

NEW YORK CITY POLICE DEPARTMENT

# Information and Technology



**BLUEPRINT FOR THE FUTURE:  
INFORMATION AND TECHNOLOGY FOR  
COMMUNITY POLICING INTO THE 21ST CENTURY**

**Lee P. Brown  
Police Commissioner**

August, 1992

11-26



# NEW YORK CITY POLICE DEPARTMENT VALUES



**In partnership with the community  
we pledge to:**

- Protect the lives and property of our fellow citizens and impartially enforce the law
- Fight crime both by preventing it and by aggressively pursuing violators of the law
- Maintain a higher standard of integrity than is generally expected of others because so much is expected of us
- Value human life, respect the dignity of each individual and render our services with courtesy and civility

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Chief of Department**

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Deputy Commissioner,  
Management and Budget**

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# Acknowledgments

The Strategic Plan is the result of the efforts of the Committee on Information and Technology, established by Police Commissioner Lee P. Brown to identify and prioritize appropriate technologies to advance community policing in New York City and improve the Department's overall operations. In March 1991, the following individuals were appointed to this Committee:

**Joseph P. Wuensch**  
Deputy Commissioner,  
Management and Budget (Chair)

**David W. Scott**  
Chief of Department

**Michael A. Markman**  
Commanding Officer  
Office of Management Analysis and Planning

**Michael Amarosa**  
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# Information and Technology

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Police Commissioner

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First Deputy Commissioner

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**Joseph P. Wuensch**  
Deputy Commissioner,  
Management and Budget

## Policing New York in the 1990's

Implementing Community Policing

Key Task Responsibility # 35  
Initiate a Committee on Information and Technology:

A committee charged with upgrading and coordinating the New York City Police Department's technological capabilities and information systems, chaired by the Deputy Commissioner, Management and Budget.

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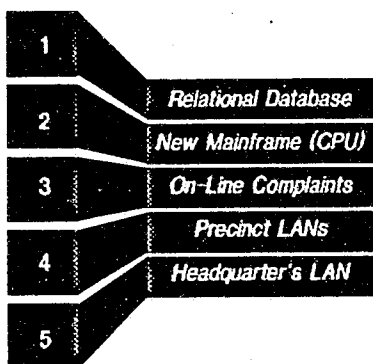


# Information and Technology

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# Executive Summary

Since his appointment in January, 1990, Police Commissioner Lee P. Brown has made sweeping changes in the New York City Police Department's style and strategy of policing. Community policing, having become the dominant philosophy of the Department, necessitated a review and evaluation of every aspect of police services, including information systems and technological capabilities. To do so, required a strategic planning approach to assess existing information and communication systems, identify needs, survey community representatives to learn the information needs of local residents and to determine the key information and communication needs of the community beat officer. This process produced a comprehensive plan to support community policing by serving the information technology needs of the New York City Police Department into the 21st century.

## Implementation of Community Policing

The change to community policing prompted this review and evaluation of the way in which the Department strategically plans for future technological needs. The acquisition of new computer software or the purchase of the latest examples of technological wizardry on an ad hoc basis is one way to equip a police agency. It is quite another to develop an information technology strategy which serves the Department's overall mission, supports its philosophy and addresses the varied information needs of the beat officer, a most essential element of community policing. Decisions must be based on up-to-date information that is available in an easily-accessed form to provide services at the point of contact. Where traditional policing required information systems to analyze response time, arrest rates and summons activity, community policing focuses on the need for information systems that support the analysis of local problems and the design of appropriate solutions.

Moreover, traditional policing relied on unit specialization to deal with local problems while community policing requires police officers to become generalists in their efforts to respond to neighborhood problems. Broader policing responsibilities require greater knowledge on the part of the police officer. This knowledge must be enhanced and supported by on-line systems, databases and networks that are easily accessed, integrated across diverse files and available to commands throughout the Department.

## Information and Technology Committee

In January, 1991, the Department publication entitled, Policing New York City in the 1990's detailed a comprehensive plan to institutionalize community policing as the dominant style of policing in New York City. A series of implementation tasks were designed to structure the process by which this transformation would take place. One such task, called for the establishment of a Committee on Information and Technology, charged with upgrading and coordinating the Department's information systems and technological capabilities. To accomplish its mission, the Information and Technology Committee formulated a series of objectives:

- Identify information and technological needs throughout the Department.
- Develop a plan to prioritize, coordinate, purchase and utilize appropriate technologies to support the community policing strategy in New York City.
- Establish a prioritized list of information systems and other technologies, designed to maximize police service to the community and improve the Department's overall operations.



At the onset of the committee's research and review process, it was proposed that a strategic plan be developed and produced to link future directions in information technology with community policing. A rapidly changing technological environment demands continuous research and review of the ways in which an organization provides information to support its mission. In his commitment to advance technological change in the New York City Police Department, Commissioner Lee P. Brown designated the Information and Technology Committee as the mechanism by which new information technology would be strategically planned to support both the philosophy of community policing and its implementation in New York City.

### Needs Assessment Process

An initial step in the development of the information technology strategic plan, consisted of a Department-wide assessment to identify needs and explore potential computer applications for police operations. It was emphasized that only those information systems or technological advances that would either support community policing or improve the Department's overall operations would be considered for review. Thus, a prevailing philosophy was carefully linked to the needs assessment effort which helped to establish the criteria by which new information technology would be evaluated.

The needs assessment effort also included the work of two separate subcommittees, designated to review information technology needs of the Chief of Department's Office (to specifically focus on the priorities of the Patrol Services Bureau, the Detective Bureau and the Organized Crime Control Bureau), and the 72nd Precinct, the model community policing precinct in New York City.

The Information and Technology Committee was also interested in determining the information needs of local communities. Consequently, a survey of the City's 59 Community Boards was conducted to identify the types of information local residents would like available through their precinct via an information service concept called Computerized Commu-

nity Bulletin Boards. These interactive systems would serve as the mechanism by which local residents could obtain current information on such topics as crime statistics, community service programs, and special events.

Aside from determining the information needs of the Department and the communities served, the committee also reviewed the latest technological advances in policing identified through research, surveys and interviews with outside law enforcement personnel and technological specialists. A number of innovations were reviewed, particularly in terms of the ability of the equipment or computer application to support community policing.

Included in the strategic plan is a review and status update of the Enhanced 911 system and Public Safety Answering Center's linkage with community policing. The E-911 system will utilize new communication technology to provide a level of emergency service not currently available.

### Blueprint for the Future: Information and Technology for Community Policing into the 21st Century

Based on the needs assessment process, the evaluation of MISD's planned information architecture, and a comprehensive research effort, a strategic plan for information technology in the New York City Police Department was developed. This plan entitled, "Blueprint for the Future: Information Technology for Community Policing into the 21st Century," details the key information technology objectives to support and enhance the Department's community policing effort. The key components of this blueprint are outlined below:





## Management Information Systems Division: Infrastructure to Support Community Policing

A new information technology infrastructure has been designed to strategically manage information to meet the needs of community policing into the 21st century. The plan's foundation will be engineered to maximize access to information throughout the Department. The foundation of this integrated information network is comprised of five main components:

### 1. *Relational Database*

A new integrated incident database will help to identify relationships among disparate events. Officers will be able to make inquiries against this user-friendly database to identify all known incidents integrated from various files in which a particular identifier appears (such as name, address, license plate, etc.). Information from a variety of paper-based documents such as accident reports, aided cards, stop and frisk reports, and many arrest-related forms will be entered directly into this database and made available for instant, on-line access.

### 2. *Mainframe Central Processing Unit*

To support the move to a relational database, a new processor will provide the capacity required to store and retrieve massive amounts of information. This computer will provide the necessary processing capacity for such major applications as the Automated Management of Property System, the new Automated Warrant System and the On-Line Complaint System.

### 3. *On-Line Complaint System*

This new system will enable the Department to have up-to-date incident and follow-up data to support criminal investigations, conduct crime analysis, perform reporting functions and facilitate effective resource planning and allocation. Complaint data will provide the type of information support essential for the design of innovative problem-solving strategies at the local level and the identification of trends on a

broader scale. This data will be integrated into a relational database and made available to other computer systems throughout the Department.

### 4. *Precinct Local Area Networks*

A new microcomputer network will be installed in every precinct to allow data to be sent to and received from the mainframe. These LANs will introduce significant computing power into each precinct for local processing while providing a vehicle for access to NYPD mainframe applications. The precinct LAN will provide the capability for the computerization of beat book information to allow officers working the same beat, as well as precinct detectives and newly assigned officers, to share local knowledge and review previous and current actions taken to solve local problems. These networks will also provide the capability for geographic mapping of information using specialized software.

### 5. *Headquarters LAN*

The network for Police Headquarters at One Police Plaza will allow information from the mainframe to be accessible to Headquarters units. Each command will have the capability to process and access their specific data files.

The LAN systems, both Headquarters and precinct-based, facilitate the access of data from the mainframe relational database. This capability minimizes the manual preparation of paperwork and produces the type of reports necessary for the effective management of resources.

The implementation of MISD's foundation plan will provide information technology and services at the fingertips of police officers and police managers charged with community problem-solving and command management. MISD's plan for information technology also includes the development of a new Automated Warrant System to provide timely and accurate information for warrant processing,



investigation and execution. As part of this initiative, photo imaging will be introduced to support arrest processing, line-ups and criminal investigations.

### Information Technology for Community Police Officers

The information technology objective for police officers in the field is to facilitate their access to vital information using portable equipment.

#### Handheld Computer with Pen-Based Technology:

This technology will enable the officer to capture incident data on formatted screens at the point of contact and transmit the report directly to the precinct. This small, handheld computer will have the capability to access information from the new integrated database. Examples of the information systems accessible through this computer might include beat book profiles, location history, complaint report information, arrest history, warrant information and Court Orders of Protection. This computer will also provide the capability for inquiry into inter-agency databases such as the National Crime Information Center (NCIC) and the New York State Police Information Network (NYSPIN).

#### Cellular Telephones:

Small, wireless telephones can link officers with complainants, the precinct and other community resources. Beat officers on foot patrol would be able to contact 911 callers before their arrival on the scene to obtain any additional information.

### Information Technology for Communities

A computerized database of community related information can be made available through designated precinct terminals. Data would include local crime statistics, procedures on how to report crime incidents, contact information on local services, resources and victim/witness assistance programs

and parking rules and regulations. NYPD command contact information, including the names and telephone numbers of major commands, precinct community councils and precinct management teams would also be included.

### Information Technology Survey Results:

#### Projects Recommended for Immediate Development and Implementation

The following priority projects were targeted for funding or implementation through an in-house effort by the Management Information Systems Division:

##### Automated Warrant System

Computerizes information on outstanding warrants to expedite warrant enforcement. A computer link to New York State's Office of Court Administration will provide for the transmission of warrant data immediately after issuance.

##### Photo Imaging

Stores pictures, video images and documents as part of the automated warrant system.

##### Warrant On-Line File System (WOLF)

Enables major investigative units to have access to this database on all felony warrants and the findings of follow-up investigations conducted by the Warrant Division Officers.

##### Beat Book Computerization

Organizes information and allows for the recording of local conditions, problems and the strategies designed to resolve them.

##### Computerization of Court Orders of Protection

Tracks the history of violations against Court Orders of Protection.

##### Computerized Appearance Control

Replaces the telephone notification system to schedule and manage the appearance of police personnel at court and other government agencies.



**Information Technology Survey Results:**

Local Area Networks

Provides for the access of information through common databases for command-specific operations and needs and facilitates crime analysis through geographic mapping.

Standardize Department Computer Applications

Facilitates the access to computerized information through the development of consistent screen formats, and common definitions for data items and query commands.

Automated Communications System

Establishes a case management system for internal investigations and tracking of internal correspondence.

Enhanced Computerized Personnel System

Provides a comprehensive and centralized, personnel-related database.

FAX Four Machines

Enables Borough Satellite Units to receive and transmit high quality fingerprint images (from the NYS Division of Criminal Justice Services or from the Department's Latent Print Unit) to make accurate fingerprint comparisons on latent prints.

Emergency Lighting/Sirens

Enhances visibility to clear intersections.

Computer Scannable Forms

Performance evaluations will be processed through a scanner.

Bar Code Scanners

Trace and verify vehicles and parts for investigations through this portable identification system.

Optical Mark Reader

Expedites test scoring through a reader and software system.

**Funded Projects in Progress**

These projects, although requested through the survey, were previously approved for funding. They are included in this listing to ensure that the strategic plan accurately represents both ongoing and planned information technology efforts.

Automated Firearms Ownership File System

Automates the file system and includes license and renewal processing.

Automated Pistol License Record Management Filing System

Automates all pistol license records.

Automated Management of Property System (AMPS)

Tracks the intake, storage and disposition of property.

Automated Accounting System

The AMPS project will address the accounting needs of the Property Clerk.

Fleet Administration Computerized Tracking System

For the management, administration and accounting of the automotive fleet.

Automatic Fuel Monitoring System

Modernizes the computerized fuel dispensing and accounting system for Department vehicles.

Automated Complaint System

Computerizes the complaint reporting system for the Narcotics Division.



## Information Technology Survey Results:

### Unfunded Projects

Survey results also included more than 20 unfunded projects, a number of which received relatively high ratings in the review process. An example is SAFIS, the Statewide Automated Fingerprint Identification System, the full implementation of which is dependent on the State's decision to proceed with the installation of access terminals at central booking sites. Other projects for which funding is not currently available range from an automatic vehicle locating system (part of the unfunded items in the Enhanced 911 project) to a microwave video transmission system for surveillance activities. Funding options for these and other noteworthy projects in this category will continue to be explored.

### Public Safety Answering Center: Linkage with Community Policing

The Enhanced 911 communication system will utilize state-of-the-art technology to provide an increased level of emergency service through Automatic Location Identification and Automatic Number Identification. This communications technology will replace analog/mechanical equipment with digital switching equipment to provide the ability for operators to visually recognize the caller's telephone number and location.

In addition to the location and number identification technology, the E-911 plan includes a new Computer-Aided Dispatch System to provide an unsurpassed level of information to both the call-taker and the radio dispatcher, cellular telephones to enable beat officers to contact complainants and reduce air time utilization for call-back telephone numbers and complainant's names, and mobile digital terminals to automate the processing of forms and reports and capture information at the point of contact.

The various components of the E-911 plan will improve the emergency response capability with the public, improve the communications ability of beat officers to interact with community members, and will provide the ability to capture data through mobile data terminals to assist officers in processing reports or retrieving information.

In December, 1991, the Mayor signed a local law authorizing the New York Telephone Company to collect \$ .35 per month per telephone subscriber to generate the necessary revenue to support the Enhanced 911 system. While the City Council provided a "sunset clause" of three years for the current surcharge legislation, the Council may be petitioned at the end of 18 months to lift the sunset provision and allow additional revenue to be collected to incorporate all of the systems and features of the Public Safety Answering Center Project. The estimated cost of the entire project is \$ 203 million, of which \$ 71 million will be funded through the revenue generated by the surcharge legislation and existing capital and expense budget funds.

The \$ 71 million will purchase enhanced 911 technology, SPRINT consoles, radio communications equipment, 911 logging equipment, an upgrading of the facility, and a new Computer-Aided Dispatch System. Until such time as the City Council lifts the three-year sunset clause, a number of critical components of the overall plan are not currently funded. These items consist of new office furniture, mobile digital terminals, the back-up facility upgrade, automatic vehicle locators, cellular telephones, radio communications equipment, and recurring CAD and rental costs.

Although full funding of the Public Safety Answering Center is still in question, the revenue generated by the surcharge legislation will not only fund new communications technologies, it will also upgrade existing systems with advanced equipment. Enhanced-911 phone service, the new Computer-Aided Dispatch system and the radio communications equipment will dramatically improve the emergency communications system to more effectively serve the citizens of New York City.



## Conclusion

The NYPD vision for information technology consists of a fully automated police department, designed to provide an information and communication network using advanced, state-of-the-art technology to enhance the work of community patrol officers in solving local problems. MISD's new relational database architecture will facilitate the access of data at the operational level for beat officers to obtain complaint, arrest, warrant and previous incident information, and show any relationships between them. Management will have access to data to enhance such activities as crime analysis, resource planning, beat redesign and rapid response planning. Data access will be possible through portable, handheld computers, mobile digital terminals in vehicles, and Local Area Networks.

In addition, implementation of the Precinct Local Area Networks will facilitate the development of computerized community bulletin boards to keep community residents informed on such issues as crime statistics, incident information and community events and resources.

In terms of service to the public, one of the most important elements is the effectiveness of the emergency communications network. The Enhanced 911 system will modernize the Department's communications system by allowing operators to visually recognize each caller's number and location, information which will also be interfaced with a new Computer-Aided Dispatch System to expedite the response to calls for service from the public.

As technology continues to advance, the New York City Police Department will strive to identify funding resources to fully implement its information technology vision to support and enhance the community policing philosophy.



# Introduction

In January, 1990 Lee P. Brown was appointed Police Commissioner of the New York City Police Department. After a comprehensive review and assessment of the Department's operations and staffing and the publication of a key document, Policing New York City in the 1990's, the Department began a dramatic philosophical shift towards community-based, problem-solving policing. This philosophical shift required a review and examination of the Department's existing information systems and technological capabilities.

As part of the Department's efforts to move towards community policing, an extensive implementation plan was designed with key tasks and responsibilities. In this plan, Task # 35 called for the development of a Committee on Information and Technology. This report represents the work of that committee in the development of a comprehensive strategic plan to support the community policing philosophy, and to serve the information technology needs of the Department into the 21st century.

The development of this information technology plan represents the committee's objective to develop a long-term, strategically focused planning document to upgrade, modernize, and integrate the disparate information systems throughout the Department. This plan incorporated a strategic planning approach to assess existing information and communication systems, identify information technology needs, survey community representatives to identify the information needs of local residents and determine the key information and communication needs of the community patrol officer. All of these components are described in the various chapters which comprise this document.

To assess existing information systems currently operational or in the design phase, an overview of The NYPD's Management Information Systems Division, is presented in Chapter 2. Included in this overview is a historical summary of the data center computers and the various applications for which these computers are used.

A corresponding overview is presented on The NYPD's Communications Division in Chapter 3. The review of the Department's communications system begins with the mission and function of the Communications Division, a historical summary of the way in which emergency calls were processed and the status of the current 911 Communications Center. This chapter concludes with a review of the future needs of the Center.

Chapter 4, Community Policing and Information Technology, compares community policing with the more traditional form of policing particularly in terms of information technology needs. Included is a discussion on the creation of the Information Technology Committee and the development of its objectives and work activities necessary to create a strategic plan.

Chapter 5, Identification of Information Technology Needs, describes the process used to determine the Department's informational and technological needs. A three-phase needs assessment methodology was utilized. Phase I consisted of the development of a survey instrument to identify and prioritize needs throughout the Department. Phase II produced a report detailing the needs and specific recommendations of the Patrol Services Bureau, the



Detective Bureau, and the Organized Crime Control Bureau, coordinated through the Chief of Department's Office. Phase III of the assessment process targeted the needs of the 72nd Precinct, the model community policing precinct. The purpose of this needs assessment effort was to establish a prioritized list of information systems and other technologies, designed to maximize police service to the community and improve the Department's overall operations.

Information and technology needs and recommendations are listed and prioritized in Chapter 6, Results of the Needs Assessment Survey. Survey responses were summarized and assigned a category rating. After a careful review of all project requests, the Information Technology Committee determined that certain key projects be targeted for immediate purchase or implementation.

A review of the latest, innovative technology is presented in Chapter 7, Other Technology and Information Services. Computer systems or services ranging from computerized community bulletin boards to videoconferencing technology are highlighted in this chapter.

This research effort culminates in the development of a strategic plan, a blueprint for the Department's information technology for community policing presented in Chapter 8, Information Technology: Preparing for the 21st Century. This plan details the changes that are required of the Department's information and communication systems if they are to serve and support our community-oriented policing strategy.

The Department is at a critical juncture in its management of information technology. A carefully conceived planning perspective ensures that information technology will be used to support the community policing objective. By planning for change, the New York City Police Department ensures that its information technology and communications systems are designed to enhance the police officer's ability to solve local problems and build the necessary partnerships with the communities served.



# The NYPD's Management Information Systems Division

## *An Overview*

### Mission and Responsibilities

The Management Information Systems Division (MISD) is responsible for the collection, maintenance and dissemination of accurate data so that information can be made available to all levels of the organization on a timely basis and in usable form.

MISD performs multi-year planning for information systems activities, evaluates requests for information services, performs cost-benefit analysis of computer based systems, constructs and maintains computer applications, and manages contractors and vendors providing computer services and equipment to the Department. The division also coordinates the purchase, distribution, and installation of personal computers, peripheral equipment and software used throughout the Department.

MISD ensures that the Department's information processing, telecommunications and automation requirements are met. In support of this mission, MISD maintains a full service data processing environment. This environment is comprised of a centrally located data center connected to a network of input and output devices that are accessible to commands within the organization. The data center supports nine medium to large mainframe computers running numerous on-line entry and inquiry applications, provides data links with a number of governmental agencies and generates a multitude of reports. Two of these computers provide for the back-up of the Special Police Radio Inquiry Network (SPRINT) and the Mobile Digital Terminal system.

### Historical Summary

The origins of data processing within the New York City Police Department can be broadly traced to the 1960's when the department established the Electronic Data Processing Division. Computer programs were designed to provide Uniform Crime Reporting (UCR) statistics to New York State and the Federal Bureau of Investigation. A fingerprint identification system and SPRINT (Special Police Radio Inquiry Network), a dispatch support system for the 911 emergency response function, were also implemented within the sixties. These applications were considered to be leading edge technological advances for that time.

In 1972, the Electronic Data Processing Division was renamed the Management Information Systems Division. This was followed by a decade of batch applications and innovative technology, such as the in-car terminal system. The "KUSTOM" in-car terminal system was experimental and confined to a small portion of the Department's Radio Motor Patrol (RMP) fleet. This prototype system allowed officers in the RMPs to perform license plate and name inquiries on information contained in state and federal files. After studying the effectiveness of this system, it was determined that new hardware and software would be needed to provide an improved system and a Request for Proposal to develop an improved Mobile Digital Terminal system was sent out to the computer industry.





The 1980's began a period of growing demand for increased automation and applications were developed for On-Line Booking of Arrests, Warrant processing, Disciplinary Record tracking, Civilian Complaint processing and Court Affidavit preparation. The FINEST terminal network was installed to replace the Field Administrative Terminal Network (FATN). This network provided the ability to send messages between commands and allowed for specific inquiries into the New York State Police Information Network (NYSPIN) and National Crime Information Center (NCIC) databases.

As management reporting systems were developed, information became available that influenced decision making at all levels of the Department. After major on-line applications such as the On-Line Personnel and On-Line Booking Systems exposed Department personnel to many potential benefits of automation, demands for computer services increased substantially.

Recently MISD has begun development of applications that will facilitate the exchange of information both within the Department, and among the members of the larger criminal justice community.

A pilot On-Line Complaint System (OLCS), implemented in 1988, provided a significant base of knowledge from which plans were developed to implement a Department-wide Integrated Incident Data Base to support the Department's move to community policing. The pilot OLCS introduced the Department to computerized geographic mapping using data from complaint reports and calls for service. A personal computer with geographic mapping software allows a crime analyst to plot crime data and analyze incidents by day, time, type of crime or a flexible combination of search variables. The graphic computer mapping system can create color coded maps and will essentially eliminate the use of pin maps. The system can be used to create daily hot sheets or bulletins of crimes by beat/sector, which can be distributed to beat officers to update them with information for problem-solving.

Table 1

Data Processing History in the NYPD

1963	Electronic Data Processing Div. First IBM 1401 mainframe computer: used for Uniform Crime Reports, personnel records, and automated fingerprint files.
1968	Special Police Radio Inquiry Network (SPRINT) established.
1972	Management Information Systems Div. replaces the Electronic Data Processing Div.
1975	In car terminals (KUSTOM) permit access to State and Federal files from vehicles.
1976	FATN replaces the old teletype terminals in precincts. Access to State and Federal files is provided to the precinct.
1981	Application development accelerates: On-Line Booking System (OLBS) On-Line Personnel System (OLFS) Warrant System (Local warrants).
1984	FINEST replaces the FATN Electronic mail is provided by MSWS, terminal installations expand.
1985	50 Personal Computers introduced. 204 Mobile Digital Terminals in RMPs
1988	Prototype of the On-Line Complaint System is developed.
1989	Mayor's Private Sector Survey Report calls for the NYPD to increase its technical and computing capabilities.
1991	MISD designs a new information infrastructure to prepare for the 21st Century and to assist with the implementation of community policing.
1992	More than 1,000 personal computers in use. Work on Local Area Networks for the Precincts and Headquarters is accelerated. Installation of the new NITRO system begins.



## Existing Data Center Computers

The Department has nine medium to large mainframe computers; two of these provide back-up for the critical SPRINT and Mobile Digital Terminal systems. While the backups are designated for recovery of crucial computers, they are also used for the development and testing of enhancements to operating system and application software. The computers and their functions follow:

### 1) *Special Police Radio Inquiry Network (SPRINT)*

The dispatching of police resources to calls for service originating from 911 is supported by the SPRINT computer system. The 911 operator receives a call and enters the call information into the system via a computer terminal. The message is then routed to the appropriate dispatcher. The dispatcher gives the call information to a Radio Motor Patrol (RMP) car via radio. The SPRINT system automatically prioritizes incidents, keeps track of available resources and nominates the resource closest to the incident by area of assignment. It also has the capability to route non-priority jobs to a precinct terminal to handle local incidents with local resources. Access to the SPRINT system has also been provided to the New York City Housing and Transit Police Departments. The SPRINT system is planned for full upgrade incorporating Enhanced 911 with its Automatic Number and Location Identification capabilities; this upgrade is detailed in Chapter 8.

### 2) *Mobile Digital Terminal System (MDT)*

The MDT system allows officers in RMPs to access computerized information from the Department of Motor Vehicles, the New York State Police Information Network and the National Crime Information Center Network without audio transmission. This lessens radio traffic and reduces dispatcher's work. The MDT system is installed in approximately 450 Department vehicles and provides officers with information on driver licenses, registrations and wanted persons. Plans are being developed to provide enhanced Mobile Digital Terminal capabilities to our officers in the field. Enhancements under consideration include dispatching, remote inquiry to mainframe databases and report-taking.

### 3) *Management Information System (MIS)*

The MIS computer system hosts 20 of the existing on-line applications and utilizes the Department's largest mainframe computer. This computer is scheduled for replacement in the first quarter of FY93. The new computer will provide sufficient capacity to serve the Department's needs into the mid-to-late 1990's.

### 4) *Computer Assisted Robbery System (CARS)*

The CARS computer was installed to assist the Detective Bureau with robbery investigations. The system is also available to Patrol and other commands having authorization. Information in CARS is derived from data received from the NYC and NYS Departments of Correction and the NYS Division of Parole, and data from the complaint and arrest reports. The system also maintains a private security directors file, a career criminal identification file, and a nickname file which can identify individuals based on age, height, race and neighborhood.

### 5) *Micrographic Automated Retrieval System (MARS)*

The MARS computer is a stand alone system without connectivity to other systems. It provides for the recording and retrieval of data from aided cards and accident reports and is utilized by the Aided and Accident Section to locate these types of files.

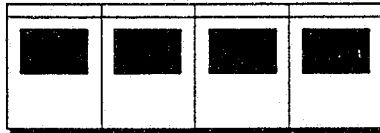
### 6) *Automated Fuel Dispensing System*

The computerized fuel system is used by the Motor Transport Division to determine the amount of fuel on hand before and after the delivery of gasoline to a Department fuel dispensing facility. The system is programmed to shut down fuel pumps at a dispensing facility when the level of fuel reaches a predetermined cut off point. This system is targeted for replacement and a Request for Proposals is currently being developed to acquire an improved fuel dispensing and tracking system.



Table 2

Existing Data Center Computers



- SPRINT** Special Police Radio Incident Network
- MDTs** Mobile Digital Terminal System
- MIS** Management Information Systems
- CARS** Computer Assisted Robbery System
- MARS** Micrographic Automated Retrieval System
- AFDS** Automated Fuel Dispensing System
- NITRO** Narcotics Investigative Tracking of Recidivist Offenders System

Table 3

Existing Computer Applications



- Incident System**
- Personnel Systems**
- Employee Scheduling**
- Internal Monitoring**
- Criminal Justice Systems**
- Investigative Support Systems**
- Licensing Systems**
- Support Systems**

7) *Narcotics Investigative Tracking of Recidivist Offenders System (NITRO)*

The NITRO system provides the Department with an additional computer which will assist the Narcotics Division in its ability to coordinate, develop, maintain and disseminate narcotics intelligence both within the Department and in exchange with other law enforcement agencies.

Existing Applications

The following is a list of the Department's computer applications with a brief explanation of each application and the primary user command.

**Incident System**

Supports the 911 Emergency Response System.

1. Sprint System

Computer-Aided Dispatching.  
(Communications Division)

**Personnel Systems**

These applications support the human resource functions of the Department. The Personnel Bureau is able to enter and update status and assignment information on uniform and civilian members of the service. The system can respond to queries by rank/title, tax registry number, command, skills, blood type, name and other user supplied parameters. The Personnel application interfaces with other applications such as Sick/Absenteeism reporting, Automated Roll Call and the On-Line Booking System and reduces the need for redundant data entry.

1. Applicant Tracking Police System (ATS)

Automated processing of Police Officer candidates. (Personnel Bureau)

2. Equal Employment Opportunity Reporting Information System

Produces EEO management reports.  
(Dep. Comm. EEO)



**3. Firearms Information System**

Maintains data on firearms owned by uniform personnel. (Firearms and Tactics Section)

**4. On-Line Personnel Systems (OLPS)**

Provides current and historical data on personnel. (Personnel Bureau)

**5. Payroll Processing System**

Produces management reports from the Payroll Management System (PMS) files. (Payroll Section)

**6. Pension Processing**

Processes uniform pension requests and provides premium pay information for pension purposes. (Pension Section)

**7. Shield Desk Application**

Keeps track of the distribution of shields. (Personnel Bureau)

**Employee Scheduling**

These applications provide the Department with availability statistics in advance by tour, precinct and borough.

Attendance sheets (roll calls) are created and retained and provide a means for tracking current and future manpower requirements.

**1. Automated Roll Call System (ARCS)**

Schedules assignments and produces roll calls for precincts Personnel. (Patrol Services Bureau)

**2. Late Tour Monitoring System**

Tracks late tour assignments of precinct personnel. (Patrol Services Bureau)

**Internal Monitoring**

These applications assist operational units charged with monitoring, investigating and maintaining integrity. Several are critical to the defense against corruption and abuse of authority. They provide information for flagging potential problems and areas in which control may need strengthening.

**1. Absenteeism**

Monitors the sick report occurrences of uniform personnel and provides a monthly report for commanding officers. (Health Services Division)

**2. Central Personnel Index (CPI)**

Consolidates personnel information: arrests made, disciplinary record, performance evaluations, etc. (Personnel Bureau)

**3. Civilian Complaint Review Board**

Civilian complaint case records management. (CCRB)

**4. Disciplinary Records System (DRS)**

Records disciplinary cases and dispositions. (Dep. Comm. Trials)

**5. Internal Affairs Division System**

Corruption complaints case management system. (Internal Affairs Division)

**6. Sick Desk Reporting System**

Records the individual sick reports of uniformed members of the service, and forwards a sick report message to the appropriate command via the Department's FINEST system. (Health Services Division)



### Criminal Justice Systems

These applications assist units charged with processing criminal offenders and bringing an arrested person to arraignment. They also help reduce overtime and help get arresting officers back on the streets where they are needed.

**1. Court Affidavit Preparation System (CAPS)**

Preparation of court affidavits at the precinct level. (Criminal Justice Bureau)

**2. On-Line Booking System (OLBS)**

Captures arrest data at Central Booking Sites. (Criminal Justice Bureau)

### Investigative Support

These systems support the investigative functions of the Department by making information previously gathered available to units conducting current investigations.

**1. Mobile Digital Terminal System (MDT's)**

Terminals in cars to access state and federal files. (Patrol Service Bureau)

**2. Warrant System**

Maintains information on persons wanted, warrants outstanding, criminal recidivists, targeted narcotics and firearms violators, and updates State and Federal files. (Warrant Division)

**3. Warrant On-Line File (WOLF)**

Maintains a history of Warrant Division investigations. (Warrant Division)

**4. Computer Assisted Terminal Criminal Hunt (CATCH)**

Modus Operandi - physical appearance search of previous arrestees. (Detective Bureau)

**5. Fingerprints (BETA)**

Automated fingerprint and name search system. (Identification Section)

### Licensing Systems

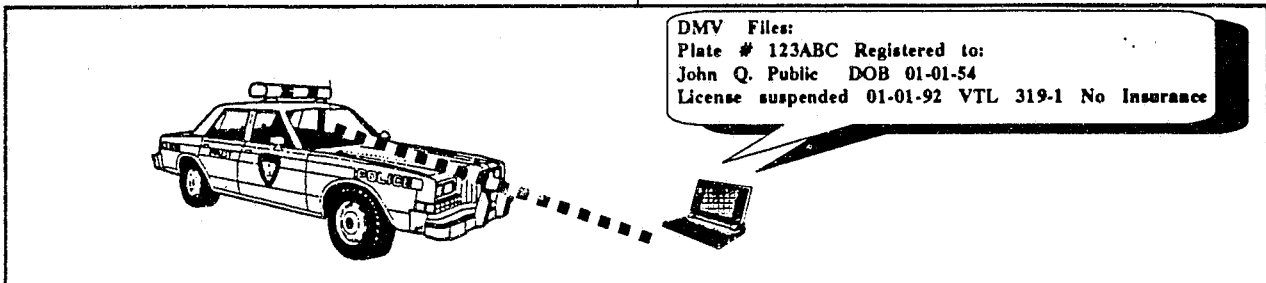
These two applications are distinct in function but are both under the responsibility of the License Division. NYPD has the responsibility for the issuing of Pistol and Long Gun licenses. The licensing of tow companies is performed by the Department of Consumer Affairs but the NYPD computer software controls the allocation of tow companies to accidents.

**1. Pistol Licensing System**

Issues gun licenses and provides monitoring reports. (License Division)

**2. Directed Accident Response Program (DARP)**

Controls the response of tow trucks responding to accident scenes. (Communications Division)



Approximately 444 NYPD vehicles have Mobile Digital Terminals (MDT's) which allow the officers access to files such as the Department of Motor Vehicles. Future plans will permit the voiceless dispatching of assignments directly to MDT's.



## Support Systems

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These applications serve various organizational units and are described individually.

### 1. Alarm Board

Reduces dispatch to chronic faulty alarm locations. (Communication Division)

### 2. Department Vehicle Accident System (DVAS)

Records accidents involving Department owned vehicles. (Personnel Bureau)

### 3. Election Reporting System (ERS)

Transmits election results for release to the news media. (Patrol Services Bureau)

### 4. Firearm Discharge Assault Report

Records P.O. firearm discharge data and assaults on police. (Chief of Dept.)

### 5. Message Switching System (MSWS)

Stored formats, federal and state interfaces, point to point electronic mail capabilities. (Department-wide use)

### 6. Missing Persons System

Captures information on missing persons and DOA'S. (Detectives Bureau)

### 7. Uniform Crime Reporting System

Provides statistical reports required by NY State and the FBI. (Crime Analysis Unit)

## Planned Projects - Funded

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MISD is currently involved in the development of a variety of projects. The following computer applications are in various stages of development. Additional projects, which having received funding approval during the course of preparing this document, have set the stage for the Department's management information systems into the 21st century. These projects are discussed in Chapter 8.

### Narcotics Investigative Tracking of Recidivist Offenders (NITRO)

The Narcotics Investigative Tracking of Recidivist Offenders (NITRO) program was introduced in 1988 with a basic name check facility. In 1992, a new automated NITRO system will become operational. The new system will provide a greatly enhanced investigative capability using a wide area computer network which will connect narcotics enforcement offices throughout the City to a powerful relational database at police headquarters. In the second quarter of 1992, MISD incorporated a database for the Chief of Department's Firearms Violator Apprehension Processing System (Operation Gun Lock) into the NITRO system. Since the sale of firearms and drug sales are often related, MISD concluded that there would be a tremendous advantage to merging a firearms arrest and case investigation tracking module into the architecture of NITRO. This module allows the Department to track the sales of firearms through dealers, runners, and traffickers. Automatic linkage of weapons by serial numbers allows the NYPD to more easily determine the path of a weapon's sale over various locations to its eventual use in a crime. As a result of the automated merger of narcotics and firearm information, the link between firearm sales and narcotics is more easily identified and may often converge on a large criminal enterprise.

Data from agencies such as NYS Parole, NYS Probation, US Immigration and Naturalization Service, US Customs Service and the Bureau of Alcohol Tobacco & Firearms will be integrated with intelligence data from various sources within the Department to form a comprehensive intelligence



database for the City to combat illegal narcotics and illegal firearms. "Padlock" data will be maintained to identify premises of chronic drug trafficking which will enhance the Department's efforts to shut down chronic abusers in various neighborhoods throughout the City.

#### **Automated Pistol and Long Gun Licensing and Renewal System**

The Licensing and Renewal System will encompass firearm data collection activities currently performed by the License Division, Firearms Control and Pistol License Sections.

The new system will generate licenses, approval/disapproval letters, renewal letters and maintain historical records on licensee owned firearms.

#### **Automated Management of Property System (AMPS)**

The Department will implement an Automated Management of Property System that will replace manual procedures and create a more efficient means of processing and tracking property vouchered as evidence, seized or found. The automated system will provide a more effective means of locating property and disposing of eligible property. AMPS will also automate the processing and disposal of vehicles to and from the Auto Pound. The system will identify vehicles eligible for auction and therefore help expedite vehicle disposal and reduce the warehousing needs. AMPS will interface with other Department applications, NITRO, On-Line Complaints and On-Line Booking, Police Lab, and link with Office of Court Administration data which will authorize the release of property depending upon the need to maintain it for prosecution.

#### **Automated Fuel Monitoring System**

A computerized fuel dispensing and accounting system to maintain information on more than 4,000 Department vehicles. The 75 fueling sites will have automated dispensers that are linked to a

host computer.

#### **Intelligence Division System**

The Intelligence Division System will automate the entry, update and retrieval of information on gangs, organized crime groups and other intelligence information. The utilization of a local area network will allow various units within the division to access data simultaneously.

#### **On-Line Prisoner Arraignment**

The On-Line Prisoner Arraignment System provides the Department with immediate access to status and location information on a defendant and co-defendants. A number of enhancements to the system will be incorporated and provide for additional inquiries to determine when a defendant is ready for arraignment or where delays are encountered.

#### **Deputy Commissioner Public Information**

The system will automate the tracking of information provided to the news media. It will also provide summary information on previous statements made by members of the Department.

#### **SPRINT Upgrade/TPF III**

This system supports the latest hardware and communications technology. TPF III is designed to accommodate future expansion and provide a platform for supporting E-911 and other features and enhancements such as Digital Dispatch of assignments to RMPs.

#### **Optical Character Recognition System**

This system replaces data entry hardware and software with newer technology that will allow for more efficient entry of payroll and complaint report data. On-line payroll and batch complaint report data entry applications are under development and testing using this equipment.



### **Imaging System for Personnel Bureau**

This project provides the ability to store and retrieve photos of Department personnel. These photos are used for the production of identification cards. A second phase of this project will provide for the transmission of photos between the Internal Affairs Division, Field Internal Affairs Units and the imaging system.

### **Fleet Administration Tracking System**

This project provides for the computerized management, administration and accounting of the automotive fleet. The vehicle management system is being developed by the Department of General Services. Major city agencies including NYCPD are participating in defining system requirements.

### **Enhanced Uniform Sick Reporting**

The enhanced system will provide the Health Services Division with a tool for the identification and the monitoring of sick leave, and patterns of sick leave which may indicate medical, substance abuse, or social problems.

### **Interface with NYC Law Department**

This application was developed by the NYC LAW Department. Terminals installed in the Legal Bureau will provide for case input by Department attorneys while providing them access into the Law Department's system to perform legal research.

### **Interface with Department of Transportation**

This interface with the Department of Transportation (DOT) will reduce the unnecessary transmission of stolen car alarms by broadening the standard vehicle location inquiry conducted by precinct personnel to include a computer check of DOT files to ascertain if the vehicle has been impounded by DOT via its various tow programs or seized by a City Marshall or Sheriff in execution of a scofflaw judgment. The use of D.O.T.'s TOPIS Scofflaw System

will furnish owners with timely information relative to the location of their vehicles so they may begin redemption procedures.

### **Misdemeanor Recidivist Program**

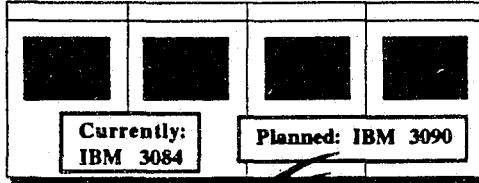
The Misdemeanor Recidivist Program was recently implemented to alert the Department and the District Attorneys' Offices when a career misdemeanor recidivist is arrested. The project is designed to prevent the issuance of a Desk Appearance Ticket to a targeted recidivist in order to facilitate vigorous prosecution of misdemeanor defendants with a substantial record of previous misdemeanor arrests and convictions, coupled with a history of failure to appear in court.





# MISD's Support of Police Operations

Management Information Systems Division  
Data center computers



IBM AS/400

**CARS**  
Computer Assisted Robbery System

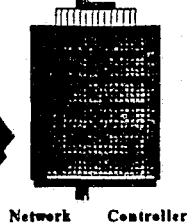


**NITRO**  
Narcotics Investigative Tracking of Recidivist Offenders



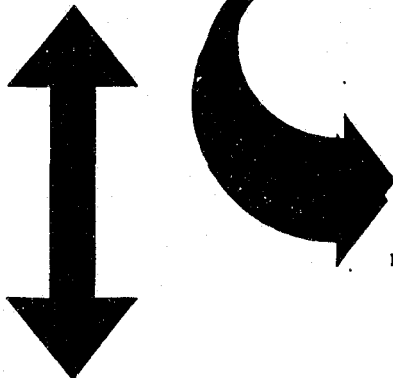
## NYPD's FINEST NETWORK

Terminals are installed in all Patrol Precincts, all Patrol Borough Commands, Specialized Units (i.e. SOD), and various Administrative Units

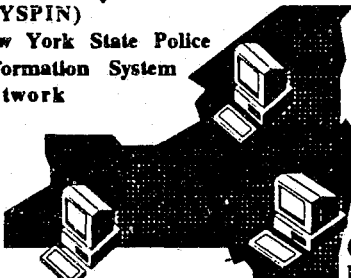


Network Controller

Access to SPRINT, OLBS, MSWS provided to:  
Transit Authority PD (TAPD)  
Housing Authority PD (HAPD)  
Port Authority PD (PAPD)

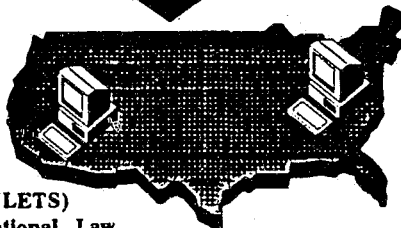
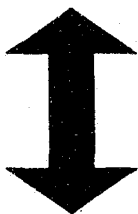
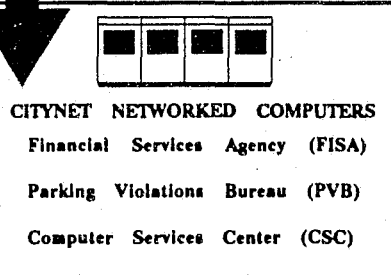


(NYSPIN)  
New York State Police Information System Network



(DCJS)  
New York State Division of Criminal Justice Services:  
Criminal history records

(DMV)  
Department of Motor Vehicles



(NCIC) National Crime Information Center

(NLETS)  
National Law Enforcement Telecommunications System

Databases

Property: Articles, guns, boats, vehicles, license plates

People: Missing persons, Wanted Persons

Securities - Interstate Identification Index

*NYPD's information systems support the various needs of its users through a multitude of computer systems and applications, such as SPRINT, NITRO, PERSONNEL, ON-LINE BOOKING, etc. Any terminal on the NYPD's FINEST network can access the department's computers as well as various State, Federal and City databases.*



**Table 4  
MISD Projects - Implementation Schedule**

<u>MISD System/Application</u>	<u>Completion Date (CY)</u>
Narcotics Investigative Tracking of Recidivist Offenders (NITRO)	3rd Qtr. 1992
Automated Pistol and Long Gun Licensing	2nd Qtr. 1994
Automated Management of Property System (AMPS)	4th Qtr. 1994
Automated Fuel Monitoring System	Pending Release of RFP
Intelligence Division System	1st Qtr. 1993
On-Line Prisoner Arraignment System	4th Qtr. 1992
Deputy Commissioner, Public Information	4th Qtr. 1992
Sprint (CAD) Upgrade/TPF III	3rd Qtr. 1992
Optical Character Recognition System	3rd Qtr. 1992
Photo Imaging System for Personnel Burea (Enhancements for IAD, Range and FIAUs)	3rd Qtr. 1993
Fleet Administration Tracking System	2nd Qtr. 1993
Enhanced Uniform Sick Reporting	2nd Qtr. 1993
Interface with NYC Law Department	4th Qtr. 1992
Interface with Department of Transportation	4th Qtr. 1992
Misdemeanor Recidivist Program	2nd Qtr. 1992 Completed



# The NYPD's Communications Division

*An Overview*

## Mission and Responsibilities

The mission of the 911 communications center is to provide an emergency telephone and radio communications system for the delivery of public-safety services to the citizens of the City of New York.

The 911 communications center, located at One Police Plaza, processes requests for emergency services. Incoming telephone calls are intercepted by an Automatic Call Distributor (ACD), a device which identifies the borough from which the call is made and routes the call to a 911 operator servicing that borough. The information gleaned from each caller is inputted into the Department's Computer-Aided Dispatching System (SPRINT), linked to the radio dispatchers in each borough. The telecommunications link between the 911 call-taker and the radio dispatcher immediately transmits the call for service to the available resource. The 911 call-taker can also transfer the call to other agencies such as Transit Police, Emergency Medical Service or the Fire Department.

This communications system routes low priority calls for service directly to the precincts for response as resources become available. This also permits supervisors to monitor and manage resource allocation and utilization.

Certain patrol vehicles in each precinct and specialized units utilize Mobile Digital Terminals (MDTs) for vehicle inquiries and wanted person checks. These devices are linked to the NYSPIN and NCIC computer systems via a host computer located in the Management Information Systems Division. They also allow car-to-car messaging. It is anticipated that this system will be expanded to include dispatching from the 911 center directly to field patrol resources. This will reduce air time utilization while increasing efficiency and accuracy.

## Historical Summary

Prior to 1968, calls for police service were received via the seven-digit telephone number 440-1234. These calls were received in the respective borough from which the call originated. The receiving locations were:

- Brooklyn : 78 Precinct
- Bronx : 46 Precinct
- Manhattan : 240 Centre Street (Old Police HQ)
- Queens : 103 Precinct
- Staten Island : 120 Precinct

Calls to the Police Department were received at a switchboard. The receiving operator would plug a jack into a lighted outlet on the switchboard to establish a connection with the caller. The information was written on a "slip" which would then be transferred to the appropriate dispatcher via a belt system or pneumatic tube.

In 1968, the seven-digit telephone number was discontinued in favor of the three-digit 911 telephone number. In addition, the borough concept was disbanded in favor of a "centralized" site for receiving and dispatching 911 calls. The system was reconfigured at the Manhattan headquarters location at 240 Centre Street. Under this new configuration, all 911 calls were handled by a primary receiving operator (call-taker) who would transfer non-emergency calls to a secondary position for processing. In addition, a main "centrex" switchboard was utilized to receive telephone calls from the general public as well as other units within the Department. Due to the increasing volume of 911 calls, the radio divisions were also reconfigured to reduce the number of precincts assigned to each radio dispatcher. Computerization was limited at this time and each caller's location had to be manually searched in a street address book to determine the precinct of responsibility. All of this information was placed on a



"slip" and sent to the appropriate radio dispatcher through a belt system.

In addition to the 911 and radio system configuration, there was a "notifications/history" desk (presently known as the Operations Unit) to track incidents of significance and make the proper notifications to ranking members of the Department. A Central Complaint Desk (CCD) would assign numbers to all reported crimes. The operators in this area would then call the respective precinct of responsibility to obtain a complaint number (known as a 61 number) for processing by the Arrest and Crime Coding Section for the purposes of uniformity and statistical data collection. In the event of calls for ambulance service, NYPD personnel would notify the appropriate Emergency Medical Service dispatcher, located at Headquarters.

In the late 1960's, the Special Police Radio Inquiry Network (SPRINT) computer system became operational. This system automated the work that was previously performed manually (slips, CCD desk) and dramatically increased the speed and efficiency with which calls for police/ambulance service were dispatched.

In October 1973 the 911 operation moved into a new Police Headquarters building at One Police Plaza. New telephone lines were added and the radio divisions were further subdivided to reduce the number of precincts in each division. This was necessary to alleviate the continuing burden placed upon the dispatchers due to the increasing volume in calls for service via the 911 system. Presently, this system awaits its next upgrade that will include a new facility and state-of-the-art equipment. As of 1990, the 911 system received 8.9 million calls for service, compared to 6.9 million calls in 1973. The increasing role that the Communications Division and the 911 section play in this Department's endeavors to maintain public order and provide timely service, necessitates the building of a new facility, complete with technological advances to increase the efficiency and effectiveness of emergency service response.

## Current Status: Communications Center

The current 911 Communications Center has been operational since October 1973. In June of this year, a new digital telephone service was implemented to replace the antiquated mechanical telephone system that had been utilized since the current center became operational. In conjunction with this new digital telephone system, a comprehensive records management system is also provided, that will enable management personnel to track important statistical information such as call volume, answering rate, length of call (talk time), position accepting call and other important criteria. This information is utilized to forecast future needs and to allow more efficient distribution and assignment of personnel.

The present radio system is outmoded and replacement parts are no longer readily available. In addition, the radio network is overcrowded. Frequencies on most divisions are utilized in excess of the national public safety standard limit of 4 hours of talk time for any 8-hour period. The acquisition of additional frequencies, along with installation of modern radio consoles with expanded functions, will help alleviate this condition. Voiceless transmissions, utilizing Mobile Digital Terminals will also assist in reducing air time utilization even further.

Currently, there are two telephone devices for the deaf (TDD) in operation within the center. One device operates on a teletype machine that requires a standard telephone to be answered by voice, and the receiver portion of the telephone placed in a coupling device in order for the deaf caller to type a message to the police. A newer TDD recently installed does not require a coupling device. The unit is self-contained and allows the deaf caller to begin typing a message to the police once a coded signal generated by the device is received by the caller. This unit is more efficient than its predecessor and allows these types of calls to be processed in a timely manner. It is expected that four additional TDD's will be installed in the near future (each with its own separate telephone line), which will allow the antiquated teletype device to be removed from service.



Neither the old or the new TDD systems are computer-aided. Each system requires manual transcription of the message into the present CAD system, at a remote location from where the call is received. Although the TDD and CAD systems allow for efficiency, the lack of an interface between both systems reduces processing speed.

The present configuration of the center does not allow for inter-agency communications on a large scale. At disaster scenes with multiple agency responses, coordination of efforts is hampered by the inability of these agencies to communicate with each other on a common frequency.

The backup facilities for 911 are inadequate. The equipment in place is old, and none of the facilities are computer-aided. The necessity to process 911 calls manually at these locations makes these facilities marginal at best, and certainly incapable of sustaining the type of emergency service expected by the public for any extended period of time.

In addition to most of the 911 center's equipment having been utilized beyond its life expectancy, the physical location of the center has also become inadequate. The center is overcrowded, with no room for expansion. The necessary support systems such as uninterrupted power supply, backup power generating systems, proper ventilation, appropriate lighting, ergonomic seating, and acoustical dampening, do not exist, or exist in a marginal capacity. The recently implemented digital 911 telephone system, while state-of-the-art, is not compatible with the enhanced 911 equipment and therefore cannot offer automatic number/location identification. The current computer-aided dispatch (CAD) system is not flexible enough to interface with other support systems such as Automatic Vehicle Location (AVL), Unit Identification, Graphic Mapping Systems, and Mobile Digital Terminals, without intensive, exhaustive, research and study to determine if compatibility can be achieved, and at what cost.

In its first full year of operation, the New York City 911 system handled 6.9 million calls, resulting in 2.5 million radio runs. In 1990, this same system handled nearly 9 million calls, resulting in nearly 4 million radio runs. A 5 percent annual increase is projected in 911 calls and radio runs will increase commensurately. In order to meet the expected future demands that will be placed upon the 911 system, expansion of the number of call-takers and radio positions and other support systems is mandatory.

While the public-safety needs of the citizens of New York City are being met, the current radio consoles along with various ancillary equipment are now obsolete. Maintenance of this equipment has become an issue in maintaining a communications system. In order to enhance the system, a new, state-of-the-art communications center must be designed and built.

In December 1991, the Mayor signed a local law authorizing the New York Telephone Company to collect a tariff of \$ .35 per month per telephone subscriber. The City Council has approved the collection of these funds for a three year period. The anticipated revenue, projected to total \$ 16 million annually, will support the new Enhanced 911 telephone system that will be available to all citizens and visitors in the New York City area. This revenue will be used to acquire the following:

- A. 911 call-taker consoles & equipment
- B. Radio equipment & enhancements
- C. Tape logging equipment
- D. Enhanced 911 installation & equipment
- E. New Computer-Aided Dispatch (CAD) System

Presently, discussions are being held with representatives of various government agencies to determine which public safety agencies will physically move to the proposed communications center or remain at their present locations with electronic linkage to the system.



### Status of Radio Network

Since the present radio system is overcrowded, frequencies on most divisions are utilized in excess of the national public safety standard limit of 4 hours talk time for any 8-hour period. Acquisition of additional frequencies will help to alleviate this condition. The Department is now involved in a project to coordinate the allocation of additional radio frequencies to public safety agencies. Once additional frequencies are allocated to this Department, radio divisions can be modified to incorporate fewer precincts than presently covered to reduce the "span of control" of each radio dispatcher. In addition, the use of Mobile Digital Terminals will allow the "voiceless" dispatching of certain incidents to patrol resources. Additional frequencies will be utilized to provide common frequencies for other public safety agencies to use at scenes of multi-agency responses.

### Future Needs of the Communications Center

Future needs of the 911 Communications Center include a total rebuilding of the center in a new location with appropriate state-of-the-art public-safety technologies and support systems. The new center must include sufficient space to provide for future expansion. Crowded radio divisions will be remedied by the acquisition of additional radio frequencies.

In line with projected yearly increases in call volume, the new center will require expanded 911 call-taking positions, and supervisory positions to oversee both the 911 and radio dispatching areas. A new flexible computer-aided dispatch (CAD) system will be pressed into service to process the tremendous volume of data generated by the 911 call-takers, radio dispatchers and other public-safety agencies serving the emergency needs of New York City.

In order to streamline the emergency operation and provide statistical data that can be utilized to forecast personnel needs and identify specific call

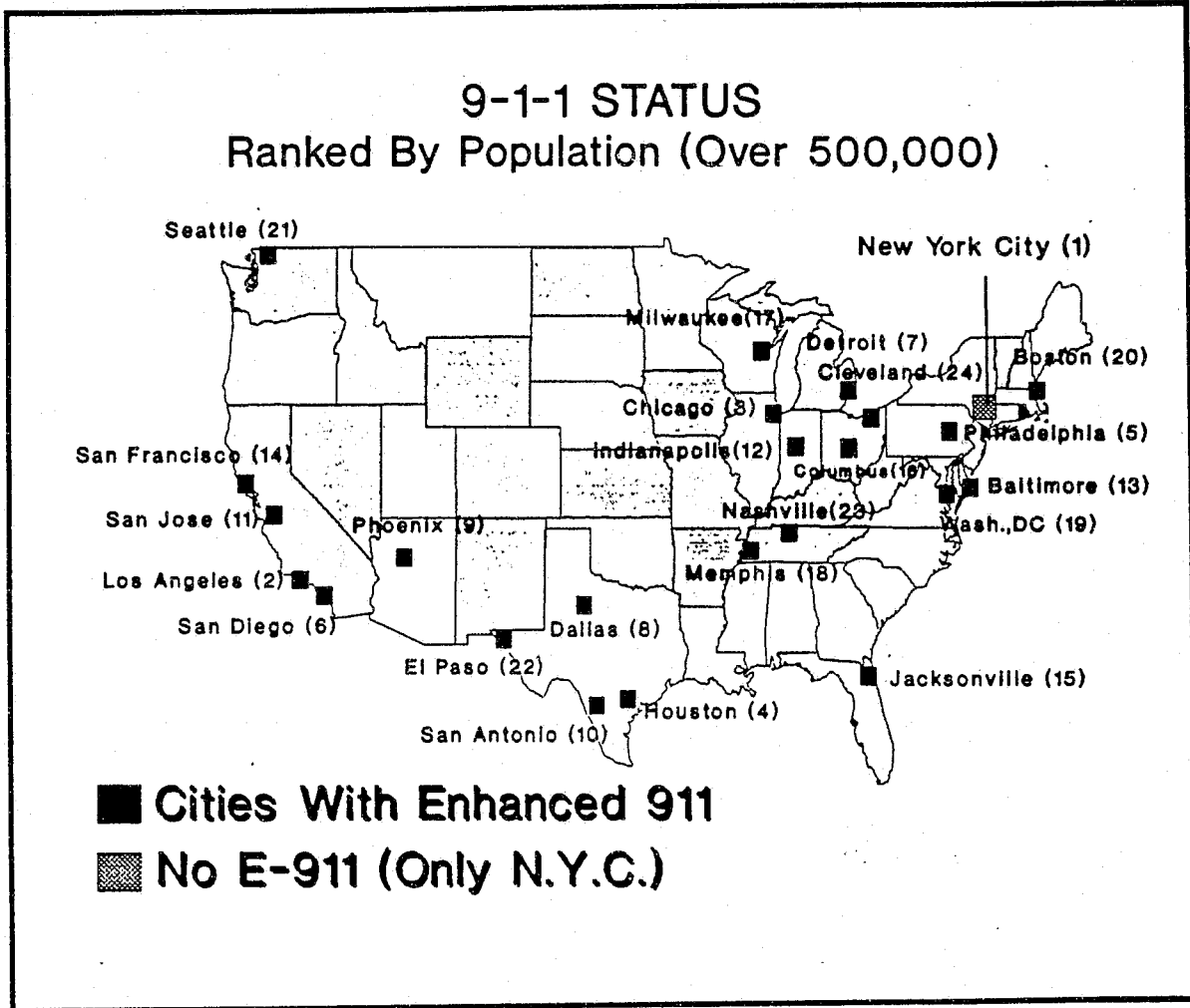
patterns to the 911 center, a new records management system (RMS) will be developed to interface with the CAD system. The RMS will be customized to ensure that data necessary for the maintenance of an efficient 911 emergency center are identified and made available for easy retrieval.

Additional equipment that the Department is seeking to expand the capabilities of the Communications Center consists of: Automatic Vehicle Locator (AVL) to track the location of patrol units; Mobile Digital Terminals (MDTs) which will enable voiceless (digital) transmission of calls for service to field units, cellular telephones to enable field units to communicate directly with people that have called 911; and a modernized E-911 back-up facility, centrally located to ensure that E-911 service continues in the event of service disruption at the primary communications center.

Table 5

<b>E 9-1-1 STATUS IN NEW YORK STATE</b>
<b>Communities With E 9-1-1 As of 9/20/91</b>
Erie County (Buffalo)
Monroe County (Rochester)
Nassau County
Niagara County
Saratoga County
Suffolk County (Southold) L.I.
Suffolk County (East Hampton Townshlp)
Warren County
Westchester County (New Rochelle)

*Many communities in New York State have Enhanced 911 capabilities, including the communities that immediately border the City of New York, Nassau, parts of Suffolk, and parts of Westchester counties.*



*An examination of the major cities in the United States with a population greater than 500,000, showed that each of the cities had Enhanced 911 services except for New York City, which has a basic 911 system.*

*New York City ranked # 1 in population, but serves the public with a 20 year old basic 911 system.*

*Plans are now in place to add not only enhanced 911 capabilities, but to build a modern state-of-the-art Public Safety Answering Center.*



# Community Policing and Information Technology

## Background

Since his appointment in January, 1990, Police Commissioner Lee P. Brown has made sweeping changes in the Department's style and strategy of policing. The implementation of community policing on a Department-wide basis requires that all aspects of police services be examined within the context of this new philosophy. This clearly necessitated a review and evaluation of the Department's current information technology.

Community policing represents a fundamental change from the more traditional style of policing and requires new operational definitions for the Department. Such critical change also requires a re-thinking of the way in which an organization strategically plans for future technological needs. The acquisition of new computer software or the purchase of the latest examples of technological wizardry on an ad hoc basis is one way to equip a police agency. It is quite another to develop an information technology strategy which serves the Department's overall mission, supports its philosophy and addresses the varied information needs of the beat officer, a most essential element of community policing.

Traditional policing focuses on unit specialization to deal with local crime problems. Community policing requires police officers to become generalists in their efforts to respond to neighborhood problems. Where traditional policing assumes a more reactive approach, community policing establishes a partnership with citizens to address local problems and needs before they escalate. In this sense, the beat officer is a pivotal player in forging this unique partnership. Commissioner Lee P. Brown describes this expanded role:

"Rather than simply patrolling the streets, beat officers are encouraged to initiate creative responses to neighborhood problems. To do so, beat officers must become actively involved in the affairs of the community. In addition, they must be given the authority to make decisions as they see fit, based on the circumstances of the situation." Community Policing: A Practical Guide for Police Officials. Lee P. Brown, Perspectives on Policing, Kennedy School of Government, National Institute of Justice, September 1989: Page 6.

These decisions must be based on up-to-date information in an easily-accessed form to provide services at the point of contact in the field. Where traditional policing focused on information systems that measure response time, arrest rates and summons activity, community policing focuses on the need for information systems that support the analysis of local problems and the design of appropriate solutions. The first step in problem-solving is problem identification, a function which can be supported by an information system designed to identify crime patterns and recurring problems. Important data elements used in problem analysis include characteristics of the crime, offender, and victim, and information on previous calls for service and actions taken. In addition, community resource directories, beat profiles and agency referral information can provide valuable support to officers in the field. Community policing also requires that officers assume greater technical duties in such functions as crime prevention, warrant enforcement and the lifting of latent fingerprints. These functions are assisted by a variety of information systems.





### Creation of An Information Technology Committee

In the report, Policing New York City in the 1990's, Police Commissioner Lee P. Brown identified a number of deficiencies in the application of technology to police operations.

"While the New York City Police Department has been on the cutting edge of a number of important new operational methods, the application of science and technology to automation of some management processes has often lagged behind the need." January, 1991: 48.

Among the reasons cited for this technological lag were budgetary limitations, staffing needs prioritized over technological needs, and the cost of implementing new technology particularly in terms of the size and expense of the systems required for an organization as large as the NYPD. As a result, the Department maintains an outdated communications system, provides a disproportionately small number of computer terminals to administrative staff, and operates a fleet of Radio Motor Patrols, only a small percentage of which are equipped with mobile digital terminals.

Policing New York City in the 1990's also included a series of specific tasks and responsibilities, designed to guide and ensure the effective implementation of community policing throughout all operations of the Department. One of the tasks called for the establishment of a Committee on Information and Technology under the responsibility of the Deputy Commissioner, Management and Budget. The challenge of this committee was to address the Department's technological deficiencies in a coordinated and comprehensive way. In more specific terms, the role of the Information and Technology Committee was to identify and prioritize the appropriate technologies to advance community policing in

New York City and improve the Department's overall operations. In March 1991, the following individuals were appointed to the newly formed committee:

- Deputy Commissioner, Management and Budget (Chair)
- Chief of Department
- Commanding Officer, Office of Management Analysis and Planning
- Director, Communications Division
- Commanding Officer, Management Information Systems Division

To accomplish its mission, the Information and Technology Committee formulated a series of objectives:

- Identify information and technology needs throughout the Department.
- Develop a strategic plan to prioritize, coordinate, purchase and utilize appropriate technologies to support the community policing strategy in New York City.
- Establish a prioritized list of information systems and other technologies, designed to maximize police service to the community and improve the Department's overall operations.

The committee developed a needs assessment instrument to obtain information on the Department's technological needs. In order to develop a comprehensive listing of needs, the assessment process was divided into three phases: a survey of command personnel, a review and analysis of the needs of Bureaus reporting to the Chief of Department and a review of the information technology needs of the 72 Precinct, the first precinct to fully implement community policing.



In addition to the information systems and technology identified through Department personnel, the committee reviewed other technological innovations that would be appropriate for use by the Department such as notepad computers and computerized community bulletin boards. The bulletin boards in particular, required further research to determine the type of information community members would be interested in obtaining from their precincts. Since the sharing of information is a collaborative effort between the police and communities served, a questionnaire was forwarded to representatives of the 59 Community Boards throughout the City to enlist their aid in identifying information items for inclusion in the developing technology for community bulletin boards. Thus, community board members would share in the development of a precinct-based computer application to exchange local knowledge.

At the onset of the committee's research and review process, it was proposed that a strategic plan be developed and produced within a year. The plan would serve to coordinate and prioritize information technology needs, review and evaluate the proposed MISD architecture designed to support community policing, and research new technology. Those projects which most directly link technology with community policing or which demonstrate a distinct enhancement for a particular function, would be given the highest priority. Included in the plan would be a review of the Enhanced 911 Emergency Response System and its state-of-the-art communications technologies utilizing digital switching equipment to replace the current mechanical equipment now being used.

While the Strategic Plan, to be submitted to the Police Commissioner in August, 1992 would conclude the committee's scheduled work activities, it was recognized that an information technology planning effort should be an ongoing process, supported by the following activities:

- Training on computer applications and content must be ongoing to ensure that system users are fully trained on the system's capabilities.
- Appropriate staff must be in place, especially in the precincts, to ensure that the new systems are used effectively.
- A monitoring and evaluation effort should be instituted to assess new technologies, monitor program performance and determine system utility.
- New technology and information needs should continue to be prioritized in terms of their ability to support community policing and improve Department operations.

A rapidly changing technological environment demands continuous research and review. In his commitment to advance technological change in the New York City Police Department, Commissioner Lee P. Brown designated the Information and Technology Committee as the mechanism by which new information technology would be strategically planned to support both the philosophy of community policing and its implementation in New York City.

**"A rapidly changing technological environment demands continuous research and review."**



# Identification of Information Technology Needs

## Needs Assessment Methodology

**"It was stated from the beginning of this process that only those information systems or technological advances which would either support community policing or improve the Department's overall operations would be considered for review."**

In order to determine the Department's information and technological needs, a comprehensive needs assessment process was initiated in May, 1991. The objective of this research effort was to elicit the responses of command personnel to identify informational and technological needs and explore potential new applications to police operations. Thus, all levels of the organization, from the beat officer to the Police Commissioner, would have the opportunity to share their knowledge of information needs and new technological applications.

It was stated from the beginning of this process that only those information systems or technological advances which would either support community policing or improve the Department's overall operations would be considered for review. This served as the conceptual background within which to assess the Department's information technology needs to support the community policing philosophy and reinforce the idea that shared information, through new systems or technology was a priority for the Department.

To ensure that various information sources were included in the analysis the needs assessment process was divided into three separate phases :



### Phase I: Information and Technology Survey

To develop a comprehensive listing of information systems and other technologies, appropriate for implementation, an Information and Technology Survey was distributed on a Department-wide basis. The questionnaire was a first step in an effort to identify technologies that would maximize police service to the community and/or improve the Department's overall operations. An attached summary sheet, to prioritize projects, required the review and signature of a Bureau Chief or Deputy Commissioner. Survey results were due at the conclusion of one month.

Once survey forms were returned to the Information and Technology Committee, each Bureau's prioritized projects were listed along with summary descriptions of the equipment requested. All of the projects were reviewed and rated based on the particular project's ability to enhance community policing or improve police operations and administration. Each survey response was assigned a category rating:

- Category I A: Funded Projects:  
Recommended for Immediate Development and Implementation
- Category I B: Funded Projects:  
Currently in Progress
- Category II: Unfunded Projects
- Category III: E-911 New Tariff Legislation

The Category I A. designation was applied to those projects which because of their high rating and feasibility for implementation were recommended for immediate development or purchase. Although certain information systems had already been reviewed and targeted for implementation by MISD, the favorable rating in the prioritization process accelerated their implementation timetables.

Those survey projects already approved by the Department and targeted for funding were assigned to Category I B. The survey projects which required new funding and resources, were designated Category II: Unfunded Projects. Projects targeted for funding by the revenue generated from the proposed Enhanced 911 tariff legislation, were assigned to Category III.

### Phase II: Chief of Department's Office

To further identify and coordinate information needs, a subcommittee was established, chaired by the Chief of Department's office. The purpose of this subcommittee was to produce a report, based on the information and technology needs expressed by representatives from the Patrol Services Bureau, the Detective Bureau, and the Organized Crime Control Bureau and to formulate recommendations.



### Phase III: 72nd Precinct

In an effort to ensure that the information and technology needs of the 72 Precinct, the *model* community policing precinct, were included in the needs assessment process, a subcommittee, chaired by the Office of Management Analysis and Planning, was designated to manage this part of the needs assessment effort. In view of the fact that the community policing plan had been fully implemented in this Brooklyn precinct, it provided the ideal setting for the analysis of the information needs of beat officers. Based on the responses of the 72 Precinct representatives, a report would be prepared with recommendations to the full committee.

Each phase of the assessment process was structured to produce concrete recommendations, prioritized at the bureau level throughout the Department. Both the Information and Technology Survey and the subcommittee reports stressed the need for an analytic approach in determining the kinds of information and technological resources needed to support community policing. By linking this assessment process to the Department's policing strategy, survey responses and subcommittee recommendations were developed within the context of community policing.

At the conclusion of the needs assessment process, the Information and Technology Committee had obtained a comprehensive listing of informational and technological needs identified by commands throughout the Department. Chapter 6 details the results of the needs assessment effort.

"By linking this assessment process to the Department's policing strategy,

... recommendations were developed within the context of community policing."



# Results of the Needs Assessment Survey

## Phase I: Information/Technology Survey

In response to the Information and Technology Survey distributed throughout the Department, a total of 13 commands prepared detailed responses with over 60 information and technology projects. In accordance with the survey's instructions, these responses were reviewed and prioritized at the bureau level. Additional survey responses were forwarded by the Patrol Services Bureau and the Organized Crime Control Bureau but were not prioritized, reflecting their relatively low priority status as determined by their respective bureaus. Instead, these survey responses were forwarded as addenda, particularly in the case of the Patrol Services Bureau, where precinct personnel identified more than 95 projects for implementation.

Those commands which forwarded survey responses were: Chief of Department, Patrol Services Bureau, Organized Crime Control Bureau, Detective Bureau, Support Services Bureau, Communications Division, Inspectional Services Bureau, Personnel Bureau, Deputy Commissioner, Legal Matters Criminal Justice Bureau, Deputy Commissioner, Trials, Deputy Commissioner, Training, and Deputy Commissioner, Civilian Complaint Review Board.

The following presentation of the projects identified through the Information and Technology Survey are based upon their category designation:

Category I: Funded Projects

Category II: Unfunded Projects

Category III: 911 New Tariff Legislation

As a result of the Committee's efforts to identify and prioritize those survey projects recommended for immediate implementation, the Category I designation was further refined:

Category I:

- A. Projects Recommended for Immediate Development and Implementation
- B. Projects Currently Funded and in Progress

The committee determined that certain projects, based on their importance to community policing and their feasibility for implementation, should be recommended for immediate development or purchase (assuming the availability of resources). A total of 23 projects were designated as Category IA projects and assigned to this subcategory, 18 of which are now scheduled for design and development by the Department's Management Information Systems Division.



The projects in sub-category IB, although identified through the survey, were already targeted for funding and implementation, prior to the survey's distribution. An implementation timetable for Category IA and IB projects is provided in Chapter 8.

The projects in Category II are listed in priority order based on a point value assessment performed by the committee. The title of each project is followed by a summary description.

Category III projects, identified under the Communications Division, are listed separately because of the potential for funding through the new E-911 Legislation. Although these projects were identified in the Information and Technology Survey, they are part of the overall E-911 package, identified in Chapter 8, Information Technology: Preparing For the 21st Century. Consequently these projects do not reflect prioritized ratings, although the Information and Technology Committee supports the E-911 project as a top priority for the Department.

The results of the Information and Technology Survey are listed in priority order, and include project summaries:

### Summary of Responses

The following 23 project requests were prioritized by the Information and Technology Committee and recommended for purchase (with existing funds or through requests for new funds) or development and implementation utilizing in-house personnel and resources.

## Category IA: Funded Projects

### *Recommended for Immediate Development and Implementation*

#### 1. Criminal Justice Bureau Warrant Division

##### Automated Warrant System

To establish a computer interface between the Department's computer systems (Warrant Master File, Warrant On-Line File, OLBS) and systems of other criminal justice agencies (OCA, DOC, DCJS, etc.).

#### 2. Chief of Detectives 47th Pct. Detective Squad

##### Beat Book Computerization

Computerization will permit officers to share local knowledge as well as review actions that were taken to solve neighborhood problems.

Note: In supplemental material, submitted by the Chief of Patrol's Office, many precincts identified the need for beat book computerization.

#### 3. Support Services Bureau Identification Section

##### Computerization of Court Orders of Protection

A computer system to document, retrieve, and purge Court Orders of Protection to enable patrol personnel to receive information when a victim/complainant indicates that an Order of Protection has been obtained.

#### 4. Criminal Justice Bureau

##### Computerized Appearance Control

To control, manage and document the appearances of police personnel at court or other government agencies, replacing telephone notification with an electronic messaging system.



**5. Deputy Commissioner, Training  
Computer School**

Local Area Network

The Police Academy's 12 units which share the same data and information, would be linked.

**6. Deputy Commissioner, Trials**

Local Area Network

To link five personal computers within the office for word processing and case tracking.

**7. Chief of Patrol  
49th Precinct**

Personal Computer Network

This would enable reports to be quickly transmitted to the Borough and from the Borough to Headquarters. Precinct units would also be able to communicate information via the network.

Note: Precinct LANs will provide this capability, which was emphasized in supplemental material submitted by the Chief of Patrol's Office.

**8. Chief of Organized Crime Control  
Field Control Division**

Local/Wide Area Networks

To share common databases throughout the Department.

**9. Chief of Department  
Quality Control Section**

Standardize Department Computer Applications

All micro-computer applications should be standardized within the Department.

Note: This is a recognized goal for all of the Department's computer applications.

**10. Chief of Department  
Bias Incident Investigation Unit**

Expansion of Unit's Computer Capabilities

MapInfo software is needed to analyze patterns of bias crimes within the City. Additional computers (on a network) are also needed for investigators in the unit.

**11. Chief of Department  
Operations Unit**

Automate Communications Logs

To provide networked computers to record, store, maintain and retrieve information.

**12. Chief of Department  
Investigation Review Section**

Automate Communications System

An Automated Communications Analysis and Tracking System is requested to computerize complaint data and allow for better tracking, storage and retrieval of data.

**13. Chief of Detectives  
Manhattan Robbery Squad**

Warrant On-Line File System (WOLF)

This file, maintained in the FINEST Message Switching System, is a database of all felony warrants and follow-up investigations by Warrant Division officers. If made available to all major investigative units, the WOLF system will allow detectives to identify and contact police officers assigned to areas in which the suspects reside.

Note: This system is presently available to the Warrant Division offices, the Career Criminal Investigation Unit, and the Precinct Detective Units.





**14. Chief of Detectives  
Resource Allocation Unit**

Local Area Network (with electronic mail)  
For Detective Squads to prepare reports, receive messages and communicate with other members of the Detective Bureau and the Department.

**15. Inspectional Services Bureau  
Internal Affairs Division**

Local Area Network  
To computerize all investigation information and establish a link with the Borough FIAU's.

**16. Inspectional Services Bureau  
Internal Affairs Division**

Geobased software to analyze corruption data geographically by mapping information according to precincts and sectors.

**17. Chief of Personnel  
Employee Management Division**

Enhanced Computerized Personnel System  
In terms of this information system, EMD stresses the importance of retrieving personnel information from one, centralized source. Data will include arrest activity, demographics, prior assignments, education, skills, and sick record.

**18. Chief of Detectives  
Latent Print Unit**

FAX Four Machines  
FAX machines to give each Latent Print Borough Satellite Unit (where SAFIS terminals are located), the ability to transmit and receive high quality images and fingerprint information from the Department's Latent Print Unit-Central Office or from the New York State Division of Criminal Justice Services. The FAX machines

are capable of transmitting high quality fingerprint images in order to make comparisons of latent prints recovered from crime scenes.

**19. Support Services Bureau  
Motor Transport Division**

Emergency Lighting/Sirens  
An improved emergency lighting/siren system to enhance visibility using the intersection-clearing capability of the Federal Signal "Vision" light bar.

**20. Chief of Personnel  
HSD: Psychological Services**

Scannable Forms for Performance Evaluations  
To obtain more rapid and accurate information for the assessment of performance.

Note: The Health Services Division requested these forms for use by the Employee Management Division. Computer scannable forms and an optical scanner were approved for purchase and are now operational. The newly-created performance evaluation forms are geared towards community policing.

**21. Chief of Detectives  
Career Criminal Section**

Photo Imaging  
A computerized photo imaging system for the storage of pictures, video images, and documents. This system will maintain current photos for crime victims and enable complainants to view missing person files. This system would also provide photographic images of stolen or recovered property. The photo imaging system will be developed as part of the Automated Warrant System.



**22. Chief of Organized Crime Control  
Auto Crime Division**

Bar Code Scanners

A portable, handheld identification system to trace and verify vehicles and vehicle parts for investigative purposes. This system can also be used for inventory control and the tracking of property and equipment.

**23. Deputy Commissioner, Training  
Testing Unit**

Optical Mark Reader

A reader and software system for test marking.

The following seven survey responses represent projects already approved and targeted for funding. These responses have been classified as Category IB projects

**Category IB: Funded Projects**

*Projects Currently Funded and in Progress*

**1. Deputy Commissioner, Legal Matters  
License Division**

Automated Firearms Ownership File System

To automate the file system and include license processing and renewal capabilities.

**2. Deputy Commissioner, Legal Matters  
License Division**

Automated Pistol License Record Management  
Filing System

Automation of the 62,000 pistol license records.

**3. Support Services Bureau  
Management Control Section**

Automated Management of Property System  
(AMPS)

To track intake, storage and disposition of property.

Note: A vendor has been selected to develop this system.

**4. Support Services Bureau  
Property Clerk Division**

Automated Accounting System

Use of personal computers with local area network capability.

Note: The Automated Management of Property System (AMPS), will address the accounting needs of the Property Clerk Division

**5. Support Services Bureau  
Motor Transport Division**

Fleet Administration Computerized Tracking  
System

For the computerized management, administration and accounting of the automotive fleet.

Note: This is a replacement of the Fleet Administration Management Information System (FAMIS) to provide greater flexibility in generating more detailed information for management reports. Through an RFP process, initiated by DGS, vendors will develop and implement a new system. All costs will be assumed by DGS for this city-wide computer application.



**6. Support Services Bureau  
Motor Transport Division**

Automatic Fuel Monitoring System

A computerized fuel dispensing and accounting system to maintain files on more than 4,000 Department vehicles. The 75 fueling sites would have automated dispensers, linked to a host computer.

**7. Chief of Organized Crime Control  
Narcotics Division**

Automated Complaint System

Computerization of the complaint reporting system (including complaint preparation) to provide up-to-date information. The Division records more than 50,000 complaints on an annual basis.

Note: The Narcotics Division's Narcotic Investigative Tracking of Recidivist Offenders (NITRO) system, is an automated intelligence database for narcotics investigators. OCCB complaints will be entered in the new NITRO system and will become part of a larger Department-wide complaint database when the On-Line Complaint System becomes operational.

**Category II: Unfunded Projects**

**1. Court Division**

Statewide Automated Fingerprint Identification System (SAFIS)

To establish work stations in each Borough's Central Booking site to forward fingerprint information to DCJS.

Note: At this time, the State is delaying any further action on providing direct access terminals. At the end of 1993, the State has agreed to evaluate the feasibility of implementing direct access terminals into SAFIS for central booking sites.

**2. Chief of Patrol  
88th Precinct**

Computerization of Forms

Data from complaint reports, aided cards and other Department forms would be inputted and transmitted to a centralized mainframe.

**3. Inspectional Services Bureau  
Intelligence Division**

Vehicle Tracking System

To identify the location of Department vehicles. Computer terminals in vehicles can receive or transmit messages to/from dispatcher without the use of a telephone. This system would be used by ISB for undercover operations and dignitary protection assignments.



**4. Civilian Complaint Review Board**

Computerized Case Management System

To input case data into a central computer system requiring additional terminals for each investigative team. This system would enhance their existing computer capability and allow for the production of case reports by each individual investigator.

**5. Criminal Justice Bureau**

Videoconferencing

Videoconferencing is currently used in Manhattan and Brooklyn to prepare accusatory instruments for arraignment. CJB requests expansion of this technology to the Bronx. In addition, plans are now being developed to expand videoconferencing to post-arraignment interviews in all the boroughs (currently done on Staten Island), and to utilize this technology for appearances at Traffic Violation Bureaus.

**6. Deputy Commisisoner, Training  
Executive Development**

Computer Terminals, etc.

A request to purchase 25 terminals, 2 VCRs, 1 FAX machine, 1 slide projector and training tapes.

**7. Chief of Personnel  
Applicant Processing Division**

Lantastic Software Program

Software which links separate data files to reduce duplication of information (inputted manually) and allows for multiple users of the same database.

Note: The Department has already selected and implemented a different LAN management program.

**8. Chief of Patrol  
107th Precinct**

Beepers for Foot Patrols

To facilitate communication between officers and their precincts.

**9. Chief of Detectives  
Resource Allocation Unit**

Cellular Telephones

A total of 115 cellular telephones are requested for precinct detective squads, specialty squads and supervisors. The telephones will enable beat cops and detectives to allow mobile telephone contact with the communities served.

**10. Civilian Complaint Review Board**

Photo Imaging System

A computerized system to collate the pedigree, statistical and photographic information of uniformed members of the service for identification purposes.

**11. Chief of Organized Crime Control  
Public Morals Division**

Interface with State Liquor Authority Database

A system is needed to query the computer files of the State Liquor Authority and the Dept. of Consumer Affairs to determine if a location is licensed.

**12. Chief of Detectives  
Technical Assistance Response Unit**

Microwave Video Transmission System

A mobile electronic surveillance van with video equipment, capable of sending video pictures, rapidly and clearly, by microwave transmission to Headquarters.



**13. Chief of Detectives  
Resource Allocation Unit**

Expert Computer Systems

Computer software developed to provide information for criminal investigations.

**14. Criminal Justice Bureau**

Criminal Justice Computer Interface

To obtain information from all Criminal Justice computer systems such as the courts, Departments of Probation, Parole, the Victim Services Agency, etc.

**15. Deputy Commissioner, Training  
Driver Ed. & Training Unit**

Driving Simulators

To improve training in defensive driving, emergency response and vehicle control, using interactive video simulator systems.

**16. Chief of Patrol  
90th Precinct**

Cellular Telephones

Telephones for the vehicles driven by platoon commanders and patrol sergeants for contact with community agencies. This equipment would also enable them to remain in contact with their respective precinct.

**17. Chief of Organized Crime Control  
Public Morals Division**

Automatic Vehicle Locator

To provide the location of Department vehicles.

**18. Deputy Commissioner, Training  
Other Police Academy Units**

Misc. Equipment

Training Units: Computers, printers, photo copiers, and transparency maker.

Library: Security system, library equipment, furniture, books, computers, closed circuit TV.

Note: The Firearms and Tactics Section requested an upgrade of the Firearms Information System File. MISD has the capability to develop the appropriate software.

**19. Chief of Organized Crime Control  
Field Control Division**

Handheld Computers

To be used for the issuance of traffic summonses, incident data collection, etc. Data would be down-loaded into a precinct LAN database at the end of a tour.

**20. Deputy Commissioner, Training  
Physical School**

Bioelectrical Impedance Analyzer

To determine the fitness levels of recruits, this computer-linked equipment measures body fat.



### Category III: Enhanced 911 New Tariff Legislation

#### Communications Division

##### Enhanced 911

To provide automatic number and location identification (ANI/ALI) to expedite the processing of emergency calls for service.

##### Enhanced Radio Capabilities

- cross-patching to improve inter-agency communications and the coordination of services at the scene of an emergency incident involving multiple agencies.
- unit identification to improve officer safety by identifying the transmission of a specific unit so that radio dispatchers know who they are in contact with if voice transmissions cannot occur.

##### New Computer Aided Dispatch System

Required to support Enhanced 911 and modern radio dispatching technology.

##### Mobile or Portable Digital Terminals

Provides patrol officers with a visual display of text from an assignment or 911 call, and can be used to produce complaint, accident, aided reports which can then be up-loaded from the terminal to a database or mainframe at the end of the officer's tour.

##### Automated Vehicle Locator (AVL)

Shows the location of patrol vehicles to the radio dispatchers, permitting the assignment of resources that are closest to a location.

##### New Telecommunications Device for the Deaf

Upgrading of the current system will give the deaf, and hearing impaired, direct access to 911.

##### Cellular Telephones

Will provide patrol officers with the means to speak directly with 911 callers/complainants. Especially helpful with difficult locations, or the description of persons in the act of a crime.

##### Handwriting Recognition Computer

A handheld computer using an electronic pen which can recognize handwriting, can be used for the preparation of reports.

##### Chief of Patrol

##### Conditions Collater

An information system that would collate and produce a report on continuous or repeat calls to 911. This would assist in identifying the source of prank calls, as well as provide beat officers with post conditions that resulted in calls to the 911 system.

##### Chief of Organized Crime Control

##### Cellular Telephones

To enable investigators to immediately communicate with commanders and other investigators where normal police radio transmissions are not appropriate for certain types of information, and for when telephones are not readily available.

**Phase II: Information/Technology Needs:****Chief of Department's Office**

The subcommittee, chaired by Chief of Department's Office, was comprised of representatives from the Patrol Services Bureau, Detective Bureau and the Organized Crime Control Bureau. Each bureau was asked to prepare a report, detailing recommendations for the enhancement of the Department's informational and technological capability to support community policing. Each bureau submitted detailed recommendations, which were then evaluated by the Chief of Department's office. The results are as follows:

**Patrol Services Bureau**

The need for an improved capability for field communication was recommended, particularly in terms of access to the Department's information systems via mobile digital terminals. This system must include the following:

- Digital dispatching for officers to receive assignments without radio transmission, report-taking to enable officers to enter data directly on formatted screens that depict aided or complaint forms, and inquiry capability into mainframe relational databases.
- Direct communication linkage between the Communications Unit dispatcher and the field officer via the Mobile Digital Terminal (MDT), located either in the vehicle or as a portable device. This system would also allow for direct communication to the SPRINT system and to the dispatcher through the MDT. Precincts and other commands on the FINEST system would also be able to transmit information to the MDTs.
- Portable MDTs should also have the capability to generate documents, particularly for the issuance of summonses.

**Detective Bureau**

After a review of its informational and technological needs, the Detective Bureau summarized its priorities into four basic components:

- Information and communication access through the use of cellular telephones for precinct detectives, specialty squads and supervisors. The telephones are needed to improve communications, particularly for investigations.
- Precinct access to information to increase the availability of critical records and data files at the precinct level for both precinct detectives and community police officers. The data files needed include the Warrant On-Line File (WOLF), the database on felony warrants and the follow-up investigation reports of Warrant Division officers. Also requested is a photo imaging system for the storage and retrieval of pictures, video images and documents to better serve the community. A photo file would include up-to-date photo files for crime victims, photos of stolen or recovered property and photos of missing persons.
- Information Systems to include electronic mail on the local area network, with an "expert" computer system which contains a database of expert knowledge and historical information to guide investigations, beat book computerization to make information available for investigations and computer software to maintain the histories of names, addresses and locations for the storage and correlation of complaint and complaint follow-up information.
- Mobile electronic surveillance van with microwave transmission capability to send video pictures rapidly and clearly to Headquarters in the event of large scale events throughout the City.



### Organized Crime Control Bureau

To enhance the Department's information and technology, the following recommendations were made:

- Electronic mail to transmit messages directly to units.
- Information access to enable precinct commanding officers to access information from other units such as the Warrant Division.
- Computerized complaint report processing system for use by all units.

As summarized by the Chief of Department's office, these recommendations focus primarily on the need to increase the ability of units to access up-to-date information on criminal activity, warrants and field operations.

Based on the material submitted by the Bureaus, the Chief of Department's office recommends:

1. A computer system to process information, particularly in terms of the development of the on-line complaint system that would include follow-up information and other relevant crime/violations information.
2. Improved communications utilizing such equipment as handheld terminals or mobile digital terminals in vehicles.
3. The development of appropriate training programs to ensure that the new systems are implemented and used effectively.

### Phase III: Assessment of Information And Technology:

#### 72nd Precinct

The subcommittee to determine the needs of the 72nd Precinct, chaired by the Office of Management Analysis and Planning, produced a report based on its findings. Most notably, precinct representatives identified the need for mobile, handheld computers with pen-based technology. This portable computer would enable the beat officer to :

- a.) capture data for forms preparation at the point of contact;
- b.) transmit incident reports directly to the precinct for sign-off;
- c.) produce receipts for found property;
- d.) allow for digital dispatching directly to the portable computer;
- e.) access critical and timely data, (i.e., crime patterns, stolen property information, interagency checks, etc. ), and
- f.) increased personal safety by the automatic person/vehicle locator whereby the dispatcher can monitor the officer's location by computer signal transmission.

Other informational and technological needs identified by the precinct include additional computers for the automation of beat books and access to the Local Area Network (for information on crime trends, property tracking, resource planning, roll call, and beat design, beepers or cellular telephones to maintain contact with beat officers, linkage of mobile digital terminals (in sergeants' vehicles) with SPRINT, to enable sergeants to monitor jobs and dispatch available units for service calls and the development of a computer accounting application with the Warrant Division to ensure that beat officers have access to up-to-date warrant information for investigative and case tracking purposes.





Based on an analysis conducted by the Office of Management Analysis and Planning, the information technology needs identified by the 72 Precinct support the objectives of community policing. The experience and knowledge gained from the first precinct to fully implement the community policing strategy represents an essential ingredient of the needs assessment process.



# Other Technology and Information Services

## *Ideas For Growth*

This chapter introduces new information technology, identified through research, surveys and interviews with NYPD personnel as well as other law enforcement officials. This material has been included to ensure that the latest technology in policing, whether identified through the Department's needs assessment process or other research efforts, was integrated into the strategic plan. Those technological advances that would either support community policing or improve the Department's operations have been recommended for implementation in Chapter 8, "Information Technology: Preparing for the 21st Century." A review of the recent directions in information technology follows.

### **Integrated Incident Database**

Readily available information at the operations level is essential for community policing. Information is currently stored in unconnected, manual and automated files. To overcome this deficiency, MISD is implementing a relational database which will facilitate the integration of information sources as raw data is entered. The identification of relationships among seemingly disparate events will be facilitated by the creation of this Integrated Incident Database. Police officers will be able to make inquiries against this "user-friendly" data base to simultaneously search multiple files, based on key identifiers such as name, address, license plate num-

ber or other search variables. This technology vastly improves the Department's ability to combine information now in isolated files of specific commands to serve the investigative, analytic and resource planning functions of the Department.

The joining of information from internal and external sources (other criminal justice agencies, community boards, school officials, clergy, news media, and local citizens) will provide beat officers with a powerful tool to help in problem identification and problem-solving activities.

### **Handheld Computers with Pen-Based Technology**

Handheld pen-based computers are being reviewed for their potential use in the NYPD. Certain handheld computers known as notepads and notebooks combined with pen-based technology have introduced a natural way to enter data. Users can write directly on the computer screen with a pen-shaped stylus. Although there exists numerous benefits to handheld computers there are a number of issues to be considered prior to the widespread implementation of this technology which include weight, display quality, battery life and durability. However, computer manufacturers have already begun to address these issues.



Members of the Information and Technology Committee met with representatives of the New York City Sheriff's office to evaluate their use of handheld computers for the identification of parking scofflaws. These terminals are keyboard operated and sheriff's deputies report favorable results in the ease and speed with which the new computers provide scofflaw information.

MISD is exploring the possibility of using a handheld pen-based computer in conjunction with report taking, making inquiries into mainframe databases, and digital dispatching to RMP and foot patrol officers.

### Beat Book Computerization

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Based on discussions with beat officers from the 72nd and 68th precincts and results from the Information and Technology Survey, precinct beat books are targeted for computerization. The installation of Local Area Networks in all precincts will provide the capability for the addition of this computer application. Beat books are used by officers to record vital data pertaining to individual beats. These books serve as local resource and information directories of precinct beats. More importantly, beat books are used to record conditions, problems, daily activities and problem-solving strategies. Computerization will help officers to locate and retrieve data from one central repository of precinct beat information. Information, such as successful problem-solving strategies, can be made available to others to assist them in addressing a local problem.

### Computerized Community Bulletin Boards

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In an effort to address the information needs of local communities, the Department has begun exploration of an information service concept called Community Bulletin Boards. The Information and Technology Committee reviewed the con-

cept of community bulletin boards and initiated a research effort to survey the City's 59 Community Boards to determine the type of information residents would like available through their local precinct. A computerized database of local, precinct-based information such as crime statistics, parking rules and regulations, and victim/witness programs could be available through these bulletin boards. In addition to this type of up-to-date information on issues, agencies and events of interest in local neighborhoods, residents could also query the system for information on the personnel in their local precincts, such as the names and tours of community beat officers.

These interactive systems will serve as an important mechanism by which to communicate with the public. Residents will have the means by which to obtain crime data or other precinct-related information through precinct computers.

### Teleconferencing/Videoconferencing Technology

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Teleconferencing is a form of interactive communication, using audio transmissions to link participants in different locations. An example of this technology is the conference call.

When teleconferencing includes a live video image, a videoconference is created. Videoconferencing in particular, is useful for training purposes where a trainer is able to lecture from a centralized site and deliver training simultaneously to personnel located throughout the City. Through this technology, one trainer can provide lecture material to many participants, substantially reducing the need for and cost of multiple trainers. This training method helps to ensure that all participants receive the same quality in content and presentation of curriculum.

Videoconferences can be conducted through telephone lines, although the quality of the visual image is not as high as that of fiber optic cable transmissions. In an effort to plan for the implementa-



tion of videoconferencing technology, representatives from this Department met with the City's Department of Telecommunications and Energy to plan for the use of the fiber optic network, known as the Institutional Network (I-NET) now being installed underground throughout the City. The proposed network will be capable of transmitting voice, data and video signals at high speed.

The Department is planning to utilize I-NET with three projects:

*1. Videoconferencing with the District Attorneys' Offices*

To conduct interviews with NYPD members, crime victims and witnesses to prepare accusatory instruments for court following an arrest. This type of technology can also be used in post-arraignment appearances and could thus minimize the time and transportation costs associated.

*2. Warrant Photo Image Transfer*

To provide for the high speed transmission of information such as warrants and warrant subject photos to precincts from a centralized location.

*3. Training*

To link a centrally located trainer with personnel dispersed at various sites throughout the City.

## Multimedia Technology

One recent innovation in computer technology, known as *multimedia*, is currently being evaluated in terms of its application to the Department's communication and information needs. The term, *multimedia*, refers to the integration of text, graphics, video and audio in providing specific information to users. This computer-based technology is increasingly used by government agencies to provide information and services, easily accessed through kiosks. These are structures which allow computer access through a keyboard or

"touch-screen" capability, similar to the automated teller machines used by banks.

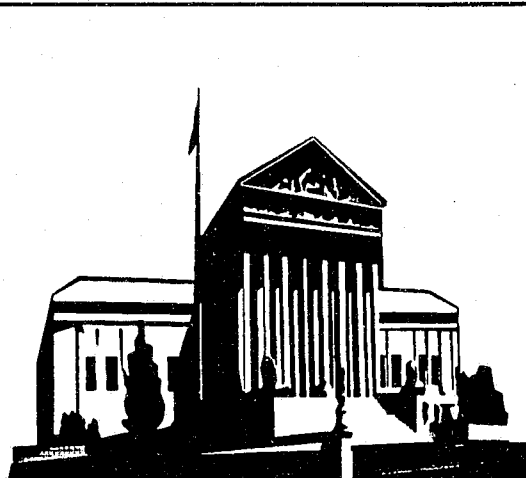
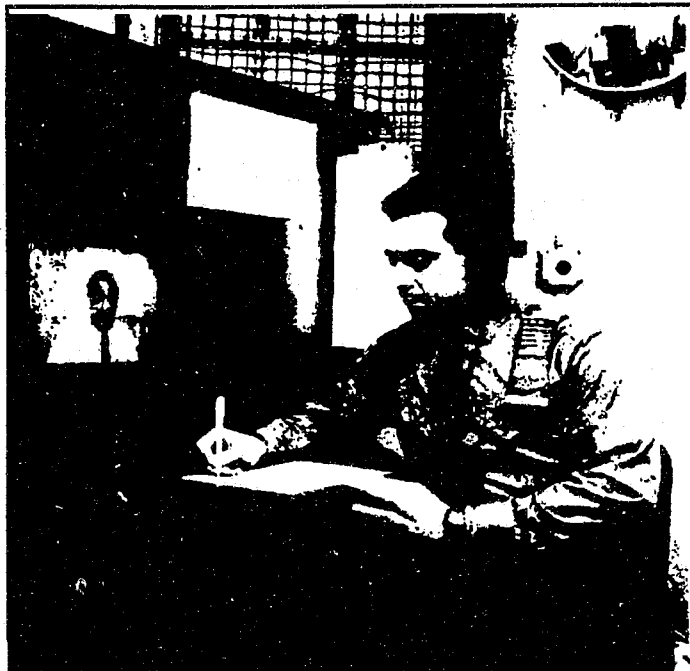
Multimedia programs are being developed for local governments to provide citizens with access to government information and services ranging from the payment of parking tickets to referrals for child care. The Democratic National Convention Committee contracted with a leading computer firm to provide multimedia technology for the July, 1992 convention in New York City. These computer kiosks, located both in Madison Square Garden, the site of the Democratic National Convention and in selected sites throughout the City provided an information service to the convention attendees. The kiosks on the convention floor permitted the electronic entry and tabulation of votes from the various delegations. Other kiosks contained menu options that provided delegate's with mail messages, schedules of convention events, tourist information, Cable TV news, and Democratic Party information.

These kiosks have the potential for use as a tool to deliver community information. Multimedia can serve as an effective training tool for recruits, in-service training and specialized training. The Department is currently conducting research into the feasibility and costs associated with multimedia technology.

## Expert Computer Programs

These systems simulate the decision-making process based on the knowledge of "experts" in various disciplines. The value of an expert system is in its ability to rapidly, accurately and consistently determine an appropriate course of action based on available information.

Expert systems can arrive at conclusions based upon available information. This system is comprised of a "knowledge" database and software which mimics the human reasoning process. Police personnel would be able to draw upon the experience of experts in a particular field through a series of "what if" queries for their specific situations.



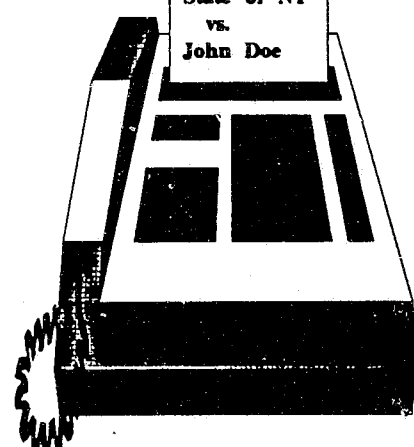
Criminal Court

The Assistant District Attorneys confer with arresting officers, and complainants via a live audio video hook-up at selected precincts.



District Attorney's Office

Criminal  
Complaint:  
People of the  
State of NY  
vs.  
John Doe



Court affidavits and arrest related documents are prepared at the precinct. These documents are then sent to the District Attorney's office by a facsimile machine, and are used as part of the video conference between the ADA, the arresting officer, and/or the complainant.

## Videoconferencing With District Attorneys

*This program has been used successfully in Kings County and Manhattan. Videoconferencing has returned police officers to patrol duties quicker, and reduced time spent at court processing arraignments. The photo in the upper left shows an NYPD police officer at a precinct in Manhattan, in a videoconference with an Assistant District Attorney.*



The Detective Bureau has indicated the need for an Expert Computer System for criminal investigations. This system would instruct investigators on how to proceed with an investigation, based on available incident information, profiling the type of person who might have committed the criminal act. Expert systems might also be used for planning purposes in crowd control at special events.

The development of expert systems requires a substantial time commitment on the part of those with the knowledge and responsibility for the creation and specification of the program's rules. In addition, the expert rules and criteria for decision-making may require frequent review and revision. The NYPD will continue to research and evaluate expert systems.

### Modernization of Uniform Crime Reporting

The Federal Bureau of Investigation and the New York State Division of Criminal Justice Services are changing Uniform Crime Reporting (UCR) requirements to collect more comprehensive data on incident and arrest reports. These changes are part of a new UCR reporting system, termed the "National Incident-Based Reporting System (NIBRS)," which allows for the collection and analysis of more extensive crime data in greater detail. This new reporting format requires the Department to report all crimes or charges related to an incident (instead of the current practice of reporting only top charge information). This new system also revises offense definitions, provides greater specificity in reporting, adds a new category called "Crimes Against Society" distinguishes attempted versus completed crimes, expands victim to offender relationship data and allows for greater correlation between the offense, victims, offenders, and arrestees.

The Department's On-Line Booking System is able to fulfill many of the new NIBRS requirements. In particular, this system allows for the capture of five charges on an arrestee, rather than only top charge data. Not only will this data be useful for statistical

reporting purposes, it will also be available for precincts and other command units for analytic purposes. The development of future applications which provide data to UCR, such as On-Line Complaints, Youth Reports and Summons Recaptulations, will be designed to address these revised NIBRS requirements, where possible.

### National Crime Information Center 2000: Interface

The National Crime Information Center (NCIC), maintains the nationwide network of information on wanted and missing persons, fingerprints, stolen securities, stolen license plates, stolen guns and other articles. NCIC is now in the process of developing a new strategy for information technology into the year 2000. The Commanding Officer of the NYPD's Management Information Systems Division is the representative to NCIC and has directed that the Department's information technology efforts conform, wherever possible, to compatibility requirements for access of data from NCIC 2000. One of the highlights of NCIC 2000 is in the area of image transfer. Currently NCIC is developing standards for the transmission of fingerprint information. In addition to fingerprint image identification, photographs, mug shots and signatures will be retrievable directly from NCIC databases via mobile computer terminals located in patrol vehicles or precinct computers. A future NCIC service will provide information on the supervised or unsupervised release of offenders. This coincides with the Department's objective to track offenders throughout the criminal justice system including detention, parole, probation and release.

### New Technology in Policing: Phoenix Police Department

Through the research effort, it was learned that the Phoenix Police Department is nationally recognized as having advanced information systems. As a result, a review and analysis was conducted to identify those components with potential application to the NYPD. A comparative review of the Phoenix



system, PACE (Police Automated Computer Entry System) and the NYPD's information systems is presented.

Central to the Phoenix system is the capability of police officers to telephonically dictate or directly enter information into a database. Information is entered once and copied to other forms to save repeating information. PACE integrates fourteen separate applications but has other computer files maintained for command-specific purposes.

### A Comparison of Computer Systems: The Phoenix and New York City Police Departments

#### 1. Security

Both Departments' computer systems require entry of a unique identification number and password. Internal programs grant or restrict functions to inquiry, modification, addition or deletion of data. Phoenix uses a security administrator and staff to maintain, grant, and revoke computer user access. NYPD uses a combination of user-controlled security administration and some centrally managed access by MISD's Data Processing Security Unit.

#### 2. Name Index

The PACE system's name index function spans several data files with a single query. Currently, NYPD name checks require that several data bases be queried to determine whether a name is known by the Department. As part of the Integrated Incident Database implementation, MISD plans to provide the facility to inquire by name, address, as well as a number of other search variables, extending across all applications with a single inquiry.

#### 3. Department Reports: Complaint Reports

Phoenix processes approximately 200,000 complaints annually, compared to the NYPD's 1.5 million complaints. Phoenix officers carry a com-

plaint worksheet to record information during the initial investigation. This worksheet serves as a dictation guide as well as an investigation and note-taking guide to reduce officer writing time. NYPD plans full computerization of complaint reports, complaint follow-ups, missing persons reports, youth reports, and field interrogation reports, all of which are automated in the PACE system. NYPD has no plans for officers to telephonically dictate complaint reports, but is planning to implement portable, handheld computers for RMPs as well as beat officers to take and file reports from the point of contact with a complainant or subject of either an inquiry or investigation.

#### 4. Stolen Property

Both Departments are linked to stolen property information through NCIC databases, accessible from command terminals and RMP terminals.

#### 5. Vehicle Impounds

Both Departments have the capability to enter vehicle impounds into their respective state police networks, linked to NCIC databases.

#### 6. Crime Analysis

Phoenix has the capability to perform on-line analyses of crime reports with rapid feedback to patrol officers to enhance their response to emerging crime patterns. The NYPD's implementation of the On-Line Complaint System along with the Integrated Incident Database will make crime analysis information readily accessible to any officer involved in investigative or problem-solving activities.

#### 7. Geobase

Phoenix's geobase information is produced using computer mapping software. The NYPD also uses this type of software to plot the occurrences of incidents by area, time, type of crime, and other variables. With the installation of precinct LANs, computer mapping software will be accessible at the local level, to generate computerized maps that will ultimately replace pin maps.



**8. Interface with the National Crime Information Center (NCIC) and the Department of Motor Vehicles**

Both Departments transmit and receive data from NCIC and their respective State Departments of Motor Vehicles.

**9. Arrests: On-Line Booking System**

Both Departments utilize computer technology to support the arrest process. NYPD has implemented applications to track arrests to arraignment. Additionally, NYPD will automate all arrest-related forms in the near future, as well as introduce a computerized court appearance control system to manage the appearance of police officers at court.

**10. Case Management**

The Phoenix Case Management sub-system provides for on-line assignment of cases to detectives and for tracking of suspects and cases through the court process. NYPD has implemented an arrest tracking system (the On-Line Prisoner Arraignment System), to facilitate the arrest to arraignment process. In the future, the NYPD plans to automate the caseload logs of detectives for case management purposes.

**11. Impound Property**

NYPD's Automated Management of Property System will also provide for the capture, reporting and disposal of impounded property.

**12. Field Interrogation: Stop and Frisk Reports**

As part of an Integrated Incident Database, NYPD will capture Stop and Frisk report information, which is equivalent to the Phoenix field interrogation report.

**13. Uniform Crime Report System**

Both systems report crime statistics to the UCR and FBI systems. PACE partially automates the coding and data collection of information required for UCR. As previously described in the section, Modernization of Uniform Crime Reporting, NYPD's On-Line Booking System is able to fulfill the newly established, incident-based reporting requirements. Complaints and Youth Reports will also be designed to comply with new reporting requirements.

**14. Mailbox**

NYPD uses the Message Switching System of the FINEST network to send messages between commands. The use of Electronic Mail packages is under study and will be advanced with the implementation of precinct and headquarters LANs.

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The Phoenix system represents a significant effort in the modernization of law enforcement technology. The PACE system automates many paper-driven activities to reduce processing delays, maximize accuracy and completeness, and increase the accessibility of information throughout the Police Department. While Phoenix has already integrated many of its information systems, the NYPD plans to do the same and in some areas surpass the technology that Phoenix has implemented.



**Table 6**

**Projects Identified through Research, Survey Results and Interviews with NYPD or other Law Enforcement Personnel.**

**Project Summaries**

**Integrated Incident Database**

A relational database will integrate data from various information sources. This technology will improve the Department's ability to combine information from isolated files of specific commands to serve the investigative, analytic and resource planning functions of the Department.

**Handheld Computers with Pen-Based Technology**

Handheld computers are being reviewed by the Department for report-taking, inquiry into mainframe databases and digital dispatching of assignments.

**Beat Book Computerization**

Computerization of these books will help officers to locate and retrieve data from one central repository of precinct beat information.

**Computerized Community Bulletin Boards**

These interactive systems will serve as an important mechanism by which to communicate with the public. Residents will have the means by which to obtain crime data or other precinct-related information through precinct computers.

**Teleconferencing/Videoconferencing**

Efforts are being directed toward the expansion of this technology for post-arraignment appearances with District Attorneys' Offices and for training purposes.

**Multimedia Technology**

Multimedia integrates text, graphics, video and audio in providing specific information. This computer-based technology is increasingly used by government agencies to provide information and services.

**Expert Computer Systems**

This type of computer software simulates the decision-making process based on the knowledge of experts in various disciplines.

**Modernization of Uniform Crime Reporting**

Changes in Uniform Crime Reporting to a more incident-based reporting system require revisions in the way in which data is formatted and reported.

**National Crime Information Center 2000: Interface**

NCIC is developing a new strategy for information technology for the year 2000. The NYPD will continue its active participation with the NCIC Committee to maximize utility of the information services.



# Information Technology: Preparing for the 21st Century

## *Strategic Plan*

### **Information Technology Objectives for Community Policing**

In planning the development of strategic applications to address the Department's information technology needs into the 21st century, four primary objectives were developed:

1. Provide an information source and communication link to assist community patrol officers in solving local problems.
2. Establish an information network to aid community residents in addressing neighborhood concerns.
3. Build a state-of-the-art network of computers to facilitate the gathering, storage, analysis and sharing of information throughout the Department.
4. Integrate the Enhanced 911 Communications System in an Information Technology Strategic Plan.

To address these objectives, a plan was formulated to develop an information architecture that would best serve the needs of policing at the neighborhood level and at the same time, enhance various operations throughout the Department. Other technological improvements, not specifically geared to community policing, yet targeted to increase efficiencies in other areas of the Department, were also included in the strategic plan.

Based on these objectives, the results of the needs assessment effort were categorized according to the information users: the Department as an organizational entity, community patrol officers, and local communities.

### **Information Technology Needs of the Department:**

- The information system should minimize reliance on paper as a data medium, facilitate the analysis of data, enhance the accuracy of data, and increase productivity.
- All information on problems, incidents, investigations or administrative issues should be made available across bureaus, where appropriate.
- Management reports should be available for precinct, borough, and Department-wide analysis and address Uniform Crime Reporting requirements.
- A database of "beat profiles" must include community resource information, citizen input on local problems, and data on conditions to determine resource allocation.
- As precinct personnel assume a greater role in warrant enforcement, up-to-date warrant information is critical.
- A capability should be established to allow for interagency sharing and transmission of data.
- Security of data must be ensured to prevent unauthorized access.
- A comprehensive personnel history database should be developed and maintained.
- A historical database should be established to provide information on repeat calls for service.



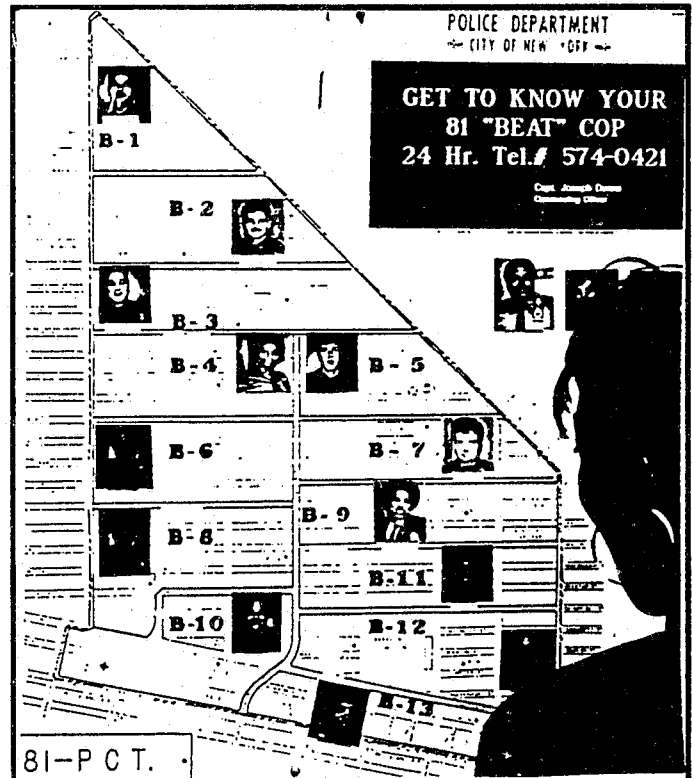
### Information Technology Needs of Communities:

An information network for local communities becomes the means by which to provide citizens with the following:

- Up-to-date information on precinct-based issues of concern such as crime statistics, stolen property information, and information on abandoned or vandalized vehicles.
- Community service information on street closings for special events, parking rules and regulations, and victim/witness assistance programs.
- A directory of key NYPD personnel to contact for information, at the precinct level, the patrol borough level, and elsewhere.
- Information on issues and priorities of the precinct community councils and the precinct management teams.

### Information Needs of Community Patrol Officers:

- Data from complaint reports, arrest reports, and previous calls for service, must be readily available in a useful, complete, and up-to-date format.
- Data should be easily retrievable, whether the officer is on foot patrol, in the precinct station house or in a vehicle.
- The officer must have the capability to capture data at the point of contact, either through mobile digital terminals or handheld computers.
- Community resource directories on local leaders, community agencies, block associations, schools, and businesses should be accessible to the officer on patrol.
- A database that includes "beat profiles" detailing local area information, including crime activity, should be developed.
- A communication linkage must be established to enable officers to contact 911 callers as well as other NYPD units.



Computerized Bulletin Boards will provide information to the community in the same manner as current bulletin boards, like this 81 Pct Community Beat Map



## Blueprint for the Future: Information and Technology for Community Policing into the 21st Century

This section outlines the future plan for information technology in the New York City Police Department into the 21st century. This plan consists of three major components: the MISD strategy for information support, the priority projects recommended through the Information and Technology Survey, and the new Computer-Aided Dispatch System and Public Safety Answering Center.

### Management Information Systems Division: Infrastructure to Support Community Policing

The community policing strategy necessitates a decentralization of many of the planning and decision making processes to the operational level. This change in operational philosophy impacts every area of the Department, including the delivery of information services. Information must be readily available to the beat officer to enhance problem-solving activities and provide services at the point of contact.

Since information systems have become an integral element in the management of this Department's operations and resources, it is essential that the information be useful, current and comprehensive: This is reflected in an article by Dr. Malcolm K. Sparrow entitled, Information Systems: A Help or Hindrance in the Evolution of Policing: "Properly managed, information systems can serve as a powerful tool in the hands of progressive police executives: they can help to redefine the work, emphasize new values and facilitate the development of new partnerships." (The Police Chief, p. 26, April, 1991.)

In 1991, the New York City Police Department reached a critical juncture in the evolution of its information technology. The Management Information Systems Division designed a new information technology infrastructure to strategically manage information to meet the needs of community policing through this decade and into the 21st century.

"Properly managed, information systems can serve as a powerful tool in the hands of progressive police executives: they can help to redefine the work, emphasize new values and facilitate the development of new partnerships."

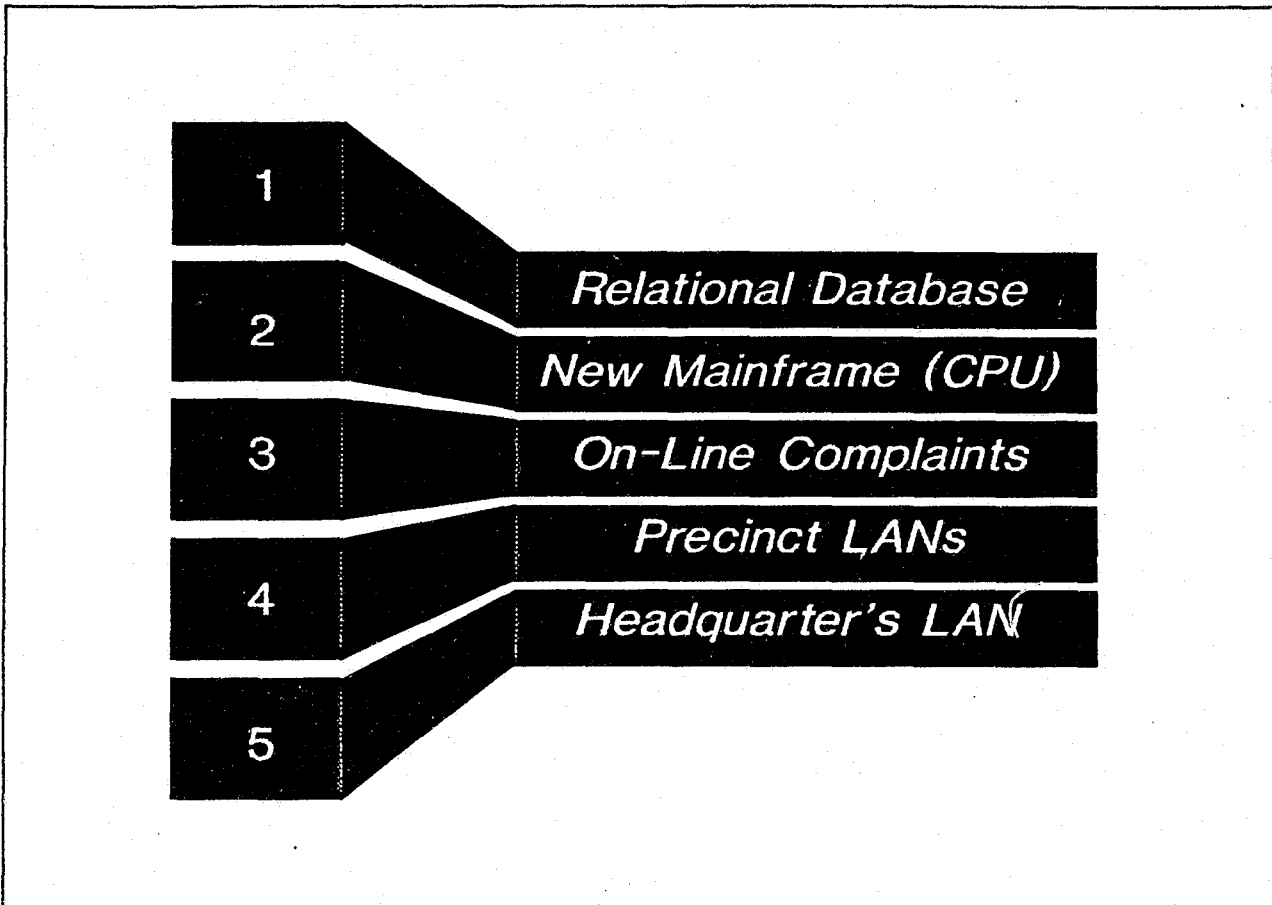
Dr. Malcolm K. Sparrow, Information Systems: A Help or A Hindrance in the Evolution of Policing ?

(The Police Chief, p. 26, April 1991.)

MISD's proposal to advance technology utilizes an integrated architecture to support community policing. The plan's foundation, utilizing state-of-the-art technology, has been engineered to maximize access to information throughout the Department. Currently, this information is segregated for command specific purposes. The community policing perspective requires this information to be shared, for the purpose of investigation, analysis, reporting and problem-solving.

The development of an integrated architecture provides many benefits to the Department. Data in related applications will be linked and input errors caused by multiple data entry points and multiple data files of similar information will be reduced. Moreover, new management reports using common data elements in new patterns will be easily developed.

Five main components of MISD's plan form the foundation of a sophisticated information network that will provide accurate, useful and complete information throughout the Department in an easily accessible form:



*The Management Information Systems Division has designed a new information technology infrastructure to strategically manage information to meet the needs of community policing. This integrated architecture contains five main components as a foundation.*

### **1. Relational Database**

A new state-of-the-art technology will support the Department's integrated incident database concept by facilitating the identification of relationships among seemingly disparate events. Officers will be able to make inquiries against this user-friendly database on an ad hoc basis, and the computer will identify each event in which the name, address, license plate, or other identifier appears. An officer conducting an investigation can query this system to access relevant file information on arrest history, crime location, property seized, and incident data. Data contained in a number of paper-based documents such as accident reports, aided cards, stop and frisk reports, as well as many arrest-related forms will be entered directly into this database and made available for instant access.

### **2. Mainframe CPU**

To support the move to a relational database, a powerful processor, capable of the storage and retrieval of massive amounts of information is needed. This computer will provide the additional capacity required for the implementation of the major applications planned for the Department, such as the Automated Management of Property System, Automated Warrant System, the Firearms Licensing System and the On-Line Complaint System.

### **3. On-Line Complaint System**

A key component of MISD's information technology plan is the development of a new On-line Complaint System (OLCS) to capture data currently



recorded on the complaint form, complaint follow-up, and missing persons reports. This represents an important objective of the Department in terms of having up-to-date incident data available for crime reporting and crime analysis. Data will be used to identify community problems at the local level and identify trends on a broader scale.

This new system will require that complaint information be entered only once, at the precinct. The user-friendly software will include a number of functions to provide assistance in expediting the taking of the complaint. Data in this system will be used for arrest-related forms and for transfer to other systems such as the Automated Management of Property System (AMPS), the Computer-Assisted Robbery System (CARS), the Automated Robbery Tracking System (ARTS), the On-Line Booking System (OLBS) and MAPINFO for precinct crime analysis. Information will also be available for the Uniform Crime Reporting System and other management reports. Software will be developed to link complaint data with SPRINT incident information.

The On-Line Complaint System provides the type of information support that is essential for the effective management of resources and the design of innovative problem-solving strategies. OLCS is a long-awaited system which will serve as the cornerstone of a larger, integrated incident database.

#### 4. Precinct Local Area Networks

A new microcomputer network will be installed in every precinct which will allow data to be sent to and received from the mainframe. These LANs will introduce significant computing power into each precinct for local processing while providing a vehicle for access to NYPD mainframe applications as well to any computerized databases linked to this system such as those of the Department of Motor Vehicles, the Office of Court Administration (OCA), and the New York State Police. A LAN environment allows multiple users to access files simultaneously to perform data entry or analysis. This increases productivity by linking multiple data files to make them available to personnel at individual workstations.

The precinct LAN will facilitate the computerization of beat book information. Beat books are used by officers to record vital data pertaining to individual beats. The automated beat book will consist of the resource log (community resource and referral information), block face section on neighborhood business and community leaders, the spot map, conditions log, activity report and the monthly planner for objectives and strategies designed to address community problems. The computerization of this information will allow officers working the same beat, as well as precinct detectives and newly assigned officers, to easily share local knowledge and review previous and current actions taken to solve local problems.

Another valuable tool of the precinct LAN system is MAPINFO, specialized software which displays crime and/or incident data by geographic "mapping".

#### 5. Headquarters LAN

This network for One Police Plaza will allow information from the mainframe to be accessible to Headquarters units. As in the field, each command will have the ability to process specific data autonomously, while also having access to any relevant data files. At the same time this network allows for the sharing of data developed and produced from other commands.

The LAN systems, both Headquarters and precinct-based, facilitate the access of data from the mainframe relational database. This capability will minimize the manual preparation of paperwork and produce the type of reports necessary for effective management of resources.

In addition to this new infrastructure, MISD's information technology plan includes the development of a new Automated Warrant System, to provide timely and accurate information for warrant processing, investigation and execution. This new system will provide warrant investigators with information on outstanding arrest warrants to improve the apprehension rate and reduce the number of unexecuted warrants. A computer link now established with the On-Line Booking System will



be enhanced by more up-to-date warrant information. A major component of this system will be on-line access to the Division of Criminal Justice Services' database on New York State warrants and criminal records, including OCA's files on warrants issued and vacated in the New York State courts, and NCIC's nation-wide database on wanted persons. As part of this new initiative, a computerized photo imaging system will be implemented from which photos will be available on-line to precincts and various investigative commands throughout the City. This new photo imaging system will provide access to the most up-to-date photos of individuals under investigation, or for use in line-ups and arrest processing.

The implementation of MISD's foundation plan will provide information technology and services at the fingertips of police officers and police managers charged with community problem-solving and command management. The plan lays the groundwork for development of expanded on-line processing of data. Information dissemination to local community police officers will be considerably more accurate, up-to-date, complete, and useful as information from other internal and external systems is made available.

As the Department moves to decentralize the gathering of and access to data, and centralize its

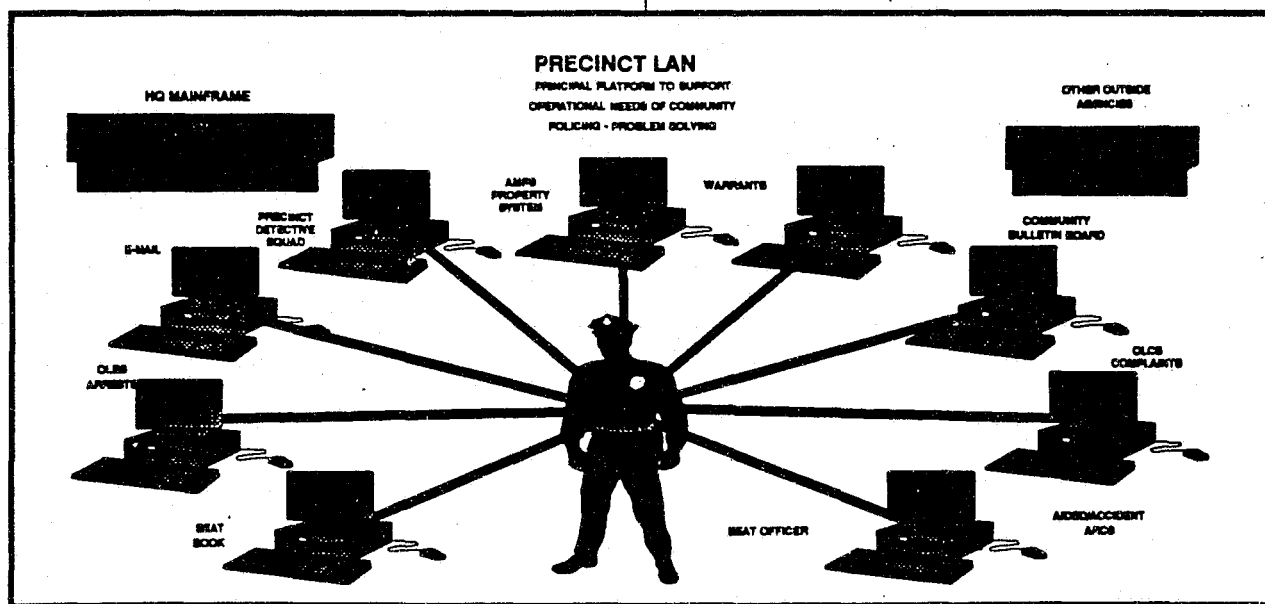
storage through the relational database, precinct personnel will be able to easily access data by using simple, standard commands and formats.

### Information Technology for Community Police Officers:

The information technology objective for police officers in the field is to facilitate their access to vital information using portable equipment that is easy to carry and easy to use by non-technical personnel. MISD's new integrated database system will provide information to beat officers to enable them to make informed decisions based on accurate and comprehensive data on local crime incidents. The specific technology is presented below.

#### Handheld Computer with Pen-Based Technology:

This technology enables the officer to capture incident data on formatted screens at the point of contact and to transmit the report directly to the precinct. The beat officer receives an assignment from the Computer-Aided Dispatch System without a voice transmission. This small, handheld computer will have the capability to access information from the new integrated database.



The installation of Local Area Networks (LANs) in the precincts will facilitate the development of methods to provide information from the Department's mainframe and other sources of data, that will support the community policing efforts of police officers in the field.



Examples of this type of information include:

- Beat book profiles and community resource information;
- Location history, including previous calls for service;
- Complaint data to include initial complaint report and follow-up (DD5) information;
- Arrest history by name, alias and type of crime;
- Warrant information, including previous investigative findings;
- Court Orders of Protection, providing information on name and location;
- Dispositional data to track previous arrests, convictions and sentences;
- Pistol license database to provide pistol license information by location;
- Interagency databases such as Department of Motor Vehicles (license, registration and vehicle information), and New York State Police Information Network (stolen vehicle information, missing persons, and wanted persons);
- National Crime Information Center (wanted persons, information on stolen securities, stolen vehicles, etc.);
- Sections of the Patrol Guide, Vehicle Traffic Law, and Penal Law.

A printer capability can be incorporated into a handheld computer to generate short forms such as summonses and property receipts as necessary.

**Cellular Telephones:**

These small, wireless telephones can provide officers with direct access to complainants and can also provide a communication link with the pre-

dict, other Department units and community resources. Beat officers on foot patrol and officers assigned to radio motor patrols will be able to contact 911 callers before their arrival at the scene to obtain any additional necessary information.

**Information Technology for Communities:**

Computerized community bulletin boards represent an important innovation in service provision to local residents. A computerized bulletin board can be made available through designated precinct terminals with controlled access through precinct computers. The type of information requested by local groups was reflected in the recently completed, Community Board Survey and can include crime statistics, procedures on how to report crime incidents and related dispositional information, a schedule of community events, a directory of local services, resources, victim/witness assistance programs, and parking rules and regulations. A NYPD command contact directory, including name and telephone information for major commands, precinct community council and precinct management teams would also be part of the database.

**Information Technology Survey:  
Category IA : Funded Projects  
Recommended For Immediate  
Development and Implementation**

The strategic plan includes the following priority projects which were either identified or reaffirmed through the Information and Technology Survey conducted throughout the Department. As a result of their priority rating and feasibility for development, these projects were recommended for immediate funding, and implementation. The original, requesting command is identified at the conclusion of each item's description.





***Automated Warrant System***

This system computerizes information on outstanding warrants to expedite warrant enforcement. It provides a computer link to the New York State's Office of Court Administration to transmit warrant data immediately after issuance. (Criminal Justice Bureau, Warrant Division)

***Photo Imaging***

This computerized system stores pictures, video images and documents as part of the Automated Warrant System. Up-to-date photos will be maintained on persons arrested, missing, and stolen/recovered property. (Chief of Detectives, Career Criminal Section)

***Warrant On-Line File System (WOLF)***

WOLF is a database of all felony warrants and follow-up investigations by Warrant Division Officers. Access to WOLF will be made available to major investigative units. (Chief of Detectives, Manhattan Robbery Squad)

***Beat Book Computerization***

Beat books will be computerized to organize information and record local conditions and problems. Officers will have the ability to cross-reference, and research beat problems as well as strategies to resolve them. With the implementation of the precinct LANs the capability will exist to automate beat books. (Chief of Department).

***Computerization of Court Orders of Protection***

The significance of this system is in its ability to track the history of violations against Court Orders of Protection and to assist an officer in determining whether an order exists when responding to a call for assistance. (Support Services Bureau, Identification Section)

***Computerized Appearance Control***

This system replaces the telephone notification system to manage the appearance of police personnel at court and other government agencies to reduce unnecessary or inaccurate notifications that result in overtime expenditures. (Criminal Justice Bureau)

***Local Area Network and LAN Applications***

Provides simultaneous access to command information, allows common databases to be shared throughout the Department and facilitates crime analyses through geographic mapping. (Deputy Commissioner, Training, Deputy Commissioner, Trials, Chief of Patrol, Chief of Organized Crime Control Bureau, Field Control Division, Chief of Department, Bias-Incident Investigation Unit, Operations Unit, Investigation Review Section, Chief of Detectives, Resource Allocation Unit, and Inspectional Services Bureau, Internal Affairs Division).

***Standardize Department Computer Applications***

In an effort to simplify the language used to access computerized information, consistent screen formats, common definitions for data items and query commands will be developed. MISD has initiated a quality control effort to create standards for the Department's various computer applications. Representatives from major bureaus will form a working committee to ensure that new applications are written to maximize access throughout the Department. (Chief of Department, Quality Control Section)

***Automated Communications System***

This case management system will automate internal investigation cases handled by the Chief of Department's Investigation and Review Section. This system will support the analysis of allegations and complaints reported directly from the community. This system will also include a component for the logging and tracking of internal correspondence.



**Enhanced Computerized Personnel System**

This system stores comprehensive personnel-related information in a centralized database. (Chief of Personnel, Employee Management Division)

**FAX Four Machines**

This technology enables Borough Satellite Units (where SAFIS terminals are located) to receive and transmit high quality fingerprint images from the NYS Division of Criminal Justice Services or from the Department's Latent Print Unit Central Office to make accurate fingerprint comparisons on latent prints recovered from crime scenes. (Chief of Detectives, Latent Print Unit)

**Emergency Lighting/Sirens**

A "Vision" light bar enhances visibility to clear intersections (Support Services Bureau, Motor Transport Division)

**Computer Scannable Forms**

New performance evaluation forms will be processed through a scanner in the Employee Management Division. (Chief of Personnel, Health Services Division: Psychological Services)

**Bar Code Scanners**

A portable identification system will trace and verify vehicles and parts for investigations. (Chief of Organized Crime Control, Auto Crime Division)

**Optical Mark Reader**

A reader and software system will expedite the marking of tests. (Deputy Commissioner, Training, Testing Unit)

**Information Technology Survey:  
Category IB: Funded Projects  
Currently In Progress**

The following projects, although requested through the survey, were previously approved for funding. They are included in this listing to ensure that the strategic plan accurately represents both ongoing and planned information technology efforts.

Automated Firearms Ownership File System - automates the file system and includes license and renewal processing.

Automated Pistol License Record Management Filing System - automation of 62,000 pistol license records.

Automated Management of Property System (AMPS) - tracks the intake, storage and disposition of property.

Automated Accounting System - the AMPS project will address the accounting needs of the Property Clerk Division.

Fleet Administration Computerized Tracking System - for the management, administration and accounting of the automotive fleet.

Automatic Fuel Monitoring System - computerizes the fuel dispensing system and accounting system to maintain files on Department vehicles.

Automated Complaint System - computerizes the complaint reporting system for the Narcotics Division.

**Information Technology Survey:  
Unfunded Projects**

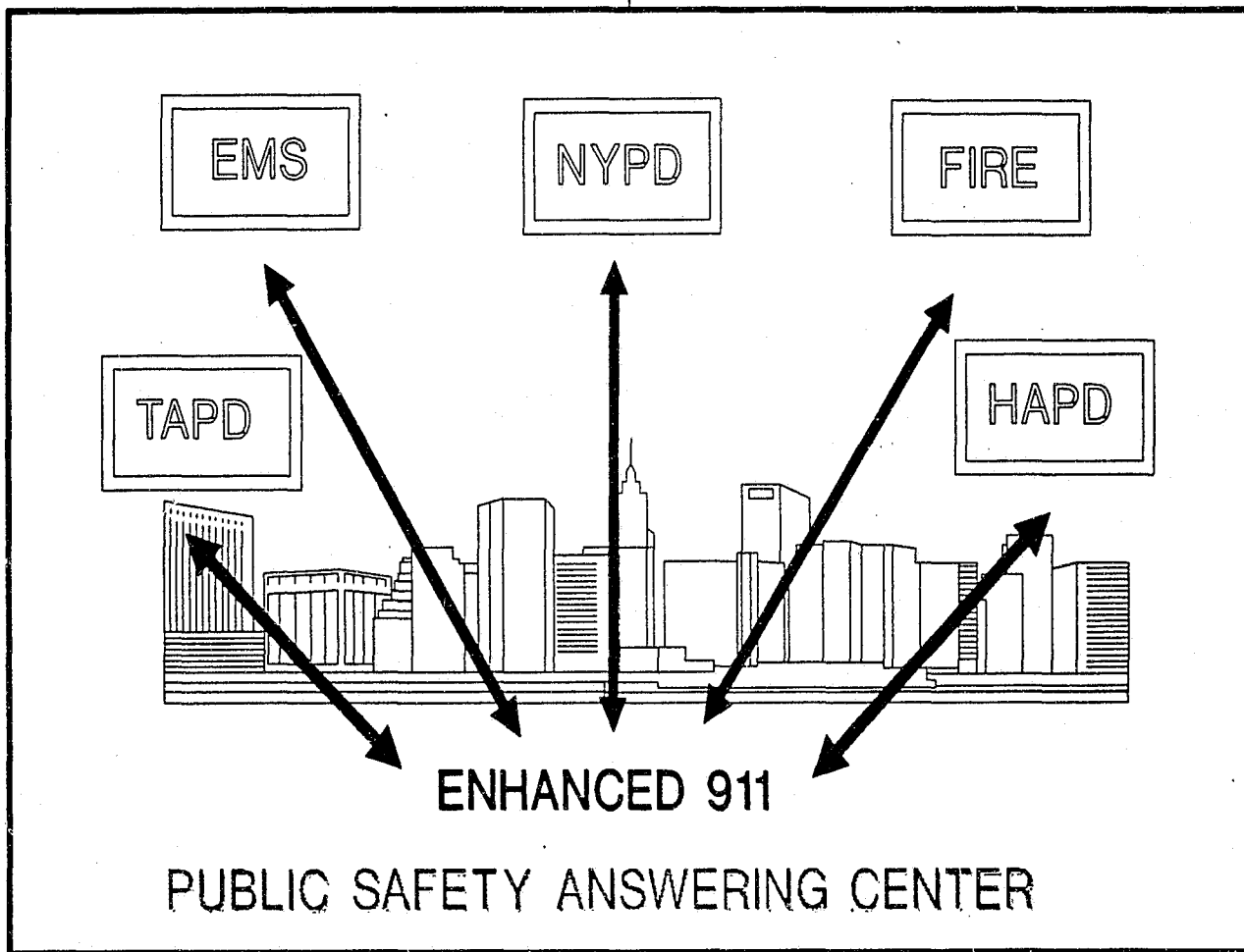
Survey results also included more than 20 unfunded projects, a number of which received relatively high ratings in the review process. An example is SAFIS, the Statewide Automated Fingerprint Identification System. As community police officers



assume the added responsibility of taking latent fingerprints at crime scenes, the knowledge and use of SAFIS, takes on greater importance in investigations. Partial prints can be entered into the computerized system and matched with prints already on the system's database to generate a list of probable candidates. The full implementation of SAFIS is dependant on the State's decision to proceed with the installation of access terminals at central booking sites. Other projects in this category include the Computerization of Arrest-Related Forms which has not been funded although a proposal is pending, a Vehicle

Tracking System, to identify the location of vehicles (part of the E-911 program), and a Computerized Case Management System to automate case data for investigators in the Civilian Complaint Review Board.

While funding is not available for the immediate purchase and implementation of these and other noteworthy projects, funding options will continue to be explored. Potential sources includes City tax levy funds, Federal Forfeiture funds and grants.



### Meeting the Needs of Modern Communication

*Funding for a new E-911 Public Safety Answering Center will come from a telephone surcharge approved by the NYS Legislature and adopted by the NYC Council*



## Public Safety Answering Center Linkage with Community Policing

### *Enhanced 911*

The Enhanced 911 (E-911) system will utilize state-of-the-art communication technology to provide a level of emergency service not currently available. The communications equipment will replace analog/mechanical equipment with digital switching equipment to provide the ability for operators to visually recognize the caller's telephone number and location. This capability is defined as the Automatic Location Identification and Automatic Number Identification (ALI/ANI). Location and number identification can be critical for rendering aid to the injured, confused, or the young, who might not be able to provide address and telephone information.

The increased efficiency and accuracy afforded by new technologies, will allow beat officers to interact with community members on a more informed basis. The ability to capture data and store it on a main computer system for later retrieval, will assist officers in developing profiles of individuals, and will assist precinct commanding officers in compiling data on crime trends within their commands.

#### Other E-911 Components:

Computer-Aided Dispatch System (CAD),  
Cellular Telephones, Portable Data Telephones

#### CAD:

A new, modern, flexible computer-aided dispatch system will allow the Department to take advantage of streamlined systems to provide an unsurpassed level of information to both the call-taker and the radio dispatcher. With enhanced 911, the caller's telephone number and location will appear on the screen and needs only to be verified. With the press of a button, this information is placed electronically into the proper area on the 911 incident screen. Preformatted screens will serve as prompts for the 911 call-taker. By merely filling in the blanks, calls for service will be expedited in a very efficient manner.

Radio dispatchers will be able to utilize available technologies to track patrol vehicles, offer information on specific roadways, residences, occupants, and expedite the transmission of calls for service utilizing digital dispatch technology incorporated in the Mobile Digital Terminal system. The community policing effort will be greatly enhanced by providing the beat officer with the best tools possible to record complaints, retrieve information or offer referrals to other agencies to handle a specific problem. All of this information can be stored on a mainframe computer and accessed via a fixed, mobile or portable computer terminal.

The Mobile Digital Terminal System, now in the planning stage, will have the capability to measure response time to calls for service (although this system is not presently funded). As with the present system, the new CAD system will be able to differentiate between emergency and non-emergency calls for service. This may be accomplished via the utilization of the present signal code system and also the incorporation of color schemes or flashing icons, color bars, etc.

#### Cellular Telephones:

Beat officers as well as patrol vehicle officers will be able to contact complainants before they arrive to determine if there is additional information needed. Beat officers assigned to the community policing effort will be able to prioritize calls for service and contact each caller to arrange a time to respond. This will also reduce radio air time utilization for call-back telephone numbers, complainants' names, etc. Additional call-backs from the original caller will also be reduced by allowing the officer to contact them directly.

#### Portable Data Terminals:

Like their counterpart, the Mobile Digital Terminal, these handheld devices will allow officers to process reports or retrieve information that will be stored on a master host computer system. Automation of these reports will allow for quick and easy reference in the future. Pre-formatted forms will dramatically increase the efficiency and accuracy



# An Emergency Call Using Enhanced-911

Featuring the use of Automatic Location Identification and Automatic Number Identification (ALI/ANI)

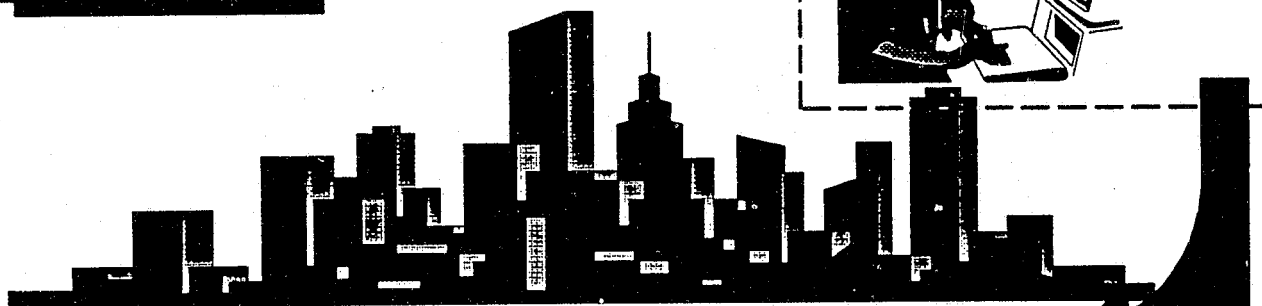


Emergency Call From:  
John / Jane Q. Public  
123 Main Street  
Somewhere, NYC  
Phone # 123-4567



Public Safety Answering Center

Emergency Call From:  
John / Jane Q. Public  
123 Main Street  
Somewhere, NYC  
Phone # 123-4567



An emergency call to E-911 is routed through the Public Safety Answering Center (PSAC) to the appropriate agency, Fire, Emergency Medical Services, Transit Police (TAPD), Housing Police (HAPD) or to the officers of the NYPD.

The location of the caller, and the caller's phone number (ALI/ANI) is automatically sent to the PSAC. This same ALI/ANI information can appear on the screens of Mobile Digital Terminals in police vehicles, or on Portable Terminals carried by beat officers.

Police Officers can use cellular phones to contact 911 callers directly in emergency situations, or to discuss either delayed responses or alternatives in providing police services. Beepers/pagers can also be used by beat officers to stay in close contact with their commands and members of the community.

Funding for cellular phones, Mobile Digital Terminals, Automatic Vehicle Locators, new furniture for the PSAC, a back-up facility, radio communications equipment, recurring CAD costs, and recurring rent costs were not included in the E-911 surcharge legislation. Funding has not been allocated for the widespread distribution of beepers or pagers to beat officers.



Emergency Call From:  
John / Jane Q. Public  
123 Main Street  
Somewhere, NYC  
Phone # 123-4567





of these reports. Officers will also be able to accept assignments through the terminals. Along with the Mobile Digital Terminals, these devices will help alleviate overcrowded radio frequencies and reduce air time utilization.

**Radio Network:**

The present radio system is overcrowded. Frequencies on most divisions are utilized in excess of the national public safety standard limit of four hours of talk time for any eight-hour period. The acquisition of additional frequencies, along with installation of modern radio consoles with expanded functions, will help to alleviate this condition.

Presently, this Department is involved in the Associated Public Safety Communications Officers (APCO) Project 26. The purpose of this project is to coordinate the allocation of additional radio frequencies to public safety agencies. Once additional frequencies are allocated to this Department, radio divisions can be modified to incorporate fewer precincts than they presently cover. This will reduce the "span of control" or the number of precincts for which a single division radio dispatcher is responsible. This will also significantly reduce air time utilization. In addition, the use of Mobile Digital Terminals and Portable Data Terminals will allow the "voiceless" dispatching of certain incidents to patrol resources.

Additional frequencies will be utilized to provide common frequencies for other public safety agencies to use at scenes of multi-agency responses. This will support the ability for the Fire Department, Emergency Medical Service, Housing Police, Transit Police and this Department to communicate on a common frequency, and greatly enhance interagency coordination and communication.

**Table 7  
Costs/Timetable**

The revenue generated by the telephone surcharge legislation will be incorporated with existing capital and expense budget funds to acquire the following:

Equipment	Anticipated Cost
Enhanced 911 phone service	\$ 4,303,000
SPRINT (CAD) consoles	\$ 6,948,000
Radio communications equipment	\$ 29,027,000
911 logging equipment	\$ 1,002,000
Facility upgrade	\$ 12,727,000
Computer-Aided Dispatch (CAD) system	<u>\$ 16,993,000</u>
<b>TOTAL:</b>	<b>\$ 71,000,000</b>

The City Council has provided a "sunset clause" of three years for the current surcharge legislation. Until such time as the Council is petitioned to lift this clause and does so, the following equipment/items are planned for but not currently funded:

Equipment	Anticipated Cost
New office furniture	\$ 636,000
Mobile Digital Terminal network	\$ 50,600,000
Backup facility upgrade	\$ 57,200,000
Automatic Vehicle Locator	\$ 16,500,000
Cellular telephones	\$ 2,750,000
Radio communications equipment	\$ 3,079,000
Recurring CAD cost	\$ 500,000
Recurring rent cost	<u>\$ 668,000</u>
<b>TOTAL:</b>	<b>\$ 131,933,000</b>
<b>PROJECT TOTAL:</b>	<b>\$ 202,933,000</b>

**SCHEDULE FOR COMPLETION**

A. Systems Integrator Selection	06/93
B. Site Selection For New PSAC	06/93
C. Work Begins On PSAC	06/93
D. All Boroughs Completed	06/95



## Surcharge for Enhanced 911:

### Purpose of the Tariff

The purpose of the surcharge legislation (tariff), is to provide a continuous infusion of money to support the enhanced 911 telephone system that will be available to all citizens and visitors in the New York City area.

### Required Legislation

In December of 1991 the Mayor signed a local law authorizing the New York Telephone Company to collect \$ .35 per month per telephone subscriber. As stated previously under "costs/timetable", the legislation as presently written, provides a "sunset clause" of three years, during which time it is expected that approximately \$ 48 million in revenue will be generated. At the end of the 18 months, the City Council may be petitioned to lift the sunset provision and allow additional revenue to be collected to incorporate all of the systems and features indicated in the Public Safety Answering Center Project Report. At the time it was issued, the estimated cost of the entire project was approximately \$ 203 million. It is anticipated that the City Council will be presented with a formal plan developed by a systems integrator, that will specify in detail what will be needed and how it will be accomplished. In addition to lifting of the "sunset clause", a revision to the current State legislation will be sought, that will allow the revenue generated by the tariff to be expanded to cover personnel and construction costs.

### Revenue Generated

Approximately \$ 16 million per annum is expected to be collected via the \$.35 per telephone subscriber surcharge from approximately four million subscribers.

## Status Update

Presently, the Communications Division is proceeding with its plan for the new center. Within the next six months a Request for Proposals (RFP) will be developed to hire a "systems integrator". The systems integrator will be responsible for planning, designing and implementing the new Public Safety Answering Center. This Department is presently working with the Associated Public Safety Communications Officers (APCO) organization to acquire additional radio frequencies that will be utilized to expand the present configuration of the "voice" radio network and reorganize those radio divisions that are overcrowded. In addition, the "voiceless" Mobile Digital Terminal/Portable Data Terminal system as well as the Automatic Vehicle Location (AVL) systems will require additional frequencies and radio networks to be set up in order for these systems to function. The crucial radio interoperability of various public safety agencies that are called to scenes of disasters or other large-scale incidents is also dependent on the allocation of these frequencies.

Recently, a request for waiver of the Federal Communications Commission rules and regulations was prepared by the Deputy General Counsel of the Department of Telecommunications and Energy. This waiver, if granted, will allow concerned public safety agencies to share the television channel 16 (482-488 Mhz. frequency range) with the television industry. The sharing of this channel will provide additional frequencies to public safety agencies.

As specified by the Federal Communications Commission, the new frequencies must be utilized within a two-year period after they are granted. If a viable system is not in place to utilize these frequencies by that time, they are subject to revocation and allocation to other agencies.



The absence of these additional frequencies coupled with unfunded equipment items, such as Mobile Digital Terminals and cellular telephones will have a direct impact on this Department's community policing effort and the desire for this Department to improve service to the public. The Mobile/Portable Data systems would allow each officer to have updated information about their specific "beats" available at their fingertips. Department forms would be "filled out" electronically and sent (down loaded) to a host computer located within the Headquarters complex. Additionally, cellular telephones (currently not funded) would allow officers to contact complainants without utilizing the services of the radio dispatcher. This would further reduce "air time" utilization, which is a serious issue to be addressed during the development of the new communications center. The lack of inter-agency radio communications between the various public safety agencies serving the City of New York would remain uncorrected without these new frequencies.

However, the revenue generated by the surcharge legislation will not only fund new communications technologies, it will also upgrade existing systems with state-of-the-art equipment. Enhanced 911 phone service, the new Computer-Aided Dispatch system and the radio communications equipment will dramatically improve the emergency communications system which serves the public safety needs of the citizens of New York City.





## Methodology to Acquire Information Technology

One important method of implementing new computer applications is through an in-house effort by Department personnel. In this way, applications and technology such as the On-Line Complaint System and the installation of precinct local area networks are developed through a cooperative effort between MISD technical staff and the users of computer services.

Department staff are also used to develop new technology to minimize reliance on outside consultants. Not only is this a less expensive way to acquire new systems but lengthy bureaucratic delays associated with contracting with consultants are greatly reduced. An additional benefit to using MISD staff and key user personnel for new system development is that Department staff are given the opportunity to research the latest technological advances and apply their information technology skills to community policing. This produces an in-house cadre of professionals who have the necessary expertise to implement future technological advances in the Department.

The new information architecture to support community policing is now under development by the Department's Management Information Systems Division. This effort utilizes in-house professional staff to manage the project's life cycle in terms of software design and development, hardware acquisition and system installation. However, additional staff and resources are necessary to fully implement the new foundation. While the costs of implementing new information technology may be initially high, investments made now will lead to future savings. For example, a cost/savings analysis of the new foundation indicated a significant payback in terms of the technology's ability to generate savings within five years. The initial cost of the new foundation and the automated warrant system totals \$15.2 million. However, this cost will be offset by a substantial savings, which annualizes to \$2.9 million beginning in FY96. This savings includes the elimination of 92 positions. The potential funding sources for new

technology include tax levy, state funds, federal forfeiture funds, and private grants. Given the poor fiscal health of the City, tax levy dollars will continue to be scarce. State-funded projects, such as SAFIS, are subject to similar fiscal constraints which impact on project implementation and expansion. Federal forfeiture funds are assets seized in federal cases and transferred to state and local criminal justice agencies. The Department of Justice has established strict guidelines for the use of these funds, which must supplement and not supplant existing law enforcement resources. Forfeiture funds are now being used to purchase new information technology and will continue to be used for this purpose in the future. However, many projects and proposals now compete for available forfeiture funds.

In terms of grants, the Department currently receives over \$25 million annually in various state, federal and private-sector grants. These funds are used for various programs throughout the Department. Although grants have not generally been used to fund information technology, they represent a potential funding source.

Once funds are identified, particularly in the case of City tax levy dollars, there are specific, detailed procurement guidelines governing the purchase of goods and services. To ensure fair competition, the Procurement Policy Board requires that all procurements for goods, services and construction, be awarded by competitive sealed bidding. When competitive bidding is not possible, the Procurement Policy Board has issued specific guidelines as to the different procurement options available, such as sole source, etc. However, all procurement options have procedural steps which must be followed in conformance with City purchasing specifications. Even if sufficient tax levy funds are available for the purchase of new technology, City procurement and contracting procedures can pose serious obstacles. The requisite approvals needed from oversight agencies can be a labor-intensive and time-consuming process. Thus, if resources are identified for the purchase of



many of the items identified in the Strategic Plan, purchasing and contract guidelines may affect the Department's ability to move forward on technological initiatives.

### **Quality Management of Information Technology:**

The identification of information technology needs was an integral part of the overall process to design an information strategy for the Department. This planning process incorporated a quality improvement perspective to identify problems, plan both long and short-term solutions and monitor results to maintain the Department's commitment to improve information technology. This monitoring component has been designed to ensure that the new technology not only meets this plan's objectives, but also continues to meet the Department's needs in the future.

A quality improvement perspective will be utilized to monitor the efficiency and effectiveness of both current and new technological applications as well as evaluate new information needs. The development of this strategic plan represents the first step in the planning, coordination and implementation of information technology to support community policing objectives.

### **Conclusion**

The NYPD vision for information technology consists of a fully automated police department, designed to provide an information and communication network using advanced, state-of-the-art technology to enhance the work of community patrol officers in addressing local problems. The sophisticated, new MISD foundation will enable officers to access data that is timely, relevant, accurate and complete.

Beat officers will have immediate access to many Department files which include data on complaints, arrests, warrants and previous incident information (both on locations and persons). Equipped with rapid access to vital information, beat officers will be able to decisively respond to incidents. Information will be contained in an integrated database, designed to provide the officer with such vital data as which locations may present potential hazards, crime patterns on post, history of the incident location or subjects involved and stolen property information. Mobile, handheld computers with pen-based technology will enable report-taking such as incident reports and summonses information to be captured at the point of contact. The routing of paper will be replaced by the electronic transfer of information.

MISD's new information architecture will also facilitate user-friendly access of data for management purposes to enhance such activities as crime analysis, resource planning, beat redesign and rapid response planning and improve overall productivity. Precinct crime analysts will have access to relational data files to analyze complaint and arrest data by geographic location and perform pattern analyses of incidents. Investigators and patrol officers will have access to information on incident reports, victims and suspects. Data access will be possible through portable, handheld computers, mobile digital terminals in vehicles and Local Area Networks. In addition, implementation of the Precinct Local Area Network system will enable the development of computerized community bulletin boards, maintained in each precinct to keep community residents informed on such issues as crime statistics, incident information, community events and neighborhood resources.



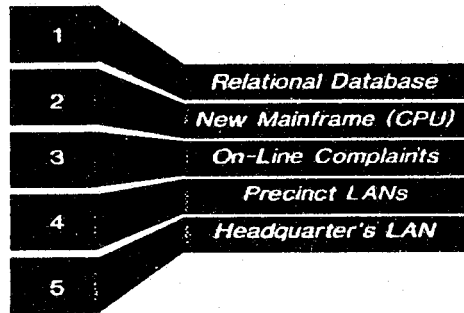
The Department's communications capability will be greatly improved by the Enhanced 911 program through digital dispatching directly to the officers handheld computer.

This dispatching capability will provide such critical information as caller's name, location, call-back number and severity of incident. Cellular telephones will allow officers to contact callers directly for immediate service response and enable officers to elicit additional information prior to the officer's arrival.

But a police department needs more than state-of-the-art technology to accomplish its community policing goals, it needs sufficient staff, trained in the use of this sophisticated equipment and available to perform the complex, community-serving tasks necessary to fulfill its mission. As technology continues to advance, the New York City Police Department will strive to identify funding sources to fully implement its information technology vision to support and enhance the community policing philosophy.



Table 8



**MISD's Infrastructure to Support Community Policing**

**IMPLEMENTATION SCHEDULE**

<u>Information Technology Objective</u>	<u>Completion Date</u>
1. Relational Database	4th Qtr. 1993
2. Mainframe Central Processing Unit (CPU)	4th Qtr. 1992
3. On-Line Complaint System	4th Qtr. 1993
4. Precinct Local Area Networks (LANs)	4th Qtr. 1993
5. Headquarter's Local Area Network (LAN)	Ongoing



Table 9

Information Technology Survey Category IA:  
Funded Projects Recommended for Immediate Development and Implementation

IMPLEMENTATION SCHEDULE

<u>Information Technology Objective</u>	<u>Completion Date (Calendar Year)</u>
1. Automated Warrant System	2nd Qtr. 1996
2. Computerized Photo Imaging System for Arrest Processing, Line-ups, etc. (Sub-system of Automated Warrants System)	2nd Qtr. 1996
3. Warrant On-Line File System (WOLF)	Completed: 2nd Qtr. 1992
4. Beat Book Computerization Capability (A planned precinct LAN application)	4th Qtr. 1993
5. Computerization of Court Orders of Protection	Completed: 2nd Qtr. 1992
6. Computerized Appearance Control	1st Qtr. 1993
7. Local Area Networks for Commands (Outside of Precincts or HQ) Survey Request #8, #15, #16	Ongoing
8. Local Area Network for Headquarters Survey Request #10, #11, #12, #14	Ongoing
9. Local Area Networks for Precincts	4th Qtr. 1993
10. Standardize Department Computer Applications	Ongoing
11. Enhanced Computerized Personnel System	1st Qtr. 1994
12. FAX Four Machines for Latent Print - Borough Satellite Units	3rd Qtr. 1992
13. Emergency Lighting/Sirens	Completed: 4th Qtr. 1991
14. Computer Scannable Forms for Performance Evaluations	Completed: 4th Qtr. 1991
15. Bar Code Scanners for Vehicle Identification	3rd Qtr. 1992
16. Optical Mark Reader for Test Marking	Completed: 4th Qtr. 1991



Table 10

**Information Technology Survey Category IB:  
Projects Currently Funded and In Progress**

<u>Information Technology Application</u>	<u>Completion Date (CY)</u>
1. Automated Firearms Ownership File System File System	2nd Qtr. 1994
2. Automated Pistol License Record Management Filing System	2nd Qtr. 1994
3. Automated Management of Property System (AMPS)	4th Qtr. 1994
4. Automated Accounting System (Sub-system of AMPS)	4th Qtr. 1994
5. Fleet Administration Computerized Tracking System (Managed by Department of General Services)	2nd Qtr. 1993
6. Automatic Fuel Monitoring System	Pending Release of RFP
7. Automated Complaint System (component of NITRO)	2nd Qtr 1993



Table 11

**Information Technology: Preparing for the 21st Century  
Category II: Information Technology Survey: Unfunded Projects**

**Project Summaries**

**1. Statewide Automated Fingerprint Identification System (SAFIS)**

At the end of 1993, the State will evaluate the feasibility of implementing direct access terminals into SAFIS for central booking sites.

**2. Computerization of Department Forms**

A proposal has been prepared for funding for all arrest-related forms.

**3. Vehicle Tracking System (AVL)**

This equipment (requested by the Inspectional Services Bureau) was not approved for funding in the Public Safety Answering Center Project.

**4. Enhanced CCRB Computerized Case Management System**

Currently there are no plans to seek funding for a new case management system. However, the existing system could be upgraded to include additional terminals and software for each investigator.

**5. Videoconferencing**

Plans are being developed to expand videoconferencing to post-arraignment interviews in all boroughs. A funding proposal was submitted to the City's Department of Telecommunications and Energy to utilize its Institutional Network (I-NET), a fiber optic cable system, as the means by which to conduct the interviews.

**6. Computer Terminals, VCRs, Slide Projector and other Equipment for Training in the Executive Development Program**

Although funding is not currently available for this request, funding options will continue to be explored.

**7. Lantastic Software**

The Department has already selected and implemented another LAN management package.

**8. Beepers for Foot Patrol Officers**

This equipment is not funded in the Department's budget.



Table 11

**Information Technology: Preparing for the 21st Century  
Category II: Information Technology Survey: Unfunded Projects**

9. Cellular Telephones

This equipment (requested by the Detective Bureau) was not approved for funding in the Public Safety Answering Center Project.

10. Photo Imaging System for CCRB

Funding is not currently available to purchase this system. The possibility exists to expand the use of the photo imaging system in the Personnel Bureau for use by CCRB.

11. Interface with State Liquor Authority Database

The Department has had preliminary meetings with the State Liquor Authority regarding the transfer of data.

12. Microwave Video Transmission System/Mobile Electronic Surveillance Van

Funding is not currently available for this vehicle.

13. Expert Computer Systems

MISD will research various "expert" products to determine programming ease and compatibility with existing and planned systems.

14. Criminal Justice Computer Systems Interface

The Department has reached an agreement with representatives from the Office of Court Administration to receive dispositional information. However, funding is not currently available to include other criminal justice agencies in this electronic interface.

15. Driving Simulators

Funding for this equipment has not been approved.

16. Cellular Telephones

This equipment (requested by the Patrol Services Bureau) was not approved for funding in the Public Safety Answering Center Project.





**Table 11**

**Information Technology: Preparing for the 21st Century  
Category II: Information Technology Survey: Unfunded Projects**

**17. Automatic Vehicle Locator System**

This equipment (requested by the Organized Crime Control Bureau) was not approved for funding in the Public Safety Answering Center Project.

**18. Miscellaneous Equipment for Training Purposes**

Although funding is not currently available for this request, funding options will continue to be explored.

**19. Handheld Computers**

This equipment (requested by the Organized Crime Control Bureau) was not approved for funding in the Public Safety Answering Center Project.

**20. Bioelectrical Impedance Analyzer**

Funding is not currently available for this equipment.



Table 12

**Public Safety Answering Center - Funded and Unfunded Projects**

The following components are targeted for funding through the revenue generated by the surcharge legislation which will be incorporated with existing capital and expense budget funds.

**1. Enhanced 911 Phone Service**

This system provides automatic number identification and automatic location identification to expedite the processing of 911 calls for service by giving the caller's telephone number and location.

**2. SPRINT Consoles**

Call-taker consoles required to support enhanced 911 features.

**3. Radio Communications Equipment**

The present radio system will be upgraded to support new technology which includes cross-patching, unit identification, computer mapping and the use of mobile digital terminals.

**4. 911 Logging Equipment**

This equipment will provide the capability of recording both incoming and outgoing conversation on separate channels to improve reception and make information retrieved from recordings more valuable.

**5. Facility Upgrade**

Moving to a new location will provide much needed space for necessary expansion and improve the overall environment.

**6. Computer-Aided Dispatch System**

Necessary to support E-911 and modern radio dispatching techniques which include the use of an automatic vehicle locator system along with mobile and portable data terminals.

**The following components are not currently funded:**

**1. Mobile Digital Terminal Network**

MDTs will be used for digital dispatching to reduce air time while increasing accuracy by substituting a visual display of the text of an assignment to the patrol resource instead of voice exchange with the dispatcher.



**Table 12**

**Public Safety Answering Center - Funded and Unfunded Projects**

Components not funded...

**2. Back-up Facility Upgrade**

This facility is necessary to provide a back-up system compatible with E-911 and the new radio technology as opposed to the current facilities located at five different locations throughout the City. A centrally located back-up facility will ensure continuation of E-911 service in the event of service disruption at the primary communications center.

**3. Automatic Vehicle Locator**

Equipment which records the location of all patrol vehicles to expedite the response to calls for service by indicating the closest unit available.

**4. Cellular Telephones**

Portable cellular telephones enable field units to communicate directly with 911 callers to obtain additional information.

**5. Radio Communications Equipment**

Upgrading of existing equipment to support the new technology.

**6. New Office Furniture for PSAC**

Replacement of deteriorated furniture.

**7. Recurring Costs:**

Maintenance of equipment and software components of the Computer-Aided Dispatching System.

**8. Recurring Costs:**

Rent costs for a new facility.



# Information Technology Vision

To support and enhance the community policing philosophy

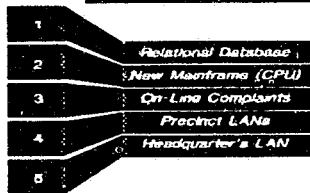


## Modernized Communications

With Enhanced 911, digital dispatching to Mobile or Portable Digital Terminals, and the ability to access information resources

## Information Technology for Community Policing

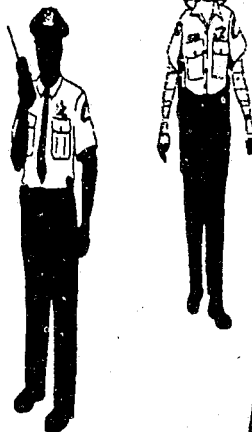
### MISD's Foundation



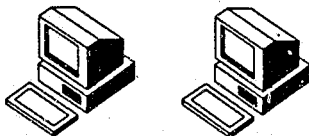
### Applications

- On-Line Complaint System
- Automated Warrant System
- Incident and Location History Files
- On-Line Booking (Arrest Information)
- Automated Property Management
- Beat Book Computerization
- Automated Fingerprint Information (SAFIS)
- Narcotics Enforcement (NITRO)
- Access to Interagency Data (DMV, NCIC, NYSPIN, COURTS, etc.)

Cellular Telephones



Precinct LANs and Computers



Mobile Digital Terminals



Handheld Computers with Pen-Based Technology

