIJ report, which draws on information learned from four jurisdictions selected as case studies for the report. All have used cost information to improve management decision-making, and ultimately, the quality of their services.

The Arkansas State Police Department has a different approach to cost analyses than the Sunnyvale, Calif., Police Department. The "job

order" concept of the San Diego Police Department does not resemble the costing system used by the Alexandria, Va., Police Department. What these four departments do have in common, however, is their concern with tracking service costs, as opposed to simply tabulating outlays or budgeting by organizational unit. These approaches exemplify the benefits of a comprehensive approach to financial management and a fuller understanding of the use of cost data.

The Alexandria Police Department, for example, conducts periodic analyses of the costs of particular services, such as domestic calls or bank escorts. One such analysis proved especially useful when it re-

"Solid cost information . . . is increasingly necessary when police agencies seek reimbursement for dealing with special situations, such as civil disturbances or disasters, at the request of Federal or State governments."

vealed the price the department was paying for responding to false signals from silent bank alarms. Measuring the costs of this particular service entailed several key steps.

First, the department identified both the *personnel* and *nonpersonnel* components involved in providing the service, such as the patrol officer and the patrol vehicle. Next, the department focused on *production units*—the quantifiable measures of work, such as labor hours, miles traveled, or number of crimes cleared by arrest. In the Alexandria study, the production units were the number of hours spent

by personnel in responding to false alarms, a number arrived at by reviewing timecards and activity reports and the annual number of miles driven per false alarm call obtained by reviewing vehicle records.

With this data in hand, the department proceeded to determine the *unit costs* for both the patrol officer and the vehicle. All costs are as of fiscal year 1979. The cost per hour for patrol officers was arrived at by dividing the average annual salary for patrol officers and their fringe benefits by the total number of work hours in a year. For the vehicle, the computation included total vehicle costs—including some percentage of purchase price plus annual operating expenses for gas, oil, and repairs—divided by the number of miles driven in a year.

By individually multiplying the number of production units used by the unit costs for the officer and vehicle and then adding the results, the department determined their *total direct costs* for responding to false alarms—more than \$10,000 per year. On a per call basis, the figure worked out to approximately \$25 per false alarm. Eventually, this cost study led the department to place restrictions on when a patrol unit would be dispatched to a given alarm, resulting in substantial financial savings.

Solid cost information also is increasingly necessary when police agencies seek reimbursement for dealing with special situations, such as civil disturbances or disasters, at the request of Federal or State governments. Without appropriate documentation and cost accounting procedures, resources could unknowingly be lost because important costs are going untracked. In San Diego, for example, the job order concept of cost analysis enables the department to track all labor and materials for either ongoing operations or specific projects, such as a special event. Because of this, San Diego police were fully compensated for their work at the site of the crash of a commercial airliner and for handling a major strike

in a neighboring jurisdiction. By contrast, the Arkansas State Police was hampered in its efforts to bill the Federal Government for crowd control and guard duty during a riot at Fort Chafee, Ark., because their analysis system was not fully operational at the time.

Other jurisdictions increasingly use cost analysis to make planning and budgeting decisions. In Phoenix, Ariz., police officials confronted an issue that faces many agencies—whether to buy, lease, or rent unmarked police vehicles. In analyzing the comparative costs involved, the department took into account the range of costs associated with vehicle purchase and maintenance, including such things as operating costs, communications equipment, and resale value. The analysis showed that the net cost of a city-purchased vehicle over a 5-year period was approximately \$15,000. For the same period, however, Phoenix police determined that yearly leasing would total \$14,000.

The analysis revealed that the yearly leases became more economical than city-owned vehicles after 4½ years, when city-owned vehicles lost their resale value. Yearly leases also were substantially lower than the existing monthly rental arrangement, which would be an approximate \$23,500 cumulative annual cost. Through careful cost analysis and planning that permitted the department to make a commitment to continue with the leased vehicles for at least 5 years, the Phoenix Police Department was able to realize significant savings in its vehicle budget. In fact, total savings for the city's full fleet of 136 unmarked cars amounted to more than \$112,000 (based on 1979 costs).

Another issue tackled by the Phoenix Police Department cost analysts involved different methods for shuttling prisoners from holding areas to jail facilities. The existing arrangement used police vans, but because of limited equipment and frequent

breakdowns, the program was able to handle only about 30 percent of the prisoners. The remainder of prisoners were transported by car at a cost of approximately \$25 per prisoner. Through a detailed analysis, the city developed plans for a new expanded shuttle program. Although it appeared more costly overall because it included expenses such as replacing equipment, the new program would enable the city to transfer more than double the number of prisoners than it had previously and lower the cost per prisoner to approximately \$22 (based on FY 1979 data). Projected on an annual basis, the savings would total some \$55,000 per year. In addition, the expanded capacity would relieve police of much of the burden of the transport of prisoners.

In today's fiscal climate, neither agencies nor individual managers can afford to overlook cost analysis as a vital aspect of managerial decision-making. Public pressure for accountability by government agencies continues to grow, questions arise about the use of public safety programs, and

within police departments, managers who make decisions about service are increasingly being evaluated by their ability to control costs. Their actions have consequences affecting costs for which they are accountable. Police managers need to be well informed before making critical decisions about public safety.

Cost analysis is a new role for police managers—one not emphasized in traditional training or experience—but it is a challenge as well. It offers managers an opportunity to develop a more complete and systematic approach to decisionmaking. Information on cost analysis can help departments meet that challenge. **FBI**

Footnote

¹ *Measuring the Costs of Police Services*, Abt Associates, Inc., Kent Chabotar, can be obtained for \$9.95 from NIJ's National Criminal Justice Reference Service, Box 6000, Rockville, Md. 20850. Training materials on cost analyses—including video tapes and manuals—are also available from NIJ/NCJRS. The cost is \$17 per package, or \$15 when multiple sets are ordered.

Come to the Explorer Conference



The 1984 Law Enforcement Explorer Conference will be part of the National Exploring Conference to be held August 6-11 at Ohio State University.

- *Role playing competitions
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- *Pistol shooting competition

All Law Enforcement Explorers are invited to attend. For more information contact:
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