

HOW WILL SMART HIGHWAYS
IMPACT PATROL OPERATIONS IN A MID-SIZED URBAN
AGENCY BY 2009?

A project presented to
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Peace Officer Standards and Training

By

Gary Alan Lewis
Police Lieutenant
Corona Police Department

Command College Class XXXIV

Oxnard, California

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This Command College 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.

Defining the future differs from analyzing the past because the future has not yet occurred. In this project, useful alternatives have been formulated systematically so that the planner can respond to a range of possible future environments.

Managing the future means influencing the future: creating it, constraining it, assimilating it, adapting to it. A futures study points the way.

The opinions, views, findings, and conclusions expressed in this Command College project are those of the author and are not necessarily those of the Commission on Peace Officer Standards and Training (POST).

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CHAPTER ONE

ISSUE IDENTIFICATION

Introduction

During the past century, several trends and events have led to six changes in the character of society. Each of these changes has forever altered or influenced the perception of law enforcement's connection to highways. The first change is the introduction and development of the automobile.¹ The second is the development of roadways, freeways and expressways to assimilate and accommodate the introduction of the automobile.² The third change is the development of a statewide system of engineering, education and enforcement by the California Highway Patrol and the other entities and jurisdictions responsible for the oversight of these roadways.³ The next group of societal alterations can be classified as belonging to the modern era of societal changes.

The fourth change is the development of safety and communication technologies developed outside the realm of highway systems. Potentially, these could be used to monitor and maintain highway systems and the vehicles which use those systems.⁴ This includes integrated communication between those disparate technologies.⁵ The fifth change is the recent combination of resources used to integrate these newly-developed technologies with other statewide entities such as the California Department of Transportation.⁶ Finally, the sixth is the future forecasting of technologies and how they will impact law enforcement in the future. Society has long welcomed and embraced technology and how it will produce positive changes economically, socially, historically, politically, environmentally and emotionally.⁷

Issue Statement and Definitions

This project seeks to answer the following question: How will SMART highways impact patrol operations in a mid-sized agency by 2009? SMART highways are defined as future self-monitoring, analysis and reporting technology (SMART) highways. The issue deals with demographic changes in society as well as changes in society's relationship with the automobile. Statistics show significant changes in attachment to the automobile and the resulting increased strain on highway systems. The literature review will show the past demand for law enforcement on highways. The review will also show an increase in technologies related to both highways and law enforcement. The project seeks to examine the level of law enforcement involvement on future SMART highways.

The demand on highways has grown significantly during recent decades.⁸ From 1970 to 2000, there has been a 41% increase in employment, a 34% increase in licensed drivers, a 67% increase in miles traveled and a 33% increase in vehicles owned per one-hundred people.⁹ Studies show increased gridlock locations, increased driver anxiety and billions spent on health care as a result of increased traffic.¹⁰ Current auto-pilot vehicles, heads-up displays, and alternative vehicles offer little impact for the existing traffic conditions and offer little assistance in the reduction of the impact of SMART highways on patrol operations in the future.¹¹ If past performance and direction of law enforcement is known, then future forecasting may demand significant systems changes to avoid pejorative connotations on the horizon for both highways and law enforcement organizations.

Smart highways include systems and terminology such as Intelligent

Transportation Systems (ITS), Automated Highway System (AHS), Program Advanced Vehicle Control (PATH), Intelligent Vehicle Highway Systems (IVHS) and Advanced Cruise Assist Highway Systems (ACAHS).¹² There are also integrated systems that include Advanced Traveler Information Systems (ATIS), Advanced Vehicle Control Systems (AVCS) and Automated Traffic Management System (ATMS).¹³ The intelligent vehicle highway system is viewed as a realistic, achievable solution to the traffic problems as sought by Automated Public Transportation Systems (APTS).¹⁴ Other related technologies utilized on the highway system include Global Positioning Systems (GPS), Remote Emergency Satellite Cellular Unit (RESCU) computer and broadband communication systems.¹⁵ These interrelated technologies are direct descendants of trends and events from the aerospace industry during the past two decades and before.¹⁶ All of these combine to develop a self-monitoring, analysis and reporting technology (SMART).¹⁷

Literature Review

Without the invention of the automobile, the resulting highways, the interconnected technologies, the enforcement connectivity, the immense social connection to the automobile would be absent. The automobile has precipitated many inventions designed specifically for the automobile as well as foreign or unintended technologies which have been applied to vehicles and highways. New technology fosters and creates newer technology. Additionally, the more technology that exists, the more future growth of technology expands exponentially, rather than arithmetically.

In the Iliad, Homer talked of a “self-moved, obedient to the gods” three-wheeled vehicle.¹⁸ In the fourteenth century, an Italian painter, Francesco di Giorgio Martini

designed a man-propelled carriage, mounted on four wheels. Leonardo Da Vinci conceived of armor-plated vehicle with hand cranks driving all four wheels. In the sixteenth century, Jacques de Vaucanson built a vehicle based on the workings of a clock. In 1679, James Watt made improvements to the steam engine. In 1769, Nicolas Joseph Cugnot built a self-powered, human-steering transport. In 1839, Robert Anderson built the first electric-powered vehicle. In 1864, Siegfried Marcus built the first fuel-powered one cylinder engine with a carburetor, a magneto and a piston. The automobile was off and running.

“Automobile” is derived from the Greek word, “auto” (self), and the Latin word, “mobils” (moving). “Car” on the other hand comes from the Celtic word “arrus”, meaning cart or wagon. The automobile carried many words such as quadricycle, atumeton, motor-vique, oleo locomotive, autokenetic, buggyaot, autobaine, diamote and horseless carriage. The development of the automobile evolved through several trends. First powered by hand, then by sail, clock movement, steam, electric, and then towards the currently used fossil fuels.

In 1897, the New York Times prophesized the future of the automobile by writing, “...the new mechanical wagon with thee (sic) awful name—automobile...has come to stay...” Now that the automobile signaled its presence in society, roadways had to be developed to accommodate the speed and volume to accommodate the event.¹⁹

In 1850, when California was granted statehood, it created the Office of the Surveyor General whose duty was to suggest roadways. In 1895, the Bureau of Highways was created by the state legislature. In 1896, they recommended a system of state highways made up of 28 distinct routes, using existing roadways when possible,

connecting all county seats. In 1909, the state legislature authorized construction of 3,052 miles of highways. In 1940, the first freeway in the western United States was opened, Route 110. Today, there are 2,311 miles of highways, not including freeways, California Scenic Highways, Historic Parkways, Interregional Roads Systems and Blue Star Memorial Highways.²⁰

The state of California vehicle code defines state highway as any “highway which is acquired, laid out, constructed, improved or maintained as a State Highway pursuant to constitutional or legislative authorization.” A freeway is a highway in respect to which the owners of abutting lands have no right of easement. Therefore a freeway is a “controlled access Highway.”

In addition to the state legislative governing bodies directing the course and direction of the roadways, other entities were set in place to offer assistance and enforcement. The Automobile Club provided information on roads, hotels and laws. The California Highway Patrol provided the enforcement for those laws.²¹

Private companies such as the American Automobile Club provided many innovations for the automobile for safety, service and education. The American Automobile Association (AAA) was established on March 4, 1902, in New York City. In 1907, the AAA wrote the Uniform Touring Bill which mandated up-to-date information on roads and state laws. In 1914, it began the transcontinental highway sign project which erected 4000 signs between Los Angeles and Kansas. In 1920, the AAA pioneered a school safety patrol. In 1930, AAA gave automobiles their first safety checks. In 1934, driver's education was first taught in Pennsylvania. In 1945, they provide emergency road service. In 1965, a text book was published for safety and education. In 1967, the

first travelers' checks were used. In 1977, Visa credit cards were first introduced for the purchase of products on the highway. In 1997, the AAA provided the first website for complete travel information. While trends of education, safety and service were being developed by the American Automobile Association, the California Highway Patrol was instituted for safety and service.²²

The California legislature created the California Highway Patrol on August 14, 1929. The new law gave authority to the California Highway Patrol to enforce traffic laws on county and state highways. This responsibility remains in effect today, along with many additional functions undreamed of in 1929. The primary mission of the California Highway Patrol is "the management and regulation of traffic to achieve safe, lawful and efficient use of the highway transportation system."²³ They also assist local agencies and provide disaster and lifesaving assistance.

Within ten years of this event, 730 officers were in place. The span of enforcement responsibility has expanded dramatically to include truck and bus inspections, air operations, and vehicle theft investigation and prevention. In 1995, the trend to consolidate similar state entities in order to provide improved systems management and better service while reducing cost was realized. In 1995, the California Highway Patrol merged with the California State Police. They now collectively protect state property and employees, the Governor and other dignitaries.

Mergers and technologies have changed the way highway safety and enforcement are accomplished. The California Department of Transportation is one organization directly related to highways that has incorporated some new technologies for possible

future use on roadways. However, there are other technologies on the horizon, not related to the automobile or highways, which can be integrated and utilized by the highway industry to change law enforcement's future course.

The California Department of Transportation (Caltrans) has recently established the Advanced Transportation System (ATS) Program. In collaboration with many partners, this program researches, develops, demonstrates, and supports deployment of technological advancements to provide a broad array of public services. Private businesses are linked to the public sector (which includes the federal government, California state government and regional governments) to test, deploy and evaluate ATS technologies. Caltrans also partners with the private sector, which offers a variety of transportation products and services, consulting, computer hardware and software, specialized equipment, and informational systems.²⁴ By bringing technology, manufacturing and marketing capabilities to the partnership, the private sector is crucial in the successful implementation of these technologies. The ATS requires intelligent links between public infrastructure, vehicles, users, and a greater level of private market deployment.²⁵

Designed to be the technical foundation of a multimodal system, Transportation Management Centers (TMC) perform many of the information-gathering and Systems-management functions of the ATS. These services include: forecasting conditions which hamper transportation, enhancing public travel security, managing incidents, reporting emergencies, and regulating the overall transportation system. This ATS was a result of the cooperative effort between Caltrans, the CHP, and local agencies for traffic surveillance and management. The traffic management system has

traffic surveillance, onboard vehicle communication systems, traveler information networks, public transportation systems access, private vehicle monitoring, reservation systems, traffic signals and sensors, as well as environmental sensors.²⁶

Intelligent vehicles are another element of the Advanced Transportation System Program. Cars, trucks, and transit vehicles will soon be equipped to sense road conditions and obstacles around the vehicle. Such technology will increase safety, reduce congestion, decrease emissions and conserve energy. These include laser, radar and infrared detection fields, windshield cameras, blind spot detection and front and rear interval detection devices.²⁷ Through global positioning, an en route transit advisory shows the location of transportation units and coordinates with other transportation units. This shows some of the technologies currently connected to highways, but there are private entities and disparate technologies that may offer assistance to SMART highways in the future. With those technologies comes a greater need for the monitoring and response to those systems. Law enforcement patrol operations may certainly be an integral part of the response.

Finally, certain local city and county governments mandate law enforcement to respond to document, investigate, and arrest as a result of crime on the highway. Some of the questions that have to be addressed involve the issue of jurisdiction: Will law enforcement partner with other governmental entities, private industry or collaborate with local city and county municipalities to monitor, respond and handle calls for service? Will cities monitor a roadway utilizing private surveillance? Will cities communicate with private security companies to facilitate a capture or arrest? Will the system allow for video and audio data transfer to law enforcement records as well as

the judicial system? Will a regional task force, including public and private businesses and academia be necessary to answer these questions as well as respond to future questions and demands? These questions require answers and action which will better prepare law enforcement for a greater connection to the future.

These technological systems have the potential to allow officers and district attorneys to review reports, with supporting video evidence with law enforcement prior to booking a suspect. This could reduce time and costs to process reports and cases while significantly increasing the percentage of arrests and prosecution. These technological systems could increase the role of law enforcement on highways. This increased role could occur in the areas of monitoring, enforcement and inter-communication and intra-communication, documenting, recording, and enforcement.

Summary

During the past century, several trends and events have led to six changes in the character of society. Each of these changes has forever altered or influenced the perception of law enforcement's connection to highways. But what is more important is that these trends and events have forever changed future SMART highways impact on patrol operations. This information strongly supports the justification for the study of the impact of SMART highways on patrol operations in a mid-sized agency. It brings law enforcement and technology together, and, at times, in conflict. Society and law enforcement must respond and be proactive with regard to the evolution process of the vehicle, the related technologies and the interaction between them.

Future technology offers GPS tracking of vehicles and people, facial imagery, instant DNA, satellite monitoring of real time GPS items such as people, vehicle, cargo,

freight and designated property. Pouring concrete is no longer the answer to traffic problems. Future highways should be smarter, not wider.²⁸ Future legislation and technology may bring vehicle inspection, property inspection and even the inspection and identification of people to highways, malls, pedestrian walk-ways, restaurants, airports and other related public forums. Therefore, law enforcement should play a major role in designing and responding to technologies of the future.

These future technologies will create new equipment, add personnel, and design and develop new technology necessary to track, locate and apprehend violators. This will create a future in which abductions and the theft of property is almost eliminated. Crime in public may occur, but the capture and prosecution of violators would be expeditious and certain. Imagine a theft at a store that video records the theft, and a “man-trap” door system detains the violator for arrest by law enforcement or even a private security criminal transport company.²⁹

The challenge for law enforcement managers and leaders is to identify technologies and entities outside of the organization which will assist the organization internally.³⁰ This may include an increased networking with state legislation, private industry, academia and other local and even statewide law enforcement agencies. Leaders must possess the desire to not only assimilate and accommodate change but also to forge partnerships that will best benefit law enforcement and the community in the future.

Leaders of the organization must incorporate a change process to anticipate the potential impact of SMART highways. Leaders must prepare plans and develop scenarios to increase positive interactions and outcomes and limit negative impacts.

The remainder of this project will discuss future forecasting, a strategic plan and a transition management team that best prepares the organization for the future. This process should steer the organization to a more efficient, effective program which reflects the wants and desires of the community. The next chapter, Futures Forecasting, will discuss and analyze possible trends and events on SMART highways that will influence the impact of SMART highways on patrol operations.

CHAPTER TWO

FUTURES FORECASTING

Introduction

Futures forecasting will help identify how SMART highways impact patrol operations in a mid-sized urban agency. Futures forecasting identifies future possibilities. It does not predict the future. The future offers varying degrees of uncertainty. The greater the number of factors introduced into the future, multiplied by time, increases uncertainty in geometric proportions rather than arithmetically.³¹ However, when future possibilities about a specific issue are anticipated, plans can be developed to seek the best possible positive result.

This project used the Nominal Group Technique (NGT) to identify and rank order major trends and events which may influence the impact of SMART highways on patrol operations. Based on the literature review and the results of the NGT, three scenarios were developed related to the issue. They address positive, negative and neutral results related to both a reactive and proactive format encompassing the trends and events submitted.

Nominal Group Technique

Issue Statement

How will SMART highways impact patrol operations in a mid-sized urban agency by 2009?

Description of Process

The Nominal Group Technique is a structured process facilitated by a person who identifies a problem or issue to be discussed and reviewed. The process requires a diverse panel to examine the dimensions on how SMART highways will impact patrol operations. Panelists have an expertise in patrol operations and in technologies diverse from the law enforcement perspective. The Nominal Group Technique is also used for managing participation in such processes as planning, performance improvement and measurement. The method is effective at gaining consensus with all types and levels of participation. The group may then discuss solutions to resolve questions or concerns regarding an issue. By generating a prioritized list of measures and improvement interventions, the issues are addressed and a strategic plan can be based on information derived from the panel. Refer to Appendix A for a list of panel members.

A group comprised of representatives from the Corona Police Department, Caltrans, San Bernardino Sheriff's Department, California Highway Patrol, City of Corona Public Works and the *Press Enterprise* assisted with the Nominal Group Technique (NGT).

Panelists were asked to identify the trends related to SMART highways that would impact patrol operations. Trends are a series of incidents that indicate a direction that a particular issue may be heading. Trends are simple observations regarding general issues and need not be specific or exact. They are for the most part quantitative but may also be qualitative in nature.³² The trends are then ranked in order of importance. The brainstorming session resulted in the panel identifying thirty-nine trends from which the panel ranked the top ten trends in priority order as to their

potential impact on the issue (Appendix B).

The panel was asked to provide additional information to chart an analysis of information they previously provided. Assuming a value of one hundred (100) for the present year, 2002, the participants were asked to individually estimate the value of the trend relative to the present. The trends were ranked for their relevance to the issue five years ago (1997), five years in the future (2007), and ten years into the future (2012). See Table 2.1.

The top ten trends with supporting reasoning are as follows:

1. Level of Telecommuting: The panel projected that there would be a significant increase in the level of telecommuting during the next five to ten years. The panel felt the level would double in ten years. The panel discussed that most crime is public and occurs outside the home. By telecommuting, this would significantly reduce time on the highways and reduce contact with the public. This would reduce the likelihood of someone being a victim of crime. Being home would also deter criminal activity in and around the home.
2. Number of Surveillance Cameras: The utilization of private and public camera systems in the community are increasing as well as the quality of imagery. This includes the development of surveillance cameras transmitting signals via the Internet. Some jurisdictions are now mandating surveillance cameras for businesses and incorporating cameras on highways for enforcement. Future surveillance systems could document crime, forward digital recordings to law enforcement and courts. Highway surveillance cameras would record all traffic

collisions. CHP would not have to respond for reports, but only for traffic control, as a video record would be available.

3. Use of Global Positioning Technology for Vehicles: The panel felt that the trend of global positioning technology would continue to increase. GPS would increase the use of the identification and tracking of vehicles and goods identified in the commission of a crime. The GPS chip could also locate vehicles owned by a victim, now in the possession of a suspect.
4. Use of Global Positioning Technology for People: The panel felt that a future trend to monitor the public/private activity of a person would increase. There would be a significant increase in technology of identifying someone at a crime scene as well as identifying the location of a known suspect with GPS technology.
5. Number of Citizens Working in the Community: This is related to the first trend documented. The panel thought that if someone lived and worked in the same community, the contact with highways would be reduced. Commuters might only utilize surface roadways and not utilize the state highways or public transportation systems.
6. Availability of Vehicle Disabling Technology: The panel felt that future technologies will allow police to disable a vehicle they were in pursuit of. Additionally, business locations could disable vehicles within a certain distance of a business. This ability to disable all vehicles is significant with the increase of homeland security. This, in conjunction with GPS, could disable a vehicle once a GPS chip is identified.
7. Satellites Use for Human Tracking: The panel felt that the trend of satellite

technology would increase. Panelists felt that if satellite technology could be improved, a suspect could be tracked without endangering others and would allow for an arrest once stationary. Satellites could point out all positions of humans with GPS as well as offer real-time surveillance of suspects or vehicles throughout the state. Satellites could further monitor SMART highways. This could be accomplished by electronic GPS sensor means as well as with high powered cameras.

8. Use of Facial Imagery Technology: The panel felt that the trend of implanted chips would increase. The panel felt that facial recognition could be used to locate and apprehend known violators. The monitors could be set up in public locations, including SMART highways.
9. Use of People-Disabling Technology: The panel felt that the trend of implanted chips would increase. They felt that the next phase beyond GPS tracking would be an additional implanted chip to disable a subject by electrical or chemical means. This could be done at specific public locations or activated electronically to disable a wanted individual anywhere in the world.
10. Availability to Report Crime by Internet: The community will report crime to the law enforcement agencies electronically. The reporting would include video surveillance and real time information transfer. Officers would only pick up identified suspects. Officers would not have to respond to take reports, but would only need to review the report, video evidence and forward the digital recording to the judicial system for review.

The panel was asked to assess each of the ten trends. An arbitrary number of one hundred was used to represent the present day level for comparison purposes. If one hundred is the level of a trend today, the panel was asked to rate the level of the trend five years ago, and then project the level and direction of the trend at five and ten year marks. The panel was also asked to rate their level of concern for each of the trends on a scale of one to ten, with ten being the highest level of concern. The results are provided in Table 2.1:

Trends

Trend Summary Table

Table 2.1

Trends Affecting Law Enforcement on SMART Highways

| Trends | -5 years 1997 | Today 2002 | +5 years 2007 | +10 years 2012 | Concern (1-10) |
|--|------------------|---------------|------------------|-------------------|-------------------|
| Trend 1 Level of Telecommuting | 75 | 100 | 150 | 200 | 6 |
| Trend 2 Number of Surveillance Cameras | 80 | 100 | 150 | 200 | 7 |
| Trend 3 Use of Global Positioning For Vehicles | 85 | 100 | 125 | 200 | 9 |
| Trend 4 Use of Global Positioning for People | 85 | 100 | 125 | 150 | 5 |
| Trend 5 Number of Citizens Working In the Community | 90 | 100 | 150 | 500 | 9 |
| Trend 6 Availability of Vehicle Disabling Technology | 90 | 100 | 150 | 250 | 10 |
| Trend 7 Satellite Technology | 50 | 100 | 150 | 500 | 9 |
| Trend 8 Facial Imagery Technology | 15 | 100 | 125 | 400 | 8 |
| Trend 9 Use of People Disabling Technology | 50 | 100 | 150 | 500 | 9 |
| Trend 10 Availability of Internet Crime Reporting | 15 | 100 | 125 | 400 | 8 |

A score of 1 indicates a score of least concern, while 10 indicates a score of greatest concern. A score of 200 is two times as much as 100.

The panel concluded that the most significant trends were in the areas of Global Positioning Technology (GPS), vehicle disabling technology, satellite technology, people disabling technology and facial imagery technology. Panelists also felt that satellite technology and living and working in one's own community would influence the relationship between highways and law enforcement. The panel felt that these trends were the most significant and would cause the greatest ripple effect with other trends or events.

As an example, the panel suggested that if there were a system in place for facial recognition on the highway, this would significantly alter the way a wanted criminal would traverse the community. They also felt that this would influence the development of other technologies such as disabling chips for humans or man-traps.

A man-trap is a mechanical room which only allows one person to enter at a time. If the system does not want a person to exit, both doors are mechanically locked. This disabling technology would drastically reduce theft at banks, retail merchandising, commercial and convenience locations. Man-trap locations could also be set up for known wanted suspects (by facial imagery or implanted GPS chip), and could offer instant disabling for crimes in progress. These technologies on SMART highways could impact law enforcement in the future.

The panel thought that vehicle-disabling technology would aid in the significant reduction or elimination of pursuit vehicles and vehicle theft while increasing apprehension. These newly introduced technologies would initially cause an increase in police response, time allocation, resources, and costs.

The panel thought that telecommuting would continue to grow but mentioned that it

would grow at a rate approximating the population growth and this would not significantly alter the commuter volume during the next ten years. The panel also felt the telecommuting and even home education would be significant, but would double in 10 years. Satellite technology, global positioning, people working in the community, facial recognition, vehicle disabling technology and internet crime reporting represented the most significant future trends that would affect law enforcement.

The next step of the NGT process was for the panelists to identify the events that they felt might occur which would affect the impact of SMART highways on patrol operations. Events are different from trends in that events are singular occurrences, which may impact the issue. Events occur on a specific date and time. The date new legislation is enacted is an example of an event. Another example is the day a voice recognition computer system is introduced to a law enforcement agency.

Numerous trends may be needed to develop the impetus for a singular event. This can be highly pivotal as an event might be the stepping stone to new trends and events. A single event may also significantly impact future trends in a positive or negative way. The brainstorming session resulted in the panel identifying thirty-three events. Panelists ranked the top eight events in priority order as to their potential impact on SMART highways. Refer to Appendix C for a complete list of events. The top eight events are listed as follows:

1. GPS Tracking of all Vehicles: The panel felt that when car manufacturers start installing Global Positioning Systems in all production vehicles, then law enforcement will have a significant enforcement resource. The panel feels these systems could assist law enforcement in the reduction or eliminating of vehicle theft

while offering safety to the community. This could also assist in child and adult abduction incidents.

2. **Surveillance Cameras:** The panel felt that when law enforcement can monitor public and private camera systems they will have a valuable tool in solving crime. The utilization of surveillance cameras by law enforcement could be used to identify offenders, document accidents and crimes, home surveillance and security, and interface with future facial imagery technology. These recorded camera images could also be sent directly to law enforcement to document a crime as well as to the District Attorney's office for prosecution.
3. **Hand Held Video to Vehicles and Wrist Monitors:** This is a technology that could be used in conjunction with future public or private surveillance camera networks. An officer in the future may be able to use the camera systems inside locations and positioned throughout the public domain to get a view of what is occurring. A silent alarm call location could be viewed instantly in their vehicles by all responding officers with the capability of video recording the incident.
4. **GPS Chips in all People:** The panel felt that when volunteerism and legislative changes occur, global positioning could help in the location and capture of suspects in all public and private locations. The system could also identify which people were in a specific location at a specific time.
5. **Facial Imagery:** The panel felt that when facial imagery becomes accurate and available it will significantly impact law enforcement surveillance. The panel felt that facial imagery would be viable identification system prior to, or after, the advent of GPS. This facial imagery system requires a large database, low probability of

error and should be used in conjunction with a recorded video camera surveillance system. When these prerequisites exist, the event of facial imagery systems will impact law enforcement by identifying all personal contacts and video recorded data.

6. Surveillance Craft: The panel felt that when surveillance crafts, with GPS and other surveillance technology are utilized, patrol operations will be significantly impacted. The panel felt that an aerial system such as drone planes, helicopters, and blimps might be used to watch for trespassing and other crimes in public locations and to relay information to the appropriate organization.
7. SMART Vehicles: The panel felt that cars of the future would be equipped with facial and GPS recognition and transmission systems. The cars would also be outfitted with disabling devices or systems to drive offenders to law enforcement detention facilities
8. Disability Chips in all Vehicles: The panel felt that vehicle-disabling chips would be a viable technology for the future and would positively impact patrol operations. Systems have already been shown to be effective in test vehicles. The benefit to the community and law enforcement may thrust this technology into reality by the year 2009.

The panel was asked to assess each of the eight events. The panel was asked to determine the first year in which, for example, SMART vehicles might be available for public purchase. The panel also determined the probability in percentage of the event occurring within five and ten years. Panelists were asked to rate the level of impact on the issue for each event on a scale of one to ten and indicate if the event was positive

or negative towards the issue. The results are an average score of the panel's assessment of the events are provided in Table 2.2.

Events

Event Summary Table

Table 2.2

Events Affecting Law Enforcement on SMART Highways

| Events | First year event could Occur | Probability of Event Occurring by 2007 in % | Probability of Event Occurring by 2012 in % | Positive or negative impact on issue | Amount of Impact (1-10) |
|---|------------------------------|---|---|--------------------------------------|-------------------------|
| Event 1 GPS in all Cars | 2 years | 100% | 100% | + | 10 |
| Event 2 Surveillance Cameras for Law Enforcement | 6 years | 0% | 100% | + | 6 |
| Event 3 Hand Held Video Displayed On Car and Personal Monitor | 13 years | 0% | 0% | + | 1 |
| Event 4 GPS Chips in all People | 8 years | 0% | 90% | + | 3 |
| Event 5 Facial Imagery for Positive Identification | 18 years | 0% | 0% | + | 10 |
| Event 6 Surveillance Craft for Law Enforcement | 7 years | 0% | 50% | + | 7 |
| Event 7 SMART Cars for Public Purchase | 6 years | 0% | 100% | + | 9 |
| Event 8 Disabling Chips for All Vehicles | 6 years | 0% | 100% | + | 9 |

1 indicates a score of least impact, while 10 indicates a score of most impact.

Panelists felt that the most significant events regarding SMART highways impact on law enforcement on patrol operations would be GPS in vehicles, GPS in people, facial imagery and surveillance cameras. Panelists also felt that surveillance cameras could be important to document accidents and to digitally record crimes. The panel felt that unless surveillance camera technology improved, it could not assist in facial recognition on highways, at highway speed or in a vehicle with refracted or limited light. The panel was looking forward to new technologies, which would make law enforcement jobs easier and increase public safety for the community. They favored technology which would assist in monitoring of humans in public locations, immediate crime detection and suspect apprehension.

Cross Impact Analysis

A cross-impact analysis documents the impact of various events on potentially different and divergent trends. The projected impact of an event on a trend was rated by the panel on a scale of one to five, with five being the highest impact and one being the lowest impact. A positive or negative rating describes the impact the event would have on the trend. The scores selected represented the mean score, rounded to the nearest whole number, as selected by the panel. Table 2.3 illustrates the results.

Cross Impact Analysis

Cross Impact Analysis Summary Table

Table 2.3

Events Affecting Trends Regarding Law Enforcement on SMART Highways

| | Trend 1 Level of Tele-commuting | Trend 2 Number of Cameras | Trend 3 GPS for all Vehicles | Trend 4 GPS for All People | Trend 5 Number Working In Comm. | Trend 6 Vehicle Disabling Ability for All Cars | Trend 7 Satellite Tech. | Trend 8 Facial Recognition | Trend 9 Use of People Disabling Tech. | Trend 10 Instant Internet Crime Reports |
|---|---|-------------------------------------|--|--------------------------------------|---|--|-----------------------------------|--------------------------------------|---|---|
| Event 1 GPS in all Cars | -1 | +2 | +5 | +4 | -1 | +2 | +5 | +1 | +3 | -3 |
| Event 2 Surveillance Cameras for Law Enforcement | -1 | +5 | 0 | +1 | -1 | 0 | -2 | +4 | +2 | -2 |
| Event 3 Hand-held Video Displayed in Car / Personal Monitor | -3 | +3 | +1 | +1 | -1 | 0 | +1 | +1 | 0 | -4 |
| Event 4 GPS Chips in All People | -3 | +1 | +4 | +5 | 0 | +1 | +3 | +4 | +3 | -4 |
| Event 5 Facial Imagery for Positive I.D. | -2 | +5 | +1 | +4 | 0 | +1 | +2 | +5 | +2 | -3 |
| Event 6 Surveillance Craft For Police | -3 | +1 | +1 | +1 | -5 | +1 | +3 | +1 | +1 | -3 |
| Event 7 SMART Cars For Public Purchase | -1 | +1 | +5 | +3 | -4 | +3 | +2 | +4 | +3 | -1 |
| Event 8 Disabling Chips For all Vehicles | -3 | +2 | +2 | +4 | -4 | +5 | +1 | +2 | +4 | -4 |

Impact:
Impact Scale: +positive -negative
 1 (low) 5 (high)

Analysis of Cross Impact

When viewing the above table, there is a broad view of the impact each event has on the current trends. For example, the panel felt that Global Positioning Systems in cars, facial imagery, SMART cars, disabling chips and surveillance cameras would have the greatest impact towards law enforcement's involvement on highways. These technologies would also be a significant influence on the criminal's ability to commit and get away with a crime.

The panel discussed that law enforcement would initially respond more frequently and have a greater connection to the SMART highways, but it felt that the peace officer's involvement and activity in the distant future might actually be reduced. The certainty of identification, capture and immediate punishment would reduce public crimes and the need for law enforcement action. Law enforcement would only respond to in-progress emergency calls for services. All past calls would be handled by phone or on the Internet, or be handled by civilian personnel or even private organizations.

The panel also thought that the impact of GPS systems and the integration with law enforcement would produce a greater impact on society than radio, television, or cell phones (which already have GPS). All property, which can conceal a GPS chip, would be tracked. As a result, the impact on law enforcement could mean no more missing people, cars, bicycles, planes, cargo containers, paintings, and certain jewelry. Stores would utilize the chip for merchandise to eliminate theft. Traditional property crime could be down fifty percent from the time of implementation. The panel also noted that when paper money and checks are no longer used, approximately a decade from now, computer and electronic crime and violent crime will be the only venues left.

Based on the combination of eighty comparisons of events to trends, the five most significant areas were identified:

1. The impact of Global Position in vehicles (event) on living and working in the community, satellite technology, people disabling devices and internet reporting (trends) all received a +5 for the impact of the event on SMART highways.
2. The impact of hand-held video surveillance (event) on vehicle disabling (trend) received a +5 for the impact on SMART highways.
3. The impact of GPS in people (event) on GPS in vehicles, vehicle disabling and people-disabling technology (trends) received a +5 for the impact on SMART highways.
4. The impact of SMART cars (event) on surveillance cameras, facial recognition, and people disabling (trends) received a +5 for the impact on SMART highways.
5. The impact of disabling chips (event) on surveillance cameras, and facial recognition (trends) received a +5 for the impact on SMART highways.

Future Scenarios

Based on the empirical and theoretical information provided so far, including an analysis of trends and events identified in the NGT, the following three scenarios were developed forecasting probable futures involving law enforcement connection to SMART highways. The first scenario depicts a negative future, and is based on the prediction of the negative impacts of certain trends and events. This scenario predicts a future in which steps should be taken to avoid. The second scenario depicts an optimistic future and is based on the positive impacts of certain trends and events on the issue. This is a future which should be encouraged. Law enforcement entities

should take actions and measures to best benefit their position as well as providing a safer community in the future. The third scenario depicts a surprise-free future that would essentially be no different than if no actions were taken and it occurred under the present laws, technology and conditions. If no interventions are taken, then law enforcement as it stands today would be little different.

The scenarios incorporate the significant trends and events listed on Tables 2.1 and 2.2. Panelists also brought up trends and events, not listed in the Tables 2.1 and 2.2 that would influence SMART highways impact on patrol operations. These include trends of increased gridlock, retirement of qualified staff, fuel shortages, an organizations inability to hire qualified patrol officers, highway anxiety and road rage. Events included auto-pilot vehicles, instant DNA technology and alternate transportation vehicles.

Worst Case Scenario

On June 25, 2009, there were already twenty-nine reported vehicle accidents related to the morning commute. The 91 freeway in California has been gridlocked for two hours. The lack of telecommuting and minimal number of citizens living and working in their community increases the load on already crowded highways. Rescue service and police services are unable to use the freeways as they cannot navigate across the city in less than two hours. In addition to the twenty-nine reported vehicle accidents, there are six emergency calls for service and sixty-two calls for service regarding minor criminal and civil matters.

In addition to the gridlock issue, the newly-adopted law enforcement retirement at

age forty has left most police agencies twenty-five per cent below minimum staffing. Moreover, recruitment at the same standards of a decade ago is impossible. There are only six officers working the city with a population of 250,000 people. A call for service may be pending for two to three days. Civilian staff members make telephone calls to contact citizens regarding reports and calls for service. They encourage citizens to use the city's website to enter reports and to contact the police. There are no peace officers to take non-emergency calls.

Although the highway systems were designed to facilitate the nation's economic prosperity and ensure national security, they have for the most part not been capable of handling the increased traffic demands. This is especially true around the more urbanized areas. The highways are now the primary cause of fatigue, increased anxiety and frustration. These impairments, at present, cost the nation one hundred billion dollars annually.

Fuel is in short supply and emergency vehicles cannot be used for non-emergency calls. Vehicles now average 13 miles per gallon, one mile per gallon more than in 1960. The average speed for police vehicle travel is eleven miles per hour on congested highways. This was the predicted speed of highway travel for the year 2000 in a 1992 news article. Again, citizens must report their own crimes on city-provided templates on the police website. If it is a robbery at a bank, it is a past call and there is no current emergency or danger; the police do not respond. Private security is the only resource and it is very expensive. There are no surveillance cameras on the highways to document crime. Crime has doubled in the last five years.

Court systems reject all cases unless visual surveillance and match DNA or facial

imagery is confirmed. The data bank has limited accuracy and a limited supply of photographs on file. Criminal arrest and conviction rates are at an all time low. The economy has been adversely affected. Tourism is down seventy-nine percent versus a decade ago and even the fast food and restaurant industries have received the largest negative impact since World War II. People are afraid to commute as it may jeopardize the safety of property and personal well-being.

Mandatory GPS tracking, facial imagery, and DNA tracking have been ruled unconstitutional by the Supreme Court, and criminals run free with no police to pursue them and no jails to house them. Currently, only murderers and repeat sex offenders are incarcerated. Interestingly enough, United States citizens are on a waiting list to leave the country. They are moving to safer countries where new technologies and better quality of life exist. The waiting list is limited and currently stands at two years.

Best Case Scenario

On June 25, 2009, GPS tracking with real-time technology is a reality. Automotive and homeowner insurance companies do not offer insurance to cover vehicles without three hidden GPS chips and a motion sensor activation device. Upgraded systems, which offer vehicle-disabling devices, are available. Automotive insurance companies offer discounts on insurance for vehicles with GPS tracking and video surveillance camera systems to record who is driving. GPS systems are required on all auto-pilot systems.

Modern technology boasts solar power and plasma propulsion vehicles. The company called Geron has finally had success with the enzyme that overrides the aging

process which enables human cells to divide indefinitely. The genetic clock in each cell and the bit of DNA associated is called "Telomere".³³ There is one global electronic currency, multi-directional media capabilities and cell mapping. Updated news information is provided via a heads-up viewing displayed on eyewear or the windshield of a vehicle from a global status report. The report announced the winner of the 2009 Nobel Peace Prize.

The Nobel Peace Prize was awarded to Gary Alan Lewis of the United States for his contributions to an increase in public safety. His systems fostered a ninety-seven percent reduction in public crime, an eighty-nine percent increase in prosecution and arrest, and introduced a monetary connection to prosecution. These funds are now used to pay for additional private and public safety and scanning equipment. Lewis was also the driving force for the development of a secure private safety network for the home and personal vehicle.

These accomplishments made Corona, California, the safest city in the world. Corona was the first to implement the technology and equipment to accomplish a higher level of safety and security. In his acceptance speech, Lewis praised the partnership and participation efforts of the community, private business and academia through their regional taskforce. The partnership provided results greater than any single effort.

Although Mr. Lewis was recognized for his safety information, he is also known for the generation of power from water going through plumbing in the home, windmill energy generated by passing vehicles to run street lights, the conversion from 120 volt to 42 volt home systems, cars with large 12 volt systems which can be plugged into the 12 volt lighting system in the home to provide lighting and save energy, holographic

games, distance learning for kindergarten through high school, distant visualization of any external location as well as interactive internal visualization, such as museums, scent recognition technology, tele-medicine, 3-D picture with the viewer of advertisement displayed based on a GPS tracking chip, voice activated radio/phone and computer in the human jaw bone and home power generation from indoor lighting, and a topical patch medication delivery system.

Retail and commercial businesses have man-trap devices for all wanted suspects in the world. Facial imagery and GPS tracking activate these man-trap systems. Residential locations and businesses activate GPS information in humans and vehicles that enter unauthorized locations. A residential GPS system is activated when an unauthorized vehicle enters the driveway and the home surveillance cameras are activated. If a suspect breaks a window of the residence and takes property, the entire incident is captured via digital video.

The police are notified and a digital copy is made and transmitted to the court system. The officer downloads the crime and disables the vehicle less than one mile away. Once the vehicle has been disabled, the suspect is disabled and a private location team responds and the suspect is arrested. Upon conviction, the suspect cannot drive another vehicle, anywhere, anytime, without being given an access code to bypass facial imagery. To gain future access requires an optional DNA identification. The conviction also restricts the defendant from entering unapproved locations or the suspect may be personally disabled or terminated as needed.

A facial imagery system can supplement a GPS system and the combined systems function on the same database. Facial imagery, GPS in people and vehicles,

along with total public camera surveillance and DNA technology have provided the highest quality of life in history for the community. Public crime has been virtually eliminated: it has been reduced over ninety-seven percent this decade.

Normative Scenario

On June 25, 2009, it is just another day at the office. GPS tracking is available to all humans and is government-funded. It is free to all who voluntarily wish to participate in the system. In a Supreme Court decision, a seven-year-old female in Kansas maintained the right to refuse to have an implant to be supervised electronically. The Supreme Court ruled that it violated her civil rights even in the light of safety for the child. The California Supreme Court, Ninth Circuit, also supported the emancipation of the child, even if the parents verbally persuaded her to consider the implant. Title 18 of the United States Code, Senate version, S-1589, to protect privacy was upheld today significantly impacting evasive technology to be utilized on the highways. Liability disclaimers, liability insurance and litigious actions against SMART highways have gridlocked progress of local, state and national programs.

Traffic on the highways and roadways has increased twenty-eight percent and there are still no additional freeways to ease the 91 Freeway gridlock, the most congested freeway in the world. Officers have no resources, electronically, technologically, or economically. There are no strategic plans to select or acquire improved systems. Negotiation to obtain and implement technology is limited. There is no communication to share resources among adjoining agencies and no legislation is in place to share fingerprint, photograph, and arrest and report information.

Attempts to develop transition management teams and to incorporate innovative

concepts of those who forecast the future are not considered in planning efforts. The utilization of consulting firms to streamline existing methods of organizational processing, glean community input and to develop an effective strategic plan are put on the back burner. Management schedules are filled with meetings and information-sharing overload, while decision-making continues to be reactive. Due to poor past practices, the possibility of getting things done the old way does not change. Researching new systems and opportunities for the future are missed.

Summary

The worst-case scenario illustrates the potential for failure or being forced into disorganization by others or being driven by trends and events without having a hand on the steering wheel of the future. The normative scenario illustrates the status quo. The best-case scenario also shows that organization, planning and communicating with others are needed to obtain the best viable future. In order to change towards a best case scenario, leaders must have a vision of what tomorrow's technologies can bring. They must be leaders with a vision and ability to welcome paradigm shifts for their future law enforcement organization. Leaders must incorporate transition management teams with a time element to accomplish a future which is structured and planned. The strategic plan, its form and format, will be discussed in Chapter Three. The strategic plan will discuss what change should be implemented to assist in the patrol operations of a mid-sized agency.

CHAPTER THREE

STRATEGIC PLAN

Introduction

The strategic plan is the next link to the futures portion of this project. Police organizations are constantly changing and they will be more diverse in the future than they are today. In order to prepare organizations to meet future challenges, police executives must make decisions today; this will affect and change their organization and interaction with other entities. Law enforcement organizations must be continually in flux and use the strategic planning process as a roadmap to their future.

Strategic planning anticipates changes in the organization and focuses on future issues, while not focusing on the issues facing the organization today. The proposed strategic plan will move towards an optimistic scenario while avoiding the pitfalls of a pessimistic scenario. The proposed strategic plan and selected transition management team will lessen the impact of SMART highways on patrol operations in a mid-sized urban agency.

The organization discussed for the context of this study is a mid-sized law enforcement agency. A mid-sized law enforcement agency has between one hundred and two hundred-fifty sworn officers. An exemplar is the Corona Police Department in Riverside County, California. Corona is located in the Inland Empire. The Inland Empire is comparable to the population of the states of Oregon or Connecticut. Through annexations, the current area is approximately forty square miles, intersected by State Route 91 and Interstate 15. The community make-up consists of 47% White, 35.7% Hispanic, 6.2% Black and 7.7% Asian. The community has a strong production,

manufacturing and housing base, as well as water and electrical production. It has one airport, three high schools, and boasts Fender Guitar, the Golden Cheese Company whose production of cheese is the largest in the western United States.

Corona's population is 136,000, the average age is 29.9. The average household income is \$73, 859; the median price of a home is \$274,944, and Corona has 37,487 enrolled students within the Corona-Norco Unified School District.

An effective strategic plan should integrate technologies and resources that are needed to best accomplish this vision, mission and goal. The strategic plan should examine external issues affecting an organization in five different categories. The domains that can influence an organization are social, technological, economical, environmental and political.

The strategic plan should examine the organizations internal strengths and weaknesses as well as the external threats and opportunities. After reviewing the strength, weaknesses, threats and opportunities, alternative strategies will be developed to accomplish the strategic plan. After reviewing the positive and negative aspects of each, the best strategy will be selected that provides the most positive impact. The result should provide the greatest positive impact for law enforcement patrol operations in a mid-sized organization. The vision, goals and objectives of the strategic plan of the organization should be toward the accomplishment of this project's mission.

To accomplish the optimistic scenario police organizations must first develop a two-fold strategy: internal organizational development and external interaction and development. The first stresses the importance of developing individuals internally who will assume future leadership roles. Organizations and future leaders will be able to

assimilate and accommodate change and utilize the best forums and transitional teams to move the organization forward. The goal is to prepare for the continuous transition of leadership and power, the utilization of new technologies, and interaction with other entities. This includes not only employee development, but recruitment and staffing and training with regionalization as a primary consideration. This process is necessary so that a second phase of change towards a positive future can be accomplished. This external phase accepts and adopts future programs, integrates new systems changes, develops new and expanded partnerships, paradigm shifts and new technologies.

In this project, an issue has been identified and future forecasting has been accomplished. Trends and events that will influence the issue have also been identified. A cross impact analysis has also been presented with the resulting future scenarios. A strategic plan is needed to study the best future possibilities of SMART highways impact on patrol operation in a mid-sized urban agency. A vision must be developed to begin the framework of the goals and objectives necessary to accomplish mission of this project. The vision is the outcome that will result.

The remainder of the chapter will analyze the strengths and weaknesses of the organization as well as the opportunities and threats to the organization in accomplishing the vision. This includes the identification of the internal and external stakeholders. These stakeholders will work in finding the best collaborative effort to accomplish the mission while contributing the goals of each. Finally, a strategy must be developed to support the greatest number of stakeholders while providing long-term desirable outcomes. A recommendation will be provided to reach the desired outcome. This will be accomplished after a review of the agencies vision, goals and objectives.

Vision Statement

The vision for this project is to examine how SMART highways will impact patrol operations in a mid-sized urban agency by 2009. Preparing for the future begins with a vision. A vision statement is a written description of a desired state of conditions. It is a snapshot of what the organization wants to achieve and what the future of the organization is to become. It is more than a single goal because it takes objectives to accomplish a goal and a series of goals to accomplish mission, which are in line with the vision. The vision, in a sense, is a journey that the organization takes. This vision benefits the organization, the community and the individual employees. The leaders of an organization must impart this vision internally and to external organizations. An organization must prepare, taking into account trends and events, through a strategic plan to reach desired results.

The desired result or vision of this project is to incorporate all the trends and events introduced by the panel. Having knowledge and understanding of a developed strategic plan will provide the best-case scenario for the future. Knowing how these trends and events may influence SMART highways' impact on law enforcement agencies creates a course of action to get the most desirable result.

The best way to incorporate all of these trends and events and related entities is to establish a regional task force. The regional task force should examine shared goals and objectives and provide policy and procedures to accomplish a shared mission.

The goals of the regional task force should encourage contact and communication. This communication should be countywide while having consideration for statewide and

interstate communication. There should be the development or reciprocity and cooperation. There should be shared learning and trust. The objective is to bring all required entities into the task force so the future model will be put together in the proper order. This order will consider cost effectiveness, environmental issues, grant funding, and possible future growth in technology.

The results of the vision, goals and objectives will be a system to best address, react and be proactive for trends and events on SMART highways which will impact patrol operations. The optimal outcome will be a regional task force that plans and addresses all of these issues. The regional task force will take into consideration all of the stakeholders because the stakeholders themselves will be represented. The strengths and weaknesses will be examined by experts in fields of technology, budgets, public works, public businesses and the private sector.

Organizational Analysis

Organizations need to know where they are today with a vision, goals and objectives in order to plan where they need to go in the future. There must be a baseline for data to better measure change, understand the organization's ability to change, and level of interaction with other entities and technologies. Command staff must have a baseline for what the community or stakeholders want to maintain at a minimum, what they desire to accomplish and the collective priorities. Managers of organizations can check the health of the organization with internal audits and surveys. "WOTS UP" is one model of analysis which allows managers to examine the above current issues while examining internal strengths and weaknesses and external opportunities and threats. This organizational analysis is necessary to reach the goal of

a regional task force. The regional task force will examine and provide a strategic plan and a transition management team to answer the questions of the impact of SMART highways on patrol operations.

Strengths of the Corona Police Department

The internal strengths of the Corona Police Department which would encourage and support regional task force representation in the department are:

- 1) Ability to work well to accomplish existing goals of the department.
- 2) Ability to react or change internally as a result of external mandates such as legislative.
- 3) Connectivity to community clubs, organizations.
- 4) Connectivity to community by Corona Police Community Partnership (CPCP), Riverside County Law Enforcement Association (RCLEA), United Neighborhoods in Treating Youth (UNITY), Riverside County Community Action Planning (RCCAP).
- 5) Community support through a community police academy, and volunteerism. Volunteerism for diversity as they represent a greater regional community.
- 6) Corona Police command staff being futures orientated.
- 7) Progressive in the development of a city owned water treatment plant, waste management and electrical development.
- 8) Training on Incident Command Systems (ICS) and Emergency Operations Command (EOC) with the fire department.

- 9) Outside training for expertise and diversity. Internal training for personnel development.

Weaknesses of the Corona Police Department

The internal weaknesses in the Corona Police Department which would discourage or impede the development and participation in a regional task force are:

- 1) Funding resources.
- 2) Non-profit organization.
- 3) Inability to support or back any political entity or specific private organization.
- 4) Nay-Sayers.
- 5) The threat of new technologies may be so severe that they will not be able to keep up with new technology demands and community expectations.
- 6) No clout from regional connection. Having 1.5 million represented in one taskforce is better than Coronas' population and resources of 140,000. There would be more clout politically and financially.
- 7) No great strength for obtaining taxpayers money to support regional task force.
- 8) Little interaction with private industry.
- 9) Little support and participation on collective partnerships. Have provided staff to shared activities, but little depth and for short periods of time.
- 10) Personnel barriers with expertise in futures planning and technologies related to SMART highways.
- 11) Little training with or participation in a regional task force.
- 12) Corona does not have a strong integration with new technology. Corona cannot always have the newest or best technology due to budget constraints.

- 13) Little contact with academia.
- 14) No regional public relations with the media or other organizations.
- 15) Networking connections with other law enforcement agencies and private industry.

Threats

There exists the threat that private industries may begin to monopolize enforcement and safety functions once held only by law enforcement. There is the threat that technology may become so costly that cities may not be able to keep up with budgetary demands. There is the threat that technology may so severely impact law enforcement that staffing would not be available to keep up with the imposed demands and community expectations. The threats are as follows:

- 1) Competing community expectations.
- 2) Legislative demands that may require more investigation work or greater costs to accomplish current law enforcement duties.
- 3) Law enforcement may be dominated by profit industries or entities for political gain.
- 4) The vehicle industry may fight hard against equipment in vehicles to benefit law enforcement due to costs.
- 5) The insurance industry may want control over the technology that could impact law enforcement for their financial gain.
- 6) Trucking operators and unions could oppose technology that could impact law enforcement.

- 7) Private security companies with their video surveillance could exclude law enforcement or have exorbitant fees to share equipment.
- 8) Taxpayers money for training, hardware, software and infrastructure changes.
- 9) Integration of new technologies.
- 10) Interface with existing technologies, data bases and computer systems.
- 11) Budgetary demands.

Opportunities

Corona has been the most progressive in the Inland Empire. A task force can develop the mold for the benefit of law enforcement and the communities they serve. The Corona Police Department's opportunities are as follows:

- 1) Outside training brings in diversity and expertise.
- 2) Positive public relations can open the door for the support of the community and private industry .
- 3) Networking with other law enforcement agencies.
- 4) Community partnership brings support in negative times and times of change.
- 5) Countywide chief's organization brings information sharing.
- 6) The Corona Police Department already has some interaction with technology. This includes city-wide computer systems, less-than-lethal weapons, simulated training equipment and internal computer hardware and software.
- 7) Interaction and information sharing with the private business sector through various committees.
- 8) The city of Corona already has interaction with UNITY, RCLEA, and Caltrans. These relationships can provide community partnerships and information sharing.

Stakeholder Analysis

Any plans to affect organizational change must consider relationships with stakeholders. Stakeholders are individuals, and groups, both internal and external to the organization, who are impacted by, or who impact what an organization accomplishes. It is important to identify all stakeholders, especially those who have expressed little or no opinion or interest in the organizational plans.

These latent stakeholders may arise during the final hour to interrupt or stop organizational change. They could withhold reliable, relevant information in order to derail the train of growth and success. Such stake holders are often referred to as snail darters and may significantly impact the success of positive change efforts. Therefore, it is critical to the strategic planning process to identify these stakeholders and obtain their specific concerns, expectations and solicit necessary latent information. Once the stakeholders are identified, a strategic plan must be developed to address the future issues.

The significant stakeholders for a regional task force are the Federal Highway Administration, Mellon Robotics Institute, Rockwell, Siemens, University of California Partners for Advanced Transit and Highways, Hughes Aircraft, the automotive industry, state and local law enforcement agencies, highway design industry, vehicle electronics industry, environmental interests, insurance industry, transport users, trucking operators and unions, HP Microsoft Inc., Wiley Laboratories, U.S. Army Armaments, Caltrans, California Highway Patrol, Riverside Sheriff's Department, Riverside Police Department Orange County Sheriff's Department, Los Angeles Sheriff's Department, GPS systems

managers, facial imagery industry, Corona Police Department Police Officers Association, Corona City Manager and City Council. These are recognized stakeholders because they stand to gain if they provide input and support to a regional task force. If they do not participate in a regional task force, these entities will lose financially, in information sharing, lost partnerships and lost input in molding the future to their best interests.

The potential snail darter for this task force would most likely be a private industry representative who seeks to derail other entities that will try to take away their share of the market place. Other potential snail darters may be main decision makers who hold the greatest share of the market place. Snail darters may also seek political recognition for their personal aggrandizement in a future political agenda. A third potential type of surprise stakeholder might come from a public service entity like Caltrans, as they may control and mandate conditions on the very highways the task force wants to work on. Caltrans may control schedules, costs and may try to control the scope and direction of a regional task force.

Organizational Change Strategies

First there should be some organizational change strategies with their own internal team. This is the team that will participate in the regional task force. Secondly there needs to be some strategies developed for this internal team's participation in the external regional task force transition management team. Internally there must be strategies to create change. The internal stakeholders' concerns need to be identified. These internal members will develop strategies to meet the organization's future goals.

It is also important to get the most qualified individuals to develop change and understand paradigm shifts. The organization is now used to change, being in flux, accepting new ideas, and has futures forecasting and strategic planning on an ongoing basis. This model was developed by Anderson Corporate and Executive Coaching, Inc. and the concepts are as follows:

- 1) Assess internal and external stakeholders' needs, wants, problems, obstacles, strengths, opportunities and threats.
- 2) Scan future trends and prioritize best-bet opportunities, threats and vulnerabilities.
- 3) Conduct a planning session with key executives and stakeholders from the internal organization and the community.
- 4) Determine leadership competencies necessary to build a strong policing organization, and assess leadership competence of all leaders.
- 5) Conduct an annual change plan review.³⁴

When this model is followed, there should be an increase in success while reducing conflict, stress and opposition. The cornerstone of this model also includes the following principles:

- 1) People implement and support what they provide input on and help create.
- 2) Select leaders who will promulgate change.
- 3) Team leaders need team development.
- 4) Organizations do not change, people do.
- 5) Begin with a clearly articulated preferred future state and work backward from that perspective to the present.

- 6) Two people cannot be responsible for the same thing. Make sure one person is assigned a task with specific measurable duties in a specific time.
- 7) Review your roadmap monthly and alter routes as needed.
- 8) Recognize and document successes.
- 9) Celebrate the success journey.³⁵

Developing Alternative Strategies

In order to accomplish the best case scenario regarding the impact of SMART highways on patrol operations, various strategies should be examined. One strategy would be to provide and foster a philosophy within the Corona Police Department, a climate rich in employee development. Internal employee development would be a cornerstone for future participation in a regional task force. This should include career enhancement and mentoring programs which promotes future thinking and interagency interaction, educational incentives to promote diversity, executive development to motivate others towards a shared goal, and executive career incentives for those who participate in the F.B.I. National Academy and P.O.S.T. Command College courses.

A second part of this strategy would be the staffing of selected employees to best represent the department in the future. This would also include recruitment of staff with future planning and development. A third part of the internal strategy would be the training of staff to best incorporate transition management and develop strategies to lessen negative impact on the organization. Now that the internal strategies have been discussed, strategies that go outside the organization should be identified.

Once identified and in place, the next strategy would be to step outside the realm of the organization with the development of a regional task force. A regional task

force provides the best case scenario as it identifies the stakeholders, has a diverse group to be aware of pitfalls, and takes into consideration technological, financial, social and political issues. Additionally, the task force has the resources, staffing, management, grant access, budget and diversity of stakeholders to accomplish the desired shared outcomes.

Based on the results of the NGT process and the literature review, three alternative strategies were developed relating to how patrol operations of the Corona Police Department will be impacted by SMART highways. Each of these strategies represents a different approach to the issue. The strategies provide overall guidelines for organizations to follow. The strategies take into account the major trends and events provided by the panel. The strategies consider the impact on law enforcement when GPS, facial imagery, and digital recorded surveillance cameras are in operation on SMART highways. In overcoming obstacles, the difficult portions will be in networking with those technologies and organizations outside of law enforcement. The second will be the significant demand in calls for service in response to these new technologies. More criminals will be caught and the volume of calls for service and arrests will tax the current organizational structure.

Corona will have to also put a place an internal structure specifically to deal with futures forecasting and the demand of new technologies. This will include putting a team in place specifically for the regional task force. There will have to be an ongoing process to train, and pass on this knowledge and the paradigm shift in thinking with the future in mind. This will include career enhancement programs which develop futures planning and networking, mentoring programs to begin to bring others

over to this new way of thinking, and career and executive training programs that key in on this currently absent strategy. With these basic strategy changes in place, the transition management team will accomplish the specific details on how the strategies will be accomplished. This will include specific environmental issues as well as specific networking. The alternative strategies are as follows:

Strategy One – Maintain the Status Quo

This strategy is the simplest for law enforcement managers in non-progressive cities where there are no significant expectations from the city manager or the community. It embodies a police chief who maintains a low profile and promulgates a stagnant organization. The leader is not seen as a change agent, does not profess a vision, believes in the motto, “if it ain’t broken, don’t fix it,” is pleased with the status quo and does not believe or support change. By not developing a future strategic plan, it avoids immediate conflict with the stakeholders and puts off difficult and complex future planning decisions. By not having a strategic plan, not recognizing futures forecasting, and not participating in a regional task force, the future would be left to chance or left in others’ hands to dictate or direct law enforcements actions. The resulting impact of SMART highways on law enforcement would be significantly more devastating, leaving them unprepared and unequipped.

Strategy Two – Develop Plans to Address Only Current Issues

This strategy generally supports police organizations that tend to prepare short-term plans to address current issues. The Corona Police Department clearly understands the importance of looking towards the future and developing a systems

management process to create long-lasting solutions for the issues. These organizational leaders can recognize developing trends, which may impact their organizations in the future. They may not understand the significance of the issues and do not place a high priority in developing plans or programs to address these issues. The process lacks planning, cooperation among regional law enforcement agencies, and active learning.

Strategy Three – Develop Strategic Plans to Address Future Issues

This strategy best fits a progressive police organization that is supported by a strong city council, city manager and a police chief who provides vision and direction to lead an organization into the future. These organizations live a mission statement and have continuous input from stakeholders both internally and externally. Employees understand and work the philosophy of the mission of the department and are driven by the organizational values. These organizations recognize the importance of community and regional stakeholders. There is a long-term commitment rather than short-term gains. To address the future with a strategic plan, there must be the practice of encouraged contact, reciprocity, cooperation, active learning, prompt feedback, time on task, high expectations and diverse talents and ways of learning and progressing.

Preferred Strategy – An Organizational Transition to the Future

Progressive police organizations prepare for future change today in order to develop strategies to meet the future needs of all of the stakeholders, both internal and external to the organization. The third strategy proactively establishes the process and plan for implementing positive change, particularly for developing a system that reviews

an organization in flux while taking into consideration cost, manpower and resources.

Having a progressive law enforcement organization means that there will be internal organizational training programs, mentoring and executive training programs. In addition to the internal program development to address futures forecasting as an organizational philosophy, there must be specific strategic plans which include a transition management team from Corona on a regional task force. The transition management team specifically will manage and oversee potential future technologies and make internal changes to best assist law enforcement on SMART Highways for Corona. These concepts are true for all law enforcement agencies on the regional task force. Task force members are concerned how future social, economic, and technological issues on SMART highways may impact law enforcement.

Summary

This chapter has defined vision. It has described the vision, goals, and objectives of the Corona Police Department relative to the development of a regional task force in response to the future impact of SMART highways. Corona's internal strengths and weaknesses were discussed as it relates to a strategic plan. This chapter discussed the external threats and opportunities. The stakeholders were identified and strategies were discussed. The strategies discussed were the status quo, addressing only current issues, developing strategic plans for future issues, and an organizational transition towards a regional task force. The recommendation was given to develop a regional task force and to incorporate the critical mass in the form of a transition management team. Consideration was given to technology, people, skills, and budgetary concerns.

The next chapter will discuss the transition template on how this recommended regional task force will be accomplished. It will include the specific roles of the stakeholders who are critical to the success of the regional task force. This will include the commitment from the critical members of the transition team, implementation plans, accountability, monitoring, accountability, and future review and modification.

CHAPTER FOUR

TRANSITION MANAGEMENT PLAN

Introduction

Transition management is about managing change. The transition management plan will be accomplished by the transition management team. There are two transition teams. One team is internal to the organization. The second team is the primary transition team which makes up the membership of the regional task force. The internal team within the organization is a member of the larger regional task force. The regional task force team is made up of the stakeholders on the most important issues of how SMART highways will impact patrol operations. The team is made up of the critical mass to make a regional task force a reality. They reflect the goals and objectives of the stakeholders. The culmination will provide the best forum, personnel, and procedures to minimize the negative impact of SMART highways on patrol operations. It would also be desirable to steer technology and the stakeholders to support patrol operations in the future.

The internal transition management team, with their proposed plan, is critical to affect organizational change. The development of the team and the implementation of the process are important in identifying the need for change and creating a vision of the desired outcome and corresponding path. The transition management team moves the organization from the present state to the desired future state. Strategic planning anticipates necessary changes in the organization and focuses on future issues; transition management provides the direction and the roadmap to reach the destination.

The management team often demands significant changes in the organization which can be an arduous, meticulous, time-intensive process. It requires day-to-day management of the change process, dealing with any opposition from the stakeholders and selling the change to those who must adapt to or adopt the change. The team must also give the authority for individuals to make policy and procedural changes as well as pulling other individuals along to fit a new mold. Change can only be successful when the stakeholders understand and support the change. The number of stakeholders and the benefits towards all must outweigh the opposition.

The connected entities, such as the community, which law enforcement serves, must participate in the newly created desired results and the transition time and methods of change to get there. For example, the community must understand law enforcement's new commitment to the highway systems and the attached technologies. SMART highways of the future will impact patrol operations in volume and intensity of service. The connected entities and the community must support the systems management changes for the future benefit of all. The community must understand that officers may no longer respond to past crime, traffic accidents, or past civil problems. The community must understand law enforcement's new role regarding SMART highways. The new role is designed to increase arrests and lower crime.

Municipal code changes allow for public surveillance cameras. Officers make arrests as a result of videos. Officers are not in someone's house taking a report that will not result in an arrest or the reduction of crime. Officers' arrest identified GPS tracked and videotaped offenders as a result of this adopted new technology.

In order to accomplish a regional task force, the internal transition management

team will have to work together to develop plans to ensure that the necessary organizational changes occur. The external transition management team should be composed to interagency representatives, private industry, academia and all levels and sections of city government. This transition management team must include, as integral parts, commitment planning, and responsibility charting to foster change and cause change to occur.³⁶

Commitment Planning

Commitment planning is a process which identifies the amount of stakeholder support needed to successfully implement change. It begins by identifying the groups or individuals whose support is minimally needed for the successfully implement the plan. These key groups or individuals are called the critical mass. Identifying the critical mass and specific stakeholders who may influence other stakeholders is important to the change process. A plan must be developed to gain the support and commitment of the masses and to continually assess the process. These identified stakeholders are composed of a blend of outside organizations, entities and individuals who are capable and motivated in the change process.

Commitment Partnerships

This Transaction Management Team and the connection to the partners rely on three tiers of participants, which are: core participants, associated participants and outreach participants. Each provides high-level expertise in various automated highway system (AHS) technologies, program management know-how, and financial resources. Each also contributes to the effort's credibility and assists in the definition, delineation

and direction of highway systems and its connectivity to law enforcement. They work collectively on case study research and societal and institutional research issues.³⁷

A contact team then works with associated partnerships. These partnerships in the regional task force transition management team include the vehicle industry, state and local agencies, highway design industry, vehicle electronics industry, environmental interests, trucking operators and unions, transit operators, transportation users, and the insurance industry.

Associate participants support the goals of the program and become involved with the transition management team and with the consortium to share results and/or provide team members perspectives on immediate and long-term results and plans. New associates may join with varying amounts of participation with regard to input and financial commitments. These may include the United States Army Armaments Command, Toyota, HP Microsystems Inc., ITS America, Argonne National Laboratories, Wiley Laboratory, and Robotic Technology Inc.

The interaction of the transaction management team with these other entities is designed to gain knowledge of how and when these automated highway systems will be introduced and the level of law enforcement participation and impact. Collectively, the needs of the public, commercial business, mass transit systems and the individual travelers will be reached. The overall goals of the regional task force team transition management team will improve safety, save departmental costs and optimize investment, improve accessibility and mobility, improve environmental efficiencies, increase connection to new technology based-industries.

The transaction management team will also have to move through the different

families of development between the highways and law enforcement. The regional task force shapes and designs technology so that the impact of SMART highways is reduced. Law enforcement should be involved with the process for input and informational purposes. The first is the independent vehicle concept. This concept puts a SMART vehicle in the existing infrastructure. On-board vehicle technology lets the vehicle operate automatically with on-board sensors and computers. The vehicle can use roadside systems but does not depend on infrastructure support.

The cooperative concept lets SMART vehicles communicate with each other, although not with the infrastructure. With on-board radar, vision and other sensors, these automated highway system (AHS) equipped vehicle will be able to communicate with each other and coordinate their driving operation, optimizing throughput and safety.

The infrastructure concept envisions automated vehicles in dedicated lanes using global information and two-way communication with the smart infrastructure to support vehicle decision making and operation. It is at this level that law enforcement may have its second generation vehicle contact. This means that law enforcement will be reacting and acting to on-board GPS, facial imagery and other technological features. The infrastructure-assisted concept provides an automated roadside system and inter-vehicle coordination. It is at this level that law enforcement may have to actually invest hardware in the highway system or get contractual agreements to share information.

The adaptable concept acknowledges that the AHS may vary locally. It envisions the development of a wide range of compatible standards that may leave as many of the specific technology trends and architecture decisions, solutions and deployment

processes to area stakeholders. This adaptable concept will allow for significant improvements in technologies as well as paradigm shifts in law enforcement/highway technology.³⁸

The transition management team must transform its vision of the future into reality. They must utilize new technologies and technologies not yet known today to meet societal needs of the next century. The team acknowledges changing populations, financial constraints and changing governmental roles. They must maintain a close connection with the California Department of Transportation. The California Department of Transportation proposes to collaborate with many partners who research, support and deploy new technologies.

There are three emerging global markets that are competitive. There is the public sector, which includes local government, regional government, state government and federal government. The second is the private sector. This includes telecommunications, electronics, vehicle manufactures, aerospace, and non-profit organizations. The private sector partners will provide technology, manufacturing and marketing capabilities through a broad manifestation of products and services. Law enforcement agencies, in some locations, may try to market resources to benefit their budget. The third market is academia. This includes private and public universities. These key partners will provide leadership by keeping an emphasis on mobility, connectivity, interoperability, safety, environmental and other community, state or national goals.³⁹

The steady growth in transportation-related technologies establishes the need for continued innovative and cooperative efforts by all concerned to maximize efficiency of

the public transportation networks and systems. The value of these created partnerships with private and public entities is especially important in meeting the needs of the transportation users, in adapting new technologies and in overcoming the needed resources. The goal of the partnerships is to employ an innovative approach to integrate private sector technology advances with the latest academic research to address the transportation needs of respective regions. According to the United States Department of Agriculture, Federal Highway Administration, the suggested partnerships are Caltrans, California Highway Patrol, local and regional law enforcement, funding sources, system operations, maintenance, technology development and implementation, public information and service and sharing resources. Other potential partners include metropolitan planning organizations, local transportation centers, local emergency responders, local mass transit, academia, media, the Federal Highway Association, private industry and technology.

Commitment Charting

Commitment charting is a method to determine the commitment of the critical mass. The level of commitment does not have to be equal among the stakeholders. The process of commitment charting divides the stakeholders into four categories based on the level of support for change. These categories include: block change, let it happen, help it happen and make it happen.

A commitment chart, Table 4.1, lists all individuals or groups who are part of the critical mass on the vertical axis of the chart. The varying degrees of commitment are listed across the top of the chart. An “X” is placed in the box that represents the present degree of commitment for each individual or group. An “O” is then placed in the box

which indicates the minimum level of commitment needed in order for the change to occur. If the “X” and the “O” are in different boxes and the commitment level needs to increase, then work must be done to increase the stakeholders’ commitment toward the desired level. The following stakeholders are critical for the successful transition to integrate law enforcement and technology as it relates to the implementation of SMART highways in the community. The following stakeholders are necessary to inform, support, and approve the new template. The template is the plan of action proposed by the transition management team designed to best incorporate new technologies to be the least evasive for law enforcement and most successful for the safety of the community.

Some hold great responsibility for the success of the project and are listed below:

- City Council
- Robotics Industry
- Trucking Operators and Unions
- Police Officers Association (POA)
- CalTrans-Highway Design
- Vehicle Manufactures
- Electronics Industry
- State/Federal Legislators
- Environmental Interests
- Academia
- Consulting Team
- Insurance Industry
- Private Industry-Satellite

The Commitment Chart is below in Table 4.1.

Commitment Chart Critical Mass Members

| Critical Mass Members | Block Change | Let Change Happen | Help Change Happen | Make Change Happen |
|--|--------------|-------------------|--------------------|--------------------|
| Robotics Industry | | X O | | |
| City Council | | X O | | |
| Trucking Operators and Unions | | X→ | O | |
| CalTrans | | X→ | O | |
| Vehicle Manufactures | | X→ | O | |
| Electronics Industry | | X→ | | O |
| State/ Federal Legislators | | X→ | O | |
| Environmental Interests | X→ | O | | |
| Academia | | X O | | |
| Media | | X→ | O | |
| Insurance Industry | | X O | | |
| Private Industry Satellite | | X→ | | O |
| Consulting Team | | X→ | | O |
| X = Current Position O= Desired Position | | | | |

Table 4.1

The current and desired commitment from community members is to let change happen. A strong commitment is not needed; however, it is important that the critical mass members do not oppose the desired organizational changes. Because community members have the potential to influence the city council, this significant opposition could make the transition difficult and delay future success.

Consulting firms must possess the knowledge of a law enforcement agency, understand the paradigm shifts that occur prior to and during change in addition to the world wide expertise in business success. They have built a reputation from contacts with the largest, fastest-growing, fastest-changing businesses in the world. This expertise is invaluable when developing future plans through a transition management team. Consulting teams are needed because they support involvement in the transition process which will have a positive effect on organizational change.

With input from the community and a consulting team, the internal transition team is ready to participate in the external regional task force transition management team. Key players who have information, support, and responsibility include Caltrans, the vehicle industry, private satellite entities and the electronics industry. These are the main players who can make change happen.

Responsibility Charting

Responsibility charting aims at clarifying role relationships as a means of reducing ambiguity, wasted energy and adverse emotional reactions. It outlines the requirements necessary to initiate change and assign task responsibility according to the requirements of the strategic plan. This technique clarifies roles in order to reduce

conflict among different individuals and groups.

This process begins with a group of individuals working independently to identify the specific role which individuals or entities are expected to perform. A responsibility charting table is used as a planning tool to accomplish this task. These individuals then meet with other members of the group to compare and discuss their findings until a general consensus is reached.

Individuals and entities that will be involved in the process are listed on the horizontal axis. Individuals and entities are assigned a specific role for each of the actions, decisions, or activities. Individuals and entities assigned an “R” have the responsibility to see that decisions or actions occur. Individuals and entities assigned an “A” are responsible for approving actions, decisions, or activities. Individuals and entities assigned the “S” role must show support for actions, decisions or activities by providing resources. Individuals assigned the “I” role are informed of actions or decisions.

The responsibility chart for this project is shown in Table 4.2. Actions, decisions, or activities that must be completed are listed on the vertical axis of the table.

RESPONSIBILITY CHART

| Actions Decisions Activities | PARTICIPANTS | | | | | | | | | |
|------------------------------------|-------------------|--------------|-------------------|-----------|-----------------------|-------------------------|-------------------------|----------|-----------------|----------------------------|
| | Robotics Industry | City Council | Trucking Industry | Cal-trans | Vehicle Manufacturing | State/ Fed. Legislation | Environmental Interests | Academia | Consulting Team | Private Satellite Industry |
| Select Transition Manager | S | A | S | S/I | I | S | S | S | S | S |
| Select Transition Team | I | A | S | S | S | S | S | S | S | I |
| Review/ Solicit Ideas | I | I | I | S | I | S/R | I | I | I | I |
| Approve/ Prioritize Ideas | I | A | I | I | I | R | I | I | I | I |
| Determine Resources | S | S | S | S | I | R | S | S | S | I |
| Develop Draft Proposals | I | R/I | S | R/S | S | S/R | I | I | I | I/S |
| Obtain General Review | S | R | S | R | S | S | S | I | I | I/S |
| Obtain Final Approval | I | A | I | R | S | S | S | I | I | I |
| Implement Plan | I | A | I | R | S | S | S | I | I | I |
| Evaluate Plan | I | A | I | R | S | S | S | I | I | I |
| Review/ Update Periodically | I | R | R | S | S | S | S | I | I | I |

R = Responsibility (Not Necessarily Authority)

S = Support (Needed Resources)

A = Approval (Right to Veto)

I = Inform (Consult before Act)

Table 4.2

An implementation plan should include the key steps and tasks to get started with a regional task force. This would include contacting each entity to get their input on such a venture and their thoughts on other possible stakeholders who could benefit or be benefited by a regional task force. This regional task force can immerse those entities involved with firsthand knowledge on technology and can actually move or change certain industries to best benefit the impact of SMART highways on patrol operations. The result of this plan could create new technologies specifically for the interaction of SMART highways and law enforcement.

The regional task force has a real purpose for existence. The right people must be interested, capable and willing to work. The regional task force will encourage contact between all of the participants, develop reciprocity, encourage active learning, give prompt feedback, be timely and on task, and respect diverse talents and ways of learning. Getting started can be accomplished by getting the team together and actually map out a commitment and responsibility charts.

The responsibility chart shows that the city council of the City of Corona, the state legislators and selected industries such as the satellite, vehicle, electronic, and robotics industry are tantamount to the success of a regional task force. The responsibility may indicate responsibility, but the regional task force, at least for the present time, has no punitive actions for those who choose not to participate or accept assigned responsibilities.

As a portion of the responsibility chart is the built in proposal to measure the progress and outcome of the regional task force. As a part of the responsibility charting process is also the need for an outline for monitoring, accountability and

evaluation. These should monitor and measure activity, expectations, cooperation, interaction, diversity, and responsibilities. The members must have a strong sense of a shared purpose, have concrete support from each entities leaders, develop and maintain adequate funding, develop policies and procedures consistent with their purpose, and incorporate review.

Summary

The Organizational Transition Management Team will guide the organization towards the desired changes as outlined in the strategic plan. In order to implement changes for SMART highways impact on patrol operations, organizations must carefully determine the level of regional task force member support or resistance. The level of commitment required from key individuals and entities must also be identified in order to move forward in the regional task force implementation process. In the next seven years, it is essential that all law enforcement organizations communicate with each other to share ideas and resources. This spirit and level of communication should provide the highest expertise, knowledge and sharing of programs. This will reduce or eliminate reinventing the wheel, reduce costs, reduce manpower and place less of a demand on resources. Chapter Five will provide recommendations and conclusions with regard to the achievement of a regional task force.

CHAPTER FIVE

RECOMMENDATIONS AND CONCLUSION

Recommendations

It is critical for organizations to change systematically and alter, eliminate or add programs and processes to keep pace and script future change. Many organizations are tied to a reactive philosophy, are strapped by decreasing budgets, and are hampered by shrinking resources which now have to be shared with many other stakeholders. A law enforcement organization should not always invest in the newest SMART highway technology, as this depletes budgets. Law enforcement should not exhaust all budgetary resources on technology which may be outdated long before the warranty expires. Law enforcement should not alter its internal organizational structure based on a new SMART highway technology. The organization should not change based on one technology but should be open and flexible enough to except or adopt another.

It is more critical to incorporate strategic planning and transition management by utilizing staff with the greatest experience, training and exposure to future forecasting and change. This means that agencies will have staff specifically in place to review systems management, maintain resources and contacts for technologies, and have the skills needed for change implementation as a member of a regional task force.

Future challenges will face organizations that are trying to implement recommended new programs or SMART highway technological changes. By anticipating these challenges, plans can be set in place to show more clearly how all stakeholders will benefit from the transition management team and the responsibility

charting with the recommended changes. Some of the challenges are as follows:

1. Getting those agencies and individuals accustomed to technological changes.
2. Identifying the primary stakeholders and the impact they may have on the organization and the proposed program.
3. Prior to implementing program changes, identifying and considering the effects on internal and outside entities as well as their future impact on the organization.
4. Negotiation with specific stakeholders may be necessary to ensure participation and approval.
5. Programs must be monitored and feedback provided to ensure continuing review and improvement.
6. Utilize secured commitment from primary stakeholders.

There are also some major pitfalls of vision. The consideration of any new vision increases uncertainty. People begin a planning effort because their current course is uncertain and they desire clarity. The planning process can cause confusion, as those involved with the transition team or who holds responsibility for the implementation are introduced to new threats and opportunities. Sometimes they plow ahead to decisions on vision and strategy which ultimately do not best benefit law enforcement on SMART highways.⁴⁰

Idealization, frustration and disappointment are common side effects of any new vision. Line level staff are tempted to stop their efforts if they do not see the future benefit. Upper management sometimes looks for the magical simple program. They do not seek the diverse programs and teams that will bring the best law enforcement change for SMART highways. Perseverance is the antidote. It takes time to turn a

huge ship around or jump on another mode of transportation.

Often, the shared vision is not really shared but sold to those on the lower echelon of the organizational chart. Vision is not easy for everyone facing the rapidly changing world of the future. People also have a mistaken assumption that once they understand and share the vision, they will know how to implement it.

There are leadership challenges for thinking in the future tense. The new tomorrow has arrived. It is global, knowledge-intensive, fast-changing, requiring high quality leadership, management and supervision. There are twelve resources and challenges for creating the preferred future. These are as follows:

- 1) Leveraging Rapid Change – The game is not managing or coping with change, but leveraging the rapid change around us so that we may move in a preferred direction.
- 2) Creating Learning Organizations and Communities – Organizations with people who learn continuously will do the best.
- 3) Moving Beyond Continuous Quality to Sustained Innovation – Continuous improvement will matter more than ever, but continuous innovation in product and service will provide a competitive advantage.
- 4) Managing Interconnectedness – More stakeholders must be included in more decisions and paradigm shifts must occur to dissolve old boundaries.
- 5) Globalization of All Business – Of more than forty million United States businesses, only a half-million export goods and services. Even a smaller businesses for internal innovation.

- 6) Restructuring for the Long-Range and Global Quality Standards – Toyota employees report more than 40,000 improvement suggestions per year while Sony, only 200. World consumers will expect the best quality and it takes a long-range effort to produce to the new standard.
- 7) Re-Training for Knowledge-Based Work – An increasing percentage of United States jobs require scientific, technical and advanced thinking skills.
- 8) Taking Seriously a Multi-Cultural Society – Leaders must step up to the challenge of creating culture opportunities and success for all sectors of society.
- 9) Environmental Stewardship – Economic success and caring for the environment should be a collective process.
- 10) Expensive Mature Workers with Differing Expectations – Growth and development comes from diversity of character and expectations.
- 11) Maintaining and Promoting Balance – Seeking balance in one’s personal life is of increasing concern. Balance, or integrity, is a discipline for learning organizations.
- 12) Sustaining Hope and Vision in the Midst of Turmoil – Fast but uneven economic growth, companies disappearing and increased rapid production cycles heighten uncertainty. Leaders must sustain hope and vision by calling attention to the possible and empowering people to see their capacity and capabilities. Finally, to see capabilities exceeded by the formed partnerships.⁴¹

Conclusion

This project highlighted the increased demands for services in the future on highways. The impact of SMART highways will increase the number and types of

activities on highways that law enforcement will accomplish. This project has also influenced the way that law enforcement agencies interact with other law enforcement agencies. There has been the suggestion and support of an increased activity of law enforcement with organizations diverse from law enforcement. This project has demonstrated a need for a regional task force to examine not only SMART highways, but budgetary, legislative, and other concerns that may impact law enforcement in the future.

It is recommended that law enforcement agencies be prepared and maintain a future forecasting aspect in their organization. Law enforcement may be interested in further research to increase future positive impacts on the department. The regional task force may bring forth new ideas and technologies that would have remained uncovered if not for the actions, decisions and responsibilities of the regional task force members.

If organizations want to achieve the desired vision and be successful in developing a strategic plan with built-in flux, they must perform self-examination and an external audit. They must develop and nurture a philosophy which rewards creativity, positive risk and inter-organizational and intra-organizational communication. The transition management team will be tasked with developing strategies for the following issues in order to affect successful organizational change on SMART highways.

Law enforcement must develop training to provide orientation and education for futures forecasting. This will create an environment for balance, creativity, and innovation. They should examine non-traditional systems management changes. This could include futures forecasting staff, mentoring and executive leadership development

to foster a greater proactive strategic plan. This could also include a regional transition management team. This should include information-sharing forum to solicit ideas and programs to enhance or change the current way of processing work as well as creating new ways of accomplishing tasks.

Agencies should seek to maintain state-of-the art technology while being cognizant of generational changes rather than model changes in technology. They should develop different learning approaches that will adapt to learning styles while developing a receptive approach to new ideas. Regional task forces should seek input from all employees from all departments as well as outside input from the community. This will assist in program development, problem resolution and potential savings in resources and cost.

Law enforcement organizations will most certainly face significant challenges, on future SMART highways when trying to implement transition teams with recommended programs or changes. By anticipating these challenges, plans can be prepared to illustrate how stakeholders will benefit from the programs and recommended changes. The challenges are numerous.

The issue of this paper is, "How will SMART highways impact patrol operations in a mid-sized urban agency by 2009?" The paper discussed the development and support of the issue. It provided forecasting the future by using the Nominal Group Technique. It laid out a strategic plan, an implementation plan by the transition management team.

It is impossible to predict with absolute certainty what will occur with law enforcement during the next decade. Legislative changes, technology changes, budget,

resources and the level of support and direction from the public may greatly impact law enforcement in the future. These factors may also significantly impact law enforcement's ability to implement change even with internal and external support.

Leaders of the future must be more progressive by looking beyond current accomplishments, and focusing on the future and the stakeholders who may assist or hinder the success of the organization. Leaders of tomorrow will have the insight to examine future issues that will impact their organizations. With foresight, planning and knowledge of technologies, resources, and entities which surround the law enforcement organization, they will be more effective in meeting the needs of the organization and the community in the future.

The planning process for awareness of the impact of SMART highways on patrol operations begins by developing future leaders, incorporating future forecasting into the organizational structure, utilizing consulting firms, internal departmental expertise as well as outside experience and knowledge. The future success of an organization depends on planning, reviewing and incorporating progressive, thoughtful change. If an organization lets their future rest in another's hands, their fingers will point the direction taken. Law enforcement has the responsibility and the ability to improve the quality of life for the employees, the organization and the community. Law enforcement has the responsibility to build the ladder of success on the correct wall. Law enforcement must construct the future from the materials they choose, not what is handed to them.

This project has argued that SMART highways will impact patrol operations in the next decade. The utilization of GPS tracking chips in vehicles and humans on SMART highways will be the most significant technology that will impact patrol

operations. GPS tracking along with surveillance cameras, facial imagery, hand held vehicle surveillance monitors, satellite tracking, and people disabling technology on future SMART highways will impact patrol operations. These technologies will initially place a greater demand for services for patrol operations. As society acknowledges the certainty of being caught, the demand in the distant future will be reduced.

Law enforcement agencies must participate in the shaping of their future by means of a regional task force. There are promises, as well as limitations, to these new technologies; it will be up to the politicians, bureaucrats, private mega-industries and the public to integrate these technologies into the highway or public systems.⁴² The three standard barriers include financing, difficulty of integrating and coordinating systems and vehicles and the complexity of setting standards.⁴³ As steam, electricity and fuels were the test bed for the twentieth century, SMART (self-monitoring, analysis and reporting technology) highways are the test beds for the twenty-first century.

Isaac Asimov once said, "It is change, continuing change, inevitable change that is the dominant factor in society today. No sensible decision can be made any longer without taking into account not only the world as it is, but as it will be....This, in turn, means that our statesmen, our businessmen, or every man must take on a science fictional way of thinking."⁴⁴ Law enforcement should all strive to participate and be discoverers of new lands. Law enforcement must participate in order to reap the rewards of its labors. Law enforcement must stay the course. Nobody would have blamed Christopher Columbus, or remembered him, had he turned back half way. However, he is remembered and praised for fighting the good fight and finishing the course.

APPENDIX A

Nominal Group Technique Panel

Frank Gonzales, Sergeant
San Bernardino County Sheriff
(909) 387-3438

Tim Watkins, Public Affairs
Caltrans District 8
(909) 383-6819

Zeron Jefferson, Planning Division
Caltrans District 8
(909) 383-6488

David Banez, Officer
California Highway Patrol
(909) 553-7859

John Chiu, Planning Division
Caltrans District 8
(909) 388-7139

Rusty Beardsly, Public Works
City of Corona
(909) 736-2467

Ned Ibrahim, Public Works
City Of Corona
(909) 736-2290

John Rasso, Sergeant
Corona Police Department
(909) 736-2281

Mathew Fordahl, Writer
Associated Press-Sacramento
(408) 293-2114

APPENDIX B

List of candidate trends:

- 1) Commuting/ Living/ Working within the same city
- 2) Telecommuting
- 3) Police Report Systems via virtual reality
- 4) Satellites assume role as pursuer of outlaw vehicles
- 5) Police Vehicles utilize alternative fuels
- 6) Police cars utilize sensors to locate criminals
- 7) Freeway collision avoidance
- 8) Vehicle disabling technology
- 9) People disabling technology
- 10) Length of commute miles to work
- 11) Aging drivers
- 12) Number of youthful drivers
- 13) Economic level of drivers
- 14) Miles traveled per vehicle
- 15) Police retiring at a younger age
- 16) People using internet for traffic news
- 17) Gene therapy extends human life
- 18) Facial imagery technology
- 19) News broadcast of accidents
- 20) Surveillance cameras
- 21) News broadcast of suspects/ victims
- 22) Carpooling
- 23) Alternate fuel vehicles
- 24) Non-freeway vehicle technology
- 25) SMART Clothing
- 26) GPS technology
- 27) Oil Supply
- 28) Solar power trends
- 29) Home schools at all grade levels
- 30) Patch applications of mood altering drugs to control behavior
- 31) Paper money moves towards electronic transfer
- 32) Increase in computer crime
- 33) Reduction in retirement age
- 34) Gridlocked highways
- 35) Road rage, anxiety and frustration from road conditions
- 36) Slower commuter speeds
- 37) Retirement of qualified staff
- 38) Inability to hire qualified staff
- 39) Fuel shortages

APPENDIX C

List of candidate events:

- 1) Increase in public transportation (BART)
- 2) Major earthquake destroying highway infrastructure
- 3) Terrorism attack on major California city
- 4) Hand held video communications available for all police officers
- 5) Law enforcement agencies receive transformer airships to combat crime
- 6) Law enforcement is nationalized
- 7) GPS available in cars
- 8) GPS available in people
- 9) Call boxes eliminated due to technology, such as vehicle communicator
- 10) Government mandates 30 MPG minimum for vehicles
- 11) Bullet train arrives in California
- 12) Passenger Plane/ Helicopter reduced 33% due to terrorism
- 13) Attack against the United States
- 14) Biological threat against the United States
- 15) Human DNA charted
- 16) Statewide taxi service mandated
- 17) Energy windmills along freeway
- 18) Car battery for 12 volt usage at home initiated
- 19) Facial imagery
- 20) Tailpipe emissions standards increased 50%
- 21) Oil embargo
- 22) Alternative powered cars mandated
- 23) Solar powered cars
- 24) SMART cars
- 25) SMART clothing
- 26) Disabling chips for humans
- 27) Surveillance camera on highways and all public forums
- 28) Man trap devices at all public locations
- 29) Home school for college and high school
- 30) Topical medications, applied by a patch from aspirin to mood altering
- 31) Paper money becomes electronic transfer
- 32) Computer crime only way to access money
- 33) Mandatory retirement age 40

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