Chapter 3
NG911

Next Generation 911 (NG911)

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Key Challenges and Priorities for Achieving a Fully Realized NG911 System

End-state Next Generation 911 (NG911) hinges on accelerating originating service provider (OSP) migration to Session Initiation Protocol (SIP)-based call delivery, strengthening statewide governance, establishing sustainable long-term funding, and advancing high-quality geographic information system (GIS) programs. Many states still face gaps in technology, cybersecurity, data stewardship, and operational preparedness. While NG911 systems enable the use of multimedia—such as text, videos, images, and precise location data—to provide richer information for emergency responses, they are also becoming more complex and costly. Smaller emergency communications centers (ECCs) or public safety answering points (PSAPs) increasingly must consider consolidation or regionalization to maintain required performance levels.

Why NG911 Governance and Funding are Critical for Success

Throughout the United States, the transition to National Emergency Number Association (NENA) i3-compliant systems requires robust governance structures, stable funding, and accurate GIS data. States with strong, formalized governance frameworks consistently achieve faster NG911 implementation, better vendor oversight, improved funding alignment, and consistent service levels. States lacking unified authorities — i.e., those relying on advisory groups or decentralized leadership — continue to trail in adoption.

Sustainable funding remains a central barrier. Early NG911 deployments often relied on temporary federal stimulus funds without establishing long-term financial mechanisms, creating a looming fiscal cliff as these dollars expire. Modernization of surcharge statutes, expansion of allowable use cases, and removal of legacy restrictions are essential for sustaining NG911.

GIS is the backbone of i3 call-routing but remains underdeveloped in many states. Inaccurate or incomplete GIS datasets undermine routing accuracy — especially in rural jurisdictions that lack technical staff and resources.

Finally, the growing technical and operational complexity of NG911 makes it difficult for small ECCs to operate independently. As a result, many states increasingly view consolidation/regionalization as necessary for resilience, interoperability, and financial viability.

Opportunities to Accelerate NG911 Implementation

FCC Ruling on OSP Migration to SIP-Based Call Delivery – For years, NG911 progress was slowed by originating service provider (OSP) delays in migrating to Session Initiation Protocol (SIP)-based call delivery. The FCC's 2024 demarcation order establishes enforceable requirements and timelines for OSPs once a state 911 authority issues a formal migration request.

- This ruling gives states a mechanism to compel OSP compliance, removing a longstanding barrier to achieving full i3 interoperability.
- Historically, OSPs cited cost, complexity, and competing priorities as reasons for postponement; the new ruling shifts responsibility and accelerates nationwide migration.

Strengthening Statewide Governance for NG911 Success – Governance maturity is the most reliable indicator of NG911 success. Early-adopter states share one common trait: a centralized 911 authority capable of setting policy, aligning funding, ensuring vendor accountability, and coordinating operations. States with decentralized or advisory-only governance consistently lag.

- Robust governance also is foundational for securing sustainable funding. Without a unified state authority, it is exceedingly difficult to modernize funding statutes, advocate for surcharge increases, coordinate lobbying efforts, or educate legislators.
- Governance is the prerequisite for cohesive policy and financial structures that support long-term NG911 functionality.

Modernizing NG911 Funding Models for Long-Term Sustainability – Many states launched initial NG911 components using one-time federal dollars — for example, ARPA[1] funds — without committing to ongoing operational revenues. This created the appearance of NG911 deployment without addressing its long-term sustainment. As temporary funds expire, states face substantial operational and cybersecurity costs that legacy surcharge models cannot support.

- Most surcharges were designed during the analog 911 era, when equipment was cheaper, networks less complex, and cybersecurity requirements minimal. Today's digital environment demands updated fee structures.

1 American Rescue Plan Act.

- States must reassess surcharge levels, expand eligible expenditure categories (e.g., GIS, cybersecurity, cloud services), and remove statutory caps. This is the most direct path toward achieving durable, equitable NG911 systems.

Advancing GIS Programs to Enhance i3 Call Routing – GIS maturity lags other NG911 components across the country, despite its foundational role in i3 routing. Because i3 routing replaces[2] MSAG/ESN entirely with geospatial routing, the accuracy of call delivery depends on the precision of GIS datasets. Inadequate GIS compromises speed, accuracy, and reliability.

- Local jurisdictions — particularly small or rural ones — often lack experienced GIS staff, adequate funding, and knowledge of NG911-specific requirements such as synchronization with NGCS providers, addressing authority standards, and data maintenance cycles.
- Strengthening statewide GIS governance, data-sharing frameworks, and technical support programs offers one of the greatest opportunities to improve NG911 readiness.

Understanding the Key Challenges in NG911 Adoption

How Communication Technology and Information Gaps Impede NG911 Implementation – Despite nationwide progress, many states remain far from full i3 adoption. Approximately one-third of states lack statewide Emergency Services IP Network (ESInet) or fragmented NGCS[3] deployments, continue to rely on legacy selective routers, and operate with limited redundancy and resiliency.

- Some call-handling equipment vendors advertise i3 capabilities but lack full interoperability, contributing to inconsistent performance and increased integration complexity.
- These disparities impede the ability to realize NG911 benefits such as faster, more accurate emergency call routing and improved situational awareness.

Why Cybersecurity Weaknesses Pose a Major Threat to NG911 – Cybersecurity remains one of the most significant threats to NG911 readiness. Even as awareness grows, vulnerabilities persist due to fragmented IT environments, insufficient funding, and overreliance on vendors. The shift to fully IP-based systems means cybersecurity weaknesses can quickly become operational failures.

- Local agencies are especially vulnerable. Most do not conduct regular penetration tests, independent vulnerability assessments, continuous monitoring via a security operations center (SOC), or routine cybersecurity incident exercises.
- In an interconnected NG911 ecosystem, a breach in one ECC can create cascading failures across regions.

The Importance of Training, Policies, and Operational Readiness for NG911 – NG911 is not just a technical upgrade; it represents a fundamental shift in workflow and operations. States with mature NG911 deployments have adapted training, procedures, and operations accordingly. Laggard states show uneven readiness, inconsistent training programs, and limited understanding of new workflows such as multimedia handling, real-time text, and data-driven interoperability.

2 Master Street Address Guide/Emergency Service Number.
3 Next-generation core services.

- Continuity-of-operations (COOP) and disaster-recovery (DR) planning remain weak nationwide.
- Many jurisdictions lack formal plans, rely on outdated documents, or have not adapted to the IP-based NG911 environment.
- NG911's interconnected nature increases the risk of cascading operational disruptions when COOP/DR plans fail.

Addressing the Growing Need for Sustainable NG911 Funding – As NG911 technology becomes more advanced and expensive and 911 revenue declines, many ECCs cannot realistically maintain the required levels of cybersecurity, GIS data accuracy, staffing, redundancy, and technical capability on their own.

- NG911 infrastructure, managed services, cybersecurity, and cloud solutions cost significantly more than legacy systems.
- 911 authorities will need to explore alternative funding mechanisms, such as including it in sales or property taxes.
- Small dispatch centers lack the resources to meet NG911 performance expectations —capabilities that consolidation/regionalization can provide more efficiently, especially in rural areas.

Emerging Trends in NG911 to Watch

Enforcing OSP Migration to Unlock i3 Capabilities – The FCC's ruling gives states the authority to require OSPs to migrate to SIP-based call delivery with device-based location. This is expected to accelerate nationwide NG911 deployment and unlock full i3 capabilities.

Prioritizing Statewide 911 Governance for Implementation – Statewide 911 authorities remain the strongest predictor of NG911 success. Centralized control enables cohesive governance across policy, funding, cybersecurity, GIS, and operations.

Addressing NG911's Growing Need for Sustainable Funding – With stimulus funding ending, states must adopt modern surcharge models to sustain NG911's higher operational costs. Without action, many "NG911-deployed" states will face significant financial challenges.

Focusing on GIS Maturity to Improve Routing Accuracy – High-quality GIS data is essential for i3 call-routing accuracy. Strengthening statewide programs will be a national priority as states face increasing scrutiny regarding GIS readiness.