

2013
REPORT
to the
130th Ohio General Assembly

THE DEVELOPMENT OF A STATEWIDE EMERGENCY SERVICES NETWORK

Presented By the Ohio Statewide ESINet Steering Committee

A report as required in Section 5507.02 of the Ohio Revised Code providing recommendations to address the development of a statewide emergency services internet protocol network with a review of the current funding model for this state's 9-1-1 systems

5/9/2013

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2013
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COMMITTEE RESPONSE TO OHIO REVISED CODE 5507.02(C)(1)

INTRODUCTION

This Report to the 130th General Assembly is submitted by the Chairman, Ohio Statewide Emergency Services Internet Protocol Network Steering Committee (Committee) pursuant to Section 5507 of the Ohio Revised Code. Prepared by staff in the Department of Administrative Services Office of Information Technology, this report contains recommendations for the legal and statutory framework for a Statewide Emergency Services Internet Protocol Network (ESINet) to support 9-1-1 services.

Since the implementation of 9-1-1 in the 1970's, Ohio's 9-1-1 system has become an increasingly important component of our public safety infrastructure. In Ohio nearly 8 million 9-1-1 calls are made each year by Ohio's citizens and visitors to the State and the public has come to depend on the 9-1-1 system for seeking and obtaining rapid emergency assistance. The effectiveness of 9-1-1 service is due largely to the efforts of thousands of public safety professionals, including the call-takers working in over 325 9-1-1 call centers (Public Safety Answering Points or PSAPs) and the police, fire, and emergency medical first responders who are dispatched to emergencies. In addition, wireline and wireless carriers, Voice over Internet Protocol (VoIP) providers and technology companies play essential roles in the maintenance and operation of the systems.

These legacy 9-1-1 systems, once highly effective, remain relatively unchanged from when they were first implemented and have not kept pace with the rapidly changing communications environment. Legacy 9-1-1 systems are often incapable of transferring data and location information. In many cases voice calls cannot be transferred between PSAPs or beyond the state border. Modern communication devices utilize protocols that are incompatible with legacy 9-1-1. Additionally, the current 9-1-1 infrastructure is inadequate to support even modest increases in bandwidth.

As a result, Ohio PSAPs are not equipped to accept or respond to 9-1-1 from large segments of the population. In addition, some of the key infrastructure on which the legacy system depends is aging and will become progressively vulnerable if it is not maintained, upgraded, or replaced by newer, more resilient technology. Clearly the existing 9-1-1 system is due for an overhaul.

In order to maintain the level of service members of the public have come to expect Ohio's future 9-1-1 systems must be capable of accepting "calls" from any communication device, regardless if the call is in the form of analog voice, digital voice, text, data, streaming audio, streaming video or VoIP. More importantly, 9-1-1 systems must accurately route the calls appropriately and provide the ability to accurately dispatch emergency responders to the caller's location regardless of the type of device being used to initiate a 9-1-1 call.

For these reasons, the Ohio General Assembly has rightfully recognized the importance of transitioning to a Next Generation 9-1-1 system (NG9-1-1) that uses an Emergency Services Internet Protocol Network to deliver and process 9-1-1 traffic.

In addition to technological change, implementation of a statewide ESINet for NG9-1-1 requires governmental action and coordination among the myriad federal agencies and state, regional, and local authorities that are responsible for oversight and management of different components of the 9-1-1 system. In a February 22nd, 2013 report to Congress on the "Legal and Regulatory Framework for Next Generation 9-1-1 Services", the Federal Communications Commission noted that many of the existing state and federal regulations governing 9-1-1 were written before the technological capabilities of NG9-1-1 existed and have therefore hampered the implementation of NG9-1-1. In its report the Commission recommended that Congress consider developing a new "legal and regulatory framework for development of NG9-1-1 and the transition from legacy 9-1-1 to NG9-1-1 networks."

With all of these issues facing Ohio's current 9-1-1 infrastructure the challenge of transitioning over 325 PSAPs to NG9-1-1 is immense, but with proper planning and the ability to leverage resources currently in place within State government the effort to move to NG9-1-1 can be minimized by the implementation of a Statewide ESINet. An ESINet is an Internet Protocol (IP)-based system to connect and transport emergency communications between and among state and local government entities. An ESINet enables the delivery of IP-based 9-1-1 calls with the full range of digital media, including voice, text, photos, video, and data. It is an IP transport system providing connectivity between multiple networks including public, private, local, regional, inter and intra-state communication systems.

For this initial report the Committee was tasked with the following:

R.C. 5507.02(C)(1) - On or before May 15, 2013, deliver an initial report to the Speaker of the House of Representatives, the President of the Senate, and the Governor providing recommendations for the state to address the development of a statewide emergency services internet protocol network, which recommendations shall include a review of the current funding model for this state's 9-1-1 systems and may include a recommendation for a reduction in wireless 9-1-1 charges; this report responds to that directive.

In addition to this response to R.C. 5507.02(C)(1), a significant amount of work has been done regarding divisions (C)(2) through (C)(7) of R.C. 5507.02. Background information and detailed reports of the Committee's responses to the provisions of R.C. 5507.02 are provided as appendices of this report. The following is a list of key recommendations provided in this report. Additional background, findings and recommendations are included in subsequent sections and in the appendices of this report.

RECOMMENDATIONS

- 1) Combine the two existing 9-1-1 advisory boards – the ESInet Steering Committee Committee (R.C. 5507.02) and the Ohio 9-1-1 Council (R.C. 5507.65) – into a single Ohio 9-1-1 Board as the governing body for 9-1-1. House the Board within the Department of Administrative Services which shall provide administrative support for the Board.
- 2) Establish the Ohio 9-1-1 Board as the governing body with authority for 9-1-1 in the state.
- 3) Establish authority for the Ohio 9-1-1 Board to coordinate with related state entities that have authority for geographic information systems, public safety systems, radio systems and public networks such as OARnet and FirstNet as these systems will require interconnection and interoperability with the state Emergency Services Internet Protocol Network (“ESINet”) environment to support NG9-1-1 services.
- 4) Designate the State Chief Information Officer or his designee as the Interim NG9-1-1 Coordinator supporting the Ohio 9-1-1 Board.
- 5) Establish authority for the NG9-1-1 Coordinator to:
 - i) Coordinate the state’s 9-1-1 system,
 - ii) Operate state-level functional components of the 9-1-1 system,
 - iii) Procure state-level 9-1-1 components and services,
 - iv) Promulgate regulations related to the administration, management and use of the 9-1-1 system ,
 - v) Promulgate standards related to 9-1-1 components, services, interoperability, and PSAP operations,
 - vi) Promulgate training standards for Ohio Telecommunicators,
 - vii) Coordinate the interconnection of local and regional ESINets with the state backbone to ensure seamless statewide coverage,
 - viii) Collaborate with ESINet component and service providers to establish performance standards and monitoring requirements, and,
 - ix) Coordinate with Federal 9-1-1 initiatives
- 6) It is the Committee’s recommendation regarding funding to:
 - i) Continue collecting wireless fees at the current level while transitioning to the NG9-1-1 platform.

- ii) Continue funding analysis of the total cost of 9-1-1. Based on those findings, work with the General Assembly to:
 - (1) Modify statutory language to eliminate impediments to the implementation and ongoing operations of a statewide ESINet to support NG9-1-1 and future technologies.
 - (2) Modify the existing funding model to support the transition to NG9-1-1
 - (a) The funding model should be based on the principle of access, so that any device capable of accessing the legacy and IP networks for 9-1-1 service would share in the costs of the 9-1-1 system
 - (b) The funding method should be technology, vendor, and competitively neutral, so it does not give competitive advantages to one telecommunications, broadband, or data provider at the expense of other providers
 - (c) The funds collected should be used only for their intended purposes and should not be re-allocated at the state or local level for non-9-1-1 purposes
 - (d) The funding method should provide for the total cost of servicing 9-1-1 calls
 - (e) The funding method should be easy to understand and administer
 - (f) The funding method should be fair and equitable to all devices capable of accessing the current and future 9-1-1 network
 - (g) The funding method should be stable, and therefore not require frequent legislative adjustments
 - (3) Establish a Uniform 9-1-1 Access Fee for the transition and ongoing operation of NG9-1-1
- iii) Promulgate distribution rules to specify what costs would be allowable expenses for money distributed to the counties. Initially the funds should be distributed for:
 - (1) .5 percent of the amount collected to cover administrative expenses for the Department of Taxation.
 - (2) 2 percent for the carriers to retain to cover the costs of collecting and remitting the fee.
 - (3) 2 percent to fund administrative and staffing costs for the 9-1-1 Board.
 - (4) Funding allocated to the Ohio 9-1-1 Board for the costs to build, maintain and operate the IP network and the PSAP connections to the IP network directly. This will allow the State to obtain better pricing for the network and to ensure a unified approach to deployment of the network.
 - (5) A Capital Expenditures account established for the Ohio 9-1-1 Board for network maintenance, equipment replacement and upgrades.

- (6) A PSAP consolidation incentive account administered by the Ohio 9-1-1 Board.
 - (7) Any remaining funds allocated to the PSAP consolidation account for consolidations that meet the technical standards established by the Committee in accordance with ORC 5507.571.
- iv) Develop a PSAP Consolidation Plan to promote a reduction in the number PSAPs to an optimal level needed for a NG9-1-1 system and incentivize the move to regional or virtual NG9-1-1 services:
- (1) In the form of grants to support moves to consolidation and sharing of services, and,
 - (2) In the form of fees for services for connectivity to the ESINet for political subdivisions that exceed allowable connections in order to maintain acceptable service levels

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2013 REPORT ON THE DEVELOPMENT OF A STATEWIDE EMERGENCY SERVICES NETWORK

BACKGROUND

The State of Ohio has existing infrastructure to support the creation of an Emergency Services Internet Protocol Network. Such a network will be capable of supporting both the Next Generation of 9-1-1 (NG9-1-1) services as well as emergency related communications for all public safety agencies.

The concept of NG9-1-1 expands the universe of devices that can access and place 9-1-1 emergency calls to include nearly every modern communications device. As such it will require a complete restructuring of how emergency service calls are handled. This provides significant opportunities to reconceive the way 9-1-1 service is delivered in the state and design a new shared system that provides connectivity to multiple communications platforms while leveraging shared services and existing resources to limit costs, ensure value, and maintain the level of service the citizens of Ohio have come to expect.

With the expansion of the universe of devices comes the need to modernize all aspects of 9-1-1 from governance, policy, and security, to operations and funding. The Committee has identified issues in all aspects of the current patchwork 9-1-1 environment that will need to be addressed. This report provides a comprehensive direction for addressing systemic inadequacies in the current system, including the creation of an ESINet coordinating body and unified 9-1-1 governance council; the establishment of interconnectivity agreements and security requirements; and a funding model which provides equitable and sustainable funding based on 9-1-1 system access.. The Committee recommends a practical approach of building upon what works best from the existing model and fixing those things that do not.

The Ohio General Assembly recognized the need to prepare Ohio for the transition from the aging legacy 9-1-1 systems currently in place to the Next Generation of 9-1-1 technology (NG9-1-1) when it created the Ohio Statewide ESINet Steering Committee (“Committee”) and assigned it the responsibility to advise the governor and legislature on the implementation, administration, and maintenance of a statewide Emergency Service Internet Protocol Network (ESINet).

Implementation of NG9-1-1 will entail significant investment, detailed planning, and close cooperation among the public and private sector entities responsible for the operation of 9-1-1 systems. Implementation presents both opportunity and challenge. The opportunity lies in the ability to enhance a vital public safety service, provide Ohioans with 9-1-1 coverage for an exponentially expanding array of devices incompatible with the current system, and increase efficiency. The challenge will be to marshal the resources required to effect the change. Local, state and federal laws, agreements, regulations, private sector service providers - both known and unknown - will play a role in the delivery of 9-1-1 services to the citizens of Ohio. From a technology standpoint, Ohio is well situated to meet that challenge to realize the benefits of NG9-1-1.

This document addresses the findings of the Committee with regard to development of a Statewide ESINet.

Ohio's ESINet Vision

Ohio's vision is for a statewide ESINet to replace Ohio's existing patchwork of analog networks and provide for the centralization of equipment and services. This will improve efficiencies and reduce overall system costs while allowing local government to retain control over how 9-1-1 services are handled.

The Committee developed the following statements of principle for what Ohio's NG9-1-1 system must do:

- Ensure Ohio's NG9-1-1 system exceeds the existing E9-1-1 system in the areas of: security; speed of delivery; reliability; and redundancy
- Ensure the NG9-1-1 system has the ability to receive voice and data from any device or service that can access 9-1-1, anytime and anywhere in the state. The Committee will recommend changes that will ensure both efficiency and the most economical operation of the statewide system.

The statewide ESINet will connect many stakeholders who come together in the interest of public safety and emergency service. This ESINet will provide the opportunity to interact and share data, resources and functions beneficial to emergency incident outcome. One key feature that potentially impacts governance is the fact that application platforms are independent of the ESINet and could stand on their own. The entity who owns, deploys and/or manages an ESINet may not be the same stakeholders that own, deploy and manage the NG9-1-1 applications utilizing the ESINet for transport and connectivity. Further, the delivery of a 9-1-1 call may represent only one application of many that may share the ESINet. Other applications may include first responder communications, additional incident data providers and incident management functions.

The environment for NG9-1-1 services will differ considerably from the current 9-1-1 environment. Transition to NG9-1-1 will require an overhaul of all aspects of 9-1-1 from governance to the delivery of services. The transition begins with build out of the Emergency Services Internet Protocol Networks, preparation of base map location information, followed by the implementation of the applications that provide Next Generation 9-1-1 functionality. The planning and transition to NG9-1-1 will be an extensive, multi-year effort.

The Committee finds that a statewide ESINet that interconnects a system of regional and local ESINets as the most appropriate organizing model. The statewide ESINet will enable call access, transfers and backups among and between NG9-1-1 service providers and users on remote ESINets, It will provide flexibility in call-taking such that call takers no longer will have to be physically constrained to a specific communication center or PSAP. Additionally, the statewide ESINet will enable access to and backups from other emergency services organizations during times of excessive call volumes, common during unfolding extreme weather and crisis events.

The implementation of a statewide ESINet will consist of shared systems which leverage current technology to ensure standardized and efficient delivery of 9-1-1 services to the public. A shared system requires shared support. The disparate funding models and user fees based upon type of equipment are not able to sustain adequate support for next generation services and the modern devices in growing use by the public. This document introduces a new funding model based on system access that is technology neutral and capable of incorporating future technologies as they become available.

REVIEW OF EXISTING 9-1-1 FUNDING

Overview of Current Expenditures/Balances

The Committee has gathered and compiled information in an effort to provide the General Assembly with an understanding of how 9-1-1 is funded in Ohio and what it will take to adequately prepare for Next Generation 9-1-1 (NG9-1-1). To facilitate the reporting of the information required in R.C. 5507.02(D)(1), the Committee issued a County 9-1-1 Board Assessment survey document for county 9-1-1 coordinators to complete online. Each of the 88 county coordinators responded to the assessment. The results of this assessment in conjunction with a parallel effort to obtain information from individual PSAPs have been used as background information to support the findings of this report. While the scope of this assessment did not include the auditing or verification of survey responses, it was useful to develop a common view of the current state of 9-1-1 service delivery in Ohio.

There are currently 327 PSAPs reported by County 9-1-1 Boards. 7,486,867 calls were placed to 9-1-1 in 2012. Of those calls, 5,401,307 or 72.14% were placed from wireless telephones. Since 2010 this represents an increase of 14.2% of the total call volume and a 23.8% increase in wireless call volume. Twenty six PSAPs in 17 counties reported they are evaluating consolidating or merging operations. This is in addition to an ongoing effort in Cuyahoga County to reduce the number of PSAPs from 48 to eight. The average annual per capita call volume is 0.65. In 2012 the average expenditure of wireless 9-1-1 funds exceeded the 2012 annual allocation by 5.25%. In and of themselves, these figures do not provide a true picture of the expenditures across the state. What the responses do point out however is that expenses at the local level vary considerably and are affected by factors like geographic location, overall population and time of year. They also show that there is a need for statewide coordination of NG9-1-1 development activities to help ensure equitable solutions are devised for NG9-1-1 services in Ohio.

Fortunately for many, the funding allocations have been such that PSAPs have been able to hold in reserve previous year's disbursements and budget for planned upgrades and improvements to their hardware and software environments. Unfortunately the current method of distribution is grossly inequitable to counties with smaller populations that cannot take advantage of the economies of scale that is afforded to their more populous neighbors. The Committee finds that while the Wireless Government Assistance fund has met the objective of providing a minimal level of direct wireless capability to each county, it has not been sufficient to provide wireless capability to all 9-1-1 centers. This patchwork approach has prevented the development of uniform 9-1-1 capabilities and perpetuated disconnected and marginally interoperable 9-1-1 services in the state.

According to information provided by the counties, the funds received through the wireless E9-1-1 Government Assistance Fund provide a small portion of the total costs for wireless E9-1-1 and PSAP operations in the state. Nearly half of all PSAPs do not directly accept wireless calls and as a result receive no funding from the wireless E9-1-1 surcharge.

With the survey results from each of the 88 County 9-1-1 Boards and the PUCO disbursement reports, it was possible to establish the cost of providing 9-1-1 services from a county and state perspective. However, the Committee was not able to determine the total cost of 9-1-1 in Ohio. It is not known what the system costs are for wireline service as the ILECs do not report those numbers to the PUCO, nor is there any statutory provision that requires them to do so. Furthermore, the costs and expenditures to local PSAPs could not reliably distinguish wireless fund expenditures as a percentage of salary or capital expenditures. Only 62 percent of PSAPs responded to the survey and those responses were weighted heavily toward PSAPs that receive wireless Government Assistance funds. That response level is not large enough or representative enough to accurately estimate the total cost of 9-1-1 services.

Due to the unavailability or lack of data reporting, it is not possible to accurately understand what 9-1-1 costs in Ohio without additional research. Because this information is essential to a proper analysis, it is strongly recommended that this information be gathered and used in the development of a comprehensive NG9-1-1 tactical plan. Adequate budget would need to be provided. In addition, it may become necessary for the General Assembly to take actions to facilitate needed data gathering:

- Establish requirements for ILECs to provide the Committee with information about what it costs them to provide 9-1-1 service for each of their systems or as a statewide aggregate; to report how much revenue the 'bill and keep' provision generates for each of their systems or as a statewide aggregate; and provide the number of access lines within the state.
- Establish requirements for all PSAPs, not just County 9-1-1 Boards, to respond to the ESINet Steering Committee's request for information.
- Establish penalties for failure to respond.
- Establish provisions for directing the Auditor of State to obtain the information from public entities failing to respond.

Funding Recommendations

The Committee recommends that in order to provide the most adequate long-term funding source for 9-1-1 into the future, funding mechanisms should meet the following criteria:

- The funding method should encompass the principle of access, so that any device capable of accessing the legacy and IP networks should share in the costs of 9-1-1 service, referred to as a Uniform 9-1-1 Access Fee (UAF).

- The funding method should be technology, vendor, and competitively neutral, so it does not give competitive advantages to one telecommunications, broadband, or data provider at the expense of other providers.
- The funds collected should be used only for their intended purpose of supporting the development and operations of a statewide ESINet for NG9-1-1 and should not be re-allocated at the state or local level for non-9-1-1 purposes.
- The funding method should provide for the total cost of providing 9-1-1 service.
- The funding method should be easy to understand and administer.
- The funding method should be fair and equitable to all individuals and devices capable of accessing the current and future 9-1-1 network.
- The funding method should be stable, and therefore not require frequent legislative adjustments.

REVIEW OF EXISTING INFRASTRUCTURE

Within Ohio there are several technology initiatives serving state and local government agencies that could be leveraged to support the development of or be a component of an enterprise level ESINet - the Ohio Department of Administrative Services Office of Information Technology (OIT); the Ohio Academic Resources Network (OARnet); the Multi-Agency Radio Communications System (MARCS); the Location Based Response System (LBRS); as well as a significant number of interconnected public and private data centers. Each provides opportunity to coordinate activities in support of a statewide ESINet as well as regional ESINets and directly connected local PSAPs. Through these resources, an extensive network infrastructure is available throughout Ohio to support emergency services. If the State does not want to bear operational responsibility for interconnecting PSAPs, options to contract for these services exist and could be cost-effective alternatives.

The main focus of the existing infrastructure review is to identify a viable candidate for the statewide ESINet. The Ohio Academic Resources Network (OARnet) has been found to be an ideal candidate as a network transport capable of supplying bandwidth, quality of service and overall capabilities required to host an ESINet of this magnitude. OARnet is a 100 Gbps network. OARnet was established in R.C. 3333.04(V) in 1987 by the 117th General Assembly. Its purpose is to provide Ohio researchers with access to high performance computing resources. From the most highly recommended network media - fiber optics - to the geographical reach, quality of service, and the ability to provide 24x7x365 support, OARnet satisfies National Emergency Number Association (NENA) capability requirements.

In 2007, the Ohio Broadband Council and Broadband Ohio Network were established through Executive Order 2007 24S to extend the reach of Ohio's broadband resources, further Ohio's leadership in network innovation, and improve technology access for all citizens throughout the state. OARnet operates as the

backbone for the Broadband Ohio Network, carrying the *NextGen* Network traffic for state and local government.

In March 2010, OARnet brought three competing organizations – Com Net, Inc., Horizon Telcom and OneCommunity – together as the Ohio Middle Mile Consortium. The goal: to improve broadband infrastructure in Ohio's rural and underserved areas. The three partners were awarded a total of \$141.3 million in federal grants through the American Recovery and Reinvestment Act (ARRA). OARnet is a sub-recipient in all three grants.

The projects complement OARnet's statewide network by increasing the connection points from the current 14 to 68. This expansion reduces the "last mile" costs for broadband services to anchor institutions throughout the state.

Infrastructure Recommendations

The Committee recommends the development of a formal understanding with OARnet to establish services meeting ESINet specifications. Future tasks will focus on statewide ESINet design, requirements, specifications and policy development, taking into consideration the ability of PSAPs either to connect directly to the statewide ESINet or to collaborate with other PSAPs forming regional ESINets which in turn would connect to the statewide ESINet. Ohio should identify current IP-enabled PSAPs and any initiatives planned or underway to form regional ESINets. ESINet specifications, once developed, may be utilized by all PSAPs regardless of the mode for IP connection.

REVIEW OF STATUTORY PROVISIONS

There is a potential for existing laws, regulations and tariffs to hinder the implementation of and transition to NG9-1-1. Most were adopted when the technological capabilities of NG9-1-1 did not exist and as a result make specific reference to older technologies or system capabilities. Such references may inadvertently inhibit the implementation of the technologies and services required to implement NG9-1-1. The Committee will evaluate the regulatory impacts of specific technical specifications once they are established since that information was not available at the time of this Report.

The Committee conducted a review of legislation and regulations to identify provisions that may impede the implementation of NG9-1-1. The results of that review are included in the following sections. Based on these results, the Committee recommends that the Ohio General Assembly consider the recommendations in this report for amendments and modifications to the 9-1-1 regulatory framework in Ohio.

Statutory Environment

Authority

Ohio 9-1-1 statutes do not provide for a statewide coordinating entity for an ESINet that has the authority to operate, procure and facilitate the development of a NG9-1-1 system. The new

environment requires centralized coordination, because seamless statewide and interstate NG9-1-1 interconnectivity and interoperability simply will not be possible without it.

The Steering Committee recommends that a Ohio 9-1-1 Board be housed within the Department of Administrative Services and be given the authority to coordinate with related state entities that have authority for geographic information systems, public safety systems, radio systems and networks such as OARnet and FirstNet. These systems will need to interconnect and interoperate with the NG9-1-1 environment. In addition, the Ohio 9-1-1 Board should be given authority to coordinate the interconnection of local and regional ESINets with the state backbone to ensure seamless statewide coverage.

A state-level NG9-1-1 coordinator should be established within the Department to support the Board. The coordinator should have a scope of authority to coordinate the state's 9-1-1 system, operate state-level functional components of the 9-1-1 system, procure state-level 9-1-1 components and services, promulgate regulations related to the administration, management and use of the 9-1-1 system, promulgate standards related to 9-1-1 components, services, interoperability, and PSAP operations, promulgate training standards for Ohio Telecommunicators, coordinate the interconnection of local and regional ESINets with the state backbone to ensure seamless statewide coverage, collaborate with ESINet component and service providers to establish performance standards and monitoring requirements, and, coordinate with Federal 9-1-1 initiatives. The coordinator should have adequate professional and technical staff to support the Ohio NG9-1-1 Board's mission.

Chapter 5507 provides for the Committee (R.C. 5507.02), the Ohio 9-1-1 Council (R.C. 5507.65), and the Council's Wireless Advisory Board (R.C. 5507.66). The Committee has a specific charge related to the implementation of the ESINet and the planning for NG9-1-1. The scope of duties of the Ohio 9-1-1 Council and its Wireless Advisory Board is specific to the establishment of technical and operational standards for legacy 9-1-1 as well as reporting issues, improvements or policies concerning wired and wireless 9-1-1. As such, the Ohio 9-1-1 Council and the Wireless Advisory Board should be eliminated to avoid duplicative and redundant activities based on the form and needs of the recommended state-level Ohio 9-1-1 Board.

Funding

A comprehensive review of the funding model for the current 9-1-1 system is provided in a separate report. Based on those findings the funding provisions of the statute will need to be largely reconceived based on the final technical and operational configuration and requirements of the system.

Definitions

Numerous definitions require elimination or change. The overarching principle is to make them technology neutral. Clear definitions for items such as a PSAP are required for the efficient management of the system, the technology and the funding.

Enforcement and penalties

R.C. 5507.34 is presently limited in the scope of its provisions. It should be amended to include proceedings against any 9-1-1 service provider or 9-1-1 authority for the enforcement of Chapter 5507. It should remove specific references to telephone companies and render the language technology neutral. Additional detail is contained in the report.

Confidentiality

There will be changes in the amount and type of data available to be shared, including video, images, telematics and medical records. R.C. 5507.32(G) should be expanded to include any type of data associated with any type of 9-1-1 call and a provision should be added for the aggregation and analysis of general call data. Chapter 5507 should also provide for access restrictions to network stored data and require 9-1-1 authorities to establish policies and procedures that set access rights, controls and processes within the context of U.S. and Ohio codes and regulations. Additional detail is contained in the report.

Liability

Using the state's ESINet for emergency services call delivery will be more complex than it is today and involves many entities and vendors that will deliver individual components of 9-1-1 service at any point in the call process. It is important that all players in Ohio's NG9-1-1 system are assured that their good faith efforts to deliver 9-1-1 service will not expose them to liability. Lack of legal clarity on the issue of liability can lead to significant issues, including delays in provisioning critical NG9-1-1 services, just as it did with wireless E9-1-1.

The statutory liability protection provided in R.C. 5507.32 should be amended to cover all NG9-1-1 services and be broad enough to encompass all players involved in provisioning NG9-1-1. Additional detail is contained in the report.

Regulatory Environment

Statewide ESINet

Currently, Ohio's statutes lack provision for a statewide ESINet to be implemented and to operate. Authority to operate an ESINet at the state level and to coordinate interconnections with county, regional and interstate ESINet implementations is an essential component that must be addressed.

Rulemaking authority for technical and operational standards is currently split between the Committee and the Ohio 9-1-1 Council. There should be only one such authority, the Ohio 9-1-1 Board, with the sole rulemaking authority for 9-1-1 and technical and operational policies and standards for NG9-1-1.

As part of its standards setting authority, the Ohio 9-1-1 Board should establish a consensus based training standard for Ohio 9-1-1 operators and have statutory authority to do so.

The Steering Committee should engage the regulated incumbent local exchange carriers (ILECs) in discussions regarding future plans for the ESINet as soon as possible in order to expedite and simplify interconnection negotiations once a network provider is identified.

The Steering Committee should also ask the selective router providers to amend tariff language as necessary, or otherwise enter into permitted agreements to allow for interconnection so that term language can be addressed up front.

The technical transition to NG9-1-1 will require the legacy network to work in parallel to and in concert with new network components during the transition period. Current tariffs may not be broad enough to allow selective routers to route calls to transitional network components such as a Legacy Network Gateway instead of directly routing to a PSAP. Existing tariffs suggest that regulated ILECs will connect to PSAPs; thus, there is potential for regulated ILECs to resist interconnecting with the new network components. Additional important information and concerns about existing tariffs associated with specific companies is contained in the report.

Competitive NG9-1-1 Environment

Statutes need to be added or amended to allow for the competitive environment that is necessary for the transition to NG9-1-1. Today, ILECs are typically the 9-1-1 System Service Providers (SSP). But in the NG9-1-1 environment, competitive alternatives to existing services will be available – indeed, are already available – from non ILEC providers. This transition is already underway elsewhere in the nation and has already encountered legal and regulatory roadblocks. Ohio can avoid this pitfall by addressing the matter up front and establishing a competitively neutral and technologically neutral marketplace.

The transition to NG9-1-1 will not occur with the flip of a switch. There will be a transition period, perhaps lengthy, when some Ohio PSAPs will be fully NG9-1-1 capable, others will not be, and some will have a mix of legacy and NG9-1-1 components. Ohio's regulatory environment should allow 9-1-1 authorities to replace legacy 9-1-1 functions component by component by unbundling all tariffed 9-1-1 services and pricing them reasonably so that 9-1-1 authorities have the freedom to transition component by component. Unbundling 9-1-1 services will prevent 9-1-1 authorities from bearing legacy costs that are no longer needed during the transition. Further information and recommendations regarding specific statutes may be found in the report.

Statutory Provisions Recommendations

The Committee will work with the appropriate state-level legislative drafting bodies to draft legislative language to remove the potential roadblocks to the operation of a statewide ESINet that are highlighted in this report to develop new legislation that is needed to pave the way for NG9-1-1.

The standing subcommittees of the ESINet Steering Committee, which have served as an excellent forum to engage all interested parties and facilitate thorough discussion and debate of the issues brought up for consideration, will be actively involved in any legislative initiatives proposed by the Committee to ensure that thoroughly debated and well-reasoned legislation is recommended to the

General Assembly. The initial legislative amendments for the implementation of a statewide ESINet will go far to pave the way for NG9-1-1 in Ohio. However, unforeseen roadblocks can be expected based on the specific system specifications and plans that are ultimately adopted. Ohio should continue to review the 9-1-1 regulatory framework for new roadblocks as system specifications are defined and finalized.

APPENDIX A – GLOSSARY OF TERMS

Association of Public Safety Communications Officials (APCO) - APCO is the world's oldest and largest not-for-profit professional organization dedicated to the enhancement of public safety communications.

Call - A session established by signaling with two way real-time media and involves a human making a request for help. We sometimes use "voice call", "video call" or "text call" when specific media is of primary importance. The term "non-human-initiated call" refers to a one-time notification or series of data exchanges established by signaling with at most one way media, and typically does not involve a human at the "calling" end. The term "call" can also be used to refer to either a "Voice Call", "Video Call", "Text Call" or "Data-only call", since they are handled the same way through most of NG9-1-1.

Carrier - A function provided by a business entity to a customer base, typically for a fee. Examples of carriers and associated services are; PSTN service by a Local Exchange Carrier, VoIP service by a VoIP Service Provider, email service provided by an Internet Service Provider.

Circuit-Switched Networks - Circuit-switched is a type of network in which a physical path is obtained for and dedicated to a single connection between two end-points in the network for the duration of the connection. Ordinary voice phone service is circuit-switched.

Consolidated PSAP - A facility where one or more Public Safety Agencies choose to operate as a single 9-1-1 entity.

Customer Premise Equipment (CPE) – R.C. 5507.01(Q) "*Customer premises equipment*" means *telecommunications equipment, including telephone instruments, on the premises of a public safety answering point that is used in answering and responding to 9-1-1 system calls.*

Emergency Services IP Network (ESINet) - An ESINet is a managed IP network that is used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed, including, but not restricted to, those necessary for providing NG9-1-1 services. ESINets may be constructed from a mix of dedicated and shared facilities. ESINets may be

interconnected at local, regional, state, federal, national and international levels to form an IP-based inter-network (network of networks).

First Responder Network Authority (FirstNet) - FirstNet was established with the enactment of the Middle Class Tax Relief and Job Creation Act of 2012 as an independent authority within the National Telecommunications and Information Administration (NTIA) and authorizes FirstNet to take actions to ensure the building, deployment and operation of a nationwide public safety broadband network. FirstNet will allow public safety communication over broadband networks that will leverage, to the maximum extent economically desirable, existing commercial wireless infrastructure. Where NG9-1-1 will allow the public to access 9-1-1 services using multiple media formats, FirstNet will allow first responders to send and receive data across a dedicated public safety network in multiple formats as well. When fully implemented, NG9-1-1 and FirstNet technologies will have ability to interconnect to share information from NG9-1-1 callers with first responders in the field.

Geographic Information System (GIS) - A computer software system that enables one to visualize geographic aspects of a body of data. It contains the ability to translate implicit geographic data (such as a street address) into an explicit map location. It has the ability to query and analyze data in order to receive the results in the form of a map. It also can be used to graphically display coordinates on a map i.e., latitude/longitude from a wireless 9-1-1 or NG9-1-1 capable device.

Internet Protocol (IP) - The method by which data is sent from one computer to another on the Internet or other networks.

Legacy 9-1-1 System - Refers to the analog circuit-switched 9-1-1 architecture developed for wireline telephone service that cannot process calls received via NENA i3 defined call interfaces (IP-based calls) and still requires the use of CAMA or ISDN trunk technology for delivery of 9-1-1 emergency calls

Local Exchange Carrier (LEC) - A Telecommunications Carrier (TC) under the state/local Public Utilities Act that provide local exchange telecommunications services. Also known as Incumbent Local Exchange Carriers (ILECs), Alternate Local Exchange Carriers (ALECs), Competitive Local Exchange Carriers (CLECs), Competitive Access Providers (CAPs), Certified Local Exchange Carriers (CLECs), and Local Service Providers (LSPs).

National Emergency Numbering Association (NENA) - A membership-based SDO of public-safety related businesses, PSAPs, and individuals to —...foster the technological advancement, availability and implementation of a universal emergency telephone number system (9-1-1). While NENA has no governmental mandate, its standards and recommendations are widely adopted by PSAPs and the public safety industry in the United States.

Next Generation 9-1-1 (NG9-1-1) - NG9-1-1 is the next evolutionary step in the development of the 9-1-1 emergency communications. NG9-1-1 is a system comprised of managed IP-based networks and functional elements and databases that augment present-day 9-1-1 features and functions and add new capabilities. NG9-1-1 is designed to provide access to emergency services from all sources, and to provide multimedia data capabilities for PSAPs and other emergency service organizations.

Public Safety Answering Point (PSAP) – With the transition to NG9-1-1 the current definition of PSAP is inadequate to describe the implementations that will be made possible through IP-based technologies.

A Legacy PSAP is what is commonly thought of as a bricks and mortar facility. Defined in R.C. 5507.01(P) *"Public safety answering point" means a facility to which 9-1-1 system calls for a specific territory are initially routed for response and where personnel respond to specific requests for emergency service by directly dispatching the appropriate emergency service provider, relaying a message to the appropriate provider, or transferring the call to the appropriate provider.*

A Virtual PSAP (VPSAP) – is a fully functional worksite that is not bound to a specific location but is portable and scalable, connecting employees to the work process in the most advantageous setting, rather than employees having to come to a central office to connect to the work process. This capability lends itself to both physical and virtual consolidations where a group or groups of PSAPs share key technology or services such as CAD or 9-1-1 CPE remotely.

Telecommunicator - Person employed by a PSAP and/or an EMD Service Provider qualified to answer incoming emergency telephone calls and provide for the appropriate emergency response either directly or through communication with the appropriate PSAP.

Uniform 9-1-1 Access Fee (UAF) – This is a funding model in which uniform fees based on the number of subscribers capable of accessing 9-1-1 through services (including, but not limited to, voice over IP and other services and applications provided through wireline, cable, wireless, and satellite facilities and any

other facility that may be provided in the future through platforms that may not be deployable at present)which are capable of connecting users, dialing or entering the digits 911, to public safety answering points. (See Funding Models Appendix C)

Voice over IP (VoIP) - Provides distinct packetized voice information in digital format using the Internet Protocol. The IP address assigned to the user's telephone number may be static or dynamic.