

Regional 9-1-1 Emergency Number System and GIS

About the program

9-1-1 Emergency Communications Program is funded by a local service fee and provides fully enhanced 9-1-1 services for the nine-county ATCOG region, including Texarkana, Arkansas. The 9-1-1 Program provides and maintains the necessary network and equipment to ensure delivery of 9-1-1 calls to the proper answering point. Public education materials are provided to residents of the region, including book covers to all schools. The program also provides dispatcher training.

Rural Addressing, also funded by the 9-1-1 Program, is on-going throughout the region to facilitate the provision of 9-1-1 services. With the completion of addressing for all existing rural residences, all new rural addresses for the region are assigned by the Ark-Tex Council of Governments (ATCOG) staff to maintain the regional database.

ATCOG 9-1-1 works with agencies throughout the 9-county region by providing planning and technical assistance to ensure delivery of 9-1-1 calls to the proper Public Safety Answering Point (PSAP). In a cooperative effort, ATCOG 9-1-1 works with local Telephone Companies, Wireless Telephone companies, Voice over Internet Providers (VoIP), and others in the region to ensure that each 9-1-1 call reaches the correct PSAP with the right location and telephone information.

In addition to planning and technical assistance, ATCOG 9-1-1 offers a variety of training to every PSAP employee. Training on the use of the 9-1-1 equipment in place at the PSAP and Telecommunications Device for the Deaf (TDD) . Any successful 9-1-1 program depends on public awareness. To that end, ATCOG 9-1-1 provides items to PSAPs and other public safety agencies designed and developed to enhance the understanding of the 9-1-1 program throughout North East Texas. These materials cover a broad range of topics associated with the proper usage of 9-1-1, wireless 9-1-1, and VoIP. They are available in English and Spanish.

The Commission on State Emergency Communications (CSEC) is the state agency agency that oversees the 9-1-1 Program. They provide guidance and direction for all twenty-four Council of Governments (COGs) with regard to expending 9-1-1 funds, training, and accountability. The 9-1-1 Program is funded from the \$.50 fee on each telephone line reflected on an individual's telephone bill (i.e., wireline, wireless and VoIP). Telephone Companies then remit those funds to the Texas Comptroller who sends CSEC the amount appropriated by the Texas Legislature. CSEC, in turn, allocates to each of the COGs their share based on the population of that Region.

9-1-1 Training

9-1-1 call-takers receive specialized training in order to handle a broad range of potential call types in the PSAP. Texas requires all call-takers to complete a 40-Hour training course on basic telecommunications issues affecting PSAPs within the first year of employment. In addition, they must complete several hours of “field training” before receiving their Telecommunications Certification.

In order to comply with the Americans with Disabilities Act, all call-takers must attend training on Telecommunications Device for the Deaf (TDD) at least every six months. This training provides familiarity with the equipment, and keeps them abreast of changes in technology.

9-1-1 ALI Database Maintenance

ATCOG 9-1-1 staff manages and updates the 9-1-1 Database. This database provides the PSAP with the name, address, and telephone number of every caller using a traditional (landline) telephone. Certain VoIP providers use a different technology to deliver address information to the PSAP. Wireless 9-1-1 calls do not provide the caller’s name and other information.

9-1-1 Technology

The 9-1-1 equipment that ATCOG 9-1-1 provides to each of its 16 PSAPs is state-of-the-art. ATCOG 9-1-1 provides highly trained maintenance technicians who are available 24 hours a day, 7 days a week. The equipment allows call-takers to efficiently answer, process, and transfer calls to another agency if needed.

ATCOG 9-1-1’s 9-1-1 equipment contains integrated TDD/TTY equipment to allow call-takers to seamless communication with callers who are deaf, hearing impaired, or who cannot speak. In addition, we provide each PSAP with a stand-alone TDD device to use as a backup.

In order to respond quickly to a caller's request for help, a 9-1-1 call-taker must be able to locate the 9-1-1 caller as quickly as possible. To that end, ATCOG 9-1-1 employs a Mapped ALI (Automatic Location Information) solution in all 13 PSAPs. Mapped ALI automatically displays the caller's location on a map using either the address delivered to the PSAP from the 9-1-1 database, or the GPS coordinates provided by a wireless phone or VoIP provider. Should a 9-1-1 call-taker not speak the language of the 9-1-1 caller, ATCOG 9-1-1 provides each PSAP access to language translation services. The translation vendor can identify and communicate with the 9-1-1 caller in almost any language, and thousands of dialects, enabling the PSAP to summon the needed resources quickly.

Wireless 9-1-1

In general, 9-1-1 calls from wireless phones represent over 60% of the total 9-1-1 calls in the region. ATCOG 9-1-1 continuously works with all wireless vendors to ensure reliable 9-1-1 call delivery to every PSAP in the region.

Because of the mobility of wireless 9-1-1 calls, they present a special challenge to call-takers. Calls to 9-1-1 from wireless phones do not provide the call-takers with the caller's name and address information automatically in the same manner as a traditional 9-1-1 call. These problems are multiplied when a 9-1-1 caller is unable to speak. A wireless subscriber's address information is not in the 9-1-1 Database. Even if it was, the ability of the subscriber to take the phone anywhere renders that data useless in regard to 9-1-1 calls.

Currently, there are two types of location information available to PSAPs to handle wireless 9-1-1 calls. Phase I wireless transmits the caller's telephone number and cell-tower information to the dispatcher – this can cover several square miles. The call-taker must ascertain the caller's location through questioning in order to obtain the caller's location. Phase II wireless, the next step in wireless location technology, delivers the caller's location with GPS coordinates in addition to Phase I data.

When the call arrives at the PSAP, if Phase II data is available, the caller's location is displayed on the Mapped ALI software. This gives the call-taker a general idea of the caller's location.

Environmental and technological factors can prevent the delivery of Phase II data to the PSAP. In that case, the call-taker still has Phase I data to rely upon.

Currently, there are two solutions to deliver Phase II data to the PSAP. Vendors are required by the FCC to choose one. The first solution is known as a “handset-based” solution. Handset based solutions require a GPS enabled phone – where a GPS is physically located in the phone – to deliver the caller’s GPS coordinates. Typically, this solution is a little more accurate. If the caller is calling 9-1-1 from an area where the phone cannot get a “fix” from three GPS satellites orbiting the earth, Phase II data will not be available. In addition, older phones that do not have a GPS chip in the handset will be unable to deliver Phase II data.

Most GPS phones have the ability to disable the location information through a menu option. This option does not apply to 9-1-1 calls, and the caller’s location information will be delivered to the PSAP regardless of this setting, if the data is available.

The second solution known as “network-based” calculates the caller’s location using physical equipment located on each cell-tower. Generally, at least three towers are required to provide location information of the caller to the PSAP. The network can triangulate any phone on the network calling 9-1-1 regardless of age. Network-based solutions do not use a GPS chip in the telephone. A network-based solution can sometimes be less accurate than a handset-based solution, especially in areas that have sparse cell-phone tower coverage.

Each Phase II solution has advantages and disadvantages. There is some discussion to offer a hybrid solution in order to take advantage of both technologies. Currently, all ATCOG 9-1-1 PSAPs can process and utilize wireless Phase II data.

The current FCC requirements require handset-based solutions to deliver the caller’s location within 50 meters 66% of the time, and 100 meters 95% of the time. For vendors using network-based solutions, the caller’s location must be delivered within 150 meters 66% of the time, and 300 meters 95% of the time. ATCOG 9-1-1’s Quality Assurance staff continually works with the wireless vendors to ensure that all calls are delivered accurately.

Voice over Internet Protocol Phones

Voice over Internet Protocol, or VoIP, is a technology that transports voice as digital information over the internet. VoIP technology has unique features that make it very attractive to its users. VoIP technology is usually cheaper to subscribers than traditional wired telephone service. In some cases, VoIP offers its users mobility, or the ability to “take the service” with them. With VoIP service, telephone service, including 9-1-1 service, will not be available during power outages unless the customer has special equipment. In addition, the phone will also not function if the connection to the internet is unavailable. This is important to keep in mind during an emergency or when considering VoIP services. There are primarily three different types of VoIP service: Static, Nomadic, and Dynamic.

Karis Law

Karis Law requires owners of multi-line telephone systems (MLTS) in Texas to provide direct-dial access to 9-1-1 without having to dial an additional digit such as 9 first before getting an outside line. Providers of multi-line telephone systems have until September 1, 2016 to comply. Senate Bill 788, also known as *Kari's Law*, which requires direct access to 9-1-1, was signed into law by Governor Greg Abbott on May 15, 2015. On March 1, 2016 the Commission on State Emergency Communications adopted [Rule 251.16](#) (Direct Access to 9-1-1 Service) to implement Kari's Law. [Click here](#) for further information.

Static VoIP

Static VoIP services are typically provided by cable companies, and in some cases, even traditional phone companies are offering static VoIP. These services are often marketed as “Digital Phone”™ or Internet Phones. They are often cheaper than their traditional wired competition because they offer unlimited long-distance. 9-1-1 service is provided much like wired service by placing the customer's location information (ALI) into the 9-1-1 database. Due to this, Static VoIP does not allow the customer to move their phone service to another location.

Dynamic VoIP

Many companies around the world provide dynamic VoIP services. Dynamic VoIP service allows customers to use their phone anywhere in the world as long as they have a broadband internet connection. Special equipment is required to interface a phone with the internet. Typically, this equipment is small, lightweight, and very portable.

Dynamic VoIP's mobility is the driving factor in its popularity. It allows people to go anywhere in the world and allows family, friends, and business associates to call the phone as a local call, thus avoiding long-distance fees. This mobility also creates challenges when dialing 9-1-1.

In a traditional phone system and Static VoIP, the phone is associated with a fixed location that does not move. New solutions to deliver the caller's location information had to be devised that allows the customer to update their location. In addition, the 9-1-1 infrastructure currently in place does not support this type mobility.

Today, strides have been made to overcome these problems. However, in the past, it was traditionally the phone companies' responsibility to provide the address information of a customer to the 9-1-1 database. Due to the mobility, this responsibility now lies with the customer. If the customer does not ensure that the address information is on file with their VoIP provider, calls for assistance when using 9-1-1 may be delivered to a PSAP thousands of miles away.

With this in mind, some VoIP companies will not allow the customer to make any phone calls if the customer's equipment is without power for any length of time until they verify their 9-1-1 address information via the internet.

Nomadic VoIP

Nomadic VoIP services are relatively new. While many companies are beginning to offer them, 9-1-1 service is not currently available with Nomadic VoIP.

Additional Information: www.911voip.org

9-1-1 Service and new technologies

Ever evolving technologies bring constant change to the 9-1-1 environment. Up until a few years ago, there was one way to reach 9-1-1: dial 9-1-1 from your landline phone. Today, with technology and communications options exploding, the possibilities are endless. Unfortunately, today's devices all interface with the 9-1-1 system differently. It is important for the consumer to understand how each communication device interacts with 9-1-1 in different situations, if it does at all. Talk to your service provider for more information.

9-1-1 Public Safety Answering Points (PSAPs)

Bistate Justice Center CO SO Morris CO SO Hopkins Co SO

New Boston PD Mt. Pleasant PD Sulphur Springs PD

Cass CO SO Clarksville PD Atlanta PD

Franklin CO SO Paris PD