National Telecommunications and Information Administration
U.S. Department of Commerce

Development of the State and Local Implementation Grant Program for the Nationwide Public Safety Broadband Network

Request for Information
Docket No: 120509050–1050–01

COMMENTS OF ALCATEL-LUCENT

Alcatel-Lucent submits these Comments in response to the Request for Information ("RFI") of the National Telecommunications and Information Administration ("NTIA") on the Development of the State and Local Implementation Grant Program for the Nationwide Public Safety Broadband Network (the "NPSBN").

I. Close Collaboration with the States and Public-Private Partnerships Are Critical to the Success of the NPSBN

In its recent Comments to the Federal Communications Commission ("FCC"),[1] Alcatel-Lucent demonstrated that the long-term viability of the NPSBN depends on NTIA, the forthcoming First Responder Network Authority ("FirstNet") and the FCC seeking out collaboration and partnership with each other and with States to successfully implement the nationwide network. Especially considering the Middle Class Tax Relief and Job Creation Act of 2012 ("Spectrum Act")[2] provides only $7 Billion for the build-out of the nationwide network, it is essential that FirstNet not attempt to "go it alone." FirstNet should collaborate with the States, seeking their "*opt in*" to the FirstNet network, and leverage State participation in, and their ability to identify public-private partnership ("PPP") opportunities for, the implementation of the NPSBN. It is for this reason – a robust PPP ecosystem that

[1] Comments of Alcatel-Lucent, *Transition Process for 700 MHz Public Safety Broadband Waiver Recipients*, PS Docket No. 12-94 (April 20, 2012).

[2] *See* Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156 (2012) ("Spectrum Act").

provides as many resources as possible ensuring FirstNet's success – that Alcatel-Lucent has urged NTIA to recommend for the FirstNet Board individuals who recognize the constructive role States can play in implementing the nationwide network, and the value of the resources that can be brought to bare through a broad PPP ecosystem.

Consistent with these earlier Comments, Alcatel-Lucent agrees with NTIA in recognizing in the RFI the importance of existing State-owned infrastructure as well as infrastructure owned by utilities and other third parties interested in participating in the NPSBN. The RFI further asks commenters to consider how they will "include utilities or other interested third parties in their planning activities" and whether NTIA should "encourage planning for the formation and use of public/private partnerships in the deployment of the [NPSBN]."

In order to supplement the limited Federal funding allocated to the NPSBN by the Spectrum Act, it is imperative that the NPSBN leverage the ability of the States to contribute State infrastructure to the new network as well as encourage the States to seek out third party sources of infrastructure and private funding. Compared to FirstNet, which must oversee the entire national deployment, States have a far greater capability to identify and leverage local partners that can provide existing infrastructure and funds to the NPSBN, including national, regional and rural telecommunications carriers, utilities, and others. Utilities are particularly well-suited public safety partners due to their similar needs for geographic coverage and mission critical communications. Therefore, Alcatel-Lucent supports NTIA seeking input on PPP relationships at the outset, and we strongly encourage NTIA to include in its Grant Program a clear preference for States to seek out information from interested third parties regarding network infrastructure and resources in exchange for access to spectrum that these third parties could share with the NPSBN.

As with a commercial carrier network, FirstNet is responsible for determining network architecture and making other overarching technical network determinations for the NPSBN. FirstNet should not abdicate this responsibility. Importantly, however, FirstNet has authority through the Spectrum Act to implement the nationwide network in many different ways, and should employ the flexibility the statute affords. It is simply not realistic that FirstNet could build a nationwide network from the ground up and operate that network sustainably based solely on funding provided by the Spectrum Act. Through its Grant Program, NTIA should help FirstNet to maximize PPPs and other funding opportunities that can be best leveraged through a strong State role in the creation of PPP ecosystems. In this way, the NPSBN becomes a true collaboration, with FirstNet taking the lead but recognizing the States are of key importance for their infrastructure, know-how, potential supplemental funding, and solicitation of partnerships.

The RFI asks whether the States should serve as a "clearinghouse" for third parties to bid to build and operate portions of the NPSBN. Alcatel-Lucent urges that NTIA should take this approach. State solicitation of PPP candidates would create a broader pool of potential partners, such as rural and regional telecommunications carriers and utilities, none of which maintain a national footprint, to help fund the network and offer their own existing local infrastructure to the NPSBN. With respect to regional participation as suggested in the RFI, Alcatel-Lucent also believes that States should be permitted to pool resources if they choose, and potentially form multi-state regions if proximate States determine they have synergies that would favor such regional participation.[3]

NTIA should permit States to utilize some portion of their grant funding to in turn conduct their own RFIs or requests for proposal ("RFPs") in solicitation of potential partners

[3] Alcatel-Lucent does not recommend that FirstNet coordinate with regions at smaller-than the State level. Intrastate regions would likely become administratively unwieldy for FirstNet and could become an impediment to network deployment.

for network deployment, operation, use, and maintenance of the FirstNet network. States should solicit responses from potential partners that identify resources – cash in exchange for access to spectrum, infrastructure, etc. State solicitations also should request respondents to outline the circumstances under which they are willing to utilize broadband infrastructure they do not own or control, as well as their willingness to allow other entities to utilize broadband infrastructure that they do own.

State RFIs or RFPs should be crafted in a manner that addresses both population and geographic coverage, and leverages spectrum demand to the maximum extent feasible to address both. State RFIs or RFPs should only solicit responses from entities willing to participate in statewide network partnerships that include build-out milestones, infrastructure and other resources, etc., across the entire State. To the extent no one entity can partner in such a manner, States should create or invite responses from consortiums that, together, can provide a statewide partnership ecosystem.

Finally, State solicitations should not permit cherry-picking of urban population centers. While FirstNet may ultimately identify ". . . special considerations for areas or regions with unique homeland security or national security needs,"[4] as a general matter, the demand for spectrum in densely populated urban markets can and should fuel FirstNet's rural deployment, as the Spectrum Act clearly intends.[5]

II. PPPs are Critical to Lowering Total Cost of Ownership of the NPSBN

Last year Alcatel-Lucent commissioned Bell Labs to conduct an analysis of cost savings associated with a NPSBN deployed via PPP compared to a stand-alone NPSBN. Attached to these comments is a presentation, entitled "High Level TCO Comparison: Stand

[4] Spectrum Act, § 6206(b)(2)(D).

[5] *See id.* § 6206(b)(3) (requiring that the NPSBN, "shall require deployment phases with substantial rural coverage milestones . . . .").

Alone Public Safety Network vs. Public Private Partnership," which summarizes the results of Bell Labs' analysis.

The analysis looks at all of the major components of the NPSBN, including devices, eNodeBs, backhaul, backbone, the core, maintenance and other costs. The findings are decisive: by entering into PPPs, the NPSBN stands to gain nearly $7 Billion over 10 years, with the greatest savings coming from lower costs for devices and device management that would occur from the addition of secondary users. The analysis also bears out the widely held assumption that using existing infrastructure, compared to a stand-alone NPSBN being built from the ground up, results in substantial savings. In fact, there are savings across the board, for both capital costs and operating costs.

Entering into PPPs not only can lower the total cost of ownership for all operators involved, but also reduce time to market and increase coverage of the public and private network(s). It is for this reason that Alcatel-Lucent strongly recommends that NTIA seek information on third party infrastructure and partnership opportunities as part of the Grant Program.

III. Recommendations for Data Collection

The RFI asks for input on what data States should compile related to the several areas for consultation enumerated in Section 6302 of the Spectrum Act, and Alcatel-Lucent provides its recommendations on a number of these topics below. With respect to any infrastructure owned by State and local entities that is made available for FirstNet's use, Alcatel-Lucent recommends that States be requested to provide an estimate on the cost to FirstNet of utilizing such infrastructure. Alcatel-Lucent encourages NTIA to in turn encourage States making infrastructure available to do so at cost to maximize FirstNet's deployment capabilities.

"Construction of a core network and any radio access network build-out." To support the construction of the core network, it is important that the State provide information on all the data networks that are currently in use by the State or local entities into which FirstNet needs to interconnect, the number of users associated with each of these existing networks, including growth projections, and where their point(s) of interconnect to the NPSBN would need to be. The State should also identify what links exist between these various networks, the capacity of these links, as well as whether the link is owned by the State or local entity or, if leased, from a third party, and associated leasing costs.

"Placement of towers." States should be asked to provide an inventory of existing State, local, or tribal-owned sites that are a candidate for long term evolution ("LTE") network equipment. This information is critical to coverage analysis. Information that should be collected includes, but is not limited to, land mobile radio ("LMR") towers, water towers, as well as tall buildings. While suitable antenna heights may vary depending on the particular situation, heights for LTE macrocell sites typically are in the range of 80 to 120 feet. The State should also identify what backhaul links exist between these various sites, the capacity of these links, as well as whether the link is owned or leased from a third party. If leased, the State should identify the associated leasing costs. Furthermore, given the large volume of traffic an LTE site can generate, it is also important to identify any fiber infrastructure in the State that may be leveraged for backhaul of traffic from LTE sites.

"Coverage areas of the network, whether at the regional, State, tribal, or local level." In order for the State to identify its coverage needs, it should start by gathering information on coverage of networks currently in use by public safety throughout the State. This starts by identifying current LMR coverage as well as any current mobile data coverage obtained from commercial telecommunications providers. Additionally, the State should identify any coverage gaps that may exist currently for purposes of understanding the

geographic reach the NPSBN should strive to achieve in that State. The State also should provide a list of critical infrastructure sites and the type of coverage required for these sites (indoor, outdoor, increased capacity, etc.).

With respect to minimum data rates in any given area of a state, Alcatel-Lucent recommends that the States provide information on their needs. Alcatel-Lucent expects that State-provided recommendations for data rate requirements may vary from State-to-State and across a State. After evaluating coverage and data rate requirements, it is recommended that FirstNet conserve resources allocated by the Spectrum Act by funding a baseline service level. If a State indicates it desires network characteristics that exceed the prescribed baselines for coverage, data rates, etc., the State should be permitted to fund increased performance either using State government funds or funds derived from PPPs within the State.

"Adequacy of hardening, security, reliability, and resiliency requirements." As part of providing the information on current sites, the States should provide information on current power systems in place, including backup power sources and their capacity. They should also identify physical security mechanisms in place at the site. The amount of available indoor and/or outdoor space is important as well to help assess the suitability of existing sites to support additional LTE equipment for the NPSBN. The States should provide information on any structures planned for LTE use, including, for example, seismic data, tornado resistance, flooding potential, etc. If any other special concerns exist with using a specific site for LTE, those concerns should be captured as well.

When evaluating sites, care must be taken that the site has reliable backhaul facilities. At a minimum, the backhaul equipment should be fully redundant. Ideally, however, the sites should be part of a ring topology where each leg of the ring is routed over a different physical path. In particular, State and local entities should identify IP-MPLS with fast re-route

capabilities. IP-MPLS with fast re-route provides maximum reliability and should serve as a particular point of emphasis in State information collection activities.

"Assignment of priority to local users; assignment of priority and selection of entities seeking access to or use of the nationwide public safety interoperable broadband network." Alcatel-Lucent does not believe the States should focus at this time on providing information regarding assignment of priority. Instead, FirstNet should pursue this important range of issues as part of its general obligation to consult with State, local and tribal entities and the formulation of advisory committees that can aid in this specific task.[6]

IV. Conclusion

For the foregoing reasons, FirstNet should form a robust partnership with the States to best ensure the success of the NPSBN. In order to facilitate FirstNet-State collaboration, the NTIA Grant Program should encourage every State to provide information on existing infrastructure that can be a part of implementing the NPSBN. Any State or third party contributing funds, leveraging infrastructure, and creating a robust PPP ecosystem for the NPSBN should be seen as an opportunity to make the nationwide network a reality.

Respectfully submitted,

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[6] Spectrum Act, §§ 6206(c)(2)(B), 6205(a).