THE IMPACT OF EMERGING COMMUNICATIONS TECHNOLOGY ON COMMUNITY POLICING IN A MEDIUM SIZED POLICE AGENCY BY THE YEAR 2000

TECHNICAL REPORT

by

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Command College Class 19
Peace Officer Standards and Training (POST)
Sacramento, California

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This Command College Independent Study Project is a FUTURES study of a particular emerging issue in law enforcement. Its purpose is NOT to predict the future, but rather to project a number of possible scenarios for strategic planning consideration.

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Abstract

The study explores the potential impact of emerging communications technologies on community policing in a medium sized police agency by the year 2000. The emerging communications technologies, including digital wireless networks, personal communications devices, and client-server computer applications, may be commonplace by the turn of the century. They have the potential to impact our social interactions on the magnitude of the mass production of the automobile, or the invention of the electric light bulb. As these technologies are developing, communities across the nation are choosing to implement community oriented policing methods. Personal communications systems and devices could be used effectively in a community policing environment to establish effective lines of communication between police and the community, and offer the hope of making the concept of community and employee empowerment a reality. Officers will have improved access in a mobile environment to a variety of data bases necessary for an effective community-oriented, problem solving approach. The community will also have access and input to the police and government institutions like never before. Trends and events are identified and forecasted, model strategic and implementation plans are presented, and a transition management plan for directing the proposed change is recommended.

COMMUNITY POLICING AND EMERGING COMMUNICATIONS TECHNOLOGY

JOURNAL ARTICLE

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INTRODUCTION

Over the last decade, communities across the nation have embraced the concepts of community policing to address the causes of crime and fear. Community policing promotes proactive problem solving and police community partnerships that rely on citizen and employee empowerment, involvement, and teamwork in priority setting and decision making. In the aftermath of the civil unrest in Los Angeles, the Christopher Commission recommended that community policing be implemented throughout the Los Angeles Police Department. In a recent survey, fifty percent of police officials serving cities with populations over 50,000 said they were practicing community policing. Another twenty percent said that they planned to inaugurate it within a year.[1] Clearly, there is a high level of interest in expanding community policing within the law enforcement profession and among the public.

Converging with this revolution in policing is a revolution in telecommunications. In the early 1980's only a handful of communities throughout the United States had cable television, none had cellular service, and the telephone service was the domain of AT&T and the Bell System. Today, most communities have cable, major urban areas have at least two cellular providers, and the Bell System has been joined by a host of other local and long distance carriers.

Corporate and market developments make it clear that the old separations between telephone companies, cellular providers, cable companies, and even newspaper and television broadcasters are gone. Each has invaded the other's territory, and each is

planning business ventures on the other's turf. In the future there will be multiple providers for each of these services and multiple technologies for providing the same service.[2]

To meet the challenges of this new world of communications, the Clinton Administration is encouraging the development of an electronic superhighway, "...a high capacity, high speed computer network that could do for the flow of information what the transcontinental railroad did for the flow of goods more than a century ago." [3] The superhighway will be a high tech, fiber optic network that will carry massive amounts of digital information. In conjunction with proposed wireless communications systems, it will allow for the instant transmission of information across the country or around the corner. This technology promises to bring a variety of services into homes, businesses and government offices. It has the potential to radically alter the world of business, government, and even basic human relationships. The changes will be comparable to the magnitude of the invention of the automobile, the electric light, and the printing press. Consider the following forecasts of the future:

-- Millions of Americans will carry pocket sized personal communicators that will combine the capabilities of computers and telephones in one mobile gadget. The communicators will become fax machines, calendars, address books and sketch pads with the insertion of function modules the size of a credit card.

-- A large percentage of people will have a personal telephone number that they can be called at wherever they travel, anywhere in the world.

-- At home, the wireless personal communicator will automatically connect with the wired communications system that effectively merges the telephone, television, and computer into one instrument.

-- The majority of American households will have computers by the year 2000. Within ten years, home computers will speak

and understand human languages, handling by voice many of the commands that today must be typed.

-- Two way video phones may be as common as speaker phones or cordless handsets are today.[4]

Identification of the trend toward community policing and the emergence of new communications technologies led this author to conduct a futures research project to address the specific issue question: **What impact will emerging communications technology have on community policing in a medium sized police agency by the year 2000?** The study also addressed the following sub-issues:

How will law enforcement agencies evaluate emerging communications technology?

How will law enforcement agencies fund new communications technology?

What will be the impact on training?

The focus of this journal article is first to examine from an historical perspective how technological advances have impacted the police service delivery system, and then to look at some of the specific emerging communications technologies that will enable police officers to become more effective in community policing efforts. The article concludes with a review of some policy considerations that police managers may consider when implementing these new technologies.

HISTORICAL PERSPECTIVE

Essential to the law enforcement function is gathering, organizing, and disseminating information. Historically, this has been accomplished through communications with the community and between law enforcement agencies. The ability of a law enforce-

ment agency to efficiently manage information through effective communications systems plays an important role in determining the ultimate success of the organization in carrying out it's mission.

In the earliest days of the police service, a problem in the community came to the attention of the constable on patrol when a member of the community spoke directly to him. It may have been a face to face conversation or a "hue and cry". What distinguished this communication system was the one-to-one exchange of information. Devices such as horns and whistles were used to call for assistance over further distances, and couriers were used to share information between communities. The organizing and disseminating of information between law enforcement professionals was limited, for the most part, to handwritten journals and word of mouth. The absence of sophisticated communications systems, coupled with limited mobility, necessitated relatively small geographical areas of responsibility. Hence, the law enforcement official became responsible and responsive to a particular neighborhood.

Over time, there have been many technological advances in communications and information systems that have impacted law enforcement. These technological changes, coupled with the wide spread use of automobiles, were adapted into the "style" of policing, and spread throughout the American policing culture. The emergence of automobiles clearly had immense impact on policing styles. The automobile gave police officers the freedom to move about a much larger area, quicker than ever before. At the same time, this resulted in less direct contact with the public, and has gradually contributed to a sense of isolation from the communities they serve.

The first modern police communications system was the telephone call box. The officer on his beat was alerted to the need to contact his station when a light atop the call box was activated remotely from the station. This system, while crude, eliminated the need for the officer to physically check-in at a precinct house during his tour of duty.

Two-way radio communications systems became common place during the late 1930s and 1940s. Frequency Modulation (FM) was introduced to police communications in 1939. It paved the way for future wireless communications advances by allowing relatively interference free voice transmissions. Perceived as being more efficient and effective than traditional foot beats, the use of "radio cars" became wide-spread. With centralized communications, officers were systematically dispatched to calls for service over wide areas.

As communications systems became larger, more complex, and centralized, it became increasingly important to be able to manage vast amounts of information. The effectiveness of manual systems was inversely proportional to the quantity of the data. Computerized management information and dispatch systems were developed to take advantage of these emerging computer technologies. The first mobile data terminal was introduced in the early 1970s. This device, installed in the police car, allowed the officer to transmit and receive limited amounts of data.

About this same time, 911 systems were beginning to develop. During the mid-1960s, 911 became the standard for instant access to police and fire assistance. Response time to emergency calls became the ultimate measure of police effectiveness.

The benefits of these technological advancements are evident. Policing a modern city without automobiles, two way radios, and computers is unimaginable. However, one of the negative results of this technology can be seen in the relationship of the officer to the community, and the nature of officer/citizen interactions. The community policing movement is, in part, a measure of the public's frustration with the impersonal nature of the police/community relationship. Chris Braiden, retired Superintendent of the Edmonton Police Service in Alberta, Canada, has made this observation:

> The automobile has influenced the police psyche more than any other thing. Because of it, low response times to calls for service became the primary promise of police bureaucrats. The medium became the message; what the officer did at the call became secondary. Therefore being "in service" becomes more important... than being "out of service". In service means being in the car and close to the radio and/or computer. Conversely, out of service means being out of the car and away from the technology but perhaps helping someone or just chatting with someone. In the police psyche, in service is good. Out of service is bad. We need to shift priorities.[5]

One of the dichotomies of community policing in the 1990's is that the shift toward more personal, individual, seemingly more labor intensive law enforcement is coming during a time of reduced resources. The key to shifting policing priorities and adopting new styles of policing in a partnership with the public may lie with the emerging communications technologies.

COMMUNICATIONS TECHNOLOGY AND COMMUNITY POLICING

There are a variety of existing and emerging communications technologies that may be in common use by the majority of the public by the turn of the century. It is likely that the next few

years will be revolutionary times in terms of communications systems, devices, and methods. The three major components of this impending change are wireless communications services, networking, and mobile computing.

Wireless Communication Services

The wireless communications industry is one of the fastest growing industries in the United States. Increasingly, it is becoming a utility for the common citizen. Federal Communications Chairman, Reed Hundt, says "Buying mobile communications in the future will be like buying bread -- there will be a handful of competitively priced national brands, and many local bakeries."[6]

Essentially, there are four basic types of existing or emerging commercial wireless communications services. These are satellite based, cellular, personal communications services (PCS), and specialized mobile radio (SMR). For the end user the distinctions between these various systems are cost, range, quality of transmission, and the ability and extent to which the service can practically accommodate voice and computer data.

Satellite based systems, such as Motorola's Iridium Project (cost: $3 billion) and the McCaw Cellular/Microsoft joint venture called Teledesic (cost: $9 billion) promise to link mobile phones, personal computers, fax machines, and pagers virtually anywhere on the planet through a system of satellites orbiting above the earth. The Motorola project is slated to be commercially available beginning in 1998; Teledesic has a completion date of 2001. Some industry analysts doubt that the systems can be operational that soon, and a host of regulatory issues need to be resolved in the

next few years, but the potential of these systems to provide phone, video, and data services is virtually unlimited.[7]

Cellular systems currently offer the most convenient mobile phone services to the general public. At the end of last year, there were over 16 million cellular subscribers in the United States, and that figure is growing by 14,000 new customers every day.[8] Most cellular systems are analog by design, which limits the capacity for transmitting data. However, many are being converted to digital which will greatly improve the capacity and quality of the transmission and make data transmission over cellular systems practical. While cellular growth has been impressive, and user costs have dropped over the last few years, it is still too expensive for universal use.

Personal Communications Services (PCS) offer the promise of communications services to exceed cellular, at a lower cost. Experimental uses of PCS have been conducted in several major metropolitan areas. In early December of 1994, the federal government began auctioning licenses to prospective providers of PCS. Some predict that PCS will be a forty billion dollar a year industry by the turn of the century.[9]

PCS offers the promise of go anywhere mobile communications that will permit consumers to send and receive phone calls, computer data and faxes through devices as small and unobtrusive as a wristwatch. PCS will be digital from the start, and will be designed for services not available from today's cellular providers. However, as cellular systems continue to upgrade, the line between cellular and PCS will fade. It is likely that the

competition will drive down prices for both services, and universal use will be possible in the next few years.

Specialized mobile radio (SMR) is a technology associated primarily with Nextel Communications. SMR is based on the same basic technology as cellular, but SMR systems are digital and cover an area about twenty five times larger than the typical cellular system. The systems utilize frequencies previously used by taxi companies to provide dispatch, paging, and data services. The digital technology provides clearer circuits and greater capacity than previously possible with those frequencies. There are currently about a million and a half users of SMR, and the industry projects ten million users by the year 2000.[10] Currently, Nextel offers a SMR network in Los Angeles, and anticipates that a coast to coast wireless network will be operational during 1995.

In the next five to ten years, the wireless "phone" is likely to be a personal pocket communicator. It will be a computer, a phone, a fax machine, and more. This personal digital assistant (PDA) will handle a variety of daily activities that today might be handled by a secretary. It will make appointments, answer and return phone calls, conduct research through an "expert" system, and will eventually respond to voice commands. This wireless phone will probably be designed to work in a variety of media. It may be programmed to look for a wired network first, then a cellular link, and then perhaps a satellite network. The phone number would be unique to the person, not to the location.[11]

What do these innovations in wireless communications services mean in the context of community policing? It's evident that there is tremendous interest, investment, and anticipation regarding

these technologies. With wireless networks commercially available and competitively priced, it is likely that their use will be commonplace in the near future and it will be possible to communicate with anyone, anywhere, anytime. These networks will accommodate voice and data, and offer the police the potential to gather, manage and disseminate information to the public in an efficient and timely manner. Combined with some of the powerful new computer technologies and computer-like devices, the wireless systems will enable officers to access a variety of data bases in a mobile environment, even in the near term.

Networking Technologies

By one estimate, there are over twenty million people in the United States connected to some kind of online computer service.[12] The "grandfather" of the online services is the Internet, generally viewed as the precursor to the Electronic Superhighway. Originally designed as a wide area network (WAN) for research and technical uses, the Internet is not very user friendly. Nonetheless, it has developed into a complex, widespread network accessible by millions of users around the nation. There are a variety of other on-line computer networks currently available commercially to the public. Prodigy, Compuserve and America On-Line are among the most popular. These networks offer the ability to communicate with a seemingly unlimited number of people about a host of issues. User groups on every conceivable topic have been established, and services from travel planning to sporting news are available.

These networks are evolving due to new communications technology. The new generation of networks are referred to as

"smart networks". With current technology, the network is merely a conduit that connects computers. With smart networks, the network is a computer unto itself, and the end-user device can be either simple or state of the art, stationary or mobile. The network can adjust itself to the access device. This will greatly enhance the ability of computer devices to "talk" to each other. The end users will not necessarily need to have compatible software because the network will do the interpreting.

These smart networks will be more user friendly, and will be capable of sorting out information for the users, even to the extent of organizing e-mail messages in order of priority, and paging the user when urgent messages are received. The network will also help the average user navigate the ever increasing services and files of information available over the commercial networks.[13]

In a community policing environment this is important technology because it will make networking between the various participants in the community policing efforts easier. Agencies with different computer protocols will be easily connected by these networks, and security and privacy concerns will be more easily addressed with this type of network. And by virtue of their "user friendly" characteristics, the networks will advance the use of the computer as a communications tool for the average citizen, creating new opportunities for citizen/police interaction. This technology also holds the promise of integrating the various mobile devices, such as hand-held computers, personal communicators, and lap tops with computer servers.

The first commercially available WAN is scheduled to come on line by 1995. The system is offered through AT&T, and is commercially known as "PersonaLink".

Mobile Computing

As the telecommunications revolution unfolds, the mobile data computer will be an important tool for community police officers. For several years, some police agencies have employed mobile computer applications. It is important to grasp, however, that because of new computer and communications technologies, mobile computing is becoming vastly more powerful. Mobile computing will be an essential law enforcement strategy by the turn of the century as citizens, including the criminal element, become more mobile and sophisticated technologically.

The Department of Justice National Crime Information Center (NCIC) is currently planning for implementation of the NCIC 2000 project by the year 2000. NCIC 2000 will call out specifications for lap top computers with peripheral devices such as a mobile camera, fingerprint optical scanner, magnetic stripe card reader, and bar code scanner to take advantage of a host of new and enhanced services of NCIC. For example, the new system will allow for instant transmission of fingerprint and photographic data and imaged documents to an officer in the field in a mobile computing environment.

Mobile computing will make officers more effective in their community policing efforts. One of the propositions of community policing is that officers can do solid analytic work if they are given the tools to do so. The mobile computer can provide the beat

officer with an "electronic beat book" to develop priorities on beat issues, develop strategies, and analyze results. This information can be shared easily with all of the officers in a given area. The computer can also serve as a resource, an "expert system" of sorts, on a particular beat or type of problem resolution.

Mobile computing will allow community police officers to more efficiently and effectively process arrestees, identify and track criminal suspects, review information in remote data bases, and communicate with police officers and others in the criminal and social service arena, as well as with the public either interactively or by electronic mail.

Creative applications will most likely be developed and employed. For example, using global positioning system (GPS) technology, an officer could receive information over his mobile computer based on his location. The host computer, linked to the GPS, would recognize the officer's location at any given time and relay information pertinent to the particular geographical location, beat, or reporting district the officer was occupying or approaching. This could include crime trend information, wanted persons information, hazard information (suspects or locations), and information about specific problems being dealt with on the beat.

The importance of putting computing power into the hands of the police officer of the future is underscored by looking at some statistics on the growth of home computing. Dataquest, a San Jose research firm, projects that by 1998, eighty percent (80 million) American homes will be equipped with a computer, compared to 32 million today, or an increase of about 30% annually. The annual

sales of home and office computers are about even according to Computer Intelligence Infocorp, and the home computer market isn't even twenty years old.[14] It is likely that the home computer will be an integral part of the average American home in the near future. It will be a primary communications tool for people at home and at work. This trend should not be overlooked in planning community policing methods and strategies.

POLICY CONSIDERATIONS

During the course of conducting the futures study on the impacts of the emerging technology on community policing, this writer had the opportunity to interact first with a group of experts in a nominal group gathered to examine the issue, and then later with a number of experts individually. Several common themes, grouped together here loosely as "policy considerations", emerged from those interactions. This is not put forth as the "list to end all lists" of considerations for technology implementation, but may serve as a basis for further discussion and analysis.

1. Communities need to be proactive on these emerging communications technology issues. Government leaders must seek out telecommunications providers to find out what plans are being made for the local community, and specifically what new plants and services are they planning to provide. A community-wide needs assessment might be conducted to determine what services could be better handled, for example, in a wireless environment, or by teleconferencing. Communications systems that benefit

law enforcement may also be of benefit to other public services. The state of the technology today certainly allows for the sharing of systems, that consequently become more cost effective. From the executive level, law enforcement needs to reach out and develop working partnerships with the private sector, specifically in the technology arena. Community policing calls on the police to facilitate partnerships in a variety of areas. This is an extension of that philosophy. Involving the community in these efforts may also be a strategy to manage some of the privacy issues that will invariably arise as these technologies are discussed and implemented.

2. The future is digital. Technology developments make it clear that analog telecommunications are quickly being overtaken by a digital world. That revolution will make the transmission of voice, data, facsimile, graphics, text, and video commonplace. In a digital environment, the same equipment that carries voice can carry any other digitized information. Law enforcement agencies need to begin preparing for this future by developing strategic plans that will allow for vertical integration of communications systems.

3. Law enforcement managers need to take the lead in developing integrated information systems that are essential in the community policing environment. These systems need to link law enforcement agencies, but more importantly for the future of community policing, they need to link the police

officer to the community, and offer the potential for the citizen to interact with the police. If not already in place, agencies should develop a protocol for interagency networking. Competition among the major telecommunications firms will almost certainly speed up the development of improved communications technologies, but the application will ultimately depend on inter agency cooperation and trust.

4. Training will always be an issue, but as employees use communications devices, including computers, they become familiar with the capabilities. The key is getting the tools into the hands of the user to allow them to access information or accomplish tasks necessary to get the job done. The experts interviewed agreed that some training will clearly be necessary, but future advances will make the technology more user friendly. The real training issue may be teaching employees how to manage the vast amounts of information that will literally be at their fingertips. Nonetheless, police managers need to begin working with educators to establish programs to insure that technology related skills are developed. Police training programs also need to reflect the need to teach technology skills to entry level and tenured employees. Training needs to go beyond technical skills, so that employees begin to use the technology creatively to identify and solve problems.

5. Right to privacy fears and concerns may be significant obstacles in the implementation of many of the

communications technologies in the government sector. There will be concern from the public that these technologies are invasive, and extend the powers of the government beyond those intended by the founding fathers. While privacy issues will be part of the public debate, the technology is currently available to allow the appropriate dissemination of information. It will be incumbent upon the managers of the systems to put the safeguards in place and insure that security measures are followed. It will also be important to upgrade systems as new technology comes on line.

6. Law enforcement professionals need to continue, and in fact enhance, their legislative lobbying efforts. There needs to be more emphasis on the regional and state-wide applications of technologies and methods to improve the police effort and end product. Consideration should be given to establishing a state-wide research and development unit to identify and research technology, and develop strategic plans for implementation. These efforts need to be directed to meet service delivery systems of the future. Community policing is a dynamic process. Not only is the technology changing, but the needs are in motion, as well.

CONCLUSION

The community policing movement is part of a larger shift in the public's attitude toward government. The people want to be involved, to have access, to have a "say" in how they are governed and policed. The emerging communications services will alter

forever the way that people interact with each other and with social institutions. The communications technology that will be commonplace in the next five years offers the potential of making the theory of community policing a practical reality. The challenge to police managers and the departments they lead is to prepare for the changes that the communications revolution will bring, and to use these powerful new tools to enhance the delivery of police services to the community.

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CHAPTER 1

INTRODUCTION

The civil unrest in Los Angeles that followed the acquittal of the four officers accused of beating Rodney King brought California law enforcement to the attention of the nation. An analysis of the circumstances surrounding that incident has resulted in a variety of recommended actions. None is more significant, perhaps, than the recommendation of the Christopher Commission that community policing be implemented throughout the Los Angeles Police Department.

While the Christopher Commission did not invent community policing, it did focus attention on this policing philosophy, and perhaps escalated the evolutionary process. Community policing is a philosophy, a management style, that promotes proactive problem solving and police community partnerships to address the causes of crime and fear, as well as other community issues.[1] It depends on citizen and employee empowerment and involvement in priority setting and decision making.

The police community has debated and experimented with community policing for nearly ten years. Various forms of the community policing model have been tried and tested. Even though scientific evaluation is lacking, many communities report successful ventures in this arena. The attention of the Rodney King incident and subsequent recommendations of the Christopher Commission, as well as from law enforcement leaders, politicians, and community activists, has heightened

the significance and importance of community policing in law enforcement circles.

In fact, a recent survey by the Federal Bureau of Investigation (FBI) and the National Center for Community Policing at Michigan State University showed that fifty percent of police officials serving cities with populations over fifty thousand said they were practicing community policing. Another twenty percent said that they planned to inaugurate it within a year. President Clinton has said "we're determined to put more police officers on the street and to expand community policing." [2] The President and the Congress followed through on this promise with the passage of a national crime bill in September 1994, which included partial funding for one hundred thousand "community police officers". The crime bill is clearly structured around the concepts of community policing.

Community policing calls on police agencies to open lines of communication with the community in an effort to involve community members in problem solving and proactively addressing the causes of crime and fear. As noted in the Christopher Commission report, "officers at the patrol level are required to spend less time in their cars communicating with other officers and more time on the street communicating with the public." [3]

Additionally, a successful community policing effort requires police managers and front line officers to move from a response time orientation to a problem solving and community involvement orientation. This will entail new measures of

effectiveness, changes in service delivery systems and expectations thereof, and most significantly, new methods of communicating with the public.

Converging with this revolution in policing is a revolution in telecommunications. In the early 1980s only a handful of communities throughout the United States had cable television, none had cellular service, and the telephone service was the domain of AT&T and the Bell System. Today, most communities have cable, major urban areas have at least two cellular providers, and the Bell System has been joined by MCI, Sprint, GTE, and a host of other local and long distance phone companies.

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To meet the challenges of this new world of communications, the Clinton Administration is encouraging the development of an electronic superhighway, "a high capacity, high speed computer network that could do for the flow of information what the transcontinental railroad did for the flow of goods more than a century ago".[5] The superhighway is a high tech, fiber-optic network that will carry massive amounts of digital information. In conjunction with proposed wireless

communications systems, it will allow for the instant transmission of information across the country, or around the corner. At the core of this concept are two major technologies. First, the ability to transform any information -- pictures, sound, print -- into digital form; and second, the ability to send or receive millions of digital messages over fiber optic cables simultaneously at the speed of light. [6]

This technology promises to bring a variety of services into homes, businesses and government offices. This would include everything from electronic mail to data base information, video phone calls, television programming, music, books, financial transactions, and interactive education programs.[7] This new "telecommunications architecture" has the potential to radically alter the world of business and government, to include the basic delivery of police services and the "interface" between the police and the community.[8] Some have forecast that this fiber optic network will make two way communications by computer terminal as routine and user friendly as the telephone. This clearly has enormous potential impacts on policing--on communications, information management systems, and on the nature and extent of our interaction with the community. The ability to access information from a variety of community sources is one of the keys to a successful community oriented policing plan. Recognizing the potential of the emerging communications technologies, Attorney General Janet Reno has said that "we need to develop integrated information systems so that we can develop comprehensive community plans that make a difference." [9]

On a national scale, plans are underway for law enforcement to take advantage of the new communications technologies. The Department of Justice has on the drawing board the proposed "N.C.I.C. 2000" Project. The National Crime Information Center has been charged with developing a nationwide system for the dissemination of criminal history information, including fingerprints, DNA data, and photos to local agencies. The system will be designed to allow for the instantaneous transfer of that information to field officers over wireless communications networks.[10]

This same technology will be available commercially to the average citizen. Personal Communications Services (P.C.S.) and other wireless technologies offer the potential ability to communicate with anyone, anywhere, anytime. The Federal Communications Commission recently auctioned off an enormous block of radio frequencies for wireless communication services. According to FCC Chairman James Quello, this industry will "profoundly change the way people in America communicate."[11] By the year 2005, some 60 million Americans will be carrying various P.C.S. devices. By comparison, there were approximately 14 million cellular phone users at the end of 1994.[12] The essential "tool" of P.C.S. is a wireless communications device "combining the advantages of cordless phones, cellular mobility and traditional telephone services in a totally mobile environment."[13] The handset used by P.C.S. subscribers will essentially replace the home, car, and office phone. The user will be located by number, not location. P.C.S. will also

accommodate computer modems, fax machines, and electronic note pads, and various combinations thereof. These systems could radically alter the way that police agencies relate with each other and with the public.

While speaking at the Command College in April, 1993, Dr. Paul Shay observed that the new communications technologies will be user friendly, and will benefit the law enforcement officer more than the criminal element. This technology will "result in empowerment for the individual officer who will operate in an environment demanding more accountability and responsiveness" than ever before.[14]

Police managers of medium and large sized agencies will certainly be challenged to incorporate some of these emerging technologies into their community policing efforts. These technologies, however, pose opportunities and pitfalls. On the one hand, the technology could be used to "impersonalize" police service, and further divide the police from the community; in another scenario, the application of the technology may empower the individual officer and members of the community, and enable the police and the community to communicate and work together more effectively.

The potential application of these emerging communications technologies on community policing is an issue worthy of examination. The practicality and acceptance of these technologies is unknown, but it is a question which has given rise to this study of the future.

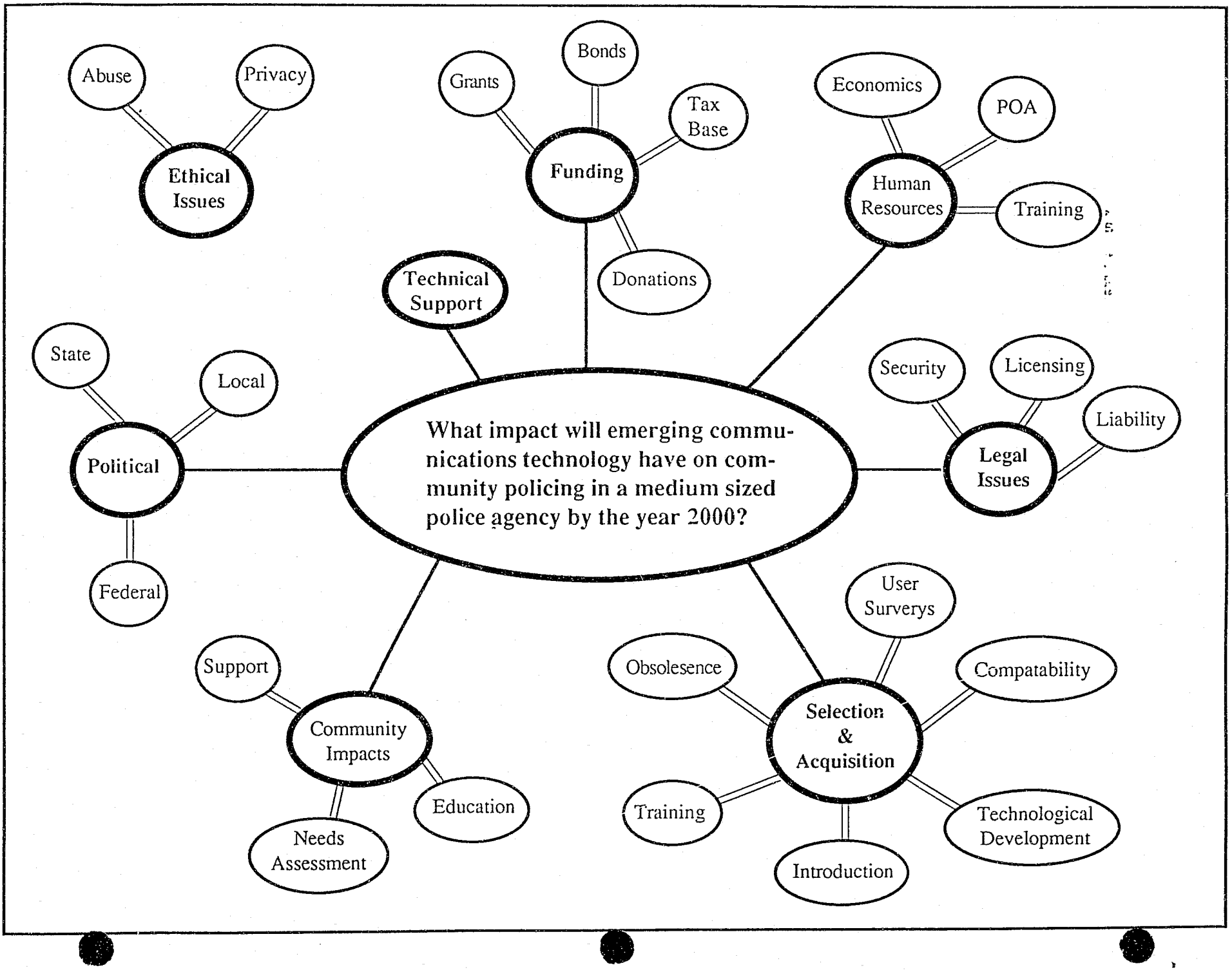
The foregoing discussion leads to the issue statement of this research paper:

What impact will emerging communications technology have on community policing in a medium sized police agency by the year 2000?

The issue statement was developed through research and an extensive literature scan in collaboration with law enforcement colleagues and professionals. The literature scan included this author's personal futures file, which includes numerous articles from a variety of sources related to the issue. A review of the list of completed and in-progress Command College Independent Study Projects revealed several projects related to community policing, and an abundance on a variety of emerging technologies. Of particular interest and relevance was Captain Michael Post's (Glendale Police Department) study on "Broadband Interactive Multimedia Telecommunications", which examines some of the emerging technology that is the subject of this study.

This issue statement is built around the "medium sized" police agency simply because that is the author's frame of reference. A forecast to the year 2000, approximately six years into the future, appears to be a reasonable time frame given the rapid pace of the development of technology.

The research process also led to the disclosure of several sub-issues. In order to develop and refine the sub-issues, the futures wheel method was employed. This author facilitated a group exercise involving four other members of Command College Class 19 during the week of August 23, 1993. The participants included Eric Lillo, Ed Piceno, Dennis Holmes, and Carlos Bolanos. The futures wheel that was developed by that group is on the following page (Illustration #1).



FUTURE'S WHEEL - ILLUSTRATION #1

The sub-issues were further refined through review and discussion with the Command College faculty, POST staff, and an academic advisor. The following sub-issue questions were developed, and will be explored in this futures study:

1. **How will law enforcement agencies evaluate emerging communications technology?**
2. **How will law enforcement agencies fund new communications technology?**
3. **What will be the impact on training?**

These sub-issues were selected due to their potential impact on the primary issue question. In order to implement the emerging communications technologies, it is important for law enforcement agencies to establish a way to evaluate the new technologies, and potential uses thereof in a community policing environment. New technologies are expensive, and law enforcement agencies will need to determine funding sources to pay for those technologies that are determined to be desirable. Finally, the introduction of new technologies and equipment may require additional training and orientation for employees. The nature and scope of that training needs to be evaluated and planned.

The following chapter will explain the methodology and results of the futures study of the issue and sub-issues.

CHAPTER 2

FUTURES STUDY

Having identified the futures issue and sub-issues, the next step was to decide upon a research design to conduct the futures study.

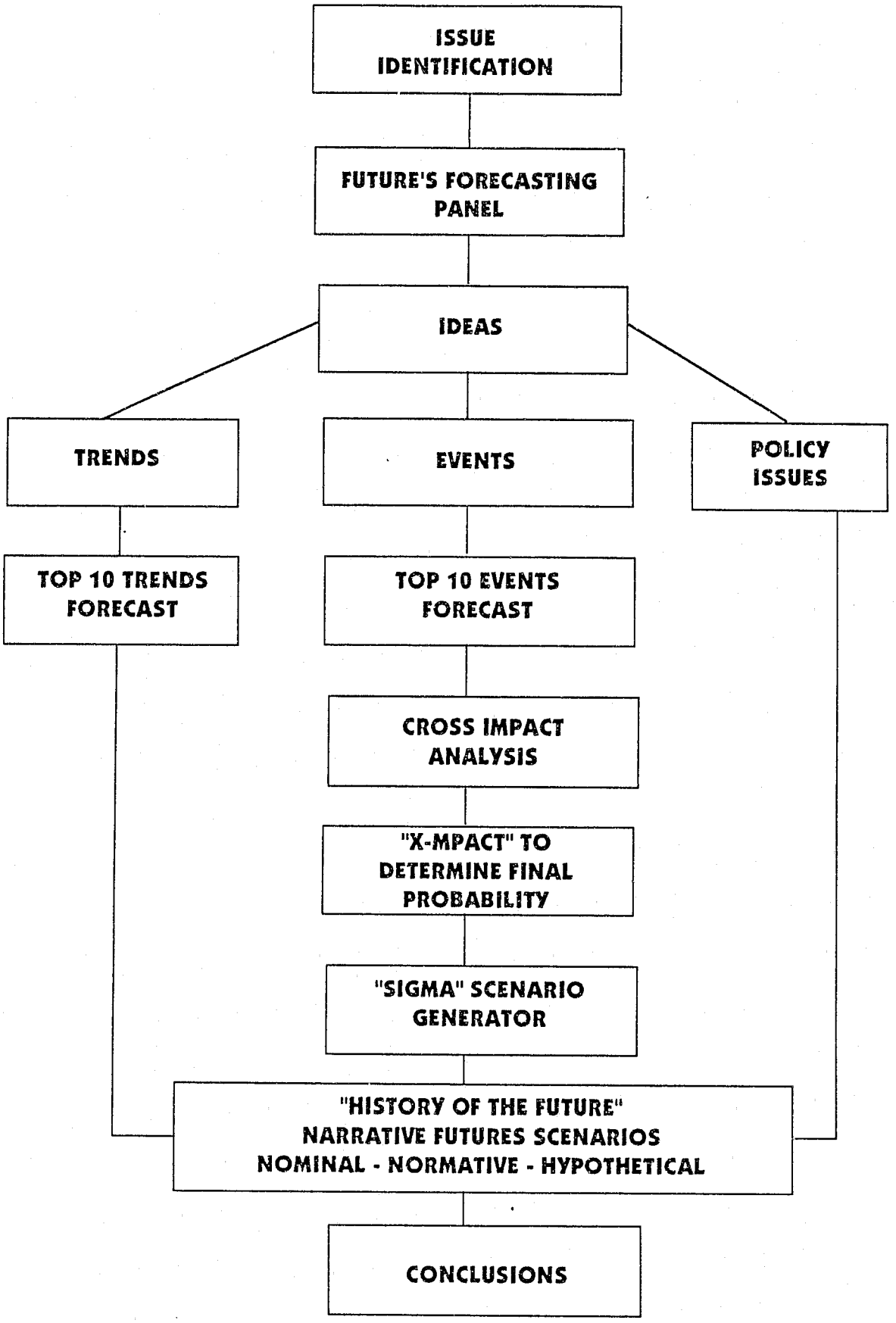
The flow chart on the following page (Illustration #2) depicts the design of this research project. This design is accepted by the Command College and was adopted by this writer for the purposes of the futures study.

The design calls for the use of a futures forecasting panel, employing the nominal group technique. The theory is that idea generation is best handled by an expert group as opposed to the thoughts of an individual person. The panel is selected on the basis of expertise and background related to the issue. Anonymity is important, to insure that every participant can freely share ideas.

The "ideas" generated by the panel are divided into groups of events, trends, and policy issues. The panel then selects the top ten trends and events. For both trends and events, discussion follows the initial "vote", and the panel is allowed to revote, in order to validate the selection process. The group then forecasts the top ten events, and the top ten trends.

A cross-impact analysis is done on the top ten events. This is accomplished by this writer with the assistance of a Command College graduate. The cross-impact factors are determined by this process.

ILLUSTRATION #2



Two computer software programs are used in this study. Both were developed and copyrighted by The Policy Analysis Co., Inc., Washington, D.C. First, the program, "X-MPACT", is used to determine "final probabilities" for each event by inputting the forecasted probabilities from the nominal group and the cross-impact factor determined by the cross-impact analysis.

The top ten events and the "final probabilities" are then input to the "SIGMA" scenario generator software program. This program generates a series of iterations of potential scenarios that depict a calendar of events that occur, as well as those that do not occur.

The scenarios are divided into groups by category, based on themes and development. Narrative scenarios, written from the "historical future" perspective, are produced from those computer generated scenarios.

Finally, based on this study, the writer considered the policy implications and drew conclusions about the futures issue.

FUTURES FORECASTING PANEL

To address this important study of the future, a panel of experts from a variety of disciplines was assembled. Invitations were sent to fifteen people with varying backgrounds and fields of expertise. Eleven of these people accepted the invitation, and agreed to participate in the panel.

The panel represented a cross section of experts with unique perspectives on the issue of this future's study, based

on their respective educational backgrounds, career fields, and assignments. Two of the eleven were Command College graduates. One of those is now retired from law enforcement and engaged in the private sector. In addition to the law enforcement perspective, there was representation from the communications technology industry, the business sector, government, and the local community.

This futures study employed the Nominal Group Technique (N.G.T.) to help the group of experts develop the important trends and events relevant to the issue and sub-issues identified for study. The panel was comprised of the following:

Mr. Dave Anderson: Site Development project manager for Cellular-One, a division of McCaw Cellular Services. Mr. Anderson has extensive experience in the cellular communications industry.

Mr. Jim Sundberg: Engineer for Cellular-One. Mr. Sundberg has been involved in the cellular industry for over ten years, and has worked on a variety of projects.

Mr. Mike Glass: Marketing representative for Motorola, Inc. He has been in the two-way communications business for over ten years. He has been project manager on several large projects. He is currently a member of the Tri-Counties A.P.C.O. committee charge with coordinating the public safety transition to 800 megahertz radio systems.

Commander Ken Kipp: Commander Kipp is a Command College graduate. He has served in a variety of assignments, including "Chief" of a contract city. He currently commands the Custody Division of the Ventura County Sheriff's Department.

Sergeant Carl Handy: Community Problem Oriented Policing (CPOP) coordinator for the Ventura Police Department. Sgt. Handy has over twenty years of law enforcement experience, and is a graduate of the California Supervisory Leadership Institute.

Corporal Rick Cook: Major crimes investigator, assigned to the Special Investigations Unit of the Ventura Police Department. He has been very involved in planning and developing personal computer applications in his unit.

Mr. David Sumney: Information Systems manager for the City of Oxnard. His responsibilities include all computer operations for the city, including the Police and Fire dispatch and records function. He has served on a multi-jurisdiction committee charged with exploring the feasibility of developing a regional police and fire dispatch and 911 answering point in western Ventura County.

Mr. Mark Monroe: General Manager and owner of a local franchise of Voice-Tel, a nationwide voice messaging and networking business. He has extensive experience in the communications industry.

Ms. Sandi Bennett-McBride: Active community member, involved in a variety of community issues, including several law enforcement projects. She is the manager of one of the largest real estate and property management firms in Ventura County.

Mr. Arthur J. Farrar: President of a management consulting firm, with a background in law enforcement management. Mr. Farrar is a Command College graduate.

Mr. Roman Gonzales III: Engineer and manager of the Advanced Development Programs Systems Division at the Santa Barbara Research Center, a division of Hughes, Inc. Mr. Gonzales has been involved in a number of major communications related research projects for the federal government.

Each member of the panel received a packet of information in advance, and a letter explaining the purpose and process. (Appendix "A"). On the day the panel met, they received an orientation packet containing an agenda and copies of overheads that were used during the day to define the issues and the processes (Appendix "B").

DEVELOPMENT OF TRENDS, EVENTS, AND POLICY CONSIDERATIONS

The N.G.T. panel was opened with brief introductions of the participants and then a reintroduction of the futures

issue, including the following definitions:

> **Community Policing:** It is a philosophy, management style, an organizational strategy that promotes pro-active problem solving and police-community partnerships to address the causes of crime and fear as well as other community issues.
>
> **Emerging communications technology (examples):** Electronic superhighway, wireless communications, personal digital assistants, personal communication services, digital cellular, specialized mobile radio, satellite based global positioning systems, enhanced computerized information systems."

The first step in the process was to ask each participant to individually generate a written list of ideas related to the topic. The participants were assured that their annonimity would be protected, even though their ideas would be shared with the group without identifying the author. Following this individual work, the facilitator used a "round robin" process to share the ideas, by reading one idea from each list, until all the lists were exhausted. There were two people, not involved in the panel, who recorded these ideas on large tablets visible to the group.

The ideas were divided into three categories: trends, events, and policy considerations. The group participated in the assignment of the ideas to the various categories, based on the following definitions:

> **Trend:** "A series of events by which change is measured over time. In other words, a trend is a series of events that are related, occur over time, and can be forecasted."
>
> **Event:** "A discrete, one time occurrence that can have an impact on the issue."
>
> **Policy Consideration:** "Management decisions and directions that may influence either anticipated or

observed trends and events, specifically those that may affect the impact of emerging communications technology on community policing in the medium-size police agency over the next six years."

The results were recorded on the large tablets in the front of the room. The process resulted in a list of thirty-two events, forty trends, and some policy considerations. In addition to separating the ideas by category, this part of the process was an opportunity to clarify the ideas, and where appropriate modify the language to assure that the trends and events were stated in proper form. Considerations included clarity, credibility, plausibility, representativeness, policy relevance, urgency, comparative advantage, and technical excellence. Specifically with regard to trends, every effort was made to avoid value words that might prejudice the results of the forecasting that would take place later in the morning.

The panel was then asked to evaluate the various events. They were told that they would be evaluating each event in terms of it's relative importance to the issue. First, they were asked if any of the events clearly were not in the top ten; that is, were there events that had no chance of being voted into the top ten. The panel could not reach consensus on this question, so they were asked to individually and privately vote on each event on the list as to the importance of the occurrence of the event, relative to the issue. They were asked to place a value of one to ten (ten being most important) on each event, and were provided with a voting form.

The voting forms were collected, and the results were tabulated. These results were shared with the group. There

was a natural break between the top ten and the remaining group of events, however, the top fifteen events were presented to the group. The group was told that the purpose at that point was to clarify the vote, not to pressure the group toward consensus. The group opinion was that the top ten events as defined by the voting process were the most important future events relative to the issue. The top ten events selected by the panel were:

E-1 LEGISLATION ENACTED TO CREATE A LAW ENFORCEMENT TECHNOLOGY SUPERFUND

E-2 NATIONAL STANDARDS FOR PCS ADOPTED.

E-3 "INFORMATION SUPER HIGHWAY" BECOMES A REALITY

E-4 SUPREME COURT RULES THAT ELECTRONIC DATA BASES ARE NOT PROTECTED BY THE 4TH AMENDMENT.

E-5 STATE OF CALIFORNIA ADOPTS A REGIONAL PLAN FOR LOCAL AND COUNTY GOVERNMENT.

E-6 HACKERS GAIN ACCESS TO POLICE DATA BASE.

E-7 CONGRESS REWRITES MODIFIED FINAL JUDGMENT (MFJ) TO TAKE DOWN BARRIERS BETWEEN TELEPHONE NETWORKS.

E-8 POLICE CHIEF IS FIRED WHEN REVIEW OF HIGH PROFILE CASE (E.G. "POLLY KLASS") RESULTS IN A FINDING OF "TECHNOLOGY NEGLIGENCE" BY THE POLICE.

E-9 A.C.L.U. PREVENTS LAW ENFORCEMENT FROM EXPANDING ELECTRONIC INFORMATION SYSTEMS

E-10 LEGISLATION PROPOSED TO REQUIRE "LIVE VIDEO" FROM THE FIELD UNITS.

This process was repeated to develop the top ten trends. First, the list of forty trends was reviewed to eliminate duplications. That resulted in a list of thirty-one trends. The panel members were told that they would be voting on each trend on the list of thirty-one to determine the top ten trends

relative to the potential impact on the issue. The panel was first asked if there were any of the thirty-one that clearly did not have a chance of making the top ten. After discussion, there was agreement that three trends had no chance of making the top ten.

The panel was then asked to individually and privately evaluate the potential effect of each trend on the issue. Once again, the panel members were provided with a voting form for this purpose. They were asked to put a value of one to ten on each trend, with ten indicating the most effect.

The voting forms were collected and tabulated, and the results shared with the panel. As in the event development process, the panel was told that the purpose of having them review the results was to clarify the opinion of the panel, not to pressure the group to artificial consensus. There was a natural break between the eighth and ninth trends, and then again between the thirteenth and fourteenth trends. There was a discussion among the panel prior to a revote on the five trends between position nine and thirteen. A revote on those five trends was taken to determine the final list of ten. That revote conclusively determined the final two trends. The top ten trends selected by the panel are listed below and on the following page.

T-1 LEVEL OF FUNDING FOR RESEARCH AND DEVELOPMENT OF POLICE TECHNOLOGY

T-2 EVOLUTION OF PERSONAL COMMUNICATIONS SERVICES

T-3 ABILITY OF LAW ENFORCEMENT TO IMPLEMENT NEW TECHNOLOGY

T-4 PUBLIC CONCERN AND SENSITIVITY ABOUT CRIME

T-5 LEVEL OF GOVERNMENT AND PRIVATE SECTOR PARTNERSHIPS

T-6 LEVEL OF TECHNOLOGICAL SOPHISTICATION OF CRIMINALS

T-7 AVAILABILITY OF NEW COMMUNICATIONS TECHNOLOGY TO THE AVERAGE CITIZEN

T-8 DEVELOPMENT OF PRIVACY LAWS RELATED TO DATA BASES ACCESSED BY LAW ENFORCEMENT

T-9 CHANGING SKILL REQUIREMENTS FOR THE POLICE--"TECHNO-COPS"

T-10 LEVEL OF MOBILITY OF CRIMINALS

The complete list of trends, events, and policy considerations generated by the N.G.T. panel is included in Appendix "C".

EVENT FORECASTING

Next, the panel was asked to forecast the top ten events. This writer first demonstrated a "sample" event forecast. Following questions, the group was asked to proceed.

An "event forecasting form" was designed for this purpose. Panel members estimated the following for each event:

1. The number of years until the probability of the event occurring first exceeds zero.
2. The probability of the event occurring 6 years from now (1994).
3. The probability of the event occurring 3 years from now (1994).
4. The impact, positive and negative, on the issue if the event occurred. (Scale: -10 to +10)

The panel was instructed to first determine the number of years until the probability of the event occurring first exceeds zero, and then forecast the probability of it's occurrence six years from 1994. That forecast would then be

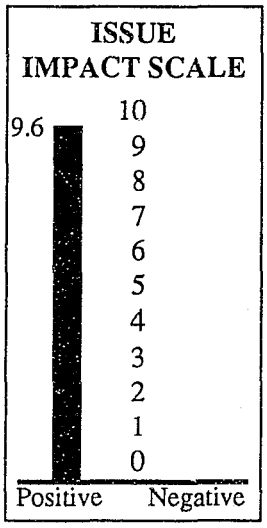
followed by the "three years from now" forecast. The group results of this forecasting process are summarized in Table #1, below. The results for each event are depicted in graph form on the following pages. Each graph contains five measurements: a high, upper quartile, median, lower quartile, and a low score. The median score for the impact, positive and negative, is represented in a bar graph. Comments about these scores, and any additional comments about the event development are included in the analysis below each graph.

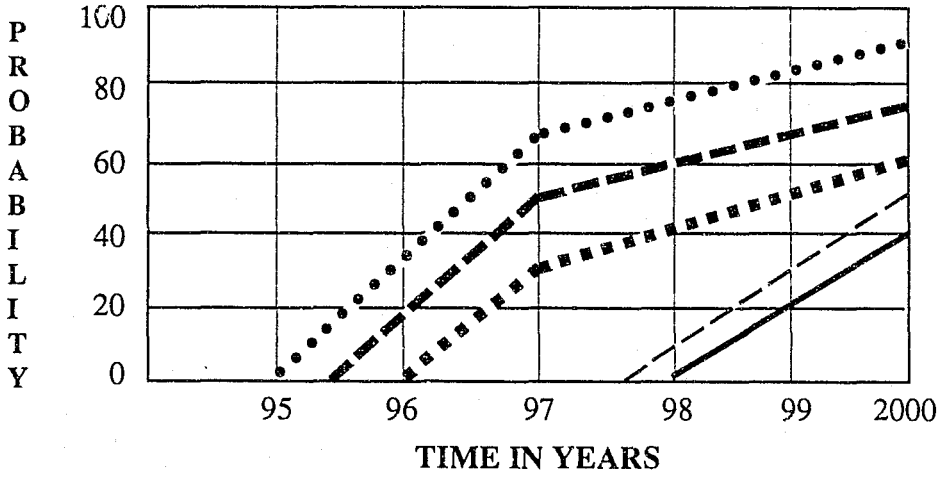
TABLE #1
EVENT FORECASTING RESULTS

EVENT STATEMENT	YEARS UNTIL PROBABILITY FIRST EXCEEDS ZERO	PROBABILITY		IMPACT ON THE ISSUE AREA IF THE EVENT OCCURED	
		3 Years From Now (0-100)	6 Years From Now (0-100)	POSITIVE (0-10)	NEGATIVE (0-10)
E-1 Legislation Enacted to Create a Law Enforcement Technology "Superfund"	4 * 2 1	65 30 20	90 60 40	9.6	0
E-2 National Standards for PCS Adopted	3 2 1	100 60 50	100 95 80	9.7	0
E-3 "Information Super Highway" Becomes a Reality	6 4 3	50 25 20	100 75 50	9.5	0
E-4 Supreme Court Rules that Electronic Data Bases Are Not Protected by the 4th Amendment	3 2 1	90 65 50	100 80 75	8.5	0
E-5 State of California Adopts a Regional Plan for Local and County Government	6 4 3	50 25 25	90 75 50	5.5	1.6
E-6 Hackers Gain Access to Police Data Base	3 2 1	75 60 50	100 90 75	4.9	6.5
E-7 Congress Rewrites Modified Final Judgment (MFJ) to Take Down Barriers Between Telephone Networks	3 2 1	75 50 25	100 85 75	8.8	1.3
E-8 Police Chief is Fired When Review of High Profile Case (e.g. "Polly Klass") Results in a Finding of "Technology Negligence" by the Police	3 2 1	75 50 40	90 80 70	7.7	2.6
E-9 A.C.L.U. Prevents Law Enforcement from Expanding Electronic Information Systems	6 4 1	50 25 25	75 30 25	0	8.4
E-10 Legislation Proposed to Require "Live Video" from the Field Units.	6 4 1	50 30 25	75 30 25	4.7	5.7

* High
Median
Low

Event 1: Legislation Enacted to Create a Law Enforcement Technology "Superfund"

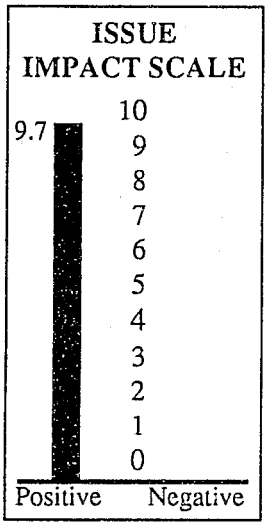


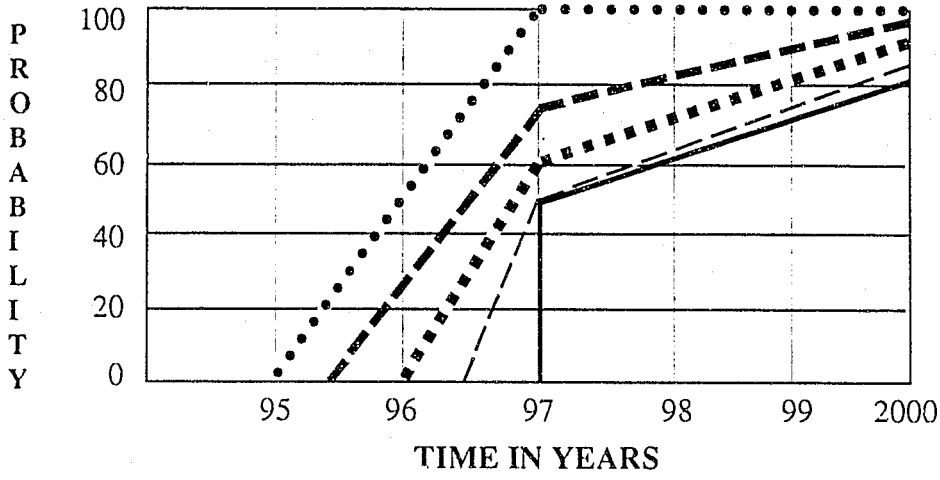


LEGEND	Years Until Probability First Exceeds Zero	1997	2000
High	1	65	90
Upper Quartile	1.4	53.8	76
Median	2	30	60
Lower Quartile	3.6	0	50
Low	4	0	40

There was consensus of the group that this event would have a major positive effect on the impact of communications technology on community policing. There was varied opinion as to the probability of its occurrence, as depicted on the graph. The median view forecasts only a 60% probability by the end of the six year period. The group generally agreed that the expanded funding for law enforcement technology is essential for widespread application of the emerging communications technologies. The point was made, however, that many medium sized agencies may not need to depend on a state effort to acquire the funding, particularly if local community policing efforts are successful and a nexus can be drawn between improved performance and advanced technology.

Event 2: National Standards for PCS Adopted

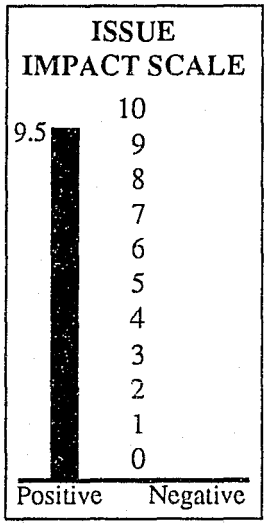


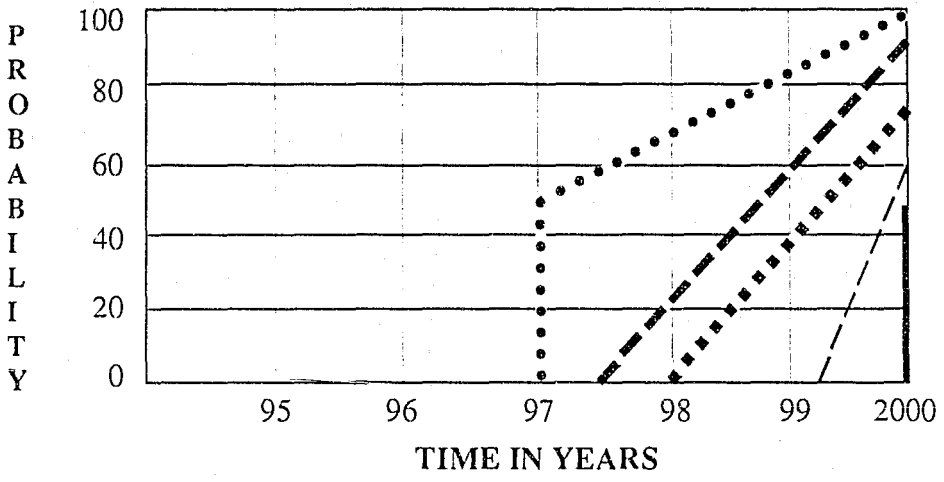


LEGEND	Years Until Probability First Exceeds Zero	1997	2000
High	1	100	100
Upper Quartile	1.4	77	97
Median	2	60	95
Lower Quartile	2.4	50	84
Low	3	50	80

Personal Communication Systems (P.C.S.) standards, according to the group forecast, are likely to occur during the six year time frame. There is strong support for the position that this will occur early in the forecast period, as evidenced by the high and upper-quartile lines on the graph. The argument was made that this is "essential" to the widespread commercial use of P.C.S. particularly for multiple data base access. Currently, there has not been agreement between the various potential makers of P.C.S. devices as to industry standards. The impact of the occurrence of this event was viewed as extremely positive for the issue. The group generally was in agreement on the direction and impact of this event. There was a comment, not reflected in the "voting", that indicated the importance of standards could be negated by improved applied technologies in these communications systems.

Event 3: "Information Super Highway" Becomes a Reality

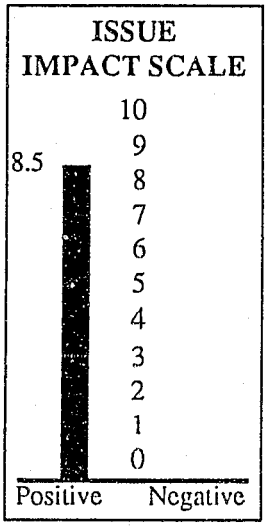


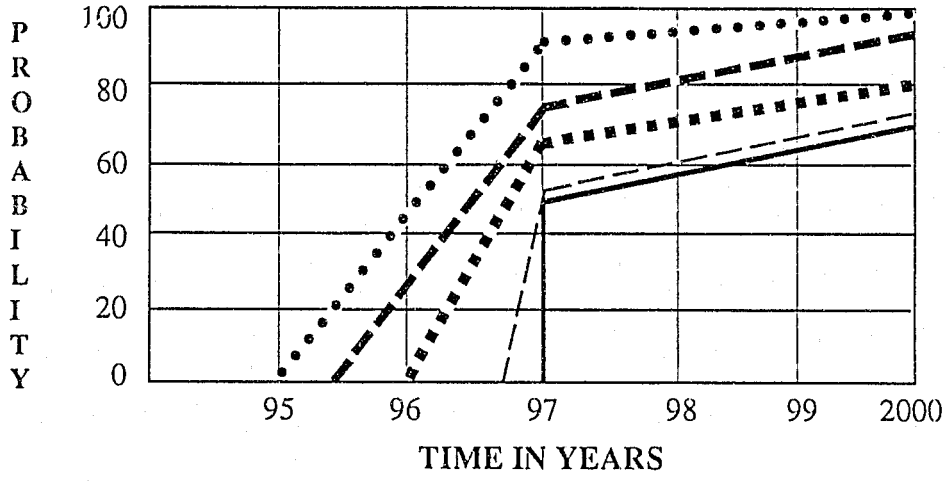


LEGEND	Years Until Probability First Exceeds Zero	1997	2000
High	3	50	100
Upper Quartile	3.4	0	92
Median	4	0	75
Lower Quartile	5.2	0	60
Low	6	0	50

The group viewed this as the key event for the future of "communications". There was unanimous agreement that the event would not occur during the first three years of the forecast. However, the median forecast suggests a 75% probability that the event will occur before the end of the six year forecasting period. The minority opinion was that the event had no probability of occurrence until year six. There was some suggestion that the "hype" created by the "politics" of the issue has created unreasonable expectations of the time frame, and also the practical applications of the "super highway". Overall, however, the group recognized this as a likely occurrence, and an event that will mark a new era in communications.

Event 4: Supreme Court Rules that Electronic Data Bases Are Not Protected By the 4th Amendment

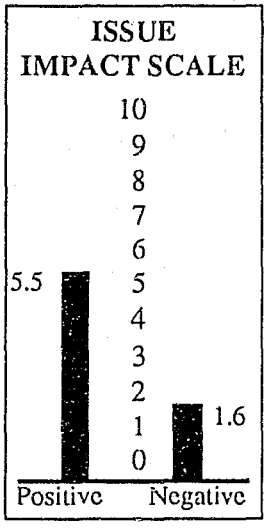


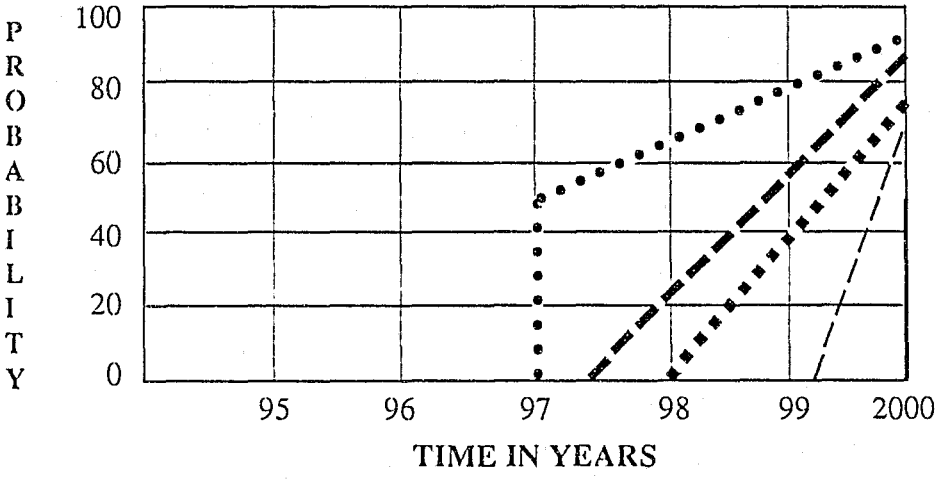


LEGEND	Years Until Probability First Exceeds Zero	1997	2000
High	1	90	100
Upper Quartile	1.4	78	92
Median	2	65	80
Lower Quartile	2.8	53	76
Low	3	50	75

The graph demonstrates the group's consensus on this event. The median forecast is for this event to occur by year 2, with an 80% probability by the end of 6 years. The group felt that as society moves forward in the information age, the need for law enforcement to have access to the variety of information bases will be clear. This was a surprisingly optimistic forecast. As the society progresses into the information age, law enforcement will need to be able to gain access to information data bases with fewer restrictions than currently exist. The opinion was expressed that as criminals become more sophisticated, networks and data bases will make it virtually impossible for authorities to detect criminal activity. "Some" restrictions will need to be imposed on law enforcement, but the group did not evaluate specifically what those restrictions would be, or how they would be monitored.

Event 5: State of California Adopts a Regional Plan for Local and County Government

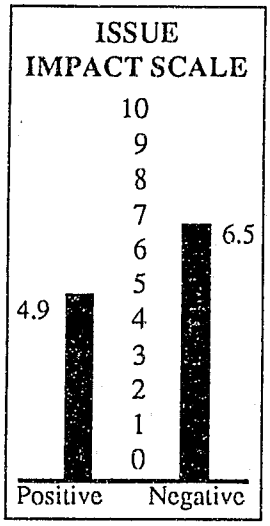


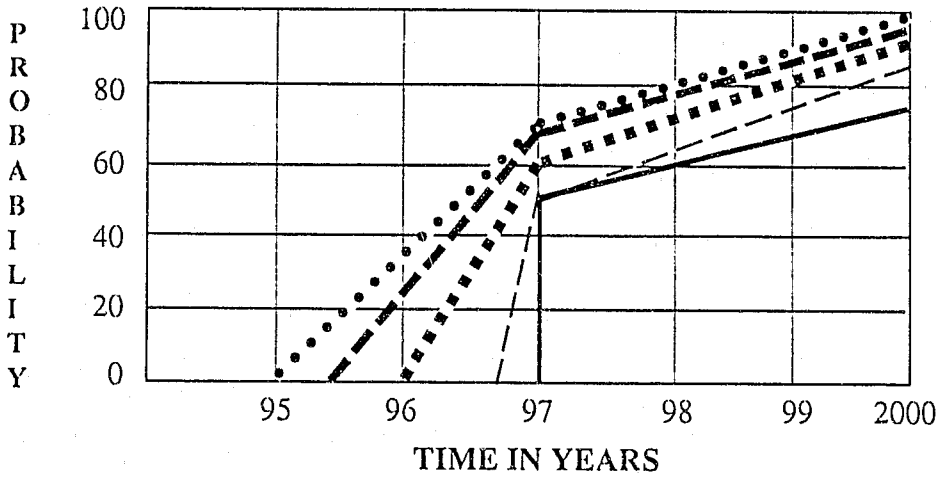


LEGEND	Years Until Probability First Exceeds Zero	1997	2000
High	3	50	90
Upper Quartile	3.4	0	84
Median	4	0	75
Lower Quartile	5.2	0	65
Low	6	0	50

There was extensive discussion about this event. As the graph depicts, there was varied opinion as to the probability and timing of occurrence. Generally, the group felt that a regional government plan would have a positive effect on police technology. There was some agreement that this would cause standardization, modernization, and better coordination of the gamut of communications services within the region. On the other hand, there was concern as to how regionalism would impact the community policing element of the issue. There was the opinion that as government gets larger, it becomes less approachable and less in touch with the community. The collective opinion was that the negative impact can be managed, but it would need to be an essential part of the transition plan.

Event 6: Hackers Gain Access to Police Data Base

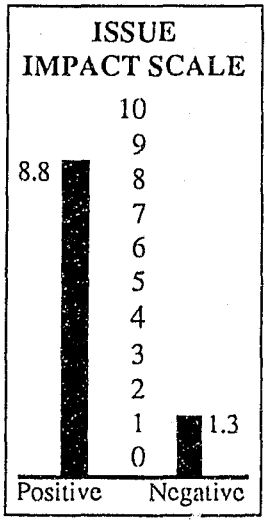


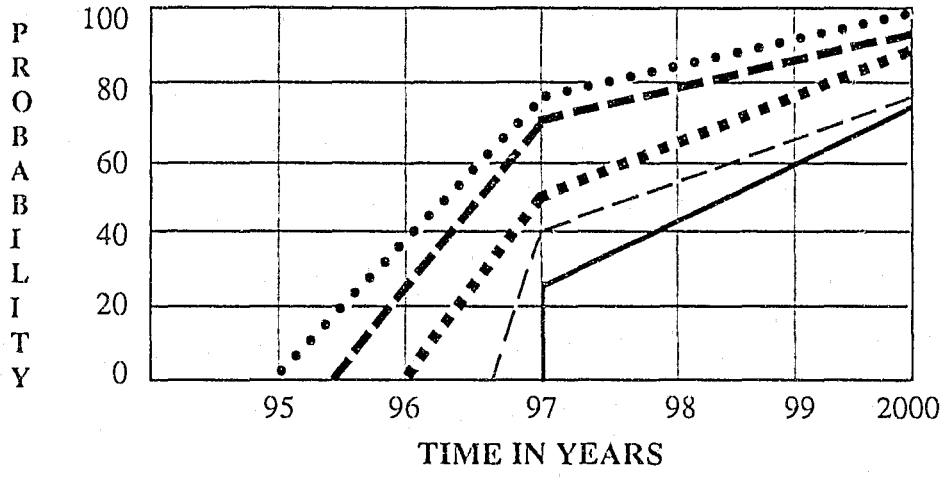


LEGEND	Years Until Probability First Exceeds Zero	1997	2000
High	1	75	100
Upper Quartile	1.4	73	97
Median	2	60	90
Lower Quartile	2.6	52	82
Low	3	50	75

Given the sophistication of the community and the criminal element, the eventuality of this event occurring over the next six years was viewed as a virtual certainty. The panel felt that most law enforcement systems are more sophisticated and secure than in the past, however with cost cutting measures of the last few years there are bound to be weak links in the systems. The telecommuting movement also makes law enforcement systems more vulnerable than in the past. The occurrence would have positive and negative implications for the issue, but on balance, it would be more negative. This might trigger limitations on police information systems and access to data bases, particularly in a mobile environment. The opinion was expressed that information systems management and security must be a top priority for police managers.

Event 7: Congress Rewrites Modified Final Judgment (MFJ) to Take Down Barriers Between Telephone Networks

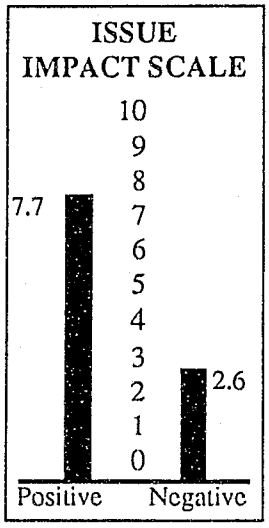


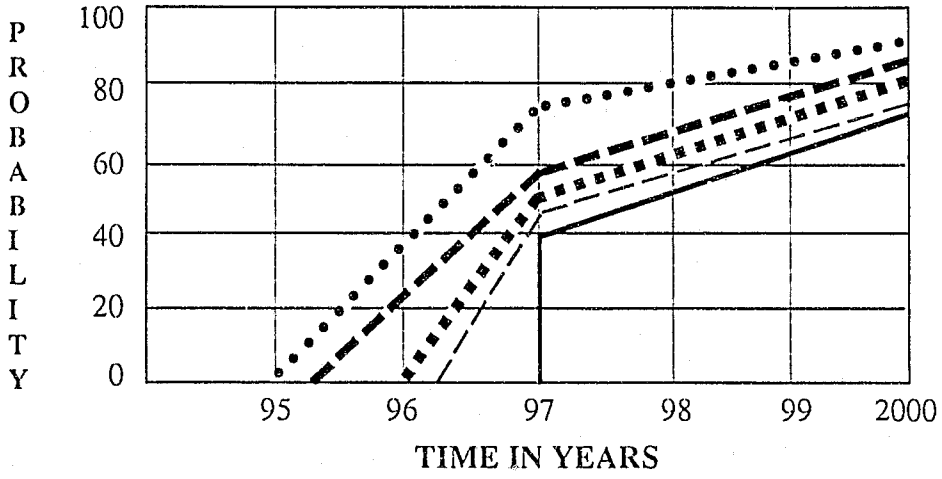


LEGEND	Years Until Probability First Exceeds Zero	1997	2000
High	1	75	100
Upper Quartile	1.4	70	93
Median	2	50	85
Lower Quartile	2.6	40	78
Low	3	25	75

This event was viewed as a key to opening up competition between the telecommunications companies. The Modified Final Judgment (MFJ) of the Department of Justice and the Federal Communications Commission established the ground rules for telecommunications services after the divestiture of the phone companies in the 1980's, and limited competition between the various players in the competing telecommunications industries.[15] There was generally consensus that the event would occur over the six year period, with some strong positions that it would occur very soon. The belief in the industry is that this will allow for increased development of the communications technologies, and most importantly, make them price competitive. This is seen by the panel as having a very positive impact on the issue of this study.

Event 8: Police Chief is Fired When Review of High Profile Case (e.g. "Polly Klass") Results in a Finding of "Technology Negligence" by the Police

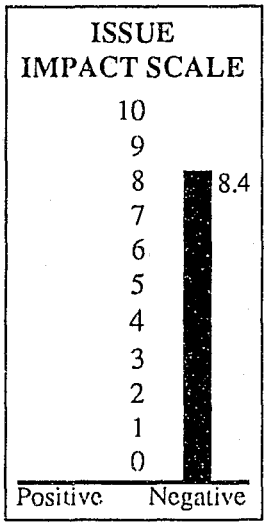


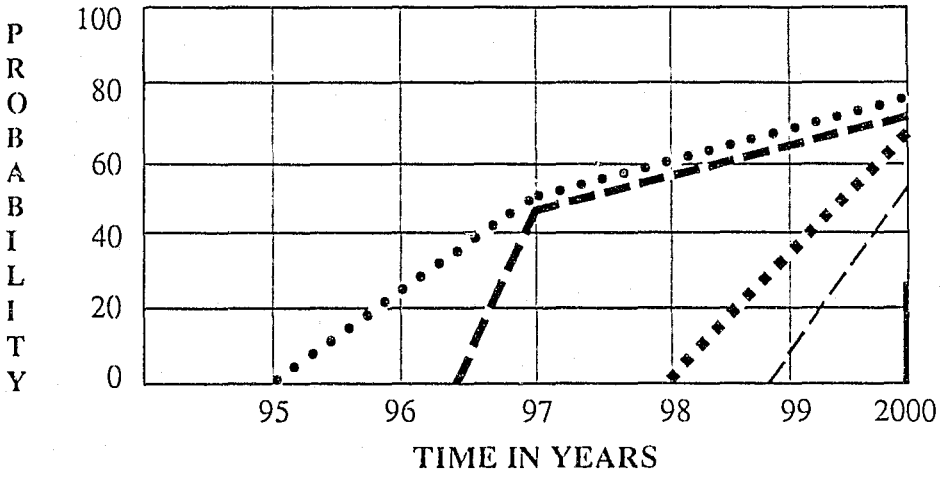


LEGEND	Years Until Probability First Exceeds Zero	1997	2000
High	1	75	90
Upper Quartile	1.2	59	87
Median	2	50	80
Lower Quartile	2.2	46	74
Low	3	40	70

One of the findings in the Polly Klass kidnaping case was that the police officers stopped the kidnaper shortly after the crime occurred and while the victim was still alive. However, because of poor communication with the neighboring agency, the officers were unaware that the crime had occurred. The group opinion forecasts a strong probability that a similar event will occur during the next 3 years, with near certainty by the 6 year point. As the graph demonstrates, there was widespread consensus. The view of the panel was that the occurrence would initially cause some negative impact on the issue, in that it would demonstrate the weaknesses in police technology systems. The end result, however, would be positive, in that it would focus attention within the law enforcement community to remedy the problem, and over time result in public support for funding to accomplish the necessary infrastructure development to enhance information and communications systems.

Event 9: A.C.L.U. Prevents Law Enforcement from Expanding Electronic Information Systems

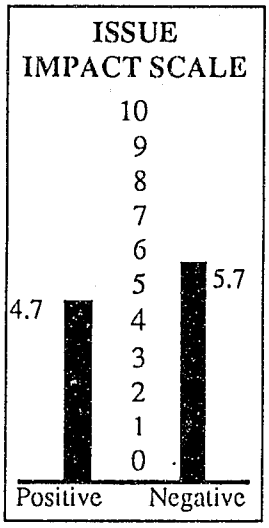


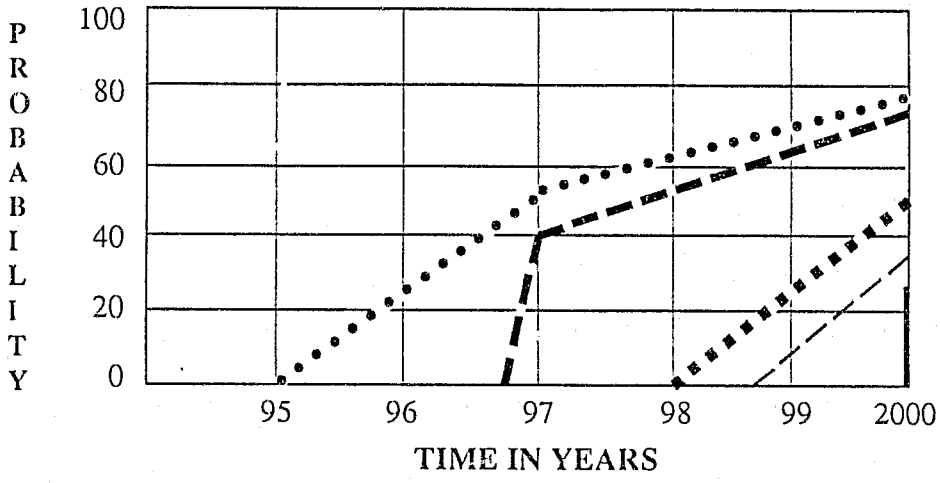


LEGEND	Years Until Probability First Exceeds Zero	1997	2000
High	1	50	75
Upper Quartile	2.4	45	71
Median	4	0	65
Lower Quartile	4.8	0	55
Low	6	0	25

As one might expect, this event was viewed as having a negative impact on the issue. The median forecast shows the probability rising rather quickly after the 4 year point. The group made the point that law enforcement will be vulnerable during the next several years as the major development and expansion of data base access occurs. There will be some public concern, particularly from special interest groups, which will seek to stop those efforts. There was opinion on the far sides of the median. One camp argued that the general public has become much more adept and involved with computers, and the existing law enforcement information systems are "overdue" for invasion. That could cause the occurrence of the event of this discussion. The position that this event could not occur until the end of six years was supported by the argument that "1984 has come and gone" and the public is more sophisticated and less fearful of computer information systems.

Event 10: Legislation Proposed to Require "Live Video" from the Field Units





LEGEND	Years Until Probability First Exceeds Zero	1997	2000
High	1	50	75
Upper Quartile	2.6	40	72
Median	4	0	50
Lower Quartile	5.6	0	35
Low	6	0	25

There was disagreement from the panel as to the likelihood of this event occurring. As the graph depicts, there was a wide range of opinion as to when the event could first occur. There was some opinion that this event may follow another "Rodney King" like incident. The impact of this event occurring was viewed as positive to the issue of this study, in that in the majority of cases it would validate the "official" version of critical incidents, limit liability, and expose the public to the "real" world of policing. This would have a long term positive impact on police/community relations. Some argued that the event would cause a greater negative impact, in that the public would perceive this as "Orwellian" and be so threatened by even the proposal of this technology that there would be a move to limit other technology developments.

TREND FORECASTING

Next, the panel was asked to forecast the top ten trends. This writer demonstrated a "sample" trend forecast, and after questions and clarifications, the group proceeded.

A "trend forecasting" form was employed for this purpose. The trends developed by the panel are subjective trends, so an arbitrary current (today) "level" of each trend was established as "100". With that value in mind, each panel member was asked to privately estimate the following information for each trend:

1. level of the trend 3 years ago.
2. level of the trend 3 years from now.
3. level of the trend 6 years from now.

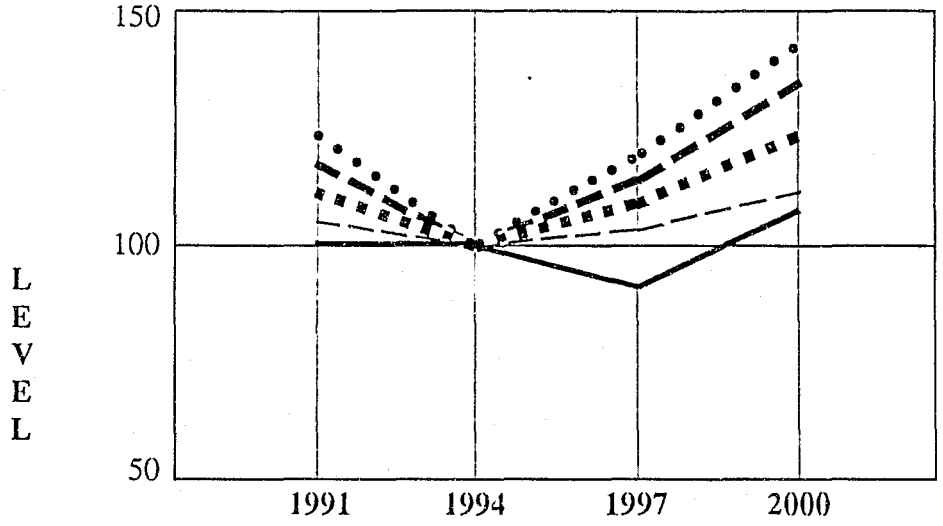
The group results of this process are summarized below in Table #2, and represented in graph form on the following pages.

TABLE #2
TREND FORECASTING RESULTS

TREND STATEMENT		LEVEL OF THE TREND (Today = 100)			
		3 Years Ago	Today	3 Years From Now	6 Years From Now
T-1	Level of Funding for Research and Development of Police Technology	125 *	100	120	145
		115		110	125
		100		95	110
T-2	Evolution of Personal Commmunications Services	95	100	175	300
		80		150	200
		50		125	150
T-3	Ability of Law Enforcement to Implement New Technology	150	100	125	150
		115		80	115
		75		50	110
T-4	Public Concern and Sensitivity About Crime	100	100	150	200
		80		120	150
		75		110	125
T-5	Level of Government and Private Sector Partnerships	100	100	150	200
		75		125	145
		70		100	125
T-6	Level of Sophistication of Criminals	100	100	150	200
		75		125	145
		70		100	125
T-7	Availability of New Communications Technology to the Average Citizen	90	100	200	225
		75		150	200
		50		125	125
T-8	Development of Privacy Laws Related to Data Bases Accessed by Law Enforcement	100	100	125	300
		85		110	200
		75		100	150
T-9	Changing Skill Requirements for the Police--"Techno-Cops"	100	100	150	200
		85		120	150
		75		105	100
T-10	Level of Mobility of Criminals	100	100	175	250
		90		125	150
		75		110	125

* High
Median
Low

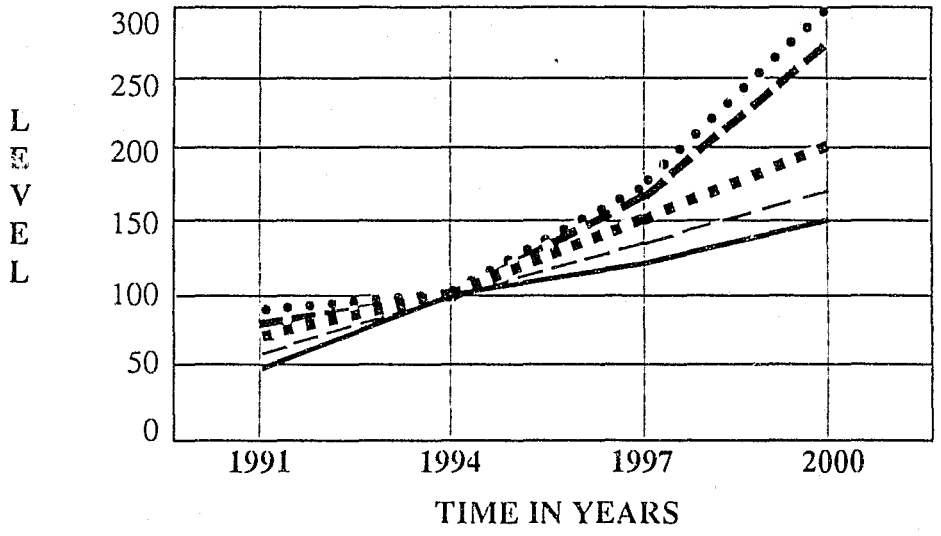
Trend 1: Level of Funding for Research and Development of Police Technology



LEGEND	1991	1994	1997	2000
High	125	100	120	145
Upper Quartile	121	100	118	135
Median	115	100	110	125
Lower Quartile	104	100	102	114
Low	100	100	95	110

The panel generally saw the level of funding at a lower level today than five years ago. The median measurement shows an optimistic view that the level will gradually increase over the next three and six year time frames. There was a minority opinion that the funding levels will co..tinue to drop over the next three year window, but then gradually increase by the six year point. Discussion indicated that the panel recognizes the need for adequate and consistent funding in order for law enforcement agencies to position themselves to identify and take advantage of new technologies. There was also discussion about the impact of cost/benefit analysis on funding levels and sources. The consensus of the group was that in order to sway policy makers to invest money on technology, it will be incumbent upon managers to produce convincing analysis of the cost effectiveness in terms of productivity and customer satisfaction.

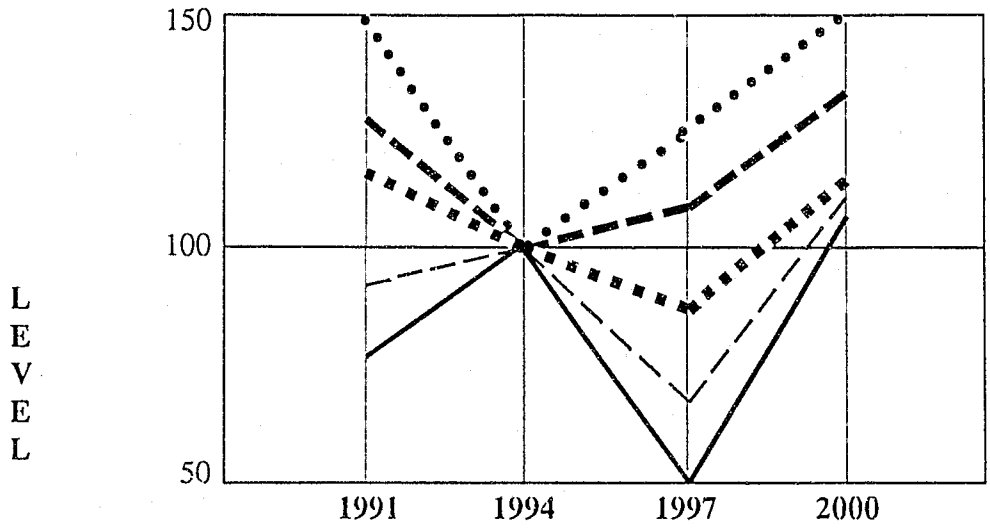
Trend 2: Evolution of Personal Communications Services



LEGEND	1991	1994	1997	2000
High	95	100	175	300
Upper Quartile	89	100	168	275
Median	80	100	150	200
Lower Quartile	67	100	137	168
Low	50	100	125	150

There was consensus among the panel members that Personal Communications Services (P.C.S.) are evolving at a rapid rate. As the graph indicates, there was a significant element in the group that believes P.C.S. will "skyrocket" over the next six years. The upper quartile score demonstrates that this is more than one "optimists" view. The median line shows a gradual slope, indicating a rather steady increase over the next six years. It is interesting to note that the upper quartile line forecasts rapid development during the second three year period. The comment was made and generally supported by the group that the rapid evolution of these types of technologies demonstrate the need for law enforcement managers to be proactive in identifying emerging technologies. The law enforcement community needs to develop the expertise and private sector partnerships to influence the commercial development of the technologies.

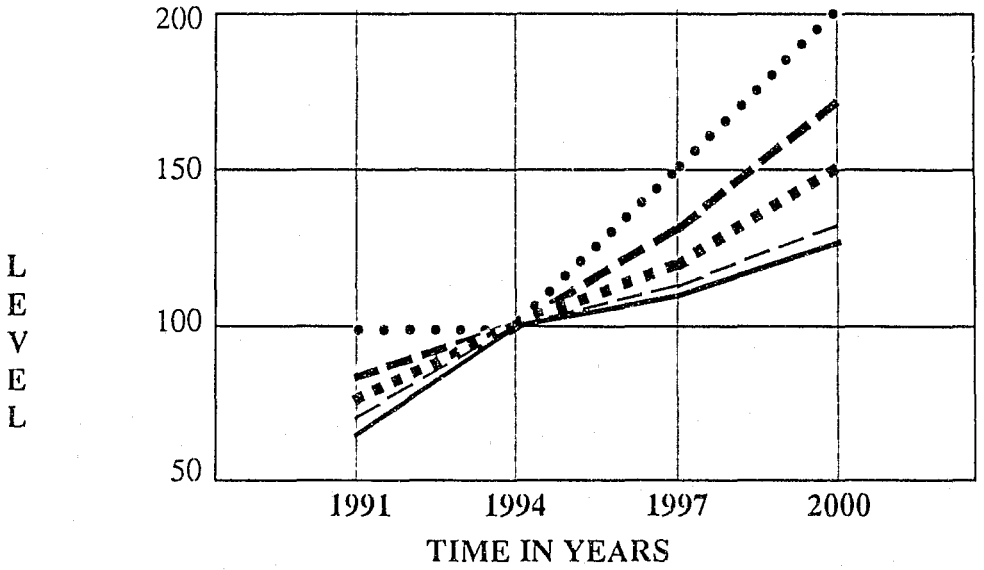
Trend 3: Ability of Law Enforcement to Implement New Technology



LEGEND	1991	1994	1997	2000
High	150	100	125	150
Upper Quartile	128	100	108	135
Median	115	100	80	115
Lower Quartile	85	100	65	112
Low	75	100	50	110

As the graph indicates, there was not a clear consensus on this trend. The median forecast indicates a gradual decline in the level of the ability of law enforcement to implement new technology, beginning 3 years ago, continuing through the present time, and bottoming out in 3 years, with a gradual increase to the year 2000. The group generally agreed that between 1997 and the year 2000 the ability will increase, primarily because of the group's general optimism that the economy will improve over time. The group considered a variety of factors in making the forecasts, however, including fiscal position, technical ability and sophistication, and availability of technology applicable to law enforcement.

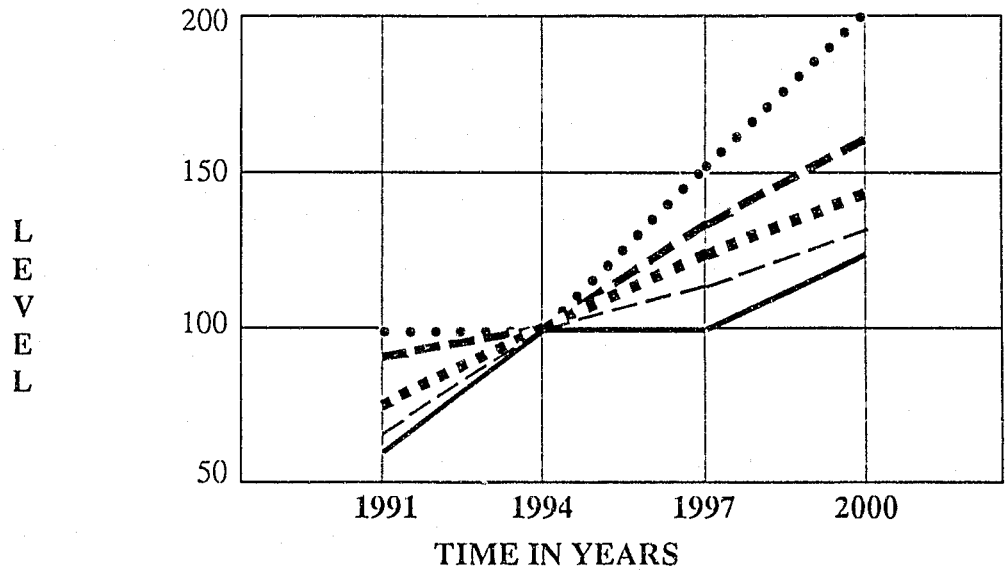
Trend 4: Public Concern and Sensitivity About Crime



LEGEND	1991	1994	1997	2000
High	100	100	150	200
Upper Quartile	86	100	129	170
Median	80	100	120	150
Lower Quartile	77	100	117	127
Low	75	100	110	125

The group generally viewed this trend as very significant for the future of community oriented policing, and the relative level of support from the community. As one might expect, the group was consistent in their view that the public has grown increasingly concerned about "crime". There is some consensus that the level will flatten or slow during the next 3 years, and then increase over the last term of the projection. One opinion voiced was that the actual crime "rate" is not as important as the perception of crime and security. The group agreed that even if the "local" crime rate is low, wide-spread coverage of national crime issues will continue to make this a significant public concern. The argument was made by one member of the group that one of the things that makes community policing attractive to the public is that people want to "feel" secure, and a closer relationship with the police (i.e. a neighborhood officer) satisfies that need.

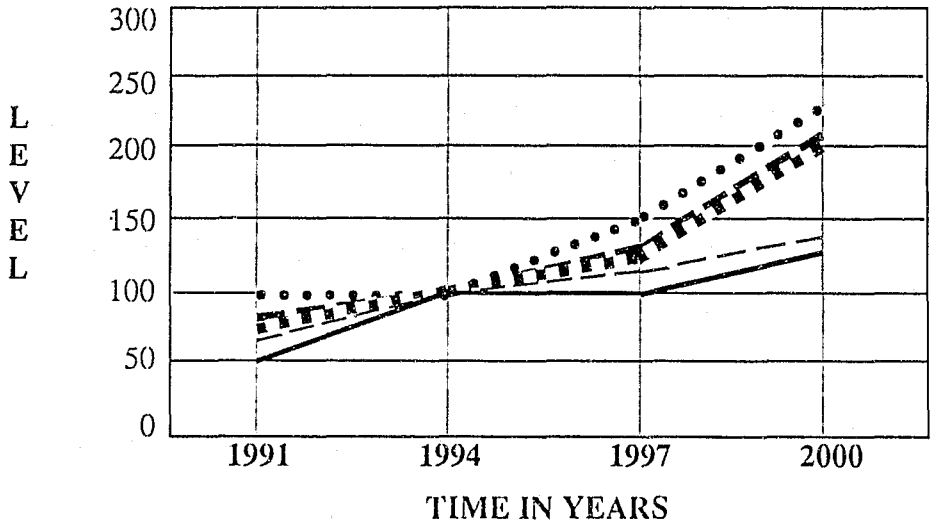
Trend 5: Level of Government and Private Sector Partnerships



LEGEND	1991	1994	1997	2000
High	100	100	150	200
Upper Quartile	96	100	131	156
Median	75	100	125	145
Lower Quartile	73	100	118	137
Low	70	100	100	125

There was an optimistic view of this trend. The group felt that it will be essential for government to work with the public sector over the remainder of the decade. This is driven partly by the economic climate, but also by the desire of all elements of the community to be involved in the business of government. Overall the group was in agreement that the level of partnerships will increase over time, although there was a minority opinion that this would not occur until the final 3 year period of the forecast. One view expressed and supported by several of the participants was that government often gets technology that is developed for "someone else". Government tends to adapt to the technology, rather than work with industry to design the technology that is needed to get the job done. The group stressed that this trend was not the same as "privatization". The emphasis is on collaboration in the delivery of services.

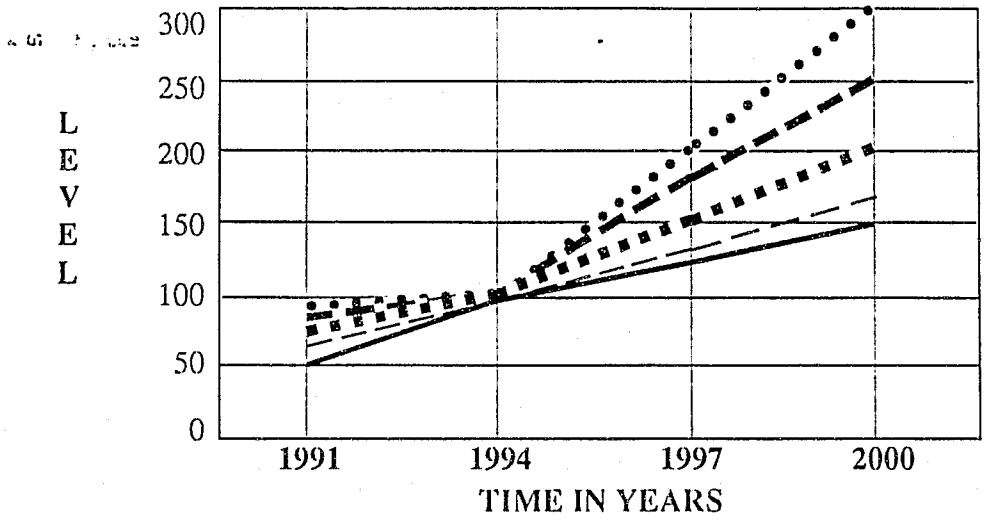
Trend 6: Level of Technological Sophistication of Criminals



LEGEND	1991	1994	1997	2000
High	100	100	150	225
Upper Quartile	82	100	136	207
Median	75	100	125	200
Lower Quartile	71	100	121	139
Low	50	100	100	125

The median score is representative of the group on this forecast, in that the level of criminal sophistication is seen as increasing dramatically over the next 6 years. The driving force behind this increase are the computer crimes and other high technology related crimes. The view was expressed that a new breed of criminal has found "opportunity" due to the inability of law enforcement to identify, investigate and prosecute many of these crimes. There was a minority opinion that the level of sophistication of criminals will level off during the next 3 years, following a quick rise over the preceding 3 years. The median forecast shows a 100% rise over the next 6 years, demonstrating that the panel clearly believes this will be a challenge for law enforcement in the future.

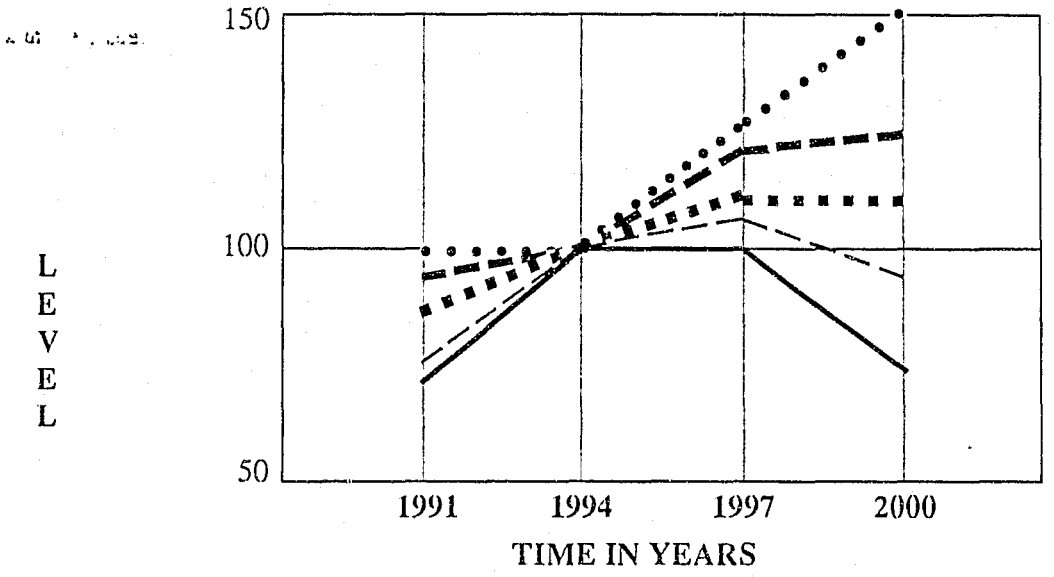
Trend 7: Availability of New Communications Technology to the Average Citizen



LEGEND	1991	1994	1997	2000
High	90	100	200	300
Upper Quartile	81	100	187	250
Median	75	100	150	200
Lower Quartile	68	100	141	167
Low	50	100	125	150

The forecasts for this trend clearly indicate the consensus of the group that in the next 6 years communications technology will rapidly become available to the average citizen. The median forecast reflects a rather gradual increase in availability, while the high end indicates a much more dramatic increase over the next three to six years. Comments were made that this increase in average citizens use of and exposure to the emerging communications technology will place a demand on government to keep pace--As people become accustomed to high-tech communications in their work and entertainment environments, they will develop an expectation that government services will conform. The belief of the group was that this trend is virtually irreversible.

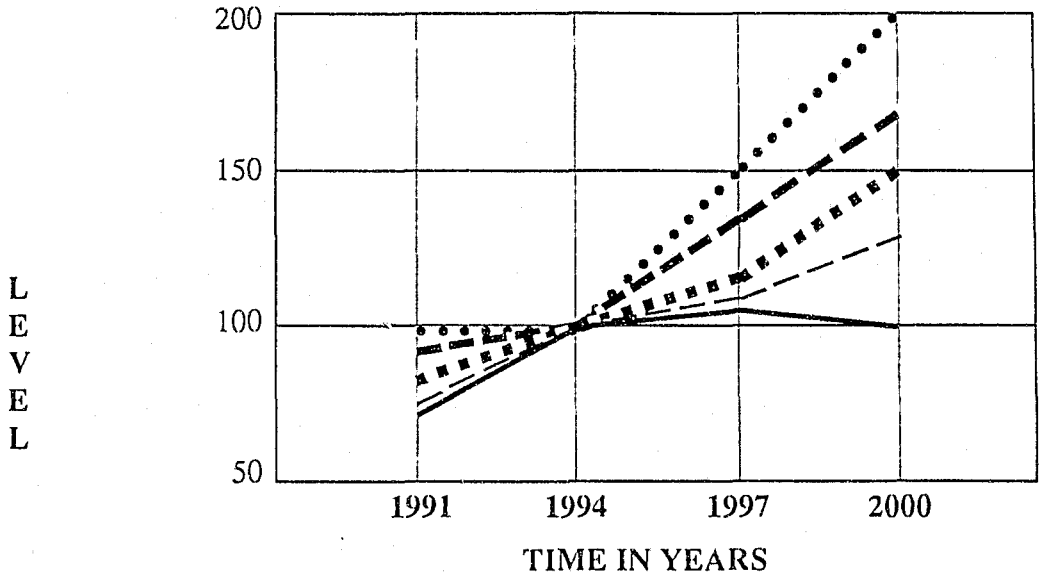
Trend 8: Development of Privacy Laws



LEGEND	1991	1994	1997	2000
High • • • •	100	100	125	150
Upper Quartile — —	92	100	121	124
Median ▪ ▪ ▪ ▪	85	100	110	110
Lower Quartile — —	78	100	108	96
Low ———	75	100	100	75

The median forecast shows a slight (10%) increase in the development of privacy laws during the first forecasted period, and then a leveling off to the year 2000. A minority opinion forecasts a return to current levels by the year 2000. The panel members overall had some strong opinions about this trend. This was viewed as one of the most important trends to watch as law enforcement begins to implement some of the emerging communications technologies. The consensus was that as the technology allows law enforcement more access to data bases previously protected or isolated from use, concerns will be raised, probably through the courts at first, and then through the legislatures. The point was made that it will be incumbent upon police managers to insure that systems are secure and that appropriate safeguards and protections are in place to prevent employee abuse and unauthorized use of sensitive data bases. The view was expressed by a minority, however, that as systems become more sophisticated and the need for information more acute, the pressure to relax our privacy laws will win out over the move to increase the restrictions.

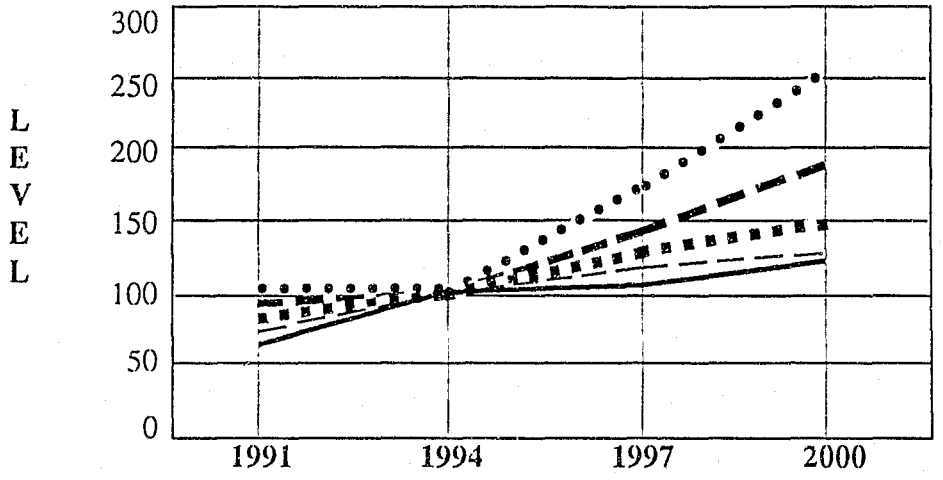
Trend 9: Changing Skill Requirements for the Police--"Techno-cops"



LEGEND	1991	1994	1997	2000
High	100	100	150	200
Upper Quartile	91	100	133	169
Median	85	100	120	150
Lower Quartile	77	100	112	129
Low	75	100	105	100

Clearly, the forecasting panel felt that the technical skill requirements of the police officer will increase over the next six years. The range of forecasted scores was great, but in general there was agreement that the skill requirements would gradually increase over time. The minority opinion reflected the belief that the skill level would remain essentially static over the next 6 years. This opinion was based on the belief that the economic climate in California would continue to deteriorate, and government would simply not be in the position to acquire new technologies, and consequently the skill requirements would not change. All of the panel members, however, forecast some increase in 1994 levels by the year 1997. One interesting comment was that the "official" requirements for employees hired today do not reflect the technical skills necessary to use "todays" technology. This points to the need for police managers to make some immediate adjustments if there is any reasonable expectation of having employees capable of dealing with the technologies of the future.

Trend 10: Level of Mobility of Criminals



LEGEND	1991	1994	1997	2000
High	100	100	175	250
Upper Quartile	96	100	142	190
Median	90	100	125	150
Lower Quartile	82	100	118	133
Low	75	100	110	125

The median forecast suggests that criminals will continue the trend toward being mobile in our society. There was little disagreement from the panel with this general trend statement. This is important to the issue, in that "communities" will be more transient and the need for instant communications with other jurisdictions and other government agencies will probably increase. The need to access a multitude of data bases from a mobile environment will also be increasingly important as the criminal element moves from one locale to another to avoid detection or to seek out "ripe harvests". The comment was made that communications technology will free the criminal element, just as it will the legitimate businessman or police officer, to conduct business from remote locations.

CROSS-IMPACT ANALYSIS

An important element of futures research is projecting the impact that the events and trends generated for a particular issue will have on each other. An assessment of this impact will better define the future under a variety of scenarios. This writer conducted an events-to-events cross-impact analysis of the top ten events only.

This writer worked with Command College graduate Arthur Farrar to accomplish this portion of the project. Each person individually estimated the impact that each of the events would have on every other event. The question was asked, for example, "If event #1 occurs, what impact will that occurrence have on event #2?" The next question was "If event #1 occurs, what impact will that occurrence have on event #3?", and so forth. An impact factor was determined based on a scale of one to ten; a factor of "1" indicating a slight impact, and a "10" a major impact. This analysis was done independently, and then the ninety cross-impacts were compared, and the arguments supporting the scores were discussed. In those cases where the impact factor discrepancy was slight, an average was taken. When more significant, a mutually acceptable compromise was reached, based on the supporting arguments.

The cross impact factor was later used in the "X-MPACT" computer program to generate the final probability for the occurrence of each event.

Table #3 on the following page depicts the completed event to event cross-impact matrix. The reader will note that each event is listed on the left side of the table, and then

TABLE #3

EVENT-TO-EVENT CROSS-IMPACT MATRIX

Impacting Event	Initial Probability	IMPACT FACTOR										Final Probability
		E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	
E1	60	X	0	0	3	0	2	0	-3	1	2	63.02
E2	95	1	X	2	2	0	2	1	-4	1	1	99.02
E3	75	4	3	X	3	2	4	2	4	-3	5	94.04
E4	80	2	0	0	X	0	2	0	2	-1	0	84.02
E5	75	3	0	0	0	X	0	0	0	0	0	77.04
E6	90	5	0	0	-3	0	X	0	1	6	0	93.02
E7	85	2	3	3	2	0	1	X	1	1	3	96.02
E8	80	3	0	0	3	0	2	0	X	2	2	88.02
E9	65	-3	0	0	-3	0	-3	0	0	X	-4	21.04
E10	50	4	0	0	2	0	3	1	2	1	X	59.04

EVENTS	
E1	Legislation enacted to create a law enforcement technology "superfund"
E2	National Standfards for PCS adopted
E3	"Information Superhighway" becomes a reality
E4	Supreme Court rules that electronic data base are not protected by the 4th Amendment
E5	State of California adopts a regional plan for local and county government
E6	Hackers gain access to police data base
E7	Congress rewrites mopdified final judgment (MFJ) to take down barrier between telephne networks
E8	Police Chief is fired when review of high profile case (e.g. "Polly Klass") results in a finding of "technology negligence" by the police
E9	A.C.L.U. prevents law enforcement from expanding electronic information sytems
E10	Legislation proposed to require "live video" from the field units

repeated across the top. Each event-to-event relationship, then, has a specific box or "cell" that relates to that particular relationship. The left hand column is marked "impacting events". Therefore, to determine the impact that the occurrence of event #6 would have on event #1, the reader would go down the first column to E-6, and move across the matrix to the column along the top axis designated E-1. That cell indicates that the impact factor estimated to be "5".

In other words, if hackers were to gain access to a police data base, there would be a moderate impact on the probability that legislation would be proposed to create a law enforcement technology superfund. The argument to support this is that there would be sufficient public concern, plus a very strong reaction from the law enforcement community, that the need for a statewide effort to upgrade security measures would be launched. A highly publicized event such as this might also cause some examination of other law enforcement technology deficiencies, leading to a broader funding perspective. The argument against such a strong impact is that hackers gaining access could be an isolated case in an otherwise very secure system, and there would be very little public reaction. However, the consensus was that law enforcement systems are regulated and reasonably secure, and any intrusion by hackers would indicate a technology deficiency or obsolescence that would likely cause a significant public reaction, and no doubt an infusion of money to correct.

Assume that "the information superhighway becomes a reality", (E-3). Looking across the graph, it's apparent that

the occurrence of that event would impact all of the other forecasted events. Clearly, that event is very significant to this futures issue. For example, if E-3 occurs, the impact on E-10, "legislation proposed to require live video from field units" is "5". The consensus was that the completion of the "information superhighway" would be a landmark accomplishment, raising technical capabilities and as important, public expectations. The argument is that not only would there be the technical capability, but expectation and demand from the public that it be used in critical public safety services.

Cell E-9/E-1 indicates that the successful efforts by the A.C.L.U. to limit law enforcement expansion of information systems would impact efforts to create a technology superfund by a factor of "-3". The argument is that if the liberal establishment was able to make a strong enough case, there would be less need for resources to utilize some of the new technologies. The occurrence of E-9 would have similar negative effects on the likelihood of a "green light" from the Supreme Court, and also on the probability of hackers gaining access to police data bases, on the theory that there would be fewer opportunities. By moving from cell to cell, the reader can determine the projected impact that each event will have on the other events. From the standpoint of policy implications this is very significant. If one event has significant impact on several others, it may be more efficient to manage that one event, thereby influencing the impact on several others.

FUTURE SCENARIOS

The purpose of scenario writing is to describe the future from the historical perspective. In other words, a future scenario should describe the future in a non-fictional narrative, written as if looking back over forecasted events and trends as if they had actually occurred. Scenario writing should clarify the causes and consequences of major developments, and hopefully lead to the identification and evaluation of relevant policies or actions by the reader. Scenario writings are "the history of the future."

It is important to distinguish this type of scenario from a "slice in time" scenario, which describes the future environment, but there is no explanation of the events or actions that led to that point in time.

To develop the scenarios for this paper, the writer utilized the SIGMA scenario generator. This is a computer program, developed by The Policy Analysis Co., Inc., of Washington, D.C. By design, the input to SIGMA is the ten events and their final probability as determined by the cross-impact software, X-MPACT, (previously described), plus four additional events that were developed by the nominal group, but not forecasted. An arbitrary probability of occurrence of 30% was assigned to the unforecasted events.

Approximately forty scenarios were run. The "seed number" was changed for each new run. SIGMA generated a calendar of events that occurred in each scenario, plus a listing of those that did not occur.

After generating forty scenarios, this writer divided them into categories, based on the themes and development suggested by the events that do and do not happen. There appeared to be three primary types of possible futures. These "categories" then led to the development and writing of the following types of scenarios:

Nominal: An extension of the past

Hypothetical: Worse than an extension of the past

Normative: Better than an extension of the past

It is important to note that in some instances, the same events occurred in each scenario. However, the environment and sequence of events determined, or influenced, the effect of the occurrence.

The computer generated "calendars" that were used to develop the scenarios are identified as Tables 4, 5, and 6 in the following text. Each scenario follows the table of events upon which it is based. For the reader's convenience, a bold typed entry (**E-1**, for example) has been made to indicate when a forecasted event occurs in each scenario narrative. As noted previously, a total of fourteen events were used to generate the scenarios in SIGMA -- the ten forecasted events, plus four others from the list generated by the NGT panel. That list of events is listed in Appendix "D". The computer test of probabilities to the number of occurrences for the data that this writer input to generate the scenarios is in Appendix "E".

TABLE #4

"SIGMA" NOMINAL SCENARIO

The Policy Analysis Co., Inc. SIGMA Scenario Generator

For - Seed No. > 3394410 < and the MIKE1.SIG data --

in a 6 year SCENARIO that begins in 1994 ,

THIS IS WHAT HAPPENS !!

1. 1. Jun. 1995 E-9.ACLU PREVENTS EXPANSION
   T = 100 P= 21.04 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
2. 2. Jul. 1995 E-8.POLICE CHIEF FIRED
   T = 100 P= 88.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
3. 3. Oct. 1995 E-6.HACKERS GAIN ACCESS TO POLICE DATA
   T = 100 P= 93.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
4. 4. Jul. 1996 E-2.NATIONAL STANDARDS FOR PCS ADOPTED
   T = 100 P= 88.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
5. 5. Dec. 1997 E-1.LEGISLATION ENACTED TO CREATE TECH. SUPERFUND
   T = 100 P= 21.04 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
6. 6. Apr. 1998 E-3.INFO SUPERHIGHWAY BECOMES REALITY
   T = 100 P= 93.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
7. 7. Dec. 1998 E-5.STATE ADOPTS REGIONAL PLAN
   T = 100 P= 21.04 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
8. 8. May 1999 E-7.CONGRESS REWRITES MFJ
   T = 100 P= 21.04 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0

The EVENTS which do NOT Happen are:

1. E-4.ELECTRONIC DATA BASES NOT PROTECTED BY 14TH
2. E-10.LEGISLATION REQUIRES LIVE VIDEO
3. E-11.APCD MANDATES REDUCED BLACK AND WHITE MILEAGE
4. E-12.HIGH PROFILE CASE SOLVED BY DNA
5. E-13.COMMUNICATIONS COGLOMERATE--MODEL COMMUNITY
6. E-14.MILITARY ENCRYPTION

NOMINAL SCENARIO

Chief Pat Miller was sitting quietly in his office at the Midstate Police Department, counting down the hours until 1700 hours, P.S.T. The final press conference -- by video link-up -- was complete, and he had attended the obligatory farewell ceremony. It just did not seem possible that the time had gone by so quickly, and he was actually on the brink of retirement. Chief Miller could still vividly recall his graduation day from the Police Academy in 1974, and the speech given by the man he would eventually succeed as Police Chief: "Gentlemen, as you move from the Academy to reality, let me leave you with this thought: People who get on in this world are people who look for circumstances that suit them...and if they can't find them, they create them." How often Chief Miller had reflected on that thought as he progressed in his career. Those words haunted Chief Miller as he prepared for retirement.

For the most part, Chief Miller's administration had been one of maintenance. The world was changing, but the Midstate Police Department, and truly law enforcement in general, was in a survival mode. The national and global economic picture had brightened over the last four or five years, but there was still a demand to perform more services with less resources. The world was in the information age, but law enforcement had not kept pace in terms of the ability to implement much of this technology. Criminals had become more mobile, and more sophisticated; preoccupied with putting out brush fires, police managers had not kept pace.

Certainly, the Chief looked back on some successes. In the early part of this decade, he implemented a community oriented policing program. In 1992, this was hardly "on the cutting edge", but he was proud of becoming part of that movement in law enforcement. However, in all honesty, the Chief had to admit that his community policing program had not done as much to change the way his department interacted with the community as he had hoped. In that sense, it was like a lot of other "programs" that he had seen "come and go" in his thirty years of law enforcement.

The Chief had a high profile drug awareness program in the schools. Of course, the Midstate community had felt the impact of gangs, but somehow had escaped the flood of crime problems related to gangs that overwhelmed most of California. The Chief got a lot of credit for that, although he knew it had very little to do with his efforts. Midstate was blessed with "good genes", the chief would privately joke.

During the press conference, Chief Miller talked about how the communications technology developments of the 1990's had impacted the world. The evolution of personal communications services had made it possible to communicate with anyone, anywhere virtually anytime (E-2). Nonetheless, law enforcement managers had not taken full advantage of this technology, continuing to rely primarily on traditional two way radio systems. "Maybe when the pricing is right", Chief Miller responded when asked about the new communications technologies. Video conferencing, like the system the Chief had used to conduct his final press conference, was common-place in

corporate offices around the country. However, this technology was not even considered for the delivery of police services.

So, despite the advances in technology in general, it was obvious that law enforcement technology had not made comparable strides. Several events that occurred early in the decade played a significant role in delaying the implementation of some of the technology. For example, in June 1995, the A.C.L.U. was successful gaining a court injunction to prevent the expansion of electronic information systems (E-9). A cooperative effort of several departments, including the Midstate Police, had been working to link multiple "non police" data bases--other governmental, educational, and private sources--to a central "community policing" computer system. The theory was that officers working on complex problems in the community needed access to some non-traditional data base information, such as those available through the schools, welfare departments, unemployment records, and so forth. The A.C.L.U. action put those efforts on hold, and to date, the Supreme Court has not overruled that decision, despite efforts from law enforcement executives.

The following month Chief Carl Handy from Southstate Police Department was fired for "technology negligence" (E-8). A highly publicized kidnaping case, involving the C.E.O. of one of the states major corporations, was bungled by Chief Handy's department. One of Handy's officers stopped the kidnapers a few minutes after the kidnaping, but because his department was isolated from the rest of his county by "old" communications technology, the officers were unaware that the kidnaping had

occurred. Chief Miller and most of the other police leaders in the county remained silent on the matter, though they privately supported Chief Handy. In retrospect, it was an opportunity to gain public support for improving communications systems in the county.

In the fall of 1995 hackers gained access to the records management system of a small Southern California Police Department (E-6). This was a very small department, and the security system was grossly inadequate. However, the publicity was devastating for the law enforcement community, particularly given the previous events.

The law enforcement community did what it does best...it "reacted" to these events "after the fact". There was a push for funding to implement the new communications technology statewide. Almost two years later the first proposal to create the Superfund was made in the legislature, but it at has still not become a top priority for the legislature.

About 18 months ago, in mid-1998, President Bill Clinton announced that the "Information Superhighway" his administration envisioned earlier in the decade, was "complete" (E-3). Police managers had discussed and proposed uses for the superhighway. Chief Miller is a member of the C.P.O.A. technology committee that had been working to develop a position paper on potential law enforcement applications of the "superhighway". That paper will be discussed at the next training conference.

Upsetting the law enforcement community at present is the State Regional Plan, adopted at the end of 1998, just about a

year ago (E-5). The legislature adopted the plan, but as is typical, there is lots of confusion as to how it will be implemented. Essentially, the plan calls for the state to be divided into 12 regions. The plan will be fully implemented in 2005, but the various appeals and injunctions filed by the County's has thrown the entire plan up in the air.

It's all so overwhelming," Chief Miller thought aloud.

"Chief..chief...it's 5 o'clock"

It was his secretary, Mary Ellen, interrupting his thoughts. 5 o'clock. Time to go home. For good.

"Good night, Chief. We'll miss you."

"Oh, one more thing, Chief...You asked about moving things around in the office? Well, I just talked with Chief Higgins. He wants you to leave things just as they are. Why fix something that's not broken?"

TABLE #5

"SIGMA" HYPOTHETICAL SCENARIO

The Policy Analysis Co., Inc. SIGMA Scenario Generator

For - Seed No. > 3394579 < and the MIKE1.SIG data --

in a 6 year SCENARIO that begins in 1994 ,

THIS IS WHAT HAPPENS !!

1. 1. Jun. 1994 E-13.COMMUNICATIONS COGLOMERATE--MODEL COMMUNITY
   T = 100 P= 30.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
2. 2. Jul. 1995 E-6.HACKERS GAIN ACCESS TO POLICE DATA
   T = 100 P= 93.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
3. 3. Aug. 1995 E-2.NATIONAL STANDARDS FOR PCS ADOPTED
   T = 100 P= 30.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
4. 4. Jun. 1996 E-9.ACLU PREVENTS EXPANSION
   T = 100 P= 21.04 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
5. 5. Feb. 1997 E-8.POLICE CHIEF FIRED
   T = 100 P= 88.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
6. 6. Jul. 1998 E-5.STATE ADOPTS REGIONAL PLAN
   T = 100 P= 93.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0

The EVENTS which do NOT Happen are:

1. E-1.LEGISLATION ENACTED TO CREATE TECH. SUPERFUND
2. E-3.INFO SUPERHIGHWAY BECOMES REALITY
3. E-4.ELECTRONIC DATA BASES NOT PROTECTED BY 14TH
4. E-7.CONGRESS REWRITES MFJ
5. E-10.LEGISLATION REQUIRES LIVE VIDEO
6. E-11.APCD MANDATES REDUCED BLACK AND WHITE MILEAGE
7. E-12.HIGH PROFILE CASE SOLVED BY DNA
8. E-14.MILITARY ENCRYPTION

law enforcement agencies were combined under the direction of a Regional Public Safety Director. "Chief" Miller became a lieutenant under the new regime.

A year and a half later, things are still in confusion. "Basic" communications and computer systems are on line, of course, but training management, administrative, and clerical staff on totally new systems is a monumental task, let alone line officers. The Regional plan has resulted in some economies, but things are getting done on an "as needed" basis. There isn't time or money, at this point, to be looking at anything innovative or creative.

Lieutenant Miller answered the phone. It was Assistant Regional Administrator Beverly Hock. (Ms. Hock was the City Manager of Midstate before the Regional Plan took effect) "Bev, how are you doing?"

"Just fine, Chief...or, I mean, Lieutenant. I'm just calling to remind you that tomorrow is our first meeting to begin planning for the new Region Oriented Policing program. Will you be there?"

Lieutenant Miller sighed, and thought to himself, "I truly am in the twilight of a very mediocre career." Fortunately, it was almost over.

TABLE #6

"SIGMA" NORMATIVE SCENARIO

The Policy Analysis Co., Inc. SIGMA Scenario Generator

For - Seed No. > 3394416 < and the MIKE1.SIG data --

in a 6 year SCENARIO that begins in 1994 ,

THIS IS WHAT HAPPENS !!

1. 1. Apr. 1994 E-6.HACKERS GAIN ACCESS TO POLICE DATA
   T = 100 P= 93.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
2. 2. Jun. 1994 E-4.ELECTRONIC DATA BASES NOT PROTECTED BY 14TH
   T = 100 P= 84.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
3. 3. Mar. 1996 E-8.POLICE CHIEF FIRED
   T = 100 P= 88.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
4. 4. Jan. 1997 E-2.NATIONAL STANDARDS FOR PCS ADOPTED
   T = 100 P= 84.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
5. 5. Aug. 1997 E-12.HIGH PROFILE CASE SOLVED BY DNA
   T = 100 P= 30.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
6. 6. Dec. 1997 E-1.LEGISLATION ENACTED TO CREATE TECH. SUPERFUND
   T = 100 P= 93.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
7. 7. Jun. 1998 E-3.INFO SUPERHIGHWAY BECOMES REALITY
   T = 100 P= 88.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0
8. 8. Jun. 1998 E-7.CONGRESS REWRITES MFJ
   T = 100 P= 88.02 +I = 0 & -I = 0 Cnfd= 0 Cnsn= 0

The EVENTS which do NOT Happen are:

1. E-5.STATE ADOPTS REGIONAL PLAN
2. E-9.ACLU PREVENTS EXPANSION
3. E-10.LEGISLATION REQUIRES LIVE VIDEO
4. E-11.APCD MANDATES REDUCED BLACK AND WHITE MILEAGE
5. E-13.COMMUNICATIONS COGLOMERATE--MODEL COMMUNITY
6. E-14.MILITARY ENCRYPTION

NORMATIVE SCENARIO

It did not seem possible that 1999 was almost over. The years come and go, and Chief Pat Miller was not one to expend effort celebrating the passing of time. He was recognized as a man of action. But here he was, preparing a speech for the California Peace Officer's Association's first training conference of the new century. As much as he hated tradition and ceremony, he had to admit that the beginning of the Twenty First Century was a significant event worthy of recognition. Besides, he better get used to this sort of pomp and ceremony. As the new President of the C.P.O.A. he would be called upon frequently to speak at similar events.

Chief Miller would be speaking about the evolution of policing in California over the last decade. The Chief reflected back to the early 90's, when trends seemed to lead the State of California into a dark abyss. The economic picture for California was pretty bleak, and even into the middle of the decade the economic recovery that the nation was experiencing had not hit California. What did not become clear for a while was that the economic recovery of the 1990's was really the first economic recovery of the information age. People did not factor into the economic recovery the effect of greater production caused by the impact of technology--business was able to produce more with less input of labor, energy, capital, and natural resources. So the economy eventually recovered and thrived even though some of the traditional indicators pointed in the opposite direction.

To be certain, the call to do "more with less" did not subside with the improved economy. The 1990's saw an increasing drain on public resources primarily due to demands on the entire spectrum of public entitlement programs.

The community policing movement that Chief Miller envisioned back in the late 1980's took hold in the 90's, and is now was firmly entrenched in policing, and truly in government policy generally. The concept of the police being the "facilitator" of government intervention in a variety of social problems became accepted with the success of programs in the mid-to-late 1990's.

When Chief Miller implemented community policing in the Midstate Police Department in 1990, he saw that the key was the "empowerment" of the individual employee. The community viewed the police as "the government"; the individual police officer became the neighborhood "ambassador". He also envisioned that the communications technologies would develop so that the officer would become more accessible to the community, and the community would have more access to the police.

Clearly, the community policing Chief Miller implemented at the beginning of the decade lacked some of the technological advances that are available today. The home computer "explosion" over the last five years has given the average citizen access to information never before imagined, and has created an opportunity for the police to interact and deliver services in unique ways. In 1994, about 32 million homes had personal computers. Today, there are more than personal computers in more than 80 million American homes. [16]

The personal communications systems (P.C.S.) that are in place around the country offer the convenience of communicating with "anyone, anywhere, anytime." The practical advantage of P.C.S. over the earlier cellular systems is cost and ease of transmitting computer data.[17] Community policing as Chief Miller knows it today would not be possible without the technological advances brought by the P.C.S. systems. The communications devices commonly used by citizens allow them to direct information and inquiries from anywhere, directly to employees in the field.

Fortunately, the Midstate Police Department embarked on a strategic plan in the mid-90's to address technology needs of the future. This process identified the critical technology needs to empower employees in the community policing environment. A key decision was to implement a mobile computer data system to allow officers full computer capability from the field. This system gave officers access to a variety of data bases that made the job of community policing more effective. Trained in basic computer skills, Chief Miller's officers have become information power brokers. The officer on the street has virtually unlimited information available to him in a mobile environment. He has expert systems at his fingertips to give him current, reliable advice when necessary. He has access to other City services and employees, community services workers and community members. These people communicate with him through his electronic mail box, or at the officer's discretion, immediate access, on or off duty.

This communications system also enables the street officer, dispatchers, and supervisors to make inquiries and updates of information that allow for a more efficient utilization of resources than ever before possible. As conditions in the city change, based on activities and calls for service, deployment decisions become dynamic as they are based on "real time" information, not information that is hours, or days old. This ensures that community policing and problem solving efforts are not neglected due to traditional police deployment needs. It has allowed for a much more efficient and effective use of human resources, as well.

The NCIC 2000 Project is on schedule, and Midstate P.D. is situated technologically to begin taking advantage of the many new services, including photographic and fingerprint analysis from the field.

Chief Miller reflected back on some of the events of the decade that have led to the current environment. He still winces when he thinks about the headlines created in his community in late 1994 when he revealed that hackers had gained access to one of the department's computer data bases (E-6). The impact of that event was minimized by the Chief's candor with the public and the media. Fortunately, the hackers were able to access a limited number of files, and only then because an employee who was telecommuting did not follow standard procedures. The event did gain statewide and limited national attention, and brought to bear some necessary pressure to ensure that future incidents did not occur. Chief Miller was, frankly, pleased with how his Department responded to the

crisis, and raised the issue of technological obsolescence in his strategic planning process the following year.

Another significant event occurred in 1994 that helped to spearhead the Chief's efforts to utilize some of the new communications technologies in his community policing efforts. The Supreme Court, ruled that electronic data bases were not protected from police use by the 4th amendment (E-4). This opened the door for the police to access a variety of data bases electronically. The Chief recognized then that it would be important to have some inter-agency agreements in place by the time the money was available to take advantage of the technology. The Chief directed his staff to begin the necessary dialogue with local business and government leaders on the issue of sharing data base information with the police. This led to some exchange of information even before it was available "on line" or from a mobile environment in the field.

In March, 1996, the California law enforcement community was shaken by the firing of a prominent chief in Southern California (E-8). Chief Carl Handy from the Southstate Police Department was dismissed by his City Council for "technology negligence". This action resulted from an Attorney General's investigation into a highly publicized murder/kidnap case. Chief Handy's officers stopped a man minutes after a kidnaping occurred, but due to obsolete communications systems were not aware that the crime had occurred in the neighboring jurisdiction. This information came to light after the suspect was arrested. The suspect revealed that when he was detained, the victim was still alive. Former Chief Handy and

the City of Southstate are still litigating the civil action on that incident.

The impact of the Handy firing was initially very negative for the law enforcement community. It did bring to light, however, the need for state-of-the-art communications systems. One of the positive results of the case was a push to create a law enforcement "technology superfund" at the state level to research and purchase communications equipment. Chief Miller was involved in that effort through the C.P.O.A. Technology Sub-committee. In December, 1997, that legislation was proposed, and in six months the superfund was created **(E-1)**.

Earlier in 1997, the communications industry announced the adoption of Personal Communications System (PCS) standards **(E-2)**. This was a very important step in the evolution of PCS, which is now such an integral part of the communications network. Prior to the adoption of the standards, the industry was plagued by incompatibility and lack of consumer confidence. The adoption of standards had been urged for several years, and put the industry on the course toward universal use.

In August of 1997, Chief Miller's department made national news when a murder suspect was arrested within hours of committing the crime **(E-12)**. On scene crime scene ivestigators with the assistance of Department of Justice technicians, were able collect, analyze, and digitally transmit DNA evidence to a central lab for analysis, resulting in immediate suspect identification. This was accomplished from the field, in a mobile environment, utilizing a personal communications device over a commercial wireless system.

The Telecommunications Act of 1997 became effective in 1998 (E-7). This long awaited legislation essentially rewrote the modified final judgment that had previously restricted competition between local and long distance telephone companies, cable companies, and other providers of communications services. This act has truly opened the door to free competition, and already the consumer has seen the benefits in increased services and modified rate structures.

In June, 1998, President Bill Clinton announced that the "electronic superhighway" was officially complete (E-3). The announcement was anticlimactic, in that the network had been in development for so long, and the heaviest users of the network had been using it for so many years. However, the superhighway truly represents the "best" of government/private sector partnership. It's completion 18 months ago also signaled the availability of state of the art communications capability to the average citizen.

The last decade of the 20th century had been a challenging time for Chief Miller and the Midstate Police Department. Chief Miller was officially "retirement" age, but he had no intentions of giving up his position. In fact, he was just beginning to get the hang of it!

POLICY ANALYSIS AND CONCLUSIONS

A critical element to this futures research design involves the analysis of policy issues that may impact the futures issue and sub-issues.

The futures forecasting panel was led through a process that was designed to generate some discussion of policy issues. As the reader will recall, the panel initially was solicited for "ideas" about the issue. Those ideas not classified as either trends or events generally fell into the category of "policy issues". (That list is included in Appendix "C").

The panel believed that the issue of emerging communications technology is very significant for the future of law enforcement, government generally, and of course, for the private sector. The panel members were of the collective opinion that community oriented policing efforts need to be "technology efficient" and "technology smart". As the general community becomes increasingly dependent on advanced communications technology, police efforts will of necessity move in that direction. However, the panel encouraged a proactive approach from law enforcement managers in directing and implementing these new technologies.

Funding will be an essential element of whatever strategic plan is developed, but several panel members stressed the importance of cost/benefit considerations, not strictly capital costs. In any event, the future will be an environment where "do more with less" will be a business philosophy and management style. There will be an increasing demand from the workforce and from the "customer" to have input and design in the service or product. The future will also bring an entry level workforce is increasingly unprepared for the challenges and demands of the workplace.

With these thoughts in mind, the emerging communications technologies may have a positive impact on the delivery of police services in a community oriented policing model, if appropriate public policies are in place:

1. Establish research and development units (or individuals) to identify and research technology and develop strategic plans for implementation. These efforts need to be directed to meet service delivery systems of the "future". Community policing is a dynamic process, so not only is the technology changing, but the needs are in motion, as well.

2. From the executive level, reach out and develop working partnerships with the private sector, specifically in the technology arena. Community policing calls on the police to facilitate partnerships in a variety of arenas. This is an extension of that philosophy. Involving the community in these efforts may also be a strategy to manage some of the privacy issues that will invariably arise as these technologies are discussed and implemented.

3. Local government agencies must work towards full integration of their local networks. If not already in place, agencies should develop a protocol for interagency networking. Competition among the major telecommunications firms will almost certainly speed up the development of improved communications technologies, but the application will ultimately depend on inter agency cooperation and trust.

4. Right to privacy fears and concerns will be significant obstacles in the implementation of many of the communications technologies in the government sector. There will be concern from the public that these technologies are invasive, and extend the powers of government beyond those intended by the founding fathers. Government leaders, particularly police managers, will need to be very diplomatic and persuasive. The benefits will need to be clearly shown over the disadvantages and "dangers". The public's interest in developing the community policing philosophy may provide a platform for "negotiation".

5. Technology continues to be more "user friendly", yet it is apparent that the skills of the law enforcement entry level workforce is not adequate to meet future needs. Police managers need to begin working closely with the educational establishment to establish programs to insure that the technology related skills are developed. Most importantly, police training programs also need to reflect the need to teach technology skills to entry level and tenured employees. Training needs to go beyond "technical" skills, so that employees begin to use the technology creatively to identify and solve problems.

6. Law enforcement managers need to continue and enhance their legislative lobbying efforts. The panel expressed their belief that police managers are often not "visible" or "actively engaged" in the community. Interestingly, the

"non-police" members of the panel viewed the police managers potential influence as being greater than did the police members of the panel. There was a strong belief, however, that this is an underutilized resource for influencing change.

This policy discussion was ultimately augmented by expert interviews. The expert interviews were accomplished by this writer between August 2 and 4, 1994, in Washington D.C. Included in these interviews were the following:

-- Professor, School of Urban and Public Affairs, Carnegie-Mellon University

-- Assistant Commissioner, Director of Information and Identification Services, Royal Canadian Mounted Police

-- Information Management Systems Analyst, City of Tempe, Arizona

-- Systems Econometrics Manager, Mayor's Office of Information Services, Philadelphia, Pa.

-- Police Officer, Research and Development Unit for Portable Field Dispatch Computers, Chicago Police Department

-- Police Commander of Automated Systems, Alexandria Police Department, Virginia

-- Technical Director, Criminal Justice and Public Safety Enterprise Office, The MITRE Corporation

-- Professor in Public Policy, John F. Kennedy School of Government, Harvard University

-- Administrative Services Manager, Information Support for Community Policing Division, San Diego Police Department

-- Co-chairman, Federal Law Enforcement Wireless Users Group, U.S. Secret Service

-- Executive Director, National Law Enforcement Telecommunications System

-- Computer Specialist, Criminal Justice Information Services Division, Federal Bureau of Investigation

-- Director of Technology, National District Attorneys Association

The interviews were loosely structured, and were informal by design. The purpose was to gain additional expert insight into the stated issue from the perspective of law enforcement practitioners. Based on these interviews, this writer drew the following inferences:

1. As the telecommunications revolution unfolds, the mobile data computer will be an essential tool for community police officers. The NCIC 2000 project will call out specifications for lap top computers with peripheral devices such as a mobile camera, fingerprint scanner, magnetic stripe card reader, and bar code scanner. Mobile computing will make officers more effective in their communities by allowing them to more efficiently and effectively process arrestees, identify and track criminal suspects, review information in remote data bases, and communicate with police officers and others in the criminal and social service arena, as well as with the public, either interactively or by electronic mail.

2. The future is digital. Technology developments make it clear that analog telecommunication is quickly being overtaken by a digital world. That revolution will make the transmission of voice, data, facsimile, graphics, text, and video commonplace. In a digital environment, the same equipment that carries voice can carry any other digitized information. Law enforcement agencies need to begin

preparing for this future now by developing strategic plans that will allow for vertical integration of communications systems.

3. Training will always be an "issue", but as employees use communications devices, including computers, they become familiar with the capabilities. The key is getting the "tools" into the hands of the user to allow them to access information or accomplish tasks necessary to get the job done. The experts interviewed agreed that some training will clearly be necessary, but future advances will make the technology more user friendly. The real training issue may be teaching employees how to manage the vast amounts of information that will literally be at their fingertips.

4. Communities need to be proactive on these emerging communications technology issues. Government leaders must seek out telecommunications providers to find out what plans are being made for the local community, specifically what new plants and services are they planning to provide. A community wide needs assessment might be conducted to determine what services could be better handled, for example, in a wireless environment, or by teleconferencing. Communications systems that benefit law enforcement may also be of benefit to other public services, and the state of the technology today certainly allows for sharing of systems, and they consequently become more cost effective.

5. Law enforcement managers need to take the lead to develop integrated information systems. These are essential in the community policing environment. These systems need to link law enforcement agencies, but more importantly for the future of community policing, they need to link the police officer to the community, and offer the potential for the citizen to interact with the police. A revolution within the computing world is the advent of "client-server" systems. These systems will enable desk top, or mobile computer, to easily access a variety of data bases. This technology will allow the user to access and manipulate data in a user friendly environment, and most likely at less expense than current systems provide.

6. Privacy issues will be important, and will be a part of the public debate. However, the technology is currently available to allow the appropriate dissemination of information. It will be incumbent upon managers of the systems to put the safeguards in place and insure that security measures are followed. It will also be important to upgrade systems as new technology comes on line.

These key points from the expert interviews, along with the policy considerations of the NGT panel and the other findings of the future study help to provide a framework to look at developing a strategic management plan for reaching the "most desired" future state with regard to communications technology and community policing. That is the subject of the next chapter.

CHAPTER 3

STRATEGIC MANAGEMENT

In the futures study, trends and events influencing the impact of emerging communications technologies on community policing were identified and forecasted. The data from these forecasts was used to generate computer models of potential futures. One of these models was used to create the normative, or "most desirable" future scenario for the fictional City of Midstate, California. In this Chapter, a strategic plan will be developed to lead the Midstate Police Department toward that desired future.

The City of Midstate is a fictional California coastal city of about 100,000 residents. The city's population is majority White, with a growing Latino population. The economic base is service and light industry. The Police Department has 110 sworn officers and 85 civilian personnel. The equipment and facilities are modern and well maintained. The Police and Fire Departments operate a joint communications center, under the direction of the Police Chief. The Police Officer's Association is active and increasingly "militant". The City has a relatively low crime rate, although violent crime is increasing, and gang activity is on the rise. The Chief is a career officer with the Midstate Department, and will retire in about eight years.

MISSION STATEMENT

The mission statement provides purpose and direction, and a "yardstick" by which to measure the effectiveness of the

organization in achieving it's goals. The organization's mission statement should be a broad, encompassing statement that addresses the philosophy, goals, and ethic of the organization. The mission statement was developed using a panel of law enforcement colleagues and associates. Participating in the process were Sergeant Carl Handy, Corporal Rick Cook, and this writer, all employees of the Ventura Police Department, and Mark Monroe from Voice-Tel of Ventura County, and Mike Glass from Motorola, Inc. The participants were all involved on the NGT panel (described in the previous chapter). All were familiar with the issue and sub-issues of this study. Prior to developing the mission statement, the work of the futures study was reviewed with the group, and the City of Midstate was described in detail to the group. The mission statement for the Midstate Police Department was developed:

> **It is the mission of the Midstate Police Department to deliver professional, fair, and compassionate law enforcement services to the community.**

An organization may also develop a mission statement for a particular issue or project. This mission statement might draw upon, or reflect the philosophy and goals of the organization's "overall" mission statement. However, this statement is specific and attempts to focus on one particular issue. The panel wrote the following mission statement for the Midstate Police Department's community oriented policing plan:

> **It is the mission of the Midstate Police Department to form a partnership with the community to address the issues of crime and security. We are committed to involving our citizens in policing the community**

and will employ creative and innovative methods to accomplish this mission. We are proactive in identifying, adapting, and implementing new technologies that enhance our community policing methods and efforts to involve the people in creating a safe and secure community.

SITUATIONAL ANALYSIS

An important part of the Strategic Planning Process is a situational analysis. In this instance, this was done by the panel described above using a WOTS-UP analysis, which involves analyzing the external environment relative to threats and opportunities to the future mission, and then assessing the organization for strengths and weaknesses associated with planning to carry out that mission.

The group first looked at opportunities and threats in the external environment relative to the specific issue and sub-issues of the study. This analysis was accomplished in part by scanning the environment using the S.T.E.E.P. model to identify social, technological, economic, environmental, and political trends and events that may impact the issue.

ENVIRONMENTAL OPPORTUNITIES

The trend toward citizen involvement at all levels of government is creating an opportunity for law enforcement managers to develop and implement programs that change the way police services are defined and delivered. The emphasis is on community input to establish acceptable "tolerances" based on individual community standards, and on individual involvement to assist the police in accomplishing the mission. The people

of the City of Midstate are not unlike those in many communities across the nation in their desire to have a say in their destiny with regard to law enforcement services.

This is particularly important in 1994, given the current economic conditions. The call to "do more with less" is not diminishing; in fact, there is some reason to believe that even as the economy improves, the public will continue to demand that government operate in a fiscally conservative environment. The people of Midstate, as reflected in their elected representation, are committed to "reinventing government". During the last two years, the City of Midstate has been constantly evaluating it's financial position. The Police Department's sworn strength has been cut approximately ten percent. This economic condition can be seen as an opportunity to operate more efficiently, to continually evaluate operating methods and style, and to be creative and innovative in the approach to delivering services. More than ever before, managers at all levels of government and in the private sector will be looking to technology to help employees work "smarter, not harder" in providing a higher level of service to the customer.

However, despite the cuts in city services, the City of Midstate is in excellent financial health. The City enjoys extensive reserve funds, which management has resisted "dipping into" in the recent recessionary environment. The City has excellent credit ratings, and is recognized around the State for it's fiscal management.

In general, there is some anticipation and excitement in the nation regarding the emerging communications technologies. The City of Midstate shares this interest. To the extent that these technologies can be applied to the delivery of police services, this creates opportunities for police managers. The National plan for "construction" of an electronic superhighway has gained international interest. The evolution of personal communications services continues to promise the ability to communicate with anyone, anywhere, anytime. Generally, the public and the work force is growing more accustomed to these technologies as consumer products are developed and the technology becomes increasingly user friendly. There is also promise that the technology will become available to more people at less cost than ever before.

These technological changes have created opportunities to enhance partnerships with the public. The individual beat officer is potentially more available to his "constituency" than ever before. The notion of computer networks that will allow interactive sessions between government and the public offers unlimited potential for citizen input and police feedback on issues of importance and interest. The promise of integrated data bases will give the community police officer access to the information necessary to develop plans to deal with complex problems. The ability to use personal computers to access other computer data bases, including those stored in powerful mainframes, is creating a revolution in computing. "Client-server computing" has been called the "biggest paradigm shift in computing in 30 years".[18] This technological advance-

ment, combined with the enhanced capabilities of today's laptop computer and the emerging wireless digital networks, offer the potential of virtually unlimited access to information in a mobile environment.

Despite recent cuts in the Police Department budget, the Midstate community is by most definitions supportive of law enforcement, and specifically of the Midstate Police Department. The City has traditionally enjoyed a low crime rate, and few major problems associated with policing. The City has a track record of supporting technology projects with the promise of "more bang for the buck".

The demographics of Midstate are changing, and causing a corresponding change in the demand for police services. The largest minority population is Latino, and that segment of the population has increased significantly in the last 5 years. It has also become more politically active. This segment of the population has been under represented in local politics, and the recent introduction of the "Latino Agenda" has created some sensitivity and concern in the larger community. This has created a need, an opportunity, for a different approach to law enforcement in that community. Once again, this can be viewed as an opportunity to be creative in accomplishing the mission.

The law enforcement community that Midstate operates within is supportive and cooperative. There are eight cities in the county; four have independent police departments, and four are under contract with the Sheriff's Department. The chief law enforcement executives meet frequently as the "County Chief's Committee", and in general are supportive of each

other. Several county wide law enforcement projects have been successfully implemented including a narcotics task force and a street gang policy to insure consistency among agencies.

The business community of Midstate is growing increasingly concerned with government at all levels, including local government. Business leaders are calling for a return to "basics", which translates to support for public safety. There is disillusionment with the expansion of local government, and the lack of response to local concerns. This has come to a climax with the threatened recall of two council members, and a referendum to overrule a council decision to reduce the number of police officers. One minority, though growing, voice within the Chamber of Commerce is calling for an evaluation of City services in an effort to privatize services or create public/private sector partnerships.

Finally, Midstate offers a variety of educational opportunities. There is a community college, and a private four year liberal arts college that offer a variety of computer technology courses designed for the working professional. The programs offer excellent opportunities for developing basic computer knowledge and skills.

ENVIRONMENTAL THREATS

Having made the case that the current state of the economy is creating opportunities to be creative and innovative, it must be said that it also poses some significant threats in the environment. The economy of the State of California continues to falter, as it has for the last 3 years. Current forecasts

are for continuation of the current conditions until at least the end of 1994. Revenues from sales tax continue to be sluggish, and there is little new development of residential or commercial property. Property values in the County continue to decline slightly, further eroding the tax base. In this environment, even the most creative manager may find it difficult to move an agency out of "survival" mode. The threat of layoffs and economic stagnation may also create severe motivation problems for employees, particularly if they are being asked to take on additional responsibilities and learn new ways of providing services.

The same economic conditions may prevent the law enforcement community from identifying, researching and evaluating emerging communications technologies. The issue goes beyond the economic health of law enforcement budgets, as the need to network with other data bases increases. Other local agencies and organizations facing budget shortfalls are not likely to spend money on technology enhancements. Further, the image of "toys for cops" may influence policy makers to steer money away from law enforcement efforts in this area. It is difficult in a political sense to support "hardware" expenditures over human needs, particularly when dollars are in short supply.

There seems to be consensus that the industrialized nations are on the verge of a new world in terms of communications technology. It is less certain specifically what technology will be commercially available to the average person, in what order, and at what cost. There is a danger

that government will gear-up for a revolution that won't actually take place for many years.

A serious threat is the concern over the potential abuse of information that the new technologies may invite. With community involvement, there will need to be assurances that the current and expanded information data bases are protected from abuse, and secured from those without need or authority to access. And the public must be assured law enforcers are controlled in the access to, and collection of, information. Of equal concern is the potential for unauthorized "hacking" of police data bases by criminals and others who unauthorized access to the information.

There is also a threat that law enforcement personnel may become "too" dependent on technology. Midstate, like all of California, is vulnerable to natural disasters. The public must be convinced that critical systems are redundant and "disaster" resistant, and that public safety personnel and systems are flexible enough to perform when technology fails.

While the public generally seems to be calling for a voice in local government, particularly in the way police service is delivered, it may be too soon to tell if there will be follow through and commitment from the people of Midstate. Community policing, by definition, can't be accomplished without the true involvement of the public. The concern is that "community policing" in all forms, regardless of technology aids, may be a passing fad.

There is a danger that the current level of support for law enforcement in the Midstate community could be eroded by

increasing crime and the influence of gangs and drugs. The increased mobility and sophistication of the criminal element are undoubtedly impacting the effectiveness of the police. These factors, combined with other social problems related to illegal immigration, health care, and education all potentially point to disillusionment of the populace, and potential loss of support for police efforts.

There is an additional threat in the external environment that could have some impact on any management decision. The Police Officer's Association (P.O.A.) has recently taken a very active role in a variety of issues, from scheduling to discipline. A change of leadership has brought a dramatic change in role and level of involvement, and several recent "skirmishes" have left some ill will between the P.O.A. and management. The general distrust between labor and management could result in "out of hand" rejection of any proposal to automate any facet of operations out of fear of labor displacement.

ORGANIZATIONAL STRENGTHS

Following the assessment of the external environment, the group made an assessment of the Midstate Police Department, first doing an analysis of the organizational strengths relative to the issue of emerging communications technology and it's impact on community policing.

The Department has been involved in an identified "Community Oriented Policing" program for about one year. Still a fledgling program, about 20 percent of the patrol force

is actively involved in community oriented, problem solving practices. The community has responded with positive recognition and praise. A plan is in place to continue with implementation of the program on a larger scale, involving more of the patrol force and investigative personnel. Employees are cautious, but there is growing interest in the program. On the horizon are community storefront operations. This is the result of involvement by citizens groups in two of the city's most active police districts.

A recognized leader in the county in terms of technology, Midstate was the first local agency to acquire an automated records and dispatch system over ten years ago. The records and dispatch system are shared by the Police and Fire Departments, who jointly operate a communications center. The computer system was last upgraded about four years ago, and at that time was considered "state of the art". The Police Department recently replaced the business phone system with state of the art equipment, including an extensive voice mail system. Every police employee is provided a digital pager that can be linked to the new voice mail system.

The Police Department is networked by computer with every City Department. The City's computer system is fully compatible with the Police/Fire system. The Police Department's computer staff enjoys an excellent working relationship with the larger City computer staff. Every City employee has an electronic mail box, and many city employees have the ability to access the City system from home, and some telecommute at least part-time.

Generally, the workforce is stable, educated, and dedicated. The force is well trained. About 15% of the officers are bilingual, which is becoming increasingly important as the Latino population grows. All of the Department's employees are afforded educational benefits and incentives to encourage continuing education.

The Police Department has a comprehensive training program. Each officer is afforded a minimum of one eight-hour training day each month. This training period is used to address a variety of current in-service training issues. The Department has a team of motivated and well informed training officers and civilians.

The Chief is a career officer with the Department. He is in his mid-40's, and plans to finish his career with the Department. He enjoys an excellent reputation with city management, including the elected council, and with the community in general. He has successfully implemented several high profile programs, including a drug abuse education program in the schools, a gang education program, and a commercial "crime watch" program. He is very supportive of the new community policing efforts, and so far has earned "high marks" from the community for the Department's efforts in that regard.

The Department has responded to the budget crisis of the last two years by adopting a "lean and mean" approach. Management positions have been reduced by twenty percent, but through consolidations of administrative functions with the Fire Department, and other "right sizing" of administrative and non-essential functions, operational units have not suffered.

The Department has also taken the lead in looking at consolidation with other agencies, specifically in the area of communications operations.

ORGANIZATIONAL WEAKNESSES

The point has been made that the Department enjoys a reputation for being progressive. Unfortunately, in some respects, the Department has rested on past successes. Despite being the "first" in the county to implement an automated dispatch and records system, that effort has not been pushed down in the organization. For example, field units do not have mobile terminals or computers. At the operations level, there is little appreciation for the power of the technology. Police reports are still completed manually or dictated, and field officers are essentially computer illiterate. The limited efforts at training have been sporadic and ineffectual.

Cellular technology has been overlooked, for the most part, in field operations. This technology has been viewed by Department and City management as too expensive for routine use. Cellular phones are considered expensive "toys" and several line level proposals to conduct feasibility studies, this issue has been dismissed without serious consideration.

The management staff, while experienced and well trained, is divided into two "camps" with regard to technology advances in general--those that are motivated to be innovative and creative, and those that resist efforts to implement new technology.

Dwindling resources clearly are a weakness for the Department. One year ago, about ten percent of the sworn strength was cut by City Council action. Management has done an outstanding "juggling" act to maintain balance, but it is clear that for some time into the future, fiscal resources will be constrained. This is beginning to be reflected in poor morale and general job dissatisfaction at all levels in the Department. There will be continued demand to analyze resource allocations on a "cost/benefit" basis.

While the Community Oriented Policing program has caused some "reinvention" of police services, many of the Department's employees are not motivated to be creative in the delivery of services. Many are comfortable with the traditional methods and practices of the police service. Many of the line level officers are not motivated by the opportunities posed by management, and do not appear to welcome the "empowerment" philosophy that community policing embodies and that the communications technologies offer. Most are very capable of learning new skills and techniques, but in the present climate they are not motivated to change or seek out educational opportunities to develop new talents.

STAKEHOLDER ANALYSIS

An important step in the strategic planning process involves the identification of stakeholders. The stakeholders are those individuals or groups who care about, or may be impacted, positively or negatively, by the accomplishment of the mission. In addition to identifying who the stakeholders

are, the analysis includes an assessment of the assumptions each stakeholder has about the mission. While doing stakeholder analysis, it is important to be alert to "snaildarters", or unanticipated stakeholders.

The stakeholder analysis was accomplished at a pre-arranged meeting with a group of Command College Students on March 3, 1994. The group consisted of Captain Ed Piceno, Santa Barbara Sheriff's Department; Captain Carlos Bolanos, Salinas Police Department; and Captain Randy Sonnenberg, Foster City Police Department; and Lt. Dennis Holmes, Milpitas Police Department. This writer facilitated the discussion, beginning with a discussion of the issue, sub-issues, the mission statement, and a description of the City of Midstate and the desired scenario. Included was discussion of the WOTS-UP analysis done previously. The group's input was used to identify the stakeholders and their assumptions regarding the issue. Following is a list of the identified stakeholders and their assumptions. A stakeholder assumption map, Illustration #3, is displayed on page 93. This map may be used to identify the degree of certainty of each of the stakeholder's assumptions and relative importance to the issue.

1. **Chief of Police**

   A. Is supportive of the community policing concept, and wants the Department's efforts to be successful.

   B. Will be concerned that some of the new technologies will be expensive, and will actually be counter-productive to the community policing effort, in that they may result in less personal interaction between the public and his officers.

2. **City Manager**

   A. Will be concerned about the cost of new technology, especially the on-going, long term costs

   B. Will be supportive of overall effectiveness and efficiency in the City work force.

   C. Will be particularly sensitive to the impacts that changes in one Department's operations may have on other city services/departments

3. **Mayor of Midstate**

   A. Will be resistant to additional capital expenses for "non-essential" equipment.

   B. Will be sensitive to the fact that the community is interested in being involved in public safety.

4. **Police Officer's Association**

   A. Will be concerned about what is in it for the membership.

   B. Will want additional training to accompany any introduction of new technology, and may want "protections" for those employees who can't or won't adapt.

   C. Will take a "wait and see" attitude.

   D. May be concerned about the potential negative impact that automation and technology may have on current and future staffing levels.

5. **City Finance Director**

   A. Concerned about funding methodology more than the actual cost.

   B. Will be concerned that changes in police operations based on technology may have a trickle down effect on other departments, generating wholesale requests for expensive new technology and equipment.

6. **The Community**

   A. Tax paying community, weary of government spending, will be suspicious of new programs and expenditures.

   B. Community wants better, more efficient service.

   C. Will be concerned of how improved communication and community policing will aid/support their need to feel safe in their homes and public places.

7. **Operations Commander**

   A. The operations commander will be concerned about potential abuse of technology--from cellular phones to shared data bases.

   B. Will be concerned about the backlash from employees over changes in operations. Despite the fact that the technology may make the job more efficient and productive, he knows that cops resist change.

8. **Communications Manager**

   A. He will be concerned about the training issues that new, untested technology may create for his employees.

   B. He is uncertain of the effect that this may cause to his unit's workload. If it increases or decreases significantly he will be concerned.

9. **City Information Services Manager**

   A. The community oriented policing efforts have already increased the demand on his systems. He is concerned about the potential impact on his unit.
   B. He will be concerned about system functionality and usability (who has access, in what format)

   C. He may have increasing concerned about data base security issues.

10. **County Chief's Committee**

   A. Each chief will be concerned about the political implications that a decision in one Department has on his agency.

   B. This issue may impact each member of the committee, and there may be interest in seeking a county wide, or regional solution.

11. **Fire Fighter's Association (snail-darter)**

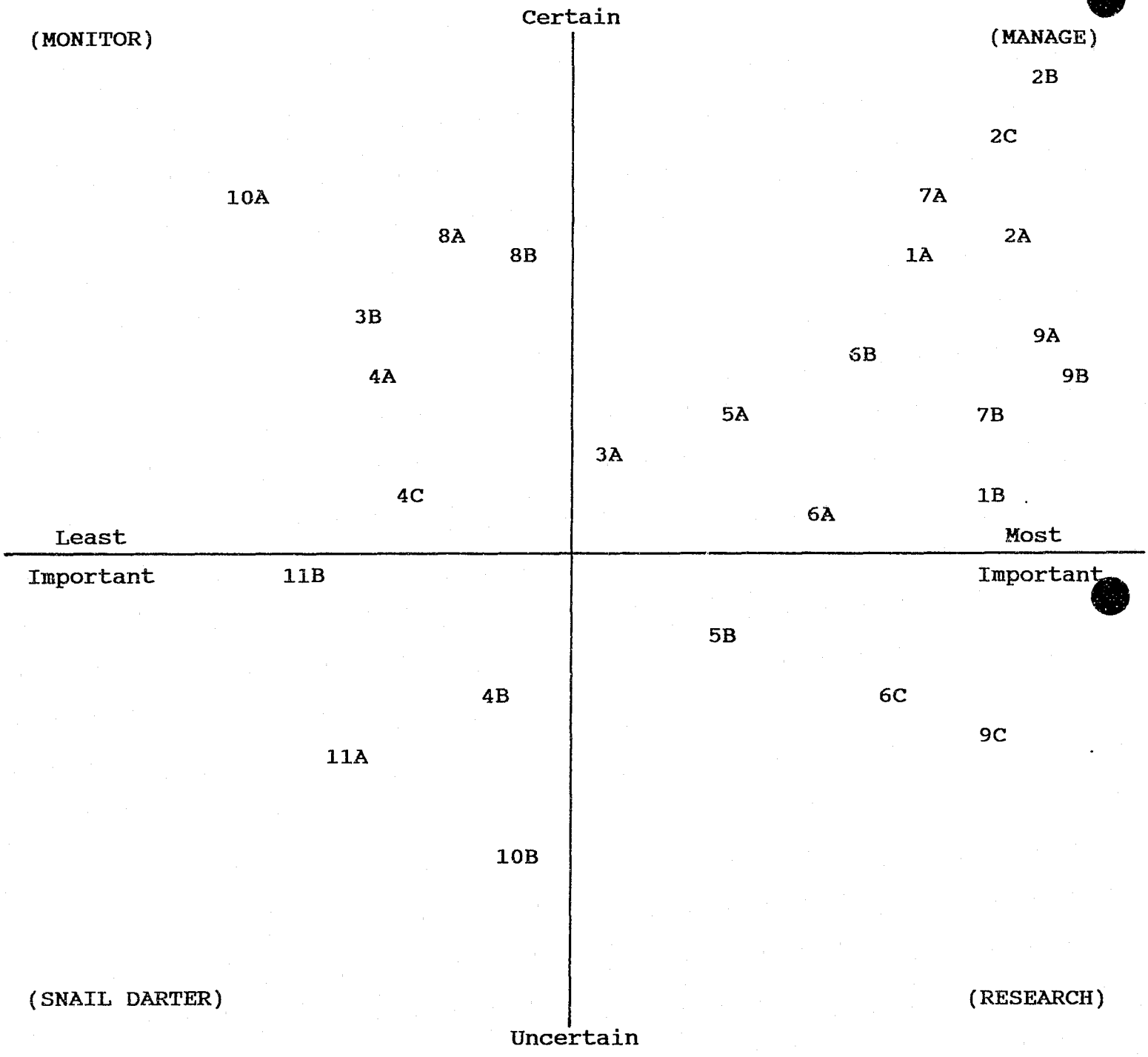
   A. The Fire Department has historically been unhappy with the consolidated police/fire communications operation. Any plan that will potentially use more of that resource for police operations will be threatening to this group.

   B. The Fire Fighter's Association will support change only to the extent that it can "win" something for the membership and for Fire Operations, generally.

(A snail-darter is an unanticipated stakeholder that may influence the issue. The snail-darter was identified by this writer in analysis that followed the group analysis).

ILLUSTRATION 3

STAKEHOLDER ASSUMPTION MAP



STAKEHOLDERS

1. Chief of Midstate Police
2. Midstate City Manager
3. Mayor of Midstate
4. Midstate Police Ofc. Assn.
5. Midstate Finance Director
6. The Community of Midstate
7. P.D. Operations Commander
8. Communications Manager
9. City Info. Services Manager
10. County Chief's Committee
11. Midstate Fire Fighters Assn. (snail-darter)

Developing Alternative Strategies

A Modified Policy Delphi process was employed to identify and analyze alternative strategies to accomplish the mission. A group of colleagues from the City of Ventura was assembled for this purpose. The policy group consisted of Lieutenant Pat Miller, Sergeant Gary McCaskill, Officer Nancy Shindler, Mr. Fred Magness, and Mr. Glen Council. Mr. Magness and Mr. Council are directors of the City's Information Systems Department, and the Police and Fire Departments Information Services Division, respectively.

This writer facilitated the process, beginning with a review of the issue, sub-issues, the mission statement, a description of the City of Midstate, the desired scenario, the WOTS-UP analysis, and the stakeholder analysis done previously. Each participant independently generated a list of strategic alternatives, which were shared with the group. The following strategies were identified:

1. Create a multi-agency communications unit to assess communications technologies and services, and plan for implementation to enhance police-community partnerships.
2. Establish a research and development within the Department to identify, encourage the development of, and plan for the implementation of emerging communications technology.
3. Develop a protocol for interagency information networking.
4. Develop a training program to address current and future technology/computer literacy needs of Midstate P.D. employees.
5. Re-evaluate the basic entry level requirements for police officers and include basic computer literacy skills.
6. On a county-wide basis, evaluate GPS systems to better allocate resources for emergency calls, freeing resources for community policing efforts.

7. Evaluate and implement a mobile data computer system for field operations.

8. Develop an enhanced crime analysis/neighborhood watch information system that allows for the two way communication, on line, between citizens and officers

9. Consolidate all communications for County law enforcement, including computer, two-way radio, and cellular phones.

10. Combine GPS and automated information system so that beat specific information is relayed to the officer based on his location.

11. Create a community access computer network for interactive sharing of information, allowing citizens to access selected data bases from their homes and designated public buildings. As technology advances allow, this could include interactive sessions with beat officers.

12. Develop an enhanced 911 system that allows the responding officer to talk to reporting citizens on selected calls via video conferencing.

13. Establish formal liaisons with the private sector to better anticipate and evaluate emerging communications technologies.

14. Utilize existing and emerging paging technology to improve lines of communication within the department and between employees and citizens.

15. Utilize existing cellular phone networks for field operations.

These fifteen alternative strategies were evaluated using a set of criteria specific to the issue. The criteria included **feasibility, short term desirability, long term desirability, increased efficiency, stakeholder support, and cost/benefit.** Each participant in the process did an independent evaluation of each alternative, rating each strategy on scale of 1 to 4 for each of the criteria. The point score of each alternative strategy was determined by adding the scores across the set of six criteria. This was done for each panel member and each strategy. A total score was then obtained by adding-up the

scores for each panel member for each strategy. Those strategies were then ranked from the highest score to the lowest (the higher the score, the more preferred the strategy).

Discussion followed, and some strategies were combined. Further group evaluation resulted in the selection of the top two, and the one with the greatest diversity of support, for further analysis. These three were judged on the advantages and disadvantages of each strategy, and anticipated stakeholder perception. Comments were written on charts for the group to review. Following this analysis, the group ranked the three alternative strategies to select the preferred strategy. The analysis of the three strategies, and the selection of the preferred one, is presented in the following pages. The three strategies are designated by the letters A, B, and C to account for the combining of the original strategies, and to differentiate between the original numbering of the strategies.

Strategy A --

> **Create a multi-agency communications unit, in conjunction with the private sector, to assess emerging communications technologies and services and plan for implementation to enhance police-community partnerships.**

This strategy is a combination of strategies #1 and #13. This strategy calls for the development of a partnership between the law enforcement community and the private sector to evaluate emerging communications technology, and to make recommendations for implementation. The strategy grew out of the recognition that the emerging technologies need to be

integrated into existing systems, and implementation requires a coordinated effort over the long term.

Advantages: This strategy would establish accountability for a single unit to identify and evaluate the emerging technologies and plan for implementation. It creates a long term commitment to the implementation of state of the art communications technologies. This would insure compatibility with existing systems and methods of service delivery. The unit could be staffed with experts in communications technology and community policing specialists to direct the accomplishment of the mission. Despite the problems associated with a multi-agency effort, this law enforcement community has a strong track record of working cooperatively on major projects. The inclusion of private sector business interests would have political appeal.

Disadvantages: This approach requires new funding sources to create an entirely new entity. In times of "right sizing" this would immediately be viewed politically with skepticism. Certainly, a cost/benefit study would need to address the concerns of policy makers in this regard. Including the private sector may be seen as threatening the power base of some of the participants, and there would be issues of territorialism among the individual participants and the respective political bodies.

Stakeholder perception: The Chief of Police would be supportive in concept, but reserved with regard to funding; the City manager would be attracted to the idea of a partnership

with other agencies if it can be shown cost effective; the Mayor would insist that this involve "local" business; the City Finance Director would be concerned about resources, of course, and would need assurances that all of the participants were paying a "fair share"; to the extent that it would be "good" to the local private sector, the community would support the idea, but would reserve judgment as to improvements in service; the communications manager would be concerned about where this may eventually lead, but would see it as an opportunity; the City Information Services Manager would be protective of the non-public safety concerns, and need assurances that resources would not be diverted from his existing programs and operations; The County Chief's Committee would be supportive, but individually the members would be concerned about maintaining control over their individual operations; The Fire Fighters Association would be supportive only if they can be assured that this will not dilute their operations or resources.

Strategy B --

Establish a City of Midstate communications task force to identify and plan implementation of future communications technologies that will enhance partnerships with citizens. This strategy charges the task force with evaluating and implementing current technology that will avail the City to future enhancements. This specifically includes mobile data computers, cellular phones, and a computer network to allow citizen access to City Staff, including field personnel.

Strategy B is a combination of the original strategies #2, #7, #11, and #15. It creates a mechanism for the Police Department, to identify and implement emerging technologies,

and to involve other City services in that process in a collaborative effort.

Advantages: The strategy recognizes the importance of setting in motion the process of enhancing communication with the community with an immediate charge of implementing a mobile data computer system that will improve current capabilities, and allow for future communications services as they become available. The strategy further creates an opportunity to enhance citizen involvement in the community policing efforts, and in City government generally. With regard to staffing, this would involve re-directing current resources. Capital outlays would need to be evaluated for funding sources.

Disadvantages: Because this strategy utilizes existing staff resources there may be an increased workload for certain employees. It is possible that additional staffing resources will need to be added on a temporary basis. The emphasis will be on "police" needs, and that may cause some jealousies between departments. This will cause a revisit to the capital improvement plan -- with political support, inclusion of communications projects may delete other projects, causing ill will toward the police department.

Stakeholder Perception: The Chief of Police would support this if he is convinced that it will improve efficiency and communication between beat officers and the public; the City Manager will view this as an opportunity to demonstrate the ability of the City to work collaboratively between departments

and the public. He will be concerned about cost/benefit analysis; the community will support the plan if they are convinced that it will improve service and/or be cost effective; the mayor will be supportive, but could be swayed by negative public reaction; the Finance director will be protective of financial resources, and may view this as an extravagant proposal; the Operations Commander will be very enthusiastic, and will "lead the charge" to accomplish the plan; the Communications Manager will be protective of his operation, and will need to be convinced of the benefits; the City Information Services Managers will see this as "one more" responsibility to an already overworked staff; the Fire Fighters Association will want to get a piece of the action; the County Law Enforcement Executive's Committee will be supportive, but take a "watch and see" position.

Strategy C --

> **Conduct a thorough analysis of future skill requirements of Midstate P.D.'s employees, and then tailor in-service training programs and entry level requirements to that standard.**

Strategy C calls for a future job skills assessment for Midstate Police employees, and then focuses on training and recruiting. This approach recognizes that the new communications technologies will change the nature of police interaction with citizens. This strategy is a combination of strategies 4 and 5 from the original list of alternative strategies. This was the strategy with the most diversity of support.

Advantages: This approach has the potential of improving the readiness of employees at all levels of the organization to accept and adapt the new communications technologies to the police environment. The future skills assessment would of necessity require the identification of specific technologies, and the agency would be able to focus on them. Recruits would be better prepared for a technology oriented environment.

Disadvantages: There would likely be a lot of employee (Police Association and general employees) resistance to this proposal. It would likely be perceived as a threat to current employees, which could be a major hurdle to overcome. This type of function generally falls under the purview of City Personnel, and the need to identify specific technologies would probably exceed the scope of their expertise. Lacking that element, the training would be general in nature, and perhaps not practical. This could be viewed as "more of the same" in terms of irrelevant technology training.

Stakeholder perception: The Police Officer's Association would be against this strategy, as it's membership would be threatened by the potential for changing job requirements and hiring practices; there would be concern that management use this as an opportunity to "weed-out" those employees viewed as undesirable, and to hire less aggressive, more educated officers; the Chief and the Operations Commander would initially support the concept, but would soon become disillusioned with the lack of tangible results; the city manager would support it, but would not be enthusiastic about

it; the mayor and the majority of the stakeholders would be indifferent.

PREFERRED STRATEGY

Strategy B was the strategy preferred by the policy group. The consensus was that emerging communications technologies are evolving quickly and that a partnership between City Departments would be an effective way to create a forum to identify and implement the technology efficiently and effectively. The fact that it calls for some specific actions that will have the effect of improving communication services between the public and the police, and position the Department for future enhancements, had significant appeal to the policy group. The strategy would allow for a significant expansion of the current computer systems user base by providing mobile computing capability.

Furthermore, the strategy involves other City Departments with the Police Department in a collaborative effort, which will become increasingly important as the Police Department expands it's efforts in community policing. This strategy was also preferred over the others because it utilizes existing staffing resources, and appeared to have the most political appeal with minimum political disruption. It has particular appeal in the environment Midstate Police Department operates within. The basis of community policing is involvement with the community, and this strategy creates increased opportunities for police/citizen interaction. The view was expressed that this task force could involve representatives

from the private sector. This would have the impact of lending some additional technology expertise, and at the same time involve an important segment of the community.

IMPLEMENTATION CONCERNS

Implementing the strategy will obviously be complex. There are a number of major issues and concerns that will need to be addressed. It will be essential that the task force adopt a structure that insures responsiveness to the needs of the end users and the citizens, and insures that the mission is accomplished. This will be complicated by the fact that the strategy will involve multiple City Departments, each having, to some extent, it's own "agenda". There will need to be dialogue between other government and private agencies as the need and desire to access various data bases is identified. Decisions will need to be made about how the task force will be staffed, by whom, and what the reporting relationships will be. As already noted, it might be important to include "experts" from outside the City government. That may involve funding and other decision making processes.

As specific initial projects are accomplished, the future long term needs of the Police Department and the community must not be neglected. The structure adopted by the task force must insure, in other words, that the overall mission of the community policing effort is accomplished.

The task force is being asked to implement some major projects that will impact the way employees do their jobs, and the way citizens interact with them. It will be essential to

have a structure in place that solicits, considers, and evaluates employee input in that process.

Despite the fact that the task force will essentially be comprised of existing staffing resources, there are clearly fiscal issues to be addressed. It will be important to deal with this at the on-set to gain political and staff support. It is clear that a complete cost-benefit analysis will need to be done. The task force will need to address long term and short term funding issues. It will be important for the task force to be able to explore creative and non-traditional sources for funding future technology enhancements.

There will be a variety of "sign-offs" required, from Police Chief to City Manager and the City Council. Along the way, support will be required from line level employees in several City Departments, and from other key actors. Staff and line level employees will need to be oriented and informed about the proposal, it's purposes and goals. It will be important to communicate the progress of the task force to the Police Department, particularly, and also to other City Departments and the public.

The task force will need to take a comprehensive view of the technology issues, including staff training. The task force will be charged with evaluating staff needs and making recommendations for in-service training and education. This may include the use of in-house resources, the development of training programs through the Regional Training Center or the use of existing local educational resources. Consideration will also need to be given to developing a mechanism to

evaluate the task force's overall effectiveness. Input should be solicited from throughout the organization.

SUMMARY

The Futures Study described in the previous chapter examined the identified issue of emerging communications technology in the community oriented policing environment. The futures study focussed on the influence that forecasted trends and events might have on the issue. This strategic plan began with the development of a mission statement specific to the issue. An analysis of the Midstate Police Department's strengths and weaknesses, an assessment of the environment in which it operates, and the identification and evaluation of the issue's major stakeholders led up to the development of several alternative strategies to address the issue. From that list, three were evaluated in further depth, and one was selected for implementation. Some of the major issues and concerns for implementation were briefly considered.

The preferred strategy recognizes that community oriented policing calls for a new look at how police agencies communicate with each other, with allied agencies, and with the public. The history of law enforcement is marked by technological advances that have caused changes in the nature of policing. The emerging communications technologies will change virtually every aspect of modern life, and it will be the challenge of law enforcement managers to take bold steps to integrate these advances into police operations in a fashion that encourages and enhances partnerships with the community.

CHAPTER 4

TRANSITION MANAGEMENT

In the previous chapter, three strategies were identified as possible methods for accomplishing the mission of the strategic plan. The preferred strategy centers on the formation of a communications task force for the City of Midstate to identify and implement current and future communications technologies to enhance partnerships between the City and the citizen's of Midstate. The strategy calls specifically for the implementation of mobile data computers, cellular phones, and a computer network that will allow citizen's access to City staff. These improvements are seen as a "backbone" from which to implement new technologies as they emerge.

This strategy implies the accomplishment of several objectives. These include the identification of appropriate staffing for the task force, and potentially the selection of outside "expert" resources. A structure to insure responsiveness to the needs of the customers and accomplishment of the mission needs to be identified and adopted. Additionally, funding sources need to be identified for capital outlays. Steps will need to be taken to gain political entity approval, staff and employee orientation to the proposal, and development of a process to evaluate the effectiveness of the strategy. In order to accomplish these objectives, it is essential to develop a transition management plan.

CRITICAL MASS:

IDENTIFICATION AND COMMITMENT ASSESSMENT

The critical mass is the minimum number of key "actors" who have influence over the accomplishment of the strategic plan. If these individuals support the strategy for change, it is assured of success. Conversely, if this critical mass resists or blocks the strategy, there is a high probability that the change will fail. Therefore, it is important to identify the current level of commitment of each of these key actors and determine the best approach to use to achieve a level of commitment beneficial to the proposed change.

To identify the critical mass, this writer used the policy group that identified and analyzed the alternative strategies. As the reader will recall, this included Lieutenant Pat Miller, Sergeant Gary McCaskill, Officer Nancy Shindler, Mr. Fred Magness, and Mr. Glen Council. The "stakeholders" and "snail darter" identified in the strategic planning process were one source for consideration as the critical mass. These are:

1. Chief of Police
2. City Manager
3. Mayor of Midstate
4. Police Officer's Association
5. City Finance Director
6. The Community
7. Operations Commander
8. Communications Manager
9. City Information Services Manager
10. County Law Enforcement Executive's Committee
11. Fire Fighters Association

In addition to this list of eleven stakeholders, consideration was given to several other possible key players.

As a result of this overall evaluation, the following were identified as the **critical mass:**

1. Police Operations Commander
2. Chief of Police
3. City Manager
4. Communications Manager
5. City Information Services Manager
6. President, Fire Fighter's Association
7. Chairperson, Citizen's Advisory Committee on Community Policing

The following Commitment Chart (Table #7) lists the "actors" and shows the individual commitment shifts necessary to accomplish the strategic plan. This represents the minimum shift that must take place for the plan to succeed. Following the chart is an analysis of the current commitment level and a discussion of any needed change for each actor.

TABLE #7
COMMITMENT CHART

CRITICAL MASS ACTORS	BLOCK	LET HAPPEN	HELP HAPPEN	MAKE HAPPEN
1. Operations Commander				X → O
2. Police Chief		X ——→ O		
3. City Manager		X → O		
4. Communications Manager		X ——→ O		
5. City ISD Manager	X ——————→ O			
6. President, Fire Association	X ——→ O			
7. Chairperson Citizen's Advisory Committee			X——→O	

1. OPERATIONS DIVISION COMMANDER

The Operations Division Commander is intimately involved in the Department's community policing efforts, and enthusiastically supports creative and innovative methods of service delivery. He is also a recognized leader in the law enforcement community, and has close ties to allied agencies. He is respected throughout the City, and has close political ties to key players, elected and appointed. He has been a leader at past efforts to bring new technology to the Department. Prior to his current assignment in Operations, he directed a major upgrade to the Department's radio system and computer systems. He is clearly at the "make it happen" commitment level, and is the obvious choice to spearhead the implementation of the strategy.

The Operations Division Commander is the designated project director. It is important to designate an official at his level within the Department due to the involvement that the strategy requires at the "City" level and with community leaders.

2. CHIEF OF POLICE

The Chief of Police must take an active role in supporting the strategy or it will fail. He is currently in a "let change happen" position on the issue, and must be moved to a "help change happen" level, at a minimum. He does have some reservations about the strategy, specifically with regard to the cost and the effectiveness. However, he is a progressive manager, and recognizes the power of technology. He has others

on his staff who will make it happen, but he must be brought to a position where he will take a strong position politically in order for the strategy to be effective particularly. The Chief is the key to gaining the City Manager's, and ultimately the Council's support. The Operation's Commander has the confidence and trust of the Chief, and he is the likely person to persuade the Chief to embrace the proposal. As the actual work proceeds, the Chief will be influenced by the success or failure of the objectives set forth by the task force.

The Chief has been a proponent of community policing, and the best way to earn his support will be to demonstrate the benefits to the community, and/or to show the level of support from the "active" segments of the community for the strategy and the ultimate benefits to community policing efforts. He will also be swayed by cost/benefit analysis.

3. CITY MANAGER

The City Manager's support is critical, particularly in the long term. He must be convinced that new technology is cost effective and results in better service to the customer. A variety of methods may be used to accomplish this goal, involving a combination of written and oral presentations. However, ultimately, it will be the Police Chief's enthusiasm (or lack thereof) for the project that will influence the City Manager's support.

He has a reputation for being an excellent manager, but he has resisted "cutting edge" technology and methods in the past. To date, the City Manager has not been involved in this issue.

He would most likely take a neutral position initially, or a "let it happen" position. It is very important that he be educated by the Police Chief and the Operations Commander on the potential benefits of developing a long term strategy to the identification and implementation of the communications technologies in a community policing environment. Where possible, it is important for him to be aware of potential advantages to the overall delivery of services "city-wide". It will be critical for him to know how other Departments in City Government, or affiliated government and private agencies, can benefit in the long term from the accomplishment of the strategy. Any potential positive impacts on the private sector, specifically local business interests, that may result from the strategy implementation is also important information for the City Manager to have.

The City Manager is important to the long term funding resources. He must be moved to a "help it happen" position, or it is not possible for the strategy to succeed in the long term.

4. COMMUNICATIONS MANAGER

The Communications Manager is responsible for a Police and Fire communications center. He is charged with management of all two-way radio, telephone, cellular phone, and computer operations for the Police and Fire Departments. Consequently, he will be a key player in the implementation of this strategy. The Communications Manager is a relative "newcomer", and has worked hard at rectifying some long standing "technical"

problems. He is very knowledgeable, and will be a good resource as the strategy is implemented.

Unfortunately, the communications manager has been somewhat non-committal on the strategy. This most likely stems from his very heavy workload, and preoccupation with "keeping his ship afloat". He is in a "let change happen" position, and must be moved to a "help change happen" level of commitment. He is a capable manager, and is well informed on issues, but this will require that he be given adequate resources and personnel to maintain the daily workload so that he can devote an appropriate amount of time and energy to the long term planning that this strategy will require. The Operations Commander will be able to use his influence with the Command Staff, particularly the Chief, to ensure that adequate resources are afforded to make the strategy successful.

5. CITY INFORMATION SERVICES DIVISION MANAGER

The I.S.D. Manager has responsibility for the overall management of all computer operations in the City, with the exception of the Police/Fire system. He has a staff of six employees that work for him. Recently, he has also taken on additional responsibilities for telephone systems.

The I.S.D. Manager is in a neutral (let happen) position. This is not specifically related to this proposal; in fact he is interested in the potential applications of the new technology, recognizes that the City is "behind the times" in the area of communications technology. However, recent "right sizing" within general government has saddled him with

additional responsibilities and less reward, financially and otherwise. He is not enthusiastic about being involved.

He has had very positive experiences working with Police Department staff on previous projects, and has not worked well with the new Police/Fire Communications manager. This key player must be moved to a "make it happen" position, which will require some "behind the scenes" maneuvering by the Police Operations Commander, who is his personal friend.

6. **PRESIDENT, FIRE FIGHTERS ASSOCIATION**

The Fire Fighters Association has been identified as a snail-darter, or an unanticipated stakeholder. The Police/Fire communications operation has been a "bone of contention" for the fire fighters since it's creation over ten years ago. The operation has been under the direction of the Police Department, which has created the perception that Police Department needs have taken priority over Fire Department needs. Since this proposal is coming from the Police Department, and will impact the Communications Division, it is likely that the Fire Department rank and file will be suspicious of the motives, and be fearful of the potential impact on services to their operations. The Fire Fighters Association has grown increasingly "political" in recent years, and their voice is "heard" at the Council level. The President of the Association is a veteran fire captain who is a recognized leader, formally and informally, among the rank and file. As the Association's spokesperson, he is in a block change position on this issue. He reflects the general desire of his

constituency to maintain the status quo, and will need to be moved to a "let change happen" position in order to sway the opinion of the Association's majority. This can be accomplished by involving him and/or other Association representatives in the change process, and demonstrating the potential benefits and rewards of participation.

7. CHAIRPERSON, CITIZEN'S COMMITTEE ON COMMUNITY POLICING

This committee has played an important advisory role to the Police Department in the evolution of the community policing plan. The Chairperson, a retired businesswoman, has been very visible and involved with the affairs of the committee. Generally speaking, she is at the "help change happen" level, and will be serve the strategy well by maintaining that position. She will want to move to the "make change happen" level, but it is important that she not get involved beyond her association with the strategy, lending the support and credibility of the advisory committee to the efforts.

Within the critical mass, not all of the actors are ready for the introduction of change. Individual adaptability to change varies as well, with some easily accepting change while others resist. To analyze the actors readiness for change, the Readiness/Capability Chart (Table #8) on the following page was completed. This chart helps the reader to visualize the level of readiness of each of the critical mass actors and estimates their level of capability to bring about the desired change as part of the strategic plan.

TABLE #8
READINESS/CAPABILITY CHART

CRITICAL MASS ACTORS	READINESS			CAPABILITY		
	HIGH	MED	LOW	HIGH	MED	LOW
1. Police Operations Commander	X			X		
2. Police Chief		X		X		
3. City Manager			X	X		
4. Communications Manager		X		X		
5. City ISD Manager			X		X	
6. President, Fire Association			X		X	
7. Chairperson Citizen's Advisory Committee		X			X	

TRANSITION MANAGEMENT STRUCTURE

A structure needs to be designed that will facilitate management of change during the transition period. The transition state, where temporary tasks and resources are in action, is different from the present and future environment. The transition management structure is designed to specifically address the responsibilities and activities of the transition period. The most desirable structure, and the most successful, is one that creates the least degree of tension within the existing system and the greatest opportunity to develop the new system.

Initially, there are critical mass players that must be brought to a position of commitment so that the strategy can be enacted with minimal resistance. As previously determined, the Police Operations Commander will be the lead player in the

effort to implement the preferred strategy. He is enthusiastic about the proposal, and he has the credibility and standing in the Police Department and in City government generally that make him a natural selection for this role. Initially, he must sell the project to the Chief of Police, and then encourage the Chief to gain the approval and support of the City Manager. The importance of this step cannot be overstated. Once that is accomplished, support from the Police Department staff will fall into place.

The preferred strategy specifically calls for the establishment of a "communications task force". This will be the basic "structure" used to accomplish the goals of the strategy. Once the Chief and Manager are educated and supportive of taking steps to proceed, the next step will be to determine the specific staffing needs of the task force. The task force will perform the management function during the transition period. It is essential that there be representation from the various end users of the new systems, including police, fire, other city services, and in this instance, there needs to be citizen representation. The staffing evaluation should also consider "expert" participants from outside City government.

Initially, the Police Operations Commander will be an active member on the committee, and his influence and behind the scenes participation will be essential. He will eventually appoint one of his subordinates to represent his views and interests. There would need to be clear lines of communication between the chairman of the task force and the Operations

commander. If the Operations Commander is able to persuade the City Information Services Director to become an advocate of the strategy, he would be an excellent choice for the chairmanship. He has extensive experience in project management, and has a very good working relationship with others in the critical mass. The other members of committee would be selected to form a team capable of representing the various interests of the critical mass.

It will be the Police Chief's role to involve the Fire Chief in "informal" negotiations with the Fire Fighter's Association regarding the strategy. Clearly, the prospect of state of the art communications poses tremendous potential benefit to the Fire Department. The challenge will be to demonstrate how the technology can be creatively used to improve the operations of the Fire Department, in a collaborative effort with other City departments.

Within the task force, there may be other "sub-structures" utilized. For example, it may become evident as the work progresses that input is desirable from a cross section of the Fire Department, or from Code Enforcement, or building inspections. In that instance, it might be decided to use a "diagonal slice" technique to gather representatives from the various levels of the organization or community to offer advice or consultation to the task force on a particular issue. Or, as the task force progresses in it's work, it may be important to establish a "users group" of line level Police employees to represent the viewpoint of the "worker". It is also likely that technology "experts" will need to be brought in to consult

with the task force. This will be particularly critical to identify emerging technologies, and plan for their inclusion in the City's communications services. It might be important to form a sub-committee to address issues associated with the sharing of data bases between agencies. This could involve people from a variety of organizations and disciplines. The point is that the structure selected is not exclusive of other methods or styles.

TECHNOLOGIES AND METHODS

It is clear that the evolution of communications technologies will alter the way people live, work and play. It is not so obvious, however, exactly where the evolutionary process will lead, or what twists and turns in may take in the next few years. It is apparent that any strategy to address these technologies must employ methods to educate, train, and communicate. Specifically as to how the technologies may impact community policing, this must include management, employee groups, and the greater community.

One method that would be important to employ throughout the transition are **information forums.** These would be tailored to a variety of audiences. Initially, this will be an informal process, primarily one-on-one meetings that the Police Operations Commander will initiate with the Critical Mass players. Others to be educated would include employee groups, the City Council, City management (other City departments), and the Community Policing Advisory Board. In order to gain the necessary support and involvement, public information forums will be developed to educate and involve the general public.

These information forums may include any combination of video presentations, oral presentations, and group discussions.

A **media campaign** should be developed. This may be one of the best sources to inform the public. It is important that appropriate media contacts be made early on, and that the ground work be laid with the media so as to present the information is as positive a light as possible. The media campaign may involve a variety of methods, including newsletters, special announcements, "hotlines" for questions and feedback, radio and TV interviews, and other press releases.

Once the task force is established, several methods can be employed to keep the group motivated and on target. **Team building methods** can enhance the working relationships between the members of the ad hoc committee. The task force will be made up of employees across departmental lines and it will be important that they work effectively together as a team.

Responsibility charting is a technique that can enhance communication between all members of a team. This method is simply a graphic illustration of the various important tasks, actions, and decisions that must be made to accomplish the mission. Table #9 (page 120) depicts a Responsibility Chart. The responsibility chart is built on input from each member of the group, and through a group process responsibility is assigned to various tasks. This method helps the members of the group reach consensus on what the important tasks are, who is responsible for accomplishing each task, and then provides an on-going record and reminder for task accomplishment.

TABLE 9
RESPONSIBILITY CHART

DECISION/ACTION	CRITICAL MASS ACTORS						
	1	2	3	4	5	6	7
Authorize Project	S	R	A	S	S	I	I
Select Task Force Members	R	A	I	I	A	I	I
Determine "Outside" Resources	R	A	I	I	I	I	I
Identify Funding Sources	R	S	A	I	I	I	S
Inform Police & other employees	R	S	I	S	S	S	I
Design Public Education Program	A	S	S	R	S	S	S
Refine Strategic Plan	R	A	I	I	I	I	I
Team Building	A	I	I	S	R	S	I
Develop Action Plans/Implement	R	A	S	S	S	S	I
Prepare RFP as appropriate	A	I	I	I	R	I	I
Develop Evaluation Tools	R	I	I	S	S	I	I
Monitor Implemented Changes	R	I	I	S	S	I	I
Progress Reports	R	I	I	S	S	I	S

L E G E N D

CRITICAL MASS ACTORS

1. Operations Commander
2. Police Chief
3. City Manager
4. Communications Manager
5. City ISD Manager
6. President, Fire Association
7. Chairperson, Citizen's Advisory Committee

SYMBOLS

R = Responsibility (not necessarily authority)

A = Approval (right to veto)

S = Support (resources)

I = Inform (to be consulted)

Going hand in hand with responsibility charting, **status reporting** is important to keep members of the group informed, and also serves as a motivational tool for the individual members of the group. This method not only keeps people on top of their own responsibilities, but the reporting serves to encourage all members to stay involved and "on task".

An effective tool for keeping the project moving as desired is a **Time Line**. The illustration that follows (Illustration #4) is a time line that outlines the transition management plan. It serves as a timetable, and also a sequential list of the activities and critical events that must occur for the plan to be implemented.

The last three methods -- responsibility charting, status reporting, and time line development -- can all be effective **evaluation instruments** for managing change. In addition, it will be important to measure the impact of any changes on those involved in the delivery of services, as well as any impacts on the community that receives the services. Methods will need to be designed to measure the impact on officer workload, quality of product, and effectiveness. This can be accomplished in part by getting direct and regular feedback from employees, allied agencies, and the public. The data can be collected by formal and informal means, including questionnaires and routine participation in user's forums or "quality circle" type opportunities. Obviously, the communications technologies being implemented will facilitate this task. On-line computer forums and automated telephone surveys, for example, could be employed to assess progress or impressions from the community.

ILLUSTRATION 4
TIME LINE FOR TASK ACCOMPLISHMENT

MAJOR TASK DESCRIPTION	TIME LINE
A. Build Commitment and Understanding.	**0-6 Months**
1. One-on-one meetings with c.m. players	
2. Consensus building critical mass players	
3. Reach agreement on desired future state	
4. Reach consensus on management structure	
B. Communicate Strategy and Plans.	**3rd Month**
1. Conduct information forums	
2. Set structure for media campaign	
3. Establish mechanisms for feedback from the organization and from the community	
C. Form the Communications Task Force	**6th Month**
1. City Manager authorizes the formation	
2. Project director named	
3. Chairperson identified and named	
4. Committee formed with representation from appropriate sectors of City departments	
5. Begin discussion of potential "expert" resources	
6. Begin exploring potential funding sources	
D. Project Organization.	**13th Month**
1. Team building workshops	
2. Responsibility charting	
3. Action plans	
4. Status reporting	
E. Accomplish implementation plans	**36th Month**
F. Evaluation.	**On-going**
1. Design procedures for evaluating performance (internal and external impacts), utilizing technology	
2. Monitor progress	
3. Produce and distribute progress reports	

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The primary focus of this research paper has been to answer the issue question:

What impact will emerging communications technology have on community policing in a medium sized police agency by the year 2000?

This researcher has discovered that the community policing movement in the United States is converging with a technology revolution that has the potential to alter the basic ways that people communicate with each other and with their social institutions. The ability to transform any information into digital form, and then send it over an "information superhighway" of fiber optic cables and wireless communications networks will make it possible to communicate on a variety of levels with anyone, anywhere, at anytime. In the community policing environment this means that police officers will truly be "untethered" from the confines of Police buildings and their automobiles, to become "information brokers" in their communities to help citizens address the issues of crime and security. The technologies will enable police officers in the field to access the enhanced National Crime Information Center to exchange fingerprint and DNA information, and photographic imagery and facsimile.

The expanded communications capabilities will help the police identify and track suspects who are growing increasingly mobile and sophisticated. This is especially important in a

service delivery system dependent on information about the people who live in and travel through the community.

These new communications tools can have a positive impact on community policing. Concerns about privacy, abuse, and over dependency could prevent implementation of the technologies. It will be the challenge of police managers to address these issues so that the beneficial effects can be realized.

The strategic plan of this study calls for the establishment of a communications task force for the fictional City of Midstate, California. The plan calls for a cooperative effort between the Police Department, City government, and the community to enhance the police/community partnership through improved communications and information sharing. This approach was used to move the Police Department toward an enhanced state of automation and to strategically position the community to take advantage of new technologies as they emerge and become commercially available.

In examining this primary issue, this researcher also focussed on three sub-issues:

-- How will law enforcement agencies fund new communications technology?

-- How will law enforcement agencies evaluate emerging communications technologies?

-- What will be the impact on training?

It is clear that municipal government will need to be fiscally conservative in the foreseeable future. Southern California, in particular, is still in economic recovery, and

even with improved economic conditions it is likely that government expenditures will be closely monitored. The communications technologies can be incorporated into very effective systems, but the price tag for capital outlay can be significant. Consequently, police managers must become proficient and effective at cost/benefit analysis. The strategic plan of this study calls for an effort between the police and other city government departments to maximize effectiveness across the board for the local entity.

Other funding options include regional and multi-agency partnerships. These approaches spread the cost over a broader base, resulting in some cases in a more feasible alternative. Non-traditional resources include technological exchange with the private sector and public/private sector partnerships. An excellent example is the private sector campaign of "The Mayor's Alliance For a Safer Los Angeles". The group has set a goal of raising $15 million to automate field operatons of the Los Angeles Police Department. As of the date of this report, the campaign is only one month old, and has already raised over half of that amount from major corporations and private foundations. It will be essential for law enforcement managers to use these creative and innovative methods in seeking out funding sources for new technologies.

The strategic plan of this study calls for the evaluation of emerging communications technology by the designated task force. "Community policing" is not a static philosophy. It changes with the community, and it is essential that the "tools" used be the right fit for the specific environment.

It is important that police agencies plan for "vertical integration" of communications technologies, so that as new technology emerges, it can be adapted to the existing systems. The evaluation of new communications technologies will require a multi-disciplinary approach, as called for in the strategic plan of this study. The basic criteria must include cost, maintenance, training, effectiveness, practicality, and compatibility with existing systems. The issue of evaluation, like the cost issue, can be addressed on a multi-department, multi-agency, or regional level, and should include partnerships with the community and the private sector.

Finally, this study called for a look at the impact on training caused by the implementation of the new technologies. To the extent that the communications technologies impact computer applications, there will be an increasing need for employees to be "computer literate". The experts interviewed, however, recognize that the personal computer is becoming increasingly user friendly, minimizing the time for formal training and orientation. A significant training issue identified by the experts, is teaching employees how to manage time and information in the environment created by the computer and communications enhancements. It will be important for police managers to have input at the regional training center level, and with the Peace Officers Standards and Training Commission to implement appropriate training programs.

FUTURE AREAS OF STUDY

There are a number of questions that this study has raised in the mind of this researcher over the last eighteen months.

As the economic conditions in California continue to be a primary driver of government policy, it raises a question as to the impact of regionalizing police services on community policing. An entire study could be done on the potential for linking law enforcement data bases throughout the State of California, or even the nation to impact an increasingly mobile criminal element. This study briefly touched on video applications and more study could be done in that area. An issue that is rapidly emerging is the impact of wireless communications systems on the enhanced 911 systems.

The community policing movement is part of a larger shift in the public's attitude toward government. The people want to be involved, to have access, to have a "say" in how they are governed and policed. The emerging communications services will alter forever the way that people interact with each other and with institutions. The communications technology that will be commonplace in the next five years offers the potential of making the "theory" of community policing a practical reality. The challenge to police managers and the departments they lead is to prepare for the challenges the communications revolution will bring, and to use these powerful new tools to enhance the delivery of police services to the community.

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November 29, 1993

Dear

I want to thank you for agreeing to participate in my Command College Futures Research Project. The Command College is a two year academic program designed to help prepare law enforcement leaders for managing the future. Each student is required to examine an emerging issue which will impact law enforcement in the next 6-10 years.

As you know, the issue I have selected is **"What impact will emerging communications technology have on community policing in a medium sized police agency by the year 2000?"** You will be participating on a panel that will develop trends and events that may affect this issue. You will also be participating in exercises designed to forecast the probability of occurrence of the top ten trends and events, and why they are important.

"Community policing" is one of the most talked about issues in government circles today. One of the elements of community policing calls for involving the community and the beat officer in mutual efforts at problem resolution. The community policing philosophy is a recognition that the crisis oriented, response-time driven, approach may not be the most effective method of delivering police services.

At the same time that police agencies across the country are embracing community policing philosophies, there are a host of emerging communications technologies that could impact the police service delivery system. Examples include digital cellular phone systems, satellite based systems, personal communication networks, and specialized mobile radio. Also of interest is the "electronic super-highway", envisioned to carry virtually unlimited amounts of digitized information--pictures, sound, and print--across town, or across the country. Another example of an emerging communications technology is the personal digital assistant (PDA). This includes products like Apple Computer's "Newton" and the AT &T "E.O."

You do not have to be an expert in technology, or community policing, to be a valuable participant in this

process. To the contrary, panel members have been selected from a variety of disciplines to examine this issue. To acquaint you with the issue, however, I'm enclosing several related articles from a variety of sources.

As you think of possible trends and events related to the issue of communications technology and potential impacts on community policing, it may be helpful to think in terms of the "STEEP" model. This is an acronym for "social", "technological", "environmental", "economic", and "political". This model is used in the Command College to assure the use of a broad perspectives when examining issues.

The following definitions may also be of assistance:

TREND: A trend is a series of events that are related, occur over time, and can be forecasted.

EVENT: An event is a one time occurrence that can have an impact on the issue.

Please take a few minutes to jot down some trends and events that you think may affect the impact of emerging communications technology on community policing over the next 8 years. This will help to streamline the process when we meet as a group.

The meeting will be held:

Wednesday, December 8, 1993
10:00 AM to 2:30 PM
Staff Conference Room
Ventura Police Department
1425 Dowell Drive

There will be a lunch served on site. If you have any questions concerning the futures issue described, or about the process, please contact me at (805) 339-4429, or 655-9663.

Thanks again for agreeing to participate, and I'll see you on Wednesday, November 8th.

Sincerely,

Lt. Mike Tracy

Enclosures

VENTURA POLICE DEPARTMENT
STAFF CONFERENCE ROOM
WEDNESDAY, DECEMBER 8, 1993

FUTURES RESEARCH AGENDA

9:45 - 10:00	COFFEE
10:00 - 10:15	PARTICIPANT INTRODUCTIONS ISSUE INTRODUCTION
10:15 - 10:55	SILENT GENERATION OF IDEAS
10:55 - 11:20	ROUND ROBIN/RECORD IDEAS
11:20 - 11:50	REFINE AND CLARIFY IDEAS
11:50 - 12:10	LUNCH
12:10 - 1:10	EVALUATION OF TRENDS AND EVENTS-- DEVELOP TOP 10 TRENDS AND EVENTS
1:10 - 1:15	STRETCH BREAK
1:15 - 1:40	DEMONSTRATE EVENT FORECASTING AND VOTE ON EVENTS
1:40 - 1:55	DEMONSTRATE TREND FORECASTING AND VOTE ON TRENDS
1:55 - 2:15	POLICIES AND STRATEGY BRAINSTORMING
2:15 - 2:30	CLOSURE--THANKS, THANKS, AND MORE THANKS

ISSUE

WHAT IMPACT WILL EMERGING COMMUNICATIONS TECHNOLOGY HAVE ON COMMUNITY POLICING IN THE MEDIUM SIZED POLICE AGENCY BY THE YEAR 2000?

IDEA DEVELOPMENT QUESTION

WHAT ARE THE MOST IMPORTANT FUTURE TRENDS, EVENTS, AND POLICY CONSIDERATIONS THAT MAY AFFECT THE IMPACT OF EMERGING COMMUNICATIONS TECHNOLOGY ON COMMUNITY POLICING IN A MEDIUM SIZED POLICE AGENCY OVER THE NEXT SIX YEARS?

COMMUNICATIONS TECHNOLOGY

. . . ELECTRONIC SUPERHIGHWAY
. . . WIRELESS COMMUNICATIONS
PERSONAL DIGITAL ASSISTANTS (P.D.A.)
PERSONAL COMMUNICATIONS SERVICES
DIGITAL CELLULAR
SPECIALIZED MOBILE RADIO (S.M.R.)
SATELLITE BASED SYSTEMS
. . . COMPUTERIZED INFORMATION SYSTEMS

COMMUNITY POLICING

IT IS A PHILOSOPHY, MANAGEMENT STYLE, AND ORGANIZATION STRATEGY THAT PROMOTES PRO-ACTIVE PROBLEM SOLVING AND POLICE-COMMUNITY PARTNERSHIPS TO ADDRESS THE CAUSES OF CRIME AND FEAR AS WELL AS OTHER COMMUNITY ISSUES.

EVENT

"A DISCRETE, ONE-TIME OCCURRENCE"

IN OTHER WORDS, AN EVENT IS A ONE TIME OCCURRENCE THAT CAN HAVE AN IMPACT ON THE ISSUE.

TREND

"A SERIES OF EVENTS BY WHICH CHANGE IS MEASURED OVER TIME"

IN OTHER WORDS, A TREND IS A SERIES OF EVENTS THAT ARE RELATED, OCCUR OVER TIME, AND CAN BE FORECASTED.

THE TREND SHOULD NOT INCLUDE A

PREDETERMINED MEASUREMENT.

POLICY CONSIDERTIONS

"MANAGEMENT DECISIONS AND DIRECTIONS THAT MAY INFLUENCE EITHER ANTICIPATED OR OBSERVED TRENDS AND EVENTS, SPECIFICALLY THOSE THAT MAY AFFECT THE IMPACT OF EMERGING COMMUNICATIONS TECHNOLOGY ON COMMUNITY POLICING IN A MEDIUM-SIZE POLICE AGENCY OVER THE NEXT SIX YEARS."

EVENTS

1. LEGISLATION ENACTED TO CREATE A LAW ENFORCEMENT TECHNOLOGY "SUPERFUND"

2. THE "INFORMATION SUPER HIGHWAY" BECOMES A REALITY

3. THE BIG QUAKE HITS AND DEVASTATES CALIFORNIA'S INFRASTRUCTURE

4. CONGRESS APPROVES PACIFIC RIM TRADE AGREEMENT.

5. LAW ENFORCEMENT LOSES SUPPORT FOR FUNDING.

6. ADOPTION OF A DEFINITIVE AND ENFORCEABLE IMMIGRATION POLICY.

7. NATIONAL STANDARDS FOR PCS ADOPTED.

8. LAW PASSED ALLOWING LAW ENFORCEMENT ACCESS TO PREVIOUSLY PROTECTED RECORDS (SUCH AS SCHOOL RECORDS).

9. REALLOCATION OF PUBLIC SAFETY FREQUENCIES OCCURS.

10. F.C.C. APPROVES THE SALE OF TELEVISION FREQUENCIES FOR TWO WAY COMMUNICATIONS.

11. CONGRESS REWRITES MODIFIED FINAL JUDGMENT (MFJ) TO TAKE DOWN BARRIERS BETWEEN TELEPHONE NETWORKS.

12. APPROVAL OF A NATIONWIDE VALUE ADDED TAX FOR FUNDING PUBLIC SAFETY.

13. STATE OF CALIFORNIA ADOPTS A REGIONAL PLAN FOR LOCAL AND COUNTY GOVERNMENT.

14. POLICE DEPARTMENT INTRODUCES A NEW TELECOMMUNICATIONS PLAN TO ELIMINATE NON-EMERGENCY RESPONSE.

15. THE RUSSIAN DEMOCRACY BREAKS DOWN.

16. STATE OF CALIFORNIA DECLARES BANKRUPTCY

17. APCD MANDATES REDUCED BLACK AND WHITE MILEAGE.

18. STATE ESTABLISHES A FUND FOR LAW ENFORCEMENT COMMUNICATIONS SATELLITES.

19. APCO-25 PROJECT DEVELOPS OPERATING STANDARDS.

20. STATE/FED/LOCAL GOVERNMENTS ADOPT STANDARDS FOR PUBLIC EXPOSURE TO E.M.F. (ELECTRO MAGNETIC FIELD) RADIATION.

21. COMMERCIALIZATION OF DIGITAL CELLULAR AND C.D.P.D. (CELLULAR DIGITAL PACKET DATA)

22. A "POLLY KLASS", HIGH PROFILE CRIME OCCURS, IN WHICH LAW ENFORCEMENT "TECHNOLOGY NEGLIGENCE" IS APPARENT, AND RESULTS IN THE FIRING OF THE CHIEF OF POLICE.

23. SUPREME COURT RULES THAT ELECTRONIC DATA BASES ARE NOT PROTECTED BY THE 14TH AMENDMENT.

24. HIGH PROFILE CASE IS "SOLVED" BY IMMEDIATE IN-FIELD D.N.A. IDENTIFICATION.

25. A.C.L.U. PREVENTS LAW ENFORCEMENT FROM EXPANDING ELECTRONIC INFORMATION SYSTEMS

26. F.C.C. MAKES FREQUENCY SPECTRUM AVAILABLE FOR WIRELESS VIDEO.

27. LEGISLATION PROPOSED TO REQUIRE "LIVE VIDEO" FROM THE FIELD ON CERTAIN INCIDENTS, SUCH AS PURSUITS.

28. U.S. DOJ FUNDS P.C.S. IN LOCAL AGENCIES.

29. GOVERNMENT DEREGULATION OF CELLULAR COMPANYS EXPANDING ACCESS TO THE PUBLIC.

30. HACKERS GAIN ACCESS TO POLICE DATA BASE.

31. MILITARY TYPE ENCRYPTION CAPABILITIES BECOME COMMERCIALLY AVAILABLE TO CELLULAR/WIRELESS USERS.

32. COMMUNICATIONS CONGLOMERATE PROPOSES A "MODEL ELECTRONIC COMMUNITY" LINKING EDUCATIONAL, GOVERNMENT, SHOPPING, ENTERTAINMENT SERVICES.

TRENDS

1. THE LEVEL OF FUNDING FOR RESEARCH AND DEVELOPMENT OF POLICE TECHNOLOGY

2. THE LEVEL OF AWARENESS AND ACCEPTANCE OF NEW TECHNOLOGY AMONG POLICE OFFICERS AND MANAGERS

3. THE ABILITY OF LAW ENFORCEMENT TO IMPLEMENT NEW TECHNOLOGY. (#18 INCORPORATED)

4. MOVEMENT TOWARDS GLOBAL ECONOMY

5. THE LEVEL OF TECHNOLOGY OBSOLESCENCE

6. AVAILABILITY OF TECHNOLOGY TO THE AVERAGE PERSON

7. CIVILIZATION OF MILITARY TECHNOLOGY

8. NEED TO INTERFACE WITH OTHER AGENCIES AND DATA BASES FROM THE FIELD

9. PUBLIC CONCERN AND SENSITIVITY ABOUT CRIME

10. EVOLUTION OF P.C.S. (#28, #14, #15, #35, #37, #38 INCORPORATED)

11. ETHNIC DIVERSITY--MULTI-LINGUAL SKILLS

12. REGIONALISM OF GOVERNMENT AT LOCAL, COUNTY, AND STATE LEVEL

13. LEVEL OF PUBLIC EXPECTATION OF LOCAL LAW ENFORCEMENT (DEMAND)

14. DEVELOPMENT OF INTERACTIVE TECHNOLOGY--TWO WAY INFORMATION

15. PUBLIC DEMAND FOR P.C.S.

16. SKILLS OF PUBLIC--EMERGING WORKFORCE (#25 INCORP.)

17. THE LEVEL OF MOBILITY OF THE CRIMINAL ELEMENT

18. AVAILABILITY OF SPECTRUM FROM F.C.C.--REALLOCATION

19. COMMUNITY ZONING AND PERMITTING REGARDING COMMUNICATIONS FACILITIES

20. LEVEL OF POLICE INVOLVEMENT IN THE SCHOOLS

21. LEVEL OF GOVERNMENT/PRIVATE SECTOR PARTNERSHIPS

22. THE DEVELOPMENT OF PRIVACY LAWS RELATED TO DATA BASES ACCESSED BY LAW ENFORCEMENT (#34 INCORPORATED)

23. LEVEL OF ILLEGAL DRUG ACTIVITY

24. LEVEL OF TECHNOLOGY USED BY CRIMINALS

25. CHANGING EDUCATIONAL STANDARDS

26. CHANGING SKILL REQUIREMENTS FOR THE POLICE-- TECHNO-COPS (#16 INCORPORATED)

27. PRODUCT DEVELOPMENT DRIVEN BY PUBLIC SECTOR VS. LAW ENFORCEMENT

28. SHIFT FROM ANALOG TO DIGITAL

29. THE NEED FOR MORE AND BETTER DATA BASES

30. THE LEVEL OF ACCEPTANCE BY THE PUBLIC OF TECHNOLOGY

31. THE LEVEL OF ACCEPTANCE BY THE POLICE OF TECHNOLOGY

32. THE LEVEL OF "USER FRIENDLY" TECHNOLOGY

33. THE LEVEL OF IMPACT OF ENVIRONMENTAL AGENDA ON TECH. DEVELOPMENT

34. CHANGING SOCIAL PERCEPTION OF INDIVIDUAL RIGHTS

35. LEVEL OF ELECTRONIC MONITORING OF INMATES (HOME DETENTION)

36. ROADSIDE INTELLIGENCE SYSTEMS

37. DEVELOPMENT OF FIBER OPTIC NETWORKS

38. DEVELOPMENT OF SATELLITE SYSTEMS

39. LEVEL OF CONCERN OVER HEALTH RISKS CAUSED BY RX EMISSIONS

40. THE LEVEL OF THE SOPHISTICATION OF CRIMINALS

POLICY ISSUES

1. ESTABLISH RESEARCH AND DEVELOPMENT UNIT FOR STRATEGIC PLANNING AND TECHNOLOGY

2. REEVALUATE BASIC SKILL QUALIFICATIONS TO INCLUDE COMPUTER LITERACY/TECHNOLOGY LITERACY.

3. LOBBYING EFFORTS--MARKETING

4. PUBLIC SUPPORT--
   PUBLIC RELATIONS PROGRAMS THAT EMPHASIZE THE POSITIVE THINGS THAT WE DO

5. FROM A MANAGEMENT PERSPECTIVE, REACH OUT AND DEVELOP PARTNERSHIPS WITH THE PRIVATE SECTOR.

6. BUILD-IN REDUNDANCY TO EXISTING COMMUNICATIONS SYSTEMS.

7. FORM PROTOCOL FOR INTER AGENCY INFORMATION NETWORKING

8. LEARN TO DO MORE WITH LESS FUNDING!!

9. MAKE RE-INVENTING GOVERNMENT A PHILOSOPHY AND MANAGEMENT STYLE.

10. ENCOURAGE AND DEVELOP OPPORTUNITIES FOR PRIVATISATION IN THE LAW ENFORCEMENT ENVIRONMENT.

11. WORK WITH EDUCATIONAL SYSTEM, PROVIDING INPUT TO TEACH SKILLS REQUIRED OF POLICE EMPLOYEES.

12. ADJUST POLICE ACADEMY TRAINING TO MEET SKILL NEEDS.

EVENTS USED IN SIGMA SCENARIO GENERATOR

E-1 LEGISLATION ENACTED TO CREATE A LAW ENFORCEMENT TECHNOLOGY "SUPERFUND"

E-2 NATIONAL STANDARDS FOR PCS ADOPTED.

E-3 "INFORMATION SUPER HIGHWAY" BECOMES A REALITY

E-4 SUPREME COURT RULES THAT ELECTRONIC DATA BASES ARE NOT PROTECTED BY THE 14TH AMENDMENT.

E-5 STATE OF CALIFORNIA ADOPTS A REGIONAL PLAN FOR LOCAL AND COUNTY GOVERNMENT.

E-6 HACKERS GAIN ACCESS TO POLICE DATA BASE.

E-7 CONGRESS REWRITES MODIFIED FINAL JUDGMENT (MFJ) TO TAKE DOWN BARRIERS BETWEEN TELEPHONE NETWORKS.

E-8 POLICE CHIEF IS FIRED WHEN REVIEW OF HIGH PROFILE CASE (E.G. "POLLY KLASS") RESULTS IN A FINDING OF "TECHNOLOGY NEGLIGENCE" BY THE POLICE.

E-9 A.C.L.U. PREVENTS LAW ENFORCEMENT FROM EXPANDING ELECTRONIC INFORMATION SYSTEMS

E-10 LEGISLATION PROPOSED TO REQUIRE "LIVE VIDEO" FROM THE FIELD UNITS.

E-11* APCD MANDATES REDUCED BLACK AND WHITE MILEAGE

E-12* HIGH PROFILE CASE IS "SOLVED" BY IMMEDIATE IN-FIELD D.N.A. IDENTIFICATION.

E-13* COMMUNICATIONS CONGLOMERATE PROPOSES A "MODEL ELECTRONIC COMMUNITY" LINKING EDUCATIONAL, GOVERNMENT, SHOPPING, ENTERTAINMENT SERVICES.

E-14* MILITARY TYPE ENCRYPTION CAPABILITIES BECOME COMMERCIALLY AVAILABLE TO CELLULAR/WIRELESS USERS.

* These four events were not forecasted by the NGT panel, as they were not voted into the top 10 events. They were included in the SIGMA scenario generator to add several additional events to the top ten, per the instructions.

The SIGMA Scenario Generator

This is a TEST of the SIGMA Senario Generator

The Data for this test is MIKE1.SIG. The Seed is 3289480 .

How close is each probability to number of occurrences?

100 Runs were made.

1 . P =	63.02 / 64	Occur in	100	Runs
1 . P =	63.02 / 64	''	100	''
2 . P =	99.02 / 98	''	100	''
3 . P =	94.04 / 94	''	100	''
4 . P =	84.02 / 84	''	100	''
5 . P =	77.04 / 78	''	100	''
6 . P =	93.02 / 92	''	100	''
7 . P =	96.02 / 96	''	100	''
8 . P =	88.02 / 88	''	100	''
9 . P =	21.04 / 22	''	100	''
10 . P =	59.04 / 58	''	100	''
11 . P =	30.02 / 30	''	100	''
12 . P =	30.02 / 30	''	100	''
13 . P =	30.02 / 30	''	100	''
14 . P =	30.02 / 30	''	100	''