

Indiana Statewide 9-1-1 Plan

July 2011 ©





DOCUMENT CHANGE HISTORY

Version	Publication Date	Description of Change
V 0.1	November 17, 2008	Final Draft
V 1.0	December 2, 2008	Final Deliverable as approved by the IWAB incorporating feedback from the planning committee, the ITA and AT&T
V 2.0	July 2011	First update. Changes made to all sections to update information. New section created to show progress on the previous Plan's goals. Goals section updated and new goals added.

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1. EXECUTIVE SUMMARY

1.1. BACKGROUND AND PURPOSE

A convergence of new challenges and opportunities has been the impetus for the State of Indiana's planning initiative.

1.1.1. The Challenges

Indiana's statewide Enhanced 9-1-1 (E9-1-1) network, (also known as the Indiana wireless E9-1-1 system [IN911 network]), which provides E9-1-1 to cellular and wireless callers, is one of the most technologically advanced systems in the nation.¹ Nevertheless, the relentless march toward technological convergence and rapid changes in consumer habits have outpaced even the IN911 system's ability to handle cellular 9-1-1 calls made in non-traditional modes, such as text messaging, or using converged technological capabilities, for example, the ability to send video or photo images relating to an emergency. What this means as a practical matter is that a growing number of consumers—based solely on their technology choices—may no longer have full access to the IN911 network. This is a serious public safety issue. Going further, the hearing and speech impaired, who rely almost exclusively on short message service (SMS), instant messaging and text messaging to communicate, have very limited access to 9-1-1 emergency services, creating limited compliance with the intent of the Americans with Disabilities Act (ADA). To assure the broadest availability of E9-1-1 services, there needs to be ongoing improvements to the IN911 system components, the services provided by the IN911 system, and the equipment and operational protocols used by the public safety answering points (PSAPs) on the IN911 network.

The IN911 network enables most of Indiana's 9-1-1 PSAPs to transfer a cellular call, along with its associated location information, to any other PSAP that is connected to the IN911 network; but more is needed. Emergencies do not respect borders, and cellular/wireless technology does not, either. It is necessary for PSAPs in Indiana and the bordering states of Michigan, Illinois, Ohio and Kentucky to have the capability to transfer cellular 9-1-1 calls and data among themselves.

These challenges are huge, and successfully meeting them requires a level of planning, innovation and collaboration that has not been necessary in the past.

1.1.2. The Opportunities

Federal policy recognizes the growing need for statewide planning to assure the efficient implementation of advanced public safety technologies, as well as the efficient use of limited dollars, and increasingly requires statewide planning and coordination as a prerequisite for federal funding. The example most important to Indiana's Statewide 9-1-1 Plan (Plan) is the ENHANCE 911 Act of 2004 as amended in 2008 (the Act). The Act requires states to have a statewide 9-1-1 Plan (among other requirements) in order to qualify for grant funding under the Act.

¹ This network uses the most modern, state-of-the-art technology available: a self-healing fiber optic network (SONET) that serves as a transport network for a diverse Internet protocol (IP) based 'mesh network' that processes, routes and delivers wireless 9-1-1 voice and automatic location information (ALI) data using IP technology.

Of equal importance is the opportunity presented by the process of planning itself. Developing Indiana's Plan in close conjunction with stakeholders can produce three beneficial outcomes, beyond contributions to the Plan itself. First, the collaborative planning exercise involving key stakeholders has the potential to build and strengthen the effective relationships that are essential to the success of the plan itself and the next generation of wireless 9-1-1 (NG9-1-1) as well. Second, and perhaps most importantly, it enables 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 have a stake in the successful implementation of the Plan.

The purpose of the Indiana Statewide 9-1-1 Plan is:

- Build a cooperative and collaborative mechanism for the advancement of wireless 9-1-1.
- Facilitate the migration of Indiana's PSAPs to NG9-1-1 capability.
- Educate and inform stakeholders.
- Establish the foundation for taking Indiana's E9-1-1 capabilities to the next level—by assuring that all Indiana PSAPs achieve a minimum standard level of service statewide and, at the same time, enabling the development of a more comprehensive and technically advanced level of service to meet the evolving needs of cellular and wireless consumers.
- Articulate a set of goals and objectives that foster innovation for the advancement of public safety and allow deployment of creative solutions that will maintain Indiana's leadership position in public safety.

Following is a list of the audience for the Indiana Statewide 9-1-1 Plan:

- PSAP call takers, supervisors, managers and information technology (IT) technicians
- Local government officials
- County 9-1-1 coordinators
- State and local law enforcement, fire and emergency medical service (EMS) agencies
- Related public safety agencies
- State and federal legislators
- E9-1-1 system service providers

The evolution of wireless services in today's society has created a widening gap between the person calling 9-1-1 and the agency that answers those calls for help. This plan represents a comprehensive, but flexible, approach and is the framework for effective public policy that looks to the future.

1.2. THE PLANNING PROCESS

In updating the 2008 Plan, the Indiana Wireless E9-1-1 Advisory Board (IWAB or Board) assembled a planning team comprising the following:

- One representative from the IWAB
- IWAB's executive director
- One representative of the Indiana chapter of the National Emergency Number Association (NENA)
- Two County 9-1-1 coordinators
- Two representatives of the Indiana Utility Regulatory Commission (IURC)
- Two representatives of INdigital telecom, the IN911 network provider

As the Plan provided, the committee assembled for the Plan update comprised largely the same members as the original committee. As in 2008, L.R. Kimball facilitated the process.

Formal conference calls and other, less formal discussions, refined the goals and objectives for the next generation of wireless E9-1-1 in Indiana. Developed versions of the plan were also circulated to other stakeholders prior to finalization.

1.3. GOALS AND OBJECTIVES

The Plan identifies the key goals and objectives for improving wireless E9-1-1 service and functionality across Indiana and influences Indiana's statewide decisions concerning wireless E9-1-1 and, where applicable, limited elements of landline E9-1-1 services. The successful achievement of the Plan's goals and objectives will result in Indiana's ability to continue to meet the public's high level of expectations for 9-1-1 service, provide a consistent level of 9-1-1 service statewide, and contribute to the security and safety of all of Indiana's residents and visitors.

The overarching vision is to assure that Indiana's citizens and visitors have E9-1-1 service no matter where they are calling from, no matter what sort of wireless device they are calling from, regardless of the protocol or service they use and whether they communicate by voice, emergency multimedia technology or other emerging technology.

- Goal 1—Provide a functionally-comparable level of E9-1-1 service statewide
 - Establish a stakeholder working group to make recommendations to the IWAB on a variety of technical, operational and policy matters to advance wireless E9-1-1 in Indiana.
 - Establish a data collection mechanism by which PSAPs will provide data to the IWAB for inclusion in the National 9-1-1 Program's 9-1-1 Profile Database.
 - Conduct ongoing Phase II location availability and location accuracy testing to establish baseline metrics and identify any areas of improvement that would advance public safety throughout the state.
 - Identify minimum training requirements.
 - Recommend legislation for governance and connectivity; establish a base line level of wireless E9-1-1 service, including the minimum technical and operational standards for voice and multimedia emergency services (MES as defined in Goal 2); and establish the statutory limitations of liability for all types and classes of E9-1-1 calls.
- Goal 2—Provide all cellular and wireless technology users with equal access to IN911 and Emergency Services IP Networks or Emergency Services Internetworks (ESInets) that are interconnected with it
 - Identify technical requirements and interim solutions to facilitate MES (Also known as [a/k/a] non-voice communications) to enable access to emergency services for the deaf, hearing impaired and speaking impaired, and which may be used by the general public as well.
- Goal 3—Achieve the seamless transfer of wireless E9-1-1 calls, including MES, with associated data to border counties in surrounding states
 - Coordinate interstate program goals, (including inter-agency protocols and operating standards) with Michigan, Illinois, Ohio and Kentucky.
 - Build-out the IN911 network to the local authorities or 9-1-1 system service providers along the borders of Indiana and adjacent states, or other state or regional ESInets.
- Goal 4—Stakeholders and the general public are kept informed
 - Identify target audiences and messages for each.
- Goal 5—PSAPs have adequate funding to meet operational requirements
 - The IWAB, PSAPs and local governments jointly develop sustainable funding sources for 9-1-1.

1.4. ACTION NEEDED TO IMPLEMENT THE PLAN

A majority of the technological and consumer changes driving the development of NG9-1-1 capabilities are wireless and mobile in nature, thus the first step in addressing them is logically through the IWAB. This Plan reflects the current statutory framework: wireless E9-1-1 is a statewide and state level function; landline E9-1-1 is local. Action needed to achieve the Plan's goals and objectives distill down to the following four broad items:

- Involve stakeholders in the actions and steps associated with work on the Plan's goals and objectives.
- Produce legislation to reflect industry and technological trends, to address broader public policy issues affecting E9-1-1 and to meet the evolving needs of PSAPs and public safety agencies.
- Develop the capability, in conjunction with the vendor community and E9-1-1 service providers, to assure that Indiana's citizens and visitors have E9-1-1 service no matter where they call from, no matter what wireless device, protocol or service they use, regardless of whether they communicate by voice, text, image or video.
- Increase staffing for the IWAB to better fulfill its mission of coordinating, supporting and facilitating current and future wireless E9-1-1 services.

1.5. ACKNOWLEDGEMENTS

The Indiana Wireless E9-1-1 Advisory Board would like to acknowledge the effort and leadership of the planning team:

- Mr. Brad Meixell, Administrator, Clark County E9-1-1 and member of the IWAB
- Mr. Tom Brindle, Director, Kosciusko Communications
- Mr. Darin Riney, Deputy Director, Wayne County Emergency Communications
- Ms. Cindy Snyder, Director, Steuben County Communications, Past President of Indiana NENA and Wireless Committee Chair
- Ms. Pamela Taber, Director of Communications, IURC
- Mr. Brian Mahern, Utility Analyst, IURC
- Mr. Mark Grady, founder, INdigital telecom
- Mr. Eric Hartman, Product Manager, INdigital telecom

In addition, IWAB Executive Director, Mr. Barry Ritter, provided invaluable leadership, energy and vision to assemble and coordinate the team.

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2. INTRODUCTION

The following represent the purpose of the Indiana Statewide 9-1-1 Plan:

- Build a cooperative and collaborative mechanism for the advancement of wireless E9-1-1
- Facilitate the migration of Indiana's PSAPs to NG wireless E9-1-1 capability
- Educate and inform stakeholders about the plans and goals of IWAB
- Establish the foundation for taking Indiana's E9-1-1 capabilities to the next level—by assuring that all Indiana PSAPs achieve a minimum standard level of service statewide and, at the same time, enabling the development of a more comprehensive and technically advanced level of service to meet the evolving needs of cellular and wireless consumers

In updating this plan, the IWAB assembled a planning committee of stakeholders from several industry sectors: the Board, Indiana NENA, two County 9-1-1 coordinators, the IURC and INdigital telecom, its wireless enhanced 9-1-1 system provider. L.R. Kimball, in its role as consultant, facilitated the compilation and development of the Plan. The Indiana Telecommunications Association had an opportunity to review final drafts of the Plan.

A regular process of information exchange resulted in a true statewide approach to planning. The exchange of information assisted in charting a course for the future of wireless E9-1-1 service in Indiana.

The Board intends this Plan to be a living document for the use of Indiana's PSAPs, public safety stakeholders, E9-1-1 service providers and policymakers as they work together to advance wireless E9-1-1 services for the benefit of all the citizens and visitors of Indiana.

2.1. NATIONAL OVERVIEW OF THE HISTORY AND BACKGROUND OF 9-1-1

The history of 9-1-1 in the United States (US) began in 1967. On May 23 of that year, Indiana Congressman, Mr. J. Edward (Ed) Roush, attended House sub-committee hearings on the *Comprehensive Fire Research and Safety Act of 1967*. In response to testimony unfavorably comparing the rate of fire deaths in the US with other nations and linking that high rate with the length of time to respond, Representative Roush recommended a single, nationwide telephone number for reporting fires. That same year, 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 Federal Communications Commission (FCC) met with AT&T; and, shortly thereafter, AT&T announced—at a press conference held in the Washington, District of Columbus, office of Indiana Representative Roush—that it had reserved the numbers 9-1-1 for emergency use nationwide.

The Alabama Telephone Company implemented the nation's first 9-1-1 system in Haleyville, Alabama. On February 16, 1968, Alabama Speaker of the House, Mr. Rankin Fite, made the first 9-1-1 call from the Haleyville City Hall. Congressman Mr. Tom Bevill answered the call on a red-colored telephone located in the police department.²

² Alabama Chapter of NENA Website, "World's First 911 Call" <http://www.al911.org/first_call.htm> (April 18, 2008)

Early 9-1-1 technology had limited capability and 9-1-1 calls had to be delivered to an answering point within the caller's telephone exchange. Since there was (and is) little correlation between a telephone exchange boundary and the emergency responder's jurisdiction, a 9-1-1 call could end up at a PSAP that did not serve the caller's location. This basic 9-1-1 service, as it has since been defined, did not provide any telephone number or location information with the call—it was a voice service only—and 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 E9-1-1 in the early 1980s. Using existing circuit-switched technology, E9-1-1 added the capability of selectively routing 9-1-1 calls to the PSAP serving the caller's location and delivering that call with the caller's telephone number and location. Other features, such as selective transfer, which enabled a 9-1-1 operator to transfer the caller to a specified agency for dispatch, further streamlined the call-handling process.

By the 1990s, the use of cellular technology increased dramatically as consumers in our increasingly mobile society enthusiastically adopted it. Initially, it was expected that cellular phone use would occur primarily in cars on America's roads and highways; and, by extension, so would cellular emergency calls. No one anticipated that people would carry and use cellular phones wherever they went. These changes in consumer calling habits posed serious challenges for public safety, because landline E9-1-1 systems did not have the capability of providing location information for cellular callers.

In 1996, the FCC released its *First Report and Order on Docket 94-102* mandating wireless E9-1-1. The cellular industry devised two solutions to identify the longitude and latitude of the caller's location: a global positioning system (GPS) chip within the handset itself or networked triangulation from cellular towers. Implementation was to occur in two phases: Phase I provided the caller's callback number and the address of the receiving antenna tower; Phase II provided a more accurate latitude/longitude coordinate for the calling device. Phase II accuracy requirements varied depending on technology. The network solution required location to be within 100 meters (328 feet) for 67 percent of calls and 300 meters (984 feet) for 95 percent of calls. The handset solution required location to be within 50 meters (164 feet) for 67 percent of calls and within 150 meters (492 feet) for 95 percent of calls.³ There was still the problem of getting this new type of location data into the existing landline E9-1-1 system, and the wireless E9-1-1 solution we have today is essentially a work-around. Although less-than-perfect and inherently less reliable than landline technology, wireless E9-1-1, where it has been implemented, still represents a huge improvement in the PSAP's ability to get help to a wireless caller's location.

Not long after wireless E9-1-1 implementations began to reach maturity at the majority of PSAPs, Voice over Internet Protocol (VoIP), text messaging, picture and video messaging, and other new technologies appeared on the market, adding a host of new issues and challenges for 9-1-1. Consumers have adopted these technologies for their everyday communications and they expect to be able to use these technologies to communicate with 9-1-1.

³ On September 23, 2010, the Commission issued its Second Report and Order in the Matter of Wireless E911 Location Accuracy Requirements and revised its rules. For handset based solutions, the 150 meter requirement was reduced from 95 percent of all calls to 80 percent of all calls with new benchmarks and exceptions. Network-based requirements remained at 100 meters for 67 percent of calls with new benchmarks and exceptions, and 300 meters for 90 percent of calls with new benchmarks and exceptions.

We are now at a point where it is not possible to modify or patch the nation's legacy E9-1-1 system any further. It has reached the end of its ability to adapt to new modes of communication, particularly those based on IP or that require greater capacity to transmit the rich data streams and content that are integral to modern communications. The communications industry is moving away from legacy circuit-switched technology and toward IP for precisely the same reasons. It is critically important that 9-1-1 not be left behind and unable to benefit from "the added values these innovations offer for emergency response improvement."⁴

In response to the need to address the critical state in which 9-1-1 finds itself, Congress passed the *ENHANCE 911 Act of 2004* and the *NET 911 Improvement Act of 2008*. The Act established a National 9-1-1 Implementation Coordination Office (ICO), or National 9-1-1 Program, as a joint program of the National Telecommunications and Information Administration (NTIA) in the US Department of Commerce and the National Highway Traffic Safety Administration (NHTSA) in the US Department of Transportation (USDOT). The *NET 911 Improvement Act of 2008* further charged the ICO with creating 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."⁵ That plan was released in September 2009.

2.2. OVERVIEW OF THE HISTORY AND BACKGROUND OF 9-1-1 IN THE STATE OF INDIANA

On March 1, 1968, just a few days after the first 9-1-1 call in Haleyville, Alabama, AT&T implemented Basic 9-1-1 in Huntington, Indiana. Although no public records exist documenting the exact date or location of the first landline E9-1-1 system in Indiana, New Paris Telephone's records indicate that E9-1-1 began in Elkhart County on November 30, 1987. The 9-1-1 Director at Elkhart County, Ms. Shelia Malone, was an early proponent of E9-1-1, which initially presented automatic number identification (ANI, the caller's telephone number) to the call-taker and later presented automatic location identification (ALI, both the caller's phone number and the civil address). Funding for Elkhart's E9-1-1 system was provided through a property tax made legal by the Indiana state legislature, but all other counties were required to fund 9-1-1 through a fee on monthly phone bills.

In 1988, legislation to provide funding through telephone user surcharges was enacted, and E9-1-1 was deployed throughout much of Indiana. E9-1-1 service was originally provided by Indiana Bell (later Ameritech, then SBC and now AT&T); General Telephone (later Verizon and now Frontier); United Telephone of Indiana (later Sprint, then Embarq and now Century Link).

In 1987, the first cellular systems began to appear, and cellular 9-1-1 calls were typically routed to the closest district post of the Indiana State Police. On February 27, 1998, Indiana became the first state to pass wireless E9-1-1 legislation (*Public Law 98-1998 Section 1*), providing liability parity for wireless carriers and landline carriers, cost recovery for wireless carriers and local governments, and creating IWAB. Governor O'Bannon signed the new law in March 1998. 9-1-1 fee collections began at the start of the new fiscal year (July 1998) and the first PSAP payout occurred in October 1998.

⁴ Texas Commission on State Emergency Communications, "Agency Strategic Plan for Fiscal Years 2007–2011" June 2006, page 8

⁵ Ibid.

According to NENA, the first wireless Phase I E9-1-1 call in the US was made in Allen County, Indiana, on March 31, 1998. The wireless carrier involved was Centennial Communications, the third-party location company was XYPOINT and the telephone provider was GTE. On October 20, 2001, St. Clair County, Illinois, became the first PSAP in the US to provide Phase II wireless E9-1-1 service, but only for Verizon wireless customers. Lake County, Indiana, began Phase II service with several wireless carriers shortly after that. AT&T is the E9-1-1 service provider for both St. Clair County, Illinois, and Lake County, Indiana.

In 2003, the Indiana legislature enacted legislation to remove the wireless carrier cost recovery provision of the statute and reduce the surcharge from 65 cents to 50 cents per wireless access line. Other important changes included the creation of an annual equal distribution of approximately \$17,000 to each eligible county (the equal distribution amount has increased each year due to the growth of the fund) in addition to the existing population-based distribution. The legislation also created a technology sub-account that permitted the Board to enter into vendor arrangements, such as the Wireless Direct project, and to plan for future technology applications.

The Board immediately set to work to modernize wireless E9-1-1 service delivery. It hired a consultant to develop a Request for Information (RFI) for a wireless direct network using modern, digital technology and assist with evaluations and vendor selection. Within 24 months, INdigital telecom (an entity owned by 12 independent Local Exchange Carriers [LECs]) had built a statewide, IP-based network with the potential to provide the NG9-1-1 network backbone for the State of Indiana.

The next major milestone in legislative policy was enacted in 2008. The primary effect of HB (House Bill) 1204 was to limit counties to no more than two PSAPs after December 31, 2014, and to prohibit counties from increasing their landline 9-1-1 fees until consolidation had been accomplished. A 2010 change in statute imposed the 9-1-1 fee on prepaid wireless services at the point of sale.

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3. CURRENT 9-1-1 ENVIRONMENT

Indiana has a population of 6,483,802 and 92 Counties.⁶

- Approximately one third of Indiana's counties (32 of 92) have a population fewer than 25,000. Of the 32 counties, eight have a population fewer than 10,000.
- Four counties have significant non-English speaking populations. Overall 5 percent of Indiana's population is non-English speaking and Indiana ranks 22nd in the nation with non-English speaking populations.
- Several counties have senior citizen (aged 65 or older) populations greater than 15 percent.
- The most heavily populated county, Marion, includes the capital city, Indianapolis, the nation's 12th largest city.⁷
- Indianapolis hosts a major tourist attraction, the Indianapolis Motor Speedway, which brings millions of visitors annually to the Indianapolis area for the Indianapolis 500, the NASCAR Brickyard 400, the Indianapolis Grand Prix motorcycle race and other racing events.
- Indianapolis is home to the Indiana Convention Center, Lucas Oil Stadium and Conseco Field house. The National FFA Organization (formerly Future Farmers of America)—an important and large federally chartered corporation—holds its annual convention there, drawing nearly 60,000 conventioners. Each year, these venues host at least nine other conventions with more than 50,000 visitors attending each event. Several other Indiana cities host mid-size conventions and conferences in their convention centers.
- Six major universities are located in Indiana (Indiana, Purdue, Notre Dame, Butler, Ball State and Ivy Tech), with significant student populations and sporting events that draw crowds of fans. Indiana is the home of the National Collegiate Athletic Association (NCAA), which brings thousands of visitors to national championship events.
- Indiana is home to four professional sports teams, the Colts (National Football League [NFL]), the Pacers (National Basketball Association [NBA]), the Fever (Women's National Basketball Association [WNBA]) and the Ice (United States Hockey League [USHL]); Indiana is also home to five minor league baseball teams⁸.
- The Indiana Department of Natural Resources reports that its eight reservoirs and 24 state parks had more than 15 million visitors in 2010.
- The northern one-third of Indiana has many natural lakes, including the state's two largest. Many of the counties in this area see their populations double, and in many cases quadruple, from Memorial Day to Labor Day because of the increased tourism associated with the lakes.

All of this has an impact on Indiana's 9-1-1 centers and the diversity that this represents places unique demands on Indiana's landline and wireless enhanced 9-1-1 systems. Indiana is the transportation crossroads of the Midwest and the extensive interstate highway system contributes a significant portion of the calls made to 9-1-1 from cellular phones.

⁶ See <http://2010.census.gov/2010census/data/>

⁷ Indianapolis operates with a "unigov" form of government. This ranking includes all cities within Marion County, Indiana, with the exception of the cities of Beech Grove, Lawrence, Southport and Speedway. See http://en.wikipedia.org/wiki/List_of_United_States_cities_by_population > (last accessed April 29, 2011)

⁸ Indiana Office of Tourism Development, <http://www.in.gov/visitindiana/blog/index.php/2010/05/11/play-ball-minor-league-baseball-in-indiana/> > (last accessed April 20, 2011)

Cellular and wireless technology has evolved and converged with other technologies in the years since the IWAB was created. Today, mobile phones are also personal computers (PCs), GPS navigation devices, cameras, televisions, gaming platforms and music players. They can provide high-speed Internet access and have multi-media reception and transmission capabilities. They give consumers many alternative modes of communication in addition to voice: email, text-messaging, video and still image messaging. The clear trend is toward the convergence of technologies into single, multi-purpose wireless devices.⁹ The implication for Indiana PSAPs is huge.

3.1. CURRENT STATUTORY AND REGULATORY ENVIRONMENT AND PROGRAM STRUCTURE

3.1.1. Indiana's Statutory Provisions for 9-1-1 Service

Title 36, Article 8, Chapter 16 of Indiana Code ([IC] 36-8-16 Emergency Telephone System Fee) governs landline enhanced 9-1-1 in the state of Indiana. Title 36, Article 8, Chapter 16.5 (IC 36.8.16.5 Enhanced Wireless Emergency Telephone Service) governs wireless enhanced 9-1-1 in the state of Indiana. Title 36, Article 8, Chapter 16.6 (IC 36-8-16.6 Enhanced Prepaid Wireless Telecommunications Service Charge) governs prepaid wireless service in the state of Indiana.

General statutory provisions for landline E9-1-1 service include the assessment (landlines and VoIP), collection, administration and use of 9-1-1 fees; the scope of authority of the County or municipal unit; 9-1-1 database requirements; liability protection, penalties and the number of PSAPs that can operate in a county.

General statutory provisions for wireless E9-1-1 service (post-paid and prepaid) include the assessment, collection, administration, auditing and use of 9-1-1 fees; establishment of a Wireless Enhanced 9-1-1 Advisory Board (IWAB or Board) and its powers; PSAP funding eligibility, use of funds and audits; confidentiality and liability protection.

Funding provisions are covered in Section 3.4 of this Plan.

3.1.2. Governance

3.1.2.1. Local

A unit of local government has the authority, but is not required, to establish an E9-1-1 committee or board to provide policy direction and oversight. Counties and municipal units initiate emergency telephone service by adopting an ordinance to impose a fee on landline and VoIP. County fees supersede municipal fees, although the county must assure the rate is adequate to cover the municipality's outstanding 9-1-1 service obligations. A county or municipal unit may contract with a 9-1-1 system service supplier and use its fee revenues to make any payments required by the contract, as well as to pay bond obligations.

⁹ Wikipedia, The Free Encyclopedia, "Technological convergence," <http://en.wikipedia.org/wiki/Technological_convergence> (accessed November 9, 2008)

3.1.2.2. State

The IWAB is a quasi-state government agency established under the Indiana Treasurer's Office. It has statewide jurisdiction over wireless enhanced 9-1-1 service. Its chair, by statute, is an elected official—the state treasurer. The IWAB comprises seven members: three PSAP representatives recommended jointly by the Indiana chapters of the NENA and the Association of Public-Safety Communications Officials (APCO), and three commercial mobile radio service (CMRS) members recommended by the state's wireless carriers. The governor makes the appointments. The IWAB has one employee—an executive director. Its authority includes the following:

- Administering the Wireless Emergency Telephone System Fund (Fund)
- Adjusting the wireless 9-1-1 fee¹⁰
- Administering the prepaid 9-1-1 fee following transfer from the Indiana Department of Revenue.
- Disbursing funds to local governments for use as provided by statute
- Contracting
- Rule-making

The IWAB is not required to submit a budget to the legislature, although the statute requires it to submit an audit every two years to the State Board of Accounts on its management of the Fund. In 2008, the Board approved changing to an annual audit.

3.1.3. Mechanism for Overseeing and Managing the State's 9-1-1 System

3.1.3.1. Landline E9-1-1

Legislation enacted in 2008 limits the number of PSAPs a county can operate and prohibits any increases in the 9-1-1 fee until the number of PSAPs has been reduced in compliance with the law.

The mechanism for overseeing and managing a county or municipal 9-1-1 system is typically through a contract between the unit of government and the 9-1-1 system service provider, which may be a local exchange carrier (LEC) or a competitive 9-1-1 service provider. The unit obtains and maintains the necessary hardware and software for its PSAPs through a lease arrangement with the LEC or through a competitive procurement.

It is not typical for counties or municipal units of government to coordinate on a regional basis for the provision of service, although the deregulation of telephone services by the Indiana legislature and the availability of a statewide IP-network, seven counties have formed a regional consortium for procurement purposes. Those counties now fully operate on the redundant IP-network and are fully interoperable.

There is no mechanism for the statewide coordination of landline 9-1-1 services.

3.1.3.2. Wireless E9-1-1

The IWAB is Indiana's mechanism for statewide coordination and oversight of 9-1-1, although its authority is limited to wireless. While the IWAB has no jurisdiction over the local provision of landline E9-1-1 service, its position as a

¹⁰ The wireless E9-1-1 fee may be adjusted annually upwards or downwards but may not be increased more than seven cents. The current rate is 50 cents per month per subscriber number.

state governmental entity gives it a comprehensive statewide perspective on the range of issues facing Indiana PSAPs, and this perspective enables the IWAB to be a support and resource for them in addressing these issues. Local, regional and state-level system functions relative to the statewide IN911 system are coordinated, mutually supportive, comprehensive in scope and efficient in operation. State statute, policies and rules govern the operation of statewide wireless E9-1-1 under the oversight of the IWAB. The IWAB exercises its coordination, oversight and support functions in the following manner:

- Providing a private statewide IP-backbone network for wireless 9-1-1 calls
- Establishing by contract the network performance standards and processes necessary to assure the reliability and continued operation of the IN911 network
- Registering all IN911 system circuits with the federal government for Telecommunications Service Priority (TSP)¹¹
- Coordinating all interconnections with the statewide network
- Providing guidelines, forms and a process for counties to request federal funding under the ENHANCE 911 Act of 2004 as amended
- Providing monthly funding to all 92 counties, pursuant to the statutes that govern the distribution of funds¹²
- Auditing the counties' use of those funds as provided by the statutes
- Assisting and guiding local or regional 9-1-1 authorities and PSAPs within the limits of its statutory authority
- Being the liaison between local/regional E9-1-1 stakeholders, and state/federal legislators and agencies on matters broadly relating to wireless E9-1-1

Stakeholder input is essential to the IWAB's oversight function. The composition of the IWAB itself provides wireless service providers and PSAPs with equal representation. In addition, the IWAB engages its stakeholders and solicits input by the following means:

- Assuring its meetings are publicized and accessible to the public in accordance with the Indiana open-door statutes
- Attending state chapter meetings of NENA and APCO, and supporting their educational initiatives
- Attending National Association of State 9-1-1 Administrators (NASNA), NENA and APCO training and educational meetings to bring back information for Indiana PSAPs
- Presenting at district/state meetings and conferences of elected county officials
- Collaborating with other state agencies, e.g. Indiana DHS, Integrated Public Safety Commission, State Board of Accounts, State Police, Department of Revenue and the General Assembly
- Providing technology outreach tools such as the project Website and updates on various social network platforms
- Publishing a stakeholder targeted news feed on the project Website
- Hosting periodic meetings each year for sheriffs, county commissioners, 9-1-1 coordinators and PSAP personnel
- Serving as a clearing house for information about local, regional, state and national wireless E9-1-1 issues

The executive director has the authority to involve stakeholders at any time.

¹¹ TSP is a program within the federal Department of Homeland Security (DHS) that authorizes national security and emergency preparedness (NS/EP) organizations to receive priority treatment for the restoration of vital voice and data circuits or other telecommunications services in the event of a widespread outage.

¹² This funding, which is targeted to making improvements and enhancements for wireless E9-1-1 service, also has a collateral benefit to landline service because there is no equipment or software that is exclusive to wireless.

3.1.3.3. Utility Regulatory Matters Related to Wireless E9-1-1

A statutory restriction at Title 36, Article 8, Chapter 16.5, Section 50 prohibits the IURC from exercising jurisdiction over CMRS service.

IC 8-1-2.6 effectively de-tariffs many of the legacy 9-1-1 system service provider's 9-1-1 product offerings. Nevertheless, these offerings are still treated operationally by the legacy providers as if their tariffs remain in place. This has created an unusual environment for landline and related 9-1-1 services, which are now neither regulated product offerings nor competitively provided services.

3.2. CURRENT 9-1-1 TECHNOLOGY

3.2.1. Overview

Four LECs provide 9-1-1 service in Indiana:

- AT&T Indiana
- Century Link
- Frontier
- INdigital telecom

Nine commercial mobile radio service (CMRS) carriers provide service in Indiana:

- | | |
|--|--------------------------|
| ➤ AT&T Mobility | ➤ Sprint |
| ➤ Bluegrass Cellular | ➤ Revol Wireless |
| ➤ Cincinnati Bell Wireless | ➤ T-Mobile ¹³ |
| ➤ Cricket Wireless (a/k/a Leap Wireless) | ➤ Verizon Wireless |
| | ➤ US Cellular |

It is not known how many VoIP service providers (VSPs) offer service in Indiana, because there is no state-level mechanism to collect that information. VoIP provider compliance is a local matter.

3.2.2. Landline E9-1-1 Infrastructure

The landline 9-1-1 network consists primarily of circuit switched, analog technologies using in-band signaling (CAMA) and low-speed data transmissions (1,200-to-9,600 baud data lines). This technology, which AT&T developed in the late 1960s, has not had significant updates. While the LECs have deployed fiber optic networks employing digital signaling technologies for commercial purposes, these technologies have not been widely applied to landline 9-1-1 service with the exception of the ALI platforms.

Certain counties receive landline service from INdigital telecom as an ancillary service to that provided by the IN911 network. These counties receive landline 9-1-1 calls using IP technologies. To the greatest extent possible, the

¹³ While the updates to this Plan were being compiled, AT&T Mobility announced plans to acquire T-Mobile USA from Deutsche Telecom

transit and protocol conversion facilities used for these landline E9-1-1 calls are separate from those used by wireless E9-1-1 calls.

3.2.2.1. System Level of Service

All of Indiana's 138 PSAPs handle landline and VoIP enhanced 9-1-1 calls.

3.2.2.2. PSAPs

There are 138 PSAPs operating within 91 county E9-1-1 systems¹⁴ for landline and VoIP calls, and a single, statewide transport network for wireless E9-1-1 calls. Additionally, the Indiana State Police operate regional dispatch centers throughout the state and serve as non-associated PSAPs in certain locations.

The majority of Indiana's PSAPs use one of several Cassidian Communications (formerly Plant CML) products. A significant number of counties use the Solacom technologies platform. A small minority use equipment from Intrado Positron (formerly IPC/Positron), Zetron, Emergitech and 911 Inc. Twelve PSAPs have IP-based customer premise equipment (CPE), which enables them to terminate all calls directly from the IN911 network without relying on legacy analog protocols.

There is no mechanism at the state level to collect detailed information about CPE ownership, year installed or condition. Absent specific information, the only certainty is that the majority of Indiana's PSAPs have to replace their CPE before they can implement NG9-1-1. Additionally, there is no mechanism at the state level to collect information about landline call volumes. Based on what is known and by applying statistical analysis, an estimated 1.6 million landline 9-1-1 calls and an estimated 215,000 VoIP calls were made in 2010.

There are currently no PSAPs that perform specialized functions based on call type and characteristics, e.g., video calls from the deaf or non-English language.

3.2.2.3. LEC 9-1-1 Selective Routers

Among the three major LECs that provide E9-1-1 services, there are currently 16 selective routers, some of which also serve as tandem switches. These are located throughout the state and serve the majority of Indiana PSAPs. Selective routers perform the function of routing an E9-1-1 call to the correct PSAP and are critical components of the existing landline delivery network. Tipton Telephone (doing business as [d/b/a] TDS) serves the PSAP in Tipton County through a hybrid trunking arrangement. AT&T uses three Lucent/Alcatel 5ESS 9-1-1 tandem switches. Frontier uses multiple Nortel DMS central office-based tandem switches for the selective routing function; these are connected to 12 CML ECS-1000 selective routers, which function as ANI/ALI controllers. Century Link uses one Nortel DMS-500 tandem switch (and is transitioning away from a Plant CML selective router). INdigital telecom uses two mated pair Siemens EWSD class 4 switches and is migrating to a session initiation protocol (SIP) message engine with customized selective routing features that will allow geospatial routing of E9-1-1 voice and MES calls.

¹⁴ Two counties, Fountain and Warren, comprise a single consolidated 9-1-1 operating authority. The number of PSAPs is not stable as counties comply with IC 36-8-16.5—51(c).

3.2.2.4. ALI Database

AT&T-served PSAPs currently receive landline, VoIP and wireless ALI data via the AT&T regional ALI platform. This ALI platform transports ALI data and selective router Application Programming Interface (API) links over a private, redundant, self-healing IP network. The IP ALI data links are converted back to analog circuits if the PSAP CPE is not capable of IP ALI links. Frontier-served PSAPs are connected to Verizon's nationwide ALISA platform via IP-over-frame relay. Century Link-served PSAPs currently receive landline ALI service via an IP-based national platform. INdigital telecom customers receive ALI via a distributed IP ALI system (INDB).

Certain other PSAPs in Indiana receive landline ALI via local ALI database servers or via IP networking provided as a parallel overlay to the IN911 wireless ALI network. Forty-five PSAPs have enhanced ALI display system capabilities through mapping-based software display extensions created as part of the deployment of the IN911 network. These PSAPs can display additional information from telematics providers and other emerging technologies directly on the PSAP map platform.

3.2.2.5. Known Vulnerabilities

The LEC 9-1-1 networks are either not 100 percent redundant or have limited areas of redundancy. LEC 9-1-1 service uses the LEC regional or Local Access and Transport Area (LATA) tandems, which do not operate as mated pairs. Therefore, survivability of the tandem as a selective router relies on survivability of the same switch to provide service for landline calls of all types, including 9-1-1 calls. Because of this single network element, if the 9-1-1 tandem switch were to fail, the majority of all landline calls would be impaired.

3.2.3. Wireless E9-1-1 Infrastructure

The state of Indiana provides a single, statewide private E9-1-1 network (IN911 network) to handle 9-1-1 calls from cellular phones. This network uses the most modern, state-of-the-art technology available: a self-healing Synchronous Optical Network (SONET) serves as the transport network for a diverse IP-based 'mesh network' that delivers 9-1-1 voice and ALI data using IP technology. IP signaling is converted to analog voice and traditional RS-232 data communications to serve legacy equipment in the back room of the local PSAP. All elements that make up the IN911 network are 100 percent redundant.

In addition to the redundant nature of the IN911 network design, the IWAB is implementing tertiary connections from third party service providers. These connections are used to connect multiple providers' networks for improved delivery of wireless 9-1-1 calls where available.

The network is evolving to support additional agencies to promote public safety for Indiana residents and visitors. As part of a goal set forth in the 2008 version of this Plan, IWAB is in the process of extending the IN911 network across state boundaries into Michigan, Illinois, Ohio and Kentucky to enable wireless call transference across state lines along with the location information associated with the call.

IWAB began an initiative to connect Indiana State Police (ISP) PSAPs to the IN911 network. The ISP PSAPs are secondary in nature, meaning they receive wireless 9-1-1 calls that have been transferred to them from primary answering agencies. At present, PSAPs have the capability to transfer voice calls to ISP, but they cannot transfer ALI. This project will allow primary agencies to transfer calls to ISP with both voice and ALI information.

A network application gives all PSAPs access to Language Line for support in handling calls from non-English speaking callers.

3.2.3.1. System Level of Service

All counties have wireless Phase II service with all wireless originating service providers for 100 percent of the geography and 100 percent of the population.

The Generation 2 (G2) IN911 network does not currently process certain types of emergency multimedia communications (non-voice or non-traditional) protocols from originating service providers. INdigital's Generation 11 network¹⁵ has the capability to do so.

3.2.3.2. PSAPs

Most of Indiana's 138 PSAPs serve as the primary answering point for wireless E9-1-1 calls and either directly dispatch first responders or transfer to a secondary PSAP that dispatches on a localized basis. PSAPs handled 2,535,201 wireless calls in 2010.

3.2.3.3. CMRS Carrier Infrastructure

Among the nine CMRS carriers, there are 36 mobile switching centers (MSC) located throughout the Midwest. All 36 of them connect to the two fully redundant mated-pair tandem selective routers on the IN911 network. From there, wireless 9-1-1 calls are processed in one of two ways depending on whether the LEC that provides equipment (CPE) allows the PSAP to connect directly to the state's network or not. All PSAPs otherwise served by Frontier and Century Link have direct connectivity (or the functional equivalent) with the IN911 network, which means wireless 9-1-1 calls can be delivered directly to the appropriate PSAP. None of the PSAPs served by AT&T have direct connectivity with the state's network, so their wireless calls are routed to AT&T selective routers via the IN911 network and then to the PSAP. The state's wireless E9-1-1 system processed nearly 11 million wireless 9-1-1 calls since its inception.¹⁶

3.2.3.4. Wireless ALI database

Frontier-served PSAPs currently receive wireless 9-1-1 ALI from the IN911 network. Frontier and IN911 ALI networks are fully integrated using the ALISA interface protocol. Century Link-served PSAPS generally receive all wireless 9-1-1 ALI information directly from the IN911 network, although some Century Link-served PSAPs receive ALI from Century Link due to PSAP equipment limitations. AT&T-served PSAPs currently receive wireless ALI data via the AT&T ALI network as described in the landline section.¹⁷

¹⁵ This capability was being deployed as this update to the Indiana Statewide 9-1-1 Plan was being compiled.

¹⁶ Information provided from INdigital telecom records of calls processed

¹⁷ Functional direct connect was being implemented as this Plan was being updated and that capability may change the current process for AT&T-served PSAPs.

3.2.3.5. Known Vulnerabilities

The IN911 network is fully redundant at all levels. It uses redundant, paired selective router tandems and multiple IP-based selective routing services, redundant ALI links and controllers. The underlying IP transport is fully redundant to each PSAP, and the connections to all legacy LEC network elements used for 9-1-1 service are redundant as well. In addition, tertiary connections are being added at critical network points where the unreliability of legacy circuits has been observed.

The IN911 network is a fully private network that makes extensive use of IP security protocols and procedures. In addition to these precautions, the network is monitored to automatically detect any operational abnormality. While no network can be made 100 percent secure, every reasonable effort has been made to assure the integrity of the IN911 network.

3.3. PSAP INTEGRATION WITH EMERGENCY COMMUNICATIONS, TELECOMMUNICATIONS AND INFORMATION NETWORKS

At present, many PSAPs function independently of each other. There is limited integration of E9-1-1 and radio systems with one another or with other related or unrelated public safety systems.

The Indiana Fiber Network backbone carries a network of networks that form a secure ESInet supporting a variety of public safety functions, including IN911, connections to the National Crime Information Center/Indiana Data and Communications (NCIC/IDACs) and Criminal Justice Information Services (CJIS). A number of counties have migrated their IDACs service to this network to provide faster query response times or to provide higher service availability. In addition, the IWAB has an IP transport sharing inter-local agreement with the Indiana Supreme Court, Judicial Technology and Automation Committee (JTAC). As of April 1, 2011, three Indiana counties use the JTAC system—Benton, Warren and Tipton. The IN911 network's functionality is used only for matters directly relating to wireless enhanced 9-1-1 and public safety.

The ESInet serves public safety needs and PSAPs through access to other state agencies, and benefits the public interest through the various inter-local agreements, which thereby reduces the overall cost to the IN911 portion of the ESInet. Additional applications related to NG9-1-1 and other related public safety communications functions are under development. Current public policy, legislation and regulations govern the development of these services.

3.4. ECONOMICS

3.4.1. Current Funding

3.4.1.1. Landline E9-1-1

IC 36-8-16 allows for the funding of enhanced 9-1-1 services through the assessment of a fee on landline and VoIP subscribers.

County fiscal bodies may adopt an ordinance to impose the enhanced emergency telephone system fee, which must be applied uniformly across the board to switched access landlines and interconnected VoIP. Counties use the same

process to increase, reduce or rescind the fee. Counties with a first- or second-class city¹⁸ may charge up to three percent of the average monthly telephone access charge. Indiana has 1 first-class city and 22 second-class cities; however, only 16 counties assess the fee at the three percent rate. The remainder can assess up to 10 percent of the cost of the basic monthly telephone access charge. Carriers remit directly to the county's fiscal body for deposit into a dedicated 9-1-1 account. IC 36-8-16-7.5 prohibits fee increases until a county complies with the PSAP limits.

County 9-1-1 fees may be used to pay the following one-time and recurring costs¹⁹:

- 9-1-1 hardware, software or other equipment used to answer 9-1-1 calls
- Rates and fees paid to telephone companies for connection to the telephone companies' 9-1-1 network, including trunks, circuits and ALI database
- Salaries, training and other personnel costs for PSAP employees
- Voice and data communications equipment, infrastructure or other IT necessary to provide emergency response services; including radio dispatching, satellite towers and/or other technology used to communicate with responders
- Emergency notification system

The IWAB does not have authority to require local government to report its local landline and VoIP 9-1-1 fee revenues.

3.4.1.2. Wireless E9-1-1

The state funds wireless E9-1-1 service through two different mechanisms—one for post-paid and one for prepaid customers.

A uniform fee is assessed on all post-paid wireless subscribers. IWAB has the authority to adjust the fee annually. Any adjustment upward may be no more than seven cents. The current rate is set at 50 cents of a maximum \$1.00 per subscriber line. CMRS providers remit the fee to the state treasurer for deposit into the IWAB 9-1-1 fund.

The state, pursuant to IC 36-8-16.5-39, allocates these funds in the following manner²⁰:

- IWAB Administration (\$0.010 per line per month)
- PSAP Equal Share (\$0.039 per line per month)
- Population Based (\$.344 per line per month)
- Technology Subaccount (\$.100 per line per month)²¹

¹⁸ IC 36-4-1-1 establishes population ranges for each classification.

¹⁹ IC36-8-16-14

²⁰ Wireless carriers retain \$.007 of the fee for the cost of collection and remittance.

²¹ These funds are used to cover the costs of the State Wireless E9-1-1 network.

(See Figure 1 below for graphic representation.)

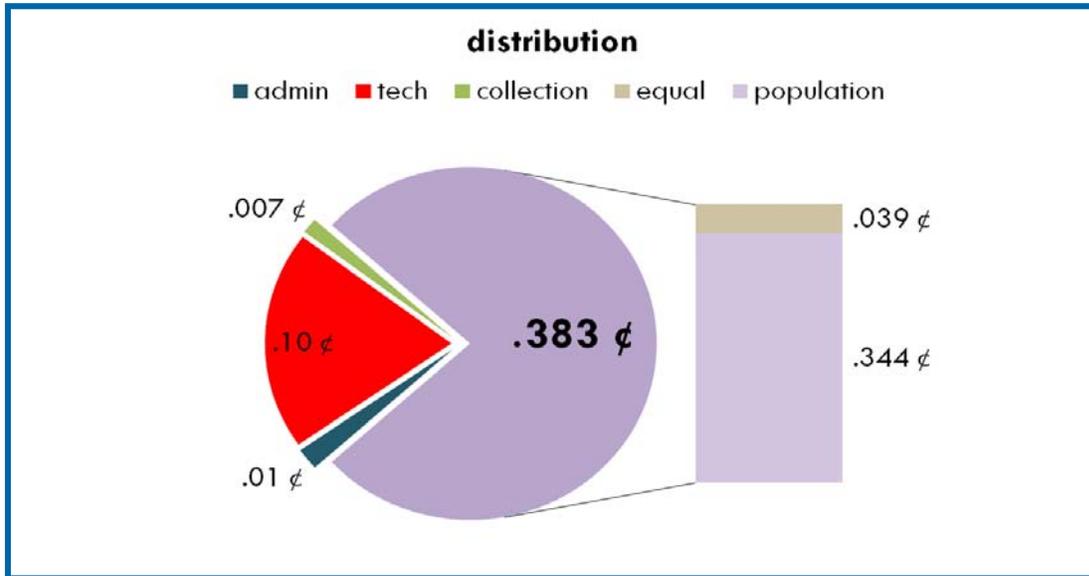


Figure 1—Fund Allocation

A uniform 25 cent fee is assessed on every pre-paid wireless retail transaction. The fee is remitted by retailers²² to the Indiana Department of Revenue each month at the same time the retailer remits the Indiana sales tax. The Department of Revenue transfers the monies to the IWAB 9-1-1 fund for distribution. This fee may be increased only with legislative approval.

The IWAB administers the funds in the same manner it does for post-paid revenues. (See Figure 2 on the following page)

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²² The retailer may retain one percent of the fee to cover its costs to collect and remit.

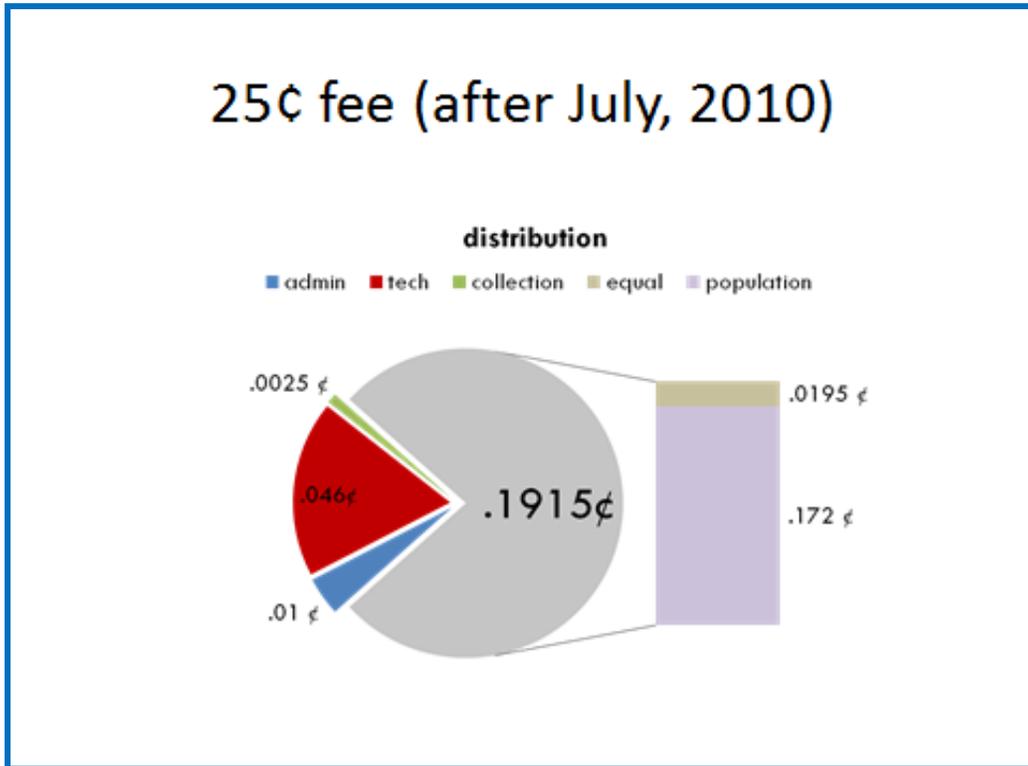


Figure 2—Prepaid Wireless Fee Allocation

The IWAB provides monthly funding to all 92 counties. Counties may use the wireless funds for the following purposes²³:

Necessary computer hardware, software (including mapping) and database equipment for wireless E9-1-1

- Personnel expense and training
- Any item directly associated with the provision of wireless E9-1-1 services
- Consumer education

3.4.2. Federal Funding for 9-1-1

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 in one form or another.

The grant program authorized under the ENHANCE 911 Act of 2004 as amended provides funding for wireless E9-1-1 Phase II and for IP-enabled emergency networks. The IWAB applied on behalf of interested PSAPs for both types of grants. IWAB was awarded \$1,563,140.03 to fund a variety of local, regional and state projects. The IWAB does not have statutory authority regarding local landline and VoIP revenues or PSAP budgets.

²³ IC 36-8-16.5-41

3.4.3. Next Generation Considerations

In Indiana today, both landline and wireless E9-1-1 revenues and costs are relatively straightforward. In a full NG9-1-1 environment, there are new costs that may be shared among state and local jurisdictions. Many of the issues driving the development of NG9-1-1 are wireless issues. For example, telematics and multi-media communications (including SMS protocol messaging, text messaging, transmission of still images and video images) originate from cellular and other wireless devices (collectively defined as MES) but do not rely on traditional voice communications. As the state 9-1-1 program is currently structured, the statutorily defined purposes for which Indiana's wireless funding can be used are broad enough to account for new services that may be required to provide NG wireless E9-1-1. The revenues generated by the surcharge, however, may not be adequate to cover the costs of these new services. Further study is needed to quantify the costs and determine how to pay for them. The IWAB originally had a process whereby counties could request proportional funding for shared costs, and that process could be reinstated for NG wireless E9-1-1 services. Doing so would require a change in the statute.

Determining the cost to implement NG9-1-1 in Indiana is challenging. The variable network costs are higher or lower depending on whether the state's existing IN911 network is used to provide an ESnet.

Currently, wireless E9-1-1 calls are processed and routed based on "coarse routing". This is defined as the identification of the network access point used for the communications channel (typically a tower), which is assigned an identifier (often referred to as a pseudo-ANI or pANI). This pANI is listed in a tabular database. During the call initiation, the tabular database is queried and the response creates a routing instruction that represents a specific PSAP. Using this data, the 9-1-1 call is then forwarded to the PSAP, which answers the emergency call.

The issue is that the link between the wireless device and the tower used for the communications channel is not always directly related to the location of the caller or the static tabular data used to route the call. As NG9-1-1 technology evolves, it will become possible to provide the location of the caller with the call setup and, thereby, query a geospatial (map based) routing engine. This will improve the accuracy of the call routing process.

3.4.4. Current Funding Issues

Rapidly changing consumer trends have created major funding issues, such as the following, that require urgent resolution:

- Revenues from landline telephone services are declining as consumers abandon their landline telephones in favor of mobile wireless services.
- Wireless 9-1-1 calls now represent 60 to 80 percent of Indiana's total 9-1-1 call volume, but the revenues generated by the wireless 9-1-1 fee are not adequate to bridge the funding gap.
- Growing popularity of pre-paid wireless plans have exacerbated the funding shortfall due to the tiered fee structure, for example, regular wireless service consumers pay a flat fee of 50 cents per line per month, but prepaid wireless service consumers pay only 25 cents at the point-of-sale transaction.
- Some wireless carriers do not remit the 9-1-1 fee for customers that do not subscribe to a voice plan, for example if the handset is used only for text and data messaging.
- Depending on the region, 8 to 30 percent of wireless 9-1-1 calls come from non-service initialized (NSI) handsets, i.e., handsets with no pre-paid minutes or active subscriptions. This class of caller makes no funding contribution to the operation of the 9-1-1 system at all.

- Parts of the state see huge increases in 9-1-1 call volumes during peak tourism seasons from callers that do not contribute 9-1-1 fees to Indiana; this creates funding distribution irregularities in a state that increasingly relies on tourism as a contributor to the state's overall economy.

Effective public policy must recognize these rapidly changing trends and legislation regarding funding levels, funding distribution and the approved use of funds require an updated statutory framework to assure the continued availability and quality of 9-1-1 throughout the state.

3.5. ACTION NEEDED TO ACHIEVE THE PLAN'S GOALS AND OBJECTIVES

This Plan has been constructed to reflect the current statutory framework. Not all future 9-1-1 needs are likely to fit within the current statutory framework. Action is needed to achieve the Plan's goals and objectives, including the following:

- Developing legislation to update Indiana's 9-1-1 statutes to reflect industry and technological trends, to address broader issues affecting 9-1-1 and to meet the evolving needs of PSAPs and public safety
- Developing the capability, in conjunction with the vendor community, to assure Indiana's citizens and visitors have E9-1-1 service no matter where they call from; no matter what wireless device, protocol or service they use; and whether they communicate by voice, text, image or video
- Increasing staffing for IWAB as described in Section 6 Resource Allocation
- Resolving pressing funding issues

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4. FUTURE ENVIRONMENT

4.1. VISION

Indiana's PSAPs process and dispatch help quickly and accurately to wireless callers:

- Calling from any geographical location
- Using any wireless device or service
- Using any wireless protocol
- Communicating by voice, MES or any other emerging technology

This vision reflects the current statutory framework, but a holistic vision would not be so limited. A more comprehensive vision for Indiana is presented in the following statements:

- In the future, Indiana leverages the economies of scale inherent in a single, uniform statewide E9-1-1 infrastructure or interconnected ESNets with equipment and technology to enable processing of all 9-1-1 calls regardless of technology and to enable the seamless transfer of voice and data among PSAPs within Indiana and adjoining states and regions.
- In the future, related statewide public safety services, e.g., poison control, trauma centers, 2-1-1, 5-1-1, NCIC/IDACS, JTAC, are able to exchange voice and data seamlessly with the E9-1-1 system to provide better service to the public in an emergency.
- In the future, the state would operate an E9-1-1 program with adequate authority, staff and funding to coordinate and support the advancement of E9-1-1 and related public safety services statewide.
- In the future, Indiana's E9-1-1 program would have working relationships with (and the ability to seamlessly share data with) other state and federal agencies that provide or support emergency services.²⁴
- In the future, centralized services and applications that are common to all PSAPs is evaluated and considered, specifically where reducing local government costs to provide E9-1-1 service can be achieved within the statutory policy established by the legislature.

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²⁴ Examples include the Indiana DHS, the State Department of Health, the Federal Emergency Management Agency (FEMA), the DHS and the National Guard.

5. GOALS, OBJECTIVES AND MEASURES

5.1. PROGRESS ON 2008 GOALS AND OBJECTIVES

GOAL 1 PROVIDE A FUNCTIONALLY COMPARABLE LEVEL OF E9-1-1 SERVICE STATEWIDE		
Objective Number	Description	Status
1	Establish a stakeholder working group to make recommendations to the IWAB on a variety of technical, operational and policy matters to advance wireless E9-1-1 in Indiana.	Not started
2	Using NASNAs Report on Data Elements to Measure the Technological Progress of 9-1-1 (see Appendix A) the stakeholder working group identifies the data elements germane to wireless E9-1-1 and the data collection mechanism.	Not started
3	Recommend a definition of the baseline level of service for Indiana, e.g., call set up, routing accuracy, that is vendor neutral and in alignment with national standards	Not started
4	Recommend minimum technical and operational standards to include call-taker training/certification; staffing; multi line telephone systems (MLTS) and interoperability operational support on an inter-agency basis	Not started
5	Recommend legislation: <ul style="list-style-type: none"> ➤ Establish a state entity with appropriate authority, funding and staffing to facilitate/coordinate statewide E9-1-1 planning, and provide vendor neutral services and technology. ➤ Establish a uniform, statewide E9-1-1 funding mechanism ➤ Enable interconnectivity between the state IN911 network and other ESInets 	Completed, but only the prepaid wireless provision passed and was signed into law

Table 1—Progress on 2008 Goals and Objectives for Goal 1

GOAL 2 PROVIDE ALL CELLULAR AND WIRELESS TECHNOLOGY USERS WITH EQUAL ACCESS TO IN911		
Objective Number	Description	Status
1	Identify requirements for SMS protocol interfaces, TDD messaging, text messaging, instant messaging, wireless transmission of still images, and video images, telematics, language line services, and video relay for the hearing impaired	Not possible to start – the timeline will be determined by the SDO's and the FCC
2	The IWAB works with PSAPs and local government to develop funding sources	Accomplished, but legislation failed

Table 2— Progress on 2008 Goals and Objectives for Goal 2

GOAL 3 ACHIEVE SEAMLESS TRANSFER OF WIRELESS E9-1-1 VOICE AND DATA ACROSS STATE LINES		
Objective Number	Description	Status
1	Negotiate formal Memoranda of Agreement (MOA) with contiguous County government from Michigan, Illinois, Kentucky, and Ohio	The ability to accomplish the goal did not require formal MOA, but was effected through INdigital's interconnection and commercial agreements with the 9-1-1 system service providers in adjoining states
2	Build out the IN911 network to the borders of Indiana and adjacent states or other state or regional ESNets	In progress

Table 3— Progress on 2008 Goals and Objectives for Goal 3

5.2. 2011-2013 GOALS AND OBJECTIVES

GOAL 1 PROVIDE A FUNCTIONALLY COMPARABLE LEVEL OF E9-1-1 SERVICE STATEWIDE		
Objective Number	Description	Measurement/ Completion Date
1	Establish a stakeholder working group to make recommendations to the IWAB on a variety of technical, operational and policy matters to advance wireless E9-1-1 in Indiana.	Agenda created and first meeting scheduled. <i>Completion Date:</i> November 2011

GOAL 1 PROVIDE A FUNCTIONALLY COMPARABLE LEVEL OF E9-1-1 SERVICE STATEWIDE		
Objective Number	Description	Measurement/ Completion Date
2	Using the National 9-1-1 Office's Data Dictionary for the national 9-1-1 Profile Database at https://www.911resourcecenter.org/code/9-1-1ProfileDatabase.aspx , establish a data collection mechanism by which PSAPs will provide the data to the IWAB for inclusion in the national database	Data elements and data gathering mechanism approved by IWAB. <i>Completion Date:</i> December 2011
3	Conduct ongoing phase II location availability and location accuracy measurements testing to establish baseline metrics and identify any areas of improvement that would improve public safety throughout the state	Quantified, data verified phase II accuracy measurements are available throughout the IN911 network, and reported to the IWAB. <i>Completion Date:</i> August 1, 2012
4	Identify minimum training requirements	IWAB-approved recommended minimum training requirements are published. <i>Completion Date:</i> December 2012
5	<p>Recommend legislation</p> <ul style="list-style-type: none"> ➤ Establish a state entity with appropriate authority, funding and staffing to facilitate/coordinate statewide E9-1-1 planning, and provide services and technology that is vendor neutral. ➤ Enable interconnectivity between the state IN911 network and other ESInets ➤ Establish the base line level of service for Indiana, e.g., call set up, routing accuracy, which is in alignment with national standards and is vendor neutral ➤ Establish minimum technical and operational standards to include call-taker training/certification; staffing; Multi Line Telephone Systems (MLTS) and interoperability operational support on an inter-agency basis ➤ Recognize Emergency Multimedia Communication (MES [a/k/a non-voice] and provide an appropriate limitation of liability to enable these services to be provided throughout the state 	<p>Consensus legislation introduced.</p> <p><i>Completion Date:</i> January 2013</p>

Table 4—2011-2013 Goals and Objectives for Goal 1

Goal 2 Provide all cellular and wireless technology users with equal access to IN911		
Objective Number	Description	Measurement/ Completion Date
1	Identify the technical requirements and interim solutions to facilitate MES (a/k/a/ non-voice communications) to enable access to emergency services for the deaf, hearing impaired and speaking impaired, and which may be used also by the general public	Report delivered to IWAB. Completion Date: December 2013

Table 5—2011-2013 Goals and Objectives for Goal 2

Goal 3 Achieve seamless transfer of wireless E91-1 calls, including EMC with associated call data to border counties in the surrounding states		
Objective Number	Description	Measurement/ Completion Date
1	Coordinate inter-state 9-1-1 program goals (including inter-agency protocols and operating standards) with Michigan, Illinois, Kentucky and Ohio	MOAs approved by IWAB <i>Completion Date:</i> September 2011
2	Build out the IN911 network to the local authorities or 9-1-1 system service providers along the borders of Indiana and adjacent states or other state or regional ESInets	Interstate interconnections achieved, testing, and coordinated turn-up; resulting in a completed and interoperable network ready for service. <i>Completion Date:</i> December 2013

Table 6—2011-2013 Goals and Objectives for Goal 3

GOAL 4 STAKEHOLDERS AND THE GENERAL PUBLIC ARE KEPT INFORMED		
Objective Number	Description	Measurement/ Completion Date
1	Stakeholders identify target audiences and messages for each	Materials developed and communication plan executed. <i>Completion Date:</i> January 2012

Table 7—2011-2013 Goals and Objectives for Goal 4

GOAL 5 ALL PSAPS HAVE ADEQUATE FUNDING TO MEET OPERATIONAL REQUIREMENTS		
Objective Number	Description	Measurement/ Completion Date
1	The IWAB, PSAPs and local governments jointly develop sustainable funding sources for 9-1-1	Consensus legislation introduced for the 2012 session. <i>Completion Date:</i> December 2011

Table 8—2011-2013 Goals and Objectives for Goal 5

5.3. TRACKING PROGRESS

The Indiana Statewide 9-1-1 Plan is a living document that is used on an ongoing basis. Indiana's goals are high-level, general directions; and the objectives for achieving the goals are concise, specific and measurable. Each objective has a deadline for completion and an associated metric to measure progress. The IWAB's staff is responsible for executing the Plan and tracking progress.

IWAB uses current processes in place with its network vendor, INdigital telecom, to measure and continually improve network performance.

As the IWAB staff and stakeholders work through each goal's objectives, they will identify and take specific actions/steps necessary to accomplish them. The actions identified should be adequate benchmarks for use in tracking progress toward each goal.

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6. RESOURCE ALLOCATION

The IWAB has only one staff person—an executive director. The IWAB serves as a quasi-state governmental agency in Indiana, operating under the authority of the State Treasurer's office. The Treasurer's office allocates personnel on a part-time/temporary schedule to perform necessary duties as required by statute, including one certified public accountant (CPA) and one accountant responsible for the IWAB's financial operations. Currently, the IWAB utilizes a substantial level of contracted resources who are industry experts to help operate the IWAB.

Immediate staffing needs are for a full-time district liaison to assist the executive director by providing direct support to local government officials and PSAP personnel, and an administrative assistant. The district liaison would possess a strong 9-1-1 background with strong accounting knowledge. The administrative assistant would provide general administrative and program support. Having these additional resources would enable the IWAB's executive director to focus more on higher-level functions such as planning and program development.

If IWAB requires additional funding, it has the authority to increase the wireless E9-1-1 surcharge by seven cents once each year.

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7. UPDATING THE PLAN

The IWAB's staff is responsible for executing the Plan and taking the lead in keeping it updated as progress is made. The IWAB's staff convenes a meeting of the stakeholder working group at least once annually, prior to the IWAB's last calendar year meeting. The IWAB staff, in conjunction with the working group, undertakes any major revisions, additions or eliminations of goals and objectives that are necessary. Goals and/or objectives that were successfully implemented are removed from the Plan or, if further work is needed, it remains in the Plan; and new tasks are added for the next year. IWAB staff present the working group's recommendation for the IWAB's consideration. The IWAB reviews the recommendations at its last meeting of the calendar year. Staff executes the updated Plan and the cycle continues.

There may be times when regulatory or technological changes require commensurate changes to the Plan on a schedule outside the routine annual process. In such an event, the IWAB's executive director takes the lead in coordinating with the stakeholder working group to develop a recommendation for the IWAB's consideration.

Changes to the plan are documented in the following manner:

- The Plan is given a new version number following the annual review and update cycle, or following any necessary interim update. The number given at that time is a full number, e.g., 1.0, 2.0 etc.
- Any changes made to the Plan on an interim cycle are given a fractional number, e.g., 1.1 or 1.2, etc.
- The date field documents the date the IWAB Board approved the change or, in the case of an interim administrative change, the date of that change.
- The "description of change" field documents the nature of the change and the page and/or section affected.

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8. MECHANISM FOR INITIATING AND MONITORING AN IMPLEMENTATION PROJECT

8.1. LANDLINE E9-1-1

Landline E9-1-1 is a local service with local oversight. The mechanism for initiating and monitoring an implementation project for landline E9-1-1 services is typically through the serving LEC. Some county and municipal governments may have technical and project management staff, but most do not. Currently, there is no state-level mechanism for assisting local governments with their implementation projects.

8.2. WIRELESS E9-1-1

The IWAB relies on contracted services for the initiation and monitoring of wireless E9-1-1 projects. These services include independent assessment and compliance with recommended industry standards, network expense audits and the enrollment of critical network elements in priority service restoration programs administered at the federal level.

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9. CONCLUSION

The demands on IN911 system, and on the other existing E9-1-1 systems, have increased and become more complex due to the following:

- Expanded number of wireless subscribers
- Expanded number of wireless services of all types
- State population that continues to shift more toward mobile services
- Public demand for access to emergency services through modern wireless communication protocols, modes and devices

This Plan establishes the foundation for taking Indiana's E9-1-1 capabilities to the next level—through assuring that all Indiana PSAPs achieve a minimum standard level of service statewide and, at the same time, enabling the development of a more comprehensive and technically advanced level of service to meet the evolving needs of cellular and wireless consumers.

The evolution of wireless services in today's society has created a widening gap between the person calling 9-1-1 and the agency that answers those calls for help. This Plan represents a comprehensive, but flexible, approach and framework for effective public policy that looks to the future.

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10. APPENDIX A—GLOSSARY

The Glossary can be found on the following page.

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-A-

a/k/a	Also Known As
ADA	Americans with Disabilities Act
ALI	Automatic Location Information
ALISA	ALI Service Adjunct
ANI	Automatic Number Identification
APCO	Association of Public Safety Communications Officers
API	Application Programming Interface

-C-

CAMA	Centralized Automatic Message Accounting
CJIS	Criminal Justice Information Services
CMRS	Commercial Mobile Radio Service
CPA	Certified Public Accountant
CPE	Customer Premises Equipment

-D-

d/b/a	Doing business as
DHS	Department of Homeland Security

-E-

E9-1-1	Enhanced 9-1-1
EMS	Emergency Medical Service
ESInet	Emergency Services IP Network or Emergency Services Internetwork

-F-

FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency

-G-

G2	Generation 2
GIS	Geographic Information Services
GPS	Global Positioning System

		-H-
HB	House Bill	
		-I-
IC	Indiana Code	
ICB	Individual Case Basis	
ICO	National 9-1-1 Implementation Coordination Office or National 9-1-1 Program	
IDAC	Indiana Data and Communications	
IN911	The Indiana wireless E9-1-1 network	
IP	Internet Protocol	
ISDN	Integrated Services Digital Network	
ISP	Indiana State Police	
IT	Information Technology\	
IURC	Indiana Utility Regulatory Commission	
IWAB	Indiana Wireless E9-1-1 Advisory Board	
		-J-
JTAC	Judicial Technology and Automation Committee	
		-L-
LATA	Local Access and Transport Area	
LEC	Local Exchange Carrier	
		-M-
MES	Multimedia Emergency Service	
MLTS	Multi-Line Telephone System	
MSC	Mobile Switching Centers	
		-N-
NASNA	National Association of State 9-1-1 Administrators	
NBA	National Basketball Association	
NCAA	National Collegiate Athletic Association	
NCIC	National Crime Information Center	
NENA	National Emergency Number Association	

NFL	National Football League
NG9-1-1	Next Generation 9-1-1
NHTSA	National Highway Traffic Safety Administration
NS/EP	National Security and Emergency Preparedness
NSI	Non-Service Initialized
NTIA	National Telecommunications and Information Administration
	-P-
pANI	Pseudo Automatic Number Identification
PBX	Private Branch exchange
PC	Personal Computers
PRI	Primary Rate Interface
PSAP	Public Safety Answering Point
	-R-
RFI	Request for Information
	-S-
SIP	Session Initiation Protocol
SMS	Short Message Service
SONET	Synchronous Optical Network(ing)
	-T-
TSP	Telecommunications Service Priority
	-U-
USDOT	United States Department of Transportation
US	United States
USHL	United States Hockey League
	-V-
VoIP	Voice over Internet Protocol
VSP	VoIP Service Provider
	-W-
WNBA	Women's National Basketball Association