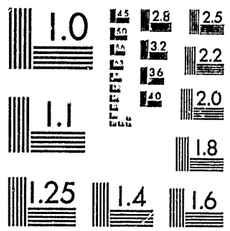

U. S. Department of Justice
National Institute of Justice
Office of Development, Testing, and Dissemination

Research Utilization Program

Costing Police Services

Participant Handbook

a program of the **National Institute of Justice**

United States Department of Justice
National Institute of Justice
Office of Development, Testing, and Dissemination

COSTING POLICE SERVICES

PARTICIPANT'S HANDBOOK

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Joseph T. Kelley

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For

National Institute of Justice

This Handbook was prepared by University Research Corporation, Sheldon S. Steinberg, Project Director, pursuant to Contract No. J-LEAA-014-81 awarded by the Law Enforcement Assistance Administration, U.S. Department of Justice, under the Omnibus Crime Control and Safe Streets Act of 1968, as amended. The points of view or opinions expressed do not necessarily represent official policy or positions of the U.S. Department of Justice.

ABOUT THE NATIONAL INSTITUTE OF JUSTICE

The National Institute of Justice is a research, development, and evaluation center within the U.S. Department of Justice. Established in 1979 by the Justice System Improvement Act, NIJ builds upon the foundation laid by the former National Institute of Law Enforcement and Criminal Justice, the first major Federal research program on crime and justice.

Carrying out the mandate assigned by the Congress, the National Institute of Justice:

- Sponsors research and development to improve and strengthen the criminal justice system and related civil justice aspects, with a balanced program of basic and applied research.
- Evaluates the effectiveness of federally-funded justice improvement programs and identifies programs that promise to be successful if continued or repeated.
- Tests and demonstrates new and improved approaches to strengthen the justice system, and recommends actions that can be taken by Federal, State, and local governments and private organizations and individuals to achieve this goal.
- Disseminates information from research, demonstrations, evaluations, and special programs to Federal, State and local governments; and serves as an international clearinghouse of justice information.
- Trains criminal justice practitioners in research and evaluation findings, and assists the research community through fellowships and special seminars.

Authority for administering the Institute and awarding grants, contracts, and cooperative agreements is vested in the NIJ Director, who is assisted by an Advisory Board appointed by the President. The Board recommends policies and priorities and advises on peer review procedures.

Reports of NIJ-sponsored studies are reviewed by Institute officials and staff. The views of outside experts knowledgeable in the report's subject area are also obtained. Publication indicates that the report meets the Institute's standards of quality, but it signifies no endorsement of conclusions or recommendations.

James K. Stewart
Director

RESEARCH UTILIZATION PROGRAM

WHAT IT IS

The National Institute of Justice (NIJ), part of the U.S. Department of Justice, supports wide-ranging research in criminal justice, including the testing and evaluation of innovative programs. As new knowledge is gained, the Institute follows through with the essential step of communicating what has been learned and any related policy, program, and research implications.

The Research Utilization Program, administered by NIJ's Office of Development, Testing, and Dissemination, makes research and evaluation results accessible to criminal justice officials, other government executives, community leaders, and researchers. The goal--to influence crime control and criminal justice improvement efforts and map out future research strategies.

HOW IT WORKS

The Research Utilization Program (RUP) consists of four elements: Research Utilization Workshops, Special National Workshops, Professional Seminars, and Field Test Support.

Research Utilization Workshops (RUWs)

These are workshops held for criminal justice practitioners, government executives, and community leaders on the application of research and evaluation results to public policy and programming.

Research Utilization Workshops address subjects where a body of research findings suggest new program approaches. They are oriented to action or operations and address important needs of state and local governments. The topics chosen are generally based on NIJ Field Tests, Program Models that outline potential program options and the advantages and disadvantages of each, or research/evaluation studies.

Prior to 1981 the RUWs were normally 3-day workshop series held at several locations across the country and attended by 50 to 90 top criminal justice policymakers and administrators in a multistate area. In 1981 the Institute began to look at less costly ways to conduct training and disseminate research findings. One major approach being considered is the use of modern telecommunications technology. This method of delivery seems particularly promising in reaching relatively large, geographically dispersed audiences.

Since its inception RUP has presented workshops on a wide range of topics which were attended by several thousand criminal justice officials, other government executives, community leaders, and researchers. The topics covered in these workshops included:

- Costing Police Services
- Spouse Abuse: Stopping the Violence

- Improving Police Management
- Compensating Victims of Crime
- Cutback Management in Law Enforcement and Criminal Justice
- Developing Sentencing Guidelines
- Community Crime Prevention Planning
- Management of Stress in Corrections
- Operating a Defender Office
- Improved Probation Strategies
- Maintaining Municipal Integrity
- Managing the Pressures of Inflation
- Managing Patrol Operations
- Health Care in Correctional Institutions
- Victim/Witness Services
- Prison Grievance Mechanisms
- Managing Criminal Investigations
- Juror Usage and Management
- Rape and Its Victims

Participants in RUWs receive summary findings of relevant research, comprehensive bibliographic references, individual program planning guides, self-instructional materials, handbooks, and selected readings. Each participant is awarded a certificate of attendance at the workshop's conclusion. Multimedia packages on most RUW topics are available on request to agencies interested in implementation. Included are videotapes, Institute publications, handbooks, manuals, and other resource documents.

Special National Workshops (SNWs)

Special National Workshops are one-time events designed to establish directions for future research or share information and develop awareness among executives and policymakers.

The SNWs inform researchers and practitioners about important new research and evaluation findings, define appropriate new directions for NIJ research, and meet the needs of groups such as elected officials, planners, and evaluators for information on current research and advanced practices in aspects of criminal justice. These workshops are less operationally oriented than RUWs or Field Tests since they do not represent a particular program design or specific program options. They do, however, have action implications for public policy, present practices, and future research.

The Research Utilization Program assembles a team of nationally recognized experts on each SNW subject. Extensive conference support services are also provided for the workshops, including multimedia development, editing and publication of materials, and logistical support.

Special National Workshops have been held on:

- Research and Evaluation Methods and the Third National Workshop on Criminal Justice Evaluation--An update of recent developments and methods used to investigate and analyze social programs and criminal justice evaluation procedures.

- Historical Approaches to Studying Crime--Modern-day criminal justice problems approached through an historical perspective of violent and non-violent crimes.

- State Legislative Planning for Correctional Reform--Methods and resources for planning and developing appropriate correctional legislation at the state level.

- Prevention and Detection of Fraud, Waste, and Abuse of Public Funds-A conference of state and local practitioners, researchers, and federal officials to assess needs and develop strategies to prevent and detect fraud, waste, and abuse of public funds.

- The Serious Juvenile Offender--Review of research and development needs for planning (in cooperation with the National Institute of Juvenile Justice and Delinquency Prevention).

- Stochastic Modeling--A promising new technique for crime analysis.

- Plea Bargaining--Current issues and new research on this judicial process.

- Second National Workshop on Criminal Justice Evaluation--The entire spectrum of criminal justice research and evaluation issues.

- Forensic Science Services and the Administration of Justice--Interdisciplinary exchange of views among various members of the criminal justice community.

- Mental Health Services in Local Jails--Models for improving service delivery.

- The Career Criminal--Implications of research from the NIJ Career Criminal program.

- Argersinger v. Hamlin--Legal counsel for indigents facing jail.

- Update '77: Update '78--The role of local officials in criminal justice decisionmaking.

- Determinate Sentencing--Implications of this trend for the criminal justice system.

- Pretrial Release--Discussion of a demonstration project with judges from all 50 states.

- Crime Control: State of the Art--An update of criminal justice knowledge for governors and representatives of State Planning Agencies.

- Urban Crisis Planning--Simulated planning of responses to hypothetical crisis situations.

- Performance Measurement--Organizational assessment techniques for police, courts, and corrections.

Professional Seminars

A new series of national events, Professional Seminars, were begun in 1983. The first, "A Partnership Against Crime: Community Crime Prevention," highlighted the successful cooperative relationship between police and communities in New York City, Newark, Chicago, Minneapolis, San Diego, and Detroit. As a result of the partnership, both fear of crime and incidence of crime substantially were reduced. Details of the six programs are included in the National Institute of Justice publication, "Neighborhood Crime Prevention."

A second Professional Seminar is scheduled for the Spring of 1983 on, "Policing: State of the Art." This national meeting will focus on innovative, state-of-the-art police practices and programs. Representatives of the major national police organizations participated in identifying some twelve programs and practices to highlight and disseminate information about their respective constituencies.

Other seminars will be announced later this year.

Field Test Support

Field Test Support provides technical assistance and training for staff and policymakers at sites selected to implement NIJ Field Test designs. These designs represent promising new operational approaches to controlling crime or improving criminal justice.

The Field Tests involve carefully designed program strategies that are implemented in a limited number of sites under controlled or quasi-controlled conditions to determine the effectiveness, transferability, and suitability of the concepts for further demonstration.

Key representatives from the Field Test sites receive training and technical assistance designed to:

- Orient test-site staff on the goals, methods, and requirements of the Field Test project
- Build skills in the particular program technology
- Assist in project implementation
- Assist test agencies in conducting technology transfer conferences to familiarize colleagues in nearby jurisdictions with the test experience.

Field Tests currently in operation are:

- Differential Police Response to Calls for Service

  The increased volume of citizen-initiated calls for service in recent years, coupled with strained police budgets, has made it increasingly difficult for police departments to respond to all calls for service in the traditional manner of sending a patrol unit as quickly as possible while maintaining their current level of activity in other areas. Departments have attempted to meet these competing demands through

  various approaches, all of which share the common objective of developing more efficient means of allocating available resources. Three police departments in Garden Grove, California, Toledo, Ohio, and Greensboro, North Carolina are participating in an attempt to attain further efficiencies through the development and implementation of a refined call classification scheme, an expanded range of response techniques, and optimal matching of calls to response. The resulting quality of police services will be measured by police effectiveness and costs as well as citizen satisfaction.

- Early Representation by Defense Counsel

  Three local public defender offices are participating in this test to determine the effects of early representation on the operations of the participating public defender agencies, the quality of attorney-client relations and the impact on other components of the criminal justice system in processing felony cases. The three test sites are Pinellas County, Florida; Passaic County, New Jersey; and Shelby County, Tennessee. Each participating site will develop procedures for defense counsel representation for indigent clients at or near the point of arrest and sufficiently in advance of the initial court appearance. The test shall determine in a systematic fashion whether the limited research and empirical evidence are valid that indicate early representation will speed the process by which cases are disposed and will improve the overall quality of representation.

Other Field Tests receiving support from RUP since 1976 are:

- Employment Services for Ex-offenders
- Supervised Pre-Trial Release
- Commercial Security
- Structured Plea Negotiatons
- Multi-Jurisdictonal Sentencing Guidelines
- Managing Criminal Investigations
- Juror Usage and Management
- Neighborhood Justice Centers
- Pre-Release Centers
- Managing Patrol Operations
- Improved Correctional Field Services.

Results

The most recent Research Utilization Workshop findings imply long-term potential for change in these areas:

- Compensating Victims of Crime--About three-fourths of the participants indicated that they gained additional insights on basic issues for establishing and operating a victim compensation program.
- Management of Stress in Corrections--The results on actions taken by participants soon after the workshop indicate that at least three-fourths of the respondents perceived the concepts presented at the workshops as appropriate for their systems/institutions. Specifically, impact of the workshops is indicated by actual progress on preliminary steps that should lead to organizational change.

Internal and external evaluations were conducted on selected 1979 topics. Results of both show significant progress in the initial phases of the change process. Both the internal and external evaluation results were consistent with each other.

- Maintaining Municipal Integrity--About half the participants reported a heightened awareness of ethical issues and said they have taken steps to assess their jurisdictions' investigative ability, vulnerability to corruption, and regulatory and enforcement capabilities.

- Operating a Defender Office--Over half the participants reviewed their personnel policies. Almost half evaluated their current scope of services and determined areas where additional staff training was needed.

- Improved Probation Strategies--Over half the probation officials at the workshops have subsequently disseminated strategies for improving probation and evaluated their present services. Almost half have reviewed current caseloads and assessed available resources for planning and implementing a more efficient monitoring system.

- Managing Patrol Operations--Over half the police personnel analyzed their patrol operations using the systematic assessment procedures presented at the workshop.

Results also show that a majority of participants reported positive effects on their activities:

- Health Care in Correctional Institutions--Two-thirds of the medical, correctional, and planning personnel who attended the workshop evaluated their health care procedures and began generating outside support for change. About half revised both their medical record and medication distribution systems and stopped using inmates to deliver health care services.

- Victim/Witness Services--Almost three-fourths of the participants--prosecutors, law enforcement officials, and community organizers--publicized new victim/witness services and sought new advocates for such programs. More than half attempted to increase interagency cooperation in this area.

- Managing Criminal Investigations--Changes in case screening, initial investigations, and management of investigations were reported by about half the participants.

- Juror Usage and Management--Over half the participants instituted changes in their jury selection and use procedures after attending this workshop.

- Rape and its Victims--Over three-fourths of those attending the workshop reported increased cooperation and communication among community agencies providing services to rape victims.

About the Office of Development, Testing, and Dissemination

Within the National Institute of Justice, the Office of Development, Testing, and Dissemination is responsible for distilling research findings, transforming the theoretical into the practical, and identifying programs with measurable records of success that warrant widespread application. As part of its program, ODTD also provides financial and technical assistance in adapting and testing model programs in selected communities. The Office also disseminates information to justice system executives nationwide through a variety of vehicles. The aim is to give justice professionals ready access to promising new approaches in the administration of justice.

ODTD has built a system to bridge the operational gap between theory and practice and the communication gap between researchers and practitioners. The program provides:

- Practical guidelines for model justice system programs

- Research utilization workshops for key executives that explain selected model programs based on promising research and evaluation findings

- Field tests of important new approaches in different communities

- On-site training visits for justice system officials to agencies operating successful, innovative programs

- Clearinghouse and reference services for the international justice community.

PARTICIPANTS AT JUNE, 1982 PLANNING CONFERENCE ON DESIGN OF

COSTING POLICE SERVICES TRAINING WORKSHOP

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Paul Cascarano, Assistant Director

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John Lucey, Program Manager

James Gardner, Social Scientist
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Evaluation Specialist

ACKNOWLEDGEMENTS

In developing the training program for Costing Police Services the training staff of University Research Corporation received invaluable assistance from a number of police officials and other knowledgeable persons throughout the country as well as the program managers at the National Institute of Justice.

Our first expression of thanks goes to the Advisory Panel, Kent John Chabotar, and James Gardner who were responsible for the development of the Program Model entitled "Measuring the Cost of Police Services." That model was developed based upon the findings of an extensive review of the literature in fields relevant to the subject matter and a survey of more than fifty cities, counties and states. It serves as the substantive foundation of this training topic.

We are also grateful to the police and other municipal executives and experts who participated in a two-day planning conference to develop the content matter and training design of this program. Their observations and insights substantially contributed to shaping the training program.

Also to be thanked are the participants from the three jurisdictions who attended the pilot test of Costing Police Services on September 15-16, 1981. Their insight and candor have provided us with the information to make the program better.

Within the Research Utilization Program administered by University Research Corporation we are grateful to Dr. Sheldon S. Steinberg for his leadership; to Leo Fishel, David Klaus and Beverley Graham for their substantial contributions to the final product; to Vipapan Owtrakul and Kay Stuchlak for their excellent skills in producing volumes of neat, accurate, and presentable copy in a very short time; and to Alice Evans for providing logistical support so that everything happened when it was supposed to. Also to be thanked are the fine staffs of the Administrative Services and Media Divisions of URC, whose fine work contributed substantially to this program.

Finally, the recommendations and directions received from Messrs. John Lucey and Louis Mayo of the National Institute of Justice were both helpful and appreciated.

Joseph A. Kelly, Team Leader
Costing Police Services

September, 1982

COSTING POLICE SERVICES

Training Team Members

G. STEVENS BERNARD, City Manager of Grand Rapids, Mich, has overall responsibility for the $110 million city budget and its 1,800 employees. Mr. Bernard has served in city management in several other cities including Minneapolis. He has been a Professor at Mankato State University's Graduate Program in the Urban and Regional Studies Institute. As a consultant, he has been involved in organizational development, diagnostic interventions, and training programs throughout the Midwest. Mr. Bernard earned his Master's Degree in Public Administration from the University of Kansas in 1966.

COMMANDER KENNETH FORTIER is a 20-year veteran of the San Diego Police Department. He is currently assigned as Project Director to a $30 million decentralization project for land acquisition, design, and construction of fire and police stations as well as an Administrative and Technical Center. He also supervises the Automated Regional Justice Information Systems (ARJIS) administered under a Joint Powers Agency with a Board of Directors composed of elected officials from ten municipalities and county governments. During his distinguished career with the San Diego Police Department, Commander Fortier has been responsible for conducting management audits of the department; administering the Internal Affairs Unit; the Executive Office to the Deputy Chief of Patrol; and Director of the Staff Services Bureau with command over Research and Analysis, Communications, Fiscal Management and Personnel Sections. Recently, he participated in the development of the National Institute of Justice Program Model entitled Measuring the Cost of Police Services. He has taught college courses in various criminal justice subjects and has consulted with numerous cities and criminal justice agencies with regard to operation and assessment of police command control and communications systems. Commander Fortier was awarded as Master's in Public Administration by San Diego State University in 1976.

JAMES J. HENNESSY is the Executive Director, Division of Administration for the St. Louis (MO) Police Department. Mr. Hennessy also served as a number of the Advisory Panel which made substantial contributions to the development of the National Institute of Justice (NIJ) Program Model entitled Measuring the Cost of Police Services. In his position with the St. Louis County Police Department, he is responsible for the administration of the Bureau of Financial Mangement, Planning and Research, Data Systems, Personnel and Training, Police-Community Relations, and Office Services. During his ten years with the St. Louis

County Police Department, he has developed and implemented Zero-Based Budgeting to this Department, and has established a long-range planning unit. His background includes budget management and administration and the design and implementation of a computerized fleet management system and participation. Mr. Hennessy earned a Master's Degree in Criminal Justice Administration at Michigan State University in 1970.

JOSEPH T. KELLEY, Assistant Director of the Municipal Finance Officers Association (MFOA), serves as the key advisor on governmental budgeting and computer technology to the organization and its members. While at MFOA, he has been involved in a major fiscal impact study for the Army Corps of Engineers and the introduction of a local government financial mangement information database. He has worked in the private sector as a Systems Analyst and Project Director and for the City of Cambridge, Massachusetts, as an Administrative Analyst. While in Cambridge, Mr. Kelley exercised considerable leadership in revising the city's unfavorable credit situation in 1976. Joseph Kelley is widely published both as a frequent contributor to "Resources in Review" and in other professional journals. Mr. Kelley received a Master's Degree in Mathematics from the University of Arizona in 1978.

JOSEPH A. KELLY has nearly 15 years of experience in the management, design, and delivery of training and technical assistance for a variety of clients including health and law enforcement professionals as well as volunteers engaged in international economic development activities. Most recently, he has managed the development efforts of a training program for police executives directed at the improvement of police management practices. He has also developed technical assistance strategies and systems intended to address the problems of violence and vandalism in our nation's schools and the removal of juveniles and status offenders from adult jails and lock-ups. In addition, he has designed and provided training for health professionals from more than 350 free-standing primary care medical units nationwide. Mr. Kelly earned a B.A. degree from the University of Notre Dame in 1963.

BISHOP T. ROBINSON is a police executive with 30 years of experience. Presently, he is the Deputy Commissioner of the Operations Bureau for the Baltimore Police Department. In that position, he is responsible for the administration and management of Baltimore's four major divisions including Criminal Investigations, Patrol, Traffic, and Community Services. Within those divisions more than 2,600 personnel are employed. He also serves on the National Institute of Justice National Advisory Board and is chairman of its Committee on Research Priorities. During 1980-81, Deputy Commissioner Robinson was President of the

National Organization of Black Law Enforcement Executives (NOBLE). During his distinguished police career, Bishop Robinson has been Chief of Patrol, Director of the Central Records Division, District Commander, and Assistant Director of the Education and Training Division. In addition, he has served as Project Director for numerous federally funded grants/projects aimed at improving police services through the implementation of innovative programs. Deputy Commissioner Robinson is an Adjunct Professor and has authored or co-authored numerous publications. He was awarded a Master's of Education Degree from Coppin State College in 1973.

COSTING POLICE SERVICES

Final Participant List
Pilot Delivery
September 15-16, 1982

ALEXANDRIA, VIRGINIA

Alexandria Police Department

John Streeter, Deputy Chief

City of Alexandria

Brad Hammer, Deputy City Manager

PRINCE GEORGE'S COUNTY

Prince George's Police Department

Capt. William Sahaydak, Commander,
Planning Division

Major Larry Shanks, Commander,
Bureau of Management Services

Prince George's County Government

Major Riddick, Principal Budget Officer

WILMINGTON, DELAWARE

Wilmington Police Department

Hon. Dennis Regan, Chief

Lt. Louis Dempsey, Planning Division

City of Wilmington

David Singleton, City Manager

Bruce Smith, Budget Officer

SESSION 1

Day I

WELCOME AND WORKSHOP OVERVIEW

The purpose of this session is to welcome participants, introduce the training staff, and describe the training materials, methods, and schedule.

In addition, we will examine and discuss the origins of the Program Model entitled Measuring the Costs of Police Service. We will also review the goals and objectives of Costing Police Services as well as the specific content and flow of the training program. At the conclusion of this session you should know where we are headed and how we will get there.

Specifically, this session will address:

- Program Model derivation
- Training goals and objectives
- Training flow chart.

TRAINING MATERIALS

- Participant's Handbook: This Handbook will be used as your guide and outline for all the workshop sessions. It has been designed as a working text which provides space for your notes and comments.

- Program Model: The Manual contains Measuring the Costs of Police Services, the narrative description of the program model upon which the workshop is based.

TRAINING METHODS

The design of this workshop incorporates the integrated use of short lectures, plenary group discussions, small work groups, selected visuals, and other techniques to facilitate participant interaction.

EVALUATION OF TRAINING

At the conclusion of each training day, you will be asked to take a few minutes to review and evaluate the workshop sessions presented that day. Forms are included in this Handbook for that purpose.

TRAINING GROUND RULES

Because the time available is short and the material to be covered considerable, the most important ground rule is to be on time for each session. In fairness to all, we will adhere to the training schedule as closely as possible.

CONFERENCE ROOM - EMERGENCY PROCEDURES

We will take a few minutes to become acquainted with FIRE EXITS and EVACUATION procedures.

PROGRAM MODEL

Measuring the Costs of Police Services was published by ABT Associates under contract to the National Institute of Justice in January 1982. The development of the Program Model was based upon exhaustive research into the state of the art with regard to costing practices of police agencies throughout the United States. The project was directed by Kent John Chabotar of ABT Associates and the NIJ Program Monitor was Mr. James Gardner.

DATA SOURCES

Data used in the development of the Program Model included:

- An extensive search of the literature in police management, accounting, and information systems

- A national mail survey of existing police costing techniques, budgeting and accounting processes, uses of cost information in decisionmaking, and capacities to measure costs of police services

- Four jurisdictions were chosen for on-site study and used in the Program Model for in-depth case observations. Those jurisdictions were chosen based upon the results of the mail survey.

- An Advisory Panel reviewed the results of the survey and on-site studies and provided substantive input to the design and content of the Program Model.

CASE STUDY JURISDICTIONS

- Alexandria, Virginia Police Department

- Arkansas State Police

- San Diego, California Police Department

- Sunnyvale, California Department of Public Safety.

PROGRAM MODEL ADVISORY PANEL

- Mr. Ken Fortier
  Commander
  San Diego Police Department
  California

- Mr. James Hennessy
  Directer of Administration
  St. Louis County Police Department
  Missouri

- Dr. Vincent Pivnicny
  Supervising Performance Auditor
  Department of State Auditor
  Massachusetts.

The Program Model which emerged is one which presents simple costing procedures that are applicable to a broad spectrum of agencies with varying levels of knowledge skills and attitudes in cost anaysis. It is the foundation upon which this workshop is constructed.

WORKSHOP GOALS AND OBJECTIVES

Program Goal

The goal of Costing Police Services is to assist police and other municipal executives in the understanding and use of specific cost analysis principles and practices, in order to improve decisionmaking with regard to resource allocation and use and to increase levels of accountability within the managerial functions of the organization.

Program Objectives

To achieve this goal, it is anticipated that by the end of the workshop participants will be able to:

- Identify and define the concept, key components, and benefits of cost analysis;
- Develop a common language and begin a continuing dialogue among police and other municipal officials who attend training with regard to the application of cost analysis;
- Understand the application of cost analysis as it relates to specific police management functions;
- Apply a strategic planning process which addresses cost information needs and requirements;

- Apply cost analysis procedures to determine the efficiency and/or effectiveness of police services; and
- Understand the operational and management implications with regard to the effective implementation of cost analysis systems;
- Apply a strategic internal management and policy-making process which incorporates cost analysis findings as a critical element.

Program Outcomes

At the conclusion of training, participants will be provided an opportunity to develop an action plan which identifies candidate services for cost analysis as well as the procedures and timetable necessary for implementation.

COSTING POLICE SERVICES

TRAINING SCHEDULE

SAMPLE

DAY I

- Registration — 12:00 Noon
- Session 1
  Welcome and Overview — 1:00 p.m.
- Session 2
  Cost Analysis: First Steps — 2:00 - 3:30 p.m.

  BREAK — 3:30 - 3:45 p.m.
- Session 3
  Cost Applications for Policing — 3:45 - 5:15 p.m.

CLOSURE DAY I — 5:30 p.m.

DAY II

- Review Day I — 9:00 a.m.
- Session 4
  Planning for Cost Analysis — 9:15 a.m.

  LUNCH — 12:00 Noon

DAY II

- Session 5
  Cost Analysis: How To — 1:30 p.m.

CLOSURE DAY JI — 5:00 p.m.

DAY III

- Review Day II — 9:00 a.m.
- Session 6
  Cost Analysis: Problem Resolution — 9:15 a.m.

  LUNCH — 12:30 p.m.
- Session 7
  Cost Analysis: Management Perspective — 2:00 p.m.
- Session 8
  Action Planning — 4:00 p.m.
  Small Group Activity
  Small Group Reports

CLOSURE DAY III — 5:30 p.m.

COST ANALYSIS OF POLICE SERVICES

Flow of Training

Cost Analysis: First Steps	• Formulating Questions • Defining Services • Identifying Appropriate Cost Components
Applications of Cost Analysis to Policing	• Public Sector Environment • Productivity Improvements • Police Management Functions • Uses of Cost Analysis • Problems in Police Costing
Planning for Cost Analysis	• Planning Model
Cost Analysis: How To	• Demonstration of Methods and Procedures for Analyzing Service Costs
Cost Analysis: Problem Resolution	• Case Study Problem Resolution
Cost Analysis: Management Perspective	• Cost Analysis System Implementation Needs • Responding to Cost Analysis Results • Impact of Cost Analysis Results • Managing Change
Cost Analysis: Action Planning	• Identification of Candidate Services for Cost Analysis • Development Procedures and Time-table for Implementation

Results of the national mail survey used for development of Program Module "Measuring the Cost of Police Services."

ATTACHMENT A

AGGREGATE RESULTS FROM CITIES AND COUNTIES

1. Which of the following budgeting approaches is utilized by your police department?

   9 Line items

   2 Program budgeting (PBBS)

   2 Zero base (ZBB)

   7 Other (please name): line item and PBBS

   1 line item and ZBB

   2 All of the above

2. Does your budgeting process include the analysis of costs based upon indicators (measures) of performance?

   15 YES

   11 NO

3. If yes, which of the following levels of cost analysis are performed?

   5 By organizational unit (e.g., division, precinct)

   13 By function or activity (e.g., patrol, criminal investigations)

   1 Other (please list): object of expenditure

   8 No response

4. Are alternative levels of resources for each unit or activity--along with corresponding projections of service levels--typically provided in the budget?

   8 YES

   16 NO

   1 No response

5. If cost analysis is performed at the organizational unit level, please provide several examples of budget headings (e.g., Bureau of Patrol, Division of Criminal Investigations) and performance measures by which their costs are analyzed (e.g., cost per patrol hour, man hours per arrest).

BUDGET HEADING	PERFORMANCE MEASURE
East, Central North	# emergency responses to calls for service, non-emergency response calls for service, crime prevention
Traffic	# moving violation citations, accidents investigated, hit and runs
Detectives	# cases reviewed, investigated, clearances
Crime prevention	# volunteers recruited, security surveys, property markings
Uniform Forces	--
Investigation and Training	--
General Support	--
Parking Enforcement	--
Airport Security	--
Patrol	average response time (no cost element)
Warrant Detail	# warrants served (no cost element)
District Patrol	# offenses per 100K population, response time for services, number of arrests
Traffic Division	# accidents per 10K registered vehicles, per 10K population, fatalities per 10K population
Internal Affairs	# complaints investigated and inspections conducted
Training Division	total training provided in terms of # of officers and types of training
District I (uniform patrol)	# calls for services and avg. response time, % of arrests and cases handled
Vehicle Maintenance	daily avg. vehicle "down"
Operations	# service requests, field investigations case, preparation/court presentations
Services	# calls processed, computer transactions

5. Cont.

BUDGET HEADING	PERFORMANCE MEASURE
Inspectional Services	# uses of force investigation, dissemination of court information, inspections
Program Management	maintenance of evidence property, financial (payroll vouchers, contracts), info. systems maintained/ developed, reduce vehicle downtime 5%
Administration	assess division reorganization impact, strategic plans, improve employee relations
Organized Crime	arrest vice law violators, provide technical assistance, legislature testimony
Central Investigation	cost per clearance
Special Criminal	costs per clearance arrest, case
Patrol	variable for each bureau, depending upon written justification and projected changes in specific output units applicable
Planning and Research	for additional resources by bureau, for subordinate activities or functions under bureau
Investigations	# positions, % increase in crime, clearance rate
Field Operations	# calls for service response time, resources used
Support	manpower rate, prisoner processing

6. If cost analysis is performed at the activity level, please provide several examples of budget headings (e.g., homicide investigations, personnel recruitment) and performance measures by which their costs are analyzed.

BUDGET HEADING	PERFORMANCE MEASURE
Personnel and Training	# in-service training hours, # specialized training events
Precincts	% emergency responses under 5 minutes, avg. emergency response time
Administration	# internal affairs complaints
Uniform Bureau	costs of handling dispatched calls, costs of assigned cases

6. Cont.

BUDGET HEADING	PERFORMANCE MEASURE
Detective Bureau	Cost of investigation of each classification of cases, homicide, robbery, crime scene responses, drinking drivers tests, drugs and trace evidence
Crime Laboratory	
Personnel Bureau	# background investigations
General Investigations	clearance rate (no cost element), Denver anti-crime conducted cost analysis for "calls in service", which is not budget heading
Patrol (operations program)	city wide average response time, traffic citations
Investigation (operation program)	crime/property/homicide/juvenile
Traffic (operations program)	# moving citations, drunk driver, special event hours
Support Services (auto maintenance)	total vehicles maintained, # miles driven, avg. out of service time
Personnel Recruitment	avg. monthly turnover
Preventive Patrol	% beat time
Administrative Services	# criminal and traffic reports handled, calls received for service, expenditure data by unit level
Field Operations	# part I crimes, general arrest and clearance, # miles patrolled
Criminal Investigation	clearance rate, monetary value of property, avg. case load per investigation
Career Development	recruit training, inservice and advanced training, # background investigations
Management Controls (court liaison subpoena)	# inspections, court security, subpoenas
Criminalistics	cases processed, crime scenes, photographs
Records & Identification	reports processed and supplied, fingerprints, special officer permits
Central Lock-up	time/prisoner needed for process, PEI tests, prisoners delivered to court
Court Liaison	hrs. courts manned, subpoenas and attachments

6. Cont.

BUDGET HEADING	PERFORMANCE MEASURE
Personnel/Payroll	transaction/personnel and payroll
Offenses against Persons	complaints, arrests, clearance
Fleet Maintenance	cost per mile per vehicle, per month per vehicle
Animal Control	cost per (various actions, routinely performed within function description)
Budget Office	cost per procurement or claim paid
Property Clerk	cost per property item or evidence package processed
Physical Crimes	# investigation/clearance
General Investigations (hit and run detail)	hit & run & 78% over 3 years, # personnel increased, accident by detail & 80% over 3 years, response time to follow-up hit & run investigations
Criminal Investigations Special	% major crime
Patrol - South Partol - North Metro - central	# police per sq. mile population density crime analysis by area
Helicopter	vehicle cost per mile
Special services	--
Technical	--
Staff	--
Recruitment, Academy	employment rate, scope of recruitment area, # of classes

7. If cost analysis is provided at other than the unit of activity level, please provide several examples of budget headings and performance measures by which their costs are analyzed.

BUDGET HEADING	PERFORMANCE MEASURE
Precinct Operations	reponse time for priority 1 & 2 calls ÷ # for priority 1 & 2 calls for service
Special Operations	# priority 3,4,& 5 calls responded to with an expectation time ÷ total # of 3,4,& 5 calls
	# incidents which result in injury or property damage (resulting from an explosion) ÷ total # incidents
	# unanticipated organized crime or activities or events ÷ total # of activities or events occurring

7. Cont.

BUDGET HEADING	PERFORMANCE MEASURE
Investigations	# cases prepared and submitted to judicial system which pass 1st judicial screening ÷ total # cases submitted
Services	# officers (actual strength ÷ total # officers authorized strength)
Fuel Usage	cost per day/month
Uniform	cost per man by center/department
Office Supplies	# per month center/department
Reproduction	unit/activity per month
Communications	unit/activity per month
Personnel	# police personnel, civilians, clothing allowance
Supplies	vehicle rate
Equipment	solo motorcycle allowance
Contractual	--
Maintenance	--
Capital Outlay	--

8. Which organizational unit(s) within your jurisdiction is responsible for preparing the police department's budget?

18 Police Department
2 City/county administrative services department
4 City/county finance department/budget bureau

9. Which unit(s) is responsible for maintaining cost information on police operations (e.g., police planning unit, county clerk, treasurer's office)?

14 Police Department
1 City/county administrative services department
12 City/county finance department/controller/budget bureau
1 Not done

10. Does your jurisdiction have some form of cost accounting system which provides routine reporting of police expenditures?

21 YES
4 NO
1 No response

11. If yes, please briefly describe that system (e.g., is it computerized or manual, frequency of reporting, examples of output).

22 Computerized/monthly
3 Manual/irregular

12. Who makes the final decisions regarding resource levels funded by the budget?

20 City/county chief executive and legislature
4 Police department
2 No response

13. Does the approved budget establish the police department's goals and objectives for the coming year?

17 YES
8 NO
1 No response

14. If yes, does your police department have a performance reporting system which monitors specific units or activities in terms of results?

15 YES
4 NO
9 No response

15. Is cost a variable in the performance system?

10 YES
11 NO
6 No response

16. Is cost analysis performed at any time of the year other than during budget preparation?

17 YES
5 NO
2 No response

17. If yes, for which of the following is cost analysis undertaken?

10 Long range planning
14 Financial resource allocation
12 Human resource allocation
14 Evaluation
12 Contract services
1 Other (please list): make/buy/lease decisions
6 No response

18. If cost analysis has been utilized in resource allocation (other than during budget preparation), please provide brief discussions of one or two such studies, their nature and their outcomes.

"calls for service"

unexpended appropriations analysis

revenue analysis

manpower allocation study (overtime reduction, court appearances)

vehicle utilization study (compact cars, 1 man patrol, 2 man patrol neighborhood teams)

proposed precinct consolidation

recruiting (benefits of multi-state advertising costs)

alcohol enforcement

use of civilians in police communications

early retirement

helicopter purchase

18 No response

19. How would you rate your jurisdiction's ability to measure the costs of specific police services?

3 Excellent
4 Good
5 Adequate
7 Fair
8 Poor
1 Not sure

20. Please provide three reasons for your rating in #19.

Excellent/Good/Adequate

similarity of financial and cost accounting systems
access to detailed expenditure records (historical and projected)
use of computers in financial record-keeping and reporting
costs currently allocated by organization unit and police function
budget requests require extensive justifications including cost analysis
sufficient staff expertise
cooperation from top management
quantifiable performance measures

Fair/Poor

lack of computerized financial data base
specific services not identified in systemmatic fashion
lack of workload factors
records not kept
no experience or expertise in cost analysis
lack of interest by top management
expense and time involved in cost anlaysis
no access to consultant services
lack of departmental objectives and performance indicators
use line item budget not relevant to cost analysis of services
police records kept at city/county level

21. To what extent does your jurisdiction need a handbook that would explain how to measure the costs of police services?

9 Significant need
10 Need
0 Not a need
2 Unsure
3 No response

22. Please provide reason(s) for your response to #21.

lack of local expertise
need identification of services that might be costed
need standardized objects of expenditure
declining police budgets force tighter cost control
improved cost analysis would facilitate managerial decision-making and long-range planning
useful in cost-benefit analysis
better cost comparisons of alternative crime prevention techniques

23. To enhance its relevance to your jurisdiction's needs, what topics should be covered by the handbook?

how to calculate administrative overhead expenses
presentation of cost finding methodologies for investigations, court scheduling, support departments like personnel or accounting, contract services, vehicle maintenance costs, selected equipment, different police department organization plans, high police turnover, capital outlay
general discussion of the uses of cost information to improve organizational efficiency and effectiveness
clear, realistic definitions of typical services to be costed
case studies of jurisdictions using effective cost acounting systems
how to allocate support department costs to line operations
how to calculate the marginal costs of one or more additional officers, patrol cars, etc.
proper uses of existing information systems to acquire cost information
basic cost accounting concepts
"walk through" costings of sample police services
how to consider inflation in projecting costs
how to keep better financial records

ATTACHMENT B

JURISDICTION / QUESTIONNAIRE ITEM	Individual Responses from Cities and Counties						
	Manchester NH	Bloomington IN	Madison WI	Kansas City MO	Philadelphia PA	Minneapolis MN	Charleston SC
1. Budgeting Approach	line item	line item PBBS	line item	line item PBBS	line item PBBS	line item MBO	line item
2. Analysis of costs based on indicators of performance	no	no	no	no	no	yes	no
3. Levels of cost analysis performed	--	--	--	organiz. unit	--	function or activity	--
8. Unit preparing PD budget	police department	police department	police department	city budget bureau	city finance department	police department	city administrator services
9. Unit maintaining info on police operations	police department	police department/ city controller	police department/ city controller	city budget bureau	city finance department	varies	not done
10. Existence of cost accounting system	yes (expenses)	yes (expenses)	yes (expenses)	no	yes	yes	no
12. Final decisions on resource levels	Mayor and City Council	Common Council	Common Council	Police Board	Mayor	City Council	City Council
13. Goals and objectives in approved budget	yes	yes	no	no	no	no	no
15. Use of cost as variable in performance system	no	--	--	no	--	yes	no
17. Purposes of cost analysis	--	--	financial r.a. human r.a. equipment utilization	--	financial r.a. evaluation contract services	all	no
19. Ability to measure the costs of police services	fair	poor	fair	fair	poor	poor	fair
21. Need for handbook	need	significant need	significant need	significant need	need	significant need	significant need
4. Resource/service levels in budget	no	no	no	no	no	no	--

JURISDICTION / QUESTIONNAIRE ITEM	Individual Responses from Cities and Counties						
	Houston TX	Des Moines IA	Atlanta GA	Miami FL	Sunnyvale CA	Phoenix AZ	Rochester NY
1. Budgeting Approach	line item	line item PBBS	line item	all	performance budget	line item ZBB	line item ZBB
2. Analysis of costs based on indicators of performance	yes	no	yes	yes	yes	no	yes
3. Levels of cost analysis performed	org. unit func/activity	--	function/ activity	function/ activity	task	function/ activity	function/ activity
8. Unit preparing PD budget	police chief	police dept. city finance department	police department	police department	city finance department	police department	police department
9. Unit maintaining info on police operations	police department/ city controller	police department	city finance department	police department	city finance department	city finance department	police department
10. Existence of cost accounting system	yes	yes (expenses)	yes	yes	yes	yes	yes
12. Final decisions on resource levels	Mayor and City Council	City Manager and Council	City Council	Police Department	City Council	City Council	Police Department
13. Goals and objectives in approved budget	yes	yes	no	yes	yes	no (service levels)	yes
15. Use of cost as variable in performance system	yes	no	yes	no	yes	no	yes
17. Purposes of cost analysis	all	financial r.a. evaluation contract services	evaluation resource allocation	--	evaluation	planning resource allocation evaluation	all
19. Ability to measure the costs of police services	excellent	adequate	fair	poor	good	excellent poor	adequate
21. Need for handbook	need	need	need	--	unsure	significant need	need
4. Resource/service levels in budget	yes	yes	no	yes	no	no	yes

JURISDICTION / QUESTIONNAIRE ITEM	Individual Responses from Cities and Counties						
	Santa Fe NM	Shelby City TN	New Orleans LA (2)	Cincinnati OH (2)	Denver CO	Honolulu HA)2)	San Diego CA
1. Budgeting Approach	--	-- PBB3	ZBB	PBBS	line item	line item PBBS	line item program budget
2. Analysis of costs based on indicators of performance	no	yes	yes	no	no	yes	yes
3. Levels of cost analysis performed	function/ activity	function/ activity	function/ activity	organization unit	--	org. unit/ function/ activity	function or activity
8. Unit preparing PD budget	police department	police commission	police department	police department	police department	police department	police department
9. Unit maintaining info on police operations	police department/ city finance department	police department	city finance department	police department	police department	police department	police department/ city finance department
10. Existence of cost accounting system	yes (expenses)	yes	yes (expenses)	yes (expenses)	no (expenses)	yes	yes
12. Fiscal decisions on resource levels	--	--	City Council	City Council	Mayor	Mayor	City Council
13. Goals and objectives in approved budget	yes	yes	yes	yes	no	yes	yes
15. Use of cost as variable in performance system	yes	no	--	no	no	yes	no
17. Purposes of cost analysis	--	--	all	all	all	all	all
19. Ability to measure the costs of police services	good	adequate	fair	good	poor	excellent/ good	adequate
21. Need for handbook	--	--	significant need	unsure	significant need	need	need
4. Resource/service levels in budget	no	no	yes	no	no	no	no

JURISDICTION / QUESTIONNAIRE ITEM	Individual Responses from Cities and Counties				Individual Responses from States		
	Portland OR	Austin TX	New York City NY	St. Louis MO	Oregon	Arkansas (2)	New York
1. Budgeting Approach	all	--	line item PBBS	line item ZBB	ZBB	line item PBBS	PBBS
2. Analysis of costs based on indicators of performance	yes	yes	no	yes	yes	yes	no
3. Levels of cost analysis performed	org. unit/ func/activity	function/ activity	--	org. unit/ func/activity	organiza-tional unit	organiza-tional unit	--
8. Unit preparing PD budget	police department	department of administra-tion	police department	police department	state police department	state police/ OMB	state police department
9. Unit maintaining info on police operations	police department/ city finance department	department of adminis-tration	police department	police department	state police department	state police department	state police department
10. Existence of cost accounting system	yes	no	yes	yes	yes (expenses)	yes	yes
12. Final decisions on resource levels	City Council	City Manager and Council	Mayor	County Exec. and Council	State Legislature	State Legislature	State Police
13. Goals and objectives in approved budget	yes	yes	yes	yes	yes	no/yes	no
15. Use of cost as variable in performance system	yes	no	yes	no	yes	no	--
17. Purposes of cost analysis	all	contract services overtime fuel con.	all	all	planning financial & human resource allocation	human and financial resource allocation	financial resource allocation
19. Ability to measure the costs of police services	fair	adequate	excellent	good	good	adequate good	poor
21. Need for handbook	need	signficant need	need	need	unsure	need	not a need
4. Resource/service levels in budget	yes	no	no	no	no	no	no

JURSIDICTION / QUESTIONNAIRE ITEM	Individual Responses from States					
	Pennsylvania (2)	Missouri	Ohio	Texas	California	Michigan
1. Budgeting Approach	line item PBBS	ZBB	line item	ZBB	line item PBBS	ZBB
2. Analysis of costs based on indicators of performance	no	yes	yes	yes	yes	yes
3. Levels of cost analysis performed	function or activity	function or activity	organizational unit	function or activity	organizational unit/function	organizational unit
8. Unit preparing PD budget	state police/ OMB	state police department	state police and OMB	--	state police	state police
9. Unit maintaining info on police operations	state police/ OMB	state police department	varies	--	state police	state accounting division
10. Existence of cost accounting system	yes (expenses)	yes	yes (expenses)	--	yes	yes
12. Final decisions on resource levels	state legislature	governor	governor	--	governor/ state legislature	governor/ state legislature
13. Goals and objectives in approved budget	no/yes	yes	yes	--	no	no
15. Use of cost as variable in performance system	yes	--	no	--	yes	no
17. Purposes of cost analysis	contract svs. lease/ purchase	evaluation	financial and human resource allocation	--	all	financial resource allocation
19. Ability to measure the costs of police services	fair	fair	poor	--	excellent	fair
21. Need for handbook	need	signficant need	need	--	need	significant need
4. Resource/service levels in budget	no	no	yes	yes	no	yes

ATTACHMENT A

AGGREGATE RESULTS FROM STATES

1. Which of the following budgeting approaches is utilized by your police department?

   1 Line items

   1 Program budgeting (PBBS)

   3 Zero base (ZBB)

   3 Other (please name): line item and PBBS

2. Does your budgeting process include the analysis of costs based upon indicators (measures) of performance?

   6 YES

   2 NO

3. If yes, which of the following levels of cost analysis are performed?

   3 By organizational unit (e.g., division, precinct)

   3 By function or activity (e.g., patrol, criminal investigations)

   1 Other (please list): by organization and activity

   1 No response

4. Are alternative levels of resources for each unit or activity--along with corresponding projections of service levels--typically provided in the budget?

   2 YES

   6 NO

5. If cost analysis is performed at the organizational unit level, please provide several examples of budget headings (e.g., Bureau of Patrol, Division of Criminal Investigations) and performance measures by which their costs are analyzed (e.g., cost per patrol hour, man hours per arrest).

BUDGET HEADING	PERFORMANCE MEASURE
Administration	cost per hour
Criminal Investigation	cost per hour, case, arrest
Highway Patrol	cost per hour, mile, arrest
Personnel, training	cost per hour, student applicant
Traffic Division	# hazardous traffic offenses, registration and licensing, # accidents and deaths per 1,000,000
Game Division	# game and fishing offenses, angling, hunting, commercial fishing and boat licenses checked
Criminal Division	# investigations, major offense clearances, fingerprints, cards and criminal records processed
Crime Laboratories	# cases, items, crime scene investigators
Administration of the Division	--
Employee relations and training	--
Patrol Activities	--
Criminal Investigation	--
Technical Police Services	--
General Operational Support	--
Bureau of District Operations (traffic patrol districts)	# citations, contracts, paid staff time, staff hours
Truck Weight Enforcement	# contracts, citations, revenues, staff time worked vs. paid
Chemical Testing	machine operation certified training
Police Communications	tower down time, % of equipment in service, % of service meeting standards (timeliness, accuracy)

6. If cost analysis is performed at the activity level, please provide several examples of budget headings (e.g., homicide investigations, personnel recruitment) and performance measures by which their costs are analyzed.

BUDGET HEADING	PERFORMANCE MEASURE
Highway Traffic Safety (Patrol)	# deaths, accidents and location, tickets issued
Criminal Investigations	# criminal cases opened, cases solved and cleared, drug arrests and investigation
Administrative	# cost per mile of vehicle fleet, turnover rate, equipping, troopers training
Operator Qualification Control	operators examined or reexamined, accidents attributable to unqualified drivers
Venicle Standards Control	inspection stations, stations visited, # accidents from vehicle failure
Traffic Supervision	# arrests for hazardous moving violations, actions of operators
Criminal Law Enforcement	# crime clearances, convictions, arson
Crime Prevention	# juvenile offenders handled informally
Enforcement	# accidents, arrests, criminal investigations
Vehicle and Driver Safety	# written, vision, or driving exams
Technical Services	# monthly transactions

7. If cost analysis is provided at other than the unit of activity level, please provide several examples of budget headings and performance measures by which their costs are analyzed.

BUDGET HEADING	PERFORMANCE MEASURE
Department of Highway Safety (highway patrol)	% change in auto theft recovery, % enforcement actions resulting from accident violations, # of motor vehicle population given assistance, # inspections by motor vehicle inspection teams, avg. # license exams given at exam station

8. Which organizational unit(s) within your jurisdiction is responsible for preparing the police department's budget?

4 State Police Department

3 State Police and OMB

1 No response

9. Which unit(s) is responsible for maintaining cost information on police operations (e.g., police planning unit, county clerk, treasurer's office)?

5 State Police Department

1 State Police and OMB

1 Varies

1 No response

10. Does your jurisdiction have some form of cost accounting system which provides routine reporting of police expenditures?

7 YES

1 No response

11. If yes, please briefly describe that system (e.g., is it computerized or manual, frequency of reporting, examples of output).

7 Computerized/monthly or bimonthly reporting

1 Both automated and manual

12. Who makes the final decisions regarding resource levels funded by the budget?

1 State Police Department

3 State legislature

2 Governor

1 State legislature and governor

1 No response

13. Does the approved budget establish the police department's goals and objectives for the coming year?

3 YES

2 NO

2 Conflict in responses

1 No response

14. If yes, does your police department have a performance reporting system which monitors specific units or activities in terms of results?

0 YES

7 NO

1 No response

15. Is cost a variable in the performance system?

3 YES

2 NO

3 No response

16. Is cost analysis performed at any time of the year other than during budget preparation?

6 YES

1 NO

1 No response

17. If yes, for which of the following is cost analysis undertaken?

2 Long range planning

5 Financial resource allocation

4 Human resource allocation

2 Evaluation

2 Contract services

1 Other (please list): lease or purchase vehicles/equipment

1 No response

18. If cost analysis has been utilized in resource allocation (other than during budget preparation), please provide brief discussions of one or two such studies, their nature and their outcomes.

____ gasoline pricing and usage

____ turnover of patrol vehicles

____ accident reporting

____ federal grant monitoring

4 No response

19. How would you rate your jurisdiction's ability to measure the costs of specific police services?

1 Excellent

2 Good

0 Adequate

2 Fair

2 Poor

____ Not sure

1 No response

20. Please provide three reasons for your rating in #19.

Excellent/Good/Adequate

access to cost information

adequate staff to carry out analysis

good activity reporting by each trooper

Fair/Poor

unpredictable effects of inflation

inadequate information systems

accounting system focused on line items, not police functions

lack of staff expertise

21. To what extent does your jurisdiction need a handbook that would explain how to measure the costs of police services?

1 Significant need

4 Need

1 Not a need

1 Unsure

1 No response

22. Please provide reason(s) for your response to #21.

need to upgrade staff expertise

always useful to have more information

no need or interest in costing specific services

23. To enhance its relevance to your jurisdiction's needs, what topics should be covered by the handbook?

how to minimize respondent burden in collecting cost data

how to perform benefit cost analysis

sample police services to be costed

how to enhance the validity and credibility of cost data

JURSIDICTION / QUESTIONNAIRE ITEM	Individual Responses from States					
	Pennsylvania (2)	Missouri	Ohio	Texas	California	Michigan
1. Budgeting Approach	line item PBBS	ZBB	line item	ZBB	line item PBBS	ZBB
2. Analysis of costs based on indicators of performance	no	yes	yes	yes	yes	yes
3. Levels of cost analysis performed	function or activity	function or activity	organizational unit	function or activity	organizational unit/function	organizational unit
8. Unit preparing PD budget	state police/ OMB	state police department	state police and OMB	--	state police	state police
9. Unit maintaining info on police operations	state police/ OMB	state police department	varies	--	state police	state accounting division
10. Existence of cost accounting system	yes (expenses)	yes	yes (expenses)	--	yes	yes
12. Final decisions on resource levels	state legislature	governor	governor	--	governor/ state legislature	governor/ state legislature
13. Goals and objectives in approved budget	no/yes	yes	yes	--	no	no
15. Use of cost as variable in performance system	yes	--	no	--	yes	no
17. Purposes of cost analysis	contract svs. lease/ purchase	evaluation	financial and human resource allocation	--	all	financial resource allocation
19. Ability to measure the costs of police services	fair	fair	poor	--	excellent	fair
21. Need for handbook	need	signficant need	need	--	need	significant need
4. Resource/service levels in budget	no	no	yes	yes	no	yes

JURISDICTION / QUESTIONNAIRE ITEM	Individual Responses from Cities and Counties				Individual Responses from States		
	Portland OR	Austin TX	New York City NY	St. Louis MO	Oregon	Arkansas (2)	New York
1. Budgeting Approach	all	--	line item PBBS	line item ZBB	ZBB	line item PBBS	PBBS
2. Analysis of costs based on indicators of performance	yes	yes	no	yes	yes	yes	no
3. Levels of cost analysis performed	org. unit/ func/activity	function/ activity	--	org. unit/ func/activity	organiza-tional unit	organiza-tional unit	--
8. Unit preparing PD budget	police department	department of administra-tion	police department	police department	state police department	state police/ OMB	state police department
9. Unit maintaining info on police operations	police department/ city finance department	department of adminis-tration	police department	police department	state police department	state police department	state police department
10. Existence of cost accounting system	yes	no	yes	yes	yes (expenses)	yes	yes
12. Final decisions on resource levels	City Council	City Manager and Council	Mayor	County Exec. and Council	State Legislature	State Legislature	State Police
13. Goals and objectives in approved budget	yes	yes	yes	yes	yes	no/yes	no
15. Use of cost as variable in performance system	yes	no	yes	no	yes	no	--
17. Purposes of cost analysis	all	contract services overtime fuel con.	all	all	planning financial & human resource allocation	human and financial resource allocation	financial resource allocation
19. Ability to measure the costs of police services	fair	adequate	excellent	good	good	adequate good	poor
21. Need for handbook	need	signficant need	need	need	unsure	need	not a need
4. Resource/service levels in budget	yes	no	no	no	no	no	no

JURISDICTION / QUESTIONNAIRE ITEM	Individual Responses from Cities and Counties						
	Santa Fe NM	Shelby City TN	New Orleans LA (2)	Cincinnati OH (2)	Denver CO	Honolulu HA)2)	San Diego CA
1. Budgeting Approach	--	-- PBBS	ZBB	PBBS	line item	line item PBBS	line item program budget
2. Analysis of costs based on indicators of performance	no	yes	yes	no	no	yes	yes
3. Levels of cost analysis performed	function/ activity	function/ activity	function/ activity	organization unit	--	org. unit/ function/ activity	function or activity
8. Unit preparing PD budget	police department	police commission	police department	police department	police department	police department	police department
9. Unit maintaining info on police operations	police department/ city finance department	police department	city finance department	police department	police department	police department	police department/ city finance department
10. Existence of cost accounting system	yes (expenses)	yes	yes (expenses)	yes (expenses)	no (expenses)	yes	yes
12. Final decisions on resource levels	--	--	City Council	City Council	Mayor	Mayor	City Council
13. Goals and objectives in approved budget	yes	yes	yes	yes	no	yes	yes
15. Use of cost as variable in performance system	yes	no	--	no	no	yes	no
17. Purposes of cost analysis	--	--	all	all	all	all	all
19. Ability to measure the costs of police services	good	adequate	fair	good	poor	excellent/ good	adequate
21. Need for handbook	--	--	significant need	unsure	significant need	need	need
4. Resource/service levels in budget	no	no	yes	no	no	no	no

QUESTIONNAIRE ITEM \ JURISDICTION	Individual Responses from Cities and Counties						
	Houston TX	Des Moines IA	Atlanta GA	Miami FL	Sunnyvale CA	Phoenix AZ	Rochester NY
1. Budgeting Approach	line item	line item PBBS	line item	all	performance budget	line item ZBB	line item ZBB
2. Analysis of costs based on indicators of performance	yes	no	yes	yes	yes	no	yes
3. Levels of cost analysis performed	org. unit func/activity	--	function/ activity	function/ activity	task	function/ activity	function/ activity
8. Unit preparing PD budget	police chief	police dept. city finance department	police department	police department	city finance department	police department	police department
9. Unit maintaining info on police operations	police department/ city controller	police department	city finance department	police department	city finance department	city finance department	police department
10. Existence of cost accounting system	yes	yes (expenses)	yes	yes	yes	yes	yes
12. Final decisions on resource levels	Mayor and City Council	City Manager and Council	City Council	Police Department	City Council	City Council	Police Department
13. Goals and objectives in approved budget	yes	yes	no	yes	yes	no (service levels)	yes
15. Use of cost as variable in performance system	yes	no	yes	no	yes	no	yes
17. Purposes of cost analysis	all	financial r.a. evaluation contract services	evaluation resource allocation	--	evaluation	planning resource allocation evaluation	all
19. Ability to measure the costs of police services	excellent	adequate	fair	poor	good	excellent poor	adequate
21. Need for handbook	need	need	need	--	unsure	significant need	need
4. Resource/service levels in budget	yes	yes	no	yes	no	no	yes

ATTACHMENT B

JURISDICTION / QUESTIONNAIRE ITEM	Individual Responses from Cities and Counties						
	Manchester NH	Bloomington IN	Madison WI	Kansas City MO	Philadelphia PA	Minneapolis MN	Charleston SC
1. Budgeting Approach	line item	line item PBBS	line item	line item PBBS	line item PBBS	line item MBO	line item
2. Analysis of costs based on indicators of performance	no	no	no	no	no	yes	no
3. Levels of cost analysis performed	--	--	--	organiz. unit	--	function or activity	--
8. Unit preparing PD budget	police department	police department	police department	city budget bureau	city finance department	police department	city administrator services
9. Unit maintaining info on police operations	police department	police department/ city controller	police department/ city controller	city budget bureau	city finance department	varies	not done
10. Existence of cost accounting system	yes (expenses)	yes (expenses)	yes (expenses)	no	yes	yes	no
12. Final decisions on resource levels	Mayor and City Council	Common Council	Common Council	Police Board	Mayor	City Council	City Council
13. Goals and objectives in approved budget	yes	yes	no	no	no	no	no
15. Use of cost as variable in performance system	no	--	--	no	--	yes	no
17. Purposes of cost analysis	--	--	financial r.a. human r.a. equipment utilization	--	financial r.a. evaluation contract services	all	no
19. Ability to measure the costs of police services	fair	poor	fair	fair	poor	poor	fair
21. Need for handbook	need	significant need	significant need	significant need	need	significant need	significant need
4. Resource/service levels in budget	no	no	no	no	no	no	--

SESSION 2

DAY I

COST ANALYSIS: FIRST STEPS

During this session we will examine key issues related to <u>beginning</u> a cost analysis. Specifically, the following will be explained and discussed:

- how to formulate the question that the cost analysis will address
- how to define the service to be examined
- how to select units of service delivery
- appropriate and useful terminology and definitions
- how to identify the components of cost that apply to particular management options.

Cost analysis seeks to relate input (costs) to outputs (services); it seeks to associate the results of municipal activities (benefits) with the efforts required to achieve the results. As such, cost analysis deals with questions of quality and quantity of services delivered, alternative methods of delivering services, the efficiency of service delivery techniques, and the trends in service costs over time.

Cost analysis can be an effective management tool whenever the question at hand involves choices between alternatives, decisions on pricing a service, or more future-oriented questions, such as, "what would happen if we . . . ?" Cost analysis, though, is perhaps used at its best whenever it becomes a diagnostic tool, used to locate management problems before a situation gets out of hand. The only problem worth talking about is the one you never had.

COST ACCOUNTING VERSUS COST ANALYSIS

A distinction should be drawn between cost accounting and cost analysis. Cost accounting refers to the accounting system of an organization which has an added cost dimension. This means that traditional expense accounts such as salaries and supplies would be further classified into another set of mutually exclusive cost categories. There are two basic ways of classifying cost:

- By function or service. For example, public safety (a function) or burglary investigation (a service).

- By product or service purchased. For example, gasoline (a product) or rent (a service).

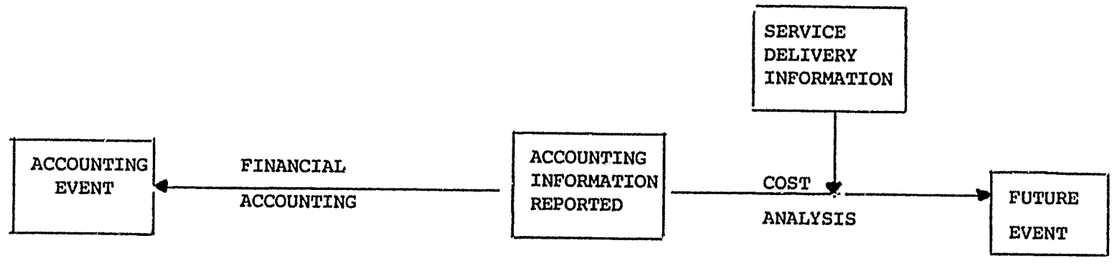
A consequence of this is that if a service orientation is superimposed on an accounting system that records expenditures by "object code," the resulting system would have many times as many accounts. For example, if a traditional accounting system with ten object codes was "upgraded" to provide information for five service categories, the number of accounts would expand from ten to fifty. It should be noted that the number of object codes and service concepts needed in a typical application almost mandates some form of computerization.

Cost analysis, on the other hand, may be helped by, but is not dependent upon, a cost accounting system. Cost analysis simply refers to a collection of techniques used to identify and access costs associated with a particular service, job, or other event. The classification used in an organization's cost accounting system (if one is present) may not always be the same as the classification needed for a particular analysis. Management needs change with changing conditions and cost analysis changes with them.

EXHIBIT 2-A

COMPLIANCE ACCOUNTING LOOKS TO THE PAST WHILE COST ANALYSIS LOOKS TO THE FUTURE

PAST----------PRESENT----------FUTURE



- FINANCIAL STATEMENTS
- BUDGET VS ACTUAL
- ACCOUNTS RECEIVABLE

- BUDGET PROJECTIONS
- COST/BENEFIT ANALYSES
- CONTRACT RENEWALS
- AQUISITIONS

EXAMPLES OF COST ANALYSIS APPLICATIONS

Some samples of appropriate cost issues grouped by the six management categories are indicated below. Please read through them.

In the following activity you will be asked to provide your own suggestions of how cost analysis might be used in your jurisdiction.

- Planning: Establishing the cost of a police service to choose among alternatives for providing that service.

  Our Example: Determining the cost of operating police tow trucks versus the cost of contracting with private firms to tow autos.

- Budgeting: Establishing the cost of a police service to forecast future costs under changing conditions or requirements.

  Our Example: Projecting the future cost of recruit training for various sizes of classes and different lengths of training periods.

- Controlling: Establishing the cost of a police service over time to monitor expenditures and facilitate cost containment.

  Our Example: Analyzing the costs of patrol activities to identify those that have rapidly increasing costs.

- Evaluating: Establishing the cost of a police service relative to the objectives of that service.

  Our Example: Using cost analysis to determine the optimum division of crime investigation responsibilities between patrol officers and detectives.

- Pricing: Establishing the cost of a police service for setting fees or cross-jurisdictional charges.

  Our Example: Determining the cost of crowd control for a rock concert to permit recovering the cost from the promoter.

- Reporting: Establishing the cost of a police service to permit comparisons among precincts or across jurisdictions.

  Our Example: Determining the cost of responding to a call for service to permit comparing this cost with similar costs in other jurisdictions.

ACTIVITY A

Most police managers tend to think of costs from the point of view of how their department is organized rather than what services they provide. To help you understand how cost analysis can contribute to management decisions, we described examples of how cost analysis is used to support each of the six main Management Functions. Now we would like you to suggest several questions or management decisions that come from your own experience where cost analysis information would have been helpful.

ACTIVITY A WORKSHEET

STYLES OF BUDGETS

Most municipal budgets are developed, organized, and presented in a "line item" format. Sometimes referred to as an "object of expenditure," a "line item" is the estimated annual cost of one item or service. Examples are gasoline, electricity, heating oil, salary, rent, overtime, travel, police cars, or anything else that is bought, rented, or consumed.

The level of detail associated with line items (the "Chart of Accounts") can vary enormously, from "postage stamps" to "training." The first object, postage stamps, stops short only at specifying whose picture should be on the stamp. Training, on the other hand, is considerably more general in nature. Expenditures from such a line item might cover travel to a training center, lodgings while there, and perhaps even some "food and ice" (another famous line item).

Training as a concept is much more output-oriented than postage stamps. Some styles of budgeting are also more focused on results achieved rather than goods consumed. Such budgets are referred to generically as "program budgets," meaning that the focus of the budgeting process is not on stamps (inputs) but on things to be done and goals to be achieved (outputs). Since services are outputs, program budgets are inherently more service-oriented than line item budgets: programs are usually described in terms of the collection of services they constitute.

COST CENTER BUDGETING

While line item budgeting tends to be the dominant style of municipal budgeting, a large number of jurisdictions use a form of budgeting that implements programmatic thinking. Such jurisdictions arrange their budgets in "cost center" formats in which the total police department budget is presented in segments that correspond to major divisional elements (chief's office, patrol, investigation, and services). See Exhibit 2-B.

Each division, such as Investigation, is further subdivided into constituent "cost centers" such as "Crimes Against Property."

Generally speaking, a cost center format budget supports management accountability and is a giant step in implementing a cost analysis, since service costs should already have been grouped in a fashion that would be an early step in a cost analysis. However, assume nothing. Verify with the individuals who prepared the budget that it represents the realities of service delivery and not the fantasies of a creative budgeter or planner.

COST CENTERS WITHIN "INVESTIGATIONS"

TOTAL DEPARTMENT BUDGET

ACTUAL 1975-76	REVISED 1976-77		BUDGET 1977-78
46 840		ADMINISTRATION	55 495
61 740		CRIMES AGAINST PERSONS	61 740
137 040		CRIMES AGAINST PROPERTY	154 045
137 060		GENERAL ASSIGNMENT	180 805
442 680			452 085

ADMINISTRATIO
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against p

this section is to investigate, apprehe
community members.

CRIMES AGAINST PROPE
also attempts to reduce

GENERAL As
division. T
crimes

POLICE
–Investigation

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ting
of

POLICE
–Summary

NE COMMUNICATIONS SYSTEM UNDER
ONSIDERATION. During the current year, planning for a
new communications system was initiated. The proposed
system will tie into new regional communications being
installed by the member communities of the greater boston
police council. The proposed system would prepare the way
for installation of computer terminals with viewing
[illegible] of the new system will be deferred until the
details on the communication proposal,

BUDGET 1977-78	
255 950	LEADERSHIP
3 566 000	UNIFORM DIVISION
297 475	CRIME PREVENTION
452 085	CRIMINAL INVESTIGATION
1 701 425	SERVICES
6 272 935	

AL '76	REVISED 1976-77
	237 185
	3 704 375
	290 395
	442 680
	1 616 690
5 947 481	6 291 325

screens in patrol cars. Due to budget constraints, implementation
1978-79 fiscal year. An "issue paper", new radio equipment, pro
has been prepared by the police staff and is available to the public.

FINANCING PLAN. This budget draws support from the following sources:

FINANCING PLAN	DETAIL	TOTAL
TAXES		4 729 545
LICENSES & PERMITS		
sunday permits	1 000	
revolver permits	1 400	
firearm dealer permits	160	3 915
firearm i.d. permits	1 280	
bicycle permits	75	
REVENUE	900 000	
sharing	137 475	
ive	7 505	
	420	1 055 860
	[illegible]20	

EXHIBIT 2-5

DETERMINING A UNIT OF SERVICE

The second component of a cost analysis is the unit of service to be analyzed.

A "service" is some activity that is the responsibility of the department. It may be an activity performed by an individual, such as responding to a minor traffic accident, or by several individuals working together, such as a response to an armed robbery in progress.

Most police managers are familiar with calculating the costs of programs, which is what you do when applying for a grant perhaps to begin a Community Crime Watch Program, and the costs of operations, which are the way budgets usually are written in terms of organizational units such as the cost of the Patrol Division and the budget for vehicle acquisitions.

The cost of services is different from both of these. Most programs include a number of different services all lumped together, and frequently when the cost of a program is calculated, many of the services involved are ignored. Most operational budgets represent lines of accountability for funds rather than what services this money buys.

A FIRST CRACK AT DEFINING SERVICES

In an organization as complicated as a police department, how can a complete list of services be assembled? Start with your budget: if you have a program-oriented budget, it should contain information about what the goals and objectives of the police are. It should be a straightforward matter to begin to list the services the police are providing.

Since even a good program budget will rarely give a complete list of services that are being provided, another approach should be used as well. Most police services involve the time of personnel, so a convenient way of looking at police services is to see how all services together account for everyone's time on duty. If officers are not engaged in one service, they are engaged in another. A day's activities might include court appearances, motorized patrol, responding to calls for service, locating and arresting suspects, writing parking violation citations, and delivering a speech to a community group.

STANDARDS FOR DEFINING A SERVICE

Not every activity of a police department is appropriate to be defined as a service from the perspective of a cost analysis. To be useful for cost analysis purposes, a service should be:

- observable, so you and I would agree on what that officer is doing
- exclusive, so if the officer is doing one thing, he or she is not doing something else at the same time
- homogeneous, one instance of that service is reasonably similar in what is involved to perform the service to other instances.

Of the three standards of observable, exclusive, and homogeneous, the second one--exclusive--has particularly direct bearing in police work, since police officers often engage in more than one service at a time. This is the general situation whenever patrol responsibilities include incidental activity such as issuing parking tickets. In such situations, considerable care must be used whenever a non-exclusive service must be costed.

SELECTING A UNIT OF SERVICE

Once a service has been defined, a unit of that service is simply one instance of the service. If the service in question is the investigation of burglaries, the unit of service is "the investigation of a (one) burglary." If the service in question is street patrol, the unit of service might be "patrol of one mile (or block) of street."

QUANTIFYING SERVICE UNITS: MEASURING OUTPUT

The goal of public expenditures is the delivery of services, and quantifying service units is one way of measuring the delivery of services. Simply put, one must count the number of instances of service delivery. What is the volume? Quantifying service units (as distinct from defining them) always answers the question "How many?" For example:

- how many assaults were investigated?
- how many assaults were cleared?
- how many hours of motorized patrol occurred?
- how many miles of streets were patrolled?

A NOTE ON CLARITY

For reasons of clarity, a distinction should always be drawn between a unit of service and its volume measurement. A unit of service is always one instance of its delivery, while its volume is always "the number of ...." Both concepts are important, but they are conceptually different and should be treated as such.

CHOOSING SOME FROM MANY

The four examples of volumes of service delivery for assaults and patrol that are given above fall into two groups in the sense that the first two suggest somewhat different methods of measuring "outputs" that deal with the same issue, "the assault problem." The second two examples show different ways of measuring the same reality: patrol. In the next activity, you are asked to suggest some units of service based on your own experience.

ACTIVITY B

This activity is designed to help you think about units of service. There are ten typical organizational units of a police department listed on the workshop opposite this page. For each, choose one type of service usually associated with that bureau or squad and indicate what an appropriate unit of that service would be as well as a measure of its volume.

Example:

ORGANIZATIONAL UNIT	UNIT OF SERVICE	VOLUME MEASURE
Records Bureau	A background check completed.	Number completed

ACTIVITY B WORKSHEET

ORGANIZATIONAL UNIT	UNIT OF SERVICE	VOLUME MEASURE
1. Narcotics Bureau		
2. SWAT Team		
3. Investigations Branch		
4. Communications Branch		
5. Traffic Division		

ACTIVITY B WORKSHEET
(Continued)

ORGANIZATIONAL UNIT	UNIT OF SERVICE	VOLUME MEASURE
6. Crime Laboratory		
7. Legal Office		
8. Patrol Division		
9. Internal Affairs		
10. Air Support Unit		

WHAT IS A "GOOD" UNIT OF SERVICE?

After the last exercise, it should be clear that there are more "units of service" than there is time to measure them all. A selection process is needed, but what is a "good" unit of service? Worse yet, what is a "better" unit of service? And worst, is there a "best" unit of service?

The characteristics of a desirable unit of service include:

- simplicity, clarity, and understandability
- ease of accurate measurement
- acceptance by those who deliver the service.

Beyond the availability of reliable data, a good unit of service should "zero in on" an element of service over which there is some control, for example, response time. Ultimately, a unit of service must be a focus of action.

Of these three principles, the one that is most frequently ignored or overlooked is the third: acceptance by those who deliver the service. It is absolutely essential that the people who actually deliver a service understand how it is defined and how it is measured and agree with both decisions. If there is no agreement with the process, the likelihood of accurate data collection is tremendously reduced. In most instances, the "source of first data" for any service will be from the individuals who directly provide the service--only with their cooperation can an accurate understanding of service delivery problems/needs/potentials be developed.

CONTINUED

1 OF 4

SERVICES ARE NOT DELIVERED IN ISOLATION

A police officer who responds to a call that a robbery is in progress knows that he or she is not alone: other police officers are on their way to the scene; communications links with headquarters and other officers are maintained; supervisors are shifting more distant officers in an effort to provide coverage to patrol areas left empty by the response. Such support functions, both direct (additional personnel on the scene) and indirect (the system responding to both the officer's needs and the public's needs), are vital to effective service delivery. This situation has its analog in cost analysis as well: the cost of support services and leadership functions must be considered in a cost analysis. As we shall see later, it is not always appropriate to include these costs, but their existance can never be ignored.

ACTIVITY C

The basic organizational structure of a typical police department consists of:

- Chief's Office
- Patrol Division
- Investigations Division
- Communications Division
- Administrative Division.

First: Write down a unit of service provided by one of the divisions listed above. (Use the worksheet on the following page.)

Second: Try to list a supporting service from each of the remaining divisions that assists the delivery of your first choice.

Third: Try to find a service in another (non-police) unit of your government that supports police work.

ACTIVITY C WORKSHEET

UNIT OF SERVICE:

POLICE SUPPORTING SERVICE(S):

NON-POLICE SUPPORTING SERVICE(S):

COST CONCEPTS: TYPES OF DEFINITIONS

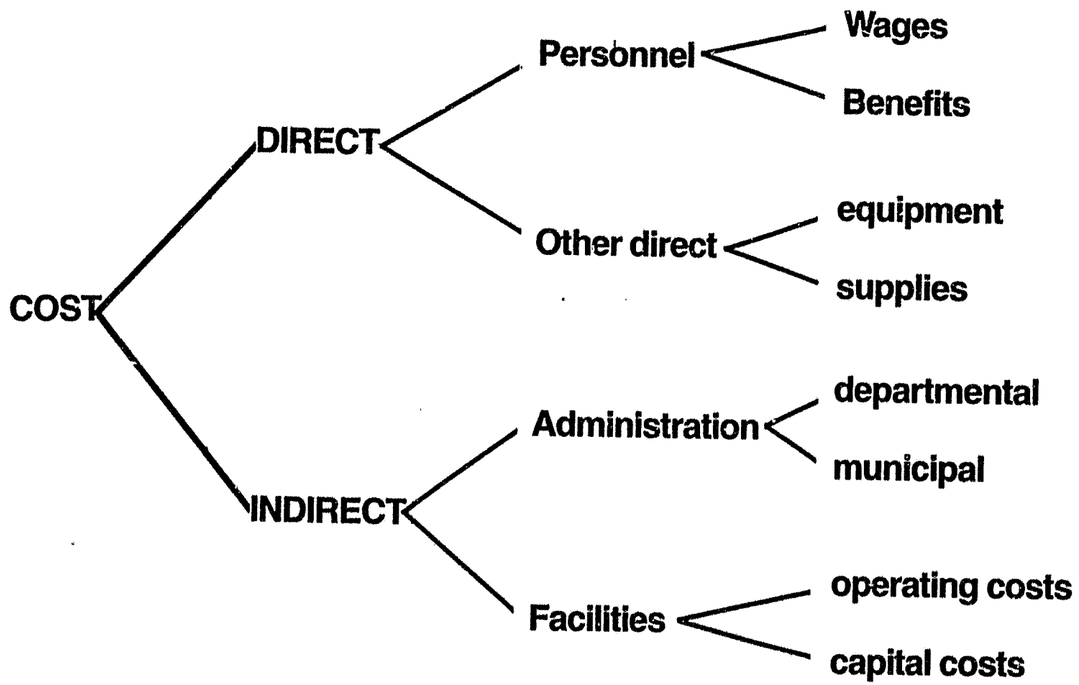
Cost analysis, like most areas of knowledge, consists of a limited number of central concepts and an associated vocabulary that seeks to focus discussion on the concepts. What follows is a discussion of one of the basic decompositions of cost: direct and indirect. Following that is a general discussion of cost concepts that are useful in costing police services.

COST TYPES

Exhibit 2-C, "Types of Cost," displays a subdivision of costs into "direct" and "indirect," with each category being further subdivided into its "building blocks." It is important to note that Exhibit 3-B reflects a conceptual organization of costs that facilitates understanding types of cost and does not reflect the way information is stored in a "typical" municipal accounting system. Indeed, the principal difficulty in cost analysis is to take cost data as it is maintained in accounting systems and to reassemble this information in a form that facilitates decisionmaking.

The major subdivision is between "direct" costs and "indirect" costs. Direct costs are those that can be assigned specifically to the service being examined. Examples are wages and benefits. Indirect costs are necessary for the functioning of the organization but are not clearly assignable to a specific service. Examples are depreciation on a building or the costs of administering the City Treasury.

TYPES OF COSTS



GRAY AREAS

While this distinction between direct and indirect costs seems quite clear, the situations that often are encountered in practice can be anything but clear. In the case of direct costs, employee benefits are sometimes lumped together in one central account. As a practical matter, it can be extremely difficult to apportion a centralized benefits account to individuals in a specific program. One method to get around this problem is to average the benefits received by a group of people. Information on reasonably accurate bases for an allocation is often contained in city contracts with unions and/or city agreements with vendors, insurance companies, etc. The point is that the more estimation is used, the less "direct" the resulting numbers would seem to be.

LOCAL VARIATIONS

In practical situations, the notion of "indirect" costs can vary considerably from one jurisdiction to another. Some local governments provide many services to departments from "revolving funds" or "internal service funds" and bill a department for use of the service. Examples might be a centralized data processing department which bills users for reports produced. In some cities, a fleet maintenance function bills a department for any use of a city vehicle. Since the department utilizing the service must pay for it as if it were being provided by a private sector firm, appropriate amounts of spending authority are included in department budgets for this purpose. Thus, many functions which constitute indirect costs in one community might be direct costs in another. For example, if the building maintenance function were handled by an internal service fund which charged for the service by monthly bills for "rent," then the use of space for a given activity might be a well defined and very direct cost.

SORTING IT OUT

The key factor in sorting all of this out is to develop an understanding of how your community works as an administrative and accounting entity. Fortunately, specialized skill in administration or accounting is not necessary in order to be able to determine how transactions are handled and data recorded. Often, the right question to the right person can resolve questions immediately.

As Exhibit 2-C, "Types of Costs," shows, direct costs are usually subdivided into "personnel costs" consisting of wages and benefits and "other direct" costs (or sometimes "nonpersonnel" costs) consisting of equipment used and supplies consumed in the delivery of a service. For most services, personnel costs will be the lion's share of the total direct cost of providing a given service. However, the nonpersonnel costs should never be ignored in a cost analysis because:

- they can be a significant fraction of the total direct cost and

- improved use of equipment can be a major technique in controlling or reducing personnel costs.

Exhibit 2-D presents a checklist of basic costs that are relevant for a wide range of cost analyses. Suggested data sources are indicated along with common problems associated with them.

EXHIBIT 2-D
CHECKLIST OF DIRECT AND INDIRECT COSTS

Type of Cost	Direct	Indirect	Data Sources	Cautions
Wages	X		Payroll Records/ Personnel Office	-Are lump sum payments (e.g., longevity) included? -Do overtime payments distort the figures? (Is someone working "time" on one function but "overtime" on another?)
			Pay Plans	-Are adjustments for overtime needed?
Vacation	X		Contracts	
Personal Days	X		"	
Sick Leave	X		"	-Is sick leave "bought back" at retirement or resignation?
Other Leave	X		"	
Insurances:	X	X		-Does the level of insurance change according to job title?
-Health			"	
-Life			"	
-Dental			"	
-Workmen's Compensation			"	
-FICA				
-Civil liability				
-Vicarious liability			"	
-Malfeasance liability				
Pension Contribution	X	X	Actuarial Valuations	-Is the system "unfunded" or only partly funded? -What are original vs. current costs?
Recruitment & Basic Training		X	Personnel Records, Civil Service Commisson	
Office Supplies	X	X	Central Supplies	-Is there a significant amount of theft of supplies between offices?
Vehicles: Depreciation O & M		X	Fleet Management	-Are the records kept by vehicle? How accurate are they?
Data Processing	X	X	Accounting Records	
Facilities		X	Public Works Assessor's Office	

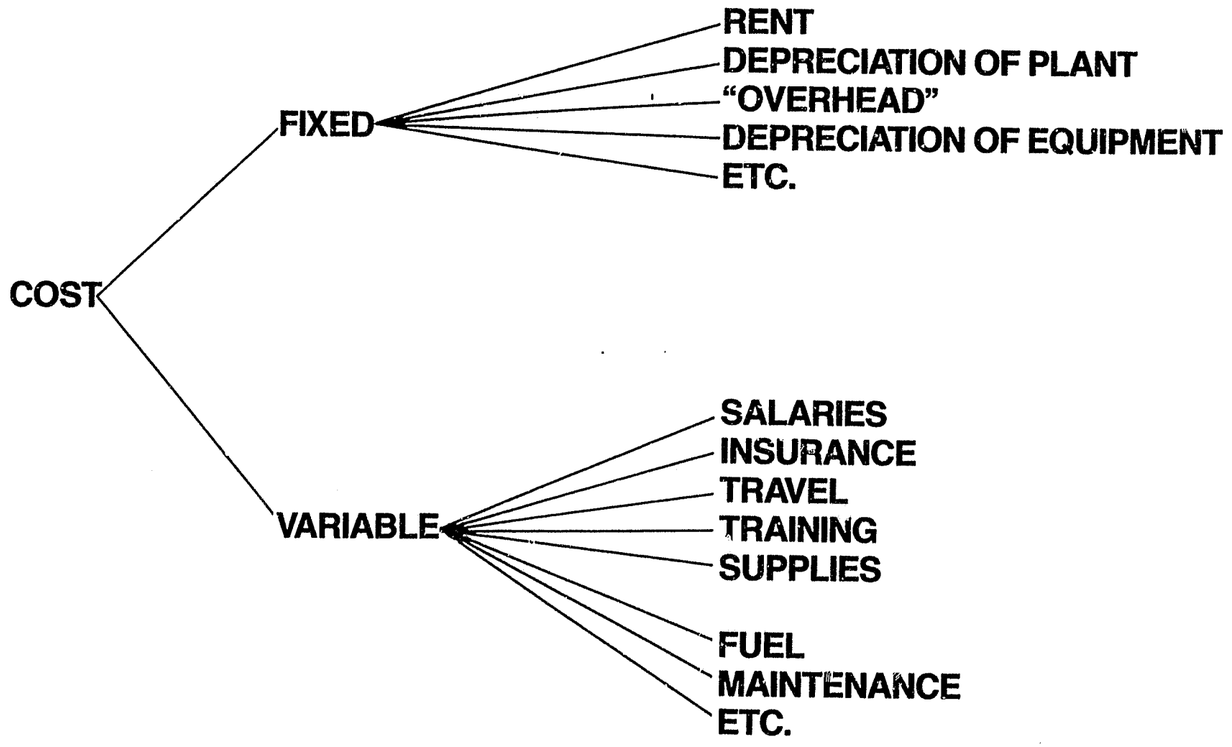
OTHER USEFUL CONCEPTS: FIXED VS. VARIABLE

Direct and indirect costs provide an organizational focus on elements of cost. At other times, other concepts are more appropriate, such as fixed cost and variable cost. See Exhibit 2-E.

Fixed costs represent commitments that the jurisdiction has already made and, at least in the short term, cannot avoid. Examples include rent covered by a lease, depreciation on a city-owned structure or equipment, and payments on general obligation bonds. Variable costs are those more responsive to actions taken in the near term. Examples include personnel expenses (individuals can be transferred to other functions), consumption of supplies, fuel, and travel.

Fixed and variable costs are highly appropriate as analytical foci when actions must be taken immediately to reduce expenditure or when a proposed action will lead to a fixed cost (purchasing or constructing a building). A jurisdiction may have a large budget which would seem to suggest great flexibility if cuts need to be made; however, if those cuts must come out of this year's budget with only a few months remaining in the fiscal year, the actual amount of variable costs left to take the cuts can be amazingly small.

TYPES OF COST: A DIFFERENT PERSPECTIVE



COST CONCEPTS

The concepts of direct cost and indirect cost provide a basis for one approach to cost analysis, an approach that stresses the organizational structure of the jurisdiction. The concepts of fixed cost and variable cost lay stress on those cost elements that are hard and not-so-hard to change. Additional cost concepts which view cost from other perspectives will also be helpful. Exhibit 2-F, "Cost Concepts," provides a list of some widely used concepts that are helpful in performing a cost analysis.

Each of the cost concepts listed in Exhibit 2-F is useful in understanding some aspect of management's response to cost situations. Fixed costs, because they tend not to change with changes in service, are more difficult to reduce in the short run than variable costs which can be altered more quickly. An analysis of costs from a fixed versus variable perspective would yield information about the degree of short-term control that was available in a given situation. Of course, in the very long run, all costs are variable so the timeframe in which such an analysis is being conducted is very important.

Sunk costs are important considerations wherever significant investments have occurred in some previous time period. By utilizing these investments, it may be possible to achieve a purpose in a less expensive fashion than if one were "starting from scratch."

The seriousness of the decision to hire a new police officer is underscored whenever the total cost covering an average career span of a police officer is calculated. While such analyses generally gather together many relevant current costs, they often omit major and vey real sunk costs such as the costs for recruitment and training. Such costs include advertising, examination development and administration, recruitment staff, physical exams, background checks, operation of training facilities, field service training, performance reviews, and salary during training.

If the total typical annual cost of "putting one officer on the street" were the desired number, such sunk costs should be prorated over the average career span of an officer for that department. Such an

approach would be exceptionally meaningful if a police department were experiencing unusually high turnover, since new police officers require significant investments in training.

The concept of marginal cost first arose in manufacturing environments. It refers to the fact that if sunk costs are ignored, the cost of producing one more "unit" is only the cost of the extra materials consumed. In a situation where it is desirable to encourage consumption of the product, marginal cost pricing (because it is less than total cost) is a "no loss" (if no gain) pricing technique. Unfortunately, local governments are primarily dedicated to delivering services rather than producing goods, thus reducing the utility of marginal cost as a management tool.

The concept of avoidable cost is one of the most useful for local officials, since it measures the savings than can be attributed to improved methods of delivering public services. It seeks to determine the reduction in expenditures that will occur if various productivity improvement efforts are implemented.

EXHIBIT 2-F

COST CONCEPTS

Concept	Definition
Fixed cost	a cost that does not change with increases or decreases in the amount of service provided (e.g., rent).
Variable cost	a cost that increases/decreases with increases/decreases in the amount of service provided (e.g., salary).
Sunk cost	a cost that has already been incurred (e.g., the cost of a previously purchased computer system).
Marginal cost	the increase in total cost associated with an increase in the amount of service provided (e.g., if a new computer report was requested, its marginal cost would be only the cost of the time it took to program it--assuming the computer is a sunk cost).
Avoidable cost	the amount of expense that would not occur if a particular decision is implemented (e.g., if a clerk is laid off and a community is self-insured for unemployment compensation, the avoidable cost is total direct salary less payments for unemployment insurance plus savings in employee benefits).
Lifecycle cost	the total of all costs associated with ownership of a piece of equipment, including acquisition, operation, and maintenance, less the resale value (if any), over the life of the equipment.
Cost	the amount of money or other consideration exchanged for property or services.
Cost accounting	that method of accounting which provides for assembling and recording all of the elements of cost incurred to accomplish a purpose, to carry on an activity or operation, or to complete a unit of work or a specific job.
Expenses	decreases in net total assets. Expenses represent the total cost of operations during a period regardless of the timing of related expenditures.
Direct cost	a cost that can be assigned specifically to a specific service.
Indirect cost	a cost necessary for the functioning of the organization as a whole, but which cannot be directly assigned to one service.

EXHIBIT 2-F

COST CONCEPTS
(Continued)

Concept	Definition
Total cost	the sum of all costs, direct and indirect, associated with the provision of a service.
Unit cost	the cost of production of one "unit" of a given service.
Cost/benefit	the ratio of the dollar cost of a service to the estimated dollar benefit that it produces.
Cost/effectiveness	associating the dollar cost of service with an estimate of its effectiveness (degree of goal attainment).
Cost/efficiency	comparing inputs (costs) to outputs (units of service delivered). See unit costs.
Opportunity cost	the return in benefit that would have been received if an alternative course of action had been pursued.

Lifecycle costing is most useful as a planning tool for equipment acquisition, since it seeks to avoid unnecessary future costs. While the benefits accrue over time and are not realizable immediately, the improved performance provided by equipment purchased with lifecycle costs in mind can be significant.

Total cost is a useful concept whenever a service charge is being evaluated, since total cost is the only concept that seeks to measure the total municipal effort required to deliver a service. In addition, total cost can be a useful concept in comparison of service delivery efficiency with either the private sector or other governments. Just knowing the total cost of a service, however, is of limited value; understanding total cost should always be the goal. What fraction of the total cost of a service is fixed? How has this changed over time? What portion of the total cost is "overhead" (departmental and governmental) and why? What are the major components of the total cost: personnel, equipment, supplies?

Unit costs are a valuable management tool because they relate "inputs" to "outputs"; they relate expenditures (appropriations) to the purposes of expenditures (public safety or public health, for example). Properly used, unit costs can be a barometer of administrative "health" (or lack of it) by providing an early indication of problem situations, perhaps by displaying unexplained increases over time, or by being much higher than comparisons with the private sector or other governments. Even a very low unit cost may indicate a problem, in that it may mean that the resources being applied are inadequate to achieve the desired result.

The remaining cost concepts are listed for completeness and are not a major focus of this training effort.

MATCHING COST CONCEPTS TO NEEDS

Cost analysis is a tool that seeks to provide cost information crucial to effective management. Since the information needs of management change with the problems that it seeks to address, it is to be expected that the type of cost information necessary to address a given problem is determined by the character of the problem.

For example, if the issue is pricing a service to recover costs, the appropriate cost concept is total cost, since only this concept gathers together all of the various costs which are incurred in the delivery of a service. If the issue is the most effective purchasing technique for equipment, lifecycle costing provides a method that seeks to minimize the total expense of equipment ownership.

ACTIVITY D

In general then, it is important to know which cost concept is the most effective tool in addressing a given management problem. As an exercise in understanding management options, examine the worksheet on the following page, "The Management Options Matrix." The left-hand column lists workload categories, while the top row shows some possible management options. Assuming that pressure is very high to reduce expenditures, indicate what you consider an appropriate management response to change the manner in which particular services are being delivered by placing a check mark in a column. Remember that there can be more than one "answer" (check mark) in a given row and that individuals may well differ over what is an appropriate response to a workload category.

Now examine the worksheet entitled, "The Costing Matrix." The top row from the previous matrix (Management Options) is now the left-hand column. For each of the options listed at the left, indicate the most appropriate cost concept for analyzing the effectiveness of the proposed solution.

ACTIVITY D WORKSHEET

THE MANAGEMENT OPTIONS MATRIX

Workload Category	Eliminate Service	Reassign Personnel	Reduce Service	Co-Produce Service	Privatize Service	Civilianize Service	Substitute Equipment	Charge for Service	Status Quo
Larceny									
Traffic Accident Personal Injury									
Traffic Violation									
Disturbance									
Vandalism									
Animal Call									
Ambulance Call									
Warrant Service									
Abandoned Car									
Loud Noise									
Residence Check									
Escort									

ACTIVITY D WORKSHEET (Continued)

THE COSTING MATRIX

Management Options	Direct Cost	Marginal Cost	Fixed Cost	Unit Cost	Variable Cost	Avoidable Cost	Lifecycle Cost	Total Cost
Eliminate Service								
Reassign Personnel								
Reduce Service								
Co-Produce Service								
Privatize the Service								
Civilianize the Delivery								
Substitute Equipment								
Charge for Service								
Status Quo								

"RIGHT" ANSWERS

Responding to service delivery problems requires a knowledge of the service in question and of the organization as a whole. It requires balancing the needs of one part against the needs of other parts and sometimes balancing the needs of a part against the needs of the whole. As such, there is no single "right" answer to a service delivery problem; only knowledge of the specifics of the case in question can reveal what is, perhaps, the best choice. As such, any of the columns in the Management Options Matrix may be an appropriate management response to a problem.

Given the response you chose as your management response on the first worksheet, what cost concept did you choose on the second worksheet? If you frequently checked 'avoidable cost,' you would frequently be right. In general, when changes are being designed to cut costs, the proper cost concept is avoidable cost, since only the money saved is appropriate for the decision process. This rules out total cost which contains many "sunk" costs that cannot be recovered; it rules out direct cost because a cost may be direct but not avoidable in a given situation; it rules out fixed as well as variable costs because they also may not be avoidable.

Unit costs are most appropriate in analyses of productivity, so if you checked 'unit costs' on the 'substitute equipment' line, it would be an appropriate choice. Since lifecycle costs are used most effectively when evaluating the purchase of equipment, it also would be an appropriate choice on this line.

The concept of marginal cost is most effective when considering the expansion of an existing service or the establishment of a new one, because only additional expenditures required to deliver the expanded new service are under consideration. The local government will presumably provide the existing support services whether or not a service is expanded or a new one established.

Total cost is important as a management tool when tracking expenditures because only when all the 'inputs' are gathered together can a

judgment be made as to the value of the 'output' (the service delivered). It is because of this that total cost is the most effective concept when costing a service from the perspective of a service charge. Only when all costs of providing a service are assembled can an understanding of what it costs to deliver a service be made.

COSTING VS. PRICING

It should be remembered that costing a service is not the same thing as pricing it. Just because delivering a service costs a certain amount per 'service unit' does not necessarily mean that the service should be priced to recover that cost. Pricing is a management decision process that, ideally, includes knowledge of total cost as one factor but must weigh other, non-financial factors as well. Such considerations might include the ability to pay of the service population, the perceived presence of a general benefit to the society of a subsidized price (e.g., free libraries), or the use of marginal cost pricing to encourage consumption.

SESSION 3

DAY I

APPLICATIONS OF COST TO POLICING

In this session we will begin to address some of the fundamental questions about how cost and cost analysis can be applied to police work. The specific questions which will be answered both through lecture and real life examples are the following:

- How can the public sector be characterized today?
- How can productivity be improved in the public sector?
- What are the basic uses of cost analysis?
- How often do police executives use cost analysis?
- How can police executives best use cost analysis?
- When should police executive use cost analysis? and;
- What are some of the problems in police costing?

PUBLIC SECTOR: A CHANGED ENVIRONMENT

Cost Analysis only recently has been given serious attention in public administration. Up to now, there was little interest even in knowing the costs of particular services--more emphasis was given to performance effectiveness than to the cost of a unit of service.

A CHANGING PERSPECTIVE

That perspective is gradually changing, however, for several reasons:

- local governments have been hard-pressed in the direction of cost containment and cost cutting

- taxpayers are now becoming as interested in the cost effectiveness of services as they once were in their effectiveness alone

- public administrators have become more proactive in asking cost questions on their own, rather than only reacting to questions from others

- management methods once applied exclusively to control costs in the private sector are being increasingly used to manage costs in the public sector.

All of these reasons are grounded in the fiscal stress which has occurred in this country since the early 70's. There is considerable public debate and concern with regard to the financial condition of our cities, states, and nation. Understanding what is meant by the term "financial

condition" is pivotal to dealing with the effects of fiscal stress and the role of cost analysis as an effective tool. Financial condition has multiple meanings. It may mean:

- Cash Solvency - government's capacity and ability to raise enough cash or liquidity to pay its bills.

- Budgetary Solvency - government's ability to raise sufficient revenues over its normal budgetary period (usually a fiscal year) to meet its expenditure obligations and not incur deficits.

- Long Run Solvency - government's long-term ability to pay out all the costs of doing the business of government; as such, it includes expenditure obligations that normally appear each annual budget as well as those expenditure obligations that will show up only in the (future) years in which they must be paid.

  Examples of these latter obligations are pension costs, payments for accrued annual leave, maintenance costs that have been deferred to future years, replacement costs associated with capital assets such as streets, sewers, buildings, physical equipment, etc.

- Service-Level Solvency - government's ability to provide the level and quality of service which is believed to be required for the "health and welfare" of the communities and individuals that the government represents.

A government may be in "sound" financial condition due to cash, budgetary, or even long-run solvency, but still may be unable to design and deliver (or support) an adequate level of requested, required, or mandated services.

PRODUCTIVITY

Productivity has become a prominent national issue. No manufacturer could expect to stay in business very long, if he could not tell you precisely his cost per unit of product or his cost per sale visit. He needs these facts to properly price, report, plan, budget, control, and evaluate his company's activities.

The use of cost data to manage public sector productivity also has become increasingly essential. More frequent tax containment initiatives, increased competition for scarce tax dollars among the subunits of a jurisdiction, and a growing demand for public services because of current economic conditions have led to increasingly severe budget constraints. And, because public sector funding largely goes for services rather than products, increased productivity has become a very widespread concern.

PRODUCTIVITY INNOVATIONS

The results of the growing emphasis on productivity and per unit costs already have been felt in many branches of the public sector.* And, a variety of productivity innovations already have been implemented as a result in a number of communities. Some examples are:

- building inspectors are trained to do all inspections required on a site rather than have separate visits by plumbing, electrical, and structural specialists to save on the expense of traveling between jobs

- work standards that have been applied to staffs of unemployment, welfare, and other offices that handle large caseloads have significantly reduced the cost per unit of service

*Washnis, George J. (editor), Productivity Improvement Handbook for State and Local Government, John Wiley & Son, New York, 1980.

- centralized city-wide purchasing not only has resulted in lower per unit bids, but also has reduced inventory and storage space requirements, decreased losses and theft, and eliminated a considerable amount of paper work.

Refuse collection has been a particular target of increased public sector productivity efforts, partly because of the number of private, for-profit firms that have been created to compete with city-run systems. Very large reductions in per unit costs--whether measured by tons, route miles, or households--have been achieved through such innovations as:

- more effective compacting equipment

- improved, computer-designed routes

- work standards applied to personnel

- better, more systematic vehicle maintenance

- crew size reductions

- increased citizen responsibility for curbside pickups

- requirements for more easily handled refuse bags or containers

- sorting out newspapers for separate pickup

- transfer stations allowing larger vehicles to transport refuse to distant landfills

- limiting street parking on refuse collection days

- refusal to remove large items, grass clippings, and construction material.

PUBLIC SAFETY: AN ANOMALY

Similar examples of lowering costs per unit of service by increasing productivity are more difficult to find in public safety functions. Until recently, at least, the public has been largely willing to disregard cost in order to feel safe from fires and crimes. The costs of fire and police services also are more difficult to calculate and analyze, because they emphasize prevention objectives and a very rapid response when there is service requirement.

Some ideas for improving the productivity of public safety personnel already have been implemented. For example, in Sunnyvale, California, and at least a few other communities, police officers have been trained as auxiliary fire-fighters. This in turn, permits smaller fire crews to respond to calls because they can receive backup and assistance from nearby police units when necessary.

REDUCING PER UNIT COSTS

It is difficult for anyone to look inside his or her own profession to see where reductions in unit costs are possible. Sometimes this task is made easier by dividing the problem area into several smaller problems. For example, the problem of reducing the per unit cost of responding to calls for service actually involves several different subproblems.

TIME PER SERVICE UNIT

It may take a half-hour or so to complete the work involved in each call for service. How could this time requirement be reduced to lower the average unit cost?

- provide job aids, such as check lists or cameras, to simplify the task of gathering information

- better distribute units on patrol to minimize travel time when responding to a call for service

- better control the number of times multiple units respond or back-ups are requested.

NUMBER OF RESPONSES

A second area of potential savings is in reducing the number of calls for service that require on-site responses. How can the number of responses made be reduced?

- take reports of residential burglaries or auto thefts over the telephone

- increase public awareness of the service responsibilities of other governmental units, such as for downed trees that are not urgent hazards

- increase Neighborhood Watch and other programs that reduce the number of crimes.

RESPONDING TO PEAK DEMAND

One of the largest problem areas is how to maintain a capability to respond to peak loads in calls for service without adding to uncommitted time. What can be done to reduce these costs?

- prioritize calls by type and urgency of the response required

-

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PROACTIVE MANAGEMENT

As cost cutting and cost containment have become increasing pressures for police managers, it is essential to be familiar enough about the costs of services to know when and how to make changes that will reduce the cost per unit. And, as we pointed out before, it is much better to be <u>proactive</u> than <u>reactive</u> in having this information available.

Suppose a budget ceiling is imposed. What information do you need to have in order to decide on a workable cost-cutting strategy? In addition to cost analysis findings, it would be important to consider:

- how your costs compare with those in other jurisdictions; your costs may be different than those in other locations

  - however, if yours are among the lowest, there may not be much room for savings

  - and, if there is little variability in costs among several jurisdictions--particularly after community differences have been taken into account--there may be no opportunities to lower costs

- how your costs are distributed among components and why costs are as high as they are; some component costs may appear high because:

  - there is an underutilization in capacity (more communications personnel on duty than needed)

  - productivity per service unit is low (more time than may be necessary is spent per investigation)

  - the number of service units has been calculated incorrectly (cost per investigation is low but cost per conviction is high)

  - repeat/redundant work is excessive (the cost of vehicle maintenance is high because of the absence of a preventive maintenance program)

  - there has been poor control over indirect costs (the ratio of supervisors to staff is higher than really required)

- how the service has been defined and the units measured; costs may be high not because of how the service is delivered but because:

  - departmental regulations, policies, or practices may make more work per unit than necessary (for example, there may be excessive reporting requirements)

  - personnel may be inadequately trained to be fully efficient (for example, in conducting a preliminary investigation)

  - records on the number of units of service delivered may be incomplete or incorrect (traffic warnings may not be considered along with traffic citations)

- how the amount of time and resources required for the service were established may be inaccurate (the sampling study may have been too limited)

- how the mission and responsibilities of the department might be affected by a change in the way the service is delivered; most changes will in some way impact service delivery, and you have to know:

  - whether the effectiveness of the service will be compromised by a change (delaying responses to low priority calls)

  - whether the organization of the department will have to be modified to achieve the change (reduce or increase the number of supervisors)

  - whether the cost of making the change might cancel out any savings (adding another repair facility to reduce vehicle maintenance time)

  - whether the consequences of a change would simply increase the cost of another service (decreasing the time spent by an investigator by having the crime lab respond automatically to all serious crimes).

If, after going through these possibilities, the need to reduce the cost of a particular service is still evident, how do you go about developing a cost-cutting strategy? How do you identify ways of increasing productivity?

BASIC PURPOSES OF ACCOUNTING

The accounting system is the major quantitative information system in almost every organization. It is a singular instrument which allows for management accountability for the expenditure of resources. It should provide information for three basic purposes:

- Internal reporting to managers, for use in planning and controlling routine operations

- Internal reporting to managers, for use in making nonroutine decisions and in formulating major plans and policies

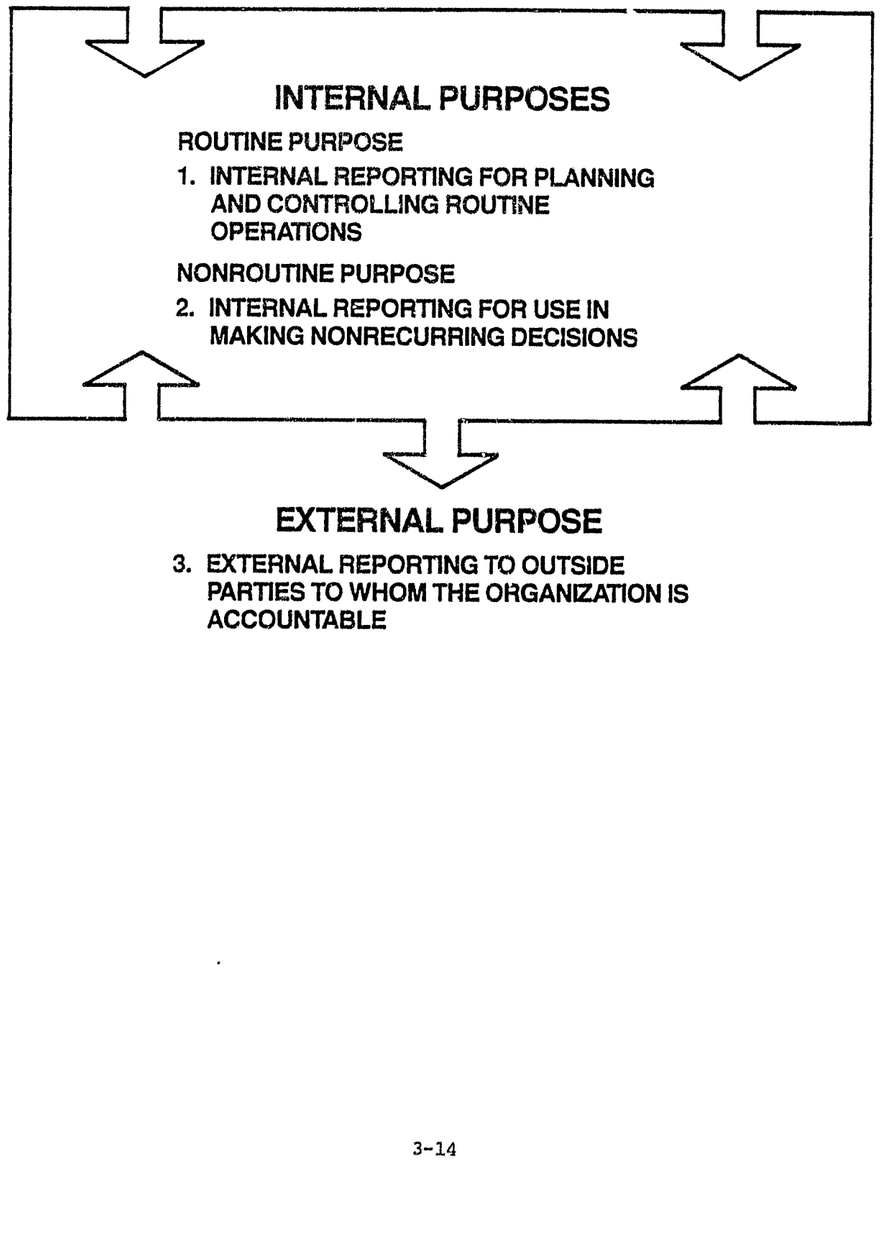
- External reporting to outside parties to whom the organization is accountable.

The classic accountant has a financial responsibility and is concerned with the historical, custodial, and stewardship aspects of external reporting. On the other hand, the manager has an operational responsiblity and is concerned with accounting for planning and control or the first and second purposes identified.

Originally, the term cost accounting referred to ways of assigning historical costs to product units, jobs, or departments for the principal purpose of determining the value of inventories and net income. Today, cost accounting is almost indistinguishable from management accounting or internal accounting because it serves many purposes. While the precise boundaries may be unclear, a major distinction can be drawn between traditional or financial accounting and cost accounting. Traditional accounting focuses on historical data or the past, while cost accounting focuses on decisionmaking or the future. Its concern with historical information is limited to its use in making predictions about the future.

EXHIBIT 3-A

BASIC PURPOSES OF AN ACCOUNTING SYSTEM



COST ACCOUNTING AND ANALYSIS: AN AID TO DECISIONMAKING

Cost analysis should help managers make decisions. There are three distinct questions which cost information can help answer for the manager:

- Scorecard questions: Am I doing well or badly?
- Attention-directing questions: What problems should I look into?
- Problem-solving questions: Of several ways of doing the job, which is the best?

The scorekeeping and decisionmaking functions of cost accounting are closely related. The same data that helps a unit manager answer questions about performance can provide attention-directing advice to the executive. The scorekeeping and attention-directing questions are answered simultaneously when actual results are compared with budgets or previously determined standards. The traditional needs of accounting such as the collection, classification, and reporting of data are served by the answering of the scorecard questions.

The problemsolving data are used in long-range planning and in making special non-recurring decisions such as whether to operate a service or use an outside contractor, replace equipment, add or drop a service, and so on.

In summary, cost accounting and analysis have three basic facets:

- Score Keeping. The accumulation of data. This aspect of accounting enables both internal and external parties to evaluate organizational performance and position.

  Helps answer the question: Am I doing well or badly?

- Attention Directing. The reporting and interpretation of information which helps focus on operating problems, imperfections, inefficiencies, and opportunities.

  Helps answer the question: What problems should I look into?

- Problem Solving. The quantification of the relative merits of possible courses of action. Usually results in a recommendation identifying the best course.

  Helps answer the question: Of several ways of doing the job which is the best?

MANAGEMENT FUNCTIONS WHERE COST ACCOUNTING IS USED

Cost accounting can be used as an aid to decisionmaking at all levels of management and in most of its basic functions. The basic functions comprise the routine work of an organization and can be classified into six categories:

- Planning
- Budgeting
- Controlling or managing
- Evaluating
- Pricing
- Reporting

Each of these functions can be defined:

- Planning. The anticipation of future events and identification of alternative strategies to prevent, manage, or limit the consequences.

- Budgeting. The decision to allocate money to programs, functions, or organizational units to achieve the agency's objectives.

- Controlling. The monitoring and managing of the day-to-day execution of plans and use of allocated resources.

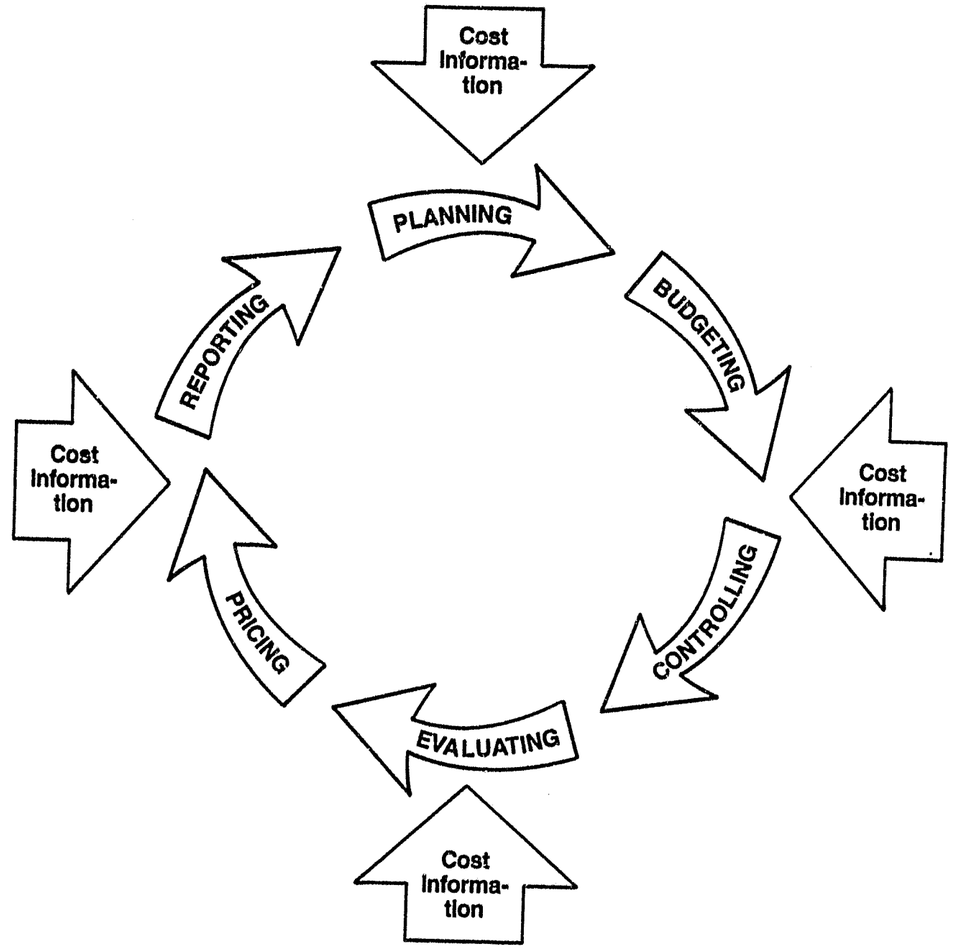
- Evaluation. The review and examination of whether the agency met its objectives during a specified period and how the programs, organizational units, and resources contributed to meeting objectives.

- Pricing. The determination of the appropriate fee for a specific police service.

- Reporting. The accurate accumulation and appropriate dissemination of performance and cost information to organizations providing funds for specified activities.

EXHIBIT 3-B

USES OF COST INFORMATION



Adapted from: Robert N. Anthony and Regina Herzlinger, *Management Control in Nonprofit Organizations* (Homewood, Illinois: Irwin, 1975), p. 29.

RELATIONSHIP OF THE SIX MANAGEMENT FUNCTIONS

The six functions are interrelated and to a certain extent interdependent. They are all related in the sense that each contributes to and is part of the decisionmaking process. The foundation of the relationship is the traditional reporting function where historical accounting data are documented, accumulated, classified, summarized, and reported. If an organization cannot rely on its financial statements, it will not be able to rely on projections which use those statements.

Planning, budgeting, pricing, controlling, and evaluating are analogous in that they all look to affect the future. Budgeting and pricing are similar in that the budget establishes the cost or expenditure standards for the organization. Pricing establishes the budget for a sale of services. All the functions are related in that decisions made in any one area are likely to affect each of the other areas. A faulty planning assumption can be carried forward into the budget or contract price, into day-to-day operations, and eventually to the evaluation of performance.

It should be kept in mind that these functions may be defined differently in the context of any particular organization or decisionmaking process. The functions may overlap and are used here only to provide a convenient, but not perfect, logical framework for a discussion of the use of cost analysis.

Police executives routinely carry out these management functions with varying degrees in the quality and quantity of cost information. Oftentimes, the financial information is inaccurate, incomplete, or limited to the more obvious expenditures and cost. Even with good information, there is always more than enough uncertainty about any process which proposes to forecast the future. Cost information is not the only consideration in decisionmaking, and cost analysis is not the ultimate problemsolving technique. Nevertheless, any techniques which help minimize the natural levels of uncertainty an organization faces warrant the full attention of management. Without the proper attention, management runs the risk of basing its decisions on guesswork and submitting to forces over which it will have no control.

HOW OFTEN DO POLICE EXECUTIVES USE COST ANALYSIS?

The extent to which police executives use cost analysis in management decisionmaking was partially revealed by a mail survey which provided the critical input to the development of the program model Measuring the Cost of Police Services. The findings reported in the program model handbook showed:

- Planning. About 27% of the jurisdictions in the mail survey acknowledged that cost information helped their planning activities including the formulation of program objectives, an examination of alternative strategies to meet those objectives, and the selection of the strategy that makes the best use of available resources.

- Budgeting. Approximately 21% of the jurisdictions stated that they attempt to estimate some costs three to five years in advance.

- Controlling. Several jurisdictions reported in the mail survey that one of the early warning indicators that they use to diagnose management problems is an analysis of budgeted versus actual costs.

- Evaluation. Thirty-six percent of the jurisdictions surveyed said that cost information is one of the main factors used in evaluating performance.

- Pricing. Thirty-one percent of respondents reported that they used cost information to establish a fee for services to either:

  - supply field patrol, criminal investigations, or other services on a contract basis to a department in a neighboring jurisdiction or

  - offer certain services to its own citizens such as bicycle licenses, bank escorts, or crowd control at sporting events.

- Reporting. Many jurisdictions said that the reporting requirements of federal grants had done more to upgrade their cost analysis capability than any internal reporting demands.

PROPORTION OF POLICE JURISDICTIONS
REPORTING THE USE OF COST ANALYSIS

Function	Percent
PLANNING	27
BUDGETING	21
CONTROLLING	Several
EVALUATION	36
PRICING	31
REPORTING	Many

HOW CAN POLICE EXECUTIVES BEST USE COST ANALYSIS?

There are many opportunities for the application of cost information and cost analysis techniques for decisionmaking in each of the six management functions identified. If the police executive bases his decisions on facts, then cost analysis facts should not only help him reach a decision but should also help others come to the same decision. Some basic uses and examples of how police executives have used cost analysis in each management function are to be presented.

PLANNING

Every organization plans to some extent. This process often begins with existing information including historical financial or cost information. There are many ways cost information is used to plan. Some of the most common ways are to establish objectives, to judge the feasibility of objectives, and to assess alternative strategies for achieving those objectives.

- Establishing Objectives and Their Feasibility

  Example:

  A large mid-western department develops an expected cost for each proposed departmental objective. Proposed objectives are then partially judged on the basis of their cost. Once accepted, the objectives are presented together with their associated cost as shown in Exhibit 2-C. This kind of presentation forces the recognition of costs and not only helps decisionmaking but also promotes cost consciousness.

- Selecting of Alternative Strategies. The most common example of using cost analysis in this way is in cost comparisons for acquisitions or purchases.

Example:

The Phoenix Police Department analyzed the comparative cost of purchasing, renting, or leasing its unmarked police vehicles. It was determined that yearly leases were substantially less expensive than monthly rental, and became more economical than city-owned vehicles after four and one-half years. At this point, city-owned cars lost their resale value. This cost study contributed to the recommendation to lease unmarked vehicles on a yearly basis for at least five years.

The cost factors, assumptions used in the comparison, and a graphic comparison of expenditures are shown in Exhibit 2-D.

EXHIBIT 3-C

ATTACHING COSTS TO OBJECTIVES

Sample From a Large Mid-Western Community

INVESTIGATION - GENERAL

To provide professional investigative activity to maximize successful prosecution of law violators.

SPECIFIC OBJECTIVES:

1. To improve the clearance rate for murder by 5% in 1980 at a cost of $113,000.

2. To improve the clearance rate for burglary by 3% in 1980 at a cost of $404,000 (in addition to Precinct - Patrol costs).

3. To improve the clearance rate for auto theft by 3% in 1980 at a cost of $105,000.

4. To maintain 1979 clearance rate for juvenile crime at a cost of $1,270,000.

5. To maintain 1979 clearance rate for family violence at a cost of $340,000.

6. To maintain 1979 clearance rate for larceny at a cost of $230,000.

7. To maintain 1979 clearance rate for robbery at a cost of $580,000.

8. To maintain 1979 clearance rate for assault at a cost of $400,000.

EXHIBIT 3-D

COST FACTORS AND COST ASSUMPTIONS

LEASE VERSUS BUY ANALYSIS

PHOENIX, ARIZONA 1979

COST AND OTHER FACTORS

A. VEHICLES

1. Replacement Cost

2. Maintenance Cost

- Gasoline
- Vehicle Mileage

3. Downtime

B. COMMUNICATIONS EQUIPMENT

1. Replacement Cost

2. Maintenance Cost

C. BUREAU MISSION

D. CITY OF PHOENIX RENTAL CONTRACTS AND YEARLY OPTIONS

COST AND OTHER ASSUMPTIONS

1. Lease costs and City equipment maintenance costs will be affected by the same inflation rate.

2. Leased vehicles will be driven less than 10,000 miles per year.

3. The City's requests for lease vehicles will be limited to class and make of vehicle specifications. This allows the lessor to equip a vehicle with options that will improve the return on resale without any affect on the city lease cost.

4. Leased vehicles will be replaced each year with new vehicles.

5. New lease vehicles are under warranty and therefore have no maintenance costs other than preventive maintenance.

6. Communication equipment is not required in lease vehicles. Hand held portable radios will be used.

7. The lease is for one year.

BUDGETING

Budgeting typically represents a decision point in the planning process. Most municipalities and agencies use a traditional budget which is annual, incremental, or only slightly increased from the previous year, and is presented on a cash or expenditure basis. Budgets are expected to serve multiple and sometimes conflicting purposes. The most basic purposes are accountability and control. The competing purposes of predictability and flexibility are often a source of conflict. Modern methods and techniques designed to make the budget better serve economic management and planning purposes are being used. The most notable new budgeting methods include planning, programming, and budgeting (PBB) and zero-based budgeting (ZBB). Other new but less comprehensive techniques employed in the budgeting process include the replacement of cash with more stable production units and the expansion of the budget period to two years or more. There are examples of each of these methods and techniques being used in police operations, although the traditional approach predominates.

Example:

Onondaga County, New York. The Onondaga County Sheriff's Department has developed a computerized version of zero-based budgeting (ZBB) with a new and important twist. Instead of the often costly "chop first, ask questions later" approach, this new system, "level X funding," determines the results of potential cutbacks before allocations are set.

Four key questions are asked of each unit commander in the department concerning the unit's primary and secondary roles. These serve as criteria for success in organizing and judging performance data. The new system, begun in early 1978, eliminates the constant shifting of data and the need for creation of new files. All files in the Sheriff's Department have been entered into the data base and are maintained.

The data processing staff uses the Onondaga County computer system. Although it is an on-line system, reports regarding ZBB are batch-oriented.

Now, an inquiry can be based on statistics and will yield a reasonably good portrayal of the impact of a potential service cut, which incorporates an understanding of the cost and output of programs. The system allows internal audits of each category and raises accountability to new heights.

ZBB has been criticized because it is inflexible or difficult to change. This technique makes modifications and considerations of alternatives easier.

Example:

Sunnyvale, California. The City of Sunnyvale uses multiple years budgets for each of its agencies. Budgets are projected forward ten years for each service. Sunnyvale's resource allocation plan for its 411 police services is shown in Exhibit 2-E. Multiple-year budgets reinforce continuity and long-range planning but, on the other hand, sacrifice a certain degree of responsiveness to changing economic conditions and other unpredictable circumstances.

EXHIBIT 3-E

RESOURCE ALLOCATION PLAN
Sunnyvale, California
FY 1980

Program Number and Title: 411 Police Services

Program Mission: To provide a safe and secure environment for people and property through the provision of effective police services.

Fiscal Year	Work Hours	Total Cost
Actual		
1974-75	161,198	$2,026,681
1975-76	174,555	2,604,858
1976-77	174,585	2,733,216
1977-78	182,954	3,337,176
Estimated		
1978-79	192,739	3,887,861
Proposed		
1979-80	192,164	$3,922,193
Projected		
1980-81	192,164	$4,217,726
1981-82	192,164	4,535,150
1982-83	192,164	4,874,466
1983-84	192,164	5,239,321
1984-85	192,164	5,593,230
1985-86	192,164	5,979,031
1986-87	192,164	6,370,372
1987-88	192,164	6,800,901
1988-89	192,164	7,260,619

CONTROLLING

Historically, the word control refers to control over the expenditure of public funds or making sure that money is spent in the way that the legislatures and executives through their plans and budgets said it was to be spent. The planning and budgeting process establishes the baseline or standards for control. Systems for control begin by measuring actual performance against those standards. Simply knowing at the end of the budget period that money was not spent correctly or that the department was "out of control" is obviously not good enough. The system should have an ability to predict or indicate problems in advance, feedback actual results on a regular basis, and use that information so that corrective action can be taken. Corrective action might include adjustments of the standard, changes in priorities, a reorganization of staff, disciplinary action, a special evaluation, a change in reporting, or any number of other possibilities. Managers must take care to analyze the reasons for variances in performance, so that staff are not improperly blamed and so that actions which could compound the problem are not taken.

The standards for control may go beyond the typical budgeting process and include not only dollars but other measures of performance such as level of effort, efficiency, effectiveness, and equity. When dollars or other measures are routinely monitored on a regular basis, they are being controlled.

Example:

Sunnyvale, California. The most typical example of control is the budget performance report where actual expenditures are matched against budgeted amounts. Sunnyvale allows its managers a 30% variance between budgeted and actual costs in any single reporting period, so long as actual costs match the budget for the fiscal year.

Example:

One large city adopted a program designed to continuously monitor and communicate and adjust its staffing needs. This system has contributed to improved information exchange at all levels and has generally improved productivity.

EVALUATION

Evaluation is the process of comparing past or expected performance against goals, objectives, or standards. Evaluation is distinct from controlling in that it is not done rountinely on a day-to-day basis. Evaluation requires standards. If standards are set by the planning and budgeting process, these are often used or refined. If not, standards must be established for the evaluation. Care must be taken when establishing new or refining existing standards for a particular evaluation, so that they will be relevant and acceptable to the decisionmaker. In the unlikely event that cost is no object, then cost evaluations would be irrelevant.

Standards come in two broad classes: qualitative and quantitative. Although the manager may give more weight to the qualitative standards when making a decision, cost evaluations focus on quantitative standards or those measures which can be expressed in dollars and cents or in other precise quantities. The standards to be measured often give rise to a specific evaluation technique.

Cost evaluations are directly linked to the planning and decisionmaking process. The typical application in police operations will focus on the cost effectiveness of a particular existing service. These findings will then be weighed against the alternatives of replacing, modifying, or dropping the service in the planning process.

Example:

The St. Louis County Police Department did a study of its use of helicopters in patrol operations which concluded that the helicopters were too costly for their limited effectiveness. A similar helicopter cost study by the Norfolk, Virginia, Police Department reached the same conclusion.

Example:

The University of Southern California Institute of Safety and Systems Management conducted a cost benefit analysis for the Sunnyvale Public Safety Department in October 1981. The purpose of the analysis was to

examine the cost benefit of a number of temporary communications alternatives that could be used for three years as an emergency backup to the normal system which was scheduled to be replaced by a secure or "hardened" Emergency Operations Center in early 1985. The alternatives considered included:

- doing nothing
- placing emergency communications equipment in a fixed auxiliary site
- using small, strong, transportable emergency communications kits
- installing mobile but secure communications system.

Three scenarios, each of which would cause a breakdown in the existing communications system and require the use of the alternative system, were identified for use in comparing the cost benefit of each alternative. The scenarios included:

- A power outage in the City of Sunnyvale
- A major fire or chemical spill
- A devastating Santa Clara County earthquake.

Six categories of benefits were identified to which a value was assigned for each alternative system based upon its ability to mitigate the consequences of each scenario. The benefit categories included:

- management of criminal activity
- prevention of the loss of life
- reduction of pain and suffering
- reduction of property damage
- increased aid of other kinds
- increased aid rendered to the city from other municipalities.

The cost of the alternative systems was based upon quotations given by the supplier of the present communications system, and the only supplier which could maintain compatibility with the present system. The cost of the alternatives was compared, assuming acquisition and life-cycle expenses which include installation, training, operation, and maintenance. All costs and cash flows were converted to net present values for each alternative for the purpose of comparison.

The analysis resulted in a recommendation to lease the mobile communications system. This was not the cheapest of the three systems. However, because of its ability to perform under the varying conditions of the scenarios, it had the best benefit profile and the highest net present value overall.

The weakness in this kind of analysis is that many subjective and uncertain assumptions had to be made. For instance, in assessing each system's ability to mitigate or prevent the loss of life, not only was an uncertain estimate made of the number of people likely to be seriously injured, but also a value of $175,000 was placed upon each life saved.

PRICING

This refers to the process of establishing fees for the buying or selling of police services. There are any number of services bought and sold for which fees must be established. This includes sales of services by one department to another, such as field patrol or criminal investigation services, and sales for services provided to the public, such as licenses and permits. There are a number of factors that should be considered when setting or reviewing a fee, such as the volume of service to be provided or acquired; the total cost of the service including not only direct labor and materials but also the associated overhead or indirect costs; its fairness or whether the amount is reasonable for the service; its equity or whether the fee is the same or similar for all buyers; and its legality or whether the authority exists for the department to sell or buy any particular service.

Example:

The city police in Alexandria provide crowd and traffic control for the Scottish Games which are sponsored by the city. They began to measure the cost of supplying these services so they could charge the city departments which sponsor the games. The department also uses cost information to set fees for taxi licenses and solicitors.

Example:

The police in San Diego regularly update their cost information to set new fees for issuing bicycle and taxi licenses.

Example:

Des Moines, Iowa, decided to pay to house female prisoners in the county's detention facilities after determining that such an arrangement would be cheaper than using a city facility.

Example:

Inverness, Illinois, contracts with neighboring Barrington for police services. Estimated savings are about $75,000 per year.

Example:

Small communities in Switzerland contract with a private company, Securitas, for police functions. These private police who patrol, direct traffic, and check tickets at public functions relieve the regular force of routine duties and cost less than adding personnel to the city payroll.

Example:

The Dallas County Sheriff's Office provides patrol services to the cities of Seagoville and Sunnyvale. Each year it renews its contracts with the cities based upon the projected cost of the service. The renewal includes a projection of the estimated direct and indirect costs. Indirect costs are applied using a fixed amount per employee.

The articles or issues covered by the contract are shown in Exhibit 3-F, and the proposed cost of the service contract for the City of Seagoville is shown in Exhibit 3-G.

EXHIBIT 3-F

AN AGREEMENT FOR POLICE SERVICES

- Statement of agreement
- Legal basis
- Police patrol services defined
- Delivery of services
  - Service area
  - Quantity of service
  - How delivered
  - Reporting
  - Service management
  - Responsiveness
  - Coordination
  - Other services
- Resources
  - County responsibilities
  - City responsibilities
  - Individual ownership
- Liability

EXHIBIT 3-F (Continued)

- Personnel
  - Employee status
  - Payments
  - Indemnity
- Fees
  - Total sum
  - Billing and payment
  - Delinquency
- Term
- Termination
- Renewal and renegotiation
- Execution

EXHIBIT 3-G

FY 83 PATROL SERVICES CONTRACT

	Option I	Option II
Average salaries + 5%	$ 22,598	$
FICA	1,513	
Retirement	1,581	
Insurance	960	
Uniforms	209	
Per Deputy Cost	$ 26,852	
No. of deputies required to fulfill contract	5	6
Sub-Total Personnel Costs	$ 134,260	$ 161,112
Auto (Cost $9,500 - 500 salvage) ÷ 2	4,500	
Fuel & Maintenance @ 21¢/mile	12,600	
Radio (cost $4,085) ÷ 10	409	
Visabar (cost $1,157) ÷ 5	231	
Install and Maintain Equipment	240	
Emergency Supplies	800	
Per Auto Cost	$ 18,780	
X autos required	1	1.3
Sub-Total Equipment Costs	$ 18,780	$ 24,414
Sub-Total Direct Costs	$ 153,040	$ 185,526
Indirect cost @ $5,672.31 per deputy	$ 28,362	$ 34,034
GRAND TOTAL	$ 181,402	$ 219,560

REPORTING

Reporting is the end product of the accounting cycle. Its design or format is dictated by the requirements specified by the managers within the organization and by external parties to whom the system is accountable such as local, state, and federal governments. The system design must accommodate the most detailed of any set of requirements, so it is usually that party which has the most impact on the system design. The party with the heaviest requirements is often the Federal Government. A number of police jurisdictions have indicated the Federal Government has done the most to upgrade their cost analysis capabilities. In addition to responding to known reporting requirements, systems should be able to respond to one-time requests for cost information and to unforeseen circumstances such as identifying and recovering costs for special services rendered during riots and other disasters. For this the system must be flexible. As a general rule, the more detailed the organization's accounts, the more flexibility it will have in reassembling cost information to meet special requests.

Exhibit 3-H shows an organized way of looking at the types of cost reports and their relationship between cost information, management functions, and target audiences or parties to whom the organization is accountable. It categorizes cost by type, organizational level, timing, and impact. Those cells marked with an "X" identify the type of reports ordinarily required based upon the findings of the program model mail survey and field visits. The survey also identified the specific types of cost studies or reports done to allocate human or financial resources. They included reports showing the costs of:

- patrol vehicles
- responses to calls for service
- gasoline pricing and usage

- out-of-state recruiting of police applicants
- use of civilians in police communications
- early retirement programs
- federal grant administration
- overtime reduction, and
- court appearances.

Example:

San Diego used cost analysis to obtain reimbursements for its work at the site of a fatal crash of a commercial airliner and for its help in handling a major strike in a neighboring jurisdiction.

Example:

The Arkansas State Police regret that they did not have the capability to bill the Federal Government for the cost of responding to the riots at Fort Chaffee, a federal military installation temporarily housing Cuban refugees.

EXHIBIT 3-H

TYPES OF REPORTS

	Kind of Cost Information Reported	Primary Management Contribution						Primary Target Audience					
		Planning	Budgeting	Controlling	Evaluating	Pricing	External Reporting	Police Top Managers	Police Operating Managers	Policy Planners & Researchers	Control Fiscal Managers	Public Officials	General Public
By Type of Cost	Personnel Costs	X	X	X	X			X	X	X	X		
	Nonpersonnel Costs	X	X							X	X		
	Indirect Costs		X				X			X	X		
	Full (Total) Cost	X	X		X	X	X	X	X			X	X
	Unit Cost	X		X	X	X			X		X	X	X
By Level of Cost	Specific Service	X	X	X	X	X	X	X	X	X	X	X	X
	Organization Unit		X	X	X			X	X		X		
	Department-Wide	X	X					X		X		X	
	Intergovernmental Comparison				X	X	X	X		X		X	X
By Timing of Cost	Historical	X	X			X				X	X	X	
	Current Period			X					X	X	X		
	Fiscal Year-to-Date			X					X	X	X		
	Projected	X	X			X				X	X	X	
	Current vs. Projected	X	X		X				X	X	X		
	Actual vs. Budgeted		X	X	X			X	X	X	X	X	
By Impact of Cost	Cost-Effectiveness Analysis	X	X	X	X		X	X	X	X	X	X	X
	Cost-Benefit Analysis		X		X					X	X		

WHEN SHOULD THE POLICE EXECUTIVE USE COST ANALYSIS?

Ideally, the organization should be prepared to meet all its routine cost reporting requirements systematically without an extra expenditure of effort. However, assuming this is often not the case and assuming there will be many demands or opportunities for special study, when should the police executive decide to expand the extra effort required? Some considerations are suggested:

- Whenever there is a legal requirement to do so
- Whenever large amounts of money are involved
- Whenever long-term commitments are being considered
- When a substantial change in operations is being considered such as a reorganization, expansion, or consolidation of precincts, services, or personnel
- When a new technology is being introduced such as a computer system
- When revenues and expenditures are out of balance

- When extremely sensitive issues are involved in a decision such as a proposed change in the number of community relations officers, and
- When commonsense good management requires it.

WHAT ARE SOME OF THE PROBLEMS IN POLICE COSTING?

The major problem is that most jurisdictions do not use cost information regularly in decisionmaking because they lack the capability to get it and because its potential value is perceived to be either irrelevant or unnecessary. More attention has been given to documenting services provided with level of effort and community crime statistics than has been given to measuring costs. The program model mail survey revealed three major shortcomings in police accounting systems:

- Accounting systems often supply accounting information on a cash basis only and fail to match true cost to the period.

- Costs are often allocated by organizational unit without any further classification by service, job, or function and without any regular maintenance of an indirect cost rate. As a result, it is often easier to determine who is responsible for the cost than to determine how or for what service the cost was incurred.

- Accounting systems and reporting methods are often too complicated, too general, and too slow to use effectively in decisionmaking.

In addition to these fundamental shortcomings in the accounting systems, other factors inhibit the effective development and use of cost accounting information:

- Managers are unfamiliar with the uses of cost information.

- Managers do not perceive the financial system to be their responsibility.

- Managers have a natural reluctance to develop yet another basis upon which their performance or programs may be judged or criticized.

- The information systems in place which often serve as the basis for allocating costs for special analyses are inadequate, inaccessible, and not controlled by the department.

- The responsibility for financial operations and accounting belongs to an independent department servicing all local government agencies. There may be a history of conflict between departments, a lack of capacity in the financial offices, and an inability or unwillingness to respond to the particular demands of any one agency.

POLICE MANAGED RESPONSE SYSTEMS

This section contains material reflective of recent research which has been conducted in order to develop new alternative types of responses to selected calls for service.

The alternative types of response require new forms of procedures and policies regarding the role and function of communications personnel--particularly the call-intake procedures used in a department.

When new procedures are adopted so that they mesh with new forms of responses, considerable savings can be derived in terms of lower cost associated with different types of responses--particularly responses that do not require the on-scene response of a sworn officer dispatched by the department as a mobile response.

Material excerpted from the National Institute of Justice Field Test Program, Differential Police Response to Calls for Service.

POLICE MANAGED RESPONSE SYSTEMS

- SITUATION:

The current workload difficulties faced by many departments stem from three premises that have traditionally been used to support police responses to calls for service. First, it is necessary to respond to virtually all calls by sending a patrol car; second, most calls cannot be delayed and must be answered as quickly as possible; and third, responding to calls for service takes precedence over other activities performed by patrol officers.

Each of these premises has been called into question and several reasons support a rethinking of these premises:

- Rapid response is questionable because agencies are simply too understaffed to respond to all calls immediately. Calls are often stacked during peak periods--including critical calls that require an immediate response;

- Rapid response is not the only type of response available for a department;

- Only a small percentage of calls are for crimes in progress or for emergencies where a rapid mobile response is seen as necessary to prevent or treat injuries or to arrest suspects;

- Most problems reported to the police can be handled by a delayed mobile response or by various new forms of non-mobile responses;

- Citizens are willing to accept either a delayed response or to cooperate in using other types of police responses if and when they are properly informed of an estimated arrival time or properly instructed in the use of alternatives other than expecting a mobile immediate police response.

- THE PROBLEM:

Most departments have not sufficiently explored the vast range of alternative or optional responses that are available to them in order to respond to the various categories of problems that are called in to the department.

Even in those agencies that have addressed this issue of alternative responses--e.g., many ICAP and MPO agnecies--their approaches have been too limited. Usually such agencies have established prioritization schemes that prioritize a dispatched response only or have installed telephone reporting units (or expeditor units) in order to handle certain types of incoming calls by phone rather than by dispatch of a patrol unit.

Recent research and demonstrations, however, have suggested that a more comprehensive review of the manner in which an agency handles its call intake procedures can suggest new ways of determining how incoming calls that have been reclassified can be handled by the department. Further, recent demonstrations have suggested that as many as eight to ten different types of responses can be developed and used by an agency besides the traditional response of dispatching a mobile unit to handle some calls.

- APPROACH TO THE PROBLEM:

Two major steps have been taken by some departments in order to create a new revised response system based on the prior reclassification of incoming calls for service. Thus, these two steps assume that some reclassification has been done (Component 1) and that the new classifcation scheme is to be used in order to construct a new reponse system.

The two steps are:

- Identification and Selection of Types of Responses Matched To Categories of Classified Calls

- Revision of Call Intake Procedures and Training of Call Intake Personnel and Others So That An Appropriate Match is Made Between Individual Call and Response Type Chosen

EXAMPLES OF ALTERNATIVES

- IMMEDIATE MOBILE RESPONSE OPTIONS

  - one-person mobile unit
  - two-person mobile unit
  - one or more units
  - non-sworn units

- DELAYED MOBILE RESPONSE OPTIONS

  - one-person mobile unit delayed for a set period, e.g. one hour
  - two-person mobile unit delayed for a set period, e.g., one hour
  - a mobile unit that is scheduled to respond beyond a given set peiod, e.g., next day appointment
  - a roving mobile unit that is sent outside the beat to another beat within a scheduled appointment, e.g., within next three hours or within next eight hours

- NON-MOBILE RESPONSE OPTIONS

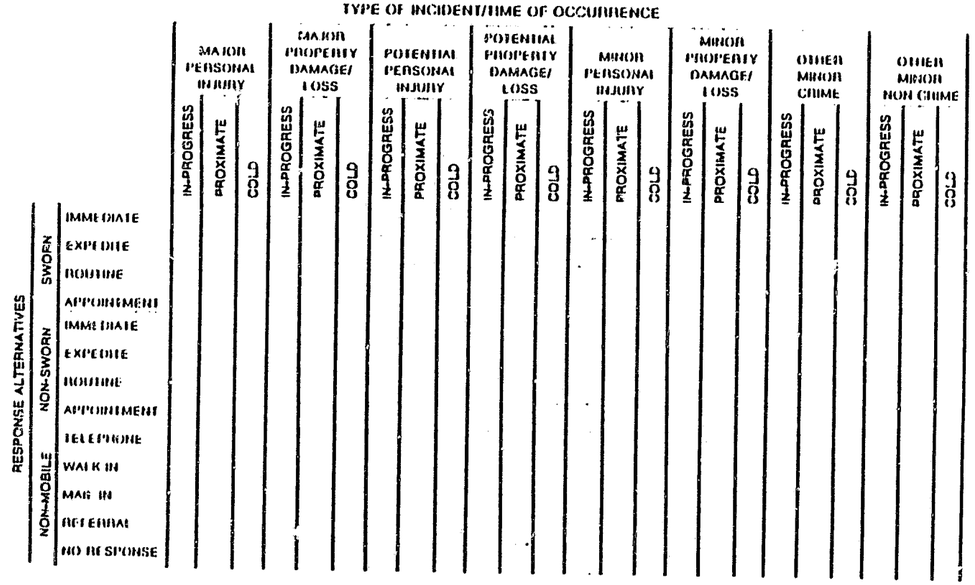
  - telephone report-taking by Teleserv Unit or Expeditor Unit
  - citizen walk-in to report at station
  - citizen mail-in report
  - referral of call to other agency
  - telephone "counselling" by non-sworn police paraprofessional or civilian employee or volunteer;
  - services provided at station by paraprofessionals, civilian staff, or volunteers for walk-in clients

MATCHING RESPONSES TO CATEGORIES OF CALLS

- Matching types of alternative responses to categories of classified calls is usually done by a process of planning and analysis. "Formats" or "Matrices" have been constructed by various departments and analysts as tools to aid this process.

- Several different examples of such formats are presented in the following pages and each will be explained. Differences are due to local variations in policies and capabilities of each department.

FIGURE 1:
GENERAL DIFFERENTIAL RESPONSE MODEL



Process: Each classified call--see Component 1--is matched in this format. Matching is based on two dimensions: type of incident or call and time of occurence. Response alternatives are of three major types: sworn mobile, non-sworn mobile and non-mobile.

SOURCE: Police Executive Research Forum

FIGURE 2

RESPONSES

I	Immediate Mobile Response
C3 *	Code 3, Emergency Response
D	Delayed Mobile Response
R	Referral
E	Expediter Unit (Telephone Reporting)
CB	Communication Call Back
WI	Walk In Reporting
NR	No Police Response
*	When established criteria Applies

DIFFERENTIAL RESPONSE MODEL

		INJURY		TIME (CRIMES)					Likelihood of Apprehension		Crime Potential	Non Crime Hazards And Occurrences	Purpose Of Call		Characteristics At Scene			Availability of Witnesses		Dispatch Policy Override		
		Requires Medical Attention At Scene	Potential Immediately Present	A. In Progress	B. Against Persons (within 15 min.*)	C. Against Persons (over 15 Min.*)	D. Against Property (within 5 min.*)	E. Against Property (over 5 min.*)	YES	NO	Potential Immediately Present		A. Police Report Only	B. Intervention Only	A. Extent of Loss/damage	B. Expediter Criteria	C. Person's Characteristics	A. Involvement	B. Future Accessibility	A. Citizen Demands Unit	B. Statutory Requirement	C. Administrative Policy
VIOLENT CRIME EVENTS	100																					
HOMICIDE	101																					
SEXUAL ASSAULT	110	C3		C3	I	D			I	D												
RAPE	112	C3		C3	I	D			I	D												
CHILD MOLESTATION	114			I	I	D			I	D												
ROBBERY	120			C3	I	D			I	D												
ROBBERY OF A PRIVATE CITIZEN	121			C3	I	D			I	D												
ROBBERY OF A FINANCIAL INSTITUTION	122			C3	I	D			I	D												
ROBBERY OF A COMMERCIAL ESTABLISHMENT	124			C3	I	D			I	D												
ROBBERY ALARM	126			C3												E						
SIMPLE ASSAULT	130			I					D	E												
DOMESTIC ASSAULT	131			I																	D	
AGGRAVATED ASSAULT	140	C3		C3	I	D			I	D												
CHILD ABUSE	143	C3		I	I	D			I	D												
KIDNAP	160	C3	C3	C3	I	D			I	D												

Process: Each classified call--in this example only the classified calls for "violent crime" are displayed--is matched in this format. Matching is based on nine (9) dimensions or indicators and some sub-dimensions (see top two lines of format). There are eight (8) types of responses, including a NR = No Response "response". Response alternatives are only sworn mobile or non-mobile responses.

FIGURE 3-A

EVENT CATEGORY / DESCRIPTOR	INJURY			TIME			ARREST POTENTIAL	PURPOSES OF CALL			AVAILABILITY OF WITNESS		CRIME POTENTIAL	OCCURRENCES		CHARACTER ISTICS		OVERRIDE		
	actual	probable	potential	in-progress	just occurred	cold		prosecution	insurance only	information only	on scene	in the future		hazard	non-hazard	scene control	scene inspection	statutory requirement	citizen demand	department policy
1 00 Violent Crime																				
2 00 Interpersonal Conflict																				
3 00 Medical																				
4 00 Non Violent Crime																				
5 00 Traffic Problems																				
6 00 Public Nuisance																				
7 00 Susp Circumstance																				
8 00 Dependent Person																				
9 00 Public Morals																				
10 00 Assistance																				

Process: This format displays relationship of 10 categories of classified calls--derived from and adapted from the 13 categories of Component 1--but does not dispaly types of responses: Figure 3-B

		INJURY			TIME			ARREST POTENTIAL		PURPOSES OF CALL			AVAILABILITY OF WITNESS		CRIME POTENTIAL	OCCURRENCES		CHARACTER ISTICS		OVERRIDE		
		actual	probable	potential	in-progress	just occurred	cold	Will patrol response result in an arrest? yes	no	no prosecution	insurance only	information only	on scene (2 or more)	in the future (leaving scene)		hazard	non-hazard	scene control necessary	scene inspection necessary	statutory requirement	citizen demand	department policy
SWORN	Immediate	X	X	X	X									X		X						
	Delayed					X		X					X		X			X	X	X		
	Delayed 1 (30 min.)								X								X				X	y
	Delayed 2 (60 min.)								X								X				X	
NON-SWORN	Referral																X					
	Expeditor						X		X	X	X	X										
	Walk In						X			X	X	X										
	Hail-In						X			X	X	X										
	Appointment						X			X	X	X										
NON-SWORN	Immediate																					
	Delayed						X										X					

FIGURE 3-B: This format displays the relationship of responses (left side of matrix) to characteristics of a given classified call derived from the 10 categories of classified calls listed in Figure 3-B.

FIGURE 4

DIFFERENTIAL RESPONSE MODEL//ROP

EVENT CODE #	EVENT TITLE	EVENT DESCRIPTORS																RESPONSE CODE (*=TEST REQUIREMENT					
Specify Event Code Number 0-00	Specify Title of Event Code Number	INVOLV			DISC		PERS/INJ			PROP/LOSS			WEAPON			REP/CL		1*	2*	3*	4*	5*	6
		IN-PROGRESS	PROXIMATE	COLD	PROXIMATE	COLD	MINOR	MODERATE	MAJOR	MINOR	SIGNIFICANT	MAJOR	POSSIBLE	YES	GUN	PROXIMATE	COLD	IMMEDIATE MOBILE	DELAY MOBILE	EXPEDITOR	REFERRAL		NO RESPONSE/CT HANDLED

Process: This format displays the relationship between a given catgory of call listed in any one of the 13 categories of classified calls and 6 dimensions or characteristics of the call, and 6 possible response alternatives. The characteristics of the call are listed under the heading of "event descriptors" and include characteristics of the call as well as time dimensions of the call.

POTENTIAL USES OF THESE TYPES OF FORMAT

- FORMATS CAN BE USED TO ASSESS CURRENT RESPONSE STRATEGIES WITHIN THE AGENCY

Agencies may use these types of formats in order to determine, beforehand, the types of responses that the agency wishes to install and follow in order to respond to any given type of incoming call--once calls have been classified appropriately.

In making such a determination, agency analysts will be forced to review and assess the types of responses that they now give to given calls.

- FORMATS CAN BE USED TO SORT-OUT CURRENT RESPONSES AND PRIORITIZE RESPONSES ACCORDING TO ESTABLISHED AND MANAGED POLICIES

Call takers should not be given the discretion to choose what types of responses--e.g., "We'll have a unit there in a minute!"--the agency will make to a given incoming call. Most call takers need direction and guidance otherwise their normal tendency is to "overpromise" a response.

Sorting out what types of calls will get what types of responses is an important step in determining the policies and procedures that will be followed by communications personnel in conducting the initial "phone transaction" between a caller (demand) and the response (supply) resources of the department.

In agencies that have used this type of format or process of matching classified calls to types of different responses, it has been found that up to as much as 40% of previously dispatched (mobile-sworn) responses can be safely and satisfactorily handled by non-dispatched non-mobile responses with significant savings of patrol time and patrol resources.

- FORMATS CAN BE USED TO ESTABLISH ALTERNATIVE RESPONSES

Only selected calls require an immediate, mobile, sworn response. Indeed, the percentage of the total volume of annual calls that require this form of response is often found to be in the 10% to 15% range of calls.

Sorting out and matching what types of classified calls require what type of response will reveal to the agency that a wide range of response options can be identified and can be installed in the department. Possible ranges have been listed in previous tables in this section of this session.

MAKING A NEW SYSTEM WORK FOR POLICE MANAGERS

- AN ESSENTIAL REQUIRED STEP: REVISION OF CALL-INTAKE PROCEDURES

A final and essential step in the development and implementation of a revised response system will require significant changes in the current manner by which calls and call-intake procedures are handled in a department.

The use of call classifications, identification and implementation of alternative responses and matching a response to a call means that an increased level of responsibility is placed on complaint operators, dispatchers and patrol officers.

Currently, in most departments, call-takers collect minimal information from citizens to classify the call according to signal codes before passing this information on to dispatchers who, in turn, pass on the information, again by way of signal codes, to officers in cars or units.

In the new system envisioned by our remarks and formats listed earlier, call-takers will be required to collect an expanded range of information from citizens in order to evaluate each call in terms of the dimensions of the call (see formats 1-4 above) and in order to assign each call to an appropriate response category, e.g., emergency immediate mobile, immediate mobile, delayed mobile, etc. Moreover, based on the policies and procedures of the department, the call taker will also have to inform the citizen, in certain types of calls, about an alternative such as the use of a Teleserv Unit or Expeditor Unit, or refer the caller to another non-police agency.

Thus, several new procedures will need to be developed and tested and finally implemented (and monitored) by the department and these include:

- Develop and instruct personnel on the new call classification system;
- Develop written guidelines on the specific types of information that call takers will need to obtain from citizens in order to match the call to a wider range of responses;
- Develop and test a standardized set of questions--a set of decision menus or steps--that a call taker can use quickly and efficiently in order to obtain the needed information to match the call to an appropriate respone;
- Develop standardized explanations to inform citizen callers about appropriate responses to be taken by the agency and develop ways to train and monitor personnel who must use the system effectively.

SOME ANTICIPATED COST-EFFICIENT EFFECTS FROM SYSTEM

- DETERMINATION OF WHAT WILL BE THE PRIMARY CORE SERVICES TO BE DELIVERED BY THE AGENCY IN RESPONSE TO CALLS FOR SERVICE

The system--call classification, response alternatives, and matching responses to calls through revised intake procedures--will result in an agency developing policies and procedures for delivering its "essential core services" and will enable the agency to decide what types of previous services it can reduce or eliminate or what new services can be added safely as part of a revised response system.
In agencies that have used variations on this type of system, it has been found that, on the average, of a total of 32,000 calls per month, only 1,800 required any form of immediate or delayed mobile response. The remaining 31,200 were handled by a variety of lower-cost responses including Expeditor or Teleserv responses, non-mobile responses, and/or the use of mobile or non-mobile non-sworn officer responses such as mail-in, walk-in reports or services provided, at the station, by para-professionals or volunteers or services provided on-site to the caller by non-sworn paraprofessionals.

- MORE PRECISE DETERMINATION OF DEPLOYMENT AND ALLOCATION FORMULAS

A well managed and developed response to calls system can result in a more precise understanding of what types of classified calls will require a mobile, emergency, immediate, or delayed response. Analysis of these types of classified calls--by volume, time of day, day of week, season, location of caller, and other time and space dimensions--can be an essential ingredient in the development and use of allocational formulas for the deployment of patrol units. Such deployment usually occurs by time (shift, overlap shift, etc.,) or by place (precincts, areas or beats).

In Component 3 of our model we shall discuss some of the dimensions associated with allocation formulas. However, we shall discuss these as if some form of new response system has been developed.

The effect can be that when an agency upgrades its classifcation system (Component 1) and improves its response system (Component 2), potential cost savings can be identified. Moreover, and equally important, the level and variance in the demand side of the equation can be managed by the police department in its favor. Departments can begin to limit, in a rational and reasonable manner, its resources in order to match these with demands that can be met by effective police presence or an effective police response.

CONTINUED

2 OF 4

SESSION 4

DAY I

PLANNING FOR COST ANALYSIS

During this session we will consider the principles that apply to planning a cost analysis of police services. This session will include a variety of training methods including lectures, individual task assignments, and small group work.

Specifically, a model for planning cost analysis will be introduced. During this session you will learn:

- the six steps that are used when planning a cost analysis

- how the planning steps are applied to a typical cost of services problem.

Now you know what a cost analysis is and some of its typical applications in police management. In order to see how cost analysis can be used in your own jurisdiction, it is important to understand the process of planning and conducting a cost analysis. In this session we will look at the steps in planning a cost analysis. In the two sessions that follow it, you will learn the steps in carrying out a cost analysis.

GENERIC QUESTIONS

You have heard some of the kinds of generic police management questions where cost analysis has been used to help arrive at an answer. These included:

- Are we doing well or badly?
- What problems should be looked into?
- Of several ways of doing the job which is the best?

APPROPRIATE USES OF COST INFORMATION

Cost information can be used to support decisions or answer questions for each major management function in:

- Planning, cost analysis can be used to help choose among alternative ways of supplying a service; for example, whether to have an auto towing capability or contract with private firms
- Budgeting, cost analysis can be used to help forecast future costs in light of changing requirements, crime patterns, and prices; for example, projecting the future cost of recruit training

- Controlling, cost analysis can be used to help monitor expenditures over time and contribute to cost containment strategies; for example, identifying patrol activities that have rapidly increasing unit costs
- Evaluating, cost analysis can be used to help determine the degree to which departmental objectives are being achieved and to maximize the utilization of resources; for example, optimize the division of investigation responsibilities in the most cost-effective way
- Pricing, cost analysis can be used to help establish fees or recover costs where this is possible; for example, pricing the cost of crowd control for a rock concert
- Reporting, cost analysis can be used to help determine what various services cost, how they vary among precincts, and how the department compares with other departments, much like crime statistics; for example, comparing the cost of responding to a call for service.

Cost information can also be used to examine the larger question of the financial condition or the various levels of solvency that your department or municipality is experiencing. (See Session 3.)

INAPPROPRIATE USES OF COST INFORMATION

Not all management questions can, or should, be answered using cost analysis methods. For example,

- does this jurisdiction have a good police department?

- should the standards for promotion to sergeant be increased?

Other questions that could be approached through cost analysis may be too trivial for the effect involved. For example,

- should the department issue metal clip boards in place of fiber ones?

- what is the cost of sending a representative to semiannual meeting in a distant location?

Other departments are <u>proactive</u>; they regularly examine the services they provide to understand where the costs are so they can be managed properly:

- should we continue contracting with the state police for crime lab services or develop our own crime lab?

The difference is where decisions are made. In reactive environments, decisions are made by the city council, the mayor, and so forth. In proactive environments, the department makes most of its own decisions.

PROACTIVE BAROMETER

To become proactive, a department must learn how to ask useful questions. A cost-analysis question should be asked when:

- a new service is being planned

- an existing service is being redesigned

- responsibilities for a service are to be reassigned or redistributed

- opportunities to buy or sell a service arise

- the demand for a service has risen or fallen sharply

- alternative ways of delivering a service can be identified

- a service does not seem to be as proactive as it should be.

For example, it may seem more cost-effective to assign a single investigator rather than a two-person team to gather information on suspected narcotics suppliers. However, a cost analysis might reveal that the costs are about equal per investigation and that the costs per conviction are less when a two-person team is used.

By critically examining costs, it also is possible to determine where additional investments in delivering a police service may pay off. For instance, if it is learned that much of the cost in responding to a family dispute is the cost of getting there, very little cost may be added if more time is invested in efforts to resolve the dispute.

To determine whether a question is an appropriate one for cost analysis, it is useful to do a "dry run," and estimate an answer to see what impact it would have. If you knew that it cost $8,000 to investigate the average homicide, would it make any difference? Or if you could calculate that daylight savings time costs one hour of overtime for each person on duty when the clock is set back, would that information have any impact?

PLANNING ELEMENTS REVISITED

Planning a cost analysis of a police service involves three elements:

- the question to be answered or the decision to be made based on the results
- the way units of the service will be defined and counted
- the way the costs per unit of service will be calculated.

Doing the cost analysis will be disorganized and the results may be disappointing unless each element is carefully thought through.

PLANNING MODEL

A Planning Model has been developed to guide the planning of a cost analysis. To help you understand the use of the model, we can look at the steps, or tasks, to see what is to be accomplished by each one, who typically does what, and what problems are likely to be encountered.

TASK 1: DEFINE PURPOSE

A cost analysis is performed to help answer a question or contribute information to a decision. Industry uses cost analysis to decide whether to produce a product, to decide how much to charge for it, to locate areas where cost savings may be possible, or to monitor production.

In police management, we talk about services instead of products, but cost analysis similarly is used for pricing, reporting, planning, budgeting, controlling, and evaluating police services. But in each case, a question or a decision is involved.

How the question gets asked depends on who does the asking. In a reactive setting, the question is raised outside of the department and, presumably, any decision based on the results also will be made outside of the department.

And, unless a considerable amount of cost data is at hand when the question is asked, it may take weeks to determine the units of service, the components of cost, and the amount per unit of service.

A proactive approach, where the department asks itself cost-of-service questions is far more desirable. This may not prevent outside questions, but internally initiated cost-of-services studies demonstrate the department is concerned with costs and that it does manage itself. And, a few carefully done studies will provide a base of information on cost per labor hour, cost per vehicle mile, or cost per square foot of space that makes further studies much easier.

Because the conduct of cost analysis study requires time and resources, the chief of police should be responsible for deciding whether a study or group of studies should be done. Generally, the study will be carried out by the department's planning staff, but assistance and cooperation will be required from all the line units that have responsibility for components of the cost of that service. Cooperation also will

be needed from various municipal offices to obtain records of salaries, benefits, purchases, and such that are not kept within the department.

ISSUES/CONSIDERATIONS

In deciding on the purpose of a cost analysis, an administrator should consider three issues.

The first issue is whether the question is one:

- that can be answered by a cost analysis
- where the answer is worth the time and trouble of doing a cost analysis
- that focuses on a function or service rather than organizational unit.

Unless these criteria are all met, some other way should be found to answer the question.

The second issue is who will use the resulting information and how it will be used.

For some users or purposes, the analysis may have to be more accurate or more detailed than for others. For example, the cost of serving a

warrant might have to be calculated differently if the results were to be used to:

- track costs internally from year to year
- seek reimbursement for warrants served on behalf of other jurisdictions
- compare cost with those in similar municipalities.

Who will use the information is important, because often the person asking the question will not be the one who makes decisions based on the results.

The third issue, and perhaps the most important, is how both conducting the study and obtaining an answer are likely to affect departmental operations. Establishing the cost of services involves the equivalent of a time-and-motion study, and these are threatening to both operating personnel--who are afraid of a "speed-up"--and supervisory personnel--who feel their authority and accountability are being attacked.

For these reasons, the purpose of a study should be identified in such a way as to:

- make the intentions of the study acceptable to both operating and supervisory personnel
- make it clear how the results will be used, and what the consequences might be depending on the results

- make it clear how the study will contribute to the department's mandate and objectives.

TASK 2: DETERMINE SERVICE TO BE COSTED

Depending on what information is wanted, the service to be studied by a cost analysis can be very broad or narrow. It could be:

- all crime investigations
- all investigations of crimes against persons
- all investigations of sexual assault crimes
- all investigations of sexual assaults in a particular precinct.

No matter what service is chosen, it is important to seek agreement from the various divisions that share responsibility for the service as to just what that service includes. For instance, does the cost of responding to an auto accident include:

- taking reports from motorists/witnesses
- arranging towing for a disabled vehicle

- directing traffic until the scene is cleared
- writing traffic citations
- appearing in court
- transporting a driver for a breath analysis
- verifying driver/vehicle identification?

Different divisions may see the task differently and may want to include or exclude various cost components. They also may want services defined consistent with the way duties and responsibilities are defined for purposes of supervision and fitness reporting.

Different jurisdictions may not only include different steps in the process, but define the service differently. Does the service of responding to an auto accident include:

- accidents involving a pedestrian
- responding to disabled vehicles blocking traffic
- responding to reports of a damaged parked vehicle?

Clearly, some uniformity is required when costs are compared across jurisdictions or over time. In an example we used earlier, very different results for the cost of writing a traffic citation were obtained depending on whether patrol time was included or excluded.

Determining the service to be costed should not be used as an occasion to reconsider what that service should consist of. It should be an occasion to determine what the costs of providing that service are and then to decide whether any upward or downward revisions are required--and what these should be.

TASK 3: DETERMINE PRODUCTION UNITS

Once the service is defined, it is important to decide the unit for measuring how much of the service is being delivered. The unit selected can make a large difference. For investigations, for example, is the unit:

- a particular type of case
- an arrest made
- a case cleared
- a conviction made?

and, for patrol, is the unit:

- a mile of motorized patrol
- an hour of foot patrol
- a specific type of incident
- a response to a particular call for service?

When deciding on what units to use, it is important to try selecting units that are consistent with departmental objectives and mean the same at different times for different cases.

Generally, it is better to use units over which the department or its divisions have reasonable control.

Units for allocating indirect costs also have to be chosen to reflect how space is used, how programs are supervised, or how communications resources are used. Some typical units used to allocate indirect costs are:

- square feet for building space used
- person-days for allocating supplies

- total direct costs for allocating municipal indirect costs

- number of telephones for dividing telephone charges.

These units for indirect costs have to be chosen carefully, because they should be consistent from one cost study to the next.

TASK 4: DEF 'E COST COMPONENTS

All resources necessary for a service should be included in the cost calculation. Most direct costs are relatively easy to identify, such as personnel time, vehicle hours or miles, informant payments, and so forth.

Indirect costs are more difficult. When possible, the costs of buildings, utilities, supplies, supervision, and so forth that can be isolated should be removed first, and only the residual costs prorated among services. If, for example, the cost of the space discretely used by the investigation division can be determined, it should be divided among investigation activities only and should not figure into, for example, the cost of writing citations for parking violations.

Calculating indirect costs may not be necessary, if the results are used to chose among alternatives and each alternative would have a similar percentage of indirect costs. If calculating and allocating indirect costs is necessary, then it should be done accurately the fi st time so the guidelines can be used for subsequent studies.

Determining indirect costs frequently involves going outside of the department and trying to make sense of unfamiliar accounting systems. Before a decision is made to calculate indirect costs and ways of identifying or allocating them are selected, it is a good idea to find out

what records are available and how much help can be expected from the city's finance or budget offices.

TASK 5: DETERMINE DATA SOURCES

Some way of collecting both unit of service data and cost data is required.

Once the cost components of a unit of service are identified, the average amount of that component used in performing the service has to be determined, such as the amount of time required to write a traffic citation, the number of flares used for a typical accident, the number of minutes of a patrol car used when transferring a prisoner, or the amount of time spent in searching records for a robbery investigation.

Both data sources and collection techniques are discussed elsewhere in the program. You may want to make note, however, that thanks to the Internal Revenue Service, payroll records are probably the most accurate. They will provide you with excellent data for salary expenses. The purposes for which those expenses were intended is another matter entirely. It is a rare instance indeed, where an individual's time appears in payroll records to show the particular activity or task in which he/she was engaged at a given time. In order to determine that information, it will almost always be necessary to rely on other data sources which could include a questionnaire or interviews combined with on-site observation. The methods to capture needed information are many.

Another issue will be to determine the technique you will use in gathering data. Do you need to interview every patrol officer to determine the time required for a traffic accident where there has been property damage only, or can you interview only a sample? We will discuss these issues later. The point to remember here is that one could spend a lifetime getting or constructing complete and accurate data. In this stage of planning, one must determine what are the available sources of data; where are the gaps; how they can feasibly be filled; and what one can live without. Having made these determinations, it's time to move ahead.

TASK 6: DECIDE ON EXTENT OF THE ANALYSIS

The precision of the results will depend in large part on how direct and indirect costs are separated and how indirect costs are allocated. For many purposes, categories of costs such as general supplies can be lumped together and considered an indirect cost rather than trying to establish the numbers of pencils, for example, used for specific services.

For many purposes, indirect costs--particularly municipal indirect costs--can be ignored altogether. How detailed a cost analysis should be depends on the purpose of the study, who will use the information, and how accurate and detailed it must be.

The last step in a cost analysis is reporting the information. Whether used to answer a question raised outside or inside the department, the best approach to the report is to provide as much of the information as possible. Typically, this will include:

- the question that the cost analysis addressed
- how the service being examined was defined
- what components of direct costs were included
- how the amounts of direct costs were determined
- what components of indirect costs were included

- how these indirect costs were calculated and allocated
- what the results indicate.

This last point is important because the police department is likely to have a better understanding of what the results mean than anyone else. This decision should include an assessment of what influences tended to make the costs high or low, whether the costs of any of the components could be changed, and whether the costs that were determined are likely to increase or decrease substantially in the near future.

PLANNING EXERCISE

The participants will be divided into small groups for the exercise. Wherever possible, each community team will work as a group. The task is to work through the planning of a cost analysis to determine:

- whether the problem is an appropriate one for cost analysis
- the service or services to be costed, and what units of service should be used
- the components of cost that should be considered for each service to be analyzed.

It is important to be as realistic as possible in your approach to this exercise. A cost analysis can be an expensive and time-consuming effort. You should try and minimize the amount of work that will have to be done, but at the same time develop a plan that will give enough information to make the findings convincing.

To help your group prepare a plan, we suggest you use the planning model that has been presented. Following the "statement of the problem," there are a series of worksheets to guide your group's work. Note that in many places, you are asked for a "justification" for the planning decisions you have made. These are important as a way of helping you understand what is involved in planning a cost analysis.

At the end of an hour, we will assemble all together again to hear and discuss what the groups accomplished.

Statement of the Problem

Centertown is a typical city of 250,000 population. Over the past several years, crime and violence have been increasing in the Centertown Public Schools, particularly in the four high schools. Many calls have been for vandalism, disorderly conduct, and similar minor offenses, although recently there also has been a rise in more serious crimes.

To protect its property, pupils, and staff, the School Board has decided to station one non-uniformed security officer in each high school. As an alternative to having its own personnel for this purpose, the School Board has asked the Police Department to bid on providing this service.

Your task is to plan a cost analysis of this service that takes account not only of what it would cost the Police Department to station an officer in each high school, but also takes account of any savings to the Police Department that would result. The officers would be at the schools from 8 a.m. to 4 p.m. for the 180 days of the school year.

According to the divisional and district commanders, four services are now being performed at the schools:

- In response to calls for service, one officer is sent to obtain a report on instances of vandalism, minor larceny, and so forth. These represent two thirds of the responses to minor offenses. With the concurrence of the schools, these offenses generally are not further investigated.
- Also in response to calls, an average of 2.2 officers are dispatched to respond to fights and similar disturbances or to suspicious strangers in the school. These represent the remaining one third of minor offenses. Again, few of these cases result in apprehensions, because the schools prefer to deal with these problems themselves wherever possible.

- Calls regarding serious crime primarily include assaults on teachers, assaults on other students resulting in substantial injury, or weapons charges. Again, an average of 2.2. officers respond to these calls. Almost all are followed up by an investigator on either the same or the following day. These cases usually are prosecuted.

- The final service is the investigation of crimes not on school property where a student is questioned. This often is done at the school, usually by the investigator who is handling that case.

In addition, the Police Department regularly performs other services related to the schools. These include:

- crowd control at evening or Saturday sports events, dances, and so forth

- escort to the bank for ticket sales, textbook fees, etc.

- night and weekend patrol of school grounds

- periodic public service/educational appearances at the schools.

Worksheet #1

TASK I: DEFINE PURPOSE

1. What is the question? Restate it as clearly as possible.

2. What can be learned from this cost analysis beyond answering the question? Give one possiblity.

Worksheet #2

TASK 2: DETERMINE SERVICES TO BE COSTED

List at least two services in each category

1. What services should be included in calculating present costs? Be as specific as possible.

2. What services should be included in calculating costs to respond to the School Board plan?

3. What other services will be affected?

Worksheet #3

TASK 3: DETERMINE PRODUCTION UNITS

For each service listed on Worksheet #2, choose a unit for measuring the delivery of that service.

1. Present Services

2. Future Services

3. Other Affected Services

Worksheet #4

TASK 4: DEFINE COST COMPONENTS

Consider only present costs for this worksheet. Consider only one of the two services on Worksheet #2. List five to ten direct and three to six indirect costs for each service.

Service: _____

Direct Costs

Indirect Costs

Worksheet #5

TASK 5: DETERMINE DATA SOURCES

Choose and consider only two direct costs and two indirect cots for those you listed on Worksheet #4. Describe where, or how, you will determine the amount of each component required.

Direct Costs	Data Source

Indirect Costs	Data Source

Worksheet #6

TASK 6: DECIDE ON EXTENT OF ANALYSIS

Go back to Worksheet #4. For each cost listed, code it as follows (record your decisions on Worksheet #4):

P = Essential to include, precision required.

E = Essential to include, estimate acceptable.

N = Not essential for this purpose.

SESSION 5

DAY II

COST ANALYSIS: HOW TO

In preceding sessions, we have looked at the relationship of cost information to police decisionmaking, discussed cost terminology, and examined how to plan for a cost analysis. In this session we will:

- Discuss indirect costs and how to analyze them
- Discuss the specifics of certain costs
- Examine several case studies

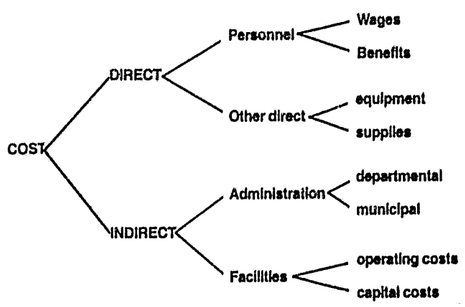
CALCULATING COSTS PER UNIT OF SERVICE

The most difficult steps in a cost analysis are deciding what components are to be included in the cost calculation and how the cost of each component is to be established.

TYPES OF COSTS

Let's look first at types of costs. For most of the cost studies you are likely to do, this framework will be helpful:

TYPES OF COSTS



Direct costs are those that can be assigned specifically to the service being examined; indirect costs are those that cannot be tied to some specific service but are necessary to all services.

CONCEPT: DIRECT COSTS

Direct costs include both personnel costs and "other direct," or non-personnel costs. Personnel costs include wages as well as benefits and other costs associated with personnel such as health insurance, vacation time, pension contributions or payments, uniform allowances, and so forth. Usually, benefits are calculated by adding all of those costs together and then dividing that amount by the total wages paid to get a percentage. For example:

Annual Benefits Payments

Insurance Premiums	$ 118,000
Retirement Contributions	315,000
Salary during vacations	192,000
Disability payments	73,000
Uniform and other allowances	18,000
	$ 878,000
TOTAL PAYROLL	$3,700,000

Benefits as a percentage of payroll = $878,000 ÷ $3,700,000
= 23.7%

TECHNIQUE: AVERAGING

This way of calculating benefits illustrates how "averaging" is used in cost analysis. Not all personnel may be entitled to the same amount of annual vacation, and personnel at different ages may have somewhat different insurance premiums. But, rather than calculate the benefits costs for each individual separately, they can be grouped together and averaged for all personnel so as not to penalize one precinct, let's say, that happens to have older officers.

Not all cost analysis studies use averaging, but instead calculate all the costs applicable to each service individually. We recommend using averaging, however, wherever there is interchangability. Suppose, for instance, we bought 20 hand radios in January at $230.00 each, and 20 identical hand radios in June on sale at $190.00 each. It would be

easier and better to use an average cost of $210.00 than to check to see which of the radios were used in the delivery of any one service.

Similarly, averaging can be used to establish a single rate for all personnel who are used interchangeably, even if they may be at different pay grades. For example, there may be three or four paygrades for uniformed sworn personnel below the rank of sergeant. For cost analysis purposes, the average cost for one of these individuals per shift or per hour will be easier and give a better picture of the cost per unit of service than trying to consider the particular individuals assigned to deliver each unit of service.

You must be careful, however, not to overdo averaging when the components are not interchangeable. An incentive paid to officers who serve on the tactical squad, for instance, should not be averaged, but charged to the services of the tactical squad. Similarly, if heavier and more costly vehicles are purchased for highway duty, services involving those vehicles should be assigned those added costs.

OTHER DIRECT COSTS

Other direct costs include, for example, patrol vehicles and other equipment used to provide a service, and any consumable supplies such as gasoline. It is convenient to calculate, whenever possible, rates for the use of equipment such as the cost per vehicle mile or the cost per vehicle hour.

TECHNIQUE: SAMPLING

Very often, being able to calculate the cost of providing a service will depend upon the availability of data which is not generally maintained in municipal or departmental records. Examples of these data problems might include the number of flares used for a typical accident, the number of minutes of a patrol car's time used when transferring a prisoner, or the amount of time spend in searching records for a robbery investigation.

In most cases, it is far easier to determine these amounts through sampling studies than by requiring all personnel to keep detailed records. Even an educated estimate will do, if th results of the cost analysis do not have to be precise.

When conducting a sampling study, data should be obtained from personnel performing the service. The number of people and the number of service units they report on should be large enough to have confidence in the results. The actual numbers needed can be determined for you by someone familiar with sampling statistics. As a rough guide, however, time reports should be collected from at least 20 persons, and each person should be asked to report on perhaps 10 different instances.

Training should be provided to those who will contribute data. It is important, first, that they understand fully what they are to do and what should be included or excluded in their reports. And, second, it is important that they understand they should not vary their performance because a study is being done. For these reasons, the study should be supervised by someone outside the chain of command. Otherwise, the reports will be "by the book" rather than reflect what actually happens.

The alternatives to sampling are to use or install a full record-keeping system, such as detailed time cards but such systems both are cumbersome and often never include the level of detail that is needed because time use is recorded in hour or half-hour segments. Estimates are perhaps better, but they too can be faulty and misleading.

The next step is to collect data on costs, such as the cost per minute of operating the communications center or the cost per mile for operating a vehicle. This step can be very difficult and time-consuming, because most cost records are not kept in a way that makes this information readily available. Averaging the use of approximations and considering the useful life of what was purchased often will give acceptable results, however. For instance, if the department pays for annual physical examinations for all its personnel, but most of these are completed in January, the cost nevertheless should be spread over the entire year.

CONCEPT: DEPRECIATION

In order to calculate some kinds of direct costs, another cost analysis principle should be used. Depreciation means calculating the cost of a vehicle, for instance, as it is used rather than when it is purchased.

EXAMPLE

Suppose a group of ten patrol vehicles was purchased in 1980 at a cost of $80,000 and that communications and other equipment was then installed in each vehicle at a total cost of $20,000. Based on experience, we estimate that each vehicle will average 4 years of service before it has to be replaced; some will have a longer useful life, and some less, but the average will be 4 years. After 4 years, the average salvage value per vehicle is estimated to be $600, including the installed equipment.

10 vehicles	$80,000
plus equipment	20,000
	$100,000
Less salvage	6,000
	94,000
Divide by 10 to get cost per vehicle	9,400
Divide by 4 to get cost per year	$2,350

To this cost, we have to add the cost of insurance, maintenance, tires, gasoline, and so forth. These costs all are related to how much we use the vehicle, and use can be calculated by hour of service or mile of service depending on what our needs are. Suppose we choose miles and determine that the average patrol vehicle is used 19,000 miles per year.

We also have to get more information:

- the average cost per vehicle per year for maintenance and repairs is $370
- the average cost per mile for gasoline and oil is 15¢
- the cost of liability insurance is $221 per year
- the average cost of four tires is $128 and the vehicles average 32,000 miles per set.

		per mile
vehicle, $2,350 ÷ 19,000 miles	=	12.4¢
maintenance, $370 ÷ 19,000 miles	=	1.9¢
gasoline and oil	=	15.0¢
insurance, $221 ÷ 19,000	=	1.2¢
tires, $128 ÷ 32,000 miles	=	0.4¢
Total cost per mile		26.9¢

The costs of other kinds of supplies also have to be included in the calculation of a unit of service. These generally are small costs, but they add up, such as the cost of flares, tear gas, personal expense reimbursements, traffic ticket blanks, and so forth.

INDIRECT COSTS: A STARTER

Indirect costs are costs that cannot be assigned to any particular service. They include both administrative and facility costs.

It is useful to calculate two kinds of administrative costs--departmental and municipal. Departmental indirect costs are the costs of administering and managing the police department. They include the salaries and benefits of senior staff and support personnel such as clerks, vehicles used by senior staff and their supplies, the cost of hiring and training personnel, and the cost of doing cost analysis studies.

DEPARTMENTAL INDIRECT COSTS

These departmental administrative costs should be divided among police services in a way that reflects what these costs represent. The salary, benefits, vehicle, and space for the Patrol Commander should be prorated to services provided by the patrol division and should not be charged, for example, to most services provided by the investigations division. The cost of the Chief, on the other hand, should be divied among all services.

The usual method for prorating supervisory and administrative costs is to add them as sort of a "tax" on top of direct costs. The way this is done depends on the department, but we prefer to divide supervisory and most administrative costs in proportion to labor hours because this more accurately reflects how these costs are incurred.

EXAMPLE

Suppose an eight-member vice squad is supervised by a sergeant who spends half of his time on supervision and administration and half time on investigations or other services. First, calculate the annual cost of the sergeant, who uses a vehicle during investigations but not as a supervisor:

Annual salary	$30,000
Benefits (30% of Salary)	9,000
Total	$39,000
1/2 total	$19,500

Then, we have to add the cost of a civilian clerk assigned to the squad one-third time, and the cost of administrative supplies. These two components are charged entirely to administration rather than as direct cost of services.

Sergeant	$19,500
1/3 civilian clerk	5,000
Benefits (20% of above)	1,000
Administrative supplies	1,500
Total	$27,000

Then, calculate the labor hours of the personnel assigned to the squad. We assume 2,000 hours per year, and have to include the other half of the sergeant's time because he also plans and administers how that time will be used;

8 squad members, at 2000 hours each	16,000 hours
1 sergeant, at 1,000 hours	1,000 hours
	17,000 hours.

Finally, divide the cost of supervising and administering the squad, $27,000, by the labor hours, or 17,000 hours. The answer is $1.59 per hour. When you calculate the cost of prostitute arrests, you would add $1.59 as an indirect cost for each hour of squad personnel time used in making these arrests.

MUNICIPAL INDIRECT COSTS

The other group of administrative costs are the costs incurred by the municipality to operate the police department. Depending on the way the parent government operates, it may be responsible for payroll process, for annual budgeting, for health examinations, or for other services. For many reasons, municipalities often are very different from one another in what costs appear in the police budget and what do not. In St. Louis, for example, the police department is responsible for most of its personnel costs, but the city itself pays the F.I.C.A. on

salaries. Often, the police department is not charged for water, sewage, or refuse collection because the costs are picked up by those departments. At the same time, vehicles used by city executives may be serviced by the police garage and get gas from the police supply, with the police department footing the bill.

On the other hand, many municipalities keep careful track of these kinds of costs and can supply information on what share of these costs is attributable to the police department. Knowing these costs is important. If you want to compare your costs for a unit of service with those of another police department, you have to be sure that if that department's costs include part of the mayor's salary, yours do also.

PENSIONS: A PROBLEM

One of the most difficult sets of costs to deal with are those for funding pensions. Many municipalities pay pension costs out of current revenues. They do not charge departments to establish a reserve for future pension payments, but may charge for person amounts being paid in the current year. Those current pension payments should not be considered when calculating the cost of services since they represent the cost of services delivered long ago. Instead, pension costs for current personnel should be projected and calculated as an employee benefit even if no real expenditure is involved. As a guess, the amount that should be figured for future pension payments in a preferred plan which police typically have should be somewhere around 20% of salaries, depending on the expected amount of the pension and the designated age of retirement. This is not the full cost of a pension, but is the amount that would have to be set aside if it went into an insurance fund that paid interest.

ALLOCATING INDIRECT COSTS: THREE WAYS

After all indirect costs have been determined, for both administration and facilities, they have to be allocated to direct services. There are several ways to do this, including:

- Calculating the proportion of each component of indirect cost that is used to provide each service. This method is appropriate when the shares of the costs are quite disproportionate. For example, the cost of space used to detain public inebriates should be assigned to that activitiy and not shared by all other services.

- Calculating the percentage of each component of indirect cost that should be added to direct costs on the basis of labor hours. Labor hours is a good way to divide costs of supervision, personnel administration, and so forth since each person needs about the same amount of supervision regardless of their salary.

- Calculating the percentage of each component of indirect cost that should be added to direct costs on the basis of the total direct costs for a service. This method is appropriate for most management functions, for example, where planning and decisionmaking generally are in proportion to all costs and not just labor hours.

PROBLEMS/CAUTIONS

There are some other problems that often occur in calculating the costs of services, and decisions have to be made as to how these problems should be handled. Some of those already described include average rather than actual costs, and calculating "fair value." Here are two others:

- Many cost items such as general supplies can be pooled. They should be calculated as direct costs for "supplies" but it is simpler to allocate them on some basis to services rather than calculate the minor supplies needed for each service separately.

- Care must be taken when calculating the cost of items like gasoline or tires bought in bulk. It may seem a bargain to buy 1200 tires at $38 instead of paying $40 each to buy them 100 at a time. But other costs, such as storage and insurance costs on the tires held in reserve also must be considered. Also, the cost of interest must be considered. The city either may have to borrow money to pay for the tires, or, if it had the cash on hand, give up the interest it would have earned by putting this cash in the bank. When these costs are considered, the bargain may be no bargain at all.

	Annual Purchase (1,200 tires/year)	Monthly Purchase (1,200 tires/year)
cost of tires	$45,600	$48,000
interest costs	2,100	--
storage costs	600	--
insurance costs	900	
	$49,200	$48,000
COST PER TIRE	$ 41	$ 40

CALCULATING UNIT COST: A PROBLEM

A particular problem in police services is that much of an individual's time cannot be readily accounted for. Suppose, for instance, an officer assigned to highway traffic patrol writes an average of twelve traffic citations for 15 minutes each over an eight-hour shift. And, suppose the cost of that officer's time, vehicle, supervision, and so forth was $180 per shift.

If that officer does nothing else during the day, such as respond to accidents, investigate suspicious automobiles, or assist motorists in need of help, how can his or her time be accounted for?

For this problem, there are two ways to calculate unit costs:

Method A: $180 ÷ 12 citations = $15.00 per citation

Method B: $180 ÷ (8 hours x 60 minutes) = 37.5¢/minute
37.5¢ x 15 minutes = $5.62 per citation.
Plus, 5 hours "on patrol" at $22.50 per hour.

We prefer the second method for two reasons:

- First, seasonal, time-of-day and other causes of fluctuations in the number of service units would not distort the cost per citation. If traffic was low in winter and an average of only 6 citations per day were written, it would appear using the top method that the cost per citation doubled. Yet, the officer still would spend only 15 minutes on each one.

- Second, if the number of driving violations should fall that also would show up as an increased cost per citation.

It is also possible to calculate cost per unit of service when the service is crime prevention. For instance, suppose a precinct is experiencing 100 auto thefts per month but, by adding eight more vehicles on patrol between 8:00 p.m. and 4:00 a.m., the rate of auto thefts is reduced to 20 per month. What is the cost for each auto <u>not</u> stolen?

$ 180.00 per patrol vehicle per shift
x 30 days per average month =
$5,400.00

x 8 added patrol vehicles =
$43,200.00 per month added cost
- 80 vehicles <u>not</u> stolen =
$540.00 per vehicle <u>not</u> stolen

This method is suitable only to examine incremental, or "marginal," costs and where some upward or downward movement in results can be measured. It also could be useful for example, to measure the cost of changes in response time due to reducing the number of patrol vehicles or changes in arrest rates due to increasing the number of investigators on the force. However, it cannot be used to establish the costs of crime prevention services when no change has occurred. There is no way of calculating how many auto thefts were prevented by the patrol cars already in assignment in that precinct, so there is no way of determining the cost per vehicle not stolen in the past. Also, the outcomes cannot be assumed to be linear, so it is not possible to plan on investing in another twc partol units to reduce the remaining auto thefts from 20 to zero.

A CAUTIONARY NOTE

Calculating the cost of prevention should be done very carefully because of the importance of outside factors and influences. When roadblocks are used to detect DWI drivers, for instance, the costs per DWI arrest can be determined, but it would be more difficult to conclude that lives were saved by these costs even if traffic fatalities went down at the same time. Most cost analysis studies stick to calculating the costs per unit of service delivered rather than the consequences of those services.

INDIRECT COSTS REVISITED

Examine Exhibit 3-B, "Types of Costs" again. Most of our previous discussions focus on direct costs, because they are the costs most frequently discussed in a local government environment. Budgets are prepared by assembling the direct costs necessary to deliver the service; most accounting systems report on direct costs; most department personnel are held accountable only for their direct costs. Indirect costs tend to be treated as someone else's problem.

Part of the reason for this is that, by their very definition, indirect costs are not "directly" associated with the delivery of a specific service. They are general rather than specific, and it can be very

hard to determine an appropriate way to "apportion" a pool of indirect costs to a variety of very different services.

Various methods have been developed for apportioning or "allocating" indirect costs to benefiting service functions. The one we use here is based on an article "The Cost-Burden Study: A Method for Recovering Costs from Non-Residents" by Robert D. McRae published in the March 1981 issue of Governmental Finance. Exhibit 5-A presents a summary of the technique. Put at its simplest, the approach is "top down" with each successive "layer" of indirect cost (organizational, departmental, divisional, etc.) allocated to the layer below until a service level is reached.

EXHIBIT 5-A

PROCEDURES FOR ALLOCATING INDIRECT COSTS

I Determine "Organizational" Overhead Services

- If a significant fraction of organizational overhead is actually for the benefit of one service function, "transfer" that cost to the benefiting function.

II Allocate the net organizational overhead to service functions based on percentage share of the total budget

III Determine the "Departmental" Overhead

- Make sure any "transfers in" are included

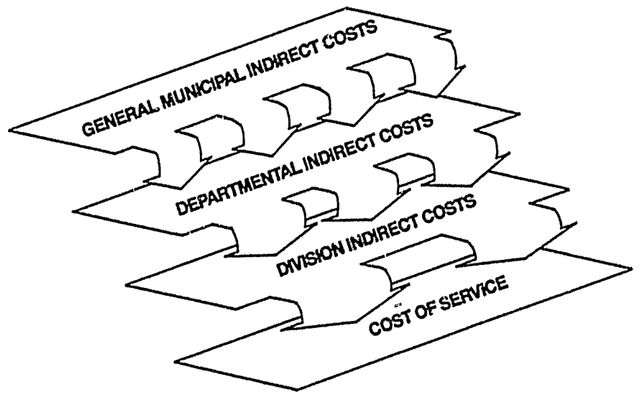
- If a significant fraction of departmental overhead is actually for the benefit of one service function, "transfer" that cost to the benefiting function

IV Allocate the "Total" (the sum of organizational and departmental overhead) Departmental Overhead to the service function based on a percentage share of the (department) budget

V Determine total cost of the service as the sum of direct cost and indirect (overhead) cost.

To avoid dwelling on terminology, it would be useful to see an application of the technique. For the purposes of this discussion, the terms overhead and indirect costs are used interchangeably.

COST FLOW PATTERN



PRICING A SERVICE: A CASE STUDY

A city of a population of about 100,000 has been experiencing increasing financial problems. Voters have shown themselves to be very resistant to tax increases, while spiraling prices for goods as well as commitments for salary increases have made increasing demands on scarce resources.

In order to alleviate the situation, at least to some degree, a study of police services was conducted with the intent of locating services which directly benefit a small and identifiable group of people and, if appropriate, to institute a service charge that recaptured at least part of the total cost of providing the service.

The study indicated that the "Crimes Against Property" section of the Investigations Unit provided insurance companies with reports of certain property crimes on a request basis. The only fee being collected was a nominal charge for xeroxing. It was decided to determine the total cost of providing this service.

The first document examined was the City budget, Exhibit 5-B. At first glance, the use of the term "general government" would suggest that the organizational indirect functions have already been grouped together and totaled ($14,630,872). Examination of the details, however, suggests otherwise. While most of the functions listed are self-explanatory, some are not:

- what is the purpose of the "county tax"?
- should "public celebrations" be included as an indirect cost to the police department?
- is any major part of the "general services" budget devoted to police work?
- what is the function of the "reserve" account?
- what are the details of the "employee benefits" account?

While the budget presented here is relatively "clean" in that clearly titled items reflect accurate estimates of expenditures for the purpose listed, this is not always the case. In some systems, major capital items (for purchase of buildings, etc.) are included in the "manager's" budget for 'control' purposes. Using such a number without removing the capital component would lead to very incorrect results. In general, it is important to discuss a budget with the people who prepared it, for only they know the facts behind the figures.

EXHIBIT 5-B

THE CITY BUDGET

Summary

General government	14 630 872
Public safety	15 253 815
Community maintenance & development	22 650 340
Human resource development	26 548 215
Education	25 609 783
	104 693 025

GENERAL GOVERNMENT

City council	175 545
Mayor	160 090
City Clerk	121 400
Elections	202 280
City Manager	228 675
Law	342 835
Finance	1 253 280
Employee benefits	9 900 872
County tax	1 671 995
Public celebrations	124 830
General services	309 070
Reserve	140 000
	14 630 872

PUBLIC SAFETY

Fire	6 050 665
Police	6 272 935
Building inspection	281 235
Civil defense	37 845
License	41 125
Weights & measures	54 105
Traffic & parking	1 025 610
Electrical	1 402 380
Emcjda	87 915
	15 253 815

COMMUNITY MAINTENANCE AND DEVELOPMENT

Public works	8 452 080
Community development	1 678 330
Mbta	4 180 875
Conservation commission	8 635
Historical commission	48 270
Rent control	276 170
Debt service	5 258 085
Water	2 747 895
	22 650 340

HUMAN RESOURCE DEVELOPMENT

Health & hospital	17 548 045
Colsarp	3 990
Library	1 144 955
Recreation	1 453 735
Yrb	186 985
Community schools	574 060
Veterans benefits	522 125
Civic unity	32 870
Elderly services	148 450
Emhrda	530 000
Coma	4 403 000
	26 548 215

EDUCATION

Public schools	25 609 783
	25 609 783

Discussion with budget officials about the questions raised above yielded the following information:

- the "county tax" was a direct pass-through to the county whose principal functions were maintenance of certain roads and Courts of Justice

- "public celebrations" were included here, because "we've always done it that way"

- the "general services" budget was primarily dedicated to the municipal print shop which did some printing for the police department as well as most other city functions

- the "reserve account" consisted of funds that were used for unanticipated needs that developed after the budget had been passed. It was not intended that any of this money be transferred to police

- the $9.9 million of "employee benefits" is roughly divided into 2/3 pension costs and 1/3 health/life insurance.

(Thus, for this city, benefits are an <u>indirect</u> cost. Note the difference from the design laid out on page 5-2.) In addition; as budget officials pointed out, pension costs are for retired employees only (the system is "unfunded") so the sum shown is unrelated to the actual pension liability that the city will accrue in the year in question.

ADJUSTMENTS

County tax ($1,671,995), public celebrations ($124,830), and the reserve account ($140,000) are not appropriate for inclusion in organizational overhead since in the first two cases the public is a general beneficiary of the service in question (once could imagine each of them--perhaps retitled--as departments in another part of the budget) and in the third case, specific departments (but not police) will ultimately expend the funds.

General services is an appropriate inclusion in organizational overhead because the government in general benefits from printing services.

ADDITIONAL PROBLEMS

Dealing with the pension and insurance costs is much more of a problem. In an unfunded system, current pension payments are designed to be adequate to pay previously retired employees only. Thus, there is no association of the pension payment made this year and the additional pension liability that will be accrued this year. In such a circumstance, one of two choices presents itself:

- take the number as it is, knowing that it is probably low; or
- use a published study which provides estimates of what the proper contribution should be.

At the time of this costing effort, no study was available, so the pension number was accepted "as is" and the presumed inaccuracy was noted in the narrative that accompanied the costing report.

A NOTE ON ESTIMATES AND COST ANALYSES

It is rare that a cost analysis that deals with a service of any complexity will be able to determine each and every number that is used in a precise and definitive way. Rather the opposite is true: most of the important numbers will be estimated, at least to some degree. Does this mean that the conclusion of the analysis is "wrong," that the analysis will be rejected?

Not at all! Everyone understands that information is not always available in a convenient form and that estimates must be made. There is no problem with making estimates! What is essential is that estimates be labeled as such and that a reasonable ground for making the estimates is provided. The use of scholarly reports, state-wide averages, the experience of similarly situated local governments, the opinions of knowledgeable public officials, all can be the basis for reasonable estimates, provided that:

- the source chosen is the best that is reasonably available
- the use of an estimate is disclosed (and justified) in whatever report summarizes the results of the analysis.
- reasonableness, necessity, and disclosure are the watch words of estimation.

It goes almost without saying that one must always choose the best, reasonably available source. If there happens to be more than one source for the same information (a rare enough occurrence) use both! The results should be very much the same, and that fact, by itself, will lend credibility to your report.

Whenever an estimate is used be sure to indicate whether it is assumed to be on the "high" side or on the "low" side. In general, one needs to be conservative with estimation (e.g., estimates that are below actual likely costs are superior for fee-setting purposes), but one should never be afraid to be precise if the figures support it.

A final comment on estimation and accuracy: in general, forget the pennies, the dollars, even the tens of dollars. If a number is actually an estimate, it should never pretend to an accuracy that it doesn't possess.

CALCULATE AND ALLOCATE ORGANIZATIONAL INDIRECT COSTS

Based on what we have said, organizational overhead works out to be $12,694,047 ($14,630,872 less $1,671,995, $124,830, and $140,000). What is the most appropriate method for allocating this sum to the various city functions?

CALCULATION OF GENERAL INDIRECT COST

TOTAL GENERAL GOVERNMENT	14,630,872
COUNTY TAX	1,671,995
PUBLIC CELEBRATIONS	124,830
RESERVE	140,000
GENERAL INDIRECT COST	12,694,047

The general answer to the allocation problem is that "benefit" should determine the amount of overhead that is allocated to a particular function: the greater the benefit, the greater the amount of overhead that should be allocated.

While the philosophy is clear, application can be difficult: it is not easy to quantify benefit. There are two basic approaches that are widely used. The first is to examine the 'pieces' of overhead and allocate each by a measure of the particular benefit it confers. Payroll expenses, for example, are frequently allocated based on number of employees, since the number of checks issued is often regarded as a reasonable measure of the benefit a payroll system provides. Similarly, janitorial services are often allocated on the square footage of office space.

The second technique for the allocation of overhead is the quick-and-dirty method of allocation based on the proportion of a department's budget to the total budget. Since the police budget in our example is $6,272,935 and the total budget is $104,693,025 (see Exhibit 5-B), the portion of general organizational overhead allocated to the police department is 5.99% ($6,512,935/$104,693,025 X 100) or $760,370 (5.99% X $12,694,047).

"PERCENTAGE OF BUDGET" ALLOCATION

$$\frac{\text{TOTAL POLICE}}{\text{TOTAL CITY}} = \frac{\$\ 6,272,935}{\$104,693,025} = 5.99\%\ \text{(ALLOCATION RATE)}$$

5.99% × $12,694,047 = $760,370 (OVERHEAD AMOUNT)

The allocation of overhead based on budget size has the advantage of simplicity. However to maintain reasonable accuracy, it must be assured that:

- overhead activities that principally benefit one or a few departments must be 'hand allocated' to those departments and removed from general overhead, and

- the budget numbers for each department must not contain large and atypical expenditures. The latter situation might occur, if a community did not have a separate capital budget and occasionally included capital items in departmental operating budgets.

In situations where a community maintains a sophisticated multi-fund accounting structure with expenditures being recorded in a number of funds, the above allocation technique can be used, provided that the effect of interfund transfers is removed.

ESTIMATING DEPARTMENTAL INDIRECT COSTS

Exhibit 5-C presents relevant portions of the police budget. An examination of the summary section suggests that overhead expenditures have been grouped in the "Leadership" cost center. However, it is important to remember that in municipal budgets, things rarely are as they appear to be. An investigation of the expenditures that constitutes the Leadership function shows three activities that are of general benefit to the police department and one (Detail) that is of specific benefit to those police who accept private duty details. Thus, overall police departmental overhead is $232,945 ($255,950 less $23,005).

Or is it? In general, no cost analysis is complete until the entire budget has been examined. Exhibit 5-D presents some additional information on the "Services" budget. Clearly, quite a bit of the "Services" budget is of general benefit to police services and should be included in departmental overhead. Assuming that 1) "Communications" and "Vehicle Operation" should be assigned to some combination of Uniform Division and Crime Prevention and that 2) "Prosecution," "Property Management," "Records," "Identification," and "Animal Control" are basically unrelated to the preparation of property damage reports, we are left with $913,795 (Training/Personnel and Supporting Services) which should be included in departmental overhead. Discussion with police officials indicated that very little of the Administration overhead ($71,985) was devoted to Training/Personnel and Supporting Services, so no fraction of the expenditures for this cost center is included here.

DEPARTMENTAL INDIRECT COST

LEADERSHIP		
(255,950 LESS 23,005)	**=**	**232,945**
SERVICES		
(79,895 PLUS 833,900)	**=**	**913,795**
		1,146,740

EXHIBIT 5-C

THE POLICE BUDGET

POLICE
-Summary

LEADERSHIP	$255,950
UNIFORM DIVISION	3,566,000
CRIME PREVENTION	297,475
CRIMINAL INVESTIGATION	452,085
SERVICES	1,701,425
	$6,272,935

POLICE
-Leadership Details

CHIEF'S OFFICE	$52,580
PLANNING AND INSPECTION	86,755
INSPECTIONAL SERVICES	93,610
DETAIL	23,005
	$255,950

POLICE
-Investigation Details

ADMINISTRATION	$55,495
CRIMES AGAINST PERSONS	61,740
CRIMES AGAINST PROPERTY	154,045
GENERAL ASSIGNMENT	180,805
	$452,085

EXHIBIT 5-D

THE POLICE "SERVICES" BUDGET

POLICE
–Services

ADMINISTRATION	71 985
TRAINING AND PERSONNEL	79 895
COMMUNICATIONS	249 245
PROSECUTION	49 955
PROPERTY MANAGEMENT	80 215
RECORDS	55 160
IDENTIFICATION	34 880
ANIMAL CONTROL	25 150
VEHICLE OPERATION	221 040
SUPPORTING SERVICES	833 900
	1 701 425

ADMINISTRATION. This section coordinates the support and staff services provided by the various sections of this division to all the other divisions of the department. Included in the responsibilities of this section are the preparation of the payroll and the purchasing of the necessary materials, equipment, supplies and services for the operation of the department.

TRAINING AND PERSONNEL. Upgrading the skills of sworn police personnel through in-service training is the major responsibility of this section. When necessary, the police academy also conducts police recruit training programs.

COMMUNICATIONS. Police communications utilize a number of different systems including telephone teletype, emergency call boxes and radio. These various forms of communication enable the department to obtain information from other law enforcement agencies, maintain contact with the community and deploy its personnel throughout the city in response to emergencies and calls for service. See summmary page for information on new radio system proposal.

PROSECUTION. Once charged with a crime, the police must bring the person before the district court for arraingment or hearing. Officers assigned to this section act as the department's representative to the court assisting the arresting officers in the preparation of their cases and assisting the district attorney in prosecuting the lesser offenses.

PROPERTY MANAGEMENT. In addition to procuring and maintaining property for its own operations, the department is also responsible for the temporary safekeeping of property which it acquires as either evidence or as lost and found property. This section tags and stores this property until such time as it can be returned to the owner.

RECORDS. In addition to the officers' written reports concerning incidents of crime, the department is also involved in processing several other types of records such as firearm permits, bicycle registrations, arrest records, and other administrative matters. It is the responsibility of this section to oversee the storage and retrieval of these records.

IDENTIFICATION. An important aspect of investigating a crime is the identification and analysis of physical evidence. This section is responsible for taking photographs, lifting fingerprints, and taking footwear or tire impressions as well as sending evidence to state and federal laboratories for further analysis.

VEHICLE OPERATION MAINTENANCE. Departmental costs for the operation and maintenance of police vehicles –– gasoline, oil, repairs and tires are taken care of in this cost center.

SUPPORTING SERVICES. This cost center supports miscellaneous personnel costs –– incentive pay, overtime, court time and uniform allowances.

TOTAL DEPARTMENTAL INDIRECT COSTS

The total overhead (organizational and departmental) that needs to be allocated is the sum of $760,370 (organizational overhead), $232,945 (from "Leadership") and $913,795 (from "Services") or $1,907,110.

DEPARTMENTAL PLUS CITY INDIRECT COST

DEPARTMENTAL INDIRECT COST ... 1,146,740
CITY INDIRECT COST 760,370
1,907,110

ALLOCATION METHOD

$$\frac{\text{INVESTIGATIONS}}{\text{TOTAL POLICE}} = \frac{\$\ 452{,}085}{\$6{,}272{,}935} = 7.21\%$$

7.21% × $1,907,110 = $137,500

The allocation procedure is again based on the percentage of the "Investigations" budget to the total police budget, 7.21% ($452,085 / $6,272,935). Applying this percent to our estimate of total overhead, we get $137,500 (7.21% x $1,907,110), which is the portion of overhead to be borne by "Investigation".

"DIVISIONAL" INDIRECT COSTS

The budget for "Investigations" (Exhibit 5-C) shows that this division has its own overhead, "Administration" ($55,495). Discussions with police officials revealed that an estimated 20 percent of "General Assignment" was support for the other cost center within "Investigations" $36,160 (20% x $180,805). Divisional overhead, then, totals to $229,155 ($137,500 plus $55,495 plus $36,160), and allocation to "Crimes Against Property" gives $78,070 (34.07% x $229,155), where 34.07% is the fraction of "Investigation" devoted to "Crimes Against Property" ($154,045 / $452,085).

DIVISIONAL INDIRECT COSTS

ADMINISTRATION	$ 55,495
GENERAL ASSIGNMENT (20% OF 180,805)	$ 36,160
OVERHEAD FROM ABOVE	$137,500
	$229,155

ALLOCATION METHOD

$$\frac{\text{CRIMES AGAINST PROPERTY}}{\text{INVESTIGATION}} = \frac{\$154,045}{\$452,085} = 34.07\%$$

34.07% × $229,155 = $78,070

The $78,070 of layered overhead that is applicable to "Crimes Against Property" means that the total cost for this activity is $232,115 ($78,070 plus $154,045). It is interesting to note that this estimate is 50% higher than the "direct" figure carried in the budget.

FULLY LOADED COST

DIRECT	$154,045
INDIRECT	$ 78,070
TOTAL	$232,115

TOTAL COST PRICING

Having determined that the total cost (direct and indirect) of the "Crimes Against Property" cost center is $232,325, the next question is: "What portion of this effort is devoted to providing the insurance reports?" Since this information was not contained in the budget, it was provided by police officials who indicated that 20 percent of the effort was devoted to supplying insurance reports, which were estimated to amount to 400 to 500 a year.

Under these assumptions, the "unit cost" of one report is $103.00 ($232,115 x .2 / 450), if an estimated 450 reports is used. The most "correct" charge clearly depends on the actual number of reports produced, a number that is difficult to know in advance. Under the assumption that 400 to 500 reports will be produced each year, the

applicable service charge would range from a low of $93.00 (500 reports) to $1[illegible].00 (400 reports). The most appropriate amount to charge, if cost is to determine price, would lie between these extremes.

TOTAL COST PRICING

$$\frac{\text{TOTAL COST}}{\text{TOTAL OUTPUT}} = \frac{\$232,115 \times 20\%}{450} = \$103 \text{ PER REPORT}$$

Our case study is now complete. We have calculated both the direct and indirect costs--the sum of which are, of course, total costs.

REFINEMENTS AND SECOND THOUGHTS

It is perhaps worth noting that the allocation formula used in the above case study will never recover 100% of overhead, since it possesses a "built in" under-recovery feature. To see this, let's assume that 10% of a municipality's expenditures are governmental overhead (a not unreasonable estimate). If every service function absorbed its proportional share of the overhead, only 9% of the overhead would be allocated to the service departments (90% of the 10%), since a service department is allocated only its share of the total budget.

If it were desired to allocate all of the overhead, then each service function should be allocated a share that is proportional to its share not of the total budget but of the total budget less overhead costs. Such a refinement would somewhat increase each departmental overhead allocation and allow for a theoretical full recovery. However, such a refinement is at the expense of increased complexity, which may be inappropriate if a cost analysis were being conducted for the first time.

Are all the allocations made above equally accurate? Probably not, but if one were reviewing the above, which aspects of the report would merit closer examination? A close reading of Exhibit 5-D, The Police Services Budget, reveals that "Supporting Services"--all $833,900 of it--is personnel cost, i.e. payroll. Two facts should stand out.

- this is a large sum of money to be allocated

- the information for payroll is usually the best kept data in a government.

The first point relates to importance and the second to the ability to develop a more refined allocation based on actual experience:

- Who actually gets incentive pay?

- Where is most of overtime actually worked?

- What functions require most (all?) of court time pay?

- Would uniform allowances be better allocated by number of sworn officers in a division?

How complete is the above analysis? Is the thoroughness shown appropriate to the need? An examination of the exhibit on page 5-2, Types of Costs, shows that facilities have operating costs and capital costs. Where are these discussed in the analysis?

The answer is that they are not formally discussed at all. Perhaps they are buried in all that overhead; perhaps not. Whatever the case the analysis is either incomplete or looks incomplete, which is just as bad. If maintenance costs and rent (or depreciation) are included in some level of overhead, that fact should be mentioned. If they are not included, they should be. It would appear that this report is fairly good for a first go, but it needs more work.

Costing a service is one thing; pricing it is something else, since more factors than cost must be considered. One factor that should never be ignored in a pricing situation is the effect of price on demand. What impact will a fee of $100 per report have on the demand for such reports? If demand were to change significantly, what should be the impact on the fee charged? What are the implications of the answers to these questions on the use of the estimated fee in a revenue estimation that was used to set a tax rate?

Strictly speaking, these questions can only be answered in the future, however, it should be clear that a serious attempt to deal with them now might avoid considerable embarrassment later.

COSTING NEW SERVICES: THE USES OF MARGINAL COST

If the most effective cost concept for examining prices of existing municipal services is total cost, a cost concept that is useful in examining new or expanded services is marginal cost.

Marginal cost concentrates attention on those additional expenditures required to deliver a new service or expand an existing one. In particular, if overhead costs are fixed, the marginal cost is the total additional cost for delivering a new service.

A MARGINAL COST ANALYSIS

What follows is an actual report by Paul Mamerow, a Management Analyst for the City of Dayton, Ohio, that discusses cost and feasibility data for the possible implementation of a mounted horse patrol in downtown Dayton. The report possesses a number of aspects that mark it as an unusually fine piece of work. Craftsmanship speaks from every line.

While reading this report, note the following:

- the report is self-explanatory: it can be read and understood immediately; no background knowledge is assumed

- sources are cited: the report is more than an analyst's opinions

- the report is well laid out: a background/explanation followed by objectives followed by a discussion of implementation. Details are presented but are subordinated in an appendix

- important limitations are appropriately noted (see the second paragraph of "Implementation")

- options are offered: when a new service is first considered, the "quantity" of the service is problematical; offering degrees of service can help decisionmakers (the administration, the council, the public) reach a consensus on how much service is appropriate to resolve the problem at hand

- the writing style is lucid: the reader never wonders what the writer is saying.

The weaknesses of the report are few:

- names are used without titles: who is Mr. Curran?

- "success" is not quantified: e.g., if either alternative is implemented, will visibility be increased "enough"?

- why aren't the salary and benefit costs of new personnel included? They would appear to be as inevitable as stable cleaning.

MOUNTED HORSE PATROL: COST AND FEASIBILITY ANALYSIS

City of Dayton, Ohio

Courtesy of
Timothy Riordan, Budget Director

Recently, the City Manager requested OMB to provide cost and feasibility data for a mounted horse patrol in the downtown area. The following report supplies relevant cost data and briefly outlines two alternatives for implementation.

In preparing this report, OMB contacted both the International City Manager's Association and the International Chiefs of Police Association for assistance. OMB further made contact with the Cleveland; Philadelphia; Lakewood, Colorado, and Washington Park Police Departments (all of which have mounted police) and with several local stabling concerns.

Part I of this report suggests possible objectives for a mounted patrol in Dayton. Part II briefly outlines two alternatives for implementation of the mounted patrol program. Part III presents cost information for each implementation alternative. Cost detail is supplied in the Exhibit entitled "Cost Detail".

OBJECTIVES

The following represent those objectives which apply to a mounted patrol program in Dayton. These objectives were arrived at through review of several mounted patrol programs operating in cities as large as, or larger than, Dayton and through consultation with Mr. Curran as to his expectations.

The objectives are stated as follows:

- To increase police visibility in the downtown area, and/or in City Parks and the river corridor when necessary;

- To enhance the innovative image of downtown Dayton;

- To provide effective traffic control to congested downtown areas, or to areas of special assignment (e.g., sporting events);

- To provide effective crowd management for parades and other social functions downtown, and in areas of special assignment.

It should be noted that the Parking Control Aide Program was implemented to partially accomplish the first objective of increasing police visibility. Furthermore, the Parking Control Aides also provide enforcement of parking restrictions in the downtown area, thus contributing partially to the accomplishment of the third objective.

It should also be noted that, because the major function of the mounted patrol is to increase on-the-street police visibility, the mounted patrol, like the present walking patrol, will not answer radio dispatches, especially to in-building locations.

IMPLEMENTATION

Implementation of either of the two mounted patrol alternatives outlined below will involve certain programmatic costs pertaining to the

purchase, outfitting, and maintenance of horses, the training of horses and riders, the purchase of uniforms, and street cleaning. Total costs for each alternative are outlined in Part III of this report.

Not included in program cost is the cost of hiring new police personnel, since both alternatives assume the utilization of personnel already working the downtown area. Mounted patrolmen would remain under the supervision of present sergeants.

ALTERNATIVE A: DAYTIME-WEEKDAY PATROL

This alternative would provide two mounted patrolmen during the day, Monday through Friday. Such a program would require two police officers and the purchase of three horses. The mounted officer would patrol primarily an area bounded by Monument Avenue and Fifth Street to the North and South, and Jefferson and Ludlow Streets to the East and West.

This alternative would accomplish during the daytime the objectives of increasing police visibility downtown, enhancing Dayton's innovative image, and providing traffic control and crowd management when needed.

The total cost of this program alternative is $20,650. This program alternative does not require expanded street cleaning operations, since the patrol will be operative on weekdays only and this coincides with existing clean-up schedules.

ALTERNATIVE B: SIX-DAY, DAY AND NIGHT PATROL

This alternative would provide four mounted patrolmen Monday through Saturday, two working during the day and two working in the evening. Such a program would require five police officers and at least six horses.

Mounted officers would patrol primarily the downtown district as outlined above. However, those mounted patrolmen scheduled for evening patrol could be assigned to provide support for Dayton Hydroglobe (Eastwood Lake) Parks, or to areas congested by heavy traffic or crowds when necessary, or to ceremonial functions.

This program alternative would accomplish, during the daytime and night and on Saturdays, the objectives of increasing police visibility downtown, of enhancing Dayton's innovative image, and of providing traffic control and crowd management to the downtown area, as well as to areas of special assignment. This alternative represents a total program cost of $38,225.

COST

The following represents annual costs for the two implementation alternatives outlined in Section II.

Purchase & Fitting of Horse	Alternative A	Alternative B
Purchase of horses	$ 1,200	$ 2,400
Riding gear	560	1,400
Maintenance		
Feed	2,190	4,380
Bedding	36	72
Farrier (blacksmith) fees	600	1,200
Veterinarian fees	125	250
Stable rental	900	1,800
Stable cleaning & grooming	4,000-10,465	4,000-10,465
Training		
Training of horses	600	1,200
Training of riders	1,850	1,850
Miscellaneous		
Trailer	950	950
Uniforms	1,140	2,850
Street cleaning costs	-	9,405
TOTAL PROGRAM COST	$14,151-$20,616	$31,757-$38,222

EXHIBIT

COST DETAIL

1. Horses - Cost is computed at $400 per horse. This estimate is derived from quotes advanced by local stable owners and several police departments currently employing mounted patrol.

2. Riding gear -

	for five riders:	for two riders:
saddle with fittings	$ 885	$354
bridles with bits	265	106
pads	80	32
brushes and curries	35	14
breast collars	135	54
	$1,400	$560

3. Feed - Cost is computed at approximately $2 per horse per day. This estimate is a rough composite figure derived by several estimates advanced by local stabling concerns and several police departments employing mounted patrol. Estimate given here is somewhat higher than those received by OMB, in order to account for rising grain costs.

4. Bedding - Daily cleaning of stalls for six horses requires approximately two loads of sawdust per month at approximately $3 per load.

5. Farrier (blacksmith) fees - Horses working pavement require new shoes approximately once every six weeks. One set of four borium shoes is priced at approximately $25.

6. Veterinarian fees

	for six horses:	for three horses:
Tetanus toxoid (1)	$ 36	$ 18
Flu and strangles (1)	60	30
Worming (2)	84	42
Floating of teeth (1)	42	21
Min. diagnostic fees	28	14
	$250	$125

7. Stable Rental - Commissioner Curran has indicated that the Montgomery County Fairground has committed their stables to the City for use in this program. Cost is computed at $25 per stall per month.

8. Stable Cleaning & Grooming - The fairground does not provide feeding, bedding or grooming services. The upper estimate is arrived at by computing cost of hiring a stable hand (Grade 112) to do the work. The lower figure is the estimated cost of letting the work out on a contractual basis to fairground personnel.

9. Training of horses - Cost is estimated at $40 per month for a five-month period. (Estimate supplied by Mrs. Tressler of Montgomery County Fairground).

10. Training of riders - Cost for group-rate training is computed as follows: (Estimate supplied by Mrs. Tressler of Montgomery County Fairground)

10 hours classroom training at $5/hr.	$ 50.00
120 hours riding training at $15/hr.	1,800.00
	$1,850.00

11. Trailer - Used, two horse trailers - $950

12. Uniform - Cost per patrolman supplied by the Lakewood Department of Public Safety, Lakewood, Colorado.

Summer Uniform Cost for One Mounted Patrolman

Boots @ $50	X 2 =	$100
Spurs @ $15	X 1 =	15
Pads @ $65	X 3 =	195
Gun, Belt, Holster, etc. @ $60	X 1 =	60
Lightweight Jacket @ $45	X 1	45
TOTAL		$415

13. Street Cleaning Operation - Present street cleaning operations span a five-night, Sunday-to-Thursday night work week. To accommodate a horse patrol active six days a week, street cleaning operations should be shifted to encompass a Monday-to-Friday night work week, and an additional four-hour Saturday night work shift should be added. Cost figures below represent additional time-and-a-half wage cost, including fringes, for a forty-eight hour work week.

Equipment Operator (2)	$2,005
Laborer (Grade 112)	1,733
Equipment Operator (3) (Sweeper)	2,733
1/2 Equipment Operator (3) Flusher-six months/yr.	1,086
Supervisor (Grade 24)	2,408
TOTAL	$9,405

THINKING ABOUT SAVING MONEY: AVOIDABLE COST

The effective analysis of alternatives to whatever is the current mode of delivery for a particular service requires the calculation of the changes in cost that will result from new ways of doing old things. The cost concept that applies to this situation is avoidable cost.

It is important to emphasize that avoidable cost as a cost analysis concept is the net result of proposed changes. If a change is made that increases one cost element (e.g. equipment) while decreasing another (e.g. personnel time), the avoided cost is only the net of the savings in wages over the expense of using the equipment (presuming that such a savings exists).

The determination of the actual avoidable cost in a given situation is perhaps the most difficult to apply of all the cost concepts we have discussed. This is so because the range of considerations that need to be included in the cost analysis is much greater than in, say, calculating total cost. Every opportunity to save money should be examined; every chance to be required to spend money must be factored into the scope of the study. The latter aspect can be particularly difficult, since municipal governments are complicated organisms whose "parts" are frequently interrelated in little understood ways. Thus, the risk of costly, unintended side effects is always present whenever changes are made.

Some principles that can be advanced to help one avoid such undesirable surprises are:

- establish a principle of thoroughness in all analyses; an incomplete analysis is wrong!

- always use conservative estimate (low on savings, high on costs)

- have any important analysis reviewed by an informed but uninvolved party.

If these guidelines are followed, most cost analyses should possess the desired level of accuracy.

REDUCING OVERTIME: A COST ANALYSIS

What follows is an actual cost analysis conducted by the City of Phoenix, Arizona, on the results of a six-month pilot test of a police court standby program. The goal was to reduce unnecessary court appearances for police officers and the attendant overtime costs.

The report is generally well written. Its layout is similar to the preceding example: summary, background, financial analysis, productivity analysis, and recommendations. Note the perceptiveness of the "Why Standby Works" section. This program only makes sense as long as the courts fail to hold trials.

The layout, appropriate subordination of detail, clarity, and directness of writing style make this report one that is clearly above average.

ANALYSIS OF POLICE COURT STANDBY PROGRAM

Courtesy of
City of Phoenix
Patrick Manion
Management and Budget Director

The six-month pilot test of the police court standby program has concluded, and a decision is needed on the extent to which the standby program should be implemented in the Court's 14 divisions.

This report presents an analysis of the police court standby program based on six months of experience. Police standby was tested in six divisions of the Phoenix Municipal Court on jury trial days from January 1980 to July 1980. The table below summarizes the results of the test program and also projects its full-year impact for all 14 divisions.

During the six-month period, 1,326 trials were scheduled for the six Court divisions, and 2,087 police officers were subpoenaed. The number of trials held was 221, or 16% of those scheduled. Of those officers subpoenaed, 1,473, or 71%, were off duty at the time of trial. Off duty officers on standby received a $15 fee, which is supplemented by an average minimum of $41 in overtime if the officer is summoned to court.

The court standby program produced cost savings of $26,000 for the test period. Of this total, $18,000 is attributable to jury trials and $8,000 to nonjury trials. The net annual cost savings projected if all 14 divisions used the standby program is $109,000.

	Savings During Test Period	Annual Savings for All 14 Divisions
Jury Trials	$17,867	$83,328
Nonjury Trials	8,213	38,304
	26,080	121,632
Less Cost of Court Clerk		(13,000)
Net Cost Savings		108,632

BACKGROUND

The police court standby program was implemented to reduce unnecessary court appearances for police officers and the overtime costs thereby incurred. Standby procedures involve verification of police availability and placement on standby status (on call) prior to the trial date, and subsequent notification of release from standby or the need to appear in court on the trial date after proceeding to trial is assured.

Off-duty police officers earn a minimum of three hours of overtime pay for court appearances. Off-duty officers placed on standby are eligible for a $15 standby fee, effective July 7, 1980. On-duty police officers called to court receive no additional earnings and are not replaced in the field.

Data for the above table were derived from Police Court Services records. These records include a list of the cases scheduled for each day, the offense, and the officers involved in the case. From notations on these records, it was possible to determine whether the case was tried and the status of the officers involved. The data in the table reflect the information derived from these records for the period January 2, 1980, through July 3, 1980.

DISCUSSION

Basis for the Analysis

For the purposes of this analysis, the $15 current standby fee was used to calculate cost savings rather than the $5 fee in effect during the pilot test. The rationale for this substitution is that the current standby fee is necessary for assessment of the present and future cost effectiveness of this program. Overtime costs were computed at $41 per court appearance, a median police salary figure.

The data in the table reflect those cases scheduled for trial in the six test divisions. These cases include all jury-eligible cases and nonjury cases which, because of the practice and the nature of the case, are scheduled for jury days. The distinction between jury and nonjury was made through references provided by the Prosecutor's Office. The jury category includes all jury-eligible cases. Some of these may have involved the waiver of a jury trial for a trial before a judge. Such cases could not be distinguished in the source document.

The cost savings achieved through the standby program indicated in column five were computed by comparing actual standby costs and overtime costs, where applicable, to the overtime costs which would be incurred in the absence of a standby program.

Projected Full-Year Cost Savings

Projection of the cost savings to all 14 divisions of the court for a 12-month period indicates a potential net cost savings of $109,000. The current $15 standby fee was used in the computation of potential cost savings. Projection of cost savings is based on the assumption that all officers entitled to the standby fee would claim it (in many instances during the pilot program police officers who were eligible for standby fees did not claim them). Extension of the Police Standby Program will require an additional Clerk II, to replace the JSP clerk trainee used during the six-month study, at a full-year cost of $13,000. If extension of the standby program is made only to jury cases, as proposed, the net full-year cost savings for all 14 divisions would be about $70,000.

Why Standby Works

Of the 1,326 trials scheduled, 221 or 16% were held. The difference between trials scheduled and trials held are those cases which are rescheduled or dismissed, those for which warrants are issued, bonds forfeited, etc. The relationship between trials scheduled and trials held is fundamental to the achievement of cost savings through the standby program. Under the standby program, an off-duty officer on standby assigned to a case which does not go to trial receives $15, resulting in a $26 savings over the standard overtime amount of $41;

however, if the same case goes to trial the cost is $56 ($15 + $41) or $15 above the standard overtime amount. In order for the standby program to be cost-effective, the number of off-duty officers not called to court must exceed the number called.

Productivity Impact

Police

On-duty police officers subpoenaed for court appearances incur no additional costs in earnings or replacements. However, police productivity in the field is reduced through the absence of these officers. On-duty police officers on standby, whose appearance in court is not required, avoid this productivity reduction. The percentage of on-duty officers which reflect this productivity impact are shown in the table below. Productivity gains would equate to approximately $42,000 annually.

ON-DUTY OFFICERS SUBPOENAED

	Subpoenaed	Appeared	Did Not
TOTAL	614 (100%)	133 (22%)	481 (78%)
Jury	314 (51%)	40 (30%)	274 (57%)
Nonjury	300 (49%)	93 (70%)	207 (43%)

Courts

Court estimates indicate some reduction in Court productivity because of delays in proceedings while awaiting the arrival of police officers on standby. These delays involve court staff time including judges, prosecutors, bailiffs, jurors, and witnesses. The delay attributable to the standby program and the cost in reduced court productivity have not been documented.

Procedural Aspects

Under the Standby Program police officers, who have been subpoenaed through interoffice mail, call court services prior to the trial date to verify case status. If the case is still slated for court, the officer is placed on standby and provides a telephone number where he/she can be reached should the case proceed to trial. On the trial day, the division prosecutor telephones court services, as information develops, to release the officer or call the officer to court. Officers called to court are to report within 40 minutes.

In practice, officers are often unable to report within the allotted time because of the commuting time required or other tactical problems. Additionally, officers indicate that they are sometimes not promptly notified of release from standby. And prosecutors, at times, are unable, because of the press of court business, to notify Court Services of case dispositions as they occur.

The Standby Program requires the full support and the active cooperation of all participants in order to function properly. Periodic communication between police, prosecutors, and the Court would assist in the identification of problems and the development of solutions in a timely fashion. In addition, the following suggestions may strengthen procedures:

1. Prompt commencement of court proceedings and early decisions on case action could increase overall program efficiency.

2. Those officers who do not live within a 40-minute radius of court should be granted more time or not be placed on standby.

3. Additional phone lines may be needed in Court Services to efficiently respond to the peak volume of calls. Court Services may also need to implement additional steps to ensure that all officers receive prompt notification of case disposition.

RECOMMENDATIONS

Staff recommends that the Chief Presiding Judge, under the authority of Chapter II, Article III, Section 2-83, City Code, implement the Court proposal to extend the Police Court Standby Program to all divisions of the Court for jury trials and reduce standby program coverage for nonjury trials to three court divisions. This will continue the program in nonjury cases at an adequate level to determine if the procedural recommendations will alleviate the delays now encountered in some trials. Staff further recommends that the procedural suggestions outlined above be implemented by the Court and the Police Department respectively. Police Court Services should continue to collect the data elements necessary for analysis of standby program results. Such an analysis should be conducted after six months' experience with the extended program to assure that cost savings warrant continuation.

Schedule I

Police Court Standby Program
Test Period Statistics
January - June, 1980

	Jury	Nonjury	Total
Police Subpoenaed			
On Duty	314	300	614
Off Duty	878	595	1,473
Total	1,192	895	2,087
On-Duty Police Called to Court	40	93	133
% of Total Subpoenaed	12.7%	31.0%	21.7%
Off-Duty Police Called to Court	121	177	298
% of Total Subpoenaed	13.8%	29.7%	20.2%
Total Police Called to Court	161	270	431
% of Total Subpoenaed	13.5%	30.2%	20.7%

Schedule II

Police Court Standby Program
Cost Savings Calculations

Jury Trials

Cost if All Off-Duty Police Called to Court	878 x $41 =	$35,998
Cost for Off-Duty Police Not Called to Court	757 x $15 =	$11,355
Cost for Off-Duty Police Called to Court	121 x $56 =	6,776
		$18,131
Difference		$17,867

Nonjury Trials

Cost if All Off-Duty Police Called to Court	595 x $41 =	$24,395
Cost for Off-Duty Police Not Called to Court	418 x $15 =	6,270
Cost for Off-Duty Police Called to Court	177 x $56 =	9,912
		$16,182
Difference		$ 8,213

Projected Full-Year Savings for 14 Divisions:

Jury Trials

Test Period Savings for Jury Trials: $17,867
$17,876 ÷ 6 divisions ÷ 6 months = $496/division/month

$496/division/month x 14 divisions x 12 months = $83,328

Nonjury Trials

Test Period Savings for Nonjury Trials: $8,213
$8,213 ÷ 6 division ÷ months = $228/division/month

$228/division/month x 14 divisions x 12 months = $38,304

Annual savings for Jury trials =	$83,328
Annual savings for Nonjury trials =	38,304
	$121,632
Less Additional Costs for a Clerk II in Police Court Services detail	(13,000)
Net Annual Savings	$108,632

SESSION 6

DAY II

COST ANALYSIS: PROBLEM RESOLUTION

In the preceding session, we worked through several case studies of cost analysis. In this session, you will work through your own cost analysis in several stages. After each stage, you will have an opportunity to evaluate your progress and relate it to what you have learned already.

At the conclusion of the last (eighth) part of this exercise, all of the individual groups will gather for a plenary session to discuss what you have done.

PROBLEM STATEMENT

The Village of Rocky Ledge, population 25,000, has been required by state law to handle the assignment of all private duty employment (police detail) of its police officers. The officers will act as employees of the Village while they are on private duty. The Village will assign officers to private firms who request them and will bill the firms for the time the police spend on the private duty. The police officers will be paid by the Village.

ASSIGNMENT #1

You are the analyst who has been assigned the task of calculating the hourly rate that the Village will charge for private duty police services. On the worksheet for this assignment, write down what you regard as the key questions that will have to be answered at some point during the cost analysis.

ASSIGNMENT #1 WORKSHEET

WHAT ARE THE QUESTIONS?

1.

2.

3.

4.

5.

6.

7.

8.

ASSIGNMENT #2

You have considered the problem for a while and have phrased a number of questions that will have to be answered in the course of your analysis. On the worksheet for this assignment, indicate the key data elements that are required (e.g., pay scales) and appropriate sources for this information.

ASSIGNMENT #2 WORKSHEET

DATA SOURCES

Data Elements	Sources

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ASSIGNMENT #3

You are now the Police Chief or Finance Director, and your analyst has submitted a "Police Private Duty Costs Report" to you (Exhibit 6-A). Study this report and, using the worksheet for this assignment, critique the report, noting its strengths and weaknesses.

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ASSIGNMENT #3 WORKSHEET

Strengths

Weaknesses	Corrective Actions

EXHIBIT 6-A

POLICE PRIVATE DUTY COSTS

	Employees	Budgeted Salaries
Criminal Investigation	(3)	$ 64693
Uniformed Patrol	(20)	395148
Special Duty	(1)	21564
Total Salary		481405
Total Individuals		+ 24
Average Salary		20058

Productive Hours

Work Year 40 hrs X 52 Weeks	2080
Less: Holidays 13 @ 8 hrs	(104)
Personal 3 @ 8 hrs	(24)
Vacation 3½ weeks average	(140)
Sick Leave 9 @ 8 hrs	(72)
Other leaves (w/c, death, merit, union business etc.	(16)
Total Productive Hours Per Individual	1724
Average Wages Per Position	20058
Cost Per Manhour	$11.63

Total Fringe Benefits

Pension @21.7% X $481405	104484
Clothing Allow 24 X $400 + patches	10500
Longevity	7170
College Credits	6650
Insurance	
CMS 90	13000
Hospital Drug Rider	38000
Dental Plan	7500
Major Medical Insurance	5000
Major Medical Life Insurance	6000
Dental Rider D	200
Workmen Compensation @ 8.00/100	38500
General Liability @8.00/100	38500
Uniform Cleaning	5200
Training	15000
Law Enforcement Liability Insurance	10000
Total Fringe Benefits	305704
Total Manhours available (24 X 1740)	+41760
Cost Per Manhour	7.32

Pricing Structure

Cost Per Productive Manhour	
Time & one half Rate Paid to Employee	11.63
Fringe Benefits Per Productive Manhours	17.45
Total Cost Per Productive Manhour	7.32
	24.77

Other Considerations In Pricing

1. Cost to administer private duty includes: scheduling, billing, collection, recording, other record keeping.
2. Use of Town cruiser implies mileage cost as well as rental cost.

Price Recommendation:

Regular Hours	$27.50
All Double Time Hours	$35.00

ASSIGNMENT #4

You are the analyst again and have just recovered from the drubbing your superior gave your report. You have been asked to improve your report by including the following additional cost factors:

- the cost of an entry-level accounting clerk to handle scheduling, billing, collection, recording, and other recordkeeping, and

- an estimate of the additional cost associated with increased use of police cruisers. operation, maintenance, and depreciation.

Drawing upon your team's knowledge of conditions in your own community, provide an estimate of the appropriate costs associated with each of the above. Use Assignment #4 Worksheet.

ASSIGNMENT #4 WORKSHEET

ADDITIONAL COSTS

Cost Estimate	Cost Category

ASSIGNMENT #5

Breath a sigh of relief; your latest work has been viewed with approval. However, the powers that be have decided that they would like to see what the total cost is. Use the budget information provided in Exhibit 6-B, interpret it according to the reality of your own jurisdiction, and:

- calculate total organizational overhead
- allocate a portion of it to the police function.

Use Assignment #5 Worksheet.

ASSIGNMENT #5 WORKSHEET

OVERHEAD CALCULATION

Name of Overhead Function	Amount
TOTAL	

Calculation of police share of organizational overhead.

EXHIBIT 6-B

THE VILLAGE OF ROCKY LEDGE

1982-83 ANNUAL BUDGET

GENERAL FUND
EXPENDITURE BY ACTIVITY

GENERAL GOVERNMENT	1980-81 Actual	1981-82 Budgeted	1981-82 Estimated	1982-83 Approved
101 Legislative	11741	11357	11750	13095
105 Executive	64353	65235	71000	64340
Total Legislative & Executive	76094	76592	82750	77435
Judicial				
106 Probate Court	3632	3850	4195	3875
Elections				
111 Supervision & Registration	26218	20640	26645	22465
Finance				
117 Accounting and Audit	70742	73910	77865	83885
118 Assessments	42253	38045	40645	41725
119 Review of Assessments	625	550	430	550
120 Collections	20920	19600	20705	23045
121 Treasury	4587	4600	5000	5000
122 Purchasing	290	300	350	560
Total Finance	139417	137005	144995	154765
123 Law	51620	48094	55855	40500
Recording & Reporting				
131 Town Clerk	27028	27995	31090	32150
132 Recording Deeds & Mortgages	4531	5810	5150	7975
133 General Public Reports	3548	1350	1410	1625
Total Recording & Reporting	35107	35155	37650	41750
Administrative Offices & Boards				
141 Permanent Building Committee	8402	5250	6740	3750
142 Open Space & Conservation	1298	1305	1305	1420
144 Economic Development Commission	2139	2385	1925	7355
145 Central Services	51907	53170	50275	54530
149 Community Devel. & Public Info.	21525	18130	19660	19670
150 Human Relations & Handicap Advisory Committee	80	200	100	150
151 Personnel Administration	15373	23720	25750	16745
153 Human Services	33036	36617	44105	49590
156 Fair Rent Commission	655	1545	1920	1300
Total Admin. Offices & Boards	134415	142295	151780	154510

CONTINUED

3 OF 4

EXHIBIT 6-B (Cont'd)

GENERAL FUND EXPENDITURES (cont'd)

	1980-81 Actual	1981-82 Budgeted	1981-82 Estimated	1982-83 Approved
Planning & Zoning				
161 Planning & Zoning	24711	25540	25480	46005
162 Zoning Board of Appeals	229	950	1175	1175
Total Planning & Zoning	24940	26490	26655	47180
General Government Buildings				
171 Town Hall and Police	76753	87685	87440	110250
173 Other Town Buildings	8804	8955	7180	8595
Total General Govt. Bldgs.	85557	96640	94620	118845
PUBLIC SAFETY				
Police Protection				
201 Supervision	104700	120040	129015	119440
202 Communications & Records	81727	89752	80300	109185
203 Criminal Investigation	53725	48675	52135	58300
204 Uniformed Patrol	468138	517720	511710	598825
207 Special Detail Services	115252	132750	138900	142485
Total Police Protection	823542	908937	912060	1028235
Fire Protection				
231 Fire Supervision	2056	3750	5050	9660
232 Fire Training	5369	5175	5675	6550
233 Fire Alarm & Communications	19346	12310	21670	21625
234 Fire Prevention	12061	14455	14605	11875
235 Hydrant & Water Service	9956	20770	11282	23880
236 Fire Fighting	22523	26000	24100	34350
237 Fire Apparatus Service	33110	49370	53740	73350
238 Fire Stations	28948	56145	45958	75540
Total Fire Protection	133369	187975	182080	256830
239 Building Inspection	43108	43620	47570	48005
241 Civil Preparedness	616	1055	1025	905
242 Ambulance Association	3578	26305	26869	35860
HIGHWAYS AND ENGINEERING				
301 Supervision	117629	124785	128105	140675
302 Town Garage	117224	142951	130015	130270
303 Roadways	40993	86774	90451	98270
304 Street Lighting	106209	115920	122800	144750
305 Sidewalks & Curbs	106	1500	1000	1500
316 Engineering	44995	49305	52270	64290
Total Highways & Engineering	427156	521235	524641	579755

EXHIBIT 6-B (Cont'd)

GENERAL FUND EXPENDITURES (cont'd)

	1980-81 Actual	1981-82 Budgeted	1981-82 Estimated	1982-83 Approved
SANITATION AND WASTE REMOVAL				
321 Sewer System	176205	69156	69156	176445
322 Waste Collection	113294	128985	132485	135600
323 Waste Disposal	146839	203100	140000	189000
Total Sanitation & Waste Removal	436338	401241	341641	501045
400 HEALTH	18802	19325	20825	22025
500 EDUCATION	5202455	5618826	5618826	6146560
550 LIBRARY	185972	220546	214595	257323
PARKS AND RECREATION				
Parks				
610 Park Building	5906	10471	7120	7705
611 Park Areas	93319	116284	110650	136360
612 Street Trees & Shrubs	5713	6000	6500	7600
Total Parks	104938	132755	124270	151665
Recreation				
621 Public Celebrations	2783	2750	1150	1950
622 Organized Recreation	68078	71384	68547	81170
623 Swimming Pool	21137	24569	24340	23000
624 Swimming Pool, High School			11195	50295
Total Recreation	91998	98703	105232	156415
MISCELLANEOUS				
704 Employee Benefits	301061	516140	420600	690520
705 Insurance	246720	281030	278025	273400
708 Capital Reserve	10000	10000	10000	25000
709 Contingency Fund	42627	40754		85000
710 Other Miscellaneous	15789	22455	21910	(2389)
Total Miscellaneous	616197	870379	730535	1071531

EXHIBIT 6-B Cont'd)

GENERAL FUND EXPENDITURES (cont'd)

	1980-81 Actual	1981-82 Budgeted	1981-82 Estimated	1982-83 Approved
DEBT SERVICE				
800 Principal Payments	885000	1025000	1025000	1125000
850 Interest Payments	547771	956860	956860	1125595
Total Debt Service	1432771	1981860	1981860	2250595
900 CAPITAL IMPROVEMENTS	74768	71500	71500	60000
TOTAL EXPENDITURES (Other than Board of Education)	4970153	6072197	5909848	7081514
TOTAL BOARD OF EDUCATION	5202455	5618826	5618826	6146560
GRAND TOTAL	10172608	11691023	11528674	13228074

ASSIGNMENT #6

Based on Exhibit 6-B, 1) make an arbitrary judgment about police overhead; 2) determine total overhead to be allocated to police service functions; and 3) allocate an appropriate portion of total police overhead to the police detail function. Use your knowledge of your jurisdiction's conditions, if you deem it appropriate. Use the Assignment #6 Worksheet.

ASSIGNMENT #6 WORKSHEET

TOTAL POLICE DETAIL OVERHEAD

1. An arbitrary decision on police overhead

2. Total overhead to be allocated

3. The police detail portion of total police and general overhead

ASSIGNMENT #7

You can start to relax because you are nearly done. Now determine an hourly rate that will recapture all cost. You may want to quickly review each of the steps you have completed to this point. You may assume that 5,000 hours of police detail time is a reasonable estimate. And, yes, use Assignment #7 Worksheet.

ASSIGNMENT #7 WORKSHEET

TOTAL COST

ASSIGNMENT #8

Compare your new hourly cost with the previous hourly cost. Make a recommendation as to an appropriate hourly charge. What impact on demand might this charge have? Discuss your individual responses to your proposed hourly fee. Relax, there is no Assignment #8 Worksheet.

SESSION 7

DAY II

COST ANALYSIS: A MANAGEMENT PERSPECTIVE

During this session we will look at how to install a cost analysis system, what is done with cost analysis results, and some of the possible impacts of these results on the organization itself. The session includes lectures, discussions, and an individual activity.

The following topics will be considered in the first part of this session:

- what do the components of a cost analysis system include?
- what is needed to install a cost analysis system?
- is a computer necessary for cost analysis systems?
- what information is needed to plan a response to cost analysis findings?

In the second part of the session, we will look at organizational issues in managing the changes that result from cost analyses, including:

- how cost information can impact police operations, policies, and structures

- how change efforts can be designed to overcome objections and implemention problems.

AD HOC VERSUS SYSTEMIC COSTING

Up to this point we have dealt with several examples of cost analysis. It might seem that successful cost analysis involves the analyst selecting a service to be costed, planning and doing the cost analysis, and moving on to the next service. Such an approach would likely prevail in the short run and produce pertinent cost information while it lasted, but would fade over time as the staff changes or as the novelty of cost analysis evaporates. Although knowledge of the technical costing terms, concepts, and classifications is essential for reliable cost analysis, this knowledge alone is insufficient to guarantee that cost information will become an integral part of management decision-making.

To ensure that cost analysis is successfully incorporated into the everyday functioning of the police department, it is necessary to focus on the design and implementation of an ongoing cost analysis system. The system should be an integrated and interdependent array of mechanisms and procedures that would routinize the collection, processing, and reporting of cost information. It ensures that cost analysis becomes as natural to managers as the other management responsibilities with which they have long been familiar, i.e., planning, budgeting, staffing, etc.

COMPONENTS OF A COST ANALYSIS SYSTEM

The observation that data become information when they are put in a form that can be used in decisionmaking summarizes the basic objective of a cost analysis system. Its immediate aim is to provide reliable cost information in a readily available and understandable form to the persons involved in the management of the organization. Ultimately, the system is intended to promote the use of cost information in the widest possible range of strategic and tactical decisions.

A cost analysis system can be operated manually or with the aid of a computer. Smaller jurisdictions may be able to perform acceptable cost analyses by hand or with programmable calculators, while larger jurisdictions with more extensive information needs and resources will usually install or use a computerized system. Similarly, if a single division wants to do a cost study on one of its responsibilities, it may be done easily by hand, while a larger study of several divisions might be best done with computer aid. To be sure, a computer reduces the probability of computational error and increases the speed of calculation, but requires a substantial investment of human and financial resources.

Whether computerized or manual, the effectiveness of the cost analysis system will depend, in large measure, on the extent to which its components are compatible with the components of the organization's overall information system. The incremental costs of adding a cost analysis capability are less when the cost system can be appended to an existing information system than when the system has to stand on its own. Integrating the cost and general information system also reinforces the notion that cost information is just part of the basic knowledge that all managers need in order to operate.

INFORMATION SYSTEM

An information system consists of those elements of the organization concerned with the acquisition, processing, transmission, and presentation of information useful to management, including cost information. An information system has several sub-systems or components, each of which serves a unique propose:

- routine administration and operation
- management reporting
- information retrieval.

ADMINISTRATIVE AND OPERATIONAL SYSTEMS

This component supports the organization's routine functions, e.g., maintenance of personnel records, scheduling of inventories, etc. In the financial area, this component handles the payroll, accounts receivable and payable, and internal audit. The greater proportion of the data and information processed by an administrative and operational system serves the routine functions for which it is primarily responsible, e.g., issuing payroll checks, paying bills from vendors, monitoring personnel turnover, etc. However, some of this information may also be useful to the cost analyst. For example, payroll data may be essential in establishing the personnel costs of a specific police service.

MANAGEMENT REPORTING SYSTEM

The purpose of the management reporting system is to provide managers at all levels in the organization with reports that are useful to them in their day-to-day decisionmaking. Examples of reports include these:

- it can produce reports required for control of the use of resources;
- reports relating to the efficiency of operations;
- reports relating to effectiveness in achieving goals and objectives as a function of resources expended.

These reports should include information found from experience to be required regularly and periodically in the management process, e.g., actual versus planned costs by organization unit or service or the total costs of a particular accounting period.

INFORMATION RETRIEVAL SYSTEM

The information retrieval system has a function similar to that of the management reporting system in that it provides information to all levels of management as required by them in their daily work activities. However, while the reports provided by the management reporting system are structured and periodic, the information retrieval system gives managers the capability of obtaining information from the system on demand, in a form that is not structured in advance. For example, if the state police director has a specific question that is not answered by the general cost report he receives from the management reporting system, he can use the information retrieval system to obtain more detailed or different cost information on a "one-time" basis.

SYSTEM INSTALLATION: PRECONDITIONS

The installation of a new or substantially revised cost analysis system is a major organizational change. It cannot be accomplished by administrative fiat, nor will it succeed on its technical merits alone. Careful attention must be paid to the preconditions for a successful change effort before attempting system installation. These preconditions are:

- top management support
- support from outside agencies
- the availability of qualified staff
- assignment of organizational responsibility for the cost analysis system.

TOP MANAGEMENT SUPPORT

In the national mail survey used as the basis for development of the Program Mode, top management support was identified as the most important precondition to successful cost analysis. Jurisdictions such as New York City, Cincinnati, San Diego, and Alexandria, Virginia pointed to the backing of the city manager or mayor as well as the police chief as vital to the installation of a cost analysis system. This support included not only verbal encouragement and concrete resources for cost analysis but also a mandate that staff produce cost information that could be used in justifying the department's budget or operations. Under pressure to economize, top managers seemed to want cost information to show how economical their departments already were.

One reason why management support is so critical is that it tends to mitigate the natural concern and resistance that operating managers may have when faced with a change of systems. Even if operating managers and line officers feel that an existing cost analysis system is inadequate, it is nevertheless a system they have worked with and

are comfortable with. At a minimum, the new system changes the way decisions are made and establishes new patterns of communication and discussion between managers at various levels. Although the information provided by the new system is presumably better, it is unfamiliar and may take some getting used to. Those expected to work with the new system are uncertain of its effects and are unlikely for this reason to support it in advance of its installation. A top management that has the confidence of its employees can do much to alleviate unnecessary fears while at the same time making it clear that the new system is needed and is "here to stay."

When installing a new system, therefore, top managers must:

- allocate a significant amount of time and effort to the cost analysis system
- understand the general concepts and operations of the new system well enough to discern the benefits and limitations
- explain to their principal subordinates how it affects and hopefully assists their work
- monitor closely the system's installation and initial implementation
- remove impediments as they occur.

Most important of all, top managers must be willing to go on record in support of the system with an official statement of management policy that can be endorsed by senior management and distributed to everyone who might be concerned about or affected by the new system. The statement should contain a summary of top management's reasoning behind and support of the new cost analysis system while leaving considerable discretion as to how the system should be implemented. An example of such a statement is contained in Exhibit 7-A.

Exhibit 7-A

STATEMENT OF MANAGEMENT POLICY
ON COST ANALYSIS SYSTEM

CITY OF CLINTON

Police Department

MEMORANDUM TO: All Management Staff

FROM: Mark Simpson, Chief of Police

SUBJECT: Installation of Cost Analysis System

The Clinton Police Department is embarking on a system of cost measurement and control that will require the cooperation of all management staff. This system has been authorized by an Executive Order from the Mayor and is consistent with the city's new Financial Management Plan.

This cost analysis system is a practical and reasoned response to the city's fiscal constraints which will help make the most efficient possible use of available resources and thereby preserve existing personnel and service levels. The system will enable headquarters staff and field commanders to monitor the costs of their units and activities, identify potential cost overruns, and take immediate action to reduce expenses or reallocate resources. Its essential components are:

- measurement of the full costs of police services, including personnel salaries, the costs of equipment and supplies, and the overhead expense incurred by the department and other city agencies in supporting the service;
- payroll reporting forms that require sworn and civilian staff to allocate their work hours by specific service;
- cost information reported to managers on a service basis as well as by organizational unit;
- capacity to produce not only standarized reports at regular intervals but also, using the city's computerized financial data base, special reports at the request of individual managers; and
- accountability for results at each level of management assessed partly in terms of degree of attainment of agreed-upon cost objectives.

Captain Jim Scott, Director of Planning and Research, will be coordinating this department's involvement in the cost analysis system. He will be contacting each of you in the next few days to arrange your participation in system design and installation. I expect you to give him your enthusiastic support and cooperation.

SUPPORT FROM OUTSIDE AGENCIES

Any cost analysis system for police needs the support of outside agencies to make it work. Most criminal justice agencies collect and maintain their own information on program operations, e.g., arrests made, citations issued, or vehicle miles driven. These data are usually very current (especially if computerized) and consistent with the decisionmaking needs of agency management. However, many criminal justice agencies share the responsibility for cost finding and analysis with other agencies in the jurisdiction. A financial management or budget office coordinates the annual or bi-annual preparation of the jurisdiction's budget and calculates historical or projected costs in allocating scarce resources among competing programs, including the police. Once the budget is approved, the jurisdiction's auditor or comptroller tracks and records expenditures to insure that public funds are being spent in accordance with authorized budgetary ceiling and objects of expenditure. This official also reports that spending limits are not exceeded.

AVAILABILITY OF QUALIFIED STAFF

A third prerequisite for success is the availability of an adequate staff of people to design and install the system. Technically, they must be proficient in police management, cost accounting, and data processing. Interpersonally, they must be able to communicate with operating managers and understand their concerns, since the cost analysis system has to meet the managers' information needs and since their sustained cooperation will be essential to the survival of the system.

There is no fixed number of such staff that must be retained. Whoever coordinates cost analysis for the police department should be as close as possible to full time on this assignment, but the need for additional staff will depend on many factors, including:

- support of cost analysis system by other units and departments, expressed in terms of active technical assistance or the commitment of staff time
- availability of basic financial data and whether the accounting records are kept manually or by computer

- extensiveness and complexity of the desired cost analyses, and whether this demand will persist over time

- capacity to identify and recruit potential cost analysts, which may be affected by civil service regulations and the local market.

In many cases, the police department will have to look outside, in order to hire qualified staff for its costing system, since its current employees will not have been trained or educated in cost analysis. Some departments have decided on civilian hires with accounting backgrounds. Others, with increasing frequency, have turned to outside consultants.

ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY

People work together most effectively if they know the parts they are to play in the effort and how their roles relate to one another. This is as true in police cost analysis as it is in football or baseball. It is difficult to attract qualified staff to a poorly defined position in an ambiguous structure.

Responsibility for coordinating the cost analysis effort should be centered in one office with full authority to manage the design, installation, and eventual operation of the cost analysis system. However, the successful exercise of that authority will depend on the establishment of cooperative relations with other agencies and groups, e.g.:

- The office must be continuously attentive to the cost information needs of top and operating managers in deciding on the system's scope and reporting capacity.

- A task force should be established to help plan the system whose membership will be drawn from various agencies. The office in charge of the cost analysis system will have to consider the task force's findings and recommendations.

- Even if responsibility for managing police costing is vested in a single office, it has been mentioned previously that the actual work of cost analysis will be spread throughout several agencies, including the police department, finance or budget department, and the auditing or comptroller's office, who will need to be consulted at every step of system design and installation.

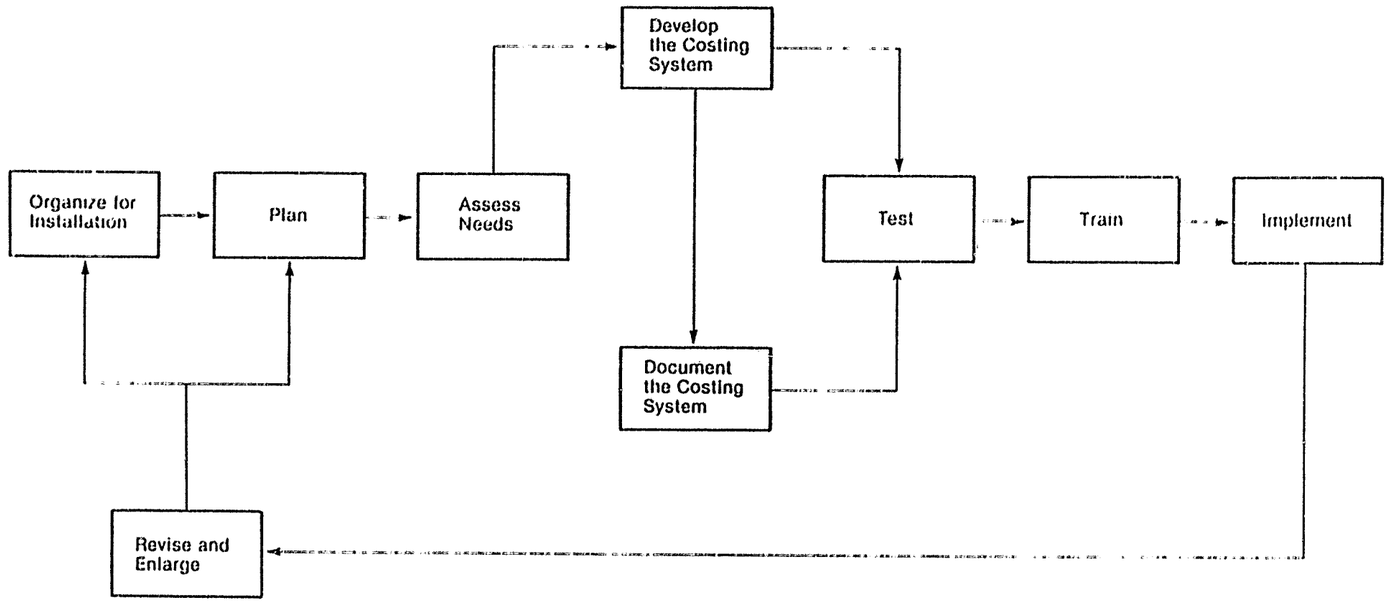
In the end, such cooperative relations will ensure that everyone knows who is to do what and who is responsible for what results. They will also remove obstacles to performance caused by confusion and uncertainty of assignment. And, they will foster a cost analysis network reflecting and supporting the objectives not only of the cost analysis system but also of the jurisdiction as a whole.

STEPS IN SYSTEM DESIGN AND IMPLEMENTATION

If the preconditions to successful costing system are met, then it is probably safe to proceed with systems design and implementation. As illustrated in Exhibit 7-B, these steps can be summarized as follows:

Exhibit 7-B

STEPS IN SYSTEMS DESIGN AND IMPLEMENTATION



ORGANIZE FOR INSTALLATION

A task force should be created to design and implement the system composed of top management, operating managers, cost and data processing specialists, and representatives from outside agencies that will be affected by the new system. The financial management systems used by the Arkansas State Police and the San Diego Police Department profited from such broad involvement in system installation. As a policymaking body, the task force should serve to:

- determine the objectives to be achieved and the general approach to be taken in the installation of the cost analysis system

- decide on priorities of design and implementation according to the resources available for the project

- evaluate the effectiveness of the cost system as it comes into operation.

Management participation in the task force stresses the organization's commitment to the new system and involves them in designing a system they will eventually have to implement. Given the heavy demands on the time of senior management, the day-to-day work of installation and the technical aspects of system installation should be handled by smaller working groups staffed by internal specialists and possibly outside consultants.

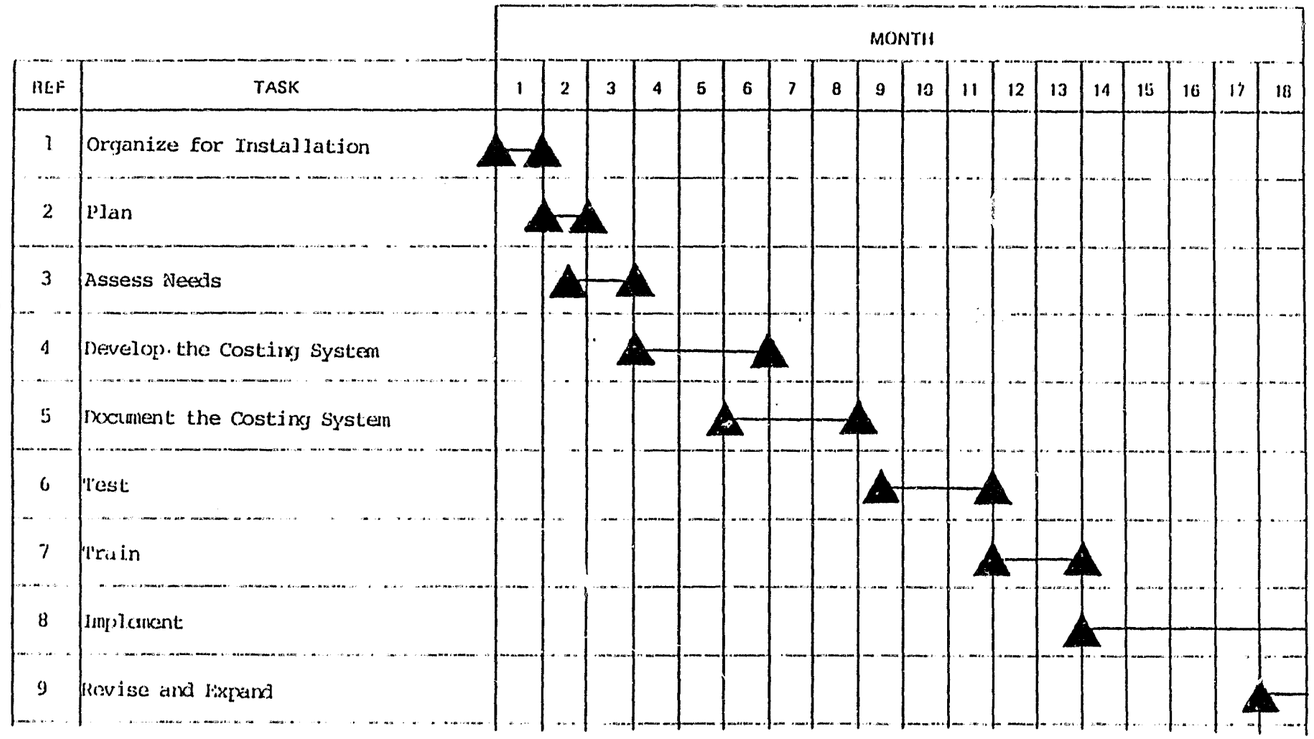
PLAN

In a large criminal justice agency, two or three years will elapse between the time a decision is made to proceed with cost systems development and a date that the system is implemented. Smaller organizations may require up to eighteen months. This long lead time is necessitated not only by the technical and management demands of the system itself but also by the need to coordinate the cost system with the accounting and budgeting cycles of the larger jurisdiction. The planning process for this period involves the development of an overall plan for systems design and installation, including as careful a statement of responsibilities as is feasible and a timetable (preferably in

the form of a GANTT chart or a similar scheduling device). A sample GANTT chart that suggests a hypothetical timetable for installing a cost analysis in Clinton is depicted in Exhibit 7-C.

EXHIBIT 7-C

GANTT CHART FOR SYSTEMS DESIGN AND INSTALLATION
CLINTON POLICE DEPARTMENT



ASSESS NEEDS

The objective of a needs assessment is to determine if:

- the present costing system is effective in terms of providing managers with the type and level of information about service costs that they need for decisionmaking

- the data are being compiled and reported in an economical and efficient manner.

In assessing needs, the analyst should start with the existing financial management system because, whether or not it includes service cost information, the existing system is likely to contain payroll and other types of cost information that can be used in costing police services. It is important to appraise the existing system's data input and processing specifications, reporting methods, and overall utility to managers. The U.S. General Accounting Office provides more specific guidelines applicable to such an appraisal which are contained in Exhibit 7-D.

There are two pitfalls to avoid in assessing organizational and individual needs for a new costing system. The first is the automatic assumption that the existing system will have to be swept away. Even if the existing system has serious flaws, it is far less expensive to build the new system on the old than to start from scracch. As San Diego discovered in upgrading its cost analysis capabilities, utilizing the old system as much as possible also lessens the anxieties of operating managers as they change over to a new costing system.

The second pitfall is an overreliance on the opinions of operating managers in the needs assessment, no matter how straightforward and honest these comments may be. Because they are often familiar with only one system, operating managers may be unaware of the existence of certain information which would be very useful to them. Thus, careful analysis of information needs must be undertaken. Rather than depending on managers' perceptions of their information needs, the task force should involve managers more indirectly in systems design by asking them to cooperate in:

EXHIBIT 7-D

ILLUSTRATIVE PROCEDURES FOR APPRAISING AN EXISTING COST ANALYSIS SYSTEM

1. Review any written policies and procedures concerning the reporting system. Determine if these policies clearly specify each individual's reporting responsibility.

2. Obtain cost data pertaining to the present Management Information System (MIS). Examine and analyze the costs, looking for irregularities or inconsistencies, including costs which appear to be either too high or too low.

3. Test the validity of data being produced by the system.

4. Determine if reports are being produced on a timely basis.

5. Flowchart the distribution of specific MIS output (reports) to determine that the proper levels of management are receiving data and that the reports are being distributed only to those levels with need for the specific data.

   a. Review in detail the use of reports by persons now receiving the data. This can be done through interviews with report users.

   b. Based on step "a," determine if the persons receiving the reports are using the data to manage the program. Answer the following:

      1) Are the reports in usable format?

      2) Do the users receive too little or too much detail?

      3) Do the users have other methods of gathering the same data?

      4) Are users aware of what data are available from the MIS? (Any problems noted in this step may indicate that some data are unnecessary. Any reduction in MIS output should result in cost saving.)

6. Determine if management has a procedure to assess the MIS periodically in terms of changing informational needs. If a procedure does exist, is it complete in terms of users' input?

Adapted from: U.S. General Accounting Office, Guidelines for Economy and Efficiency Audits of Federally Assisted Programs (1978), pp. 30-31.

- defining their general and specific activities

- identifying the informational inputs to those activities, including cost information

- appraising the capacity of the current system to deliver cost information in a timely and understandable manner

- formulating design strategies that would allow the new system to remedy the perceived defects of the old system.

DEVELOP THE COSTING SYSTEM

Time and effort must be devoted to the establishment of cost centers and production units for the services to be costed. In addition, system designers must determine the data collection and analysis procedures for direct and indirect costs, and develop the administrative and operational systems, the management reporting system, and the information retrieval system to supply managers with needed cost information. It may also be important to expand the organization's expenditure accounts ("chart of accounts") to reflect the costing system's emphasis on service costs in addition to current spending by organizational units. Finally, a study must be conducted of required computer support. Several iterations of the system and many meetings will be needed before the new cost system meets the needs and expectations of participating individuals and agencies, although systems development will be simplified if the costing system for police services is being added to a pre-existing cost analysis system for the larger jurisdiction.

DOCUMENT THE COSTING SYSTEM

At the same time that the new costing system is being developed, the system must also be documented. Written guidelines may be produced which detail, plainly and concisely, the purposes and procedures of the cost analysis system. Otherwise, use of the system will be too dependent on the collective memories of its developers, and potential users will be discouraged from accessing the system. Such documentation is especially critical if the cost system is computerized, since access will not only be more complicated under these circumstances but

also more threatening to the manager without previous data processing experience. Well written and organized systems documentation can be a significant aid to removing some of the mystery, and some of the fear, surrounding the new system. In this regard, the State of Arkansas has developed not only extensive documentation for its accounting system but also separate orientation materials for agency directors and lower level staff which recognize their varying levels of involvement in the system.

TEST

No matter how carefully designed and implemented, a new costing system will contain "bugs," or flaws that impede the system from operating at peak efficiency and effectiveness. Rather than permitting these bugs to surface in an organization-wide implementation, which might threaten the credibility and hence the long-term survival of the costing system, the task force should first test the system's structure and procedures in one part of the organization. This entry strategy will limit the negative effects of system flaws and, if the test succeeds, will provide a concrete example that will encourage others in the organization to embrace the new system.

TRAIN

Almost everyone who will use the new costing system will need training in its scope and content. In addition to lectures and exercises on the technical aspects of the system, the training should cover the reasons why managers should want to use the system, i.e., what the new costing system and its informational outputs will do *for* managers instead of *to* managers. Participants must be convinced that the personal and organization costs of implementing a new system are outweighed by the benefits, at least in the long term if not in the short term. It is especially important that system designers avoid overselling the system. A cost analysis system definitely aids management in a variety of areas (e.g., planning, budgeting, controlling, etc.), but it does not lessen the need for aggressive and effective management. Even with the best costing system, managers must still analyze and interpret the data, consider much qualitative information not in the system (e.g., political realities, budget restraints, availability of new technology), and make their own decisions. If training leaves the erroneous impression that the new cost analysis system will replace management discretion over financial matters, those attending will either resent the new system or realize the impossibility of such an all-purpose costing system and therefore regard its inventors as impractical theorists.

IMPLEMENT

In most organizations, systems implementation will begin in a single unit or bureau. At first, the new costing system will co-exist with the old system. Simultaneous operation will avoid any "down time," when neither system is fully operational, as well as demonstrate the advantages of the new over the old. A possible sequence of stages is:

- Budget by programs and responsibility centers, using only direct costs, with few services and rough production units. Do not alter the accounting system

- Develop improved output measures for the programs and responsibility centers that can be used to calculate unit costs

- Collect accounting information according to the new structure

- Continue development of better output measures

- Add sophistication by adding more services to be costed, calculating indirect costs, considering depreciation of fixed assets, and other costing parameters

- Gradually enlarge the number of reports and the range of scheduling and formatting options in both the management reporting and information retrieval systems. Special reports continually demanded from the information retrieval system should be switched to the regular reporting stream of the management reporting system. Also, reports available on the latter system that are seldom used should revert to an "available on demand" basis to cut costs and to report only that cost information which is most needed for management decision-making.

REVISE AND EXPAND

As a result of initial implementation, unanticipated problems and opportunities will emerge, prompting changes in the way in which the costing system is organized or operates. Feedback from both managers and systems specialists must be considered by the task force in evaluating the system's effectiveness. Recognized deficiencies may result in reorganization of the task force or working groups, refinements in the system or its documentation, improvements in the reporting stream, and other changes. As deficiences are removed and the organization becomes more convinced of the comparative advantages of the new cost system, it can be gradually enlarged to include more organizational units to the point where the whole organization (and possibly the larger jurisdiction as well) is using the new system to analyze costs and make management decisions based, at least in part, on their cost implications.

NEED FOR COMPUTER SUPPORT

A special issue when installing a cost analysis system is the extent to which the new system can or should be computerized. Many smaller police departments use manual systems to report cost data. They enter expenditure data in journals and ledgers by hand and then manually extract the data needed for cost analysis. These manual systems are easy to understand and use as well as being inexpensive. However, as population growth and the demands for more police services multiplies the number of accounting entries, a manual system can incur high error rates and escalating reporting costs.

Much of the material presented in this workshop assumes that costing can be done manually. However, more and more governmental entities are recognizing the benefits of automated data processing in terms of reporting speed and accuracy. In the Program Model mail survey, 91% of the jurisdictions reported that they use computers in managing their financial affairs. An automated system can be useful in compiling and storing information and then in retrieving it for cost analysis and other purposes. But by far the greatest use of computers to date, and their chief effect on criminal justice agencies, has been in performing routine clerical operations.

While the initial capital costs of automation remain high, developments in the microcomputer field may change this situation in the future. Retailing for between $4,000 and $10,000, a microcomputer is a small computer whose memory usually sits on a chip of silicon less than a centimeter square. About a million microcomputers have been sold in

the United States and the number in use is growing by over 24% per year, according to industry estimates. A microcomputer system usually consists of the computer itself, a typewriter-like keyboard, a video screen, a printer, and some external memory. Although microcomputers are not as versatile or capable as full-size computers, they are nevertheless highly reliable and simple to use, with many systems including extensive "help menus" right on the video screen to assist the new user.

On the other hand, computers are not faultless, automatic answer machines, nor are they applicable in every situation. As mentioned previously, they have high start-up costs, and in addition, they require internal data processing skills, and the reliability of the analyses that flow out of them are dependent on the accuracy of the data fed into them (hence the expression "garbage in, garbage out"). Institutionally, computerization poses special problems in police departments, since in many jurisdictions the computer is controlled by a central data processing staff and not by the police. This centralization sometimes restricts the police department's access to the computer and can lessen the relevance of the financial reports that the computer produces. It can also impede the timeliness of the reports, as one respondent to the Program Model mail survey observed:

> The time delay in producing the output reports makes the system almost obsolete by the time the data are produced. For example, the hard copy reports are not provided to bureau managers until three weeks after the ending date of the accounting period. Those bureaus which have the capability then manually add in all the transactions which have occurred during the three weeks of elapsed time to provide an updated budget status report.

There are no standard rules to use in determing whether or when to automate. The process for choosing between manual and automated reporting is the same as that used in other police decisions (one- or two-officer patrol, computer-assisted dispatch, etc.) and requires a careful appraisal of the costs and benefits of each alternative. More specifically, the existence of trained programmers and keypunchers, availability of computing funds, need for speed and accuracy, and the trade-off between innovation and proven methods are all factors that should be weighed in this decision.

HUMAN RESOURCES: THE NEXT STEP

Thus far in the workshop, we have looked upon both cost savings and increased productivity as rationales for doing cost analyses, we have learned how to do a cost analysis, and we have considered how to go about implementing a cost analysis system. Our next concern is what

to do with cost analysis once we have the results. Here, our human resources play a major role. It is they who must take the results and use them creatively and thoughtfully.

LINE RESOURCES

Productivity, as the Japanese are fond of saying, is <u>everybody's</u> business. They understand that the people who <u>do</u> the work have to be involved in finding ways to improve productivity because:

- they often are the ones who know best where cost savings are possible and how they might be accomplished
- they know how their time is distributed within tasks
- they know which procedures are counterproductive and often have informally corrected them
- they know what would be involved in changing a procedure and what consequences the change would have on their own performance.

TEAM WORK

When tapping the doers for ideas on how to cut costs or increase productivity, people from every level of the organization should work together on the problem as a team. Often, the reasons for policies set at the command level are not always clear to those at lower levels, and, in reverse, those who make policy frequently are unaware of the extent of the resulting impact of some change on productivity. Doers

are the ones who will have to implement any change and therefore should participate in planning the change.

- Any change aimed at improving productivity often is seen as a potential for personnel reductions or other unwanted consequences; if these concerns are surfaced when the change is planned, they often can be dealt with effectively.

- Not all changes that may seem desirable are really feasible; by involving the doers during planning, feedback can be obtained early enough to modify plans so they will work.

Again, several levels of the organization and all departments likely to be affected should be involved. Plans to increase productivity through periodic in-grade training, for example, may be difficult to implement, if training staff or materials are not available. New performance standards may require more--or less--supervision than is now in place. Doers ultimately will be the key to whether the change yields all the intended savings or not.

- Experience from industry on implementing change often has been negative; modern equipment at GM's Lordstown, Ohio assembly plant, for instance, made working there so tedious and monotonous that absenteeism and sabotage became grave problems.

- Most people resist change even when it is to their advantage in the long run; often a period of familiarization is required prior to implementing a change to allow everyone time to adjust.

Here, too, representation from all levels of the organization is essential. One of the most serious problems in productivity improvement is the implication that management and supervisors have not been doing their jobs well in the past, because they allowed the problem to continue uncorrected for so long. If they are part of the solution, on

the other hand, they will share "ownership" of the change and contribute much more actively toward its success.

EXTERNAL RESOURCES

A second source of ideas is people who have experienced similar problems--and their solutions--in other settings. The use of computers in police functions, for example, probably has not even begun to reach its potential, both to improve operational effectiveness and to reduce costs. People who have used computers as aids in job design, to lay out routes, to compile and process information, to speed communications, and so forth in other sectors can help police management solve police problems. Other examples of where to get ideas from the past experience of others include:

- other police departments, particularly those that have served as Field Test sites for NIJ demonstrations of improved police practices

- management journals and periodicals, particularly those that emphasize public sector issues and describe innovative ideas that have been successful elsewhere

- city managers and administrators of other departments in the city frequently share similar problems and can help contribute to both identifying and implementing effective solutions.

STAFF RESOURCES

Still a third way of looking for solutions is to use expertise within the department that you already are paying for. Most managers and planners thrive on challenges, so long as the environment is one where

good ideas are rewarded and poor ideas are not criticized. Even if no outstanding ideas result, at least you will be satisfied that the unit cost of some service is not easily reduced. Payoffs from internal suggestions can be increased by:

- making certain fixed amounts of time are set aside for this purpose, and establishing improvement efforts as a distinct responsibility of managers

- opening the improvement process as widely as possible among the staff through suggestion programs

- communicating the problem to be solved as clearly and openly as possible

- offering awards to those not previously eligible.

Although the need to remedy problems identified using cost analysis techniques may be seen as a reason for not doing cost analyses, there are other reasons why it has not been more widely used by police management.

Let's try to list some of these other concerns and possible limitations.

CONCERNS AND LIMITATIONS

- not having the necessary technical skills

- not having access to cost data

- not having an incentive because the money saved goes back into the city budget

- not being accountable

- management feeling threatened

- experiencing little pressure to reduce cost of specific police services, even though the over police department budget may be high

- being concerned that, if the public knows the real cost, they may be influenced more by cost than by accomplishment

- finding public expectations difficult to measure, although they are probably not so high as we tend to assume.

RESULTS AND CONSEQUENCES

The rest of this session will be devoted to what is done with cost analysis results and some of the possible impacts of the results on the organization. We will look at organizational issues in managing changes that result from cost analyses, including:

- how cost information can impact policy operations, policies, and structures

- how change can be designed to overcome objectives and implementation problems.

ORGANIZATIONAL ISSUES

So far, we have mainly considered technical issues involved in analyzing the costs of police services. Now, we want to look at some organizational issues.

A cost analysis is performed to answer a question. We have to assume that the answer then will be used to make decisions and that these decisions, in turn, will involve change. In all likelihood, a cost analysis will rock the boat.

It is important to be prepared for the types of changes that may be proposed as the consequence of a cost analysis study. Cost analysis outcomes may have an impact on police operations, on departmental policy, and on organizational structure. Suppose the following were the outcomes from a series of cost analyses studies done by your department:

- What do these cutcomes mean to you?

- What implications would each outcome have for your department?

- Would changes in these areas be possible?

POLICE OPERATIONS

Cost analysis findings may suggest your department has not been operating as cost-consciously in the past as it should.

Example:

- Including stopping erratically driven vehicles and transporting of suspects to the station for breath testing, the current cost per DWI arrest is more than $250.00.

Example:

- Substituting motorscooters for patrol cars would save at least $2.20 of the per hour cost of motorized patrol in high density residential neighborhoods.

DEPARTMENTAL POLICY

Cost analysis may suggest some of the objectives and policies of the department are particularly expensive and should be questioned.

Example:

- The cost of maintaining foot patrols in the city's "night life" area, claimed to be necessary to attracting business,

leads to higher per unit costs in that district for services in connection with almost all categories of street crime.

Example:

- The creation of a special child abuse detail last year resulted in a cost per arrest of about $800; because of the the squad, child abuse crimes have been reduced by about one third, so the cost per arrest is now over $1,000.

ORGANIZATIONAL STRUCTURE

Cost analysis outcomes may indicate that the way the department is organized has been contributing to excessive per unit costs.

Example:

- Splitting the Traffic Division to have parking enforcement done by non-sworn personnel would result in a considerable savings in per unit costs in both parking and traffic enforcement.

Example:

- Reducing indirect costs for supervision by reducing the number of districts, and therefore the number of precinct command staffs, would have a significant impact on Patrol Division costs.

How would you decide what changes should be made, and how would you implement these changes? If you plan to use cost analysis information to make changes, how can you make sure that the solution is feasible and that everyone views the problem constructively?

EASING CHANGE

Bringing about change in an organization is complex and challenging. Some of the issues that management should be alert to before proposing a change include:

- the adequacy of the information base--surprisingly, many changes are proposed for implementation on the basis of incomplete or erroneous information and forecasts; understanding and analyzing the problem fully should be a first step in considering any change

- the internal and external environment--a change has to "fit" within the framework of the organization and the expectations of both the city government and the public; the change itself cannot be viewed as disruptive, and its likely consequences should be thought through

- the effects of inertia--change often is resisted, not because the results are undesirable, but because change itself is unsettling; a department that has no tradition of change is harder to modify than one that regularly experiences improvements

- the need for advance preparation--everyone has experienced unexpected change and generally is made uncomfortable by it; change seems to be implemented more easily, when steps are taken to communicate the reasons for a change prior to announcing what it will consist of.

AN EXAMPLE

Many of the problems inherent in introducing a change can be surfaced using an example.

> We look at a case where the police department has asked that ing police officers be stationed in the city's high schools. The school board has decided the presence of a security officer is necessary to combat the growing numbers of both serious and minor offenses, and has offered to reimburse the police department for the cost of stationing a non-uniformed officer in each of the four schools from 8 a.m. to 4 p.m. for the 180 days in the school year. This service appears to have cost advantages for both the police department and the school board, as well as affording better protection for school property, pupils, and staff.

Not everyone may be in favor of this change, however. Let's look at some of the objections that may be raised, when the implementation of this solution is announced.

PATROL OFFICERS

Officers expecting to be assigned could feel this duty will not help their careers, because they will be "away from the action"; these officers already are being labeled the "baby-sitting squad"

- they may expect to receive the least desirable assignments when they return to regular duty in the summers when schools are closed, and may believe they will be rotated about filling in here and there for other officers on summer leave

- they may believe they will fall under the individual direction of the school principals, who will begin telling them what to do and how to do it

- they may be concerned that they will be rejected by the pupils and school staffs, and that they will be very isolated socially while on duty.

SUPERVISORS

Supervisors of these officers:

- may expect that they will be unable to monitor the performance of the assigned officers effectively, and be concerned about possible conflicts in instructions given to the officers by the schools

- may feel extra pressures to provide replacements for those officers when they are sick, required for court appearances, or otherwise are unavailable for duty every day while school is in session

- may anticipate problems arising in the schools where the officer on duty, faced with a difficult problem, should have easier access to a supervisor's judgment than will be possible.

SUPPORT SERVICES

Departmental legal and personnel staffs:

- may foresee problems in arrest decisions and liability issues arising if anyone is injured during an incident at the schools while the officer is there

- may raise questions as to how the officer will be paid, how overtime will be authorized, whether the uniform allowance should be continued, and how the officer will receive departmental notices

- may anticipate problems in adequately preparing the officers for their assignments and in scheduling regular in-service training for these officers.

THE PUBLIC

Pupils, their parents, and the public:

- may resent the idea of using police officers for this purpose, and feel that stationing officers in the schools is the beginning of a "police state"

- may object to the officer's carrying guns or Mace in the schools, to the use of handcuffs, and to the potential of someone being hurt all because of a "minor incident"

- may hold the officer, and the department, responsible when they were the victim of a crime in the school because the officer was not sufficiently alert or diligent.

OTHER PROBLEMS

Objections are not the only problems that would have to be overcome. Any change also requires a carefully planned implementation process. What implementation problems could be expected?

PATROL OFFICERS

The officers to be assigned will have to be:

- selected from among those eligible; because it is expected the assignment will be seen as an undesirable one, how will these officers be chosen?

- provided with guidance and training on their responsibilities in the schools; who will develop the necessary directives and provide the training?

SUPERVISORS

Their patrol commanders will have to be:

- provided with replacements for the officers they lose, and have responsibility for these officers when they return to regular duty during the summers or during school vacations

- helped to work out arrangements with the schools regarding the supervision of assigned officers and how they report on their activities.

SUPPORT SERVICES

Specialized divisions in the department will have to:

- arrange suitable two-way communcations links with the officers assigned to schools

- determine the assigned officers' roles in conducting investigations, gathering evidence, and making arrest decisions in the four high schools.

CHIEF SOLOMON

Overcoming these objections to change and implementation problems are a management responsibility. What steps could the Chief of Police take to make the change as smooth as possible?

COMMUNICATION FACTORS

What techniques can be used to overcome potential objections from officers, supervisors, legal and personnel staffs, and the public?

- make the reasons for the police department assuming this responsibility clear to everyone through timely announcements

- stress the importance of the activity and its expected benefits to the community

- involve all those likely to be affected as early as possible in the planning process to uncover potential objections and problems

- seek ways to make the assignments more rewarding to the officers and their supervisors, such as including school duty as a consideration in promotions

- work closely with school officials, representative students, and the public to develop guidelines for what the officers will do in specific situations.

PROCESS FACTORS

What techniques can be used to overcome potential implementation problems regarding selecting officers, arranging supervision, and providing the officers with adequate support?

- begin the planning process as early as possible, perhaps working through several alternative scenarios to test the plan under potential conditions

- identify responsibilities such as the procurement of equipment or the development of guidelines promptly, and clearly assign these responsibilities to appropriate personnel

- determine whether any organization modifications, such as assigning all affected officers to a single supervisor, would facilitate the change

- seek outside help, if necessary, to understand how similar programs have worked out elsewhere, and what can be done to smooth the program's implementation and operation.

SESSION 8

DAY II

ACTION PLANNING

At this point, we have covered all of the learning points essential to this topic. We now want to give you the opportuntity to apply the concepts of cost analysis to the realities of your own department and your own jurisdiction. Specifically, in this session each jurisdictional team will be asked to:

- identify a candidate police service for cost analysis

- formulate the question(s) to be addressed by the cost analysis

- determine the range of possible management options which might be exercised based upon the results of this cost analysis

- develop an implementation plan for performance of the cost analysis.

This session will be conducted in jurisdictional groups. Included in the handbook are materials which will assist in focusing the discussion.

Worksheet #1 (10 minutes)

Below is a list of police workload categories. You are requested to select one of the categories which, in the collective view of your jurisdictional team, merits a closer look in order to determine whether a change, i.e., reduction or expansion of activities, charging a fee for the service, etc., may be warranted. Having made the selection, briefly describe current practices and the reasons why that category merits careful examination, i.e., vague public dissatisfaction, excessive overtime use, etc.

WORK CATEGORIES

- Burglary
- Larceny
- Assault
- Traffic Accident-P.I.
- Traffic Accident-Prop.
- Traffic Violation
- Traffic Control
- Disturbance
- Suspicious Persons/Cars
- Vandalism
- Alarms
- Animal Call
- Fire
- Ambulance Call
- Arrest
- Warrant Service
- Auto Theft
- Abandoned Car
- Intoxicated Person
- Loud Noise
- Disorderly Group
- Residence Check
- Domestic Quarrel
- Escort
- Unwelcome Guest
- Other

CATEGORY SELECTED:

CURRENT PRACTICES:

RATIONALE FOR REVIEW:

Worksheet #2 (15 Minutes)

Having chosen the workload category for review, your group is now asked to formulate the specific question or questions to be answered as the result of the analysis.

Question(s) to be answered:

1.

2.

3.

4.

Worksheet #3 (15 minutes)

Now that the group has selected a category of work suspected of needing change and the questions have been formulated which need to be answered, you are asked to formulate a plan and schedule for preparing the analysis. In addition to identifying individuals and their specific responsibilities, please identify, where appropriate, data sources and a completion date for each activitiy.

Task Description	Person Responsible	Data Sources	Timetable For Completion

END