

## **1. Introduction**

The FirstNet program has an unprecedented opportunity to change the scope and effectiveness of emergency communications used by various federal agencies; the 50 states plus and the District of Columbia and the country's territories; tribal areas; hundreds of local jurisdictions; and thousands of emergency response and law enforcement personnel. Indeed, after decades of activity including such programs as the Public Safety Wireless Network and SafeCom, the FirstNet program is the first that appears to have access to the substantial resources necessary for success. Those opportunities and resources, though, are accompanied by the imperative to act with both care and speed, ensuring that program goals are well considered and properly defined, program scope is measured but complete, and that the program begins to accumulate victories quickly.

Phase One Consulting Group, with our partner Light Foundry Associates, welcomes the chance to comment on this Notice of Inquiry (NOI), but we would like to note that while the subject material is mainly concerned with the FirstNet network strategy, programs of this nature rarely fail due to technical issues. Our experiences in both the public and commercial sectors, including such programs as the DHS OneNet program, the DHS Human Capital Segment Architecture, the development of OMB's Collaborative Planning Methodology, and the Vodafone global integration program (among others), lead us to believe that other program components pose the greatest risk for the FirstNet enterprise.

These considerations for FirstNet include:

1. A unique management construct, with FirstNet being an independent authority within the NTIA led by a small executive team, augmented by Board comprised primarily of commercial executives and local government subject matter experts. While all members of the board are clear leaders in their fields, the FirstNet program will need to quickly scale up a small but capable Program Management Office (PMO) to provide dedicated federal technical program management skills, commercial and federal leadership skillsets, experience in supporting collaboration between an active and demanding board and its stakeholders, and an understanding of financial tools in both federal budgeting and commercial startup (“venture”) environments. Most importantly, a PMO can help the board define measures of success at each stage of implementation and monitor progress toward achieving them.
2. A uniquely large and complex stakeholder environment, with each class of stakeholders holding independent goals for the program, definitions of success, and financial resources. These stakeholders are not only the various geographic jurisdictions described in the first paragraph, they also include commercial telecommunications carriers and equipment manufacturers vying for a role and deserving to be treated as innovators and partners, jurisdictions in neighboring countries into which emergency activities often spread, and volunteer organizations such as the Red Cross and hundreds of civic and religious organizations. Additionally, the public is the ultimate party served

by this solution and may have ideas on how to solve this problem. Each of these stakeholders has a voice, and each would like to be heard.

3. A challenging financial environment that, while superior to prior programs of this nature, is still not assured. The assets provided to the FirstNet program – primarily a valuable frequency allocation and funding of \$7B, seems generous until one considers that this funding is equivalent to the operational expenditures of a typical US carrier<sup>1</sup> for *one month*. It is imperative that FirstNet leadership consider, up front, funding mechanisms, including various forms of charge-back and fee-for-service, that will capitalize on its initial assets without dis-incentivizing participation or change-over from prior usually local systems.
4. The need to balance short term imperatives with the decades-long life of the program. Our position is that for FirstNet to gain acceptance by stakeholders and expand the options for financial success, FirstNet must base its strategy on the rapid accumulation of small victories. At the same time, FirstNet leadership must remain cognizant that this program will provide a fundamental change in emergency communications and consequently will be a part of the emergency ecosystem for decades. The capacity for evolution and innovation must be built in, both technically and operationally.

---

<sup>1</sup> For example, according to Verizon's latest 8-K filing dated October 18, 2012, Operational Expenditures for the quarter 9/30/2012 were \$23.524B, or about \$7.8B per month, although some items contained in this total, such as cost of goods sold (COGS) would not apply to FirstNet.

Following a more detailed introduction to our team, we have provided additional detail into each of these four program elements that FirstNet needs to address.

## **2. Introducing the Team**

Phase One and Light Foundry are working together on developing comments for this NOI, reflecting on our complimentary experiences to provide suggestions to FirstNet. In blending our knowledge of complex program management, public safety, and telecommunications, we can provide a broader perspective on the challenges facing FirstNet and its board—beyond the technical network architecture.

### **2.1 Introducing Phase One Consulting Group**

Since 1997, Phase One Consulting Group has been supporting an impressive portfolio of private and public sector clients with their strategic and tactical modernization initiatives. Our teams provide clients with unique and proven approaches that overcome their complex challenges, whether they are related to people, processes, or technology. This helps our clients realize marked improvements in mission performance, cost efficiencies, and the ability to satisfy stakeholder communities.

Our leadership in developing the DHS Human Capital Segment Architecture (a modernization roadmap to improve business processes across DHS's 16 diverse components) was deemed by DHS CIO Richard Spires as "a model for how we do this for other areas." For the Department of Transportation, Phase One worked to build support for the Safety.Data.Gov initiative, reaching out to other Federal agencies with public safety missions for a truly interagency, collaborative

effort that included outreach to non-government stakeholders and the public. With the Office of Management and Budget, Phase One co-led the development of the Collaborative Planning Methodology, a simple, repeatable process that consists of integrated, multi-disciplinary analysis that results in recommendations formed in collaboration with sponsors, stakeholders, planners and implementers. These are just three examples of the work that Phase One provides to federal clients to solve their complex problems with innovative solutions.

## **2.2 Introducing Light Foundry Associates**

Light Foundry Associates is a firm dedicated to serving the technical and strategic demands unique to CIOs, CTOs, and senior technical leaders in the Federal Government and high technology organizations. Light Foundry provides all aspects of IT Strategic Services including IT Strategic Planning, Enterprise Architecture, Network Design and Implementation, Financial Planning and Analysis, and all aspects of Technology Policy and Governance.

The leadership of Light Foundry has direct experience with the law enforcement and first responder community: our CEO has direct experience with FEMA Operations Directorate and DHS NPPD and has also worked closely with the DHS Office of the CIO, including the CIO, Deputy CIO, and the chiefs of the OCIO Enterprise Business Management Office (EBMO), IT Services Organization (ITSO), and Office of the Chief Technology Officer (CTO). Light Foundry leadership staff assisted in advancing the OCIO's goal of consolidating and unifying the governance processes across all 22 DHS components, bringing approximately \$2B of programs

under one simpler and manageable governance regime providing streamlined EA, IT Security, and all other relevant governance issues under one umbrella structure.

Our leadership team also has extensive experience in commercial telecommunications, including the development of technology strategies for the UK Office of the Prime Minister (under Tony Blair) and the UK Department of Trade and Industry; and also served commercial clients including the CIOs and CTOs of telecommunications carriers such as Verizon, AT&T, Vodafone, and British Telecom; network equipment vendors such as Ericsson, Lucent, Alcatel, and Motorola.

### **3. Succeeding with a Unique Management Construct**

FirstNet is tackling a project of unprecedented size and scale. Success will be dependent not on the technology but on the ability to bring about compromise from participants and define the incremental steps that lead to major transformation. A new approach called the Collaborative Planning Methodology (CPM) has been co-led by the Office of Management and Budget (OMB) and Phase One, and it is designed to guide projects through the full life cycle from formation of a project team to the monitoring of an implemented solution. The CPM emerged from the highly successful Federal Segment Architecture Methodology (FSAM), which was tailored by DHS and applied to the development of a Human Capital Segment Architecture by Phase One. In 2011 the Excellence in EA Results Awards Program recognized this project as demonstrating “Leadership in Government Transformation Using EA” and the program is now implementing

many of the recommendations. Phase One recommends adopting the CPM as the management guide for FirstNet to follow as it moves forward.

Figure 1 ties the five steps of the CPM to our recommendation focus areas. Key actions to address the unique management construct facing FirstNet are to organize and plan early, navigate the Federal governance structure for technology and budget acquisition, and finally to monitor the implemented solutions.

A national network to facilitate cross-agency communication has been a goal of the emergency response community for over a decade, with many ideas being piloted and working for some municipalities. Planning activities to learn about the successes and challenges experienced in these small efforts can provide an advantage for FirstNet by serving as a starting point for

scaling solutions to other areas or larger regions. Putting forward a plan for incremental deployment and monitoring small victories will help

Unique Management Construct	Organize & Plan	Navigate Governance	Monitor Implementation	
	Organize and Plan			Implement and Measure
	1. Identify and Validate	2. Research and Leverage	3. Define and Plan	4. Invest and Execute
<b>Large &amp; Complex Stakeholder Environment</b>	Engage Stakeholders	Support Transparency	Inform Public	
<b>Challenging Financial Environment</b>	Identify Sources	Budget for Incremental Investment	Maximize Efficiency	
<b>Balance of Short- and Long-Term Program Goals</b>	Identify early wins	Incubate new ideas	Embrace innovation	

Figure 1: FirstNet Program Challenges and Recommended Tactics

FirstNet move past the “tipping point”: that point when returning to a prior state is more expensive and time consuming for a participant than to move forward toward the shared goals of all involved.

By fully analyzing the financial constraints and imperatives of potential user organizations, FirstNet will be able to identify early adopters and tailor financials and incentives to make adoption easier for those making the switch to FirstNet technology. With a local effort that shows promise, other localities could be more easily persuaded to help expand the pilot and accelerate. Another reason to evaluate existing pilot projects is to determine which ones should be dropped in favor of better alternatives. This pilot approach has been very successful in Phase One’s support at the U.S. Forest Service and the suite of tools used for project planning and public comment about National Environmental Policy Act (NEPA) projects. By engaging planners from the 155 National Forests as well as selected members from the public, Phase One piloted new features in tools like PALS (Planning, Appeals and Litigation System) and CARA (Comment Analysis and Response Application), which have been recognized by the President’s Council on Environmental Quality as part of the first project under their NEPA Pilots Program.

When running new pilots or making major changes to previously operating programs, some incentives may be necessary to motivate locations to be early adopters. Whether FirstNet is able to provide direct funding or negotiate with vendors to provide steep discounts, incentives can deliver a choice to program managers ready to demonstrate value. Additionally, “in kind” benefits may be offered: in the previously highlighted work at U.S. Forest Service, pilot



participants are often the “power users” and appreciate the opportunity to shape the solution to their needs. Other times, a single National Forest was the subject of the pilot and benefitted with additional training and support from Phase One, resulting in a well-equipped workforce when the solution was scaled to the region or national level.

#### **4. Engaging a Uniquely Large and Complex Stakeholder Environment**

A key early step of CPM identifies the stakeholders involved and prescribes the opportunities that may be available for reuse. The use of ideation tools like those in place at the Department of Urban Development (HUD Ideas in Action) and the Department of Transportation (DOT’s IdeaHub) have been useful in engaging both the stakeholders and the public to seek ideas and feedback. As the best ideas emerge, HUD uses an Innovation Lab ([http://portal.hud.gov/hudportal/HUD?src=/open/innovation\\_lab](http://portal.hud.gov/hudportal/HUD?src=/open/innovation_lab)) to mature ideas into viable prototypes and ultimately solutions for their whole organization. Phase One has helped HUD as part of its Open Government program, enabling the combination of ideation to collect the various local collaboration solutions in place around the country and an innovation lab to develop the most viable ones could help organize the many approaches and maintain transparency as they progress. This also helps to identify the true needs of constituents and aids in the prioritization of efforts undertaken. For FirstNet, engaging both the telecommunications industry and first responders in this way would help promote a dialog and lead to new ideas through collaboration.

A methodology and a tool set cannot take hold without a robust approach to communications. The FirstNet board is comprised of senior subject matter experts in their respective fields and will need to deliver messages to executives, participants, service providers and the public that are clear and consistent. Just like the communications during an emergency, a confused message can derail the best of intentions. Consider the case of Three Mile Island: authorities struggled to provide plain-language context, conflicting messages were provided, and the public was mistrustful of the information they received. For both the communication coming from FirstNet about this project and the recommendations provided to local authorities for how they should communicate about emergencies, an approach that endorses plain language and transparency can aid in gaining trust from all involved.

## 5. Overcoming a Challenging Financial Environment

Unlike prior governmental programs to institute a unified communications system for first responders, FirstNet has two significant resources at its inception:

- An initial federal grant of \$7B to fund start-up costs
- The provision of two bands of spectrum comprising approximately 20 MHz (763-768/793-798 MHz and 758-763/788-793 MHz).

As we mentioned in our introductory paragraph, while the initial funding grant is generous by historical standards, it is most likely insufficient to address the cost of system deployment and operation in any meaningful manner. On the other hand, the grant of bandwidth provides not only the spectrum needed to deploy the network, but similarly may provide a monetizable asset in a country where cellular carriers and their mobile data customers are becoming

increasingly data hungry. The following options may provide the means to address any gaps in funding.

Additional federal funding through federal grants: While congress has indicated that additional federal funding may not be likely, it is possible that a continued case could be made. Rather than submissions for direct funding, it likely that greater success could be found by utilizing federal grants programs such as those administered by DHS/FEMA for emergency response and by DHS/NPPD for Critical Infrastructure Protection to assist in the purchase of end-user terminal equipment, defraying overall costs.

Commercialization of radio spectrum by licensing: A historical view of spectrum valuations finds an absolute upper value of approximately \$4.00 / MHz-pop<sup>2</sup>, although much academic study of this valuation has since occurred and there is agreement that this valuation is likely not achievable and a more typical and reasonable valuation is approximately one quarter of this value. Assuming therefore a valuation of \$1.00 / MHz-pop, and assuming the FCC order of August 29, 2012, allowing the use of all 20 Mhz stands, FirstNet's spectrum may be worth approximately \$20 per population covered. In the case of New York City Combined Statistical

---

<sup>2</sup> In the UK UMTS Auctions of 2000-2001, five bidders paid a total of 37B Euros for a total of 140 MHz of bandwidth covering a population of 58.7M people. This auction denoted the high-water mark of spectrum valuations in preparation for 3G data-oriented communications. Later auctions in Europe and elsewhere yielded declining valuations over time.

Area (population 22M), the commercial value of FirstNet spectrum for that geography equates to \$440M. These calculations are by definition quite approximate, but serve to give an understanding of the very high value of the frequency grant provided to the FirstNet program. Finding ways to capture the value of these licenses, primarily with the vendors who will build and offer the network, will rely on agreements with the providers of FirstNet's digital communications that they may use the spectrum for commercial purposes when priority communications are not present; in any event, the right-of-first use by emergency responders will result in a lower actual value. It is also possible that the financial community, including investment banks with experiences public sector teams, could offer creative means to realize financial value from this asset.

Chargeback and fee-for-service arrangements: Because the FirstNet system will allow first responder communities to sunset their current systems or extend their useful lives, it is reasonable for FirstNet to charge users on either a fixed rate per user, or on a fee-for-service basis. It is our experience, though, that using these direct charging mechanisms may impede user uptake, since users with smaller budgets will not be able to afford the ramp-up of the FirstNet system while also maintaining their current systems during the overlapping period when both systems are in use. Our work on the DHS One-Net program provides evidence of the desire of some user communities to delay transition until the new system is mature and unit costs have declined. Consequently, we recommend that the FirstNet leadership look to more creative methods, including delayed charging or cost relief in early years, to ensure user communities are incentivized to make the transition early rather than later.

Access Charges: The FirstNet program will, at maturity, be responsible for managing and maintaining one of the most extensive wireless networks in the world, accessed by a large number of emergency response and technical professionals. FirstNet will find it necessary to take steps to ensure the integrity of that network, and the applications that ride on that network. This will incur services and processes -- approvals, test labs, certifications, etc -- that FirstNet should feel free to charge applications developers, both federal and commercial, for those support services. FirstNet should also consider whether it will allow applications using the FirstNet network to charge their own subscription fees. If so, then a surcharge of few cents per transaction on those fees holds the potential to unlock a significant source of funding for FirstNet operations

With this background, success of the FirstNet program will require its leadership have at its disposal program management expertise that can assist in developing financial plans and analyses, and who bring experience in working at the intersection of the financial and telecommunications communities.

## **6. Balance of Short- and Long-Term Program Goals with Early Wins and Innovation**

FirstNet is addressing one of the greatest challenges in emergency management: overcoming inefficiencies that interfere with communication and coordination. By seeking out early wins that make emergency response more efficient and less confusing, the long term goals of a national network are more achievable. We've described the public outreach to solicit ideas for

creating a national network, but this unprecedented cooperation among emergency responders presents the opportunity to address the target of emergency response: the public.

Citizens need to have timely and reliable information to adequately protect themselves without unintentionally interfering with official responders. Evacuation orders need to be communicated uniformly and consistently to avoid confusion. Shelter-in-place directives with proper context improve public confidence and minimize further risks to public safety. During a press conference on October 29, 2012, Governor Martin O'Malley of Maryland said "my intent ... is to make sure that every family has the information they need so they can act responsibly and stay indoors. The most important first responders are the moms and dads of Maryland who keep their families indoors and their spouses off the road for the next 24-36 hours."

According to a 2012 study from the Pew Internet & American Life Project<sup>3</sup>, nearly half of all Americans have access to smartphones and another 40% have a non-smart cell phone. This means that 87% of Americans have a portable communication device that could be used to receive emergency response for official notices that are coordinated by the many participants in a region. This information can also be relayed by private organizations like the Red Cross or local community groups to people without access as well as reinforce official positions to minimize confusion during an emergency response. In particular, the Red Cross has a series of

---

<sup>3</sup> <http://pewinternet.org/Reports/2012/Smartphone-Update-2012/Findings.aspx>

mobile apps that publishes information about fire locations and offers an “I’m safe” service to allow people affected by events to inform friends and family without clogging other communication networks (<http://www.redcross.org/prepare/mobile-apps>). Facilitating the information exchange with organizations such as the Red Cross enhances the effectiveness of actions taken by first responders.

It is clear that the use of the national network in development by FirstNet must be limited to official responders, but with limited personnel on the ground it is important to recognize that informing the public is only half of the conversation: members of the public are the greatest resource for information gathering available during an emergency. In April 2009, a series of wildfires developed near Myrtle Beach, ultimately destroying 70 homes and requiring support from 50 fire departments in South Carolina and 10 fire departments from North Carolina before all fires were extinguished. A Google map was created by The Sun News staff (<http://maps.google.com/maps/ms?hl=en&ie=UTF8&msa=0&msid=111704736590824124133.00046838ef96b2dfabc9f&source=embed&ll=33.823082,-78.778152&spn=0.099827,0.145912&z=12>) to provide the status of fires, road closures, and services available to displaced residents. They also invited members of the public to provide their own reports that supplemented the newspaper staff’s information. This was an impromptu information outlet to inform the public of the collected reports issued by local authorities. In an era when most people carry cell phones with location services, providing a mobile app delivering location-specific information while also collecting public reports of incidents via a pin on a map could deliver value to public and emergency responders alike.

## 7. Summary of Recommendations

The FirstNet board has a daunting challenge before them and is on the right path in seeking public feedback on an early idea for the network. The project is going to require an unprecedented level of coordination and cooperation. Funding is not guaranteed and the members appointed to the board are unlikely to see the entire solution unfold during their terms. The experience of Phase One and Light Foundry supporting projects that are highly complex and connected to public engagement leads us to recommend a four-part approach to promote success:

- Use the Collaborative Planning Methodology to guide the project activities and prescribe the authoring of key documents in this unique management construct
- Thoughtfully engage both the public and the uniquely large and complex stakeholder environment to “crowdsource” the problem solving and maximize strategic communications opportunities
- Cultivate multiple funding options to overcome a challenging financial environment, blending traditional government budget methods with FirstNet specific funding opportunities
- Adopt a posture of innovation and public engagement to balance short- and long-term goals of the FirstNet program

In adopting these four recommended strategies, the FirstNet board will have the support structure needed to accomplish the goals in implementing the technical solution of a national network for first responders.