Public Safety GIS and Addressing Needs for Next Generation 911

E-911 Bureau
New Mexico Department of Finance & Administration, LGD

The New Mexico 911 Program

The New Mexico 911 (NM911) Program works to provide a best-in-class 911 system that facilitates efficient and reliable public safety response to best serve the communities of New Mexico.

- The NM911 Program was created by the Enhanced 911 Act to ensure Enhanced 911 (E-911) Systems were used statewide.
- NM911 is currently managing a statewide transition from E-911 to NextGen 911 (NG911) Systems.

Next Generation 911

NextGen 911 is a digital, internet-based system that will replace the existing analog E-911 infrastructure to deliver a faster, more resilient system that accommodates modern forms of communication (e.g., voice, photos, videos, and text messages) and improves location and call routing accuracy.

- Most states are currently replacing, or have already replaced, E-911 Systems with NG911 Systems.
- Geographic Information Systems (GIS) and address datasets are the foundation on which NG911 Systems are built.

New Mexico GIS & Addressing Issues

Most Geographic Information Systems (GIS) and address datasets in New Mexico contain errors that hinder emergency response and fail to meet NextGen 911 data quality standards.

- GIS and addressing errors often result from a lack of capacity at the local level to implement proper addressing practices and maintain accurate GIS datasets.
- Rural areas are disproportionately affected by these issues.

911 GIS and Addressing Error Types and Frequency

NM911 identifies GIS and addressing errors in local datasets and reports these errors to local GIS and addressing personnel for resolution. Many errors remain undetected, however, and identifying and resolving such errors is critical to public safety. The NM911 Program is prepared to detect and resolve these errors but needs increased capacity and cooperation from third parties to achieve this goal.

Recent fires demonstrated both the prevalence and consequence of GIS and addressing errors in New Mexico:

- Many homes incurred preventable damage because fire mitigation efforts could not verify their addresses.
- Over 10% of insurance claims in Mora County were denied because insurance companies could not verify their addresses (NM911 only detects errors in 5% of Mora County addresses).

911 GIS and Addressing Error Types	Error Detection	
	In Effect	Needed
Road ranges overlap	x	
Address number does not fit in road range	x	
Address name does not match road name	x	
Address numbers out of order	x	
Incorrect address parity (i.e., even vs odd)	x	
GIS geometry errors	x	
GIS data does not match 911 data	x	
Address missing from 911 dataset		x
Multiple addresses being used for location		x
Address lacks a physical identifier		x

Measurement Type	Urban*	Rural*
Approximate number of New Mexico addresses:	630,000	380,000
Approx. percentage of 911 GIS address names that do not match road names:	0.4%	3.2%
Approx. percentage of 911 GIS address numbers that do not fit within road ranges:	0.9%	4.7%
Estimated number of addresses needing repair –based on existing error counts:	6,000	18,000
Estimated number of addresses needing repair –based on existing error counts *and* additional projected error counts (determined by applying the error rate difference seen in Mora County to all other error rates):	12,000	36,000

*Urban and rural designations are based on the rural definition in the New Mexico Rural Health Plan.

Resolving GIS & Addressing Issues

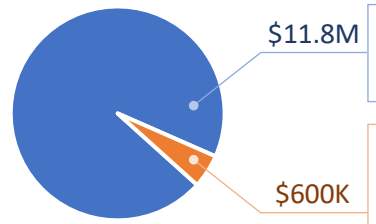
Local governments and other state agencies are looking to the NM911 Program to resolve New Mexico's GIS and addressing issues, and the NM911 Program is working to resolve these issues but needs additional support to achieve such a goal. NM911 has identified the following steps for improving New Mexico's GIS and addressing issues and is prepared to carry out these tasks with additional support:

1. Establish statewide addressing guidelines.
2. Assist local governments in developing addressing ordinances.
3. Provide technical assistance and training to local addressors and GIS personnel.
4. Facilitate partnerships between local governments, regional COGs, and third-party vendors, and provide necessary funding, to increase GIS and addressing capabilities at the local level.
5. Provide funding for physical addressing equipment, GPS devices, computer hardware, GIS software, and other GIS and addressing-related resources.

Cost Estimates

The costs associated with a statewide addressing effort depend largely on the addressing capabilities and practices of local governments, as well as the quantity of addresses needing repair. Addressing needs vary greatly among local governments, however, and existing error counts underreport the total number of errors, so NM911 developed a range of cost estimates to account for these uncertainties.

Task	Timeline	Needed By	Cost Estimate
Develop statewide addressing guidelines.	3-6 months	100+ local govts.	$25K-$50K
Assist local governments in developing addressing ordinances.	2-4 weeks per project	15-30 local govts.	$20K -$80K
Provide technical assistance and training.	Continuous	100+ local govts.	$50K-$125K (annually)
Fund regional COG and third-party support.	Continuous	25-50 local govts.	$500K-$1M (annually)
Fund physical addressing equipment.	1-3 years	5-15 local govts.	$500K-$2M
Fund GPS devices, computer hardware, GIS software, and other resources.	Continuous	50-100 local govts.	$200K-$350K (annually)



Annual NM911 Budget

Most of the NM911 budget is currently being used to fund capital projects and recurring service, maintenance, and network fees.

A small portion of the NM911 budget is used to support GIS and addressing needs, with most of this funding going towards data collection, QA/QC, and 911 map system updates.