

The logo for OneNet, featuring the word "OneNet" in a stylized, blue, sans-serif font. The "O" is large and rounded, and the "N" and "E" are connected. The "T" is also stylized with a horizontal bar.

A PUBLIC SAFETY WIRELESS TECHNOLOGY PROGRAM

A State's Costs for FirstNet Service

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Executive Summary

As the First Responder Network Authority's (FirstNet) private partner AT&T begins to deploy the Nationwide Public Safety Broadband Network (NPSBN), the state of Washington needs to understand the impact and plan for the potential costs that may be incurred as it opts into the network.

This report identifies and discusses areas of new costs that may be experienced both at the State and local agency levels for a state opting into FirstNet's high speed wireless data service.

At the state level, both Washington's Single Point of Contact (SPOC) and Statewide Interoperability Executive Committee (SIEC) are expected to have continued FirstNet governance responsibilities post-Governor's decision. These include:

- Meeting regularly with AT&T to assess implementation progress and assure meeting of deployment commitments, especially for rural and tribal coverage.
- Facilitating resolutions to the areas of weakness identified in FirstNet's state plan, for example, determining the location of Band 14 Long Term Evolution (LTE) sites and deployable staging.
- Aggregating and communicating state and local coverage needs to FirstNet and AT&T.
- Establishing governance, policy, and procedures in key areas such as local control, priority, and applications interoperability.

Local agencies subscribing to FirstNet services are also affected. Sources of potential costs to agencies include:

- Integrating legacy land mobile radio (LMR) with push-to-talk (PTT) cellular service.
- Increasing subscriber agency duties proposed under the plan for device management, user authentication, and application management for agencies that do not already have these functions in place.
- Using virtual private networking (VPN) software to comply with end-to-end encryption security requirements, such as those associated with Criminal Justice Information System (CJIS) access.
- Adding administrative burdens on small agencies having a liberal bring your own device (BYOD) policy, due to the security and control requirements associated with the FirstNet application environment.

Looking to the future, as with any technology advance, costs for new capabilities will not be transparent. Ready access to high speed wireless data communications can be expected to generate new demand and therefore new unplanned costs to agencies for nascent needs. These new products include advanced public safety mobile apps, national and regional database subscriptions, and new software applications, for example, to integrate with NG9-1-1 deployments.

In contrast, access to ubiquitous high speed wireless communications may also foster the development of new distributed, cloud-based applications that leverage economies of scale, saving costs in the long term by offering public safety users lower cost replacements to localized, proprietary systems.

1. Introduction

As FirstNet's private partner, AT&T, begins to deploy the NPSBN, Washington needs to understand the impact and plan for the potential costs that may be incurred as a result of opting into the network.

This report identifies and discusses areas of new costs that may be experienced both at the State and local agency levels for a state opting into FirstNet's high speed wireless data service.

2. Background

At its simplest, FirstNet service is a special case of commercial 4G LTE cellular service. As such, its business model differs greatly from traditional LMR which is typically funded, deployed, and managed locally by public safety entities (PSEs). FirstNet service will instead be funded, deployed, and managed nationally, and provided to local public safety subscribers for a recurring monthly fee. Therefore, regarding costs to states, FirstNet and AT&T go on record stating they assume responsibility for all costs of the network:

“For states/territories that elect to opt in, FirstNet and its network provider, AT&T, will deploy, operate and maintain FirstNet at no cost for 25 years.”¹

However, despite AT&T's responsibility for operating the nationwide network, there will still be initial and ongoing costs to states and local public safety agencies for participating in the service.

For example, both Washington's SPOC and SIEC are expected to have continued FirstNet governance responsibilities post-Governor's decision. These include facilitating resolutions to the areas of weakness identified by the State in FirstNet's state plan, deciding the location and number of LTE sites and staging of deployables, as well as other important aspects, including ongoing coverage planning and local control coordination. Local agencies will also have new responsibilities as a result of subscribing to FirstNet services, such as increased device management and administration.

The following sections detail areas that will require increased support at the state and local levels as a result of opting into FirstNet.

3. State Costs

The bulk of the NPSBN operating infrastructure will be funded by revenues from three sources:

- \$7B of **Budget Authority** from the Act
- **Public Safety Revenue** in the form of recurring user fees from PSEs
- **Excess Network Capacity** revenues through Covered Lease Agreements (CLAs)²

Much of these revenue sources “bypass” the state level and are gained through end user subscription fees, including those from local public safety users.³

¹ FirstNet. *The Governor's Decision Media Kit*. Retrieved from: <https://firstnet.gov/the-governors-decision-media-kit>

² FirstNet (2015, April 27). Appendix to the Special Notice, Pricing Concepts. *Special Notice D15PS00295 – Nationwide Public Safety Broadband Network (NPSBN)*. p.2.

³ An important addition would be PSEs in state agencies, such as the Department of Transportation.

States opting into FirstNet service will not incur network core fees, since these costs are incorporated in the recurring subscription fees charged to local PSEs.⁴ From the core network, FirstNet's private partner, AT&T, will always provide functions such as authentication, mobility, routing, security, prioritization rules, and support system functions, including billing and device services, along with connectivity to the internet and public switched network. Further AT&T will assume radio access network (RAN) responsibilities and as such will also provide customer-facing roles, such as marketing, execution of customer agreements, billing, maintaining service responsibility, and generating and using fees from public safety customers.⁵

What remain unfunded are operational and administrative costs that are ancillary to providing service, such as joint planning, coordination, education and training. These make up a relatively small portion of the overall operating cost of the network but are important functions that necessarily involve the State. The following paragraphs provide specific examples of this key state role necessary for making FirstNet successful.

3.1. State Point of Contact and Governing Body

Long after the Governor's decision to opt into FirstNet, the Washington FirstNet SPOC⁶ and SIEC governing body will continue to fill key roles of aggregating and communicating state needs to FirstNet and AT&T and determining policy and procedures within the State. See the **Appendix** of this document for a list of anticipated responsibilities and ongoing activities at the state level. Initially this will involve topics such as deployment service coverage, but can be expected to expand over time into determining overarching procedures for operational aspects, such as device allocation (e.g., deployables), credentialing, local control (i.e., priority and preemption), and service area growth and fill-in. AT&T state plan commitment letters have institutionalized this ongoing relationship, with AT&T providing written assurances to work with the SIEC to maximize the efficiency of the FirstNet network by leveraging state, local, and tribal assets. Another activity within the relationship will be determining and advocating to AT&T and FirstNet who should be primary and extended primary users. 9-1-1 public safety answering point (PSAP) and emergency managers have been added as primary users, and over time other groups are likely to be identified as desired candidates for primary or extended primary service.

3.2. Leveraging State Infrastructure

AT&T has committed to working with the SIEC to leverage existing infrastructure to reduce the cost, increase the speed, and expand the coverage of network deployment. Once AT&T identifies the initial hard-to-deploy coverage areas (e.g., network planning "search rings") there will need to be a corresponding commitment of State staff resources to work with state and local entities to identify candidate existing infrastructure within the areas of interest that can be cost effectively used by AT&T.⁷

⁴ FirstNet (2015, July 9). *FirstNet Quarterly SPOC Webinar*. pp.28-29.

⁵ FirstNet (2015, March 13). *Second Public Notice Regarding Proposed Interpretations of Parts of the Middle Class Tax Relief and Job Creation Act of 2012*.

⁶ The SPOC is an ongoing state responsibility required by the Act. PL 112-96, SEC6206(c)(2)(B).

⁷ In its August 2017 email to Oregon's SPOC, AT&T described this support as "...a point of contact at the state level that will assist our network teams to determine what state/tribal assets are within the site ring areas to determine what can potentially be used."

This coordination effort can vary greatly, since it depends on the number of sites needed, which could be a few or as many as 20 or more.

3.3. Local Control Governance

As early as the June 2017 State Plan Kickoff meeting, AT&T has said that the new local control capability will require additional governance since use of its proposed Incident Management Tool potentially creates conflict between public safety entities. FirstNet also acknowledges that use of the IMT priority uplift capability will require a learning curve of “planning and preparation for complex scenarios and multi-discipline responses.”

The local control portal offered by AT&T specifies features that allow agencies to modify priority and preemption levels on an as-needed basis. The portal does not differentiate between agencies by size or function. As a result, a strong potential exists for operational conflicts, however inadvertent, that cause real impacts to safety as well as operational efficiency. For example, these include conflicts regarding who should have priority when multiple agencies respond to a major incident in mutual aid or cross-jurisdictional situations.

Major events aside, even routine service performance may be degraded if most users are at the same priority. Scenarios to avoid include having an agency continually keeping an uplifted highest priority rather than using it only temporarily during incidents. Or, upon service activation, assigning everyone in an agency the highest of the three permanent priorities, “gaming” the system. As AT&T has stated numerous times, “If everyone has priority, then no one has.”⁸ This drives the need to arbitrate who qualifies and who doesn’t and when, and require FirstNet, AT&T, and state and local governance bodies to agree on a process for making these decisions.

Successful local control governance may require substantial effort in writing standards that are published in an agreed-upon form, outreach and awareness efforts, as well as continued monitoring and training. It may also be necessary to create a process to resolve and learn from conflicts after the fact.

3.4. Deployables Governance

In addition to local control governance, another state responsibility is associated with the staging and deployment of deployables, such as new FirstNet satellite cell on light trucks (SatCOLTS) that will be equipped with Band 14 capability. AT&T has asked that requests from public safety to AT&T for deployables be managed from a single source for the state and not “come from everyone” to AT&T.

3.5. Applications Governance

The FirstNet LTE broadband network will enable exciting new applications for public safety and enhance existing ones. Many of these can be designed as common applications that work the same across jurisdictional boundaries, achieving economies of scale and improving public safety’s effectiveness. However, with this flexibility comes the need for governance, procedure, and policy making. One example is FirstNet push-to-talk applications that interface with LMR systems. In the future, there will be potential for virtually all users to interface with channels and talk groups from a wide range of LMR systems. Having too many users accessing channels and talk groups they don’t really need becomes an

⁸ SAIC (2017, June 8). *FirstNet State Plan Kickoff Meeting*. Meeting Notes. p.18.

impediment to good communications and will require implementing policies and procedures that preserve application effectiveness. The same holds true for data. For example, it may become necessary to develop and enforce policy regarding who may have access to certain types of data and from what sources.

3.6. Training Coordination

Another important cost area will be the need for statewide coordination of FirstNet-related training for public safety users. For example, FirstNet has noted that there will be impacts to incident management procedures as a result of the new IMT for local control.⁹ In fact, FirstNet is already working with the Department of Homeland Security (DHS) Interoperable Communications Technical Assistance Program (ICTAP) to get this information into ICTAP's training curriculum. As this coursework becomes available, the State will play a key role in planning and coordinating local training, similar to what it does now for DHS ICTAP training for interoperable radio communications.

In addition to local control procedures, there are other important training areas necessary for successful adoption and use of FirstNet service by agencies.¹⁰ These include:

- Device operation
- Using the App Store
- Agency Home Page
- Service provisioning and billing
- Identity, Credential, and Access Management (ICAM) administration
- Trouble ticketing and escalation
- Reporting and network monitoring

State level coordination will be required to procure this training once it's available and then to ensure its timely delivery to the appropriate public safety users.

3.7. Fostering Innovation

Along with the exciting new capabilities that accompany deployment of the NPSBN, comes a responsibility to foster innovation and assure a sustainable, vibrant ecosystem for the state's public safety users.¹¹ State activities in this area include acting as a focal point and conduit for local entrepreneurs developing new capabilities. This role may include collecting use cases from the field, aggregating usability feedback, and connecting innovators with collaborative local agencies.

To increase public safety effectiveness in statewide mutual aid scenarios, the State may sponsor the vetting and standardization of applications on a regional or state basis to ensure interoperability across agencies. Similarly, to gain statewide efficiencies and reduce costs, it may champion common cloud

⁹ FirstNet (2017, June 14). FirstNet Session. *The FirstNet & AT&T Partnership: Priorities & Progress*. Public Safety Communications Research (PSCR) 2017 Public Safety Broadband Stakeholder Meeting.

¹⁰ SAIC (2017, August 28). *FirstNet State Plan Review – Analysis and Comments*. p.11. DCN: SPOC-FNIO-17-02

¹¹ Information in this section derived from:

Schrier, W., Worrell, M. (2017, September 24). *Roles for States after Opt-In to FirstNet*. p.2.

hosting of key systems and applications, making them available to the widest user audience possible within the state.

3.8. Other State Costs

A common concern expressed within the state regarding AT&T's proposed implementation is lack of coverage. FirstNet supports states supplementing RAN coverage and capacity beyond the FirstNet plan. These additions are voluntary and would therefore be financed by the State.

There may also be costs associated with the integration and connection of backend data systems with the NPSBN core for state level PSEs and data systems, described further in the next section. Integration with national public safety data systems is expected to occur at no significant costs to states. However, FirstNet has yet to provide details.

4. Agency Costs

As with existing commercial wireless service, the largest cost to local public safety users for FirstNet service is the recurring subscriber fee, which may incorporate both the cost of service and the device, such as a smartphone or tablet. As also with commercial service, these FirstNet service costs to local agencies are avoidable, since subscription is voluntary. However, if an agency already pays for wireless broadband network services then the cost of using FirstNet becomes "transparent," i.e., a cost that is incurred in either case.

Service Cost. To be successful FirstNet must offer high value, low cost service when compared to competing commercial offerings. In that case, switching to FirstNet becomes a net benefit to the agency, provided AT&T makes good on FirstNet's promise to offer a compelling service package at the same or lower cost as existing service. AT&T's rate information is promising and AT&T says to expect deeper discounts as it negotiates bulk purchasing agreements, such as state-specific agreements under the National Association of State Procurement Officers (NASPO) ValuePoint contract.

Device Cost. AT&T offers public safety priority immediately on its 4G LTE commercial service bands. This "all band" solution is truly an innovation compared to FirstNet's request for frequency Band 14 deployment spread over five years. This approach significantly lowers device cost by making priority service available on any AT&T LTE device, including those in service by public safety today. In addition, going forward AT&T is requiring its device manufacturers to include Public Safety Band 14 on all its phones. Finally, FirstNet service supports a Bring Your Own Device policy, further reducing agency device costs. In comment responses, AT&T stated that there will be no additional costs to the State for BYOD subscribers. Taken together, these approaches enable public safety to reduce device costs by taking advantage of the high volume cost curve previously only available to the general public.

Beyond service and device cost, subscribing to FirstNet entails other potential costs to local public safety agencies. The following sections offer details regarding these areas.

4.1. Device Management

Under the state plan, proposed subscriber agency duties for device management, user authentication and application management may add a resource burden on agencies that do not already have these functions in place.

For example, responsibility for user credentialing and device authorization is assigned to the subscribing agency. Therefore, managing log-in names, passwords, resets, device registration, priority, and authorization levels becomes the role of the agency. This administrative requirement also applies to personally-owned devices used on the FirstNet network.

Increasing use of mobile devices and apps by public safety users is also increasing the importance of enterprise mobility management (EMM) by agencies. Regardless of whether the agency uses its own or the FirstNet supplied EMM solution, additional effort will be required to administrate both the devices and the applications residing on them. For example, agencies will need to develop and implement policies regarding which apps to block or “push” to users. AT&T offers AirWatch, IBM MaaS360, and MobileIron for mobile device management, making available hosted and on-premise solutions for an extra monthly or annual service charge.¹²

Agencies will need to follow FirstNet procedures for managing over-the-air device software updates, Universal Integrated Circuit Card/Subscriber Identity Module (UICC/SIM) inventory, in-vehicle equipment installation, and other device-related operational responsibilities. As an example of added effort, when FirstNet moves subscribers to a dedicated network core, agencies will also need to migrate their devices to a new UICC/SIM configuration.¹³ Another example, Early Builder Los Angeles Regional Interoperable Communications System (LA-RICS) required unique placement and testing of Band 14 antennas for each vehicle type to minimize interference.

Larger agencies perform these functions now and for them these new duties will probably be absorbed by their existing staff. However, smaller public safety agencies may lack the resources to administer even their current needs. The requirement to administer new functions for FirstNet may impede FirstNet adoption by smaller agencies.

This hardship will be felt by all, since it will be difficult to realize the full benefits of interoperability without wide scale adoption. Therefore, creative administration solutions fitting smaller agencies will need to be developed by AT&T and FirstNet. If they prove ineffective, alternatively the State may need to consider helping such agencies with their administrative duties, perhaps on a state or regionally shared basis.

¹² AirWatch hosted mobile device management: http://serviceguidenew.att.com/sg_flashPlayerPage/AWHMDM
AirWatch on-premise mobile device management: http://serviceguidenew.att.com/sg_flashPlayerPage/AWOP

¹³ SAIC (2017, August 28). *FirstNet State Plan Review – Analysis and Comments*. p.7. DCN: SPOC-FNIO-17-02

4.2. Local Control

As part of FirstNet's local control capability, AT&T will be offering public safety a new level of service management control. An agency will be able to use its Public Safety Home Page to manage:

- Users – add, edit, and delete users
- Apps – push, recommend, and block apps
- PTT – create and remove talk groups and users
- Internet of Things (IoT) – (future)
- Services and billing – assign and remove devices, change rate plans, and pay bills¹⁴

Through the Home Page agencies will also be able to monitor the network in real time, including site locations and service level conditions, and even log and monitor trouble tickets. Some of these capabilities will undoubtedly increase public safety efficiency, such as self-trouble ticketing, but others represent new responsibilities and therefore new staff effort, such as managing apps and IoT devices. The skills required to operate agency Home Page functions will need to be developed and then maintained over time, adding to training costs and employee time usage.

AT&T applies priority and preemption using its AT&T Dynamic Traffic Management–Public Safety (ADTM) feature. ATDM is a powerful capability, enabling an agency to set priority by application, e.g., video, as well as create user groups, each having different application priorities. This added capability will require added effort by the agency, at minimum meeting initially with an AT&T engineer to uniquely configure the agency's service.

Initial prioritization will be by application using ATDM. With the new public safety network core coming online in March 2018, agencies will also be able to assign their users to three priority levels. Agencies can begin now to plan how they wish to group their personnel to take full operational advantage of this capability.

4.3. Information Technology (IT) Infrastructure

Although a lesser cost than staffing, local agencies can be expected to supply the hardware, software, and network connectivity to support local control. The infrastructure required for this function may vary widely, ranging from a portion of a dedicated command center in an urban environment to a FirstNet web browser-based application running on an existing computer and network in a 9-1-1 center in a more rural area.

More substantial is the cost and effort of interconnecting local backend systems and networks to operate with the NPSBN. These local systems can range from computer aided dispatch (CAD) to law enforcement databases, such as license plate and records management systems. This may be transparent if agencies are already being charged for connecting to and using wireline commercial networks, except for perhaps initial testing, certification, or migration costs. As an example, using

¹⁴ AT&T (2017, June 8). *Public Safety Home Page*. FirstNet AT&T State Plan Kickoff. p.91.

unique access point names (APN) to establish direct links between FirstNet users and an agency PSAP can increase security and reliability, but requires effort to coordinate and configure.¹⁵

For complying with end-to-end encryption security requirements, such as those associated with CJIS access, AT&T offers NetMotion as its virtual private network (VPN) solution. NetMotion software licenses are made available to agencies for additional cost in perpetual (non-recurring) and recurring charging options.¹⁶

With the benefit of connecting to the nationwide network comes the increased system administration responsibility and associated costs to assure servers are hardened, security patches are applied in a timely manner, and networks continuously monitored to assure the local agency's network does not become an entry point for cyber-attacks affecting the national network and core. All these are absolutely necessary but all come with associated implementation and operational costs.

4.4. Bring Your Own Device (BYOD)

For agencies with volunteer staff, such as volunteer fire departments, FirstNet's BYOD policy enables agencies to control access, requiring the sponsoring agency to grant volunteers access via its Public Safety Home page before they can access the FirstNet network.

However, this additional security comes with some added agency effort, as not only must the agency initially grant access, at least annually it must review its BYOD user roster to assure all responders remain valid. It must schedule routine checks to assure the operating system and application software on personal devices remain up to date and assure that FirstNet access, settings, and application data are removed when the device owner leaves the agency.

A more subtle impact is the very security and control features associated with the FirstNet application environment may pose administrative burdens on small agencies having a liberal BYOD policy. Many agencies, particularly those that are smaller in size, have adopted a strategy of paying employees a device allowance rather than purchase, provide, and maintain devices for employees. They have migrated to this solution precisely to avoid the administrative issues involved in monitoring employee use (or abuse) of agency equipment, conflicts between private and agency use, and limits associated with various plans. In contrast, the security and access controls applied with FirstNet service may require increased agency involvement, even if minimal.

4.5. Integrating Land Mobile Radio

Even as PTT applications become available for cellular devices, there remains a continued need for mission critical voice LMR service as well as for public safety to interoperate between the two. These needs result in additional costs to subscribing agencies, both in the near and long term.

In the near term, AT&T provides a cloud-based Enhanced Push-to-Talk (EPTT) application that is available to subscribers at an extra monthly charge. AT&T also offers integration with an agency's LMR

¹⁵ SAIC (2015, December) *FirstNet in Oregon Planning for FirstNet Network*. Appendix A – Integrating Local and National Networks and Applications. A-7.

¹⁶ For more information about NetMotion, see: http://serviceguidenew.att.com/sg_flashPlayerPage/NMW

system.¹⁷ AT&T's interoperability service supports a number of interface methods, including via Inter-Subsystem Interface (ISSI), Console Subsystem Interface (CSSI) for connecting dispatch consoles, and a solution from JPS Interoperability Solutions using Radio over Internet Protocol (RoIP).¹⁸ These LMR-LTE PTT interoperability services all have a monthly charge as well as an initial set-up fee.¹⁹

In the long term, AT&T intends to support Mission Critical Push to Talk (MCPTT), an LTE standard currently being developed by the Third Generation Partnership Project (3GPP) international standards body. Use of a common PTT standard will simplify operations and potentially reduce costs for public safety when compared to the proprietary systems in use today. However, the National Public Safety Telecommunications Council (NPSTC) in its Final Report affirms a continuing need for LMR interworking, saying, "LMR and LTE interoperability will be required over an extended period of time. It is likely that some public safety agencies may never migrate their LMR operations over to LTE."²⁰ Therefore, even as agencies move to embrace MCPTT in the future there will undoubtedly be continued costs associated with service, training, migration, and other integration activities.

4.6. Preparing for Adoption

The FirstNet Public Safety Advisory Committee (PSAC) has developed a checklist to assist agencies preparing to subscribe to FirstNet service.²¹ Appendix B of that report lists questions agencies can ask themselves as they prepare for FirstNet adoption.

These questions fall under the following categories:

- Policies and Procedures
- Staffing and Requirements
- Applications, and Application Usage Policies
- Devices
- Agency Training
- Communications and Data Management Policies
- Interagency Relationships
- Procurement
- Funding and Budgeting
- Inventory and Testing

¹⁷ AT&T (2016, August 15). *AT&T Enhances Interoperability for Public Sector and Public Safety Networks*. Retrieved from:

http://about.att.com/story/att_enhances_interoperability_for_public_sector_and_public_safety_networks.html

¹⁸ A white paper describing JPS' RoIP solution can be found at:

<https://www.business.att.com/content/whitepaper/eptt-lmr-interoperability-jps-roip-white-paper.pdf>

¹⁹ AT&T (2018, January 17). *AT&T Enhanced Push-to-Talk*. AT&T Business Service Guide. p.8. Retrieved from:

<http://serviceguidenew.att.com/servlet/servlet.FileDownload?file=00P0h000014ITp5EAG>

²⁰ NPSTC (2018, January 8). *Public Safety Land Mobile Radio (LMR) Interoperability with LTE Mission Critical Push to Talk Final Report*. Retrieved from:

http://www.npstc.org/download.jsp?tableId=37&column=217&id=4031&file=NPSTC_Public_Safety_LMR_LTE_IO_Report_20180108.pdf

²¹ PSAC (2017, July 10). *Preparing for Adoption Task Team Final Report*. Appendix B: Preparing for Adoption Agency Checklist.

The questions can help further identify the necessary activities for a specific agency and therefore the additional costs associated with using FirstNet service.

Finally, FirstNet initially proposed public safety's role in ongoing operations during its development of the NPSBN Request for Proposal (RFP).²² Although created prior to contract award to AT&T, the resulting list of functional responsibilities during Lifecycle Management remains helpful to agencies adopting FirstNet service.

5. Timeline

The FirstNet RFP specified network deployment over five years, with four Interim Operational Capability (IOC) phase milestones and Final Operational Capability (FOC) delivered in 2022. However, AT&T chose in its bid to accelerate network roll-out by proposing an "all band" solution that offers FirstNet service using AT&T's existing commercial frequency bands almost immediately and completing the Public Safety Band 14 deployment in three years instead of the planned five.

Therefore, the potential cost impacts identified in this report are the greatest in the next three years, as the State facilitates resolutions for areas of weakness in the Washington State Plan. These include shorter term issues, such as determining the number and staging of deployables, as well as longer term aspects – for example, ongoing coverage planning and local control coordination.

In the outer years, costs are expected to decrease as focus moves from network deployment to ongoing operations. Activities will include initial planning for years 6-10, working with AT&T to expand coverage and fill gaps, and a renewed emphasis on increasing capacity in preparation for 5G service and advanced applications.

6. Future Costs and Savings

As with any technology advance, costs for new capabilities will not be transparent. Ready access to high speed wireless data communications can be expected to generate new demand and therefore new unplanned costs to agencies for products such as public safety mobile apps, national and regional database subscriptions, and new software applications, for example, to integrate with NG9-1-1 deployments.

Finally, in contrast, access to ubiquitous high speed wireless communications may also foster the development of new distributed, cloud-based applications that leverage economies of scale, saving costs in the long term by offering public safety users lower cost replacements to localized, proprietary systems.

²² FirstNet (2015, September 3). *Operational Architecture Functional Descriptions*. See A.2 Lifecycle Management, <https://www.fbo.gov/utills/view?id=7688fb7d3164c72a7e17b0aee9605453>

Appendix – State Level Roles and Responsibilities

As described in the report, the Washington SPOC and SIEC governance body will continue to perform important functions during FirstNet service deployment and ongoing operations. **Table 1** illustrates some of the key state-level roles, responsibilities, and activities anticipated to assure successful public safety broadband service delivery to Washington’s first responders.

Table 1. Public Safety Broadband Anticipated State Roles and Responsibilities

State Roles, Responsibilities, and Activities	
1.	<p>Managing AT&T Deployment Commitments</p> <p>Conducting regular meetings with AT&T, as well as tracking and monitoring activities to assure AT&T deployment progress, especially for new site builds, rural, and tribal coverage as agreed in the AT&T commitment letter to the Governor, dated December 20, 2017.</p> <ul style="list-style-type: none"> • Conduct semi-annual operational reviews covering stakeholder outreach, deployment build-out, operations and technology upgrades. • Review site hardening plan, identifying priority infrastructure for additional hardening. • Explore FirstNet-related deployment options using state, local, and tribal assets. <p>Sponsoring drive testing to confirm deployed coverage. [SLIGP 2.0]</p>
2.	<p>Aggregating State and Local Coverage Needs</p> <p>Receiving public safety input regarding local coverage gaps and working with AT&T and FirstNet to plan and fill these gaps during deployment phases.</p> <ul style="list-style-type: none"> • Identify and document on-going coverage needs/gaps within the state. [SLIGP 2.0]²³ • Collect data in specific areas identified to be helpful as requested by FirstNet. [SLIGP 2.0] • Perform planning activities to prepare for emergency communications technology transitions. [SLIGP 2.0] <p>Planning supplemental state coverage. FirstNet supports voluntary state funding of RAN coverage and capacity beyond the FirstNet plan.</p>
3.	<p>Leveraging Existing Washington Infrastructure</p> <p>Leveraging existing infrastructure, including public safety, state and local government, and utility towers and sites.</p> <ul style="list-style-type: none"> • AT&T is executing an internal project at the national level to identify non-commercial infrastructure for reuse and is contacting states for available site assets. • As AT&T identifies the hard-to-deploy coverage areas, State staff will need to work with state and local entities to identify candidate existing infrastructure. • Once assets are identified, State staff may need to facilitate determining the process, compensation, and agreements necessary for use by AT&T.
4.	<p>Coordinating Deployable Staging</p> <p>Negotiating the staging and deployment of deployables, such as the new FirstNet satellite cell on light trucks (SatCOLTs) that will be equipped with Band 14 capability.</p> <ul style="list-style-type: none"> • This includes FirstNet SatCOLTs and other AT&T deployables to be staged in Washington, as specified in the December 20 AT&T commitment letter to the Governor.

²³ Indicates an allowable activity called out under the second National Telecommunications and Information Administration (NTIA) State and Local Grant Program (SLIGP).

5.	<p>Coordinating Statewide Training</p> <p>Statewide coordination of FirstNet-related training for public safety users.</p> <ul style="list-style-type: none"> • FirstNet says that there will be impacts to incident management procedures as a result of the new IMT for local control. The State will play a key role in planning and coordinating local training, similar to what it does now for DHS ICTAP training for interoperable radio communications.
6.	<p>Establishing Local Control Governance (Priority)</p> <p>Coordinating policy development and governance for local control of priority during incidents involving response by multiple agencies.</p> <ul style="list-style-type: none"> • Successful local control governance may require writing standards, outreach and awareness efforts, and continued monitoring and training. • There will be a need to create a process to resolve and learn from conflicts, post-event.
7.	<p>Enhancing Data Sharing among Agencies</p> <p>Developing policies and agreements to increase sharing of data between existing public safety systems across various agencies within the state using the NPSBN. [SLIGP 2.0]</p>
8.	<p>Determining Eligible Users</p> <p>Performing planning activities to help FirstNet and its partner AT&T further identify potential public safety users of the NPSBN. [SLIGP 2.0]</p> <ul style="list-style-type: none"> • Aggregate local and regional inputs to provide FirstNet additional Washington candidates for Primary and Extended Primary user categories.
9.	<p>Facilitating Service Contracting Vehicles</p> <p>Planning efforts to help FirstNet gain inclusion on applicable statewide contract vehicles, making FirstNet service more available and affordable to local agencies. [SLIGP 2.0]</p>
10.	<p>Performing Education and Stakeholder Outreach</p> <p>Performing activities to convene stakeholder outreach events to continue planning for NPSBN implementation, as requested by FirstNet. [SLIGP 2.0]</p>
11.	<p>Assuring Cyber Security</p> <p>Establish process and funding for cyber security assessment, remediation, and certification of local, regional, and state public safety data networks prior to connecting to the FirstNet network backbone.</p>
12.	<p>Facilitating Application Integration</p> <p>Identifying and planning for the transition of public safety applications, software, and databases. [SLIGP 2.0]</p> <ul style="list-style-type: none"> • Coordinate the integration and connection of backend data systems with the NPSBN core for state level agencies and data systems. • Develop policy for push-to-talk applications that interface with LMR systems regarding who may have access to certain types of data and from what sources.

13.	<p>Promoting Public Safety Application Interoperability</p> <ul style="list-style-type: none"> • Work with FirstNet to assure state and local agencies have access to the apps they need. • Promote best practice by standardizing and recommending apps, increasing public safety effectiveness and efficiency on a regional and statewide basis. • Investigate the viability and benefit of a Washington OneNet App Store – an app clearinghouse that would be open to public safety users across multiple carriers and not limited to only AT&T FirstNet subscribers like the FirstNet App Store. (FUTURE)
14.	<p>Fostering Innovation</p> <p>Fostering innovation within the state, assuring a sustainable, vibrant state ecosystem for public safety users²⁴</p> <ul style="list-style-type: none"> • Act as a focal point and conduit for local entrepreneurs developing new capabilities. • Champion common cloud hosting of key systems and applications, making them available to the widest user audiences possible. • Promote Internet of Things (IoT) infrastructure and capabilities complementary to public safety’s mission.
15.	<p>Converging Public Safety Communications Governance</p> <p>Assisting state public safety representatives responsible for LMR interoperability and Next Generation 9-1-1 (NG9-1-1).</p> <ul style="list-style-type: none"> • Plan for integration with FirstNet service. • Facilitate a future converged public safety communications governance structure for Washington, as urged by the National Governors Association (NGA)²⁵ and the Department of Homeland Security in its National Emergency Communications Plan.²⁶

²⁴ See Schrier, W., Worrell, M. (2017, September 24). *Roles for States after Opt-In to FirstNet*.

²⁵ See <https://www.nga.org/files/live/sites/NGA/files/pdf/2017/1704HSPSEmergencyCommunications.pdf>

²⁶ See https://www.dhs.gov/sites/default/files/publications/2014-11-07%20-%20NECP%20Slick%20Sheet_0.pdf