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Study of Police Management Information Systems

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Canada

STUDY OF POLICE MANAGEMENT

INFORMATION SYSTEMS

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STUDY OF POLICE MANAGEMENT INFORMATION SYSTEMS

ADMINISTRATIVE ABSTRACT

The study was conducted over one and one-half years of elapsed time. Its major objective was to formulate a general catalogue of procedures to assist Canadian municipal police forces who wish to develop improved management information systems.

Management information systems (M.I.S.) can be defined as "a set of procedures for capturing, storing and displaying information so that it can be delivered to the appropriate individuals in the organization -- to assist them with their job functions". Described in this fashion, M.I.S. already exists in all police agencies. Yet, we believe that improved M.I.S. would enhance the performance of many Canadian police forces. By using more advanced information technology and associated procedures, Canadian police forces could improve the efficiency with which information is collected and stored, and the effectiveness with which it is used by police officers.

The study report has been divided into five separate volumes. Each is addressed to a subject matter which is fundamental to developing the notion of M.I.S. for Canadian police. Each volume is completely self-contained and can be read apart from the others.

Volume I is entitled Technological Alternatives and Development Initiatives for Canadian Police. It develops the notion of M.I.S. within the context of overall technological change and its impact on policing. It considers both the historical perspective and the future challenges of developing the new M.I.S. technology for policing.

Volume II is entitled <u>Police Management Information Systems Developments in the United States: A Comparative Review</u>. M.I.S. as an application of electronic innovation was born and nurtured in the United States. In this volume we describe some of the more important experiences with M.I.S. in selected U.S. jurisdictions and distill a number of key "lessons" for our Canadian police audience.

Volume III is entitled <u>Police Management Information Systems: The Canadian Experience</u>. It outlines the experiences of a number of Canadian police forces with M.I.S. Also, it describes the results of a survey of large Canadian police forces and their interest in M.I.S. Finally, it concludes with a number of critical comments about the direction of M.I.S. development in Canadian policing.

Volume IV is entitled <u>Targeted Information Processing System (TIPS): A Development program for Police Management Information Systems</u>. Here, we provide a specific catalogue of procedures for developing M.I.S. in a police environment. We begin with a comprehensive description of the "way a police force should approach" the development of M.I.S. There are major changes in staffing and organization required. The Volume concludes with a "Master Plan" for developing M.I.S.

Volume V is entitled <u>Targeted Information Processing System (TIPS): General Design Specifications</u>. This final volume contains technical design specifications for TIPS which was generally described in Volume IV. Each TIPS component is described in terms of inputs, outputs and file interactions.

Although our Report leads the reader into detailed M.I.S. specifications, we emphasize that we do not develop the TIPS specifications as the ultimate comment on police M.I.S. TIPS is only one of many models of police M.I.S. Other approaches

can be equally successful. The key notion in TIPS is that
a police force should design its own information system to
complement its own internal "demand" for information --
or the kind of information that different police managers need
to support their job functions. Few "packaged M.I.S. designs",
including TIPS, will satisfy this need for all police forces.

STUDY OF POLICE MANAGEMENT INFORMATION SYSTEMS

SUMMARY AND CONCLUSIONS

In the spring of 1976, Decision Dynamics Corporation was asked by the Ministry of the Solicitor General to conduct a study of police management information systems for Canadian municipal police forces.

This document provides a general description of the summary and conclusions of the overall study. It is brief. It is designed to describe the highlights of a report which took over one year to complete and whose final version extends over 800 pages. Its ultimate aim is to synthesize the volumes of material produced in the overall study.

A.   The Purpose of the Study

The purpose of the police management information systems study was described as: "develop management information systems specifications that could be used by Canadian police departments to guide future inform- ation systems development. Documents developed through the study could be used by police forces to identify first, their own information requirements and second, the general specifications of information systems required to meet these needs".

The overall aim of this study is to provide an "interpretive analysis" to assist Canadian police managers in the evaluation and application of new management information systems technology in their own jurisdictions.

It is difficult to define management information systems (M.I.S.), primarily because the term, and its application in police forces, includes such a broad range of issues and operating functions. Consider a basic definition of M.I.S., i.e.,

It is the entire set of information handling
procedures and instruments designed to collect,
store, retrieve and deliver information to
appropriate individuals in an operating organi-
zation.   It satisfies the needs of <u>operations</u>
(records and documentation), <u>operational manage-
ment</u> (monitoring and control) and <u>planning</u>
(forecasts to anticipate the future).

This definition suggests that every organization has
an operating M.I.S. Without an M.I.S., an organization
could not exist. Information, broadly defined, is the
basic issue of management. As a result, when we consider
the operation of an M.I.S., we must review all aspects of
management in the organization and show how information
intersects with decision-making. This is why the subject
matter of M.I.S. is so broad.

Yet, traditionally M.I.S. is described in a much
narrower domain. Since modern management information
systems have become increasingly dependent on computers,
many police administrators have begun to think of M.I.S.
solely as an application of computer sicnece. This notion
has confused the issue of M.I.S. Computers are necessary
in modern information systems. As machines become less
expensive, due to technological change, and labour
becomes increasingly expensive, there will be strong
economic pressures in policing to use machines for inform-
ation storage and retrieval. However, our major point
is that M.I.S. goes beyond the issue of computer hardware
and software.

Our understanding of M.I.S. suggests that the
process of M.I.S. development in Canadian policing must
consider the computer issue within a much broader context
of: How should information be collected and retrieved
relative to its use for police operations and management.
We focus on information use in police forces. This is the
proper starting point for effective and efficient
police M.I.S. in Canada. It is the basis of much of the
material in the five volumes of our study Report.

B. The Five Volumes of This Report

The final report of the police management information
systems study has been divided into five separate volumes.
Each volume has a separate role to play in providing an
interpretation of management information systems for
police managers. Each volume is designed as a "stand-
alone" component of information that can contribute to a
better understanding of police M.I.S. The five volumes
are:

- Volume I: Technological Alternatives and Develop-
  ment Initiatives for Canadian Police. We examine
  current trends in policing for Canadian municipal
  police jurisdictions and project their implications
  on the need for management information systems in
  the future.

- Volume II: Police Management Information System
  Developments in the United States: A Comparative
  Review. We review M.I.S. development in American
  police jurisdictions and extract a number of
  recommendations for similar developments in Canada.

- Volume III: <u>Police Management Information Systems:</u>
<u>The Canadian Experience</u>. We describe M.I.S. develop-
ments in Canada. We report on a survey of large
Canadian municipal police forces. Also, we describe
the specific M.I.S. initiatives in a number of
individual police forces. We conclude that Canadian
police departments have only recently become
interested in this technological area.

- Volume IV: <u>Targeted Information Processing Systems</u>
<u>(TIPS): A Development Program for Police Management</u>
<u>Information Systems</u>. This volume contains a
conceptual framework for developing a management
information system in a Canadian police jurisdiction
The major emphasis is on "why?" and "how?". We
view this volume as a "catalogue of procedures" for
developing M.I.S. in a police department. Although
few of the procedures are "critical" in that they
"must" be implemented for successful police M.I.S.
development, we believe that an awareness of all
of the elements specified in this volume (and the
subsequent Volume V) will help police managers to
develop M.I.S.

- Volume V: <u>Targeted Information Processing Systems</u>
<u>(TIPS): General Design Specifications</u>. This final
volume contains most of the technical design
qualities of the management information system
framework presented in the previous Volume IV.
Each component is described by a general flowchart
illustrating inputs, output reports and file inter-
actions. In addition, each file is described in
terms of the various record types and data elements
contained therein.

The titles of two of the five volumes refer to the "Targeted Information Processing System (TIPS)". This is the name that we have adopted for the information system conceptualization developed in this study. The emphasis is on the term "targeted". We use this term to underscore the one crucial element of information system design which has been underestimated in many M.I.S. implementations: the information system must be designed to provide information to individuals who require it. It must be targeted to user requirements. This has an important development corollary in our TIPS specifications: we recommend that police forces considering M.I.S. devote a significant amount of their resources to an analysis of: "who needs what kind of information to satisfy what type of police job functions".

This leaves us with one inescapable conclusion. There is no single "packaged" police M.I.S. As we have already stated, every police force has some form of M.I.S. in place. Since all police forces are different, the type of M.I.S. they will require "to deliver information to users in specific job functions" will differ by police force. But, because information technology is changing so rapidly, as are the demands being placed on police themselves, there is a constant need to upgrade police information procedures. They should be made more effective (as a means of delivering information to the appropriate users) and efficient (through reducing the costs of specific bits of information). These notions of effectiveness and efficiency are central to the TIPS development program described in our Report.

C. Technology and the Future of Policing in Canada
   (Volume I)

The first volume in the five volume series of reports
on this study examines the question of management
information systems in its broadest possible context.
We treat M.I.S. as an example of new technology and
consider the overall issues in the application of new
technology to policing. In other words, M.I.S. represents
the application of new, often capital-intensive techniques
for handling information in police organizations. It is
associated with computers and technological changes in
the electronics industry. It will have a profound
effect on the style, philosophy and human relations
within a police department. In that respect, M.I.S.
is not much different than new technology in communic-
ations. Again, technological advancements through the
miniaturization and improvement in communications devices
have promoted the use of new communications systems in
police forces. They are capital-intensive. They can
drastically alter the style, philosophy and organizational
texture of a police force.

We trace the development of an organizational
philosophy in policing and the impact of early forms of
technological change. For example, the use of telephones
had a major impact on the application of patrol techniques
and the relationship between patrol officers and senior
command.

Also, we seek to interpret the social, economic
and political conditions of municipal policing during
the recent, post World War II period. We show that a
host of new pressures have had an impact on policing
during this interval. These pressures have to a
large extent, mitigated against the application of
some forms of new technology, such as M.I.S., in
Canadian municipal police forces.

We isolate a set of new, and pervasive social and
economic pressures which we believe will have a major
impact on policing over the next two decades. These
include: economic conditions, which will make personnel
costs rise rapidly relative to the cost of technologic-
ally enriched capital; the rate of technological
advancement itself, which will continue to improve the
effectiveness of "machines"; and, what we have called
"demonstration effects", wherein police personnel will
be able to learn from other institutional sectors
(e.g., the health and education sectors) and adapt their
technology for their own use. We conclude that there
will be significant pressures for new technological
applications in policing over the next two decades.

Finally, we outline our impressions of the effect
of these pressures and other demographic and social
events on the future of policing over the next two
decades. For example, the rate of urbanization is
increasing, the structure of housing available for
this new urban population is changing and the age profile
of the population is going through historically unparalleled
shifts. All of these influences will have a major impact

on both the organization and application of new
technology for policing in the future.

We conclude Volume I with a set of recommendations
for municipal police managers on adjusting and preparing
for the future. Although we recommend an open and
inquisitive attitude towards the application of new
technology in policing, we caution our readers to
adopt a cautious, conservative and reasoned "managed"
implementation of this new technology.

D. The United States Experience (Volume II)

In many respects, the United States has been the
font of technological development in the world during
the 20th century. During the post World War II period,
there has been a focus on R&D in the United States
which complements and supports technological develop-
ment for policing. The combination of millions of
dollars spent on the space program and on military
purposes has had an obvious secondary value through
adaptive application to policing. The two technological
areas most influenced by these two different types
of R&D are police communications and computer applications.

Also, since the Omnibus Crime Control Act was passed
in the United States in 1968, the federal government has
made substantial resources available for the improvement
of the effectiveness and efficiency of American policing.
A significant proportion of these resources has been
diverted to technological enhancements. Accordingly,

we believe that technological development,
particularly in police M.I.S., in the United States
should be of major interest to Canadian police. There
is much to learn. American police sources are quite
willing to share their experiences with Canadian
police audiences.

One of the most significant institutions developed
in the United States to assist all sectors of the
criminal justice system is the Law Enforcement Assist-
ance Administration. We review the work of this
agency and describe its initiatives on behalf of
American policing. We conclude that LEAA has made
a major impact on the use of advanced technology
by American police forces. Its influence has been
felt through a number of contributions. First, LEAA
provides development money to police departments
interested in building "demonstration projects". A
good part of these resources have been devoted to the
development of the management information systems.
Second, LEAA is active in documenting and evaluating
the new technology which has been developed through
its funding. Third, the existence of LEAA support has
helped innovating police departments "hedge their
risk" on their initiatives. This is an important
contribution. New technology is risky. It is essential
to have a large, well-funded agency which can share
some of the financial burden of the uncertainties
associated with new technological development.

In Volume II, we carried out intensive field visits to five of the most advanced police forces and describbed their management information systems. These municipal police forces are located in: The City of Miami, Florida; Kansas City, Missouri; Dallas, Texas; Los Angeles, California; and, San Diego, California. Many millions of dollars have been spent developing the information systems in these five police forces. There is a wealth of information available to assist Canadian development programs in these areas.

From our analysis of the U.S. situation in the development of police management information systems, we have developed a set of basic conclusions which are relevant to Canadian police. They are:

- the existence of a large agency such as LEAA, which can stimulate, support and document management information system initiatives may well be an essential ingredient to the effective use of resources in this area.

- there is a great deal of documentation and other types of information available in the United States about M.I.S. implementation. It is of great value to Canadian police.

- American police are much more interested and willing to accept the risks of experimentation. Much of this is carried out in an open environ- ment and is characterized by a great deal of information transfer. We were surprised at the degree to which both senior and junior police officers in the police forces we visited showed

candor in describing both their failures
and successes. This type of environment is
an essential ingredient to the effective
use of resources in the development of
management information systems.

- finally, crime conditions in the United States
  are fundamentally different from those in
  Canada. Large urban centres are characterized
  by much more crime, particularly violent crime.
  The issue of officer safety is much more
  pronounced in the American environment. This
  has a profound influence on the development
  of M.I.S. Systems oriented towards computer
  aided dispatch, automatic vehicle locators,
  mobile digital terminals, etc., are of more
  intrinsic value in the United States. Canadian
  systems design activities should be aware of
  these differences.

To conclude, there is much to learn from the American
experience. But, Canadian police should evaluate care-
fully the meaning of this experience. We should not
accept U.S. designs without cautious and careful
questionning of their philosophic basis.

E. The Canadian Police Experience with Management
   Information Systems (Volume III)

The most significant police management information
systems development in Canada is the Canadian Police
Information Centre (C.P.I.C.). Managed by the RCMP,
C.P.I.C. is a fundamental information resource

available for use by all police forces in Canada.
The resource is managed centrally, for a totally
decentralized spectrum of users. In our study, we
have characterized C.P.I.C. as a utility; its value
depends on the degree to which it is used by the
largest number of police departments for storing and
retrieving information on wanted persons, vehicles,
property and criminal name references.

A major reason for the success of C.P.I.C. is its
universal acceptance by Canadian municipal police. This,
in turn, results from two features of the C.P.I.C.
development program, i.e.,

- its internal operating characteristics,
  providing a turnaround of information requests
  in two or three seconds in a relatively error
  free environment.

- the slow, cautious and participatory mode of
  development adopted by the RCMP in the C.P.I.C.
  design initiative. A large number of departments
  were consulted in the design of C.P.I.C. The
  system was not released for use before it was
  adequately tested and found to be relatively
  fail-safe. As a result, there was a strong
  sense of confidence by the users of the system.

In our analysis of the Canadian and U.S. police M.I.S.
environment, we learned that C.P.I.C. provides the
development of Canadian M.I.S. technology with an important
asset. In the United States, there are a large number of
C.P.I.C.-type systems. The lack of a single, well

operated, national utility such as C.P.I.C.
in the United States has burdened the M.I.S. develop-
ment program of many individual municipal police
forces. For example, the City of Miami Police
Department information systems had to be designed to
interface with six separate C.P.I.C.-type field
support information systems, at a significant expense
to the initial systems design.

We carried out a survey of large Canadian municipal
police forces in order to provide a reference on the
current state of police M.I.S. development in Canada.
In this survey, we learned a number of basic things
about Canadian municipal M.I.S. development, i.e.,

- very few Canadian municipal police forces are
  investing sufficient development or operating
  funds on management information systems; this
  suggests that there is not yet a major resource
  commitment to this technology. In part, this
  has resulted because Canadian municipal police
  forces are so well served by C.P.I.C. for field
  support information. Also, Canadian police have
  not yet come to grips with the value of M.I.S.
  for police operations.

- on the other hand, our survey did reveal a growth
  of interest in M.I.S. by senior police managers.
  Many chiefs surveyed indicated that they were
  becoming more interested in considering the
  application of computers to their police
  forces.

- there is not yet a well defined consistent set
  of views among Canadian police managers on
  how and where M.I.S. should originate in their
  police force. In some police departments, there
  is a belief that M.I.S. should be the respons-
  ibility of the Research and Development Unit.
  But not all municipal police forces has such
  a unit. In other forces, Central Records or
  a Data Processing Unit are cited as the locus of
  the development initiative. Finally, in some
  police forces there is a loose relationship
  requirements for the development of M.I.S.
  Until police can specify clearly what they
  require in the form of M.I.S., such a loose
  relationship will not lead to articulate systems
  design.

In addition to a broad based survey of 27 municipal
police departments in Canada, we carried out a more
intensive descriptive analysis of M.I.S. development
programs in six of the more advanced Canadian forces.
We do not suggest that this is the exhaustive list of
police forces in Canada involved in M.I.S. development.
We selected these six forces only because their develop-
ment programs help illustrate the key elements in the
process. The forces which warranted elaborate
descriptions in Volume III of our study include:

- the City of Ottawa Police Force, Ontario. We
  examined two implementations in this police force:
  the TOPCOPS occurrence reporting system and a
  system currently being implemented by the Ontarip
  Police Commission called CADRE.

- the City of Edmonton Police Force, Alberta.
  We focussed on the Police Headquarters Project
  which is currently underway to develop a
  "modernization master plan". It includes the
  design of an information system.

- the RCMP Detachment in Surrey, British Columbia.
  This RCMP Detachment, which is providing municipal
  police services in Surrey, is currently involved
  in a shift in managerial philosophy towards
  Management By Objectives. The new management
  system is associated with the development of a
  computer aided dispatch facility for Surrey and
  other detachments in the Lower Mainland area.

- the City of Vancouver, British Columbia.
  We traced the development of an information
  system concept from the original master plan,
  called Police Management Information System (PMIS)
  to the current sub-system being developed through
  the provincial Attorney General, called Police
  Index Enquiry System (PIES).

- the Metropolitan Toronto Police Department, Ontario.
  This police force has had an extensive information
  system development underway for several years.

- the Ontario Provincial Police, Ontario.
  In this provincial police force, we reviewed the
  information procedures designed to satisfy a new
  management development process.

Although our survey suggests that there is not yet a
major resource commitment to management information
systems among Canadian municipal police departments, our
visits to selected departments suggest that there are
exciting, innovative and potentially valuable programs
taking place in the field. What is obvious, throughout
the Canadian police scene, is that few senior police
officers are totally aware of the development programs
taking place in other jurisdictions. Information
transfer is episodic. It is not formalized. There has
been little attempt to publish documentary evidence
about M.I.S. development programs. This study represents
the first such attempt in Canada.

Furthermore, there is little formalized initiative
for evaluating the cost-effectiveness of much of the
technology being developed through M.I.S. For example,
most police managers either accept or reject the value
of mobile digital terminals, and their associated
technology, on faith. Few police officers in Canada
realize that American experience with MDT's is rather
inconclusive. For example, Kansas City, Missouri, where
crime rates and their implications for officer safety
strongly suggest the need for such devices, was not at
all satisfied with the pay-off from these instruments.

There is a great need for much more communication
about information systems in Canada. The information
should not only be transmitted in the form of printed
and published materials. Canadian police must learn
to talk with other Canadian police, within the formalized
environment of conferences, and other forms of information
transfer, to strike a better understanding of police
management information systems in the Canadian
environment.

F. Building a Police Management Information System:
    TIPS Concept (Volumes IV and V)

Volume IV in our report on the police management
information study is entitled: Targeted Information
Processing System (TIPS): A Development Program for
Police Management Information Systems. It represents
our ultimate understanding of how a police department
should develop its information systems.

A major emphasis in this volume is on the need to
maintain the strong guidance of police management, and
the needs of police organization throughout the inform-
ation system design process. Hence, a large proportion
of this volume is devoted to issues which are not
traditionally associated with systems analysis, computers,
data retrieval and other such elements of management
information systems. We exercise our mandate to
construct an "interpretive" study of police management
information systems in this volume.

First, we emphasize the concept of information as
a resource. It has value to police operations. An
advanced and modern information system is much more than
what is currently contained in most Central Records
units in municipal police forces. Central Records
contain records; they are stored in one spot in order
to serve documentary purposes. Central Records is
accessed when a police officer wishes to know something
about a particular case or a particular person's involve-
ment with a particular case. A modern information
system not only improves access to a retrieval from

Central Records, but enables police management to
use statistical information to make more informed
decisions. This is the essential quality of
information systems.

To illustrate the importance of this distinction
for information systems design, we have borrowed an
allusion from economics; we describe the conditions
of "information supply and demand". A focus on
information supply would emphasize the way information
is generated, stored and retrieved in a police force.
Improvements in the information supply capacity in
a police department, say through the application of
computers, may simply improve the accessibility of
information in the police force and enable more rapid
retrieval of data. This is an important capacity for
police department, but it is not the only consideration.

Information demand is the other side of the
management information system coin. Every organization
has a peculiar structure of demand for information. In
police forces the demand for information is related to:
the type of functions being performed (e.g., services
such as patrol and traffic enforcement) and levels of
command (e.g., authority or the "need to know" which is
based on authority). From our general understanding
of information systems design in police and other
jurisdictions, we believe that often there is insufficient
concern for information demand exhibited in the M.I.S.
design. Through the development of the TIPS framework,
we articulate a set of procedures which we believe
redresses this balance.

A large part of Volume IV considers the relation-
ship between police organization and information
systems. First, we define a general set of police
functions and command levels around which we believe
information can be targeted. Then, based on our field
studies in the Hamilton-Wentworth Regional Police Force,
the Quebec City Police Department and the City of
Edmonton Police Force, we show how particular types of
information can be targeted within this framework of a
police organization.

Second, we provide a procedure which can be used by
police forces to examine the internal need for information
(demand) in their departments. The procedure is called:
the Position/Activity Review. We believe that the use
of this type of procedure would help police forces design
information systems that complement the organizational
demand for information.

Finally, in this volume we present a conceptual
design for thw TIPS management information system and
some directions for the required development program.
Extensive estimates are made on the cost of building
an M.I.S. such as TIPS and the time required to carry
out the development program. To summarize: we have
estimated that it would take approximately seven years
for a police force to build an information system such
as TIPS. The total seven year development cost would
approximate $1,720,000. This assumes that computer
hardware is purchased by the police force. The
operating cost would range from $185,000 in the third
year to approximately $305,000 in the seventh year and
beyond (in 1977 dollars).

The most important feature of the TIPS development
plan framework is its recommendation for the type
of development tasks required in the first two years.
A good portion of these initial two years should be
devoted to preliminary development steps such as:
the development of a master plan, a feasibility study,
a total review of policies, procedures and procedural
documentation in the police department, and careful
specification of user requirements for information.

These cautious and conservative recommendations for
time allocations during the development of M.I.S. are
based on a number of lessons which we learned during the
field portion of this study. First, we believe that
C.P.I.C. has been successful, in part because the
designers of the system took the time required to develop,
pretest, and evaluate a set of procedures which could
satisfy all users. Second, in our field visits to U.S.
jurisdictions, we developed the impression that those
forces which placed a great emphasis on planning and
preparation for M.I.S. tended to develop the most
successful systems. Finally, in Canada the notion of
M.I.S. is relatively new. This enhances the argument
in favour of laborious preparatory work providing the
background for M.I.S. developments.

The general descriptions of TIPS presented in Volume
IV are supplemented with material contained in Volume V.
The more detailed descriptions include flowcharts of the
19 TIPS components, descriptions of each file defined
within the TIPS framework, and detailed descriptions of
many of the more important data elements contained within
the TIPS system.

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APPENDIX B

Sources of Information for the Police Management Information
Study

     The Police Management Information Study took more than
one and one-half years to complete. The final report, in
five volumes, contains many hundreds of pages. It is a
comprehensive effort, which touches all elements which we
believe to be contained within the general subject areas of
management information systems for Canadian police. Its
subject matter ranges between: the history of policing, the
spirit of new technology in policing, the process of MIS
development and flow charts describing many characteristics
of a police MIS. We believe that the five volumes of our
report can be represented as a self-contained body of
information on Canadian police MIS.

     On what authority did we reach our conclusions on MIS ?
As we have stated throughout the five volumes of this study,
there does not exist a central body of research literature on
police MIS which can act as an authoritative reference point
to MIS studies. We hope that this study will be a starting
point for such a reference in Canada. Therefore, our "authority"
originates from the large number of field contacts we made
during the course of this sudy, as well as a reading list of
literature on police management and record systems -- many of the
items on this list were contradictory, or at least characterized
by a confusing language on MIS subjects.

     Police managers who read this report may well want to
read further to gain a better understanding of the technical

and procedural issues of police MIS. As a result, we have
included Appendix A to Volume I. It is designed to act as
a general outline to the types of information sources which
we used in our study. It is not a comprehensive bibliography.
We describe our sources of information merely to provide
a general guide to the variety of sources required for an
understanding of police MIS. We group the various items in
a simple manner; categories of information sources are
designated in the order in which we sought information at
the beginning of our study. We make no attempt to divide
the items into consistent areas of MIS "subjects", because
the literature is simply not structured in an appropriate
fashion.

The published sources of information for our study are
broken up into nine categories, i.e.,

- bibliographical sources
- general
- budgeting
- dispatch
- investigation
- patrol allocation
- personnel management
- productivity analyses
- U.S. information systems.

A large number of the items, especially those listed
under "U.S. information systems", were solicited directly from
police sources. They are not published and cannot be found
in most libraries. On the other hand, we met with great
success in soliciting this material and advocate the same

approach by other Canadian interested in police MIS.

Next, we describe the various police and other law enforcement agencies we visited during the study, in Appendix C. Given the philosophy of our study, and the fact that we spent approximately 20 per cent of the project time on field visits, this "source of information" is the most important element of the study.

APPENDIX C

Field Visits

Canadian Police Forces in the Following Jurisdictions:

- Calgary, Alberta
- Edmonton, Alberta
- Hamilton Wentworth Region, Ontario
- London, Ontario
- Metropolitan Toronto, Ontario
- Ontario Provincial Police
- Ottawa, Ontario
- Quebec City, Quebec
- Royal Canadian Mounted Police (Ottawa Headquarters)
- Surrey, British Columbia
- Vancouver, British Columbia

Other Canadian Agencies Involved with Law Enforcement:

- Canadian Association of Chiefs of Police
- Department of the Attorney General, (Justice Information Services Group), British Columbia
- National Research Council
- Ontario Police Commission

U.S. Police Forces in the Following Jurisdictions:

- Dallas, Texas
- Kansas City, Missouri
- Los Angeles, California
- North Parkland Hills, Texas

- San Diego, California
- San Francisco, California

Other U.S. Agencies Involved in Law Enforcement;

- Law Enforcement Assistance Administration (LEAA)
- Police Foundation