# NG9-1-1 GAP ANALYSES AND NEXT STEPS

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# Executive Summary

There is little question that Next Generation 9-1-1 (NG9-1-1) will forever change how emergency services are provided in the United States. The capabilities of NG9-1-1 technology will provide the nation's public safety answering points (PSAPs) and first responders with vitally important information that was inconceivable in an environment dominated by legacy technology. The result will be a dramatic improvement in both lives and property saved, as well as the safety of our nation's first responders.

However, many challenges will need to be resolved—in the areas of Governance, Funding, Technology, Operations and Education—before NG9-1-1 not only comes to fruition, but more importantly becomes ubiquitous across the U.S. In order to promote more effective and timely NG9-1-1 deployment, the ***NG9-1-1 NOW Coalition*** has analyzed each of the challenges (or "gaps") to timely deployment, has identified potential strategies to address them, and seeks input from the public safety community, industry, and other affected stakeholders on where to place the highest priorities.

The Coalition utilized working groups comprised of experts from the public safety community and industry to identify those gaps most critical to timely and effective NG9-1-1 deployment and to identify potential strategies for eliminating or resolving those gaps. A summary of the working groups' key recommendations follows:

**Governance**

- Develop legislation to support increased national and state-level NG9-1-1 leadership and support including a model regulatory framework to facilitate coordination between the local 9-1-1 authorities, state executive and legislative leadership and state regulators. This legislative effort would be closely tied to strategies focused on obtaining additional NG9-1-1 funding resources.

**Funding**

- Complete a high-level cost estimate for deploying NG9-1-1 across the country, and secure additional funding for NG9-1-1 through federal legislation.

**Technology and Operations**

- Develop a comprehensive national NG9-1-1 implementation plan that addresses both state and regional deployment models, assists in defining the roles and responsibilities of all stakeholders concerning all NG9-1-1 transitional and functional elements, and identifies an organization to lead the development of operational best practices for ESInet deployments.

**Education**

- Educate the public safety community, the general public and policy makers on what NG9-1-1 can offer to improve public safety and national security, focusing on the benefits of NG9-1-1, the consequences of delayed NG9-1-1 deployment, and the importance of sufficient and sustainable funding.

## Key Priorities for Action

The analyses and recommendations of the working groups have provided the Coalition with important insight on those gaps that are most critical to timely NG9-1-1 deployment and clarity on how to most effectively address those gaps. Based on those recommendations, the Coalition has tentatively concluded that its efforts should focus on the following key priorities:

- Develop and implement a legislative strategy that will accelerate the deployment of NG9-1-1 systems nationwide by promoting more effective governance structures and policies and increasing the funds available for NG9-1-1.
- Support and expand current initiatives that are already underway, including the FCC's Task Force on Optimal PSAP Architecture (TFOPA), the National 9-1-1 Office's NG9-1-1 Cost Study, and continued development of i3 and associated NG9-1-1 standards.
- Develop and implement a comprehensive education campaign to promote a broader understanding of NG9-1-1, its capabilities and benefits, as well as the limitations of current 9-1-1 services and the significant consequences of delayed deployment.
- Expand support and outreach through the development of a Partners Program that would seek to align the Coalition's initiatives with those of other organizations that have resources and expertise to assist in accelerating NG9-1-1 implementation.

The Coalition seeks input from the public safety community, industry, and other affected stakeholders on these tentative recommendations, and will continue to assess areas where it can provide the greatest benefit as the work to advance NG9-1-1 implementation continues.

The Coalition's Web site can be found at http://www.ng911now.org/ or E-mail to info@NG911NOW.org.

# Coalition Goals

The National Emergency Number Association (NENA), the National Association of State 9-1-1 Administrators (NASNA), and the Industry Council for Emergency Response Technologies (iCERT) have joined together to create a coalition focused on rapidly accelerating the deployment of Next Generation 9-1-1 (NG9-1-1). Working in conjunction with the NG9-1-1 Institute and experts in government and academia, the **NG9-1-1 NOW Coalition** is working to address various challenges that have stalled rapid NG9-1-1 implementation. These national public safety and industry leaders have committed to work together to achieve the following national goal:

> ***NG9-1-1 Now Coalition Goal:*** *By the end of the year 2020 all 9-1-1 systems and centers in all 56 states and territories will have sufficiently funded, standards-based, end-to-end, IP-based 9-1-1 capabilities, and will have retired legacy 9-1-1 systems, without any degradation in service to the public*.

The Coalition believes that an accelerated implementation of NG9-1-1 will provide improved emergency services for the public, 9-1-1 professionals and first responders alike. The benefits of NG9-1-1 include increased compatibility with emerging communications trends, enhanced reliability and resiliency of the nation's 9-1-1 systems, improved emergency response for the public, and the opportunity for greater cost efficiencies. Conversely, a delay in NG9-1-1 implementation would create technological obsolescence and increased security risks, and result in missed opportunities for improved emergency response.

# NG9-1-1 Gap Analyses and Potential Resolution Strategies

Next Generation 9-1-1 (NG9-1-1) will forever change how emergency services are provided in the United States. The capabilities of NG9-1-1 technology will provide the nation's public safety answering points (PSAPs) and first responders with vitally important information that was inconceivable in an environment dominated by legacy technology.

Video will be streamed from an emergency incident to dramatically improve situational awareness; accident victim vital signs and wound images will be transported to trauma centers while the ambulance is en-route; enormously large files, such as building floor plans and blueprints, can be transmitted nearly instantaneously, greatly aiding incident commanders; and many more applications that haven't been conceived of yet, will be possible in a NG9-1-1 world. The result will be a dramatic improvement in both lives and property saved, as well as the safety of our nation's first responders.

The problem, however, is that NG9-1-1 implementation is moving too slowly across the country, plagued by funding, governance, and other challenges, as well as a lack of knowledge and understanding on the part of many elected officials and other stakeholders concerning the many benefits of NG9-1-1.

The NG9-1-1 NOW Coalition was created to do something about these challenges. This document is the first step in defining an action plan and a path forward that the Coalition and its supporters will undertake to achieve its goal by 2020.

The Coalition partners share the realization that the promise of NG9-1-1 is hampered by challenges and gaps in the areas of governance, funding, technology, operations, and education. These gaps must be addressed in order to promote more effective and timely NG9-1-1 deployment, and the Coalition undertook a rigorous process to identify those gaps that most impede progress. Taking into account the important and necessary foundational work that has already been done, the Coalition identified tentative strategies that would address the identified gaps in the most effective way. It established a working group for each of the five focus areas (Governance, Funding, Technology, Operations, and Education) and tasked each group with identifying and evaluating those gaps that are most critical to more rapid implementation of NG9-1-1.

Upon completion of gap analyses, the work groups were further charged with recommending potential strategies for eliminating or resolving those gaps, while taking into account related initiatives already underway. This Action Plan will define the potential activities and associated milestones to ensure the benefits of NG9-1-1 are realized NOW!

This report discusses the identified gaps, desired outcomes to be achieved once those gap are resolved, and potential strategies for achieving those outcomes. The Coalition believes that this work provides a solid foundation on which to base a NG9-1-1 NOW Coalition Action Plan in the near future, and seeks input from the public safety community, industry, and other affected stakeholders on the recommendations described herein.

# Gaps, Desired Outcomes, and Strategies

## Governance

National and State-level Governance structures, policies, and regulations are critical to facilitate NG9-1-1 planning, deployment, and operations. These governance structures must be thoughtfully developed and implemented in a manner that promotes coordination, interoperability, and efficiency.

The Governance Working Group identified various gaps to achieving an effective governance framework and established desired outcomes for addressing those gaps.

### Governance Gaps

1. **National NG9-1-1 Framework.** There is a need for a national NG9-1-1 framework that would promote broader support for nationwide implementation in a manner that ensures interstate interoperability and promotes efficient use of resources.

   *Desired Outcomes:*

   - Establishment of NG9-1-1 as a national policy goal with support from Congress, the Administration, and the FCC;
   - Establishment of national policies that promote state-level coordination, e.g., through grant requirements and conditions on funds designated for assets used by multiple states ; and
   - Establishment of an NG9-1-1 deployment "roadmap" that is broadly supported by all affected stakeholders.

1. **Statewide Coordination.** There is a lack of integrated statewide coordination to facilitate NG9-1-1 planning and implementation in some states, which could hinder cost effective deployment and interoperability.

   *Desired Outcomes:*

   - Establishment of NG9-1-1 as statewide policy goal with state executive level support;
   - Establishment of state policies that promote statewide coordination;
   - Development of model state architectural and deployment plans; and
   - Development of regulatory plans to promote NG9-1-1 deployment and facilitate coordination between the 9-1-1 community, state executive and legislative leadership, and state regulators.

3. **Legislative and Regulatory Framework.** The legislative and regulatory framework for 9-1-1 in many states is inconsistent with the technologies and services of the current telecommunications marketplace, and will continue to stifle the deployment of NG9-1-1 systems and services. A consistent and modern legislative and regulatory framework is needed across all states.

   *Desired Outcomes:*

   - Establishment of 9-1-1 statutes and regulations that allow cloud-based, multi-vendor, other non-carrier-based NG9-1-1 architectures, and new inter-local arrangements; and
   - Expansion of 9-1-1 liability protections to non-carrier service providers (e.g., cloud-hosted system providers and consumer app developers) that voluntarily undertake to provide 9-1-1 service.

## Potential Strategies to Address Governance Gaps

The Coalition recognizes the critical importance of effective governance structures, policies, and regulations, and tentatively concludes that its efforts should focus initially on the following governance-related priorities:

- Develop and implement a legislative strategy to support increased national and state-level NG9-1-1 leadership and deployment, and to provide clarity and strengthened liability protections for NG9-1-1 service providers and originating providers delivering calls and data;
- Develop a model regulatory framework to facilitate coordination between the 9-1-1 community, state executive and legislative leadership, and state regulators;
- Advocate for a federal grant program and publish grant application best practices to support state and regional applications, and policy guidance for utilization of assets used by multiple states; and
- Create national framework documents (targeted at different levels and branches of government) that will identify specific goals and objectives to support the proposed outcomes, as well as describe the roles and responsibilities of national actors (including legacy and transitional service providers) in supporting this framework.

## Current Initiatives:

- The National 9-1-1 Program Office is facilitating the development of an "NG9-1-1 Interstate Playbook" which will define the interoperable components of NG91-1 solutions and the challenges facing the interconnection of two or more state ESInets. The Interstate Playbook describes the steps that are necessary to interconnect two or more state ESInets, provides model governance agreements that should be considered, the collaboration and testing that is required and the key considerations for state authorities to ensure appropriate integration of their systems.

## Resources and References:


- *Model State 911 Plan*. February 2013. U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA). http://www.nhtsa.gov/staticfiles/nti/pdf/811369.pdf.
- *Guidelines for State NG9-1-1 Legislative Language.* November 2012. U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA). http://www.911.gov/pdf/ModelNG911legis-110812.pdf.
- *A Policy Maker Blueprint for Transition to the Next Generation 9-1-1 System.* September 2008. National Emergency Number Association (NENA) Next Generation Partner Program. https://www.nena.org/resource/resmgr/ng9-1-1_project/ng9-1-1policymakerblueprintt.pdf.
- *Next Generation 9-1-1 Transition Policy Implementation Handbook.* June 2011. National Emergency Number Association (NENA) Next Generation Partner Program. https://www.nena.org/resource/resmgr/ngpp/ng911_transition_policy_hand.pdf.
- *Working Group 4B – Transition to NG.* March 2011. Federal Communications Commission (FCC) Communications Security, Reliability and Interoperability Council (CSRIC). https://www.fcc.gov/pshs/docs/csric/CSRIC-WG4B-Final-Report.pdf.
- *Adopted Final Report.* January 26, 2016. Federal Communications Commission (FCC) Task Force on Optimal Public Safety Answering Point Architecture (TFOPA). https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_FINALReport_012916.pdf.
- *Resources for Regionalization of 911.* National Association of State 911 Administrators (NASNA). http://www.nasna911.org/911-regionalization.

## Funding

Today, 9-1-1 funding relies on a combination of fees and surcharges on telecommunications services and direct funding from state and/or local tax revenues. In many states and municipalities, these current funding mechanisms are insufficient or unsustainable for NG9-1-1 deployments, and in some cases remitted funds are not being used for their intended 9-1-1 purposes. In addition, comprehensive assessments of NG9-1-1 costs are incomplete, and the inconsistent application of standards and the variability of alternative architecture options and implementation methods make it challenging to develop a definitive cost estimate. In order to ensure the long term viability of NG9-1-1 systems and services, states and municipalities must know how much it will cost to implement and operate NG9-1-1 systems, and sufficient funds must be made available to them for the long term.

The Funding Working Group identified various gaps to achieving a sufficient and sustainable NG9-1-1 funding plan, and recommends that the highest level of priority be given to the following priority gaps:

### Funding Gaps

1. **NG9-1-1 Costs**. There is a need for more detailed analyses of NG9-1-1 costs to ensure that NG9-1-1 funds are sufficient, available, and sustainable over the long term and to promote more cost effective NG9-1-1 deployment. In support of those analyses, there is a need for clearer guidance on NG9-1-1 system definitions, components and architecture, especially as they impact 9-1-1 cost recovery.

   *Desired Outcomes:*

   - Development of educational materials that promote improved understanding of the i3 architecture and associated standards, and their applicability to cost recovery.
   - Development of cost models that will aid states/municipalities in estimating the costs of NG9-1-1 deployment, the costs of transitioning from legacy 9-1-1 to NG9-1-1, and any costs associated with delaying the deployment of NG9-1-1.

2. **National Funding Framework.** There is a lack of a national 9-1-1 funding framework guidance and inconsistent application of state funding policies (e.g., VoIP) among all service types, which has created a disparity in the way emergency services are funded and how costs are recovered.

   *Desired Outcome:*

   - Development of a national 9-1-1 funding framework that will aid states and municipalities in identifying consistent, equitable, and sustainable funding mechanisms.

3. **Cost Efficiencies**. There is a lack of effective and uniform policies to promote increased cost efficiencies including guidelines to promote greater sharing of resources.

   *Desired Outcome:*

   - Development of effective policies and best practices that will guide states in evaluating when, and to what degree, sharing of resources among PSAPs may be beneficial.

4. **Federal Funding**. There is a lack of national support and federal funding to promote accelerated NG9-1-1 deployment across the country.

   *Desired Outcome:*

   - Legislation enacted that will provide additional federal funds for NG9-1-1 systems and services, as well as other incentives to advance NG9-1-1 implementation nationwide.

5. **State Funding.** As traditional mechanisms for funding 9-1-1 (e.g., wireline surcharges) are becoming outdated and increasingly unreliable, there is a need to improve those mechanisms and to develop new funding sources.

   *Desired Outcome:*

   - Identification of new state-based 9-1-1 funding mechanisms and plans to implement such mechanisms in the future, while improving existing funding methods.

## Potential Strategies to Address Funding Gaps

The Coalition believes that its resources can best be used to support and enhance existing 9-1-1 funding initiatives (described below), while taking the lead on important initiatives not being addressed. Consequently, the Coalition tentatively concludes that its resources should focus initially on the following funding-related priorities:

- Develop and implement a legislative strategy to secure significant funding for deployment of NG9-1-1 systems while preventing the diversion of funds at the state and local level for non-9-1-1 purposes, and that provides funding and federal responsibility over certain national-level 9-1-1 assets;
- Complete a high-level NG9-1-1 cost estimate that is aligned with the work of TFOPA and the National 9-1-1 Office, but that provides cost estimates in the near term to help guide the needs of federal legislation; and
- Support the FCC's Task Force on Optimal PSAP Architecture (TFOPA) efforts to identify new funding sources, and consider the need for further work in this area, pending the release of the TFOPA Phase 2 report.

## Current Initiatives:

- The National 9-1-1 Office has initiated a comprehensive cost study to assess the expected costs of NG9-1-1 deployment and operations, though completion of the study is not expected before third quarter 2017. www.911.gov

- TFOPA has completed an initial review of current 9-1-1 funding mechanisms and is working to develop a funding model that may form the basis for a national 9-1-1 funding framework. TFOPA is also expected to provide valuable assistance to the review of NG9-1-1 costs by outlining the critical cost components of an NG9-1-1 system. https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_FINALReport_012916.pdf.

## Resources and References:


- *A Policy Maker Blueprint for Transition to the Next Generation 9-1-1 System.* September 2008. National Emergency Number Association (NENA) Next Generation Partner Program. https://www.nena.org/resource/resmgr/ng9-1-1_project/ng9-1-1policymakerblueprintt.pdf.

- *Next Generation 9-1-1 System Initiative Final Cost, Value and Risk.* March 2009. U.S. Department of Transportation, Office of the Assistant Secretary for Research and Technology (OST-R). http://ntl.bts.gov/lib/35000/35600/35650/USDOT_NG911_4-A2_FINAL_FinalCostValueRiskAnalysis_v1-0.pdf.

- *Blue Ribbon Panel on 911 Funding - Report to the National 911 Program*. December 2013. U.S. Department of Transportation, National 911 Program. http://www.911.gov/pdf/BlueRibbonPanel-911Funding-report-dec2013.pdf.

- *Four Potential Sustainable Funding Models for NG911*, September 2015. National Association of State 911 Administrators (NASNA). https://drive.google.com/file/d/0B6UENGshedL6MmI5dWFFMVlneU9PZ2hVakNoUVpCeDdOLVZj/view.

- *Seventh Annual Report to Congress on State Collection and Distribution of 911 and Enhanced 911 Fees and Charges.* December 31, 2015. Federal Communications Commission (FCC) Public Safety and Homeland Security Bureau (PSHSB). https://transition.fcc.gov/pshs/911/Net%20911/NET911_Act_7thReport_to_Congress_123115.pdf.

- *Adopted Final Report.* January 26, 2016. Federal Communications Commission (FCC) Task Force on Optimal Public Safety Answering Point Architecture (TFOPA). https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_FINALReport_012916.pdf.

## Technology

The NG9-1-1 technical standards and best practices, including those designed to minimize the risk of cyber-attacks, have not been developed or are incomplete. A National NG9-1-1 Plan has not been established in order to guide state and local agencies in the effective deployment of NG9-1-1 systems.

The Technology Working Group identified various gaps to achieving a comprehensive and sustainable NG9-1-1 Technology plan, and recommends that the highest level of priority be given to the following priority gaps:

### Technology Gaps

1. **National NG9-1-1 Deployment Plan.** There is a need for a national deployment plan for transitioning to NG9-1-1. A comprehensive list of NG9-1-1 state or regional deployment models is not available or has not been developed, hampering the development of such a plan. In addition, a National Forest Guide to facilitate NG9-1-1 interoperability nationwide needs to be developed.

   *Desired Outcome:*

   - A Comprehensive National NG9-1-1 Implementation Plan is available for planning and implementation assistance; and
   - This Comprehensive National NG9-1-1 Implementation Plan would include a National Forest Guide developed for planning and implementation assistance for states and regions.

2. **NG9-1-1 Standards.** While the i3 standard has been developed to support NG9-1-1 services, there is a lack of full adoption and acceptance in implementing that standard. Broader education is needed to promote implementation consistent with the standard and to avoid interoperability problems associated with disparate solutions for NG9-1-1 Voice and Data. Support for the continued evolution of the i3 standard is also needed.

   *Desired Outcome:*

   - Consistent, recognized process for evaluating the implementation and interoperability of existing standards, including NENA's i3 standard.

3. **GIS Data.** Increased access to and use of data for emergency response is one of the important benefits of implementing NG9-1-1, but the lack of GIS data initiatives and nationwide coordination of authoritative boundaries could limit those benefits and delay investments in NG9-1-1 technologies and systems.

*Desired Outcome:*

- Complete and publish GIS data standards for NG9-1-1, and work with organizations like the National States Geographic Information Council (NSGIC) and the Urban and Regional Information Systems Association (URISA) to advance the implementation and use of such standards.
- A best practices document for geographic boundary discrepancy resolution is completed.
- Jurisdictions will develop and have programs to maintain GIS data with jurisdiction boundaries suitable for NG9-1-1 call routing consistent with national standards.

4. **Cyber Security**. As public safety answering points are interconnected via regional Internet Protocol networks, it is important to establish standards and best practices to minimize the risk of cyber-attacks and to ensure appropriate and robust NG9-1-1 system security.

   *Desired outcome:*

   - A National Network Security Operations Center is established;
   - NG9-1-1-specific policy related to Cybersecurity for public safety networks is defined; and
   - A comprehensive list of best practices for a NG9-1-1 related Cybersecurity design, standards, implementation, and monitoring is developed and implemented.

## Potential Strategies to Address Technology Gaps

The Coalition believes that its resources can best be used to support and enhance existing NG9-1-1 technology initiatives (described below), rather than performing redundant work. Consequently, the Coalition tentatively concludes that it should focus on the following technology-related priorities:

- Develop a Comprehensive National NG 9-1-1 Implementation Plan to identify state or regional deployment models;
- Identify an entity to lead the development of a National Forest Guide;
- Establish a self-sustaining entity to manage an i3 test suite or certification body to ensure consistent implementation of NG9-1-1 standards; and
- Complete and publish GIS data standards for NG9-1-1.

## Current Initiatives:

- Federal Communications Commission (FCC), Communications Security, Reliability and Interoperability Council's (CSRIC), Working Group 4B – Transition to Next Generation 9-1-1. https://www.fcc.gov/pshs/docs/csric/CSRIC-WG4B-Final-Report.pdf

- The National 911 Program Next Generation 911 (NG911) Standards Identification and Review document. http://911.gov/pdf/NG911-Standards-Identification-Analysis_03222016.pdf
- Federal Communications Commission (FCC) Task Force on Optimal Public Safety Answering Point Architecture (TFOPA). https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_FINALReport_012916.pdf.

## Resources and References:


- *A National Plan for Migrating to IP-Enabled 9-1-1 Systems.* September 2009. U.S. Department of Transportation, The National E9-1-1 Implementation Coordination Office. http://www.911.gov/pdf/National_NG911_Migration_Plan_FINAL.pdf.
- *Adopted Final Report.* January 26, 2016. Federal Communications Commission (FCC) Task Force on Optimal Public Safety Answering Point Architecture (TFOPA). https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_FINALReport_012916.pdf.
- *Working Group 4B – Transition to Next Generation 9-1-1.* March 2011. Federal Communications Commission (FCC) Communications Security, Reliability and Interoperability Council (CSRIC). https://www.fcc.gov/pshs/docs/csric/CSRIC-WG4B-Final-Report.pdf.
- *Cyber Risks to Next Generation 911*. April 2016. U.S. Department of Homeland Security (DHS) Office of Emergency Communications (OEC) https://www.dhs.gov/sites/default/files/publications/NG911%20Cybersecurity%20Primer%2004 1816%20-%20508%20compliant.pdf.
- *Emergency Services Sector – Cyber Risk Assessment.* (2012). U.S. Department of Homeland Security (DHS) Infrastructure Protection (IP). https://www.dhs.gov/sites/default/files/publications/Emergency-Services-Sector-Cyber-Risk-Assessment-508.pdf.
- *Cybersecurity Framework.* February 12, 2014. U.S. Department of Commerce, National Institute of Standards and Technology (NIST). http://www.nist.gov/cyberframework/.
- *Next Generation 911 (NG911) Standards Identification and Review.* March 2016. U.S. Department of Transportation, National 911 Program. http://911.gov/pdf/NG911-Standards-Identification-Analysis_03222016.pdf.

## Operations

NG9-1-1 operational standards and best practices addressing state or regional deployments, state or regional interconnection, data/resource sharing, and network security and monitoring are necessary for fully functional and integrated services.

The Operations Working Group identified various gaps to achieving a sufficient and sustainable NG9-1-1 Operations plan, and recommends that the highest level of priority be given to the following priority gaps:

### Operations Gaps

1. **Interconnection Guidance**. States and regions will need to interconnect for NG9-1-1 voice and data transfer and will benefit from NG9-1-1 specific interconnection policies, procedures and best practices. There currently are no standards for state or regional interconnection processes. Ambiguity exists between carriers and local 9-1-1 authorities for both technical and financial obligations.

   *Desired Outcome:*

   - Interconnection models will be available to guide states or regions to speed implementation

2. **Cyber Security Standards and Operational Procedures**. There is a need for operational procedures for network and system security border control functions, and the ESInet functional elements.

   *Desired Outcome:*

   - Best practices will exist to assist development of the necessary cyber security frameworks

3. **Operational Models for State or Regional Jurisdictional Deployments**. There is a need for model agreements that enable 9-1-1 authorities, ESInets, and other related networks serving public safety to interconnect under reasonable terms, responsibilities, conditions and costs, which address, at a minimum: how agencies join networks, interconnection policy(s), shared responsibilities, shared costs, security policy, system change notification requirements, and service level agreements.

   *Desired Outcome:*

   - Operational models to interconnect state or regional ESInets will be developed to advance NG9-1-1 voice and data transfers between systems

## Potential Strategies to Address Operations Gaps

The Coalition believes that its resources can best be used to support and enhance existing initiatives related to NG9-1-1 operations (described below), and has tentatively concluded that it should focus on the following operations-related priorities:

- Develop a model that clearly describes the roles and responsibilities of stakeholders (Authority Having Jurisdiction [AHJs], states, carriers or OSPs and 9-1-1 service providers) for all transitional and NG 9-1-1 functional elements including the communications paths;
- Identify a lead organization to assemble the team to develop the best practices guide and the operational models for ESInet deployments; and
- Document the operational procedures (models) to be used for interconnecting two ESInets with each other (local-to-local, local-to-regional, regional-to-state, or state-to-national or any combination of the above).

## Current Initiatives:

- The National 911 Program Office is facilitating the development of an "NG911Interstate Playbook" which will define the interoperable components of NG911- solutions and the challenges facing the interconnection of two or more state ESInets.
- Federal Communications Commission (FCC), Communications Security, Reliability and Interoperability Council's (CSRIC), Working Group 4B – Transition to NG9-1-1. https://www.fcc.gov/pshs/docs/csric/CSRIC-WG4B-Final-Report.pdf
- The National 911 Program Next Generation 911 (NG911) Standards Identification and Review document. http://911.gov/pdf/NG911-Standards-Identification-Analysis_03222016.pdf
- Federal Communications Commission (FCC) TFOPA. https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_FINALReport_012916.pdf.

## Resources and References:


- *Working Group 4B – Transition to NG9-1-1.* March 2011. Federal Communications Commission (FCC) Communications Security, Reliability and Interoperability Council (CSRIC). https://www.fcc.gov/pshs/docs/csric/CSRIC-WG4B-Final-Report.pdf.
- *Next Generation 911 (NG911) Standards Identification and Review.* March 2016. U.S. Department of Transportation, National 911 Program. http://911.gov/pdf/NG911-Standards-Identification-Analysis_03222016.pdf.
- *Cybersecurity Framework.* February 12, 2014. U.S. Department of Commerce, National Institute of Standards and Technology (NIST). http://www.nist.gov/cyberframework/.

## Education

A broader understanding of NG9-1-1 is needed, with a focus on its capabilities and benefits, as well as the limitations of current 9-1-1 services and the significant consequences of a delayed and/or uncoordinated deployment of NG9-1-1. A comprehensive awareness campaign to provide federal, state and local decision makers with a clear picture of the benefits of early deployment and the consequences of delayed implementation is needed.

The Education Working Group identified various gaps to achieving an effective NG9-1-1 Education plan, and recommends that the highest level of priority be given to the following priority gaps:

### Education Gaps

1. **Importance and Urgency of NG9-1-1.** There is a lack of understanding of the importance and urgency of NG9-1-1 deployment. The impact of slow migration to NG9-1-1 is understood by a limited few, and the cost of not moving forward with NG9-1-1 has not been clearly identified.

   *Desired Outcomes:*

   - Constituency groups are educated on the importance and urgency of a more rapid NG9-1-1 deployment; and
   - Improved understanding and a clear and consistent message for citizens and advocacy groups for national organizations who interface with 9-1-1.

2. **Regional Process**. There is a lack of knowledge by Regions and 9-1-1 entities on the process to migrate to NG9-1-1.

   *Desired Outcomes:*

   - There will be an increase in Regions' and 9-1-1 Entities' knowledge of the process to migrate to NG9-1-1.

3. **National Direction.** There is a lack of National direction and guidance on state and regional officials' responsibility to promote NG9-1-1 deployments. Legislators, elected officials and policy makers lack a comprehensive understanding of how implementation of NG9-1-1 can be effectively encouraged. In addition, many Legislators have a lack of understanding about how 9-1-1 is funded.

   *Desired Outcomes:*

   - Legislators and Public Safety Officials will have a comprehensive understanding of the complexity and technical, operational, governance and funding requirements of NG9-1-1; and
   - Legislators, elected officials and policy makers will encourage the implementation of NG9-1-1 and gain a better understanding of the funding components.

## Potential Strategies to Address Education Gaps

The Coalition believes that education and outreach are critical to the timely and effective implementation of NG9-1-1. Consequently, it tentatively concludes that it should pursue the following education-related priorities:

- Create an education packet targeted specifically for each of three target audiences: 1) 9-1-1 callers, 2) potential partner/supporter organizations of the NG9-1-1NOW Coalition, and 3) public/elected officials. This packet should describe the benefits of NG9-1-1 and the consequences of delayed deployment of NG9-1-1.

- Create an education packet targeted specifically for legislators, elected officials, policy makers to encourage National direction and guidance for the promotion of NG9-1-1 deployments and a comprehensive understanding of how implementation of NG9-1-1 can be effectively supported. This will also include information on how 9-1-1 is funded. This packet would provide education for the specific purpose of advocating for NG9-1-1 issues with all policy makers/elected officials.

- Develop a series of YouTube videos and one-page handouts that illuminate NG9-1-1 from unique perspectives, such as:
    - Department of Homeland Security benefits to an integrated 9-1-1 network, enabling the observance of "complex, coordinated attacks" within communities, states, and even our national borders.
    - FirstNet and NG9-1-1 are intertwined on the emergency service continuum. It is generally recognized that the actionable data that will ultimately be delivered to First Responders might be initially collected by a citizen at the scene of an event, who first reaches out to 9-1-1. Educating both our support organizations, as well as public/elected officials on the value of a network capable of transporting this valuable data is crucial.
    - The Deaf and Hard of Hearing are deserving of a network that can immediately communicate their requests for emergency assistance, not just for Text messaging to 9-1-1, but for Instant Messaging, and ultimately the use of American Sign Language via video communication devices. Working together with our partners representing the Deaf and Hard of Hearing, we recommend educating elected officials on the value of NG9-1-1 in the path to enabling these important communication methods.
- Develop benefits white papers that includes info on the cost of transitioning, deployment vs. the cost of doing nothing based on the National 911 Program Cost Study

## Current Initiatives:

- National 9-1-1 Education Coalition: www.know911.org
- NG9-1-1 Institute www.ng911institute.org

- Association of Public Safety Communications Officials, International (APCO) www.apcointl.org
- National Emergency Number Association (NENA) www.nena.org

## Resources and References:

- National 9-1-1 Education Coalition: www.know911.org
- NG9-1-1 Institute www.ng911institute.org
- Association of Public Safety Communications Officials, International (APCO) www.apcointl.org
- National Emergency Number Association (NENA) www.nena.org

## Next Steps

The analyses and recommendations of the working groups provide direction for the Coalition on those issues that are most critical to timely NG9-1-1 deployment and clarity on how to most effectively address those issues. The Coalition has concluded that its efforts should focus on the key priorities and expand the current initiatives that are already in progress that advance the Coalition mission, including action to:

- Develop and implement a legislative strategy that will accelerate the deployment of NG9-1-1 systems nationwide by promoting more effective governance structures and policies and increasing the funds available for NG9-1-1.
- Support and expand current initiatives that are already underway, including the FCC's Task Force on Optimal PSAP Architecture (TFOPA), the National 9-1-1 Program's NG9-1-1 Cost Study, and continued development of i3 and associated NG9-1-1 standards.
- Develop and implement a comprehensive education campaign to promote a broader understanding of NG9-1-1, its capabilities and benefits, as well as the limitations of current 9-1-1 services and the significant consequences of delayed deployment.
- Expand support and outreach through the development of a Partners Program that would seek to align the Coalition's initiatives with those of other organizations that have resources and expertise to assist in accelerating NG9-1-1 implementation.

The Coalition seeks input from the public safety community, industry, and other affected stakeholders on these proposed initiatives, and will continue to assess areas where it can provide the greatest benefit as the work to advance NG9-1-1 implementation continues.

The Coalition's Web site can be found at http://www.ng911now.org/ or E-mail to info@NG911NOW.org.

## Appendix A: Working Group Participants

| Gap Area | Chair of Working Group | Co-chair of Working Group | Members and Affiliation |
|---|---|---|---|
| Governance | NENA: Trey Forgety, Director, Government Affairs | NASNA: Dorothy Spears-Dean, Public Safety Communications Coordinator, Virginia Information Technologies Agency | NASNA: Jim Goerke, former Chief Executive Officer, Texas 9-1-1 Alliance<br>NASNA: Daryl Branson, Senior 9-1-1 Telecom Analyst, Colorado Department of Regulatory Agencies<br>NENA: Renee Hardwick, ENP, Deputy Director, Horry County, South Carolina E9-1-1<br>iCERT: Craig Donaldson (West Safety Services)<br>iCERT: Kim Scovill (Comtech Telecommunications)<br>Matt Wellslager, Director, American Association for Geodetic Surveying |
| Funding | iCERT: Don Brittingham (Verizon) | NENA: Brian Fontes, Chief Executive Officer | NASNA: Jackie Mines, Director, State of Minnesota Division of Emergency Communication Networks<br>NASNA: Joe Barrows, Executive Director, Commonwealth of Kentucky Commercial Mobile Radio Service Board<br>iCERT: Rob Clark (Unify)<br>iCERT: Mary Boyd (West Safety Services)<br>iCERT: Joe Marx (AT&T)<br>iCERT: Gordon Vanauken (Mission Critical Partners)<br>Sean Goodwin, GIS Administrator, New Hampshire Division of Emergency Services |
| Technology | Texas A&M: Walt Magnussen | iCERT: Mike Nelson (West Safety Services) | iCERT: Tim Lorello (SecuLore Solutions)<br>iCERT: Brooks Shannon (Geo-Comm)<br>iCERT: Craig Dollar and Justin Mcateer (Motorola Solutions)<br>Brian Knuppel (Oracle)<br>Ray Villas (Solacom Technologies)<br>Timothy Scott, Database Administrator and Mapping Supervisor, New Hampshire Bureau of Emergency Communications |

| Gap Area | Chair of Working Group | Co-chair of Working Group | Members and Affiliation |
|---|---|---|---|
| Operations | Texas A&M: Walt Magnussen | iCERT: Mike Nelson (West Safety Services) | NASNA: Scott Ekberg, NG9-1-1 Administrator, Kansas 9-1-1 Coordinator<br>NASNA: Maria Jacques, ENP, Director, State of Maine Emergency Systems Communications Bureau<br>NENA: Chris Carver, Director, PSAP Operations<br>iCERT: Tim Lorello (SecuLore Solutions);<br>iCERT: Brooks Shannon (Geo-Comm);<br>iCERT: Craig Dollar and Justin Mcateer (Motorola Solutions<br>Brian Knuppel (Oracle)<br>Ray Villas (Solacom)<br>Timothy Scott, Database Administrator and Mapping Supervisor, New Hampshire Bureau of Emergency Communications |
| Education | National 9-1-1 Office: Laurie Flaherty | iCERT: Lisa Madden, ENP (Winbourne Consulting) | NASNA: Renee Hoover, Administrator, Arkansas Emergency Telephone Services Board<br>NENA: Chris Nussman, Director, Communications<br>NENA: Ty Wooten, ENP, Director, Education and PSAP Operations |