



*NASCIO 2024 State IT Recognition Awards
Information Communications Technology Innovations*



Next Generation 9-1-1 Implementation Outside of Maricopa County

Description: Implementing NC9-1-1 to all Arizona counties outside of Maricopa County

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EXECUTIVE SUMMARY

The NextGen 9-1-1 (NG9-1-1) project is a statewide effort to modernize the existing 9-1-1 system in Arizona. The project aims to improve the efficiency, effectiveness, and reliability of 9-1-1 services while enabling new capabilities such as geospatial routing, improved redundancy and leveraging an Emergency Service IP Network (ESiNET).

Situation

The NG9-1-1 project involves upgrading and integrating various 9-1-1 technologies, including 9-1-1 call handling systems, dispatch systems, mapping systems, and database systems. It also involves implementing new protocols and standards to ensure interoperability and compatibility with other systems and networks.

Problems

The legacy system was not designed as a 9-1-1 call routing diverse and redundant system capable of managing effective call location and call routing. Several 9-1-1 outages occurred through the state and especially in the more remote areas where telecommunications infrastructure was limited and extremely costly. The past 9-1-1 service providers did not make provisions to have the ability to re-route a 9-1-1 call to the correct Public Safety Answering Point (PSAP) and relied on re-routing a 9-11- call to a different PSAP. This caused multiple challenges as many PSAPs operated different internal systems that are not compatible across the state. Additionally, the past system caused significant call processing delays as a result of non-diverse call routes.

Solution

The State of Arizona has launched NG9-1-1 for implementation across all counties. The project is being led by the Arizona Department of Administration (ADOA) 9-1-1 Program in partnership with Comtech Telecommunications, AT&T, and Motorola.

IDEA

The NG9-1-1 implementation provides 9-1-1 emergency call location accuracy improvements as a result of Graphic Information Systems (GIS) location database technology, 9-1-1 emergency call routing accuracy and process time reduction, operating system diversity and redundancy, PSAP 9-1-1 emergency process tool improvements, and the ability for PSAP collaboration across the state. Additionally, utilizing a state contract for this deployment provided a significant cost reduction in statewide PSAP operations cost.

IMPLEMENTATION

This achievement represents an implementation of next generation core services (NGCS) which replaced legacy 9-1-1 systems. The State 9-1-1 Program performed a statewide GIS assessment to bring all key elements associated with the states land base GIS system to current standards in support of NG9-1-1 call location needs as ingested and required by NGCS. NGCS data centers were put in place with alternate system back-up diversity and redundancy to accept all NG9-1-1 calls, and route to the correct public answering point PSAP through a host service provider.

This system includes three layers of redundancy from the host provider to each PSAP. Also implemented were multiple paths carrier diversity from the host data centers to the NGCS services data centers to complete a network capable of providing 99.999% operational uptime.

All 56 PSAPs within the planned migration received new call handling equipment (CHE) with several upgrade options to support technologies associated with PSAP NG9-1-1 operations. The options provided to the PSAPs through this NG9-1-1 deployment include Citizens Input and Smart Transcription. Citizens Input allows the public to access a link provided by the PSAP to capture streaming video to the PSAP that may assist the PSAP in several ways to better manage a 9-1-1 emergency event while providing safety to first scene responders. Smart Transcription is a PSAP tool used at the PSAP that transcribes the 9-1-1 call two-way voice conversation that will focus on key words for quicker processing, improved clarity and documentation, and used as an effective training tool for the PSAP call takers and dispatchers.

IMPACT

The State 9-1-1 Program within ASET successfully implemented NextGen 9-1-1 (NG9-1-1) to all Arizona counties outside of Maricopa County by December 2023.

All individuals within Arizona outside of the Maricopa County region continue to benefit from the State 9-1-1 Program NG9-1-1 implementation. Each and every 9-1-1 call now has resiliency through multiple paths and carriers with diversity and redundancy.

Individuals requiring 9-1-1 emergency services benefit from an improved 9-1-1 event location accuracy and an overall quicker response from the time a 9-1-1 call is placed to first responder dispatch. This implementation also provides the opportunity for PSAPs to gain process efficiencies and first responder assistance during 9-1-1 call events through the new call handling equipment and emergency event tools available through NG9-1-1 technology.

REFERENCES

<https://az911.gov/overview-ng9-1-1-project>

<https://az911.gov/status-next-generation-9-1-1-arizona>