Next Generation 911 (NG911)

ES 1

Photo: Courtesy of Neil Hetherington, WTI

Description: Next Generation 911 (NG911) is an initiative to improve 911 communications using advancements in technology and wireless communications services. NG911 is an internet protocol (IP) based system that will allow the public to transmit voice, photos, videos, and text messages to 911. NG911 will include improvements to computer hardware and software, and facilitate coordination among emergency response agencies. Through GIS mapping (see #TM3), a dispatcher will be able to quickly determine a caller's location and the closest response services, allowing for quick response times.

NG911 will allow for information sharing among 911 call centers, first responders, local hospitals, and other emergency response agencies. NG911 will also allow for calls to be rerouted and data to be shared from one call center to another. This is extremely important during natural disasters or other events when call centers may be overloaded. NG911 will not only allow increased communications among 911 centers, but will also allow 911 centers to directly receive data from automatic collision notification systems (see #ES4).

Emergency call centers have slowly rolled out NG911 technology over time. There is no set of rules for deploying this type of system, so each state will be able to implement this technology to fit its needs and funding resources. To view states that have begun to implement NG911, click here.

Rural Transportation Critical Needs	Issues Addressed	Strategies Achieved
☐ Crash Countermeasures	☑ Emergency service notification time	☑ Road User
☑ Emergency Services	☑ Emergency service response time	☐ Road
☐ Operations & Maintenance	☑ Communications between multi-jurisdictional/multi-agency emergency service personnel	☐ Vehicle
☐ Rural Transit & Mobility		☐ Safety Culture
☐ Surface Transportation & Weather		☐ Engineering
☐ Tourism & Travel Information		☑ Emergency Response
☐ Traffic Management		☑ Enforcement
		☑ Education

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Applicability

- NG911 will allow emergency call centers to better serve the public. This will create a safer environment for everyone and will allow for quick response times. Furthermore, NG911 will allow call centers to reroute calls to other centers in case they are overwhelmed with calls. This could benefit rural emergency call centers, which may have fewer operators on staff. The option to text to 911 will be a great benefit in rural areas where cellular service may be poor and call quality may be low. In these situations, callers may be able to send a text but not make a phone call. This system will also be a great benefit to callers who are hearing impaired.

Partnerships

- Applications benefit from collaboration among numerous agencies, which may include:
  - Departments of Transportation (Local, State, Federal)
  - Law Enforcement
  - Emergency Services
  - Local Hospitals
  - HAZMAT Carriers
  - Automatic Collision Notification Services (OnStar, Verizon, etc.)

Key Components

- Training for 911 operators
- Public outreach and education for new services
- Internet protocol (IP) network
- 911 call database

Examples of Implementation

- **Rural Illinois NG911**

15 counties in rural Illinois worked together to implement NG911 standards for their communities. NG911 allows these counties to back each other up when a major accident occurs and a dispatcher becomes overwhelmed with calls.

- **Hardin County, Tennessee NG911**

Hardin County in rural Tennessee implemented an IP-based network to give dispatchers access to a caller's location and information. This system allows dispatchers to better prepare first responders, quickly input data into an incident database, and expedite response times.

- **Indiana Text-to-911**

Indiana implemented text-to-911 to allow the public to reach 911 in new ways. Since going live in 2014, Indiana has received more than 1,400 texts overall, and currently receives on average 100 to 300 texts each month. This system also allows 911 operators to text back rather than call back in situations where it may be dangerous or where cell service is poor.

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Implementation Considerations (General)

- Allows for 911 to connect with the Millennial and younger generations, which tend to prefer text messages as compared with phone calls.

Implementation Considerations (Pro)

- Enables 911 to keep up with communications technology.
- Improves interoperability with emergency responders.
- Increases available methods to access 911 (text, voices, etc.).
- Facilitates access to 911 for hearing impaired.

Implementation Considerations (Con)

- System is currently costly.
- Requires coordination among numerous agencies.

Opportunities for Future Expansion

- Implementation of NG911 will allow for automatic crash notification systems to transmit crash data and location information directly to a 911 emergency call center. Currently these systems notify an internal call center and the call center contacts 911.

Additional Resources

- *USDOT Next-Generation 911*, found here: http://www.its.dot.gov/research_archives/ng911/index.htm
- *Next Generation 911 Procurement Guidance*, found here: https://cdn2.hubspot.net/hubfs/2959590/Seculore_Solutions_April2017_Theme/Pdf/17b103_01ce7174673940259cf7288c948e14f3.pdf?t=1494950847617
- National Emergency Number Association, *NG 9-1-1 Project*, found here: http://www.nena.org/?NG911_Project
- *Next Generation 911: The Essential Guide to Getting Started*, found here: https://www.oregon.gov/oem/Documents/NextGen%209-1-1%20The%20Essential%20Guide%20to%20Getting%20Started.pdf
- *NG 9-1-1 What's Next Report*, found here: https://www.nationalruralitsconference.org/wp-content/uploads/2018/04/Lunch_Gainor.pdf

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Useful Tip

Close communities can consolidate dispatch centers, which allows for the costs of dispatch services and technology upgrades to be spread out across numerous communities.

Cost Range

(Cost/financial information, where noted, is based on 2016 dollars (unless otherwise specified). Cost/financial information is estimated, and will vary based on size and scope of project, number of units, etc. In general, capital costs include initial purchase costs of hardware, software, and other required equipment. Maintenance and operations costs include staff time to operate, monitor and maintain systems; data collection; system upgrades; evaluation; etc.)

Capital Costs: The total capital cost for this tool is higher (above $250,000). The estimated cost for a small public safety answering point (5 or less operators) was $308 Million (in 2011 dollars). The estimated cost for a larger PSAP (50 or more operators) was $776 Million (in 2011 dollars)[1].

Operations Costs: The operations and maintenance costs for this tool are expected to be higher (above $250,000). An agency must consider the costs to train employees for the upgraded system, monthly costs for internet bandwidth, and the costs to maintain network equipment like routers, etc.