

Model State 911 Plan

Version 1.0



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**



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16. Abstract The 911 system was originally built as a series of independent, local operations. This worked well for the first 40 years of its operation, as almost none of the 911 Public Safety Answering Points (PSAPs) were connected. As 911 evolves into an nationally interconnected web of local and state 911 systems, consistency and uniformity in operation and technology are an important issue for state and local 911 systems to address. Multiple reports, both public and private, have recommended the state as the logical level for coordination, to implement the next generation (NG) of 911 systems. To support consistent, uniform state implementation of NG911, the National 911 Program, house within the NHTSA Office of Emergency Medical Services, funded the development of a model state 911 plan. This document includes the following: <ul style="list-style-type: none"> • Models for State coordination and collaboration; • Methods of overseeing and managing the State's 9-1-1 network; • Mechanisms for establishing and monitoring progress in implementing the State's 9-1-1 system; • Mechanisms for the allocation of State and Federal funding, if available, to public safety answering points for equipment and operations; and • Methods by which public safety answering points will integrate with other emergency communication, telecommunications and information networks. 			
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1. PROJECT DESCRIPTION

The ENHANCE 911 Act of 2004 established a national 9-1-1 Implementation Coordination Office (ICO) as a joint program of the National Telecommunications and Information Administration (NTIA) in the U.S. Department of Commerce and the National Highway Traffic Safety Administration (NHTSA) in the U.S. Department of Transportation. Understanding that many states do not have a statewide 9-1-1 plan or related process, the ICO entered into a collaborative agreement with the National Association of State 9-1-1 Administrators (NASNA). The ICO provided funding for NASNA to hire a project manager to prepare two deliverables: a Model State 9-1-1 Plan and a report on appropriate data measures to evaluate the ongoing technical progress of 9-1-1 at the state level. In September 2007, NASNA released a Request for Proposals (RFP). The firm of L. R. Kimball responded and was selected to conduct the project.

The Model State 9-1-1 Plan document, of which this section is the introduction, addresses the following elements:

- Models for state coordination and collaboration;
- Approaches to oversight and management of the state's 9-1-1 network;
- Mechanism for establishing and monitoring progress in implementing the state's 9-1-1 system;
- Mechanism for the allocation of state and federal funding, if available, to public safety answering points (PSAPs) for equipment and operations; and
- Methods by which PSAPs will integrate with other emergency communication, telecommunications, and information networks

The project is intended to help states develop a better planning and coordination process to facilitate continued deployment of wireless Phase II 9-1-1, and best prepare for the interconnected and shared service environment of the next generation of 9-1-1.

2. FEDERAL LAWS, REGULATIONS AND PROGRAMS FOSTERING STATE-LEVEL PLANNING AND COORDINATION

Emergency events often do not respect governmental jurisdictional boundaries. Large-scale emergency events have even greater inter-jurisdictional impact. Inevitably, that requires some degree of response coordination. This generates a need for planning and established service arrangements that most effectively mitigate the emergencies involved. Many states require state and local agencies to develop strategic and operational plans to address such need. The federal government has had similar requirements (often as a prerequisite to receiving federal funds and support) for many years in a variety of program areas. This section of the document explores relevant existing and pending federal legislation that directly or indirectly fosters and/or requires statewide planning and coordination for emergency communications and the delivery of a 9-1-1 call.

2.1 WIRELESS COMMUNICATIONS AND PUBLIC SAFETY ACT OF 1999¹

This federal legislation did several things beyond furthering the deployment of wireless 9-1-1 service, not the least of which was the establishment of 9-1-1 as the universal emergency telephone number in America.² Indeed, the stated purpose of the Act spoke to encouraging and facilitating “. . . the prompt deployment throughout the United States of a seamless, ubiquitous, and reliable end-to-end infrastructure for communications.”³ Relevant to this document, the Act reflected a Congressional finding that

the establishment and maintenance of an end-to-end communications infrastructure among members of the public, emergency safety, fire service and law enforcement officials, emergency dispatch providers, transportation officials, and hospital emergency and trauma care facilities will reduce response times for the delivery of emergency care, assist in delivering appropriate care, and thereby prevent fatalities, substantially reduce the severity and extent of injuries, reduce time lost from work, and save thousands of lives and billions of dollars in health care costs;⁴

The reference to “end-to-end” communications infrastructure implies coordination among the stakeholders involved, and that requires planning. More directly, the Congress also found that

the rapid, efficient deployment of emergency telecommunications service requires statewide coordination of the efforts of local public safety, fire service and law enforcement officials, emergency dispatch providers, and transportation officials; the establishment of sources of adequate funding for carrier and public safety, fire service and law enforcement agency technology development and deployment; the coordination and integration of emergency communications with traffic control and management systems and the designation of 9-1-1 as the number to call in emergencies throughout the Nation;⁵

That finding specifically references “statewide coordination” of relevant stakeholders, along with the “coordination and integration of emergency communications” with related systems.

¹ PUBLIC LAW 106-81-October 26, 1999.

² As a matter of established federal policy, such declaration did not exist before this Act.

³ Ibid. SEC. 2, FINDINGS AND PURPOSE. (b)

⁴ Ibid. SEC. 2. FINDINGS AND PURPOSE. (a)

⁵ Ibid.

By way of provisions, the Act required the Federal Communications Commission (FCC) to

. . . encourage and support efforts by states to deploy comprehensive end-to-end emergency communications infrastructure and programs, based on coordinated statewide plans [emphasis added], including seamless, ubiquitous, reliable wireless telecommunications networks and enhanced wireless 9-1-1 service.”⁶ The Act goes on to say that the Commission should “. . . encourage each state to develop and implement *coordinated statewide deployment plans* [emphasis added], through an entity designated by the governor, and to include representatives of the foregoing organizations and entities in development and implementation of such plans.”⁷

While the legislation does not dictate to state governments how that process should occur, it does speak to “statewide deployment plans,” coupled with the “coordinated” involvement of relevant stakeholders. In summary, the Act encourages and fosters:

- Coordinated statewide plans
- A state entity designated by the Governor
- End-to-end emergency communications infrastructure and programs
- Involvement of state and local stakeholders

In response to their legislative requirements, and, building upon the related House Report, the FCC found that section 3(b) reflected

. . . a careful balance between the need for federal and state leadership and the responsibilities of local jurisdictions and others to provide 911 emergency services. Congress recognized that most of the key decisions in this area are not made by the federal government, but by the private sector and state and local governments, and that implementation of 911 systems is carried out at the local level. We find, therefore, that the framework for implementation of the state plans and statewide emergency systems envisioned by the 911 Act should rely on the cooperation and coordination of all the interested parties.⁸

In the final rulemaking, the Commission pledged to “. . . maintain an ongoing dialog with state and local officials, through interactions with, for example, the National Governors’ Association, the National Conference of State Legislators, and the National Association of Regulatory Utility Commissioners . . . [and to] make presentations on 911-related issues at conferences of various associations, including those of NENA and APCO, hold roundtable discussions, and provide an information clearinghouse function through its E911 website.”⁹ Said rulemaking also addressed the role of a “designated state entity,” within the context of the Act. In making “9-1-1” the country’s universal emergency number, the Act required that 9-1-1 calls had to be delivered somewhere. In areas where established PSAPs did not exist, the FCC rules “strongly encouraged” states to establish a state-level “point of contact” for carriers (not limited to just wireless) to access for 9-1-1 call delivery guidance.¹⁰

⁶ Ibid. SEC. 3. UNIVERSAL EMERGENCY TELEPHONE NUMBER. (b)

⁷ Ibid.

⁸ FOURTH REPORT AND ORDER AND THIRD NOTICE OF PROPOSED RULEMAKING, CC Docket No. 92-105, NOTICE OF PROPOSED RULEMAKING, WT Docket No. 00-110, adopted August 24, 2000, paragraph 24. Note: Congress recognized that, although technology may provide the key, developing comprehensive delivery systems would require “significant cooperation amongst the stakeholder parties, and significant leadership by all levels of government, . . . federal, state and local.” House Report at 7.

⁹ FIFTH REPORT AND ORDER, CC Docket No. 92-105, FIRST REPORT AND ORDER, WT Docket No. 00-110, MEMORANDUM OPINION AND ORDER ON RECONSIDERATION, CC Docket No. 92-105 and WT Docket No. 00-110, adopted November 29, 2001, Paragraph 50.

¹⁰ Ibid. Paragraph 15.

2.2 ENSURING NEEDED HELP ARRIVES NEAR CALLERS EMPLOYING 911 ACT OF 2004 (ENHANCE 911 ACT OF 2004)¹¹

The host legislation for this Act involved several purposes. Title I of the legislation involved had two major E9-1-1 focuses: better coordinate E9-1-1 services at federal, state and local levels; and, ensuring that “. . . funds collected on telecommunications bills for E9-1-1 services are used only for the purposes for which the funds are being collected.”¹² The first purpose was based on Congressional findings that, among other reasons, “. . . enhanced emergency communications require federal, state, and local government resources and coordination.”¹³

Essentially these provisions amended Part C of Title I of the National Telecommunications and Information Administration Organization Act (47 U.S.C. 901 et seq.) by adding the establishment of an ICO, previously described. Under the relevant provisions involved, the ICO is responsible for the establishment of “. . . a joint program to facilitate coordination and communication between federal, state, and local emergency communications systems, emergency personnel, public safety organizations, telecommunications carriers, and telecommunications equipment manufacturers and vendors involved in the implementation of E-911 services . . .”¹⁴

Subsection (b) of the Act provided for wireless Phase II E9-1-1 implementation grants to “eligible entities.”¹⁵ The recently passed New and Emerging Technologies 911 Improvement Act of 2008 (discussed in more detail below) amended Subsection (b) to provide grants for migration to an IP-enabled emergency network. Eligible entities, as defined by the Act, are essentially state and local governments, or tribal organizations. In the case of an eligible entity that is a state government,¹⁶ the Act indicates that the state must have

- Coordinated its application with the PSAPs located within the state
- Designated a single officer or governmental body of the state to serve as the coordinator of implementation of E9-1-1 services (except that such designation need not vest such coordinator with direct legal authority to implement E9-1-1 services or manage emergency communications operations)
- Established a plan for the coordination and implementation of E9-1-1 services
- Integrated telecommunications services involved in the implementation and delivery of phase II E9-1-1 services

To the extent that this document addresses the above requirement for a state plan, it should be noted that such references both coordination and implementation of E9-1-1 services within states. While related or overlapping, “coordination” and “implementation” is not necessarily the same thing. The model plan this document describes must address both functions. At the time of this report, NHTSA and NTIA are currently developing grant regulations as required by the legislation.

¹¹ Public Law No: 108-494, December 23, 2004 (Title I).

¹² See PL 108-494, Title I, Section 103.

¹³ Ibid, Section 102. These findings also noted “. . . enhanced 911 is a high national priority and it requires federal leadership, working in cooperation with state and local governments and with the numerous organizations dedicated to delivering emergency communications services.”

¹⁴ Ibid, Section 158(a)(1)(A).

¹⁵ See Section 158(b).

¹⁶ In the case of an eligible entity that is not a state government, eligible entities must comply with the first, third and fourth bulleted provisions identified above, and the state within which the eligible entity lies must have complied with the second bulleted item.

2.3 OTHER FEDERAL LEGISLATION

One of the most current examples of federal legislation that gives evidence of the trend to require statewide planning is the Public Safety Interoperable Communications (PSIC) Grant Program jointly administered by the Department of Commerce's National Telecommunications and Information Administration (NTIA) and the Department of Homeland Security (DHS). This program was established under Section 3006 of the Deficit Reduction Act of 2005 (Pub. L. No. 109-171), and is designed to assist public safety agencies in the acquisition of, deployment of, or training for the use of interoperable communications systems that utilize—or enable interoperability with communications systems that can utilize—reallocated 700 MHz spectrum for radio communications. The PSIC program leverages the requirement for states to develop, adopt, and submit statewide plans (originally by November 1, 2007), which must address “locally driven” interoperable communications capabilities among local and tribal government entities, and authorized nongovernmental organizations.¹⁷ The planning process envisioned in this requirement is represented by the “Statewide Communications Interoperability Planning (SCIP) Methodology” developed by SAFECOM in partnership with the Commonwealth of Virginia.¹⁸ The latter is constructed around ten components: background and preliminary steps, strategy, methodology, governance, technology, SOPs, training and exercises, usage, funding and implementation.¹⁹

More recently, Congress passed legislation designed to address emerging voice over Internet protocol (VoIP) telecommunications and 9-1-1 service.²⁰ Among other things, the new legislation amended the ENHANCE 911 Act of 2004 to include provisions requiring the ICO to develop and report to Congress a “National Plan . . . for migrating to a national IP-enabled emergency network capable of receiving and responding to all citizen-activated emergency communications and improving information sharing among all emergency response entities.”²¹ The plan is to be structured around the following content.²²

- Outline the potential benefits of such a migration;
- Identify barriers that must be overcome and funding mechanisms to address those barriers;
- Provide specific mechanisms for ensuring the IP-enabled emergency network is available in every community and is coordinated on a local, regional, and Statewide basis;
- Identify location technology for nomadic devices and for office buildings and multi-dwelling units;
- Include a proposed timetable, an outline of costs and potential savings;
- Provide specific legislative language, if necessary, for achieving the plan;

¹⁷ The development and adoption of a statewide plan is required by Section I.C.5 of the 2006 Homeland Security Grant Program. See <http://wyohomelandsecurity.state.wy.us/Library/fy2006hsgp.pdf>.

¹⁸ See <http://www.safecomprogram.gov/> for both a description of the SAFECOM program, and the planning methodology.

¹⁹ Note: these references speak to statewide plans, not necessarily a state plan. As the methodology points out,

“ . . . plans are referred to as statewide plans because they should incorporate the perspectives and support of all stakeholders from across the state. Although the Governor’s Office acts as an umbrella organization for the effort, statewide plans should employ a “bottom up,” as opposed to a state-driven “top down,” effort. Because local emergency responders are the ones who will be most affected by the statewide plan, it is critical to develop a plan that meets their needs most effectively and receives their support.” Office for Interoperability and Compatibility, USDHS, “State Interoperability Planning Guidebook,” March 2007, pg. 55.

²⁰ New and Emerging Technologies 911 Improvement Act of 2008 (HR 3403), 110th Congress, June 23, 2008.

²¹ Ibid.

²² Section 102(d)(2), *ibid.*

- Provide recommendations on any legislative changes, including updating definitions, to facilitate a national IP-enabled emergency network;
- Assess, collect, and analyze the experiences of the PSAPs and related public safety authorities who are conducting trial deployments of IP-enabled emergency networks as of the date of enactment of the New and Emerging Technologies Improvement Act of 2008;
- Identify solutions for providing 9-1-1 and enhanced 9-1-1 access to those with disabilities and needed steps to implement such solutions, including a recommended timeline;
- Analyze efforts to provide automatic location for enhanced 9-1-1 services purposes and recommendations on regulatory or legislative changes that are necessary to achieve automatic location for 9-1-1 services purposes;

The ICO is required to develop the plan in consultation with representatives of the public safety community, disability groups, technology and telecommunications providers, IP-enabled voice service providers, Telecommunications Relay Service providers, and other emergency communications providers as appropriate.

2.4 CONCLUSION

Federal policy, as reflected in existing 9-1-1 legislation, fosters and/or requires some degree of statewide planning and coordination. In short, such policy speaks to four broad areas:

- The establishment of a state entity or focal point for these issues
- The establishment of statewide plans designed to insure statewide 9-1-1 coordination and effort
- The appropriate and adequate involvement of stakeholder communities with a vested interest in these matters
- And, that such planning and coordination comprehensively address the 9-1-1 or other public safety technology and services involved

3. THE FUTURE: NG9-1-1 SYSTEM REQUIREMENTS AND STATE-LEVEL/INTERSTATE PLANNING AND COORDINATION

Next Generation 9-1-1 (NG9-1-1) involves, by nature, services and stakeholders working together to achieve its full vision. For example, the U.S. Department of Transportation (USDOT), in its current sponsored project to design the system architecture and high-level requirements of NG9-1-1, notes that

NG9-1-1 is expected to be an interconnected [emphasis added] system of local and regional emergency services networks (system of systems). The boundaries of emergency service networks may vary, depending on local requirements and organizational frameworks. However, at the core, each local NG9-1-1 network would include one or more PSAPs and the corresponding public safety dispatching capabilities.²³

One of the major features of NG9-1-1 is the concept of “interconnection”—one that ultimately brings about “. . . a nationally interoperable emergency services inter-network.”²⁴ The agency’s core vision of the project is even more specific when it suggests that once implemented, the NG9-1-1 system will enable among other things

- Transfer of 9-1-1 calls between geographically dispersed PSAPs (and from PSAPs to remote public safety dispatch centers) if necessary
- Increased aggregation and sharing of data, resources, procedures, and standards to improve emergency response
- Maximized public capital and operating cost savings for emergency communication services
- Promotion of increased coordination and partnerships within the emergency response community²⁵

Next Generation functions that enable the transferring of 9-1-1 calls, the sharing of data and resources, the maximizing of cost savings, and the increased coordination and partnerships of the stakeholders involved all stem from a coordinated and interconnected environment that cannot come about on its own. Planning and coordination mechanisms must be in place to facilitate that process.

²³ USDOT. “Next Generation 9-1-1 (NG9-1-1) System Initiative: Concept of Operations.” Intelligent Transportation Systems. April 2007. 12. http://www.its.dot.gov/ng911/ng911_pubs.htm.

²⁴ Ibid.

²⁵ Ibid. 13.

3.1 NATURE AND SCOPE OF INTERCONNECTION

The FCC Network Reliability and Interoperability Council (NRIC) VII Focus Group 1B (FG1B) broadly characterized NG9-1-1 interconnection this way:

. . . PSAPs should and will deploy IP networks within the PSAP, between the PSAP and the sources of calls coming into the system and between the PSAP and other responders and emergency service agencies. This communication infrastructure serving the PSAPs will comprise an Inter-network (federation) of managed and secured Emergency Service IP Networks. It is anticipated that such networks will mirror the 9-1-1 system authority level. In most areas, that would equate to a county or large city, but in some cases it would be an entire state, and in other cases a single large PSAP. The Emergency Services Network, in turn, should be interconnected to neighboring jurisdictions for mutual aid assistance, and the Inter-network formed by such connections would be aggregated at state or groups of states and further interconnected such that information can be sent reliably between any entities within this Inter-network across the country. National agencies, such as DHS, would connect to this Inter-network and thus would be able to both provide and access information on it. Many of those agencies do not have ready access to the emergency communications systems (E9-1-1 PSAPs) today. Allowing them to join this wider network will bring added value to the common cause of providing the best assistance possible in times of emergencies.²⁶

Focus Group 1D (FG1D) of the same NRIC suggested that such connectivity extends beyond the traditional public safety community, and includes:

- Traditional public safety agencies (law enforcement, fire services, EMS, and 9-1-1)
- Citizens and businesses: connections between them and agencies (e.g., E9-1-1, truck fleet management systems)
- Business safety providers (e.g., telematics, alarm monitoring systems, hazmat service providers)
- sHospitals/Clinics
- Public health
- Emergency management
- Transportation departments
- Different transportation modes (e.g., railroads, ports, trucking)
- Non-governmental organizations (e.g., Red Cross, Salvation Army, CERT, mountain rescue groups)
- Mental health organizations
- National Guard
- United States Department of Defense (US DOD)

²⁶ Focus Group 1B. "Long Term Issues for Emergency/E9-1-1 Services: Report 4." FCC NRIC VII. Sept. 2004. 26-27. <http://www/nric.org/fg/index.html>. FG 1B specifically examined "Long Term Issues" for Enhanced 9-1-1. NRIC is a formal federal advisory committee, with the responsibility to provide recommendations to the FCC and to the communications industry that, if implemented, would assure optimal reliability and interoperability of wireless, wireline, satellite, cable, and public data communication networks. Periodic councils are organized to deal with specific sets of issues or subjects, within a broad charter. This council was the seventh council so organized, and included a significant focus on 9-1-1 matters. FG1B specifically examined "Long Term Issues" for Enhanced 9-1-1.

- Utilities, public works, recreation departments
- Media
- Schools
- Critical infrastructure companies²⁷

The USDOT agreed. In its Concept of Operations document, USDOT acknowledges that

...access to emergency services provided by 9-1-1 in today's world of evolving technology will ultimately occur within a broader array of interconnected networks comprehensively supporting emergency services—from public access to those services, to the facilitation of the services, to the delivery of the emergency information to dispatchers and first responders.²⁸

The planning and coordination mechanisms in place must accommodate that vision of Next Generation services.²⁹

In conclusion, this serves to underscore the need for each state to include more than its traditional public safety stakeholders in its planning; to incorporate state and federal agencies responsible for homeland security and emergency management; to include inter-state issues and coordinate with contiguous states. Further, integration of state plans with each other and with the ICO's National Plan would help make the interconnection potential of NG9-1-1 a reality sooner by including stakeholders outside the traditional public safety and 9-1-1 environment. This would require a greater time commitment up front, but the pay off would be greater momentum and resources in the long run.

²⁷ NRIC Focus Group 1D. "Focus Group 1D Report—Communication Issues for Emergency Communications Beyond 9-1-1." FCC NRIC VII. Dec. 2004. 22-23. <http://www/nric.org/fg/index/html>. FG1D specifically examined "Communication Issues for Emergency Communications Beyond 9-1-1," or first responder and downstream emergency communications.

²⁸ Ibid. 5.

²⁹ This is an important point. It is assumed that public safety's migration to Next Generation solutions will occur within the context of broader and higher-level system deployments. IP-based, backbone transport infrastructure may be deployed for a variety of public service purposes, of which 9-1-1 and public safety may be only a part. Many, if not most, states today are deploying IP-based infrastructure to support a variety of state services. 9-1-1 may find it valuable to take advantage of these resources to provide much of the interconnectivity described here. This assures an economy of scale and, most importantly, the sharing of costs. Obviously, that requires high-level coordination and leadership.

3.2 ARCHITECTURAL MODEL

In terms of conceptual Next Generation architectural models, we present two that are similar; the National Emergency Number Association (NENA)³⁰ and the U.S. Department of Transportation.³¹

NENA NG9-1-1 Model

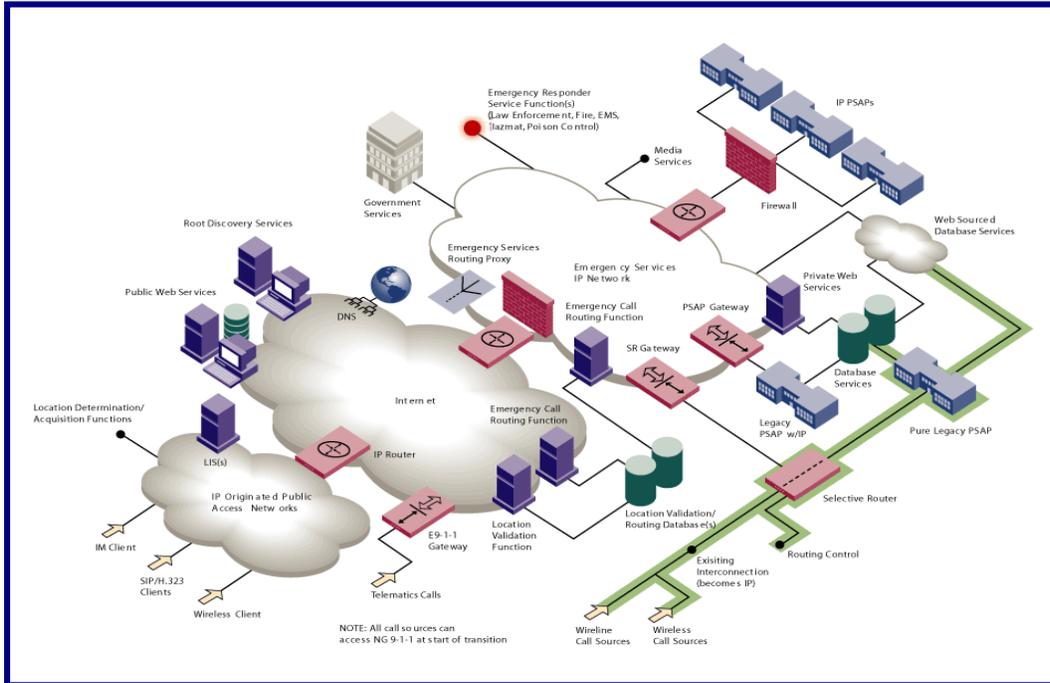


Figure 1

³⁰ USDOT. "Next Generation 9-1-1 (NG9-1-1) System Initiative: System Description and Requirements Document." Intelligent Transportation Systems. October 2007. 2-7. <http://www.its.dot.gov/>. Note: This document is also supported by the Project's "Architecture Analysis Report," November 2007. See page 15 for the "Composite High-Level Architecture" version of this diagram.

³¹ Of course, many of these functions must occur at lower levels as well. But, for them to all work together at the state level requires some type of state-level planning and coordination. For NG9-1-1, state-level services are likely to include some degree of: "border control functions" like security, access control, identity management and some degree of call record/logging; emergency call routing functions, including emergency service routing proxies, business rules databases and related functions, location to service translation (LoST) servers, and related soft or IP switches and automatic call distribution; and, a location validation function.

USDOT NG9-1-1 System Model

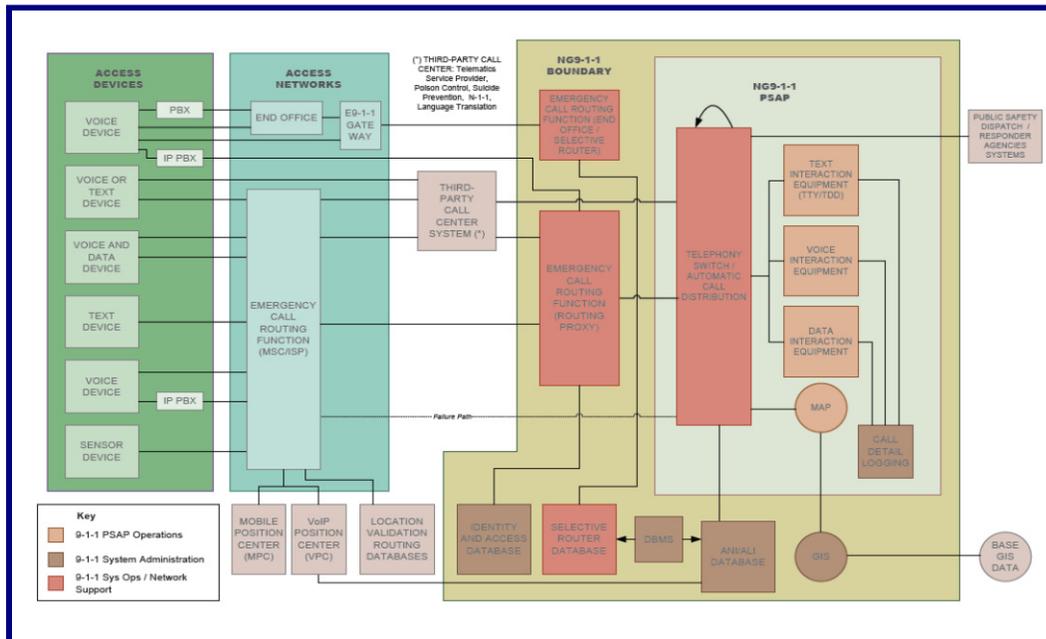


Figure 2

The ultimate vision of NG9-1-1 reflects an interconnected “network of networks” structured around a number of functions that must be provisioned in some fashion beyond local/regional serving PSAP-based IP networks (ESInets). These include functions like state-level gateway and border control services, security, call routing, location validation, system access and rights management, and the database activities necessary to make it all work. It is logical that such functions be part of the state-level planning involved.

3.3 REQUIREMENTS AND STATE-LEVEL PLANNING

The above modeling is supported by a great deal of “system requirements” work being conducted by a variety of industry-based organizations. That includes the USDOT project. Within that effort, their “NG9-1-1 System Description and Requirements” document sets out “. . . top-level functional requirements, identifies capability use cases, and specifies enterprise-wide requirements” for Next Generation migration.³² The above functions, as requirements, are described in greater detail in this document. Beyond that, and depending upon a state’s operational environment, there may well be state-level service functions that must be considered as well.³³ Poison control, emergency management and emergency notification, and telecommunications relay services are but a few examples.

³² Ibid. 1-2.

³³ The “9-1-1 Industry Alliance” recently published a report dealing with the “Health of the US 9-1-1 System.” The report specifically addressed the “. . . current state of technology, funding and governance of the United State 9-1-1 system with recommendations to assure the future health of emergency communications.” A key recommendation stated “. . . that a state oversight body should spur the development of an advanced system and continue to oversee its use,” and, “. . . that State leadership in legislating, budgeting, planning and building a next

4. THE STATE OF THE STATES

While many states across the country have established state-level 9-1-1 programs, there continues to be a great deal of diversity in the nature and organization of those programs. Some states have established programs by statute, and the programs involved are comprehensive in both geography and program scope; while other states have done the same in a less formal way, or program scope may be more limited. Beyond that, there are several states that have no state 9-1-1 focus or coordination mechanism at all.

The institutional aspects of 9-1-1 are evolutionary in nature. As the service has evolved to address new challenges or service requirements, so have also the institutions put into place to support those needs. For example, while 9-1-1 is by nature a locally based public safety service, new forms of communications like wireless and VoIP have forced the community to develop new institutional mechanisms to coordinate and fund the service enhancements necessary to serve the calls involved. Some states with a history of strong local government-based 9-1-1 systems acknowledged the need to do something statewide, but limited the state focus to the challenge at hand, i.e., wireless. More recently, however, in response to the increasingly complex world of telecommunication, some states are beginning to explore more comprehensive institutional arrangements to support 9-1-1.³⁴

The collection of information revealed that state-level 9-1-1 arrangements roughly fit within seven categories. Please note that this is a “best fit” categorization and that all programs have unique characteristics and flavors based upon the states involved. Figure 1 below is a brief summary of state-level programs by type.

Table 1
State 9-1-1 Program Summary

Category	Description	Characteristics
1	State-level 9-1-1 authority that owns or operates a single statewide system with a single, state-operated PSAP	Washington, DC, is the only independent entity. In New Hampshire and Rhode Island, the 9-1-1 authority is part of another state agency.
2	State-level 9-1-1 authority that owns/operates a single statewide system, and funds and operationally supports PSAPs	Vermont operates independently. In Maine, Massachusetts, Delaware ³⁵ , Connecticut, and New Jersey, the 9-1-1 authority is part of another state agency.

generation network is required.” 9-1-1 Industry Alliance, “Health of the US 9-1-1 System,” 47, 2008. See www.911alliance.org for more information about the Alliance.

³⁴ For example, some states like North Carolina and Kentucky have recently expanded their more limited wireless state functions to comprehensively address 9-1-1.

³⁵ Responsibility for 9-1-1 in Delaware is divided between an independent Board that provides oversight and funding for locally operated PSAPs; and the Department of Information and Technology, which is responsible for state technology procurements, including the 9-1-1 system.

Table 1 Continued

Category	Description	Characteristics
3	State-level 9-1-1 authority with statewide geographic planning/coordination/funding responsibility for full scope of 9-1-1 ³⁶	None of the 27 state 9-1-1 programs in this category operates as completely independent state agencies or functions. They are all part of another state agency, though beyond that there is a great deal of diversity. For most states in this category, the 9-1-1 function is a full-fledged organizational component of another state agency, and works within the context and authority of that agency. However, a few state programs are simply attached to another state agency for administrative support, and operate independently. In the latter case, there may be a separate board or commission that sets policy and exerts decision authority.
4	State-level 9-1-1 authority with less than statewide geographic planning/ coordination/funding responsibility for full scope of 9-1-1	Texas is the only state in this category, and operates as an independent state agency. In those parts of Texas outside of the state program's geographic responsibility, regional and/or local 9-1-1 authorities have independent responsibility
5	State-level agency or board with statewide responsibility for a limited aspect of 9-1-1 (generally wireless)	As described above, this is slowly changing. Alabama, Mississippi, and Arkansas reflect independent agencies or boards of this sort; while Hawaii, Indiana, Kansas, Nebraska, Ohio, and Wisconsin are part of a larger state agency.
6	Informal state-level 9-1-1 focus or coordination mechanism	Two states fall into this category. North Dakota has developed an effective state-level coordination mechanism by working through the state's county association. Missouri has no formal state 9-1-1 presence, though the state's single-point-of-contact (SPOC) informally works to provide statewide coordination and planning.
7	No state-level planning or coordination mechanism of any sort	Three states (Alaska, Louisiana, and Nevada) fall into this category. By federal law, they are required to have a single point of contact, but provide no other function.

³⁶Not every state program in this category has planning, coordination and funding responsibility. In Georgia, for example, funding is entirely local and goes directly to PSAP authorities.

Where state programs exist, they are, for the most part authorized by enabling legislation (particularly if dedicated 9-1-1 service fee oversight is involved). By nature, that legislation both enables and restricts the 9-1-1 activities in which the agencies or programs can engage. Category 5 programs, for example, are necessarily limited to wireless activities (and, that may, in turn, be limited to a specific type of activity, such as funding). This may limit the scope of statewide planning and coordination they can effect.³⁷ For the majority of states, however, the relevant legislation appears broad enough to allow planning and coordination of the sort envisioned herein.³⁸

Most state programs currently engage in some form of planning and coordination, though the efforts involved range from formal to informal.³⁹ Some states statutes (and/or rules and policies) require planning to one degree or another, though none appears contradictory to the intent of this report. Of the plans reviewed, some are high-level strategic documents setting out vision, goals, and objectives. Others are more detailed in nature and address specific projects, services, and tasks. Some state planning efforts are built around local and regional planning, i.e., the state puts into place planning guidelines and requirements, and then reviews and compiles the plans submitted.⁴⁰ Ultimately, a state will benefit most from a planning process that both reflects local needs and requirements, and factors in state-level needs for statewide functions, services, and components.

Throughout this document, reference is made to different types of organizations, including for example, “9-1-1 Authorities” and “PSAP authorities.” Such references are intended to be functional and descriptive, not legal or statutory. Generally, PSAP authorities are units of government with direct operational responsibility for PSAP services. These are not necessarily the PSAPs themselves, but often the host agency for the PSAP; for example, a city or county agency responsible for establishing operational policy for PSAP services. 9-1-1 authorities are organizations with planning, coordination, support and (usually) funding responsibilities, but generally not direct PSAP operational responsibility.⁴¹ Most state 9-1-1 programs fit this description.⁴² While the concept of the 9-1-1 authority has been around for some time, such institutional arrangements are becoming more important to support an interconnected 9-1-1 environment with layered responsibilities and functions.

³⁷ Most state programs stop short of addressing the full operational scope of 9-1-1 service, recognizing that 9-1-1 is a local public safety matter. Indeed, even where statutory 9-1-1 funding exists, it generally only covers part of the costs involved. That, in turn, potentially limits the impact of state planning and coordination. Consequently, the need for an effective planning process substantively involving local/regional stakeholder effort and input is paramount.

³⁸ Some state programs came about as a function of existing state authority in other areas. The best examples are state utility regulatory commissions that have an allied responsibility to deal with the telecommunications industry and represent the public interest.

³⁹ By count, fewer than half of the state programs reviewed appear to engage in any formal planning effort, though, by nature, there is planning involved in any coordination effort.

⁴⁰ Often as a prerequisite to funding support.

⁴¹ Like an emergency communications special purpose district specifically responsible for identified support functions for PSAPs in a defined geographical area.

⁴² Albeit, there are exceptions: the states of New Hampshire and Rhode Island, for example, are both.

5. STATE-LEVEL NEEDS AND REQUIREMENTS FOR EFFECTIVE PLANNING, COORDINATION AND IMPLEMENTATION

Telecommunications technology has evolved beyond wireless, and that fact, along with the interconnected nature of NG9-1-1 systems and solutions, makes effective statewide planning and coordination more essential than ever. The previous sections of this introduction provided some detail on those general needs nationally. Following is a brief summary of the factors involved.

- Adopted federal policy fosters and/or requires some degree of statewide planning and coordination, including: the establishment of a state entity or focal point for these issues; the establishment of statewide plans designed to insure statewide coordination and effort; the appropriate and adequate involvement of stakeholder communities with a vested interest in these matters; and, that such planning and coordination comprehensively address the technology and services involved.
- NG9-1-1 is being designed to support an interconnected system of local, regional and state emergency services networks. Effective interconnection requires effective planning and coordination. Next Generation system requirements and standards are being drafted in that context.
- Next Generation functional requirements suggest that statewide planning will range from coordination, facilitation and funding, to state-level service support to assure statewide interconnection and operations (e.g., border control functions,⁴³ routing, database uniformity and maintenance).
- Existing state implementation environments vary greatly in institutional structure, roles and responsibilities. However, where relevant state enabling legislation exists, it appears, for the most part, broad enough to accommodate the kind of planning and coordination envisioned in this report.
- Ultimately, a state will benefit most from a planning process that both reflects local needs and requirements, and factors in state-level needs for statewide functions, services, and components. NG9-1-1 will certainly require that. Some, if not many, state programs will need to enhance their current efforts in that direction.

⁴³ Like signaling security, lawful interception, emergency call handling and, as necessary, firewalling and traffic policing at the media layer of IP networks.

6. THE PLANNING PROCESS

The planning process will vary from state to state depending on the statutory and institutional environment involved, the history of 9-1-1 service development in the state, its vision and goals for the future of 9-1-1 services, and the opportunity this provides for effective coordination and planning. No single model is likely to fit every state. In some instances a state-level agency may exist, but may not have all the necessary elements for effective planning and coordination of 9-1-1; or there may be no state-level agency for 9-1-1 at all; or some other less formal kind of planning and coordination mechanism may exist. The “state of the states” section in the Overview summarized some of the distinguishing characteristics of state 9-1-1 Authorities as they currently exist.

In less formal arrangements, “pre-planning” activities may need to occur in order to establish a foundation and put the elements in place for the planning and coordination activities described by this report. State 9-1-1 Authorities included in categories 4 through 7 in Tables 1 and 2 may have to work preliminarily through extra issues simply to prepare for the planning process involved. For example:

- Category four may have to develop additional leadership and coordination structure to address that part of the state over which they have no jurisdiction
- Category five may have to do the same for those program features over which they have no responsibility, or develop some separate mechanism to accomplish the same
- Category six must come up with a completely new or separate tool to address statewide planning and coordination needs—one that is effective⁴⁴
- Category seven will need to start from scratch

⁴⁴ The state of North Dakota, for example, has successfully worked through a “joint powers” contractual arrangement between local 9-1-1 authorities and the state’s Association of Counties. The Association provides the statewide coordination and planning involved.

Table 2
State 9-1-1 Program Summary

Category	Description	Category	Description
1	State-level 9-1-1 authority that owns or operates a single statewide system with a single, state-operated PSAP	5	State-level agency or Board with statewide responsibility for a limited aspect of 9-1-1 (generally wireless)
2	State-level 9-1-1 authority that owns/operates a single statewide system, and funds and operationally supports PSAPS	6	Informal state-level 9-1-1 focus or coordination mechanism
3	State-level 9-1-1 authority with statewide geographic planning/coordination/funding responsibility for full scope of 9-1-1	7	No state-level planning or coordination mechanism of any sort
4	State-level 9-1-1 authority with less than statewide geographic planning/coordination/ funding responsibility for full scope of 9-1-1		

Planning, by nature, includes an assessment of strengths, weaknesses, opportunities and threats or “SWOT.” Building on that, this process helps create a plan with clear, realistic and attainable goals. There are a number of publicly available and informative resources to help 9-1-1 agencies new to the planning process. One such is the federal Office of Management and Budget’s (OMB) publication entitled *OMB Circular No. A-11 (2002) Section 210, Preparing a Strategic Plan: The Main Elements*. Another is a planning guide developed by the Texas Governor’s Office of Budget, Planning and Policy, Legislative Budget Board entitled, “Instructions for Preparing and Submitting Agency Strategic Plans.” It describes a state agency’s planning process and resulting plan in this manner:

Strategic planning is a long-term, iterative, and future-oriented process of assessment, goal setting, and decision-making. It includes a multiyear view of objectives and strategies for the accomplishment of agency goals. Clearly defined results provide feedback that leads to program performance that influences future planning, resource allocation, and operating decisions. The strategic planning process incorporates and sets direction for all agency operations. An agency’s strategic plan is a formal document that communicates its goals, directions, and outcomes to various audiences, including the Governor and the Legislature, client and constituency groups, the public, and the agency’s employees.⁴⁵ As previously noted, a state’s 9-1-1 plan—and planning process—will be driven by the state’s statutory and institutional environment. In some, the state’s 9-1-1 plan may reflect the coordinated compilation of local/regional planning efforts addressing specific areas of the state. In others, such as those in Category 1, the state agency responsible for 9-1-1 operates a single PSAP that serves the entire state. In all states, planning must be appropriate to state program authority and role. For the majority of states,

⁴⁵ Texas Governor’s Office of Budget, Planning and Policy, Legislative Budget Board, “Instructions for Preparing and Submitting Agency Strategic Plans—Fiscal Years 2009-2013” <http://www.lbb.state.tx.us/Strategic_Plans/StrategicPlansInstructions_forFY_2009-2013.pdf> March 2008 (April 19, 2008)

the ideal state plan addresses both local/regional funding/support needs, as well as state-level functions and responsibilities within the scope of the state's authority and responsibility.

Developing a statewide 9-1-1 plan in close conjunction with stakeholders can be expected to have three beneficial outcomes, beyond contributions to the Plan itself. First, a collaborative planning exercise involving key stakeholders has the potential to build the effective relationships that will be essential to the success not only of the plan, but also of NG9-1-1. Second, and perhaps most important, it will enable the public to have access to 9-1-1 service regardless of the communication technology they prefer. Third, having participated in the planning process, stakeholders will have a greater tendency to "buy in" to the implementation of the plan.

SECTION II - MODEL STATE 9-1-1 PLAN

The remainder of this document represents a model state 9-1-1 plan. It does not, and cannot, address every state's unique situation. Rather, the purpose of this project is to provide a basic plan framework based on the generalized environments that exist, and involving the key functional components of any effective plan.

The model plan sections include not only section descriptions, but also example text, or outright examples from existing state plans compiled during the development of this Report. The specific activities of one state may differ from other states due to variations in the institutional environment and individual needs. Each state will individually develop its own unique plan, using as much or as little of the illustrative narrative provided in this model as desired or needed.

MODEL STATE 9-1-1 PLAN

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7. EXECUTIVE SUMMARY

The executive summary is just that, a summary of the larger document. Generically, it contains enough information for the readers to become acquainted with the full document without reading it. Usually, it contains a statement of the problem or purpose, some background information, a description of any alternatives, and the major conclusions. Someone reading an executive summary should get a good idea of main points without reading the entire document.⁴⁶ A state plan's executive summary:

- Is intended for the upper-level, non-technical manager/administrator
- Is written last, after the body of the statewide 9-1-1 plan has been completed, because its purpose is to summarize the elements of the plan that are the most important, relevant and necessary for decision-making
- Is brief—one to three pages
- Does not include new information that has not already been presented in the body of the plan

The essential components of an executive summary are identified in the three example headings that follow: Background and Purpose, The Planning Process, and Goals and Objectives. Model narrative is contained within a Table. Text outside the Table provides guidance to state 9-1-1 plan developers.

7.1 BACKGROUND AND PURPOSE

The Background and Purpose section of the executive summary briefly describes the need that gave rise to the state 9-1-1 plan, what its purpose is, who will use it, and what the outcome is expected to be. The example provided in Table 3 is a synthesis of existing state 9-1-1 plans available.

⁴⁶ See, for example, "Technical Writing: A Reader-Centered Approach," 2nd ed. By Paul V. Anderson, Harcourt, Brace, Jovanovich Publishers, 1991.

Table 3
Example Background and Purpose Summary

In 2004, Congress enacted the Ensuring Needed Help Arrives Near Callers Employing 911 Act (ENHANCE 911 Act). Among other purposes, the Act established a national 9-1-1 Implementation Coordination Office (ICO)⁴⁷ to advise and assist eligible entities in the preparation of the required implementation plans, to receive and act on grant applications for funding under the Act, and to oversee the use of the grant funds in implementing the states' plans. A statewide plan for the coordination and implementation of 9-1-1 services is a grant eligibility requirement.

Understanding that many states do not have such a plan, the ICO entered into a collaborative agreement with the National Association of State 9-1-1 Administrators (NASNA) to develop a Model State 9-1-1 Plan and a report on appropriate data measures to evaluate the ongoing technical progress of 9-1-1 at the state level.

This statewide 9-1-1 plan was developed using that model and has three main purposes:

- To provide vision and leadership to support our states' regional and local 9-1-1 authorities in their efforts to improve and modernize their 9-1-1 systems
- To guide statewide decisions that lead toward a future for 9-1-1 that includes Next Generation 9-1-1 (NG9-1-1)
- To meet the eligibility for ENHANCE 911 Act grants and thereby potentially leverage much-needed funding for the improvement and modernization that will lead toward that future

The plan is intended to be used by the following stakeholders:

- State, regional and local 9-1-1 authorities
- Public safety answering points (PSAPs) and emergency communications center management and staff
- Local law enforcement agencies, fire services, and emergency medical services (EMS)
- County or regional 9-1-1 coordinators
- Local government officials
- Local, regional, state and federal stakeholders (e.g., emergency management entities, public health entities, homeland security agencies, the military)
- State and federal legislators

The successful implementation of the plan will enable the State of _____ to continue to meet the public's expectation to be able to reach 9-1-1 service anytime, anywhere, using any device⁴⁸ and to provide a consistent level of 9-1-1 service statewide.

⁴⁷ The ICO is operated as a joint program of the National Telecommunications and Information Administration (NTIA) in the U.S. Department of Commerce and the National Highway Traffic Safety Administration (NHTSA) in the U.S. Department of Transportation.

⁴⁸ "Anytime, anywhere, any device" is a trade mark of the National Emergency Number Association (NENA)

7.2 THE PLANNING PROCESS

This section of the executive summary outlines the planning process *briefly*, including stakeholder involvement. It is important, both for the process itself and for decision makers, to be assured that the state's planning process is structured appropriately, and provides a substantive opportunity for stakeholder input. Stakeholder involvement is vitally important to the development and successful implementation of the plan.

While the planning process will be unique to individual states (based upon their implementation and stakeholder environment), the process section should include descriptions of such things as key activity schedules, the selection of stakeholders, the nature of stakeholder participation, and the expectation of such input, key decision factors, and other critical process features.

Table 4 is a synthesis of source material and original work.

Table 4
Example Planning Process Summary

The ENHANCE 911 Act of 2004 requires an eligible entity that is a state to have coordinated its application with the public safety answering points (PSAPs) located within the state, and to have designated a single officer or governmental body of the state to serve as the coordinator of implementation of E9-1-1 services.

The state's planning process included:

- Gathering information and opinions from 9-1-1 stakeholders (surveys, interviews, meetings)
- Establishment of a planning task force consisting of stakeholders
- Baseline assessment of current infrastructure, current technology, inventory of emergency services, inter-jurisdictional agreements, and funding
- Analysis of data gathered
- Building on that analysis, identification of goals and objectives
- Determination of success measures
- Submission of local or regional plans, budgets and/or financial projections
- Review and approval of local or regional plans, budgets and/or financial projections

7.3 GOALS AND OBJECTIVES

This section of the executive summary outlines key goals and objectives of the state's 9-1-1 program. The goals and objectives will differ from state to state, but regardless of the specifics unique to each state, the executive summary needs to include those that are the most important for all stakeholders. The following information categories would typically be outlined:

- Desired services and capabilities
- Infrastructure, equipment and technology (capital improvements) to be acquired
- Necessary funding
- Necessary legislation
- Operational support required
- Staffing and training needs
- State 9-1-1 program administration

8. INTRODUCTION

This section is a brief introduction to the state's 9-1-1 Plan. It explains why a plan is being developed and its purpose, i.e., how it is intended to be used and by whom. The actual verbiage will be written by the state, perhaps using text presented in the Project Overview section of this document as appropriate.

8.1 NATIONAL OVERVIEW OF THE HISTORY AND BACKGROUND OF 9-1-1

This section provides a national context of 9-1-1 as a public safety service from its beginning to the present. The boxed example below is a synthesis of source material and original work. It is not intended to be a comprehensive history of 9-1-1, but rather to cover the evolution of 9-1-1 in a manner that leads the reader to the conclusion that action needs to be taken to assure the future viability of the service.

Table 5
Example National Overview Narrative

The concept of a nationwide emergency telephone number was first adopted in Great Britain in 1937. In the United States in 1967, President Johnson's Commission on Law Enforcement and Administration of Criminal Justice recommended a nationally uniform three-digit emergency telephone number. In November of that year, the FCC met with the American Telephone and Telegraph Company (AT&T), and shortly thereafter AT&T announced it had reserved the numbers 9-1-1 for emergency use nationwide. The nation's first 9-1-1 system was implemented by the Alabama Telephone Company in Haleyville, Alabama. On February 16, 1968, Alabama Speaker of the House, Rankin Fite, made the first 9-1-1 call from the Haleyville city hall. Congressman Tom Bevill answered the call on a red-colored telephone located in the police department.⁴⁹

When 9-1-1 service was first introduced, 9-1-1 calls were sent to a single destination based on the caller's telephone exchange. Since there was and is little or no correlation between a telephone exchange boundary and the emergency responder's jurisdiction, a 9-1-1 call could end up at public safety answering point (PSAP) that did not serve the caller's location. This early 9-1-1 service, now known as Basic 9-1-1, did not provide any telephone number or location information with the call—it was a voice service only; the caller had to provide his or her location and call back information.

Significant advancement in 9-1-1 technology occurred with the introduction of enhanced 9-1-1 (E9-1-1) in the 1980s. This level of service enabled a 9-1-1 call to be selectively routed to the PSAP serving the caller's location, and delivered that call with automatic number identification (ANI) and automatic location identification (ALI). Other features, such as selective transfer, further streamlined the call handling process.

The pace of change in telecommunications technology continues to increase rapidly. Voice over Internet protocol (VoIP), text messaging, and picture messaging are being enthusiastically adopted by consumers for their everyday communications—and these same consumers expect to be able to use these technologies to communicate with 9-1-1.

The examples in Tables 6 and 7 provide language suitable for use in the conclusion to the Introduction, because the message leaves the reader with the clear understanding that action must be taken.

⁴⁹ Alabama Chapter of NENA website, "World's First 9-1-1 Call" <http://www.al911.org/first_call.htm> (April 18, 2008)

Table 6

Commonwealth of Virginia
<p>New challenges posed by these technologies threaten to undermine the historical success of the E9-1-1 system. The current system architecture will prevent the E9-1-1 system from being able to meet those challenges. The E9-1-1 network was designed to support E9-1-1 service to the wireline telephone system. Unfortunately, the design has changed little since its introduction in the early 1980's, which was actually based on 1970s analog technology. This means the current E9-1-1 system handles voice very reliably, but can only handle a very small amount of data. While this was adequate for the wired world of the 80s and 90s, wireline telephone service is now declining. Many citizens are converting their telephone service to wireless or other newer technologies. Many are not maintaining wireline service at all, opting instead for the more mobile wireless service or cheaper voice over Internet protocol (VoIP) services. As reliability of these services increases, more and more people will adopt them as their only telephone service. This shift is having a dramatic impact on PSAPs.⁵⁰</p>

Table 7

State of Texas
<p>The communications industry has adapted the infrastructure to meet public safety requirements over time but it will not be able to support more advanced capabilities. Because the communications industry is moving toward packet data versus circuit switched communications, the existing infrastructure is a barrier to creating an integrated emergency call management infrastructure. The business models of emerging communications require innovative technology solutions and the 9-1-1 network must be able to adapt quickly in order to harness the added values these innovations offer for emergency response improvement. Fundamental and significant change is required to move toward an infrastructure that offers enhanced capabilities and increased change capacity to accommodate both current and future emergency services operations.⁵¹</p>

⁵⁰ Commonwealth of Virginia Wireless E9-1-1 Board, "Statewide Comprehensive 9-1-1 Plan: Next Gen and Beyond," January 2008 <http://www.va911.org/pdf/VA_Comprehensive_Plan_for_9-1-1_Final.pdf> (April 16, 2008)

⁵¹ Texas Commission on State Emergency Communications, "Agency Strategic Plan for Fiscal Years 2007–2011" June 2006. Page 8.

8.2 OVERVIEW OF THE HISTORY AND BACKGROUND OF 9-1-1 IN THE STATE

This section tells the story of the development of 9-1-1 in the state involved. As such, it is unique to each state, and would be prepared with that in mind. Tables 8, 9 and 10 provide examples from three existing state 9-1-1 plans to help guide each state's thought process about the type of information it could include.

Table 8

Commonwealth of Virginia
<p>The creation of a nationwide number for emergency services—9-1-1—in 1968 was a simple yet sweeping advancement in emergency services. The establishment and adoption of 9-1-1 service assured that in an emergency any caller throughout the country could dial three easily memorized digits and quickly have local first responders come to his or her aid.</p> <p>Technological Advancements</p> <p>While the first deployment of 9-1-1 increased the speed by which emergencies were reported, the caller still had to supply the telecommunicator with his or her location. In the 1980s, wireline Enhanced 9-1-1, or wireline E-911, changed this—tying the caller's telephone number to his or her physical address for landlines that were validated with the phone company. The introduction of wireline E-911 was a great improvement to the 9-1-1 system, but it would quickly be strained by the introduction and adoption of cellular phones.</p> <p>The rapid proliferation of cellular technology in the consumer market came as a surprise to many observers, including public safety officials and practitioners. It was widely anticipated that cellular phones would be a commuters' tool and emergency calls would primarily come from highways. The public safety community did not anticipate that cellular phones would move beyond a transitory technology to supplement and sometimes replace landline phones. In addition, 9-1-1 centers would start receiving emergency calls from cellular phones from shopping malls, street corners, and office buildings. Because wireline E-911 is not capable of providing location information for cellular callers, this information had to be collected by telecommunicators, slowing response times. The deployment of wireless E-911 has helped to overcome this challenge by transmitting longitude and latitude information based on the location of the caller's handset to the 9-1-1 center. The location of cellular callers is determined either by the GPS device within the phone itself or through a network solution that employs triangulation. While not as exact as landline technology, wireless E-911 has greatly improved a telecommunicator's ability to quickly dispatch first responders to a wireless caller's location.</p>

Table 8 Continued

Continuing Challenges

Today, consumers continue to drive the communications market, bringing new technologies and new ways of communicating into practice. Voice over Internet protocol (VoIP) phones, text messaging, picture messaging, and video are becoming preferred communications mechanisms, and consumers expect that 9-1-1 centers will keep pace with these technologies. Most of Virginia's 9-1-1 centers cannot handle new technologies and struggle with antiquated analog technology and a lack of interoperability. In addition, the Commonwealth faces inconsistencies between rural and urban areas. Urban areas tend to have greater resources and to be outfitted with the latest equipment. Many of their rural counterparts, however, lack the means to deploy comparable services.

Beyond technology, Virginia must also consider how 9-1-1 centers are staffed, how that staff is trained and retained, and the responsibilities of that staff. The current 9-1-1 system is staffed with resourceful and adaptive personnel who are dedicated to public safety. However, recruiting and retaining qualified staff is difficult because the work includes high-stress situations, non-competitive wages, and the responsibility of administrative tasks outside of emergency response. In fact, most public safety telecommunicators work overtime to accommodate their understaffed 9-1-1 centers, and often staff shortages prohibit them from leaving their site to attend training courses including those for new technologies and services. (For more information on the current Commonwealth of Virginia 9-1-1, see Appendix B.)

Transitioning from the current 9-1-1 system to one capable of handling the increasing demands of modern technology and including skilled and qualified staff is a complex but realizable goal. This plan provides a roadmap to move the Commonwealth of Virginia towards a robust and reliable 9-1-1 system that is able to handle new technologies while also helping to assure a standard level of 9-1-1 service across the Commonwealth.⁵²

⁵² Commonwealth of Virginia Wireless E9-1-1 Board, "Statewide Comprehensive 9-1-1 Plan: Next Gen and Beyond," January 2008 <http://www.va911.org/pdf/VA_Comprehensive_Plan_for_9-1-1_Final.pdf> (April 16, 2008)

Table 9

State of Delaware

Basic 9-1-1 came to the State of Delaware in 1980. At that time, although Seaford was the first 9-1-1 center in the State, the three Counties (Kent, New Castle, Sussex), as well as many local government entities, were responsible for its operation. Tragic events in 1987-88 led to the passing of an E9-1-1 Bill in the regular General Assembly, and the deployment of E9-1-1 statewide by January 1989. The system was funded through a rate of return tariff levied by Verizon. Verizon was responsible for maintaining the E9-1-1 infrastructure in Delaware. This tariff expired in 1996. After the passage of the Telecom Act of 1996, twenty-seven competitive local exchange carriers (CLECs) began offering local service in the State. When these new carriers refused to shoulder some of the responsibility of maintaining the E9-1-1 system in the State, Verizon gave notice that the State would have to start paying for the E9-1-1 system. This set into motion events that eventually led to the creation of the Enhanced 9-1-1 Emergency Services Board in 2000.

The E9-1-1 Services Board has the following responsibility:

- Manage the E9-1-1 State Fund
- Manage State projects for E9-1-1
- Act as an advisory board to the Governor and the General Assembly
- Deployment of wireless Phase I and Phase II.
- The State of Delaware's E9-1-1 Emergency Services Board is charged by the Legislature to manage and enhance the State's E9-1-1 plan.

Composition and Terms

The Enhanced 9-1-1 Emergency Services Board was created to act in an advisory capacity to the Governor, the Secretary, and the General Assembly on all matters related to the E9-1-1 system, service, and the funding of the E9-1-1 system. The Board is composed of seven members nominated by the Governor, and confirmed by the Senate. The Governor designates one of the members as a Chairperson. The Chairperson serves an unlimited term at the discretion of the Governor. At least three members of the Board are required to have technical or financial expertise on telecommunications issues and at least one member is required to be a representative from the Delaware Association of County Governments. The term of the Board members with the exception of the Chairperson is a period of three years. For initial members of the Board, two members shall be appointed for a term of one year, two members shall be appointed for a term of two years, and two members shall be appointed for a term of three years.

The current members of the Enhanced 9-1-1 Emergency Board are as follows...⁵³

⁵³ State of Delaware Enhanced 9-1-1 Emergency Services Board, "Public Safety Enhanced 9-1-1 Strategic Plan," May 2005

Table 10

State of Florida
<p>In 1974 the 9-1-1 program in Florida was initiated by passage of the Florida Emergency Telephone Act, s. 365.171, F.S. The key items in the Act are:</p> <ul style="list-style-type: none">• State Technology Office (STO) shall develop a statewide 9-1-1 plan.• STO shall adopt rules and regulations.• The Chief Information Officer of the STO (or his/her designee) shall be the Director of the Statewide Emergency Telephone Number System.• STO shall approve all new or expanded 9-1-1 systems.• All public safety agencies shall comply with the developed plan.• The only emergency number published in Florida shall be 9-1-1. <p>Other legislation affecting the 9-1-1 program will be discussed throughout this plan, and a copy of all 9-1-1 legislation is contained in Appendix 1.0.</p> <p>Based on the initial legislative mandate, STO contracted with the Stanford Research Institute for a study of 9-1-1 possibilities in Florida. The result was the document <i>9-1-1 in Florida: A System Concept</i> published in August 1974. This report was the stepping-stone in preparing the original Florida plan. Other states as well as the federal government have utilized many concepts developed under this contract.</p> <p>In developing the original 9-1-1 plan, engineers from STO met with the Boards of County Commissioners of all 67 Florida counties to explain the program. In most counties, 9-1-1 committees were formed consisting of representatives from the various public safety agencies. Numerous meetings were held in which approaches were considered and alternatives were developed. Studies were prepared by STO of various system configurations for county consideration. The final result was a 9-1-1 system plan for each county, with the exception of Miami-Dade County, which was already planning an enhanced system that offered selective routing. This system became a forerunner of more advanced enhanced system.</p> <p>A historical discussion of 9-1-1 in Florida would be incomplete without mentioning funding. During the period from 1976 through 1982, the legislature provided funds to STO that were used to assist counties in implementing 9-1-1 systems. These funds were distributed to the counties under grant applications to cover the nonrecurring cost of establishing these early 9-1-1 systems.</p> <p>In 1985, legislation was passed that allowed the counties to establish a fee of up to 50 cents on telephone access lines (wireline) for a period not to exceed 18 months for the provisioning of nonrecurring costs associated with 9-1-1 system start up. In 1989, the legislature extended the collection period to 36 months.</p> <p>In 1987, the legislature greatly expanded the funding source by allowing recurring costs of 9-1-1 systems to be included in the fees on telephone access lines. This, for the first time, provided for operational costs to be paid from a source other than the county's general revenue fund. The legislature specified the items of equipment and services that are eligible for payment from these fees and stipulated that the total amount collected on wireline subscribers could not exceed 50 cents per month per line.</p>

Table 10 Continued

The 1991 legislative changes deleted the requirement for annual approval of a county's recurring fee by STO and specified that a fund be established exclusively for 9-1-1 fee revenues and expenditures. The changes also required that monies in the fund be used only for specified purposes and required that an annual financial audit of the fund be conducted and forwarded to STO. In addition, it also provided for a yearly carryover of funds while more clearly defining those costs that were eligible for expenditure of 9-1-1 fee revenues.

In 1999, new 9-1-1 legislation was passed that addressed the rapidly expanding wireless industry and its effect on 9-1-1 systems. This legislation established a statewide fee of 50 cents per month on each wireless telephone line billed within Florida.⁵⁴

⁵⁴ State of Florida, "Florida E9-1-1 Plan,"
<http://dms.myflorida.com/cits/public_safety/florida_e911/florida_e911_plan> (April 18, 2008)

9. CURRENT 9-1-1 ENVIRONMENT

This section focuses on the specifics of the state's 9-1-1 plan, including a description of the state's 9-1-1 coordination function, staffing, funding mechanism, institutional arrangements and authority, etc. It includes environmental characteristics or factors that potentially impact 9-1-1, e.g., PSAPs with older equipment that cannot be upgraded for Internet Protocol (IP), or declining revenues.

9.1 CURRENT LEGISLATIVE AND REGULATORY ENVIRONMENT AND PROGRAM STRUCTURE

This section generally includes the following types of information.

- Statutory provisions for 9-1-1 service, including governance, coordination, planning and funding (this would include a description of the nature and scope of authority of local, regional and state-level 9-1-1 coordinating, planning and governing entities)
- Description of any state-level 9-1-1 program or coordinating function, if such exists. It should include:
 - How it is organized or positioned within state government
 - The boundaries of its scope of authority
 - A description of its staff
 - Its Mission Statement
 - A description of its related institutional environment, e.g., other state agencies that may have a role in 9-1-1 affairs, such as the utilities commission
 - A description of the nature of its interactions or relationships with local or regional 9-1-1 authorities, i.e., how it exercises its coordinating function
 - Its mechanism for allocating and distributing state and federal funding to PSAPs, if any
 - The current mechanism for coordinating the implementation of 9-1-1 system(s) and monitoring progress
 - The current stakeholder engagement process and mechanism for input
 - The current methods by which PSAPs integrate with emergency communication, telecommunications, and information networks⁵⁵
 - An assessment of whether changes or updates to legislation or regulation are necessary or desirable to achieve the plan's goals and objectives.
 - Pending legislation that may impact 9-1-1 service delivery (e.g., revisions to the state's utility regulatory statutes, etc.

⁵⁵ We recognize that most PSAPs currently are served by dedicated 9-1-1 systems and separate radio communications systems; there is no integration of these systems with one another or with other related or unrelated public safety systems.

9.2 CURRENT 9-1-1 TECHNOLOGY

This section is a placeholder for each state to provide an assessment of its current 9-1-1 infrastructure's base configurations, components and general capabilities.

For example, an assessment could include the following elements:

- Local exchange carrier (LEC) 9-1-1 switch (router) locations, type and equipment brand, year installed, ownership, and agencies served by each; IP upgrade capability
- Wireless carrier mobile switch locations, type and equipment brand, year installed, ownership, and geographic areas served by each
- Service providers (LECs, competitive local exchange carriers (CLECs), wireless service providers (WSPs), VoIP service providers (VSPs))
- Total number of 9-1-1 systems in a state, and the number of primary and secondary PSAPs in each system
- System level of service (RCF, basic 9-1-1, enhanced 9-1-1 as defined by NENA, wireless Phase I and II, VoIP), and the percentage of population and of geography served by each defined level of service
- Number of IP-enabled or NG9-1-1 systems (as defined by NENA)
- Percentage of population and percentage of geography served by PSAPs performing specialized functions based on call type and characteristics, e.g., wireless, video calls from the deaf, non-English language
- ALI database(s) locations, type and equipment brand, year installed, ownership, and agencies served by each
- PSAP customer premises equipment (CPE) type and equipment brand, ownership, year installed, condition, IP upgrade capability
- Trunking quantities at each PSAP
- Number of PSAPs equipped with management information system (MIS) tools to collect, extract, compile, and analyze data
- Define the attributes and vulnerabilities that exist with the existing network and related infrastructure
- An assessment of whether changes or updates are necessary to achieve the plan's goals and objectives

Some states may already have reliable and current baseline data that could be incorporated into their respective plans. Other states may need to conduct a baseline assessment, and in that case, the assessment could become a component of the plan.

A word on the importance of precise baseline data: it is the only valid basis on which decisions can be made regarding the allocation of resources. Without an exact picture of where 9-1-1 is statewide, it would not be possible to determine what is required to achieve the desired future state. Or, put another way, 'you cannot get to where you want to go if you do not know where you are.'

Several items on the bulleted list above are also among the data elements identified in the *Report on Data Elements to Measure the Technological Progress of 9-1-1*. This is because there is a direct relationship between the information captured in a baseline technology assessment and the ability to measure the progress of 9-1-1 on a statewide basis. A state may want to consider capturing some of the

other data elements from the *Report* in its current technology assessment and including them in this section of its plan.

9.3 PSAP INTEGRATION WITH EMERGENCY COMMUNICATIONS, TELECOMMUNICATIONS, AND INFORMATION NETWORKS

Many, if not most, states today are both exploring and deploying IP-based infrastructure to support a variety of state functions, including, but not limited to human resource services, state telecom and data-sharing functions, higher education, emergency preparedness, homeland security, and public safety. Often, such efforts are centered in state information technology, general services and/or administration agencies with these higher-level responsibilities. Some states, such as Texas with its poison control connectivity, have already moved in this direction.

How 9-1-1 fits into such efforts is an important consideration, and may impact both the opportunity for cost sharing and functional interconnection. Considerations bulleted below do not specify technology or architecture but do specify approaches to identifying what opportunities exist in the state for sharing higher-level, deployed infrastructure and services and/or integrating the 9-1-1 function with other emergency response functions. Considerations would include interoperability among PSAPs, interconnection with homeland security, emergency preparedness, etc. Included is a brief review of issues associated with sharing, procurement, and coordination.

In light of the inherent opportunity that such technology provides to share transport, and lower-level network functions and facilities, state-level 9-1-1 planning should examine the opportunity these kinds of deployments provide to spread cost and function among multiple stakeholders. Within this context, this section of a state plan should reflect:

- A high-level inventory and cost/benefit analysis of such efforts unique to the state involved
- An examination of any generic state procurement and usage requirements, constraints, and costs
- Any special requirements to comply with higher-level information technology (IT) policy regarding the acquisition of IT products and services

The above inventory and analysis should not be limited to mainline state functions. Often other statewide networks exist to support quasi-public functions that may represent a similar opportunity. The International Justice and Public Safety Network, for example, has connectivity with similar networks in every state for a variety of public safety data sharing functions.

9.4 ECONOMICS

This section covers common aspects of 9-1-1 funding. Examples of “Current Funding Mechanisms” and “Allocation/Distribution of State and Federal Funding for Equipment and Operations” are based on findings of research.

9.4.1 Current Funding Mechanism(s)

The most common funding mechanism for 9-1-1 is a dedicated surcharge on the telecommunications service end user or subscriber. These surcharges are collected by the telecommunications service provider and remitted to the state, regional or local 9-1-1 authority. The 9-1-1 authority then distributes or expends the funds according to statutory provisions. Within this basic model, there are numerous variations, particularly with regard to the surcharge level, the services that are subject to it, and whether it is assessed in a uniform and technologically neutral manner. Tables 11 through 14 show the variety that exists within this basic model.

Other funding approaches include excise tax⁵⁶, sales tax, general fund, universal statewide communications surcharge, bonding, and user fee.

At this point in a state's individual plan, it would be appropriate to reference the state's funding legislation (title, section, chapter, etc.) and include all or portions of the actual language. Providing this information would give the reader a basic understanding of how the state's 9-1-1 services are funded. A plain English description, with the statutory reference would also work.

Table 11

State of Delaware
<p>There is a uniform, statewide surcharge of 60 cents on all wireline residential, wireline business (including multi-line telephone systems), and wireless subscribers. Delaware recently enacted legislation requiring VoIP providers to collect and remit the fee. Multi-line telephone services are assessed the surcharge based upon a formula that caps the number of lines that can be assessed the surcharge.</p> <p>All collected surcharges are remitted to the Delaware Division of Revenue and deposited into the E9-1-1 Fund. From there, revenues are handled in two different ways. Counties receive 50 cents per residential subscriber line service or the amount received in the year 2000 (the year the unified statewide surcharge went into effect, replacing the county surcharges), whichever is greater. The rest is deposited into a discretionary fund for the E9-1-1 Board's use.</p> <p>The state is the "customer of record" for 9-1-1 service. The E9-1-1 Board controls the E9-1-1 Fund. It does not prepare an annual budget, nor does the legislature have oversight of the E9-1-1 Board's expenditures. Routine invoices are processed for payment. Costly items receive somewhat more scrutiny, although these invoices are ultimately paid. Fiscal control is complicated (1) by the lack of a formal budget and internal fiscal controls, and (2) by the fact that another state agency is involved in 9-1-1 procurement and contracting activities independent from the E9-1-1 Board.</p>

⁵⁶ A federal or state tax imposed on the manufacture and distribution of certain non-essential consumer goods. Examples of excise taxes include environmental taxes, communications taxes, and fuel taxes. InvestorWords.com. WebFinance, Inc. <http://www.investorwords.com/1813/excise_tax.html> (accessed: May 28, 2008).

Table 12

State of Florida
<p>The 9-1-1 fees, currently set at 50 cents for both wireline and wireless subscribers, are collected by the service providers for each service identifier⁵⁷, remitted to the Florida E9-1-1 Board⁵⁸ and deposited into a special fund in the State Treasury: the Emergency Communications Number E9-1-1 System Fund. The fund is maintained within the Technology Program of the Department of Management Services and has two separate categories: wireless and non-wireless.</p> <p>Non-wireless providers collect the E9-1-1 fee from customers, retain a 1 percent administrative fee, and submit the remainder of collected fees to the E9-1-1 Board, which distributes the monies back to the counties through monthly disbursements and a rural county grant program.</p> <p>Wireless providers collect the E9-1-1 fee from subscribers, retain a 1 percent administrative fee, and submit the remainder of collected fees to the E9-1-1 Board, which distributes the monies back to the counties through monthly disbursements, a rural county grant program and to wireless service providers for cost recovery in response to sworn invoices for E9-1-1 service.</p> <p>Sixty seven percent of the wireless funds go to the counties for authorized uses (each county's allocation is based on the total number of service identifiers in that county); 30 percent goes to the commercial mobile radio service (CMRS) providers for cost recovery.</p> <p>Ninety seven percent of the non-wireless funds go to the counties for authorized uses (each county's allocation is based on the total number of service identifiers in that county);</p> <p>The Board retains one percent of the monies in the fund for managing, administering, and overseeing revenues and disbursements from the fund.</p> <p>Two percent of the monies in the fund are distributed monthly to rural counties for facilities, network and service enhancements; or for upgrading and replacing their E9-1-1 systems.</p> <p>The Board is required to get an appropriation from the Florida legislature before it can distribute or spend its revenues.</p>

⁵⁷ A "service identifier" is defined as the service number, access line, or other unique subscriber identifier assigned to a subscriber and established by the FCC for purposes of routing calls whereby the subscriber has access to the E9-1-1 system.

⁵⁸ The E9-1-1 Board is located within the Technology Program Office of the Florida Department of Management Services

Table 13

State of Arizona
<p>Arizona funds 9-1-1 through an excise tax, which differs from other taxes in that it is assessed on state and federal government entities. The current tax level is 20 cents on every billing account. The carriers collect the tax and send it to the Department of Revenue, which transfers the funds to the Department of Administration (DOA).</p> <p>As far as can be determined, the carriers do not collect on a per-line basis for multi-line telephone systems (MLTS) or similar situations; they assess the tax on the main billing account. Remittances are not required to be separated by wireline or wireless, nor are subscriber counts required. If documentation for the remittance is not provided voluntarily, the 9-1-1 program office can request it, and can also ask the Department of Revenue to investigate any apparent issues.</p> <p>All counties are required by the Administrative Code to submit their budgets to the DOA every December 15 prior to the next fiscal year. The DOA budgets what each county needs. The amount the counties get is not based on the amount the telcos actually collect in that county; it is simply whatever the county's request. They must have a Certificate of 9-1-1 Service Plan Approval from the DOA and eligible costs are network exchange services necessary for P.01 grade of service; CPE to include computer telephone integrated systems, ACD and MIS systems; ongoing post-warranty maintenance costs; necessary consulting service costs or administrative costs not to exceed three percent of the amounts deposited annually in the revolving fund.</p> <p>The 9-1-1 Administrator is authorized to consider special projects that further statewide 9-1-1 availability, including addressing or database projects, public education, and training programs on a case-by-case basis. Special project funding is based on community needs and the availability of funds.</p> <p>There is nothing in state statute that allows or forbids locals to assess their own surcharge for 9-1-1, but they don't do that because they get all they need from the state.</p> <p>The DOA does not have to get legislative approval for its budget. The DOA submits it to the Joint Legislative Budget Committee (JLBC) as a courtesy. The JLBC has approval rights only over the wireless portion of that budget.</p>

Table 14

State of Kansas
<p>Kansas law handles wireline and wireless/VoIP surcharges differently. Kansas is a home-rule state, and wireline 9-1-1 is considered a local issue. Cities or counties may impose a fee not to exceed 75 cents per month on wireline telephone service account, upon approval by the voters. The fee is collected, remitted and distributed locally.</p> <p>Wireless and VoIP 9-1-1 fees are assessed at a rate of 25 cents per month per service account. The fee is collected by the service provider and remitted to the state as part of the Kansas Universal Service Fund (KUSF). Prepaid wireless services remit one percent from the retail price of any prepaid wireless service sold in the state, and these funds appear to be deposited into the KUSF as well. The KUSF is administered out of the Finance Department. The revenues are distributed back to the locals through a Wireless 9-1-1 Enhanced Grant Fund. Administration of the fund cannot exceed five percent of the collected fees. Counties with a population of less than 75,000, or any city located within such a county, are eligible for the state grant funds.</p>

9.4.2 Current Revenues and Costs (Costs to Include Cost Recovery if Provided)

This subsection is intended to describe current revenues and costs, reflecting the full environment of 9-1-1 service delivery in a state (both at the local/regional level, and state connecting/supporting components), as appropriate to the state planning and implementation environment involved. For most states, this likely requires effective local/regional stakeholder involvement, and is a basic part of the state planning process.

Table 15 is from the State of California and shows a level of detail suitable to include in a plan document. This section of the individualized state plan should include a statement to the effect that the current revenues and costs section would be updated periodically as prescribed in the "Updating the Plan" section.

Table 15
State of California Current Economics

Economics	
Current revenue, cost and appropriation information are presented in the following paragraphs.	
Revenue	
The current .72 of one percent surcharge collected from wireline and wireless telephone subscribers in 1998-1999 has generated \$97,461,000.	
California wireless subscribers are estimated to be approaching 11 Million by the end of 1999 with an annual growth rate of 15 percent.	
California wireline subscribers for just the two major LECs, GTE and Pacific Bell, are estimated to grow to over \$25 Million by the end of 1999 with an annual growth rate of four percent.	
Due to this growth, the forecasted Emergency Telephone Fund for the next two years is expected to be:	
1999-2000	\$99,414,000
2000-2001	\$105,180,000
Costs	
The current projected costs for 1998-1999 Emergency Telephone Local Assistance budget is \$91,739,000.	
The past five year actual costs were:	
1997-1998	\$71,470,896
1996-1997	\$64,740,770
1995-1996	\$64,953,311
1994-1995	\$63,510,140
1993-1994	\$62,145,167
Appropriation—1998-1999	
Current Local Assistance Appropriation is \$91,739,000.	
Current Unexpended Appropriation is \$1,664,000. ⁵⁹	

⁵⁹ State of California Emergency Telephone Number Program, "Strategic Plan," November 1999. Page 9.

9.4.3 Next Generation Considerations

Any discussion of costs would not be complete without noting there will likely be new cost considerations associated with planning and implementing a NG9-1-1 system.⁶⁰ Allocating costs in the current 9-1-1 environment is relatively straightforward. The 9-1-1 systems are typically closed and dedicated, i.e., used only for transporting and processing 9-1-1 calls and data. Costs are typically paid using dedicated funds and the prevailing model for the source of those funds is typically a surcharge to customers on telecommunications services. The 9-1-1 system is operated under the oversight of a 9-1-1 authority.

Today's 9-1-1 systems are most often provisioned by the LEC, and, although many 9-1-1 systems procure PSAP CPE directly from the manufacturer, most purchase or lease it from the LEC. In a NG9-1-1 environment, there will be new costs and costs that may be shared among state and local jurisdictions. The existing cost recovery and funding allocation mechanisms do not account for new or shared costs. If network components are shared with a private-sector entity, funding and cost allocation are further complicated. To the extent that NG9-1-1 is implemented in a phased manner by PSAP or region, each implementation will have its own unique stakeholder group and system architecture requirements—and its own unique funding and cost allocation needs.

Options for funding NG9-1-1 implementation are wide open. NENA's Next Generation Partner Program outlines five options in its March 2007 publication entitled "*Funding 9-1-1 Into the Next Generation: An Overview of NG9-1-1 Funding Model Options for Consideration.*"

9.4.4 Allocation/Distribution of State and Federal Funding for Equipment and Operations

Allocation of State Funding

The allocation or distribution of state funding to PSAPs differs from state to state depending on the statutory framework. In some instances, funds remain at the state level because the 9-1-1 system is a single, statewide system procured, provisioned and maintained by the state. In most instances where funds are remitted to a state-level agency, they are redistributed with the smallest portion going to the state for its administrative costs, and the largest portion sent back to local governments. States determine the actual amount to be distributed to each region or county in a variety of ways, including population, subscriber count, percentage, and budget/funding requests.

State statutes generally define the purposes for which 9-1-1 funds can and cannot be used. Typical allowed uses include recurring and non-recurring costs for:

- Network
- Database
- 9-1-1 call handling equipment
- Master logging recorders
- Instant call check recorders
- TeleTYpewriter/Telecommunications Device for the Deaf (TTY/TDD)
- Mapping

⁶⁰ Ultimately, NG costs of the sort described here will become mainstream cost components of a state plan, and most likely will not be separately identified.

- Backup power
- Training
- Public education
- Contracted services

Some states disallow costs for:

- Vehicles
- Bricks and mortar
- Radio communications
- Salaries

Allocation of Federal Funding

Federal funding for 9-1-1 has been sparse. Many, if not most, federal grants to states and local government require state and local planning of one form or another, and it is reasonable to assume the Economics section of any state plan will need to reflect Federal revenues separately. The Project Overview to this model plan described in some detail potential requirements and opportunities associated with such funding. A few states have successfully leveraged federal homeland security and interoperable communications grants by making a business investment case for incorporating 9-1-1 technology and architecture with other public safety communications planning processes and technologies.

10. FUTURE ENVIRONMENT

This section describes the vision for 9-1-1 in the state and begins with a one-sentence vision statement. For example, “Virginia’s 9-1-1 centers receive, process and dispatch requests for emergency aid quickly and accurately from any geographical location, from any communication device, in any language.”⁶¹ Another example, “We shall provide the most responsive 9-1-1 access to emergency services in the world.”⁶²

While, to some extent, these will be unique to individual states, the narrative written for this section should generally cover each of the following topics (along with how the topics were identified or determined):

- Services and capabilities (service arrangements, e.g., specialized PSAPs, joint service support, consolidation, combined communication functions, interstate support)
- Infrastructure, equipment and technology (the Next Generation of 9-1-1 also needs to be included here and have its associated goals and objectives)
- Operations
- Staff and training
- Governance
- Funding to achieve the vision
- Stakeholder engagement and communications
- Regional and local 9-1-1 authorities
- Federal government and other national factors
- Service and application providers
- Infrastructure and equipment providers
- Other emergency service providers (e.g., homeland security, emergency preparedness, telematics services)
- Other related state services (e.g., poison control, trauma centers, 2-1-1)

⁶¹ Commonwealth of Virginia Wireless E9-1-1 Board, “Statewide Comprehensive 9-1-1 Plan: Next Gen and Beyond,” January 2008 <http://www.va911.org/pdf/VA_Comprehensive_Plan_for_9-1-1_Final.pdf> (April 16, 2008). Page 6.

⁶² State of Washington Military Department, Emergency Management Division, “E9-1-1 Strategic Plan,” March 2007. Page 1

11. GOALS, OBJECTIVES AND MEASURES

11.1 DEVELOPING GOALS, OBJECTIVES AND MEASURES

The next step in the planning process is to translate the vision into specific goals. It is important to understand the distinction between goals and objectives before beginning this part of the planning process. Some strategic plans make a distinction between goals and objectives, while others do not. The federal OMB uses the Government Performance and Results Act (GPRA) definition: a strategic plan contains general goals and objectives; those terms are considered synonymous and the choice of which term to use is a matter of style. Although the words are often used interchangeably, and although the OMB's planning guide for state and federal agencies supports treating them as though they were synonymous, there are differences between the two. The following description, almost poetic in its presentation, is from the San Diego State University website:

- Goals are broad; objectives are narrow
- Goals are general intentions; objectives are precise
- Goals are intangible; objectives are tangible
- Goals are abstract; objectives are concrete
- Goals cannot be validated as is; objectives can be validated⁶³

The goals a state sets for itself are high-level, general directions. The objectives a state sets for achieving the goals are concise, specific and measurable. Each objective has a deadline for completion and an associated metric to measure progress. Objectives are updated as they are completed or at least annually, even if the duration of activities associated with an objective is longer than one year.

The information in Table 16 derived from the State of California's strategic plan⁶⁴ is provided by way of example.

⁶³ San Diego State University website, <<http://edweb.sdsu.edu/courses/edtec540/objectives/Difference.html>> (April 24, 2008)

⁶⁴ State of California Emergency Telephone Number Program, "Strategic Plan," November 1999

Table 16
State of California Goals and Objectives

Goal 1	
The primary focus of the state 9-1-1 program will be its customers: the PSAPs	
Objective:	Establish a Steering Committee of executives from key state and local emergency services agencies to provide policy, direction, guidance, advice, concurrence and sponsorship for state 9-1-1 program initiatives
Completion Date:	January 31, 2000
Measurement(s):	Agenda created and first meeting scheduled
Goal 2	
Provide a standard level of service statewide	
Objective:	Recommend, in consultation with PSAPs, implementation and performance standards for: The network CPE deployed at PSAPs Software, applications and database that provide 9-1-1 system "intelligence"
Completion Date:	September 30, 2000
Measurement(s):	Acceptance of recommended standards by the Steering Committee and 9-1-1 Emergency Services Advisory Board

We note that this section is intended to set forth the goals and objectives of a statewide strategic plan as differentiated from an implementation plan. The Appendix provides guidance for managing an implementation project, and includes an example of a typical 9-1-1 implementation plan. It is our intent that, in the real world, an implementation plan could be a separate document. For the purposes of this project, this Model State Plan incorporates both a state strategic plan and a sample implementation plan.

11.2 TRACKING PROGRESS

The State 9-1-1 Plan is a living document that is intended to be used on an ongoing basis. The goals, objectives and measures included in the Plan should be monitored for progress and achievement. This section of the Plan needs to describe the monitoring/tracking process and/or structure put into place to achieve that end. The section of this Model State 9-1-1 Plan entitled "Updating the Plan," recommends an annual cycle to update the goals and objectives section. Updates related to documenting progress on existing goals and objectives are largely administrative and could be handled by program staff. Updates involving major revisions, additions or eliminations of goals and objectives would involve a more formal process.

California's 9-1-1 Plan is organized such that each objective is immediately followed by the key measurement for that objective (see Table 16 above).

The Commonwealth of Virginia has assigned itself the (potential) responsibility of creating "performance metrics that appropriately measure the success of the Plan," but in the short term empowered the

Initiative Action Team (IAT) associated with each initiative to determine its own “milestones, major deliverables, and metrics by which it will measure success towards the accomplishment of the initiative.” At the end of the first year of an initiative, Virginia intends to undertake a comprehensive review of its Plan; initiatives that have been successfully implemented will be removed from the Plan, or if further work is needed, it will remain in the plan and new tasks will be added for the second year.⁶⁵

The Model State 9-1-1 Plan project has a second deliverable, which relates to this topic. The report on Recommendations on Data Elements to Measure the Technological Progress of 9-1-1 provides a feasible recommendation for data elements that should be collected at the state, regional and tribal level and will enable the technical progress of 9-1-1 services to be measured—a critical component of any plan and any planning process.

⁶⁵ Commonwealth of Virginia Wireless E9-1-1 Board, “Statewide Comprehensive 9-1-1 Plan: Next Gen and Beyond,” January 2008 <http://www.va911.org/pdf/VA_Comprehensive_Plan_for_9-1-1_Final.pdf> (April 16, 2008). Page 17-18

12. RESOURCE ALLOCATION

This section includes the resources required to implement the plan, such as staff, non-staff expertise, funding priorities, etc. It is focused on the overall state-level 9-1-1 program function and not a specific implementation project.

The state 9-1-1 program should consider whether its current staffing level is adequate to support the initiatives and/or perform the tasks associated implementing the plan. Additional considerations may include whether existing staff has the expertise necessary to implement the plan, e.g., project management, technology, financial management. If not, the plan must determine how to obtain the necessary expertise.

There are a number of options for obtaining such expertise. These include entering into a collaborative arrangement with another state agency that has employees with the necessary expertise, hiring consultants or other subject matter experts with specific knowledge, skills and experience that are lacking on staff.

Funding and funding allocation are essential considerations. First, it will be necessary to assure adequate internal funding to implement the plan. If additional funding is needed, but not available, it may be important to scrutinize the program's operational budget and reprioritize or redirect internal program funds. Second, allocation of funding to counties or PSAPs may need to be re-prioritized to meet the plan's goals, for example, prioritization of funding for migration to NG9-1-1 rather a continuation of funding for legacy 9-1-1 system components. Third, the state's funding mechanism(s) may need to be entirely reconsidered to assure adequate funding to implement the plan.

13. UPDATING THE PLAN

A state's plan should contain specific language describing the mechanism and frequency of updating the plan. An annual process to assess the status of progress on the objectives and update the goals and objectives is appropriate. That type of update is largely administrative and could be handled by program staff. An annual process to revise, add or subtract goals and objectives would involve a more formal process, and ideally would involve the same parties that participated in the development of the original plan. At a minimum, the entire plan should be reviewed and updated every three years.

The national associations interviewed as part of the Model State 9-1-1 Plan project all articulated the need for flexibility and a process to update or change the plan quickly to reflect regulatory and technological change. The process for reviewing and updating the plan will vary from state to state depending on the institutional environment that exists. One option is to review and update the plan in conjunction with the state's budget cycle. Alignment with an existing process would assure the plan receives regular attention. Regardless of the mechanism chosen, the more stakeholders there are through which the updates must be vetted, the longer and more complex the process will be. Additional time will be required to accommodate this approach.

Staff leadership and coordination of the process is essential to being able to respond quickly. Ideally, existing staff have adequate expertise and resources to undertake the update process. In addition, a single entity (e.g., stakeholder steering committee, state 9-1-1 board) would review the revised document. In at least one instance, the State of Florida, the approval of updates and changes is handled through administrative rulemaking.

14. MECHANISM(S) FOR OVERSEEING AND MANAGING THE STATE'S 9-1-1 SYSTEM

This section of a state plan describes the structure a state puts into place to assure that local, regional and state-level system functions are coordinated, mutually supportive, comprehensive in scope, and efficient in operation. Such structure is usually built around a combination of legislation, policy, rules, and guidelines—all of which reflects an environment unique to each state. There are high-level needs that must be addressed by any state plan, including: stakeholder involvement, feedback and role definition (9-1-1 authorities, service providers, equipment vendors, etc.); performance and implementation metrics; appropriate project and change management (see Appendix); the coordinated development, distribution and application of best practices and operational policy as it relates to statewide connectivity. Policies and procedures are often based upon institutional relationships in a state, along with related roles and responsibilities. As discussed earlier, a state plan should address both state-level operational functions (note the discussion on NG9-1-1 above), and the way 9-1-1 services at regional and local levels will be coordinated statewide.

Regardless of which of the seven models best fits the state, the basic mechanism for overseeing and managing the state's 9-1-1 system or systems is a state-level program office with staff that has appropriate expertise. The program's responsibilities would include:

- Coordinating the development and implementation of the state 9-1-1 plan
- Providing a single point of accountability for statewide 9-1-1 issues related to the plan
- Updating the plan annually
- Coordinating 9-1-1 implementation activities statewide
- Providing a clearing house for information about state, local and national 9-1-1 issues
- Gathering and disseminating information on how the plan's initiatives are progressing
- Being the liaison between local and regional 9-1-1 stakeholders and the State as well as Federal agencies

Florida and Georgia's 9-1-1 plans, which are organized similarly, provide good examples of how the state defines and exercises its coordinating function in relation to local government. Each plan provides

- Detailed descriptions of the technical and operational standards and design criteria for 9-1-1 systems
- Guidance for initiating a 9-1-1 system including the planning process, creation of a stakeholder task force, equipment, training, organization, staffing and funding
- Description of the state's role
- Description of the local role

Florida's plan describes in somewhat greater detail the state and local process for stakeholder involvement and communication, and includes the individual plans for each of Florida's 67 counties as well as guidance for the development of Standard Operating Procedures (SOP's). Georgia's plan includes several sample forms for the counties' use, such as an example county or city resolution, example mutual aid or inter-local agreements, and a county 9-1-1 configuration plan.

Florida's plan includes a brief description of what the State intends to do to maintain regular communication with PSAPs. It notes the importance of communication between the State's 9-1-1 coordinator and local 9-1-1 coordinators. The communication methods described include:

- Monthly PSAP visits
- Newsletters
- System activity reports and performance statistics
- Regular meetings with PSAP managers (The 9-1-1 coordinator keeps detailed minutes and records of such meetings and assures that major decisions are documented and sent to the PSAP managers on a follow-up basis to assure that there are no misunderstandings)
- Interagency workshops involving PSAP personnel
- In-service training
- Periodic PSAP inspections to evaluate compliance with the technical and operational standards⁶⁶

Some types of state programs described in Section 4 of the Project Overview were implemented specifically to support statewide planning and coordination (as a precursor to state funding, for example), and thus are more focused on the intent and goal of this report, and the process it is intended to foster. With that in mind, we present these high-level approaches (based upon the Section 4 descriptions) with their respective potential strengths and weaknesses distilled from analysis of existing state 9-1-1 programs. This information will be useful to states in considering a change or improvement, or establishing a mechanism for statewide coordination and planning.

The seven types of state 9-1-1 programs and their associated strengths and weaknesses are incorporated into Table 17 below.

⁶⁶ State of Florida, "Florida E9-1-1 Plan," <http://dms.myflorida.com/cits/public_safety/florida_e911/florida_e911_plan> (April 18, 2008). Page 71.

Table 17
State 9-1-1 Authorities

State 9-1-1 Authority Type	Strengths	Weaknesses
<ul style="list-style-type: none"> Category 1— State-level 9-1-1 authority that owns or operates a single statewide system with a single, state-operated PSAP 	<ul style="list-style-type: none"> Leverages economies of scale Assures a consistent statewide level of service System maintenance and upgrades are easier and less expensive Local control over dispatch arrangements remains unchanged 	<ul style="list-style-type: none"> May complicate the opportunity for local stakeholder input Inherently involves two-stage call handling, which is viewed by some as less efficient May not be possible in larger, more diverse states with complicated institutional environments No opportunity to share incremental costs among multiple PSAPs— all upgrade costs are dedicated to one PSAP
<ul style="list-style-type: none"> Category 2— State-level 9-1-1 authority that owns/operates a single statewide system, and funds and operationally supports PSAPs (PSAPs are operated by state, local, county or regional entities) 	<ul style="list-style-type: none"> Leverages economies of scale System maintenance and upgrades are easier and less expensive More relative opportunity for local stakeholder input Local control over dispatch arrangements remains unchanged Increases the potential for one-stage⁶⁷ call processing, which is viewed by some as more efficient 	<ul style="list-style-type: none"> Somewhat harder (relative to Category 1) to assure a consistent statewide level of service, though statewide connectivity is maintained May not be possible in larger, more diverse states with complicated institutional environments

⁶⁷ One-stage call processing is when the person who answers the call is the same person who dispatches the responders.

Table 17 Continued

State 9-1-1 Authority Type	Strengths	Weaknesses
<ul style="list-style-type: none"> Category 3— State-level 9-1-1 authority with statewide geographic planning/coordination/funding responsibility for full scope of 9-1-1 	<ul style="list-style-type: none"> By nature, more opportunity for local stakeholder input State funding may reduce the level of local funding needed Broad oversight enables a range of 9-1-1 issues to be addressed effectively May work better for states with a history of strong local government, and/or a complicated institutional environment 	<ul style="list-style-type: none"> Achieving a consistent statewide level of service is potentially more complicated State role may be limited to leadership, coordination, encouragement, best practices, etc. (Note: this could also be a pro, depending upon ones point of view) Plan implementation may be more complicated depending upon the process and stakeholders involved
<ul style="list-style-type: none"> Category 4— State-level 9-1-1 authority with less than statewide geographic planning/coordination/funding responsibility for full scope of 9-1-1 	<ul style="list-style-type: none"> Provides state-level coordination for at least a portion of the state's geography State funding reduces the level of local funding needed for regions served by the state program 	<ul style="list-style-type: none"> A consistent level of service exists only within the geographic jurisdiction of the state-level authority State funding may not be available statewide, or funding environment may be more complicated State role outside of jurisdiction may be limited to leadership, coordination, encouragement, best practices, etc. Statewide plan implementation may be more complicated

Table 17 Continued

State 9-1-1 Authority Type	Strengths	Weaknesses
<ul style="list-style-type: none"> Category 5— State-level agency or Board with statewide responsibility for limited aspects of 9-1-1 (generally wireless) 	<ul style="list-style-type: none"> Provides at least some degree of state-level coordination 	<ul style="list-style-type: none"> No ability to effectively address the full range of 9-1-1 issues on a statewide basis A potential disconnect as 9-1-1 services are developed in isolation based on call type Funding equity may be an issue
<ul style="list-style-type: none"> Category 6— Informal state-level 9-1-1 focus or coordination mechanism 	<ul style="list-style-type: none"> Provides a focal point for stakeholders May maintain local autonomy Usually based on local initiative Can be effective depending upon the coordination mechanism adopted 	<ul style="list-style-type: none"> Dependent upon the initiative and interest of individual stakeholders Effectiveness is very challenging Difficult to maintain ongoing initiative Funding may be an issue
<ul style="list-style-type: none"> Category 7— No state-level planning or coordination mechanism of any sort 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> All 9-1-1 matters are addressed locally; any coordination that may occur will be secondary to local needs and actions

15. MECHANISM FOR INITIATING AND MONITORING AN IMPLEMENTATION PROJECT

A state 9-1-1 program's mechanism for project initiation and monitoring, i.e., project management, is dependent upon the type of 9-1-1 authority it has, its statutory scope of authority and the availability of adequate staff, resources and expertise.

Regardless of the state 9-1-1 program's structure and particular circumstances, certain activities must occur if any kind of project is to draw to a successful conclusion.

One widely recognized best practice comes from the Project Management Institute (PMI®). Included is a high-level overview of PMI® best practices for project initiation and monitoring as Attachment 1. This information addresses:

- Project management processes and their dependencies
- Activities and deliverables are associated with those project management processes
- Processes to facilitate project initiation
- Guidance for project monitoring and contract administration
- Processes for closing a project

Whether a state uses its own staff expertise or contracted expertise in the management of a 9-1-1 implementation project, the information contained in Attachment 1 will help provide understanding of the basic elements of project initiation and monitoring, and the accountability necessary for success.

15.1 IMPLEMENTATION PLAN

A formal implementation plan is the best way to initiate and monitor an implementation project. We previously noted that, in the real world, the implementation plan could be a separate document. If not, this section would be the place to provide a Gantt chart for the implementation project. The Appendix, *Project Initiation and Management*, provides an example at Figure 3.3.

16. CONCLUSION

This Model State 9-1-1 Plan provides a format, information and examples to guide a state's development of its own statewide 9-1-1 plan. We conclude with a brief review of some key points to consider when undertaking a statewide planning process.

- Adopted federal policy regarding emergency communications and 9-1-1 either fosters or requires some degree of statewide planning and coordination. Clear policy statements include:
- The establishment of a state entity or focal point for these issues
- The establishment of statewide plans designed to ensure statewide coordination of effort
- The appropriate and adequate involvement of stakeholder communities
- Such planning and coordination must comprehensively address the technology and services involved

NG9-1-1 is being designed to support an interconnected system of local, regional, and state emergency services networks, ultimately expanding to cover the entire nation. Effective interconnection requires effective statewide planning and coordination *as well as* effective inter-state planning and coordination.

A state's 9-1-1 plan—and planning process—will be driven by the state's statutory and institutional environment. In some, the state's 9-1-1 plan may reflect the coordinated compilation of local/regional planning efforts addressing specific areas of the state. In others, the state agency responsible for 9-1-1 may operate a single PSAP that serves the entire state. In all states, planning must be appropriate to state program authority and role.

- Pre-planning activities may need to occur in order to establish a foundation and put the elements in place for the planning and coordination activities described in this Model State 9-1-1 Plan. These may include developing a leadership and coordination structure in geographic or programmatic areas over which they have no jurisdiction, or starting from scratch where no statewide planning mechanism currently exists.
- A state will obtain the most benefit from a planning process that involves local, regional, state (and inter-state) stakeholders, and a plan that addresses local/regional needs and requirements as well as state-level needs for statewide functions, services, and components.

Developing a statewide 9-1-1 plan in close collaboration with local, regional, state and inter-state stakeholders will have beneficial outcomes that go beyond the Plan itself. Collaborative planning that involves key stakeholders has the potential to build the effective relationships that will be essential to the success not only of the plan, but also of NG9-1-1 and beyond.

17. REFERENCES

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Report on Data Elements

18. APPENDIX A - PROJECT INITIATION AND MANAGEMENT

Project Initiation and Management

Introduction

L. Robert Kimball & Associates, Inc. (Kimball), is charged with presenting NASNA with PMI®⁶⁸ best practices for project initiation and project monitoring. In order to fulfill these two deliverables, a concise summary of project processes is warranted to afford the reader an understanding of project management processes. Section 1.2 describes project management processes and their dependencies, Section 1.3 presents activities and deliverables associated with project management processes, Section 2 furnishes processes to facilitate project initiation, and, lastly, Section 3 offers guidance for project monitoring and contract administration.

Project Management Processes

Projects are composed of a series of actions commonly referred to as project processes. Project management processes can be organized into groups of one or more processes as follows:

- Initiating processes
- Authorizing the project or project phase
- Planning processes
- Defining the project's objectives
- Refining the projects objectives over time
- Executing processes
- Coordinating people and other resources to carry out the project plan and scope
- Monitoring and Controlling processes
- Ensuring the project objectives are met by monitoring and measuring progress
- Identify variances from the project plan
- Initiate corrective action when necessary
- Closing processes
- Formalizing acceptance of the project or a project phase
- Perform project close-out activities

Process groups are related by the results produced by each. These results often become an input to another process group. A good example of activity between process groups is the formal project plan, developed as part of the Planning Process, that provides "Executing Process" an unambiguous path forward and furnishes documented updates to the plan as the project moves ahead.

These links and dependencies are illustrated in Figure 1.1.

⁶⁸ PMI®: Project Management Institute

PROJECT PROCESS GROUP INTERACTIONS

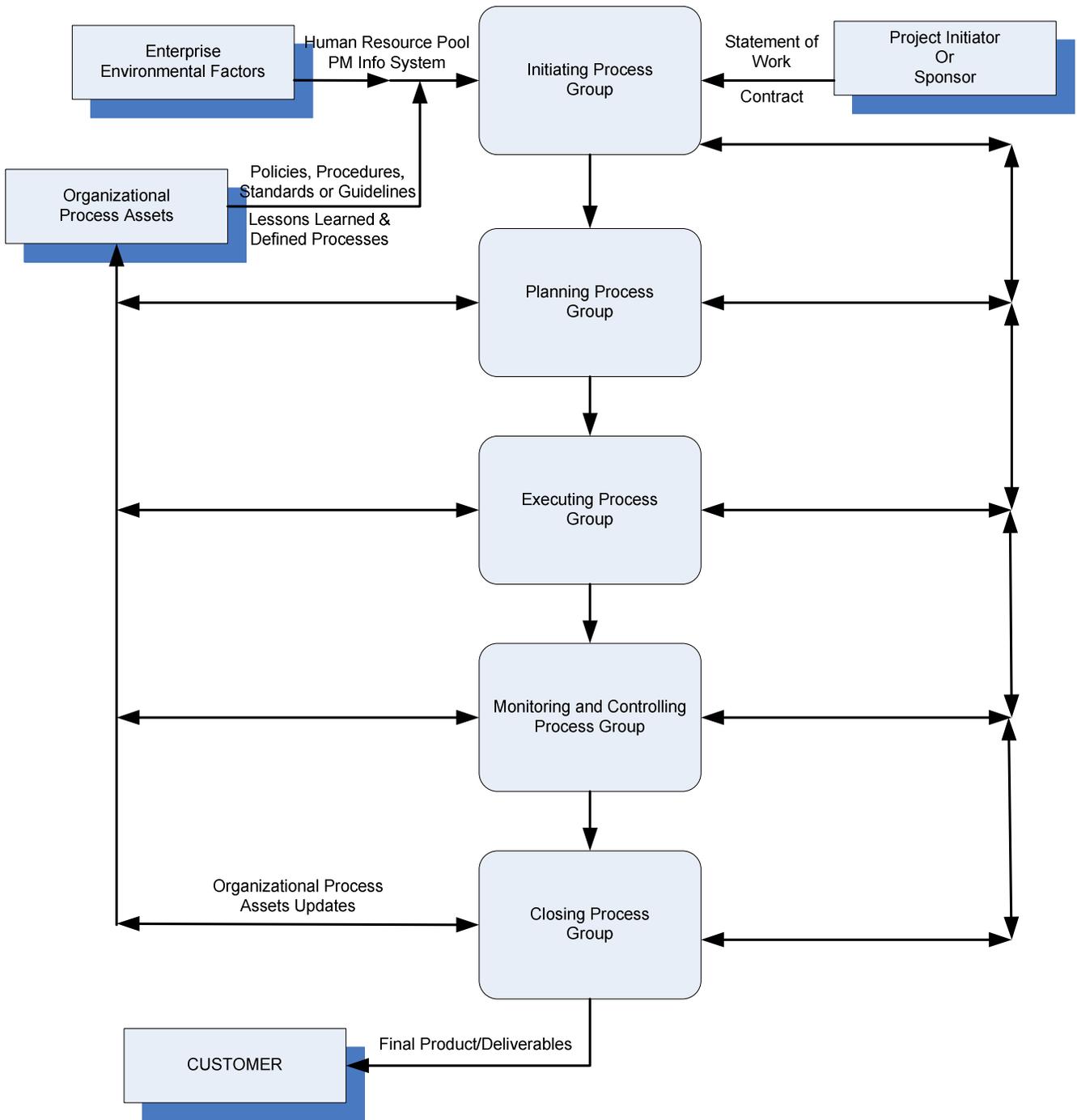


Figure 1.1⁶⁹

⁶⁹ Figure 1.1 Derived from A Guide to the Project Management Body of Knowledge (PMBOK® Guide)

Project management processes are not discrete onetime events. As illustrated in Figure 1.2, process groups consist of overlapping activities that occur at varying levels of intensity throughout each project phase.

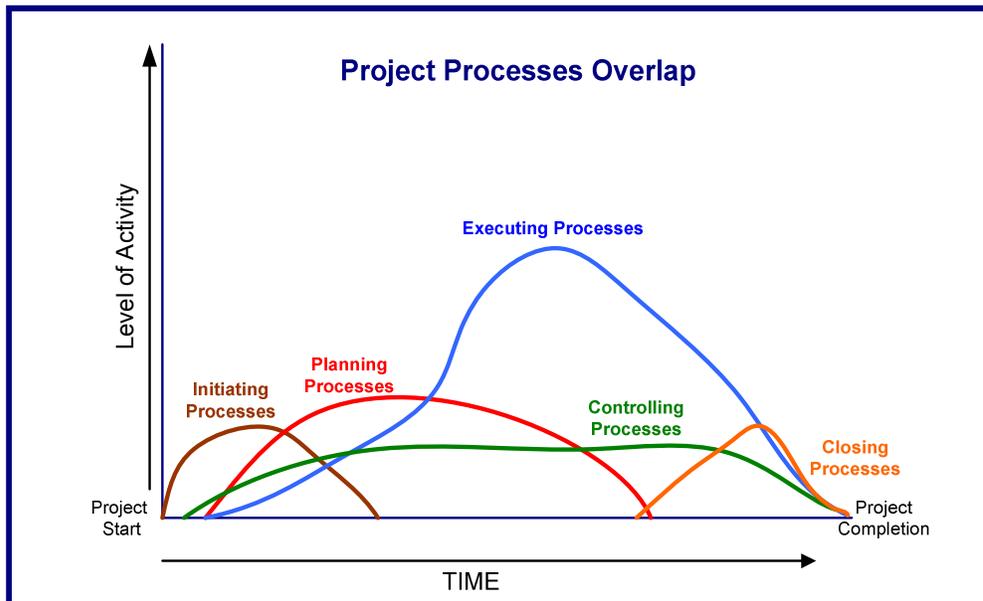


Figure 1.2⁷⁰

Project Management Processes Activities and Deliverables

Figure 1.2 depicts project management processes, and activities move forward in parallel with some overlap. Additionally, Table 1.3 illustrates activities and deliverables for each key stage of the project management processes.

Table 1.3

Process	Activity	Deliverables
Project Initiation Group	<ul style="list-style-type: none"> Identify the project need Define the project scope, goals, objectives, sponsor and project organization Develop initial estimated of cost, duration and effort 	<ul style="list-style-type: none"> Project Charter Preliminary Project Scope Statement

⁷⁰ Figure 1.2 Derived from A Guide to the Project Management Body of Knowledge (PMBOK® Guide)

Table 1.3 Continued

Process	Activity	Deliverables
Planning Process Group	<ul style="list-style-type: none"> • Define tasks, their interdependencies and schedule • Estimate time for activities • Refine resource requirements • Develop a risk management plan • Develop project work plan, milestones and schedule • Define project control processes, standards and procedures • Refine and manage expectations 	<ul style="list-style-type: none"> • Work plan • Work breakdown structure • Risk Management Plan • Time tracking • Format • Project Budget • Communications Plan • Cost-benefit analysis • Project Management Plan
Execution Process Group	<ul style="list-style-type: none"> • Compare actual progress to planned progress • Assess and report project status • Coordinate project activities and resources • Implement corrective actions and update cost estimates and project schedule • Manage and resolve issues • Manage changes to the project scope • Communicate progress, status and issues • Evaluate performance of the project team 	<ul style="list-style-type: none"> • Issue Status reports • Issue Formal Project Change Requests • Craft Work Performance Reports • Issue Formal Project Scope Change Requests

Table 1.3 Continued

Process	Activity	Deliverables
Monitoring and Controlling Process Group	<ul style="list-style-type: none"> • Monitor project costs • Approve/Reject Project Change Requests • Monitor Project Progress • Assess quality of project deliverables • Approve/Reject Project Scope Change Requests 	<ul style="list-style-type: none"> • Update Risk Management Plan • Update Project Work Plan • Updated Project Management Plan • Updated Project Scope Statement
Closing Process Group	<ul style="list-style-type: none"> • Present final project deliverables and results • Formally end the project • Evaluate performance of the project team • Evaluate the project and document lessons learned • Identify areas of improvement for future projects • Final billing 	<ul style="list-style-type: none"> • Project assessment report • Performance appraisals • Final project deliverables to the customer • End results documentation

Project Initiation

Project initiation processes facilitate the formal authorization to proceed with a new project. Initiating processes are often undertaken and completed outside the project scope and project control. Logical project initiation steps include:

- Establishing the need for the project
- Determining the feasibility of the project
- Developing clear and concise descriptions of the project objectives
- Developing a basic project scope description
- Identifying resources that your organization is willing to commit to the project
- Assigning a project manager
- Documenting your initial assumptions and project constraints

This information is distilled and becomes part of the Project Charter. A project charter is a concise document that formally authorizes the project and links it to the ongoing work of your organization. The project charter is prepared at a management level appropriate to authorize funding the project. Typical justifications for project chartering are:

- Business need
- Technological advances
- Customer request
- Social need
- Legal requirements

The Project Charter's framework is structured in a fashion to give the reader an executive overview of the undertaking. There is a heading for each of the following topics:

- Project title and description
- What is the project?
- Project Manager assigned and authority level
- Who is given the authority to lead the project?
- Can he/she select project team members?
- Can he/she approve changes to the project budget, schedule and staffing?
- Project justification
- Why is the project being done?
- Technological advances?
- Legal requirements?
- Social need?
- Customer request?
- Combination of all?
- Resources
- How many or what resources will be assigned?
- Stakeholders
- Who will be affected by the project?
- Who will influence the project?
- Project deliverables
- What are the specific project deliverables?
- Constraints and assumptions
- A constraint is any limiting factor (time, budget, etc.)
- An assumption is something taken to be true but which may not be true (Staffing, vendor readiness, etc.)

Procurement Planning and Management

Procurement planning is the process of identifying which individual project needs can be best met by obtaining services or products not usually provided by state organizations. Normally, procurement planning is accomplished during the project scope definition and involves consideration of whether to procure, what to procure, how best to procure, how much to procure, and when to procure. Please refer to Figure 3.1 for a graphical representation of procurement planning and management.

Inputs to procurement planning include:

- A *project scope statement* that describes the current project boundaries and also provides information regarding project needs and strategies that must be considered during procurement planning
- *Project description* affords information relative to technical, legal, or social issues that need consideration during procurement planning
- Additional *procurement planning inputs* include project constraints or factors that limit the State's options, e.g., funding, schedule, resource allotment, and technical issues

Outputs from procurement planning are:

- A *procurement management* plan that describes how the remaining procurement processes from solicitation planning through contract closure will be managed.
- A *statement of work* that describes the project elements and services in detail, thereby allowing prospective bidders to determine if they are capable of providing the project deliverables. Please note that the statement of work may be revised and refined as it moves through the procurement process. For example, a prospective bidder may suggest a more efficient technical approach or a less costly network element or service that originally specified in the original statement of work.

Bid Solicitation Planning

Solicitation planning involves preparing documentation needed in support of the actual solicitation. Inputs to this stage on project initiation consist of:

- Procurement Management Plan
- Statement of Work

Tools and techniques used to facilitate bid solicitation planning include:

- Standard State Forms
- Purchasing and Contract Administration Outlines
- Solicitation Outlines
- State Tax and Insurance Certifications

Access to individuals or organizations possessing the specialized expertise needed to assess inputs to the solicitation process is key to ensuring a comprehensive solicitation document. These same individuals or organizations may be called upon to craft evaluation criteria to rate or score vendor proposals.

Lastly, outputs from solicitation planning are:

- Concise *procurement documents* used to request proposals from prospective bidders. Procurement documents should be structured to facilitate accurate and complete responses. They should always include the relevant statement of work, a description of the desired form of response, the required State contract and pertinent nondisclosure provisions and limitations.
- *Evaluation criteria* are used to rate and score proposal responses and may be part of the procurement documentation. Selection criteria may include:
 - Overall Life Cycle Costs
 - Technical Capability
 - Financial Capacity
 - Project Management Approach
 - Comprehensive Understanding of the Project's Scope

Bid Solicitation

Bid solicitation involves obtaining responses from prospective vendors or service providers on how the project's requirements can be met. Most of the actual effort in bid solicitation is expended by those tendering a proposal at no cost to the State or 9-1-1 entity. Inputs to bid solicitation documents include:

- *Procurement documentation* crafted during the solicitation planning process;
- Some states maintain a listing of *qualified vendors* or contractors that meet strict technology and management requirements along with financial stability deemed essential by the state

Tools and techniques used to facilitate bid solicitation include:

- *Bidder conferences* are meetings with prospective vendors and service providers prior to the vendors' preparation of a proposal (mandatory representation by prospective bidders is vital to assure all prospective bidders have a clear mutual understanding of the project's scope and deliverables including preferred technology and contract requirements);
- Responses to questions posed during *bidder conferences* may become part of the procurement documentation;
- It is imperative that all potential bidders remain on equal standing while the solicitation process takes place;
- States often require public *advertising* of bids and certain types of procurements. Posting the bid solicitation on the state's web site and 9-1-1 industry web sites do well in eliciting a greater number of qualified respondents.

The bid solicitation product is a vendor proposal.

Proposals are vendor prepared documents that describe in detail the vendor's ability and willingness to undertake the project. *Proposals* are prepared in accordance with stipulations and requirements contained in the procurement solicitation documents.

Vendor Selection

Vendor selection involves the receipt of *proposals* and the application of *evaluation criteria* to select a provider.

Inputs are:

- Again, *proposals* are vendor prepared documents that describe in detail the vendor's ability and willingness to undertake the project.
- *Evaluation criteria* are used to rate and score proposal responses and may be part of the procurement documentation. Selection criteria may include:
 - Overall Life Cycle Costs
 - Technical Capability
 - Financial Capacity
 - Project Management Approach
 - Comprehensive Understanding of the Project's Scope

Tools and techniques used to facilitate the vendor selection process are:

- A *screening system* established minimum requirements of performance for one or more of the evaluation criteria. For example, the vendors might be required to propose a network that is fault tolerant, geographically diverse, and provides 99.999 percent network reliability before the remainder of the proposal would be considered.
- A *weighting system* is a method of quantifying data to minimize preconceived or personal prejudice towards a bid respondent. Weighting systems assign a numerical value to each of the evaluation criteria, rating the respondents on each criterion, and lastly, multiplying the weight by the rating, producing a final score.
- Vendor selection culminates in a *contract*. A contract is an agreement between the state and the vendor, which details their legal requirements and obligations.

Contract Administration–Project Monitoring

Contract administration process helps to assure the project's goals and requirements are on track and on schedule. The contract administration process is a component of overall project monitoring. Contract administration and monitoring utilizes the existing contract requirements to provide the state and the vendor with strict guidelines for administering and monitoring the project. Data inputs required to assure scrupulous contract administration are:

- *The contract*;
- *Work results* describe which deliverables have been completed and which remain open, what costs have been incurred to date, schedule adherence, and to what extent quality standards are being met;
- *Change requests* may include changes to the terms and conditions of the contract and changes to the products or services provided to the state by a vendor or services provider. Change requests may occur in many forms, oral or written and can be generated by the state, vendor or service provider. It is imperative that formal change control processes are developed to assure proper change approval and tracking;
- *Vendor invoices* are submitted, predicated on stipulations written in the contract. Submission of vendor invoices are usually tied work results and performance reviews conducted jointly by the vendor and state project managers.

Tools and Techniques

Tools and techniques that facilitate contract administration and project monitoring include:

- *Contract change and scope controls* define the procedures for altering the contract or project scope. This phase of project monitoring encompasses all forms of project communications, project-tracking systems, dispute resolution procedures, and unambiguously defines approval levels necessary to authorize changes;
- *Project performance reports* involve gathering the vendor's performance data and distributing to members of the state's project team. Performance reporting on a predetermined schedule helps to alert the state on whether the vendor is meeting their contractual objectives and is used as a tool to approve vendor invoices. Performance reports should be distributed to vendors that have dependencies on work performed by another vendor as well;
- A formal *communications* plan is a document that provides:
 - Descriptions of information to be distributed including format, content, and level of detail.
 - A distribution structure that specifies to whom the information (status reports, schedule, technical documents, meeting minutes, etc.) will flow and what methods (email, written reports, project meetings, etc.) will be utilized to distribute the various types of information.
 - A communications plan should differentiate between internal state communications and external communications shared with a vendor.
 - Please refer to Table 3.3 for a sample communications plan.
 - An approved method or technique for identifying and sequencing project tasks and charting their completion. A common tool that can provide this level of scrutiny is a Gantt chart. A Gantt chart depiction of a typical 9-1-1 implementation project is provided in Figure 3.3.

Outputs from Contract Administration

- *Contract changes* and associated documentation includes any changes to the contract, both approved and unapproved, and any vendor-developed technical documentation and work performance data. Requested changes to the project plan, such as schedule or modifications to vendor-provided technology, are examples of change requests. Contract changes are formally submitted to the state's project manager and approval authority and may not move forward until approved.
- *Payment requests* are submitted by the vendor based on the terms and conditions stipulated in the contract. Vendor payment requests must pass the state's project team's reviews and approval before processing. Please note that it is imperative that a claims administration process be part of the contract in order to adjudicate disputes between the vendor and state. Proper claim administration serves to document, process, and monitor and manage disputes and claims throughout the life of the contract.
- Formal *correspondence* between the state and vendor during all phases of a project, particularly during contract administration, is critical to the project's success. Certain communications between the state and vendor, including project change requests, warnings of unsatisfactory performance, and contract changes/clarifications, are examples of matters that require formal correspondence.

Contract Closeout

Contract closeout includes product verification, all work completed correctly and satisfactorily, and updating project records to reflect final project results. Terms and conditions in the vendor contract typically specify procedures for contract closeout. Inputs to facilitate the contract closure process include:

- *Contract documentation* includes the contract itself along with all supporting schedules, requested and approved contract changes, vendor-developed technical documentation, vendor performance reports, invoices and payment records, the results of test and acceptance plans, and contract-related stipulations.

Tools and Techniques to Aid in Contract Closeout Are:

- *Project audits* are structured reviews of the project from procurement planning through contract administration. Periodic audits facilitated throughout the project term serve to identify issues and afford the project team interim views on what has gone well and what needs improvement to complete a project successfully. A final project audit provides an analytical review of the project successes and failures, if any.

Outputs Resulting from the Contract Closeout Process

- *Formal acceptance and closure* occurs when the State's project manager or contracting authority responsible for contract administration provides the vendor with formal written notice that the contract has been completed. Requirements for formal acceptance and closure are usually defined in the contract.
- Timing of the final *payment* generally occurs after all contract documentation, project audits, formal acceptance, and closure processes are successfully completed.
- A *lessons learned* report identifies causes of project variances and reasoning behind the corrective actions chosen. This document should be memorialized and become part of the historical database for this project and other projects within the state organization.

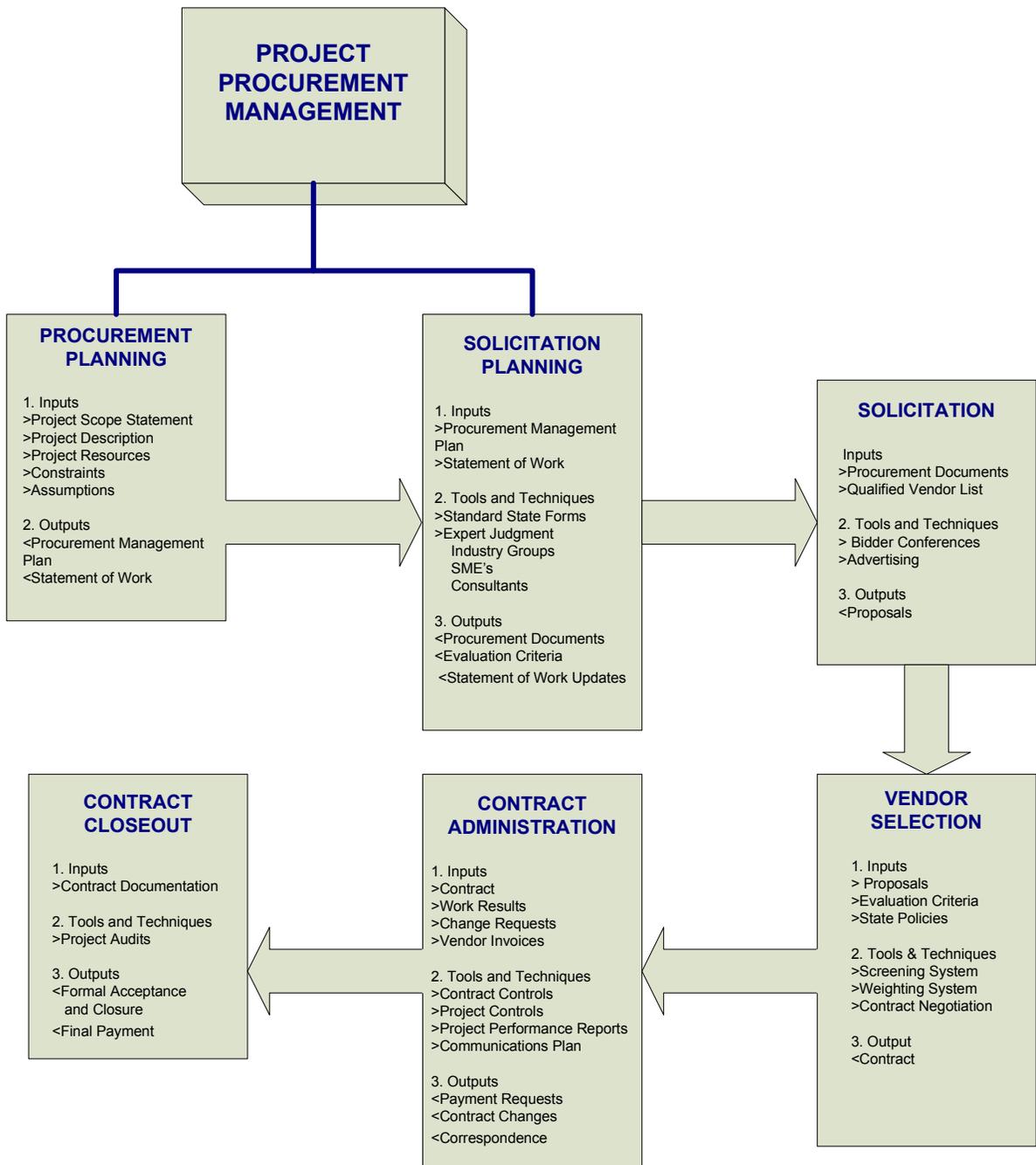


Figure 3.1⁷¹

⁷¹ Figure 3.1 Derived from A Guide to the Project Management Body of Knowledge (PMBOK® Guide)

Appendix B - Glossary

18.1.1.1 - A-

ANSI	American National Standards Institute
APCO	Association of Public Safety Communications Officers
ATP	Acceptance Test Plan
ATS	Automatic Transfer Switch
AVL	Automatic Vehicle Location

18.1.1.2 - B -

Base station: A radio station licensed by the FCC to operate at a certain location, at a specific frequency, at a specified power output for the purpose of communicating to other base stations and/or mobile radio units.

BER Bit Error Rate; A rate at which errors occur on a digital channel.

Bidder Entity providing a submittal in response to the requirements. Synonyms include Bidder, Offeror, Proposer, Respondent, Vendor.

18.1.1.3 - C -

CAD	Computer Aided Dispatch
CATP	Coverage Acceptance Test Plan
Combiner:	A device that will permit multiple transmitters to share a common antenna.
Console	A device that has the capacity to control transmissions and monitor reception of multiple remote located base stations
Contractor	Successful Respondent to whom a contract is awarded
Control point	Any location from which a base station's operation may be controlled.
CFM	Composite Fade Margin, as related to microwave path design
CPU	Computer Processing Unit
CTCSS	Continuous tone coded squelch system.
Customer	Same as Owner

18.1.1.4

-D-

DADE equipment.	Differential Absolute Delay Equalizer, as related to microwave terminal	terminal
DTE	Digital Transverse Equalizer, as related to microwave terminal	equipment.
DTE	Data Terminal Equipment, as related to Mobile Data and LAN	networks.
Duplex, Full	A communication circuit that permits simultaneous operation in	both directions.
Duplex, Half a time.	A communications circuit that allows operation in both directions, one direction at	
Duplexer antenna.	A device that will permit a transmitter and receiver to share a	common

18.1.1.5

-E-

EIA	Electronic Industries Association	
EIF	External Interference Fade Margin, as related to microwave path design	
EMI	Electromagnetic Interference	
ERP	Effective radiated power	

18.1.1.6

-F-

FATP	Final Acceptance Test Plan	
Fault tolerant operation.	A system that upon failure of major components is still able to	provide
FCC	Federal Communications Commission	
FDMA	(Frequency Division Multiple Access) A communications technique in which individual traffic channels are separated by being routed over separate frequencies.	
FPD	Flat Panel Display	
FSA	Fire Station Alerting	
Furnish	To supply and deliver, ready to install	

18.1.1.7 -G-

Gain The level a signal is increased beyond its original level.

GPS Global Positioning System

GUI Graphical User Interface

18.1.1.8 -H-

Hertz (Hz) Unit of frequency. Used to specify the frequency of operation, or the block of frequencies used by a communications system or device.

18.1.1.9 -I-

IEEE Institute of Electrical and Electronics Engineers

Install Position for service, ready for use

Interference The reception of unwanted radio emissions that degrade or interrupt the reception of the desired signal.

18.1.1.10 -L-

Leaky coax A type of transmission cable that has multiple perforations along its inner shield that permits radio transmissions to radiate outward along its length. This type of coax is used to provide coverage inside tunnels and buildings.

LCD Liquid Crystal Display

LNA Low noise amplifier

18.1.1.11 - M -

MTBF Mean time between failures.

MCE Master Control Equipment, related to dispatch console electronics

MHSB Monitored- Hot Standby, as related to microwave terminal equipment.

MSE Master Station Equipment, related to alarm and control,

Multicoupler A device that permits several receivers to share a single antenna.

MTS Master Time Standard

Mux Multiplex or channel bank equipment

18.1.1.12 - N -

Narrowband A radio channel that requires 12.5 KHz or less of bandwidth to provide intelligible information.

NFPA National Fire Protection Association

Non-fixed Equipment Mobile, portable, and control station radios, and pager units, as distinguished from infrastructure equipment.

NWS New World Systems (CAD vendor)

NPSPAC National Public Safety Planning Advisory Committee

18.1.1.13 - O -

Offeror Entity providing a submittal in response to the requirements. Synonyms include Bidder, Offeror, Proposer, Respondent, Vendor.

Omni Directional A type of antenna that theoretically radiates rf energy equally in all directions.

OPE Operator Position Equipment, related to dispatch console electronics.

Owner: Entity that will issue final contract to procure, and assume possession of, the system upon final acceptance. Synonyms include County, Customer, User, Purchaser.

18.1.1.14 - P-

Polyphaser: A brand name of a device installed in transmission lines between antennas and radio equipment that is used to prevent damage from lightning strikes to the antenna from reaching the radio equipment.

Prime Contractor: Contractor in overall charge of the work, including other Contractors or sub-contractors

Product: All supplied materials, systems, equipment and services

Proposer: Entity providing a submittal in response to the requirements. Synonyms include Bidder, Offeror, Proposer, Respondent, Vendor.

Provide: To furnish and install, ready for use.

PTT: Push to talk. A common radio industry term referring to the keying of a microphone transmit button.

PTT-ID: Each time a radio unit transmits a call, the individual ID of the radio unit shall be made available to the system management and displayed to the dispatcher. This ID can be

“aliased” to a user name or radio unit number. Properly equipped wireless dispatch or field radio units can display the ID and optionally display the alias as well.

18.1.1.15 - Q -

Queuing: The holding of overflow calls in memory until a channel becomes available.

18.1.1.16 - R -

RDCS: Radio Dispatch Console System

Refarming: FCC initialize to provide additional channel assignments, primarily by reduces the bandwidth of existing channels below 512 MHZ.

Remote unit: A device that is used to control transmission and monitor reception of a single distant base station.

RF: Radio Frequency

RFI: Radio Frequency Interference

RFP: Request for Proposal

Repeater: A radio device that receives a signal on one frequency and rebroadcasts it over another frequency.

Respondent: Entity providing a submittal in response to the requirements. Synonyms include Bidder, Offeror, Proposer, Respondent, Vendor.

RTU: Remote Terminal Unit

18.1.1.17 - S -

SATP: Staging Acceptance Test Plan

SCADA: Supervisory Control and Data Acquisition

SINAD: (Signal noise and distortion) A measurement of receiver performance that is typically listed in equipment specification information.

Subscriber
Equipment: Same as non-fixed equipment

18.1.1.18 - T -

Talk-around: Talk-around is the ability of voice radio units to operate unit-to unit without going through the radio tower site base repeater stations. Generally, the radio subscriber units transmit and receive on the base repeater station's transmit frequency or some other frequency(s) not

operational at the fixed radio sites. Range is limited to the power of the subscriber radio units. Talk-around allows unit to unit operations when out of range of the system or allows a tactical operation to exist within the system range but not load the system talk-paths.

Talkgroup: A Talkgroup is an operational group of radio users requiring two-way radio communications. An agency shall have multiple talkgroups within their overall operations. Unique digital ID's allow talkgroups to provide a "virtual RF channel" to radio users, even if there is only a single talk-path to be shared between multiple talkgroups.

TDMA: Time division multiple access- A digital modulating technique in which a number of signals are transmitted over the same frequency and are separated by time slots.

TFM: Thermal Fade Margin, as related to microwave path design

TTA: Tower top amplifier

18.1.1.19 - U -

UHF Band: Ultra High Frequency - A group of communications channels operating in the 450 to 470 MHz band.

UHF-T Band: A group of communications channels operating in the 470 to 512 MHz band that share the bandwidth with UHF television channels.

18.1.1.20 - V -

Vendor: Entity providing a submittal in response to the requirements. Synonyms include Bidder, Offeror, Proposer, Respondent.

VOX: Voice Operated Transmit as related to PTT applied through a headset/boom microphone.

18.1.1.21

18.1.1.22 -W-

Wideband: A radio channel that requires 25 KHz of bandwidth to provide intelligible information.

18.1.1.23 -Y-

Yagi: A narrow beam directional antenna used for directing a radio transmission towards a distant point.



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