

PUBLIC SAFETY

PSWN PROGRAM

WIRELESS NETWORK

Saving Lives and Property Through Improved Interoperability

*Case Based Tutorials on Shared System
Development — Coordination and
Partnerships*

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SHARED SYSTEM DEVELOPMENT THROUGH COORDINATION AND PARTNERSHIPS¹

A Deadly Situation

Late in 1989, Captain Pat Johnson of the State Police sat in his office trying to determine what had gone wrong. Just days earlier, several members of the State Police were involved in a multijurisdictional pursuit of a murder suspect. The suspect had allegedly shot a state trooper during a traffic stop. The suspect fled the scene, and in the next town, robbed a convenience store and stole a car in an attempt to make a successful getaway. By the time the State Police were aware of the initial shooting, the suspect was already in an adjoining county that was a less populous part of the state.

Those traveling through the county used its one main highway. This two-lane state route connected the several small towns in the county. Because the towns were both small and miles apart from each other, the law enforcement officials from these towns did not interact frequently. During a subsequent vehicular pursuit of the suspect, the State Police had difficulty communicating with local and county authorities because of their incompatible radio systems. The State Police operated on a 1940s-era ultra high frequency (UHF) system, the sheriff's department operated on a very high frequency (VHF) system, and many of the local law enforcement agencies operated on new, technologically sophisticated 800 megahertz (MHz) systems.

Following the shooting incident, the State Police put out a description of the suspect and the make, model, and color of the car he had stolen. A State Police helicopter was radioed into the area and eventually located the suspect vehicle. Both the police and sheriff's department dispatch centers were notified in order to relay the information to their respective units. The difficulty in communications resulted in many missed opportunities to apprehend the suspect. At

¹ The Public Safety Wireless Network (PSWN) Program developed this case to educate the public safety community on the need for coordination and partnerships to foster improvements to communications interoperability. The case is intended to be delivered in a "classroom-style" environment. The case and characters are fictitious and do not represent any specific jurisdiction or course of actions.

many points, officers were in close proximity to the suspect but were unaware of his exact position because of the inability of local law enforcement to receive timely pursuit updates directly from the State Police. Many of these time lags prevented law enforcement officials from capturing the suspect. Meanwhile, the suspect was involved in several collisions with other motorists, injuring innocent civilians.

All of the responding agencies were forced to develop a temporary, yet seemingly inefficient solution, to address their interoperability problem. The commanding officer of the State Police decided to set up direct telephone links between the dispatch centers of the involved agencies. The dispatchers relayed the calls to the officers who were in pursuit of the suspect. Although helpful, this temporary “fix” still meant significant delays in passing information from one agency to another. In turn, these delays led to a vehicle pursuit that lasted too long and put officers in dangerous positions on several occasions during the pursuit. After this rudimentary mode of interoperability was established, the responding officers decided to set up a roadblock 2 miles ahead of the suspect.

As the suspect approached the roadblock, he made a desperate attempt to maneuver around it, losing control of his vehicle. He struck a State Police vehicle and plunged down an embankment into a tree. The suspect was trapped and unconscious in his vehicle. The danger of the pursuit was over, but now there was a different problem. Responding officers had to extricate the suspect from the vehicle and treat his injuries. The State Police immediately requested emergency medical services (EMS) and a fire department from a nearby town. The troopers went down the embankment and assessed the suspect’s condition and how they might be able to rescue him. Because the damage to the vehicle was substantial, they knew it would require specialized extrication equipment. EMS arrived first and determined that a medivac helicopter was needed to transport the suspect to the nearest trauma center.

The EMS crew was experienced in working at these types of crashes and knew what equipment was needed to remove the suspect. However, they could not directly relay that information to the fire department that was also responding to the call. The responding local fire department operated on a receivable VHF channel that EMS personnel didn’t have on their radios. To save time, the EMS crew relayed their equipment requests through their dispatch centers so the fire department could bring the correct equipment down to the overturned vehicle. When the fire department arrived, they quickly got to work and extricated the suspect. Fortunately, the helicopter arrived just as they were getting the suspect out of the car. The medivac helicopter pilot needed someone to set up a safe landing zone for them. He requested this through his dispatcher to EMS, but the EMS crew and fire department were tied up with patient care, so they asked the State Police troopers to take care of the landing zone. That request had to be made face to face, because neither the EMS crew nor the fire department had radio interoperability with the State Police. The State Police troopers were tied up with the incident investigation and physically had to find a local police officer to handle the landing zone assignment.

At this point, the medivac helicopter was circling the scene instead of landing because the landing zone had not been secured. The helicopter pilot was not aware of who was going to set up the landing zone and couldn’t communicate with anyone on the ground except EMS. The

local police officer had to use his dispatch center—which used a landline to call the helicopter dispatcher to relay that information. Luckily, the helicopter crew was able to tune the frequency of the local police into their radio, once they knew what it was. They were able to safely land, pick up the critically injured suspect, and take off to the hospital.

During the incident, one state trooper was shot, several innocent civilians were injured during the pursuit, and the suspect was fatally injured in the crash. Newspapers throughout the state questioned law enforcement’s handling of the situation and openly criticized their inability to perform the most basic of tasks during a very high-risk incident—talk to each other.

Captain Johnson wondered how long it would be until a similar incident occurred. Would the outcome be the same? He wasn’t sure, but he did feel that the State Police was working with radio equipment that had a net effect of being hazardous to State Police personnel and to the public. He couldn’t see how he could explain to anyone why this issue hadn’t been addressed sooner.

The next day, Johnson saw the headline “Lack of Communications Hinders Apprehension” affixed to an article detailing the vehicle chase on the front page of the state’s largest newspaper. The subsequent article detailed the day’s events and how the events ended in one fatality and several injuries. Captain Johnson didn’t like seeing his quotes on the front page of the paper stating, “We couldn’t talk with all the responding public safety agencies as the suspect made his getaway.” Johnson realized the incident was frustrating because delays in communications allowed innocent people to be injured. Later in the week, he read the newspaper with great interest as the paper published a “Letter to the Editor” in response to the cover story earlier in the week. This letter, written by a member of the community, openly criticized law enforcement’s inability to communicate with one another and called for immediate action to rectify the problem (see Appendix A).

After reading these articles, Captain Johnson knew he needed to act. Residents in the affected communities were upset with the lack of radio communications interoperability among public safety agencies. This letter acknowledged that the public knew that the State Police’s equipment was outdated. Johnson saw this as a call for action. In obvious agreement with the citizen who wrote the letter to the editor, the captain didn’t want to see another death or injury caused by a lack of interoperability.

Over the next week, Captain Johnson received numerous calls from colleagues who were commanders of other State Police divisions and patrol barracks. Captain Johnson had long-standing relationships with each one of the callers through previous assignments. They expressed the frustration felt by patrol officers during incidents like these and wondered if something could be done. They all impressed upon Johnson their distinct desire to see something change and offered to help in any way they could. Johnson promised each of them that he would look into the situation in the coming weeks.

Assessing the Problem

Captain Johnson, like other state and local public safety officials across the country, faced the problem of figuring out how to upgrade or replace his agency's current public safety communications system with one that would allow everyone, with the requirement, to talk to each other. He thought that sharing frequencies or equipment with other agencies whose missions encompassed the protection of life and property could potentially solve some of the observed problems.

As the captain assessed the situation, he determined that several key factors limited the state's ability to respond effectively to similar incidents. He began to document all of the problems with the State Police communications system and then called a meeting with other members of the department, including several of the other State Police managers that had called him a few weeks prior, to seek further input. He came up with the following list of State Police wireless communications issues:

- The State Police was operating on a 40-year-old land mobile radio (LMR) system.
- The State Police radio system (and its statewide mutual-aid channel) operates in a UHF band, a different from that used by every other law enforcement agencies in the state.
- Radio system repairs were becoming more frequent, and replacement parts were difficult to locate.
- The State Police had little or no interoperability with federal, county, or local law enforcement.
- The State Police also had no interoperability with responding fire or EMS units.

During this meeting, it became clear that the wireless radio system the State Police currently operated had a limited future and would continue to put officers in danger. The technical staff stressed that the system was drastically beyond its expected life expectancy, and they could not guarantee the availability of future parts. They also pointed out the increasing frequency of emergency repairs to system components. Captain Johnson and fellow State Police managers wondered how much longer their officers could communicate over a system built more than 40 years ago. Additionally, no one on Captain Johnson's communications staff had ever been part of the research and design phase of a new system. Should they upgrade their existing system, purchase a brand new system, or was leasing an option? What band would be best—UHF, VHF, or the 800 MHz band? Was radio spectrum available? If so, how did they go about licensing it?

Creating a Coalition

As this list of issues expanded, Captain Johnson began to think that if his agency was experiencing these types of problems, other state agencies (that had to work over wide areas of

the state) must have had some of the same problems. He then wondered how they were dealing with similar communication issues. He set up a conference call with a few managers he knew in other state agencies, and after relaying the State Police's recent experience with a lack of interoperability, discovered that the State Police was not the only agency wrestling with these issues. Most importantly, the managers in the other state agencies offered Johnson support and assistance in moving the issue forward at the state agency level. As a result of this conference call, he developed a separate list of broader statewide issues. The captain's list detailed difficulties each agency had seen over the past year, challenges they faced, and ways they could counter both. The statewide wireless communications issues list also included some of the state agencies' communications capabilities and common issue themes:

- Many other state agencies were operating on independent, stand-alone systems.
 - The Department of Transportation (DOT) had a 26-site system providing coverage to the 6 major interstates running through the state.
 - The Department of Corrections (DOC) had six sites providing limited, "campus-like" coverage in and around their prisons.
 - The Office of Emergency Management (OEM), which oversees state fire agencies, had a small system it used while on disasters and for communication in the state capital.
- Requirements were increasing for all state agencies due to in-building coverage and population growth in previously rural areas.
- There was no centralized leadership focused on LMR communications within the state.
- There were no centralized funds for LMR in the state; each agency had its own operations budget for its systems.

In the days that followed, the captain continued to solicit feedback from state public safety organizations. Looking at his list, Captain Johnson sat in his office trying to determine what the ideal solution to the state's communications problem would be. It was such an overwhelming task that he didn't know where to begin. Not only was he unsure of what options he had, but he knew he would have to rally his communications staff to work toward a realistic solution.

Estimating Single System Replacement Costs

About a month after the initial conference call, Captain Johnson decided to convene another meeting, this time just among the State Police participants. Many lingering questions still needed answers, but his communications staff felt they could move ahead with finding out how much a new State Police system might cost. They began looking at their department's budget. As a team, they conducted a rigorous 3-month assessment to estimate the cost over the full life cycle of a new system, based on the experience of other State Police agencies. Their estimate accounted for the cost to replace the entire system with state-of-the-art equipment. In the spring of 1990, after 3 months of research, their department derived a specific budget

estimate for a system suitable for the State Police. They divided the cost for the system into three categories: capital expenses, non-capital expenses, and operating expenses. The total estimate for the system was approximately \$205 million over the 10-year life cycle of the system (see Appendix B).

Captain Johnson looked over the projected estimates and had a feeling that a project of this magnitude would be one of the largest and most expensive projects the state would ever undertake. He thought through his options the best he could. They ranged from doing nothing and risking similar situations in the future, to developing a completely new statewide radio system.

The captain realized that opting to do nothing was not very realistic. After all, these were his colleagues who were called to life-threatening incidents every day, and it would affect the overall performance of state troopers when responding to emergency incidents. He would be endangering the lives of both officers and the public if he did not act. However, he knew he would be beginning a lengthy struggle by bringing a direct budget request for this amount of money before the state legislature.

Captain Johnson knew that the lives of public safety personnel along with those in the community would continue to be endangered until a more effective communications system was in place. He needed to devise a strategy that would leverage the need for upgrading or replacing the radio system. Other managers, both within the State Police and other state agencies, had offered him support and assistance, so he would not be taking on the task alone. He thought that performing additional studies and research might help build the foundation for a new system by showing that lives would be saved and working conditions for the state personnel reliant on radio communications would improve if a new system were installed.

Next, Captain Johnson considered the option of re-building a dedicated, State Police-only system. Johnson believed he would have the political support to mobilize such an effort. Although taking action to build a State Police-only system would help solve many of the issues relating to the State Police, it would not improve the performance of other public safety agencies in the state when they tried to work together. After consulting with his group of fellow State Police managers again, he decided the best course of action was to investigate the potential of building a shared system. They each wanted to see interoperability become a reality for their agencies and felt that public opinion was calling on the State Police to be the leaders in this area for the state. Again, they each offered to help Captain Johnson in any way they could, and a couple of them asked if he had spoken to the Superintendent (of the State Police) about the issue yet.

Addressing the Need for Early Executive Support

As he thought through the funding requirements, he was sure that he would need significant backing from the Superintendent of the State Police, and several legislators who chaired either the public safety or budget legislative committees. He wondered how he could make a project of this magnitude a palatable one for both agency executives and legislators to support.

He started thinking again about what he had heard from some of the other state agencies. Their systems were all rapidly becoming obsolete, and no one was really starting to plan for their future systems. The more Captain Johnson thought about it, the clearer it became. This was going to be such a challenge that a coordinated approach would be the only way to be successful. He felt that the State Police and other key state agencies would have to stick together if a statewide, shared system were to become a reality. He thought he could rely on the other state agency managers with whom he had discussed the issue, but wasn't sure it was appropriate to do so at that point.

He decided at that point, he needed to come up with the best immediate course of action. Captain Johnson realized he would have to build a truly sound business case that exhibited analytic thought and an executable plan to get the project off the ground. A business case for a public safety communications system must be specific about its objectives, practical in its approaches, and realistic in assessing its prospects for success. Before he pieced together his business case, he scheduled a meeting with the superintendent to discuss potential courses of action. He wanted to build a coordinated effort and believed the superintendent had a lot of clout with other state and public safety agencies. This clout would help initiate discussions about a coordinated effort at high levels within state agencies and make it easier for Captain Johnson's contacts in the other state agencies to participate in the effort on more of an official basis.

Before meeting with the superintendent, Captain Johnson drew up some notes to use as evidence of why their state should build a shared system and why the State Police should take the lead. Johnson's informal research revealed several potential state agency users of a statewide system that could help bring about a coordinated effort. He divided the state agencies into two categories: primary agencies, such as the DOT and the DOC, where reliable radio communications played a mission critical role; and secondary agencies, such as the Department of Natural Resources and Department of Environmental Quality, that had some need for radio capabilities but didn't operate independent systems (see Appendix C for complete list).

He believed the agencies listed would derive the greatest benefit from a new statewide, shared system. He was convinced it was logical for these agencies to share resources. The State Police interacted with DOC personnel during prisoner transports and escape incidents. The State Police had a daily need to talk with DOT personnel to assist with interstate accidents, road closures, inclement weather responses, etc. DOT and DOC personnel needed to talk to each other during inmate work details on the highways. He also thought about his agency's need to communicate with key federal law enforcement agencies like the FBI and Secret Service.

Captain Johnson could tell already that building any kind of shared system would require solid interagency relationships and constant and effective information sharing. Johnson knew from other interagency coordination efforts that most problems surfaced when impacts on specific agency budgets, organizational jurisdictions, and preexisting procedures caused conflicts. He thought he could overcome most of these obstacles through the creation of an open and honest dialog among the potential partner agencies from the outset. However, he knew the other participants would have to pay close attention to that possibility. He felt good about the feedback he had received from the other state agency managers with whom he had been dealing

thus far and was fairly convinced that together they could manage the potential downside of moving forward as a collective unit.

Captain Johnson met with his superintendent to discuss some of the available options and paths that they could take. Superintendent MacIntire expressed some reservations about the concept of a statewide, shared system but was willing to allow Johnson to investigate the issue further. Specifically, Superintendent MacIntire wanted to know how much it would cost compared with a new State Police-only system and how the state would pay for it. The Superintendent explained why he believed Captain Johnson needed to hire a consultant to assist in this effort. Superintendent MacIntire told Captain Johnson about different types of funding available for the consulting services and advised him to see someone in the State Police's budget office. Superintendent MacIntire gave his approval to release some funds to hire an outside consultant to assist Captain Johnson and asked that Johnson report his findings and recommendations.

Superintendent MacIntire also advised Captain Johnson to try building a small coalition of managers from the state police and other state agencies to help him move the concept forward at the state level. He emphasized the need to "prime the pump" on these large-scale change issues. When Captain Johnson told him about the group of managers with which he had been exchanging ideas and from whom he had been soliciting feedback, the Superintendent agreed that he had done the right thing by including them in the issue early on, should continue the relationship with them, and should look to make it a more formal group as the project moved forward.

Lastly, the superintendent emphasized the need to involve the governor's office as soon as possible if there were any possibility the project would need the backing of the governor. Johnson said he felt comfortable with contacting the governor's office because of a long-standing relationship with one of the special assistants in the office of the governor, Kelly Fitzgerald. He and Fitzgerald had been classmates in a degree program several years earlier and had stayed in touch. He knew that any project requiring this much of the state's budgetary resources would need the governor's support in order to be approved. He decided he would call her soon.

Captain Johnson knew he was getting involved in an initiative that was beyond his expertise. With Superintendent MacIntire's support, he hired Jackie Stuart, a well-known LMR consultant. Over the next year, Stuart and Captain Johnson navigated through some of the issues. Stuart performed a 6-month evaluation, encompassing feedback from many of the agencies previously mentioned, designed to gather data relating to the agencies' needs.

Setting the Stage for Agency Partnerships

Stuart informally polled the larger state agencies and got a mixed response. The DOT representative said that DOT's current system met their needs for interstate road coverage and that they saw no need to switch. Their coverage quality was acceptable, and they had never faced issues regarding poor communications. They operated in the same band as the State Police so they currently had interoperability with troopers through a shared channel. "It works for us,

why change? Besides, what would happen to my radio staff if the State Police built and maintained a new system for everybody?” asked the DOT representative. Stuart expected such a response from DOT and responded to the representative’s questions accordingly. She explained that many operational and organizational issues like that one would have to be outlined and explored by all of the participating issues in a cooperative manner. Though it would require some work, Stuart explained that sensitive issues like that one were not beyond mutual solutions, especially if the vision of a multi-agency governing board were constructed as part of the overall effort. She also pointed out that if DOT decided not to come on board with the new radio system, they could lose interoperability with the State Police and would no longer be able to talk with the DOC regarding highway work crews. Stuart also asserted that a shared system would be cheaper on an annual basis for all partnering agencies. When the DOT representative heard these points, he told Stuart, “Well in that case, I’m sure we would take part in the new communications system.”

The DOC had mostly campus-only systems, so DOC perceived statewide coverage as overkill for it. The DOC point of contact said, “Unless something goes wrong on a prisoner transport, and it rarely does, I don’t see a need to be on a statewide system.” Stuart informed the DOC official that if Corrections had statewide coverage, there would be prison-to-prison radio contact at all times while providing in-transit communications as well. The DOC contact didn’t think that would be something that she her agency really needed. She was not seeing the potential benefits for the shared system. Stuart explained that some of the newer technology might be beneficial to Corrections. Stuart asked the DOC contact if a prisoner had ever obtained a portable radio. She said that it happens occasionally but that the radio becomes useless after the battery is dead. Stuart told her that on a new system, any portable radio could be disabled with a few keystrokes making the radio useless. Stuart also added that the radios Corrections currently used did not have “emergency” buttons that officers could depress that alerted dispatch to an emergency situation and provided the ID of the individual in trouble. The Corrections contact perked up and became more interested and said that some of those newer features would be helpful in their work.

The Department of Forestry liked the idea of being able to go from one park to the next and have a radio that worked. Just recently, Forestry had noticed that in certain situations the coverage they received was not very extensive and hindered communications at times. However, aside from dealing with the hassle of not having a working radio at times, nothing drastic had happened to really press the need for a better system. However, if a reliable and consistent system was available and it eliminated some of these occasional problems, the interest was there to participate. The Forestry representative was especially interested in the prospects of being able to interoperate with local government because most of Forestry’s fire-fighting crews were from local departments. “Being able to effectively coordinate our wild fire crews would streamline our efforts,” the Forestry point of contact added.

State University Campus police liked the idea of being able to interoperate with other local law enforcement and the State Police when they needed assistance but wanted to maintain their campus system, too. “I don’t want all of these other agencies on our radio channel,” said one major university police chief. Stuart explained that on a trunked system, the campus police would be assigned its own talk group that segregated its campus traffic from everyone else.”

The chief said that he would consider coming into the system if it addressed his concerns in this regard.

The Department of Emergency Management Services saw a statewide system as a major leap forward in mitigating emergency incidents and preparing for disaster response. “Finally, we can respond to a major incident, and I don’t need to carry around four radios and be a slave to the command post,” said the representative from Emergency Services. “Please count us in,” she said.

Stuart felt okay about her first attempt at getting some buy-in from other state agencies. She wondered how receptive the local government agencies would be to the statewide system. More importantly though, she was concerned about how other state agencies might feel about the State Police leading this effort. After all, building a major information technology (IT) system wasn’t typically the duty of a public safety agency. She was concerned that when the state IT staff learned of their plans, they might want to assume the project lead and leave the State Police out. She would have a tough time arguing the merits of the IT staff’s position. A strategy to keep them in the loop and give them some level of participation would need to be developed to gain their support.

Stuart and Johnson met with the state’s IT division staff and informed them of the project concept. They thought it was great that the State Police had assumed the role. They just asked to be included in the final plans because it would probably affect the state’s IT Strategic Plan and yearly resource allocations, so they wanted to be active participants throughout the process.

Building a Case for a Statewide Radio System

By spring 1991, Jackie Stuart had helped Captain Johnson build a state plan and an approach for developing a shared system by performing substantial research. Stuart tried to determine whether any other states had developed a statewide system. Her research indicated that no one in the United States had successfully completed a statewide system that didn’t include some underlying issues or political wrangling. Some of the research gathered illustrated that control of the system was a major factor for agencies not wanting to be part of a shared system. For instance, an agency that currently had its own system had complete control over its operation, so why would it want to share? Stuart knew that solving the control issue would be an arduous task. Knowing it would be difficult and time consuming, Stuart reached out to various organizations to conduct some cost estimates, hoping that cost savings and coordination would overshadow territorial obstacles.

As Stuart developed a cost model for a statewide, shared system, she recommended the state look at the latest technology and compare and contrast the state’s needs with the available technology. Because Stuart relied mainly on assumptions, developing a cost estimate for a new system became difficult. Based on research and additional follow-up calls, Captain Johnson and Stuart captured enough solid information to move forward, creating a reasonable estimate for a new statewide, shared system. The cost estimate was approximately \$300 million over the life cycle of the system (see Appendix D).

To compare the two cost estimates (State Police-only system versus statewide, shared system) Stuart broke the costs down to a per agency figure. Because the State Police-only system would benefit only one agency, its cost per agency would be \$200 million. The cost for the statewide, shared system however would be spread, across at least the three main state agencies involved so far (State Police, DOC, and DOT). That made the cost per agency \$100 million. Stuart knew that this was a crude representation of the potential financial benefits of the shared system and thought that a cost per user comparison would be more effective. She figured the per user comparison would be an important element of a business case should they decide to move forward with the shared system concept and made a note to herself reflecting that thought. Stuart also knew that the costs of the statewide, shared system could be supported by a larger pool of money (the total budgets of three agencies versus one) and felt that should make the arduous task of securing funding somewhat easier.

As these duties wrapped up, the cost estimates derived by Stuart supported the development of a new, statewide, shared system because of the substantial difference in cost per agency. Stuart recommended that the state look at signing on local government users as well. Stuart determined that this approach would drive down the costs even further for each of the agencies and demonstrate a truly shared concept. It would dramatically improve interoperability and provide a viable means for the smaller jurisdictions to get newer technology that they could not otherwise afford.

Captain Johnson now had the basic information he thought he needed to push the issue of a statewide, shared system. Armed with this new cost avoidance model showing the cost savings per agency, Johnson scheduled a brief meeting with Kelly Fitzgerald to get her feedback. After explaining the original State Police pursuit incident and the subsequent work he had done to look into the issue, Johnson asked Fitzgerald for feedback on how to gain executive-level support for a project of this magnitude. Fitzgerald explained that she saw two immediate hurdles that had to be cleared before the governor could consider supporting the construction of a statewide radio system of this nature.

She indicated that the state budget office would first have to support the project and show that the agencies involved had the financial means to support the system under the proposed method of combining resources. Second, she indicated that the prospective partner agencies would have to show a “unified front” and common vision for the project. In other words, the executives from each of the partner state agencies would have to support the system and make the financial commitment out of their budgets. Up to this point, Captain Johnson had not even considered consulting with a state budget person. It was now obvious how important the state budgeting office would be in this effort, and he made a mental note to make contact there as soon as possible. Fitzgerald offered to be a resource for other state executive issues as the project moved forward, and Johnson knew he would need that.

Working to Secure Executive Support and Coordination

Captain Johnson felt good about the research he and Stuart had done and the cost estimates they had assembled. He also felt good about the prospects for gaining state executive support. He now had to figure out a way to sell his final concept to Superintendent MacIntire.

Captain Johnson thought that it might be a difficult sell. He knew the superintendent was very conservative and felt comfortable using their existing communications configuration.

Captain Johnson felt that Superintendent MacIntire might be resistant to this fairly radical change and would surely balk at the price tag. However, Captain Johnson felt that if the State Police were the lead agency in this effort, Superintendent MacIntire would likely take ownership of the project and its successful execution. Captain Johnson thought that if he could show that the superintendent would be viewed as an innovator for starting this project, it might be easier to gain his support. By taking action, Superintendent MacIntire could be viewed as a leader not only from a state perspective, but from a national perspective as well.

Captain Johnson tried to gather enough data to show the risks for the State Police and for the public if the State Police didn't take quick action. The task of illustrating this risk would be a simple one considering the inability to communicate drastically altered the events that took place during the pivotal pursuit incident 2 years earlier.

Captain Johnson had Stuart create a brief, but high-impact, presentation for the superintendent. Captain Johnson, Stuart, and Superintendent MacIntire met and reviewed the merits of a statewide system. They also went over the cost estimates prepared by Johnson and Stuart for each type of system. Johnson also relayed the content of his conversation with Kelly Fitzgerald so that the superintendent knew the governor's office was somewhat up to speed on the project. After much discussion and a few follow-up meetings, the Superintendent was on board and wanted to take the next step, which was to regroup within his department. These meetings also brought about a few important action items. To assist with the effort, one of the crucial components stressed by the superintendent was the formation of a formal, statewide, executive-level working group to help foster coordination and partnerships among the partner agencies.

Forming an Executive-Level Working Group

Superintendent MacIntire requested that Captain Johnson begin organizing the formation of an executive-level working group. Johnson really had no idea where to begin regarding the development of the group but assumed it would be a formal way of involving the managers from the other state agencies in the project and proceeding with it on a more inclusive basis. He was charting unfamiliar territory and with no best practices or examples to duplicate. What would the group's mission be? What would its goals be? What agencies should be included in the group? How would the people be selected to serve? Johnson had many more questions, but he knew that he would have to develop a plan so they could move forward.

Captain Johnson met with the coalition of managers from within the State Police and the other state agencies who had played a supporting role thus far and solicited their input on the issue of the working group. Johnson then met again with Kelly Fitzgerald about a group of this nature. Fitzgerald explained that such a group could be "officially chartered" by the state in three ways. First, the governor could issue an executive order creating the group, mandating its purpose, membership structure, duration of existence, etc. Second, the state legislature could pass a law authorizing the establishment of the group and providing all of the organizational

details. Third, the state could enter into a Memorandum of Understanding with all of the participating agencies, which would outline the group's mandate, function, etc. After some discussion about the structure of the state's agencies, constitutional power of the governor, and stage of the project, Fitzgerald recommended establishing the group via an executive order.

Captain Johnson had several meetings with the coalition of managers that had been supporting him before drafting a document outlining the proposed group's dynamics. Johnson thought that the group should be composed of state executives from each partner agency as well as local representatives, with the superintendent serving as the group Chair. Johnson knew it would be best to target senior-level government officials for membership in the group because of both their organizational influence and decision-making authority.

The longer Captain Johnson worked toward the formation of the group, the more apparent it became that the group would play a vital role in helping to govern the system and making key decisions throughout the planning, contracting, and procurement phases of the project. Following his outline of the group's composition, Kelly Fitzgerald put together a draft copy of an executive order. Captain Johnson then sent it out to potential group members who reviewed it to ensure that all of the crucial components were in place. The executive order provided an overview of the group dynamics and showed how the agencies would be represented.

Johnson began holding regular meetings with his group of supporters from the other state agencies to discuss the project and the statewide working group. At their initial meetings, these potential members voted to task Johnson with being program manager for the project. Superintendent MacIntire would provide high-level leadership for the project, with Johnson providing the project's on-going direction. Following the working group meetings, Fitzgerald arranged for a meeting between the potential working group members and Lee Sims (the governor's chief of staff). As they discussed the draft executive order, the potential members from state agencies stressed that their respective agency heads supported the project. Sims agreed to place the issue on the cabinet-level meeting agenda so that the governor and his cabinet secretaries could discuss it. Captain Johnson provided Fitzgerald and Sims with the draft executive order that the ad hoc committee had approved. The executive order (see Appendix E) outlined the following:

- The purpose of the committee would be to foster interoperability and to investigate the possibility of the design, implementation, and operation of a statewide, shared radio system.
- The committee would have representatives from each level of government (local, regional, state, and federal).
- The committee would have representation from each of the user mission areas (e.g., fire, EMS, law enforcement, and transportation).
- The representatives would be senior-level agency staff that could speak for those agencies they represented.

Organizing the executive-level group, and holding meetings and rigorous debates regarding what direction should be taken, spanned about 6 months. These efforts led to the final form of the executive order that the governor signed in June 1992, establishing an executive-level working group focused on exploring methods of improving interoperability and investigating the feasibility of building a statewide, shared radio system.

Coordinating Partner Agencies

The first issue the working group tackled was to make sure all of the state agencies that would most benefit from a statewide, shared radio system were included in the effort from that point forward. In the spirit of the cost avoidance model created by Johnson and Stuart and overall interoperability, the group decided that some primary agencies would be specifically targeted for involvement in the working group and some secondary agencies would be asked to partner in the initiative as well. In an effort to secure their participation, all the agencies would be reminded about the potential per agency cost savings. In addition, many of these agencies already had the need to communicate with each another, and a shared system would allow that to occur in a seamless manner. However, in an effort to be as inclusive as possible, all state agencies would be invited to participate at some level. This would even include agencies that would benefit from statewide radio capabilities but did not currently use radios as part of their mission execution.

Johnson and his coalition of managers had already done a lot of the work informally with the other state agencies prior to the establishment of the working group. Because Captain Johnson helped mobilize some of the likely participants before the governor issued the executive order, the working group invited all remaining state agencies to participate, once the group was formally established.

Inviting Local Participation

Captain Johnson had an easier time convincing the state agencies to join the system than he would with the local agencies. The state agencies were used to working with each other and had common coverage area needs. In addition, most of the agencies faced similar state budget limitations. Few agency heads would be foolish enough to pass up this opportunity without some compelling reason. Johnson didn't think many state agencies would have legitimate reasons not to participate.

All along, in the back of Captain Johnson's mind, he wondered how he could sell the local government agencies on the concept of a shared statewide system. He knew that the more people he added to the system, the better it would be for the project. They would have better interoperability, and events like the car chase would be easier to coordinate. By adding the local departments, it was a "win-win." It was a great opportunity for all the smaller local police departments and the rural fire and EMS agencies that had radios and infrastructure beyond their useful life, and that did not have the budget to support the regular repair and attention they required. Maybe it would be easier to convince them than he thought.

Captain Johnson and his coalition group had not fully figured out how to handle the finances involved with adding the local agencies, but he knew that the state budget staff was going to ask that question soon. He knew that adding state agencies would be a little easier because their budget dollars were more accessible. He wondered how to strike the right financial arrangement with the local governments. The plan needed to be cost effective or he wouldn't get any takers, but he also knew that he needed to make a strong business case to the state legislature to demonstrate the fiscal benefits and viability of developing a true shared system.

Additionally, Kelly Fitzgerald had impressed upon him that, in order to gain the support of the governor, he needed to make the system attractive to the local government agencies in terms of easy access and affordability. She told him that he needed to have a positive impact on a significant portion of the state's public safety agencies in order to demonstrate a statewide benefit to the governor's constituents. This need played heavily into his consideration of user fees and his plan for engaging them as active participants in the planning of the system.

If the state opted to charge user fees to those agencies participating in the system, Captain Johnson wondered how he would estimate that exact number of agencies. He knew the number of agencies he estimated was important because he could then figure out how much each agency would pay per month for user fees. If he overestimated the number of agencies that would participate, where would the additional funds come from? After thinking this through, he thought he would be able to pinpoint a number fairly close to the eventual outcome based on initial contacts with the local agencies.

User fees seemed to be a logical starting point for getting funding contributions of some sort from the local agencies. He needed some assistance from the budget staff and Stuart to estimate a figure for the user fees. This was critically important because no agency would commit to being a user on a system if it didn't have a figure to estimate its potential budgetary commitment. In addition designing the system would be easier if the designers had an idea of what local governments' radio requirements were from the beginning.

It would be an outreach and education job for Captain Johnson and his coalition colleagues to convince the locals of the merits of the system. The thrust would that not only would it be a better use of tax dollars, but it would help improve the protection of the community being safeguarded. Besides, he would have an easier sell at the state level from a funding perspective if more local entities showed interest.

Captain Johnson's group would have to go to the local agencies and attend various meetings to spread the word about the concept of a shared system. He thought that regional meetings in various parts of the state would be a good way to educate potential users on what the system could offer. Johnson figured if they educated the governing boards of the county or local government, that it might generate a little pressure from the top and agency heads might be more receptive. All Johnson wanted was a fair chance to show what the state would have to offer and how everyone would benefit from the shared system.

Johnson knew that the group members would need to address a few key areas up front if the potential local users were to join the effort:

- Show cost savings (user fees vs. infrastructure purchase and maintenance)
- Demonstrate the benefits of the new technology (e.g., emergency button, unit ID, radio disabling feature)
- Explain the security of digital signal encryption
- Explain talk group planning and how different agencies can be segregated
- Provide a vision for better interoperability.

Johnson's group charted their course to likely participants and rolled out their presentation. The group spread out and traveled throughout the state for almost 6 months meeting with as many local and county governing boards as possible. At their meetings, they passed around some radios from different vendors that potentially would be considered for use on the system. Many of the agencies understood the benefits but ultimately only about 10 percent of them signed letters of intent to join the system when it was complete.

Johnson and the other coalition members were somewhat disappointed in the level of local interest they were able to generate. Because it would be several years until the system would be in service, they hoped that more agencies would join. They were sure that once there were some success stories to tell, the initial participants would sell the concept to other local entities.

Elevating the Need for an Appropriation

In the summer of 1993, Captain Johnson and Jackie Stuart met with folks from the State Police's parent department budgeting and management team. His ultimate goal was to meet with a senior state budget expert that worked across all state agencies. Before meeting with the state budget personnel, he wanted to find out what resources were available in his own department's budget and possibly those of other statewide working group member agencies. During the meeting, he introduced the vision for the new system and the two cost estimates Stuart had drawn up.

As Johnson and Stuart explained their cost models to the internal staff members, the budget personnel assessed the State Police budget. They began to document all of the areas that were permanent, and then, those that might be shifted over time for the benefit of the new radio system. From there, the budget staff wanted to examine the budgets of the potential partner agencies at the state level to look for the same things. Because all the departments maintained their own budgets, it was hard to assess everyone else's budget. Once the budget staff had some ideas, they and Captain Johnson consulted with the state budget office to get additional feedback. Captain Johnson knew this would be a job for the state budget folks to work through more accurately because it involved multiple agencies. Captain Johnson called Maggie Taylor, a

senior state budget analyst, to set up a meeting to discuss the mechanics of a budget request for upgrading their communications system that included other state agencies' participation. Johnson believed the budget estimates Stuart gave him were thorough enough to pass along to Taylor. He thought once he had an idea of the process and possibilities, he could take those before the statewide working group members for discussion.

Sharing State Resources

Maggie Taylor knew from the outset that she was tasked with one of the most difficult projects the state had undertaken in a long time. After meeting with her budget staff, Taylor knew that there had to be a way to fund a statewide public safety communications system, but her staff had to find a method that would not impede funding for public education or other government services. The partner agencies had sufficient operating budgets to cover the operations and maintenance, so the state would only have the initial capital outlay of infrastructure and equipment to deal with from a statewide budgetary standpoint.

By creating a more detailed cost savings model and potential revenue combinations over time, Taylor's team illustrated the advantages of combining available resources. Taylor and her staff met with Captain Johnson 2 months later and laid out the more detailed cost savings model and how it would support the funding of a statewide system. The model showed the cost avoidance potential of several smaller scaled systems for individual state agencies, such as the State Police, compared with one joint statewide system funded by multiple user agencies, in terms of aggregate state funding resources (see Appendix F). The model explained the cost differences on a per user basis so that individual partner agencies could figure out the cost differences for themselves based on the number of users they had. It also explained several options the state had for financing the initial capital outlay for infrastructure and user equipment.

This model proved to be sound. Shortly after Taylor's meeting with Captain Johnson, Superintendent MacIntire's office set up a meeting with the budget office to discuss the cost estimates. Taylor believed that the numbers supported the building of a shared system that would benefit all state agencies.

It was now late 1993, and Governor Jones was up for reelection the following fall. He had long been a friend to the public safety community and was looking for support and a winning issue for his upcoming election. The public would see the consolidation of all the state's radio systems on to one shared, state-of-the-art system as smart government and a more efficient use of taxpayer dollars. He had often been labeled as a "streamliner," and this initiative could bode well for his political career.

In a few weeks, after Sims and Fitzgerald briefed him, the governor called the superintendent in for a meeting to discuss the issue. When they met, Superintendent MacIntire reiterated the complexity of the project and some of the issues surrounding a shared system. MacIntire contended that the most compelling obstacles would be convincing all the agencies to work together and addressing their overarching concerns. The Governor agreed, but felt that if these obstacles were pursued in a tactful manner, the agencies would not feel threatened and would come together to work towards a successful shared system. Both MacIntire and the

governor relied on the smooth operation of the statewide working group thus far as an indicator that the agencies involved were pursuing a common goal. It was their belief that this meant that conflict would be minimal if they moved forward with the statewide system concept.

Developing Control Structures

One of the questions consistently asked by those invited to join the system was, “What is the agreement and how are my agency’s concerns going to be addressed?”

A year later, with the assistance of Stuart and some serious review by state attorneys, the statewide working group drafted a Memorandum of Understanding (MOU). This MOU was, in fact, the agreement or contract between the state and the system users. The MOU delineated the roles, responsibilities, and costs entailed for the system and outlined processes for system management. The fact that they finally put system roles, responsibilities, and processes in writing put many agency heads at ease and made it easier for them to commit to joining the system. They knew ahead of time what their commitment or responsibility would be and what they could expect in return.

This “official structure” also served as a tool for the working group as they transitioned from a planning and coordination group into a system management board. The overall board would control management of the system and make decisions affecting the system. The chair positions would rotate each year among the partner agencies, along with the local agency and association representatives. This approach allowed for shared control of the system from a management point of view and demonstrated a commitment to partnerships by the state.

Epilogue

It’s been 9 years since that fateful night of the State Police pursuit. (See Appendix G for a complete timeline.) The state is in the final phase of implementing its new statewide system. Currently four state agencies are using the system, with another three scheduled to move onto it shortly as their own legacy systems become obsolete, and interest from the local public safety community is starting to increase.

The local news had an expose on a recent police pursuit showing that the new system is saving lives and property. The numbers of local agencies using the system has doubled and inquiries are coming in on a regular basis. Many calls were received just after a tornado moved through an area of the state where the local government was on the state system. The local agency was able to seamlessly coordinate the response with the State Police emergency management agency, DOT, and a few other local jurisdictions on the system. That local agency called Captain Johnson to thank him for all his hard work and said, “Being a user on the statewide system made coordinating the response to that tornado much easier.”

Captain Johnson has successfully brought together public agencies from all levels of government to share a robust and dependable communications system. He has gone from sitting in his office not knowing where to start, to building a solid vision that in turn led to a shared statewide communications system. Captain Johnson realized building a business case would

eventually move the effort forward in both a focused and positive direction. Although it was time consuming and costly, Johnson realizes the effort has been well worth it because of the overall better communications between all agencies, the lives saved, and the risk to public safety being involved.

Case Questions

Please consider the following questions in preparation for the class discussion of this case:

- 1) During the pursuit of the suspect, the commanding officer of the State Police decided to set up direct telephone links between the dispatch centers of the involved agencies. Consider a situation you have been in or imagine yourself in this situation. How are your approaches different or what would you have done differently? How could law enforcement and fire/EMS have communicated better?
- 2) Consider both news pieces, the article on the front page of the newspaper detailing the events of the pursuit and also the community member's letter to the editor criticizing the public safety agencies' ability to communicate. Do you see the media as a slanderer or a critical issue elevator?
- 3) During the time when Captain Johnson begins to really assess the situation and explore potential options available to the State Police, do you believe the captain did a sound analysis of the situation? Did he consider all options? What additional resources could he consider to help him at this stage in order to frame his analysis?
- 4) As the captain remembers hearing of other agencies having similar communication problems, he realizes a coordinated effort may be the best approach. However, taking the right steps is normally a difficult and time-consuming process. What are the common challenges found in any attempt to "coordinate" an effort across multiple agencies? How can we overcome them?
- 5) Captain Johnson decided to create a list of potential primary and secondary agencies that could participate in a shared system. What agencies would you consider primary and secondary in your environment? What are the pros and cons of including each?
- 6) In considering the three types of interoperability, day-to-day, task force, and mutual aid, who do you commonly have a need to communicate with and during what types of situations? How does this type of interaction work; is it accomplished in an effective manner?
- 7) As Jackie Stuart begins questioning some of the primary agencies considered, she must convince them of the system's worthiness. What factors would you use to convince other agencies to partner with you? Do you think cost savings alone are enough to convince people in a situation like this?
- 8) In looking at the establishment of the statewide working group, there are normally three main mechanisms available for forming such a group. They are (1) operating under an executive order signed by the governor, (2) passing state legislation, and (3) drafting a Memorandum of Understanding (MOU) among all participating agencies. What do you believe the pros and cons would be for each of these mechanisms?

9) Captain Johnson decides to develop a funding mechanism (revenue stream) for the system as a whole through the assessment of user fees on local agencies. How should you set your user fees in relationship to stand-alone infrastructure costs while weighing that against the need to convince agencies to join the system in the first place?

10) Refer to the section of the case titled “Sharing Resources.” In some cases, legislation may be required to allow agencies to “pool” resources from a budgetary standpoint. Have you ever experienced this sort of situation? What would be required for this to happen in your environment?

11) The epilogue states that after 9 years, the state is in the final phase of implementing their new statewide system. Do you think 8 or 9 years is a reasonable time to take to complete a project like this? How could it be accomplished quicker?

APPENDIX A
LETTER TO THE EDITOR FROM THE STATE'S LARGEST NEWSPAPER

Letter to the Editor: Critical Situation, Something Needs to Change

Re: "Lack of Communications Hinders Apprehension"

November 22, 1989—I'm writing this letter regarding your November 15 article titled "Lack of Communications Hinders Apprehension." As a taxpayer in this community, I'm both embarrassed and amazed at the events that took place last week. A dangerous man was on the loose throughout our community, and throughout adjoining communities, and our law enforcement officials couldn't communicate with one another in order to apprehend him.

At both the local and national level, news coverage of our public safety communities made them look like an unorganized, unprepared, and incompetent group. Last week's incident is a perfect example of why our state needs better communications for public safety agencies.

If the outcome of this event had not been an unnecessary death, then maybe I wouldn't be as outraged as I am. However, a life has been lost and people have been injured, and this shouldn't happen again. Law enforcement officials' lack of communication puts lives and property at risk. Something needs to be done.

Channing Smith

Town of Withering Heights

APPENDIX B
BUDGET ESTIMATES FOR A STATE POLICE-ONLY SYSTEM

Unit Cost (In thousands)											
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	TOTAL COST
Non-Capital Expenses (RFP Preparation, Bid Evaluation, and Contract Management)	4,000	5,350	3,350	2,680	2,000	670	670	335	268	268	19,591
Capital Expenses (Subscriber Equipment, Land, and Infrastructure Hardware)	6,700	34,000	24,000	26,000	20,000	6,700	6,700	6,000	5,350	4,670	140,120
Operating Expenses (System Administration, and Operations and Maintenance)	1,340	1,340	3,000	3,350	4,000	5,350	5,695	6,000	6,365	7,035	43,475
TOTAL COST	12,040	40,690	30,350	32,030	26,000	12,720	13,065	12,335	11,983	11,973	203,186

APPENDIX C
POTENTIAL STATE PARTNER AGENCIES

Primary Agencies
<ul style="list-style-type: none">• Department of Transportation• Department of Corrections• Department of Emergency Management Services• Campus police for state universities and colleges• Department of Forestry• Department of Game and Inland Fisheries

Secondary Agencies
<ul style="list-style-type: none">• Department of Natural Resources• Department of Environmental Quality• Social Services• Department of Agriculture

**APPENDIX D
BUDGET ESTIMATES FOR A SHARED STATEWIDE SYSTEM**

Unit Cost (In thousands)											
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	TOTAL COST
Non-Capital Expenses (RFP Preparation, Bid Evaluation, and Contract Management)	6,000	8,000	5,000	4,000	3,000	1000	1000	500	400	400	29,300
Capital Expenses (Subscriber Equipment, Land, and Infrastructure Hardware)	10,000	50,000	35,000	40,000	30,000	10,000	10,000	9,000	8,000	7,000	209,000
Operating Expenses (System Administration, and Operations and Maintenance)	2,000	2,000	4,500	5,000	6,000	8,000	8,500	9,000	9,500	10,500	65,000
TOTAL COST	18,000	60,000	44,500	49,000	39,000	19,000	19,500	18,500	17,900	17,900	303,300

APPENDIX E

EXECUTIVE ORDER GOVERNOR JONES RECENTLY SIGNED

State Executive Order

This order authorizes the establishment of an executive-level statewide radio system working group, hereafter referred to as “statewide working group.” The statewide working group will coordinate the study of a statewide, shared-use public safety radio communications system to be used by all agencies within the state. The system, when fully implemented, will deliver a statewide radio communications infrastructure capable of providing voice and/or data communications for all state agencies, as well as local and regional public safety agencies.

I) Purpose

The purpose of the statewide working group is to provide policy-level direction for matters related to planning, designing, funding, implementing, and governing a shared system. The effort shall be intended to develop guidelines for the State’s effort to develop a shared communications system for participating state and public safety agencies.

II) Objectives

- A) To investigate and coordinate methods of achieving wireless communications interoperability among public safety agencies working within the state
- B) To create cost savings for the state and participant agencies through the sharing of infrastructure and standardization of equipment
- C) To investigate the possibility of constructing a new statewide, shared radio system for use by all public safety agencies within the state

III) Composition

The Committee shall consist of ten (10) members appointed by the Governor, as identified below:

- A) A Captain of the State Police, who shall chair the Committee;
- B) A State budget analyst, who shall be the Committee co-chair;
- C) A representative appointed by the Office of the Governor
- D) A representative from the State’s Department of Information Technology;
- E) A representative from the State’s Department of Transportation;
- F) A representative from the State’s Department of Emergency Services;
- G) A representative from the State’s Department of Corrections;
- H) An association representative who will rotate from one of three public safety departments (Police Chief, Fire Chief, Emergency Medical Services [EMS])
- I) A local representative who will rotate from one of three public safety departments (Sheriff, Fire, EMS)
- J) A Federal Agency Representative-e.g., FBI, Customs, U.S. Marshal (rotating)

IV) Duration

This committee shall exist for a period of 2 years, or the life of the system, whichever is longer, effective immediately from the date of this order. In the event a resolution has not been drawn within this time frame, this committee’s functions can be renewed in 2-year increments.

APPENDIX F
COST SAVINGS OF A JOINT STATE SYSTEM OVER A SMALLER SCALE SINGLE
AGENCY SYSTEM

	Single Agency System	Joint State System
Infrastructure	\$4,600,000 (4 Sites)	\$0
Radio Costs (Over 10-Year Period)	\$819,000 (350 Radios)	\$819,000 (350 Radios)
Operations and Maintenance	\$1,832,000	\$0
User Fees	\$0	\$708,750
Total	\$7,251,000	\$1,527,750
COST AVOIDANCE		\$5,723,250

APPENDIX G OVERALL TIMELINE OF EVENTS

1989 (November)	Pursuit of suspect occurs, triggers need for better communications system
1990 (February)	After three months of research, State Police derive a budget estimate for a State Police-only system, Captain Johnson begins to think of shared system concept
1990–1991	Captain Johnson meets with Superintendent; Jackie Stuart polls other state agencies
1991 (March)	Research is completed to build a state plan and approach to a shared system
1991–1992	Business case is built; Captain Johnson begins to obtain executive support for the system
1992 (January)	Captain Johnson begins the task of forming a Statewide executive-level working group
1992 (June)	Governor signs executive order establishing statewide working group
1992–1993	Coordination begins of state agencies; Captain Johnson and his coalition spends 6 months traveling throughout the state encouraging local participation
1993 (July)	Captain Johnson calls meeting inviting staff from management and budget
1994–1998	Funding is received and implementation of system begins and progresses; at the end of 1998, the state is in the final phase of implementation