

Before the
DEPARTMENT OF COMMERCE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Washington, D.C. 20230

In the Matter of)
)
Development of the Nationwide Interoperable) Docket No. 120928505-2505-01
Public Safety Broadband Network)
)

**COMMENTS OF
PCIA—THE WIRELESS INFRASTRUCTURE ASSOCIATION**

I. Introduction

PCIA—The Wireless Infrastructure Association¹ (“PCIA”) submits these comments in response to the National Telecommunications and Information Administration’s (“NTIA”) *Notice of Inquiry* (“NOI”) seeking comment on the conceptual network architecture and business plan considerations for the nationwide public safety broadband network (“PSBN”).² PCIA applauds NTIA and the First Responder Network Authority (“FirstNet”) for seeking industry comment and participation in this project of the utmost national importance.

FirstNet should partner with wireless infrastructure providers to draw upon their years of experience to plan and construct the PSBN. This public-private partnership would immediately benefit the PSBN. First, the PSBN could leverage existing infrastructure to maximize its coverage and performance because commercial wireless sites already cover 98% of the Nation’s

¹ PCIA is the national trade association representing the wireless telecommunications infrastructure industry. PCIA’s members own, operate and manage telecommunications towers, antenna structures upon which cell sites can be collocated, and distributed antenna systems and small cell solutions. PCIA and its members partner with communities across the nation to effect solutions for wireless infrastructure deployment that are responsive to the unique sensitivities and concerns of each community. PCIA seeks to facilitate the widespread deployment of communications networks across the country, consistent with the mandate of the Telecommunications Act of 1996.

² *Development of the Nationwide Public Safety Broadband Network*, Notice of Inquiry, Dept. of Commerce, National Telecommunications Information Administration, 77 Fed. Reg. 60680 (Oct. 4, 2012) (“NOI”).

population. Second, such partnerships would quickly bring the PSBN up to operational capacity by allowing collocation of PSBN equipment on existing wireless infrastructure as Congress directed in the Middle Class Tax Relief and Job Creation Act of 2012 (“TRA”). Third, FirstNet would minimize its capital expenditures by taking advantage of the significant cost savings associated with the use of existing facilities. If FirstNet’s goal is to construct the PSBN swiftly and efficiently, it should take advantage of the purpose-built towers, rooftop installations, distributed antenna systems (“DAS”), and small cells that the wireless infrastructure industry has worked hard to deploy.

Wireless infrastructure is the basis for all wireless communications, both commercial and public safety. Through close coordination with mobile network operators (“MNO”), infrastructure providers facilitate the efficient deployment of next-generation wireless networks, including LTE networks capable of supporting the PSBN. In addition to acting upon the recommendations detailed below, FirstNet should continue to engage every facet of the diverse wireless ecosystem, including MNOs, device manufacturers, *and* infrastructure providers, to ensure that their information and expertise is effectively utilized in this essential national undertaking.

II. FirstNet Should Leverage Existing Infrastructure to Ensure Timely and Cost-Effective Deployment of the PSBN

A. Existing Infrastructure Has the Capacity and the Geographic Footprint to Accelerate Deployment of the PSBN

Ubiquitous, nationwide coverage is the *sine qua non* of the PSBN. Wireless providers have already deployed the infrastructure necessary to deliver advanced commercial wireless services to over 98% of all Americans. Although FirstNet’s goal is to reach 100% of the Nation’s geographic area, there is no reason not to take advantage of the extensive coverage of

commercial wireless infrastructure at the outset. Congress understood the advantage of this partnership, which is why it wrote section 6206(c)(3) of the TRA, which directs FirstNet to utilize existing commercial or other communications infrastructure “to the maximum extent economically desirable.”³ Public-private partnerships will accelerate deployment, reduce costs, and create a broader network footprint for FirstNet and its service provider partners.

PCIA members own, operate, and manage over 97,000 towers, plus several thousand rooftop facilities and DAS across the country.⁴ Owners and operators of wireless infrastructure vary from federal, state, and local governments to publicly-traded carriers, utilities and tower companies, to small, independent companies and individual owners. The wireless infrastructure industry works in close coordination with federal, state, and local governments to support thousands of government and public safety wireless facilities on these commercial facilities already.

However, all this infrastructure has the ability to host much more. “Macro sites,” which include rooftops, towers, and other vertical infrastructure, are the foundation of wireless networks. Macro sites provide coverage across a wide geographic area and can accommodate, on average, five or six tenants.⁵ As of December 2011, the average number of tenants per tower is only 2.4.⁶ Therefore, FirstNet has a ripe opportunity to take advantage of the potential capacity of macro sites to host PSBN infrastructure.

³ Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6206(c)(3) (2012) (codified at 47 U.S.C. § 1426(c)(3)). *See also NOI* at 60681.

⁴ PCIA—THE WIRELESS INFRASTRUCTURE ASSOCIATION, TOWER AND ROOFTOP DATA SURVEY RESULTS 6 (Oct. 1, 2012).

⁵ *In re* Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, *Fifteenth Report*, 26 FCC Rcd 9664, ¶ 309 (2011), *available at* http://fjallfoss.fcc.gov/edocs_public/attachmatch/FCC-11-103A1_Rcd.pdf.

⁶ R. Clayton Funk & Jason Nicolay, “Trends and Forecasts for the Wireless and Tower Industries,” ABOVE GROUND LEVEL, July-August 2012.

Craig Farrill’s presentation at the first meeting of the FirstNet board set forth various network implementation options that envision infrastructure sharing throughout all of the layers of the network, including the radio access network (“RAN”) and core network elements.⁷ Mr. Farrill’s presentation correctly recognizes that a stand-alone network built from scratch that overlaps with the existing commercial wireless network is inefficient and may result in prohibitive costs, extended deployment timeframes, and insufficient network reliability for the PSBN.⁸ The establishment of public-private partnerships and other agreements by which costs and infrastructure elements can be shared among FirstNet, mobile network operators, and other industry members will reduce the overall cost and accelerate deployment of the PSBN by building upon the network footprint supported by existing infrastructure. Existing wireless infrastructure has the capacity to support a network covering a broad geographic area and millions of people. FirstNet can take advantage of the industry’s detailed location data to accurately estimate present network deployment, the potential for future upgrades, and assess the tradeoffs associated with alternatives plans, all at minimal expense.

In addition to macro sites, wireless service and infrastructure providers are continuing to address key coverage issues, both indoors and out, with DAS and small cell solutions.⁹ In

⁷ F. CRAIG FARRILL, FIRST RESPONDERS NETWORK AUTHORITY PRESENTATION TO THE BOARD, FIRSTNET NATIONWIDE NETWORK (FNN) PROPOSAL 19 (Sept. 25, 2012), http://www.ntia.doc.gov/files/ntia/publications/firstnet_fnn_presentation_09-25-2012_final.pdf (“FARRILL PRESENTATION”).

⁸ *Id.* at 9.

⁹ A distributed antenna system network consists of three primary components: (i) a number of remote communications nodes (DAS Node(s)), each including at least one antenna for the transmission and reception of a wireless service provider’s RF signals; (ii) a high capacity signal transport medium (typically fiber optic cabling) connecting each DAS Node back to a central communications hub site; and (iii) radio transceivers or other head-end equipment located at the hub site that generates and/or converts, processes or controls the communications signals transmitted and received through the DAS Nodes. Historically, the term “small cell” has been used to refer to equipment designated as microcells, picocells/metrocells, and femtocells. There are certain similarities between DAS nodes and small cells that often give rise to some confusion. Specifically, like DAS nodes, small cells transmit at signal power levels that are much lower than macrocells and are physically much smaller. Similarly, when deployed outdoors, small cells, like DAS nodes, are typically mounted or installed in the public right of way at low

conjunction with the larger macrocellular network, DAS and small cells are being deployed to improve coverage in areas that are difficult to reach due to geological terrain or structures such as buildings that may block signals from a macro site. While the initial stages of deployment should concentrate on establishing operability of the PSBN as broadly and quickly as possible, later stages should focus on ubiquitous coverage that includes areas where first responders frequently respond to emergencies: indoors. Just as existing macro sites can provide the blanket coverage so essential to the PSBN, DAS and small cell solutions can target gaps in coverage, as well as ensure access and redundancy in all areas of operation.

B. Leveraging Existing Infrastructure Will Minimize Costs for FirstNet and its Partners

The minimization of capital expenditures is a public interest priority and one of the key criteria of any PSBN design.¹⁰ Reducing up-front and on-going costs through public-private partnerships and the sharing of key network elements, including wireless infrastructure and support structures, will multiply the investment of the \$7 billion currently available to FirstNet, and reduce upkeep and maintenance costs of the PSBN.

While the costs associated with deployment of infrastructure vary based on a number of factors, PCIA members estimate that, on average, a new wireless support structure costs approximately \$250,000 to \$300,000. In comparison, PCIA members estimate that an average collocation of wireless equipment on an existing support structure costs approximately 25 percent of the cost of a new support structure. The math is simple: FirstNet or its MNO partners can deploy approximately four collocations for the cost of a single new tower. If FirstNet partners with MNOs to share elements of the RAN, the modifications necessary to share these

elevations. Together the combination of the macrocellular network with DAS networks and various small cell solutions in some circles has been called the “heterogeneous network” or “HetNet”.

¹⁰ *NOI* at 60681.

network elements are even less expensive. In addition to the available space on wireless support structures, existing wireless facilities host other key network elements that could further reduce costs, including equipment shelters, power provision, and backhaul rights-of-way.

C. Leveraging Existing Infrastructure Will Enable Expedited Operational Capacity for the PSBN

Any proposal to implement the PSBN must enable it to reach operational capacity as quickly as possible.¹¹ Regardless of the network architecture framework adopted by FirstNet or the extent of network element sharing, leveraging existing infrastructure will bring the PSBN to operational capacity much faster than an entirely new network. As described above, expanded coverage and cost savings are major incentives for FirstNet to consider public-private partnerships. However, it is equally important that FirstNet consider the impact of regulatory hurdles at the state and local level that would hinder the deployment of an entirely new network.

Collocation on, and modification of, existing wireless support structures will improve deployment speed because they are less heavily regulated than the construction of new wireless support structures. New wireless support structures are subject to section 704 of the Telecommunications Act of 1996 (47 U.S.C. § 332(c)(7)), which preserves the authority of state and local governments to control the placement, construction, and modification of those facilities, subject to certain enumerated exceptions.¹² Wireless support structures also must contend with federal, state, and local historic preservation and environmental laws.¹³

In contrast, collocations on or modifications of existing wireless facilities are regulated less heavily in recognition of their de minimis impact. Many state and local laws streamline

¹¹ *Id.* at 60681.

¹² *See* 47 U.S.C. § 332(c)(7).

¹³ *See, e.g.*, 47 C.F.R. §§ 1.1301 - 1.1319.

application procedures for collocations and modifications.¹⁴ In fact, Title VI of the TRA contains a provision, section 6409, that overrides conflicting state and local laws where they attempt to impose lengthy procedures on collocation and modification applications. Section 6409 mandates that state and local governments must approve an eligible facilities request for the modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station.¹⁵ FirstNet can take advantage of section 6409 and similar state laws to accelerate the process of bringing the PSBN up to operational capacity.

FirstNet can encourage participation in public-private partnerships by crafting strong memoranda of understanding and agreements with state and local governments. Public safety providers often encounter the same regulatory barriers to deployment and modification as commercial wireless providers. Regardless of the network architecture, clarity and consistency in the deployment process is a necessity at all levels of government, including environmental, historic preservation, and zoning processes. Upon the establishment of a comprehensive network architecture, FirstNet should conduct immediate outreach to state and local jurisdictions to discuss, and potentially streamline, the impact of regulatory and zoning laws on new or modified network infrastructure.

III. FirstNet Should Adopt Network Architecture Policies that Encourage Participation in Public-Private Partnerships

As Congress and the FirstNet board recognize, public-private partnerships will be a cornerstone in the development of the PSBN.¹⁶ The benefits of cost-savings, accelerated deployment, and shared expertise are vital to meeting the criteria for PSBN implementation. As

¹⁴ See, e.g., S.B. 1345, 2011 Leg., Reg. Sess. (Pa. 2012); MICH. COMP. LAWS SERV. § 125.3514 (2012).

¹⁵ 47 U.S.C. § 1455(a).

¹⁶ See *supra*, note 3.

FirstNet begins to develop a network plan, it should encourage participation and investment from commercial MNOs and infrastructure providers.

PCIA members currently work with state and local agencies to build and manage wireless infrastructure. Examples of these working relationships include the New York State Police, the New York Department of Transportation, the Commonwealth of Pennsylvania and the Florida Department of Transportation. These public-private partnerships allow the state agencies to benefit from the efficiencies provided by neutral host providers, including tower development, site management and tower maintenance, as well as asset marketing, which helps defray network operation costs. The use of existing infrastructure will also encourage participation from all parts of the wireless ecosystem. Leveraging existing wireless facilities will allow partners to draw upon existing resources and relationships that keep costs down and provide consistency and predictability in the deployment process.

One thing that FirstNet could do that would *discourage* wireless industry participation would be to add stringent “hardening” requirements on existing infrastructure. Design standards for wireless towers subdivide them into three categories, with categories II and III encompassing the majority of towers used as a platform for commercial wireless service and towers that are “used primarily for essential communications.”¹⁷ Category III structures must comply with construction requirements that are more rigorous than those typically applied to commercial wireless towers. To the extent the RAN may be shared by a MNO and the PSBN, or PSBN equipment may be collocated on existing commercial infrastructure, imposing category III construction requirements would add significant time and cost. As FirstNet recognizes, redundancy and reliability can still be achieved without extensive structural modifications to

¹⁷ ANSI/EIA/TIA-222 Rev. G, STRUCTURAL STEEL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES (2006). *See also* Comments of American Tower Corp., WC Docket No. 11-59, at 15-20 (Sept. 30, 2011).

existing wireless support structures, and are preferable to the more costly and burdensome alternatives.¹⁸

IV. Conclusion

The wireless infrastructure industry welcomes this opportunity to be involved in this essential national undertaking. To deploy the PSBN in the most efficient and cost-effective manner possible, FirstNet should leverage the advantages of existing wireless infrastructure. FirstNet should also foster public-private partnerships by avoiding burdensome hardening requirements and establishing strong relationships with state and local jurisdictions.

Respectfully submitted,

PCIA—THE WIRELESS INFRASTRUCTURE
ASSOCIATION

/s/

Jonathan S. Adelstein
President & CEO

Jonathan M. Campbell
Director, Government Affairs

Alexander Blake Reynolds
Government Affairs Counsel

PCIA—THE WIRELESS
INFRASTRUCTURE ASSOCIATION
901 N. Washington Street, Suite 600
Alexandria, VA 22314
(703) 739-0300

November 1, 2012

¹⁸ FARRILL PRESENTATION at 20.