

Virginia Information Technologies Agency



# Commonwealth of Virginia 9-1-1 Services Board FY 2018 Annual Report

**Draft**

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## Executive Summary

The *Code of Virginia* (§56-484.14) requires the 9-1-1 Services Board (the “Board”) to report annually to the Governor, the Senate Committee on Finance, the House Committee on Appropriations, and the Virginia State Crime Commission on the following:

- (i) the state of enhanced 9-1-1 services in the Commonwealth,
- (ii) the impact of, or need for, legislation affecting enhanced 9-1-1 services in the Commonwealth,
- (iii) the need for changes in the E-911 funding mechanism provided to the Board, as appropriate, and
- (iv) monitor developments in enhanced 9-1-1 service and multi-line telephone systems and the impact of such technologies upon the implementation of Article 8 (§ 56-484.19 et seq.) of Chapter 15 of Title 56.

### ➤ *The state of enhanced 9-1-1 services in the Commonwealth*

The commonwealth has been actively planning for Next Generation 9-1-1 (NG9-1-1) for nearly a decade. NG9-1-1 is a solution based on a modern Internet Protocol (IP) network that has the ability to deliver calls to the appropriate Public Safety Answering Point (PSAP) faster, transfer 9-1-1 calls and associated data anywhere needed, interconnect with other public safety systems and databases, and securely receive multimedia communications like text, photos and videos. The backbone of this system is an Emergency Services IP Network (ESInet).

The commonwealth’s current 9-1-1 system is dependent on decades old technology and is tethered to voice-centric communications. Furthermore, it relies on an analog network that is quickly going out of service and places limitations on the reliable delivery of 9-1-1 service to Virginia PSAPs. Given the significant advances of the capabilities and functionality of an NG9-1-1 network, the Board’s decision was not if Virginia would deploy NG9-1-1, but rather when and how the deployment of this new technology would occur.

As a result, the Board is leading Virginia’s efforts to transition an outdated 9-1-1 system into a digital network that is faster, more efficient, and has greater PSAP capabilities to better serve its citizens and visitors. Throughout FY 2018, the Board has had a number of accomplishments:

- Approval of a NG9-1-1 Deployment Plan
- Completion and delivery of 122 NG9-1-1 plans to primary and secondary PSAPs that lays out how each PSAP will transition from their current state to full NG9-1-1
- Identification and recommendation of a procurement vehicle for localities to use to deploy NG9-1-1 in their PSAPs

- Distribution of NG9-1-1 GIS Data Report Cards to localities that contain an assessment of data readiness for NG9-1-1 and information on the conformance of GIS datasets to the Virginia Geospatial Data Standards
- Establishment of the NG9-1-1 Migration Program to provide funding to PSAPs for NG9-1-1 migration expenses throughout the NG9-1-1 deployment period

Currently, all localities within the commonwealth provide wireless enhanced 9-1-1 (E9-1-1) phase I and phase II service, as well as wireline E9-1-1 service.

➤ *(ii) The impact of, or need for, legislation affecting enhanced wireless emergency telecommunications services in the Commonwealth*

The Board has proposed the following legislation for the 2019 General Assembly session to have the required cash flow to complete the implementation of NG9-1-1 by July 1, 2023:

- \$30 million in borrowing authority for the Board from the Virginia Treasury

➤ *(ii) The need for changes in the E-911 funding mechanism provided to the Board, as appropriate*

During their 2018 session, the General Assembly eliminated wireless cost recovery. This action resulted in a greater portion of the Wireless E-911 Fund (the "Fund") being available to fund the statewide migration to NG9-1-1. The grant program has also transitioned to function as a funding program to support NG9-1-1 PSAP migration efforts. The overall budget for this migration has been revised downward to approximately \$47 million, but borrowing authority of \$30 million is required to support the cash flow required to fund the deployment. As a result, the Board is not recommending an increase to the wireless surcharge rate at this time.

The Appropriations Act for the current biennium budget continues the transfer from the Fund of \$3.7 million to the Virginia State Police (VSP) for costs incurred in answering wireless 9-1-1 calls and the transfer of \$8 million to the Compensation Board to pay the salaries of sheriffs' dispatchers. These transfers may impact the commonwealth's ability to receive federal funding in the future.

➤ *Monitor developments in enhanced 9-1-1 service and multi-line telephone systems*

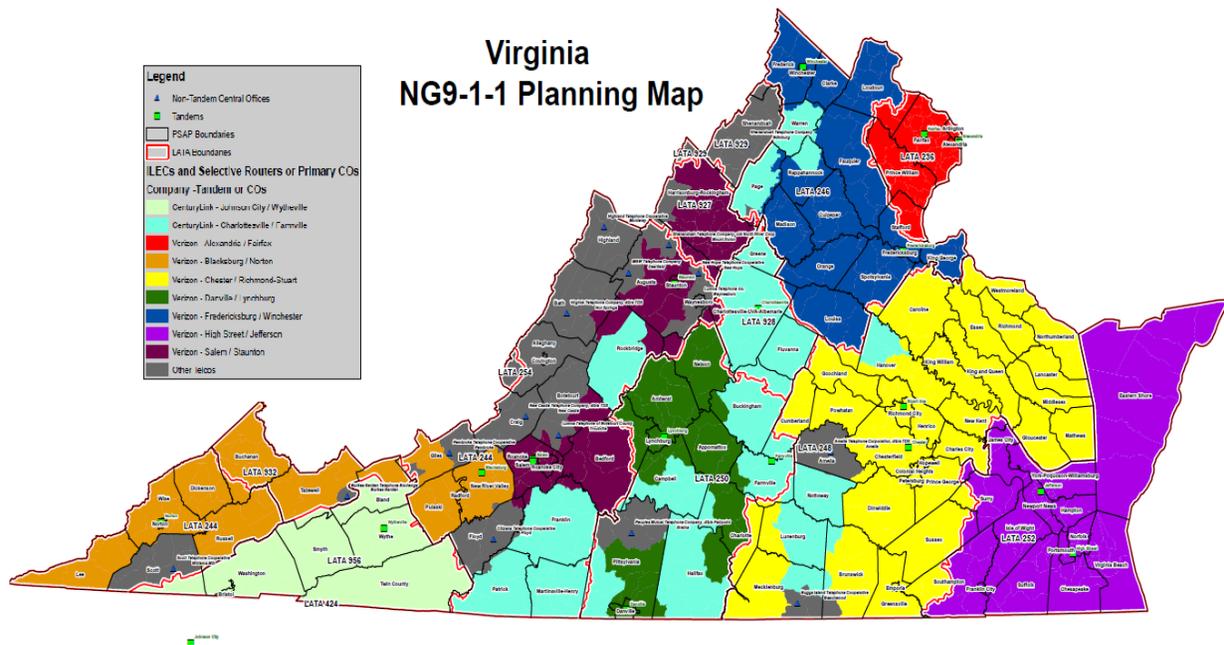
This is a duty of the Board that was enacted on July 1, 2007. Most of the provisions of Article 8 (§ 56-484.19 et seq.) of Chapter 15 of Title 56 took effect on July 1, 2009. The Board continues to monitor developments.

# Enhanced 9-1-1 Services in the Commonwealth

## NG9-1-1 Deployments

The commonwealth has been actively planning for NG9-1-1 for nearly a decade. NG9-1-1 is a modern IP network and is based on the [National Emergency Number Association's \(NENA's\) i3 standard](#). This technology has the ability to deliver calls to the appropriate PSAP faster, transfer 9-1-1 calls and associated data anywhere needed, interconnect with other public safety systems and databases, and securely receive multimedia communications like text, photos and videos. As requirements grow and change in response to advances in communications technology, NG9-1-1 provides a scalable and adaptable solution.

The commonwealth's current 9-1-1 system is dependent on decades old technology and is tethered to voice-centric communications. Furthermore, it relies on an analog network that is quickly going out of service and places limitations on the reliable delivery of 9-1-1 service to Virginia PSAPs. Given the significant advances of the capabilities and functionality of an NG9-1-1 network, the Board's decision was not if Virginia would deploy NG9-1-1, but rather when and how the deployment of this new technology would occur. Choosing not to deploy NG9-1-1 was not an option.



In January 2018, the Board approved a [NG9-1-1 Deployment Plan](#) that describes the process and timeline for migrating Virginia PSAPs off the legacy network selective routers. This plan proposes the methodology and process to guide the Board and the commonwealth through this deployment. Virginia's current E9-1-1 network is actually a collection of nine, independent networks connected to selective router pairs. These E9-1-1 networks are depicted in the NG9-1-1 planning map on the previous page.

In general, these E9-1-1 networks or selective router pairs will transition one at a time over a 36-month period, moving from east to west across the commonwealth. The table below lists the schedule. By transitioning the most populous networks first, 9-1-1 service providers will be able to decommission the selective routers in as short a time period as possible, thus reducing the cost of the transition.

| Selective Routers            | 9-1-1 Service Provider | Population | Time Period |
|------------------------------|------------------------|------------|-------------|
| Fairfax/Alexandria           | Verizon                | 2,494,184  | 2Q-2019     |
| High St Portsmouth/Jefferson | Verizon                | 1,662,247  | 4Q-2019     |
| Stuart/Chester               | Verizon                | 1,660,182  | 2Q-2020     |
| Charlottesville/Farmville    | CenturyLink            | 403,369    | 4Q-2020     |
| Fredericksburg/Winchester    | Verizon                | 343,031    | 4Q-2020     |
| Danville/Lynchburg Church St | Verizon                | 320,247    | 4Q-2020     |
| Staunton/Salem               | Verizon                | 453,065    | 2Q-2021     |
| Shenandoah County ECC        | Shentel                | 43,175     | 2Q-2021     |
| Covington                    | Ntelos                 | 21,556     | 2Q-2021     |
| Floyd County                 | Citizens Telephone     | 15,755     | 2Q-2021     |
| New Castle                   | TDS Telecom            | 5,158      | 2Q-2021     |
| Monterey-Highland Telephone  | Highland Telephone     | 2,216      | 2Q-2021     |
| Blacksburg/Norton            | Verizon                | 340,101    | 4Q-2021     |
| Johnson City/Wytheville      | CenturyLink            | 338,311    | 4Q-2021     |

However, since 9-1-1 is a local service, it is up to each locality to determine how they will move forward with deployment. This means that success is dependent on all stakeholders within the 9-1-1 ecosystem working together to ensure a smooth transition to NG9-1-1. Fortunately, localities in the commonwealth are able to leverage a project in Northern Virginia for both lessons learned and a procurement vehicle that will make the process significantly easier.

Fairfax County took the lead on the procurement of NG9-1-1 services and released a request for proposal (RFP) based on the requirements developed by the northern Virginia region. The RFP included a provision that requested a proposal for the Maryland localities in the National Capital Region (NCR) and the rest of the Commonwealth of Virginia. After an exhaustive evaluation and selection process, Fairfax awarded the contract for NG9-1-1 services to AT&T. This [contract](#) included a provision that allows other localities to purchase services from this contract.

The Board is recommending to localities to use the Fairfax County AT&T contract to deploy NG9-1-1 in their PSAP. In addition, the Board directed Integrated Services Program (ISP) staff to develop detailed plans for each primary wireless PSAP, as well as those secondary PSAPs connected to the selective router pairs. These plans, or Migration Proposals (MPs), lay out how each PSAP will transition from their current state to full NG9-1-1 deployment by the end of calendar year 2021. They are intended for planning purposes only and to ensure the PSAP fully understands what is being offered through the Fairfax County contract. In addition, the proposal documents provide migration cost estimates for the AT&T NG9-1-1 solution and anticipated funding from the Board. The final decision on use of the contract is that of the locality or PSAP. MPs for 122 primary and secondary PSAPs have been completed and delivered.

If a locality chooses a solution from another NG9-1-1 solutions provider, ISP staff will prepare an additional proposal document based on the alternate provider's solution. This decision may be driven to find the best solution or it may be due to a local procurement decision. VITA's review of the Fairfax County contract indicates that it can be used by other localities in Virginia, but the final decision on its use is a local decision. However, any PSAP deploying a solution other than AT&T will need to commit to ensuring interoperability with that solution.

Once the PSAP decides on a NG9-1-1 solutions provider, they will submit a Proposal Acceptance Letter (PAL). This form confirms a PSAP's acceptance of the MP and signals their intent to deploy NG9-1-1. The MP and the PAL comprise a NG9-1-1 funding request. Grant funding is available to PSAPs through the NG9-1-1 Migration Program. The funding request cycle for this program has begun and will remain open throughout the deployment period. The Board established an extended funding cycle to support the multi-year NG9-1-1 deployment schedule and to ensure

- National Capital Region**
- Inside Virginia
- Arlington County
- Fairfax County
- Loudoun County
- Prince William County
- City of Alexandria
- City of Falls Church
- City of Fairfax
- City of Manassas
- City of Manassas Park
- Outside Virginia
- District of Columbia
- Montgomery County
- Prince Georges County

that all PSAPs have sufficient time to apply for funding. The Board is planning to review and make initial funding awards at their November 8, 2018 meeting for PALs submitted by the first deadline of Sept 17, 2018. ISP staff will announce additional PAL submission deadline dates as future Board meetings are scheduled.

### GIS Data in NG9-1-1

Geographic information systems (GIS) use in the NG9-1-1 environment will be increasingly different than how GIS data is currently used in E9-1-1 systems. This is because NG9-1-1 will rely heavily on locally developed geospatial data for routing 9-1-1 calls to the correct PSAP. Significant effort must be made by each locality to ensure that mission critical GIS data layers: PSAP boundaries, road center lines (RCL) and address points, are evaluated and optimized for use in NG9-1-1. Each data set must be accurate, maintained on a regular, frequent basis and conform to established standards for NG9-1-1. Each PSAP boundary layer must align with adjoining PSAP boundaries to assure there are no gaps or overlaps, and GIS RCL and address point data will need to be maintained and improved to perform in the NG9-1-1 environment.

To guarantee the success of NG9-1-1, localities must have resources available to assure GIS data is always current and accurate. To help localities assess the quality of their GIS data, Virginia Geographic Information Network (VGIN) staff provided an assessment of data readiness (see above) for NG9-1-1 deployment to GIS Managers, PSAP Managers, and each locality’s primary contact for NG9-1-1. This assessment also included information on the conformance of GIS datasets to the Virginia Geospatial Data Standards. A NG9-1-1 Data Provisioning Guide was developed by Regional Advisory Council (RAC) members to help PSAPs provision their GIS data to support NG9-1-1 services and put into place short- and long-term goals to support NG9-1-1 GIS data maintenance workflow procedures.

#### Road Centerline Checks

| Check             | Data Rule Violation   | Count |
|-------------------|---|-------|
| <b>Attributes</b> |   |       |
| 1                 | Road Centerline ID Not Unique and Persistent                                  | -     |
| 2                 | Road Centerline Has Duplicate Address Ranges For Attributes <> 0              | -     |
| 3                 | Road Centerline Numerical Address Ranges Begin Or End With 0                  | -     |
| 4                 | Road Centerline Has From Left Value Greater Than To Left Value                | -     |
| 5                 | Road Centerline Has From Right Value Greater Than To Right Value              | -     |
| 6                 | Road Centerline Has Left Side Overlapping Address Range                       | -     |
| 7                 | Road Centerline Has Right Side Overlapping Address Range                      | -     |
| 8                 | Road Centerline Has Odd/Even Right Side Address Parity                        | -     |
| 9                 | Road Centerline Has Odd/Even Left Side Address Parity                         | -     |
| 10                | Road Centerline Has Street Name Attributes <> Virginia, USPS, & NENA standard | -     |
| <b>Geometry</b>   |   |       |
| 11                | Road Centerline Has Invalid Geometry  | -     |
| 12                | Road Centerline Has Multipart Features  | -     |
| 13                | Road Centerline Has Duplicate Geometry  | -     |
| 14                | Road Centerline Not Segmented And Snapped At Road Intersections               | -     |
| 15                | Road Centerline Has Dangles Within 30 Feet of Another Centerline              | -     |
| 16                | Road Centerline Not Connected To Other Centerlines In Road Network            | -     |
| 17                | Road Centerline Segment Incorrect Direction Based on Address Ranges and Point | -     |

#### Address Point Checks

| Check | Data Rule Violation  | Count |
|-------|--|-------|
| 18    | Site Address Point Is Duplicate, Has No Street Name, Or No Address Number            | -     |
| 19    | Site Address Point Does Not Geocode to Road Centerline Street Name and Address Range | -     |
| 20    | Site Address Point Street Name And Road Centerline Street Name Mismatch              | -     |
| 21    | Site Address Point Does Not Match Street Side Based on Left and Right Address Ranges | -     |

## Text-to-9-1-1

At present, almost [60 PSAPs](#) in Virginia have either already deployed or plan to deploy this service to allow citizens to report emergencies through text messages, which is critical to the hearing-impaired community. Many more localities are planning to provide this service to their citizens in conjunction with upcoming Call Handling Equipment (CHE) upgrades and replacements. Others are waiting until their scheduled NG9-1-1 migration, since text-to-9-1-1 will be a base feature of NG9-1-1. However, the passage of [Senate Bill 418](#) in the 2018 General Assembly requires all PSAPs to implement text to 9-1-1 by July 1, 2020.

Like the deployment of any new technology, the commonwealth needs a comprehensive strategy and PSAPs will need resources and assistance to support their efforts. To this end, the Board established the goal to have text-to-9-1-1 available statewide and identified it as a Next Generation 9-1-1 Core Service (NGCS). Also, an [implementation guide](#) is available to Virginia PSAPs, as well as funding through the NG9-1-1 Migration Program.

## Wireless E9-1-1

The number of wireless 9-1-1 calls has continued to grow since wireless services were introduced commercially in 1985. Currently, 76% of all 9-1-1 calls received by Virginia PSAP are from a wireless device. Initially a 9-1-1 call was forwarded to a 10-digit number that went to the local PSAP or to the VSP. Coming in on a 10-digit number meant that the location of the caller, call back number and other important data elements were not provided. To respond to this issue, the Federal Communications Commission (FCC) in 1996 released an order requiring wireless service providers to implement enhanced features and location accuracy requirements. The implementation was to occur in two phases. Phase I provided the PSAP with the caller's telephone number and the address of the cell site receiving the call along with the orientation of the antenna, if the antenna was directional. Phase II provided the PSAP with the actual location of the caller by longitude and latitude within a defined margin of error, depending on the location technology used by the provider. Presently, all localities are now accepting all of their phase I and phase II wireless 9-1-1 calls.

**FCC Phase II**  
**Accuracy Requirements**

**Network based solution:**

**Accuracy**

- 100 meters 67% of the time
- 300 meters 95% of the time

**Handset based solution:**

**Accuracy**

- 50 meters 67% of the time
- 150 meters 95% of the time

In response to the fact that many more wireless 9-1-1 calls are made indoors, the FCC, in 2015, adopted a Wireless Indoor Location Accuracy Report and Order. Under this new order, wireless service providers will have to provide a location fix using technologies capable of providing a “dispatchable” location or 50-meter horizontal accuracy for 40 percent of all wireless 9-1-1 calls within two years, 50 percent of all calls within three years, 70 percent of all calls within five years, and 80 percent of all calls within six years. As for vertical location accuracy, commonly referred to as the “Z-axis”, the four nationwide wireless carriers were required to make uncompensated barometric data available to PSAPs and propose a z-axis accuracy standard within three years.

The Cellular Telecommunication Industry Association (CTIA) took the lead in developing this proposed standard and established a non-profit entity, 9-1-1 Location Technologies Test Bed, LLC (Test Bed, LLC) to develop a test bed process to assess vertical location solutions. In August of this year, CTIA provided the [results](#) of the testing. The carriers are proposing a Z-axis metric of +/- 5 meters for 80% of fixes from mobile devices capable of delivering barometric pressure sensor-based altitude estimates. The FCC will now consider what standard to adopt.

In addition, the FCC in March of this year began an examination with a [Notice of Inquiry \(NOI\)](#) of how to more quickly route wireless 9-1-1 call to the proper PSAP. The current 9-1-1 system is configured to route wireless 9-1-1 calls to PSAPs based on the location of the cell tower that handles the call. In such circumstances, particularly in the case of wireless 9-1-1 calls made near jurisdictional borders, the call may be answered by a different PSAP from one that serves the caller's location. The result is that the call is “misrouted” and must be transferred to the appropriate PSAP, delaying the ability of first responders to render aid.

The FCC's most recent NOI explores how the delays that arise from the misrouting of wireless 9-1-1 can be avoided, possibly resulting in faster response times, via the implementation of location-based routing solutions. The importance of addressing this issue is escalating as the public is increasingly dependent on wireless networks and devices for access to 9-1-1. The FCC believes that recent advances in location technology make it possible in many situations to pinpoint the 9-1-1 caller's location quickly and transitioning from tower-based routing to location-based routing would significantly reduce the number of wireless 9-1-1 calls that must be transferred from one PSAP to another. Moreover, the adoption of location-based routing could provide an incentive for PSAPs and wireless providers to transition to NG9-1-1 because NG9-1-1 systems are designed to route calls using location information in real time.

### ***Wireline E9-1-1***

All localities have now deployed E9-1-1 service.

## Legislation and Enhanced 9-1-1 Services

Initial NG91-1-1 legislation was enacted by the General Assembly in 2016. This legislation established a foundation for NG9-1-1 by providing standard setting duties for the Board and defining key future technological terms, such as “NG9-1-1” and “ESInet”. In 2017 the Board’s legislative agenda focused on delaying for one year the recalculation of the PSAP wireless funding distribution percentages required by *Code* to occur on or before July 1, 2017. The delay was needed for the Board to assess the financial impact of the recalculation on PSAPs. The General Assembly changed the recalculation date to July 1, 2018.

At their January 2017 meeting, the Board established a Wireless Funding Committee (the “Committee”) to make recommendations on changes to the PSAP funding formula used by the Virginia Department of Taxation to make wireless payments to localities. At that time, a pre-determined funding formula based on PSAP cost and call load data from 2007 to 2012 was used. To assess the impact of the recalculation on PSAP funding, the Committee used a variety of PSAP datasets from the previous five in their analysis. The result of this analysis was for the Committee to recommend a new formula based on total 9-1-1 calls and population. Although this new formula produced significant shifts of funding at the local level, the committee felt strongly that these datasets were more appropriate to use in determining local 9-1-1 funding as Virginia transitions to NG9-1-1. The Board conditionally approved this new funding formula, pending the outcome of the 2018 General Assembly session. The General Assembly approved the proposed change and the new funding formula went into effect on July 1, 2018.

The 2018 General Assembly also enacted these additional NG9-1-1 legislative changes as part of the [Enhanced Public Safety Telephone Act](#):

- **New definitions for Point of Interface (POI) and Originating Service Provider (OSP)**
- **The Board shall define POIs for the network at or within the local access and transport area (LATA) near current selective routers and also establish a minimum of one pair and a maximum of three pairs of geographically diverse session initiated protocol (SIP) interconnections in a manner that minimizes cost to the OSPs**
- **The NG9-1-1 service provider (at no cost to the OSPs) shall receive 9-1-1 calls from OSPs at the designated ESInet POI and deliver them to the appropriate PSAP**
- **OSP and PSAP responsibilities are limited to their respective side of the ESInet POI**

- **PSAPs will validate subscribers location at no cost to the OSPs**
- **The Board shall implement NG9-1-1 by July 1, 2023 on a sequential and regional selective router basis**
- **The Board can extend the NG9-1-1 implementation deadline for good cause**
- **40% of the Fund will be distributed to PSAPs as grants and priority shall be given to grant to support the deployment and sustainment of NG9-1-1**
- **If requested by the OSPs, the Board can execute a contract to reimburse OSPs for costs to deliver 9-1-1 calls to the ESI net POI**

To have the required cash flow to complete the implementation of NG9-1-1 by July 1, 2023, the Board will seek \$30 million in borrowing authority from the Virginia Treasury in the 2019 General Assembly session. This will allow the Board to fully fund all transitional costs for every PSAP in Virginia. It will take between five to seven years to repay this debt

## Funding and Enhanced 9-1-1 Services

### **Wireless E-911 Fund**

The Fund is supplied by a \$0.75 monthly surcharge collected from each Virginia wireless service customer, and a \$0.50 surcharge on pre-paid wireless services acquisitions. Each year, the Board reviews the surcharge rates to determine if they will generate sufficient revenue for future needs and whether or not these rates should be adjusted. Currently the Appropriations Act of Virginia provides earmarks from the Fund to support the DPSC, a portion of the VGIN, wireless billing agreements for local wireless 9-1-1 call processing, and network improvement projects approved by the Board. These earmarks are subtracted before any other funding distribution is made.

In addition, the commonwealth's biennial budget includes a \$3.7 million VSP appropriation for costs incurred in answering wireless 9-1-1 calls. This appropriation is supported by monies transferred from the Fund that was originally established to provide funding to transfer wireless 9-1-1 calls from the VSP dispatch centers to local PSAPs. However, all localities in the commonwealth are now accepting wireless calls and no longer rely on the VSP to transfer wireless 9-1-1 calls to them. Thus, the justification for the VSP to continue receiving this funding no longer exists.

Currently, 60 percent of the Fund is distributed to PSAPs through a pre-determined formula to help offset a portion of their operating and maintenance costs. This percentage was established in 2006 through a legislative change. Since then, there has been a continual increase in PSAP funding, but not all PSAPs have benefited equally. Many PSAPs, mostly the small and rural ones, have experienced a significant decrease in funding. PSAPs located within the fastest growing localities have received a greater portion of the Fund than those PSAPs located in slower growing areas. To stabilize this funding development, a change was made in 2012. PSAPs will experience another shift in local funding as a result of the funding formula change that became effective July 1, 2018. The Board approved this most recent change to better align the funding formula with the methodology that NG9-1-1 solution providers use to determine NG9-1-1 recurring costs.

In FY 2018, 30 percent of the Fund was earmarked for wireless service provider cost recovery payments. The amount of this earmark was \$14,568,042 and included an \$8 million transfer to the Compensation Board to pay for the salaries of

**FY 2018 Financial Data**

**Approximately \$61 million in wireless revenue collected**

**PSAPs received \$29,136,085 in operating funding and \$7,102,698 in grant funding, totaling \$36,238,783**

**Wireless service providers received \$2,143,293**

sheriffs' dispatchers. Unused cost recovery funding and the remaining 10% of the Fund were used for PSAP grant awards.

However, during their 2018 session the General Assembly eliminated wireless cost recovery. This action created parity with other providers that have never been eligible for wireless cost recovery, such as those that deliver VoIP wireless 9-1-1 calls. It also resulted in 40 percent of the Fund now being available to fund the statewide migration to NG9-1-1. In addition to a greater portion of the Fund being dedicated to grants, the grant program has transitioned to more of a funding program to support NG9-1-1 PSAP migration efforts.

The overall budget for NG9-1-1 has been revised from the \$69 million estimate included in the FY 2017 Annual Report. This revised budget depicted below is based on transitional and recurring cost categories relevant to the AT&T solution:

| <b>Transitional Costs</b>                          |                     |
|--|---------------------|
| <b>Category</b>                                    | <b>Amount</b>       |
| NG9-1-1 non-recurring cost                         | \$476,000           |
| Special construction costs                         | \$31,830,516        |
| GIS data preparation                               | \$3,246,226         |
| Originating service provider (OSP) transition cost | \$5,000,000         |
| Legacy 9-1-1 service provider transition costs     | \$5,000,000         |
| Project management assistance                      | \$1,750,000         |
| Data analytics expansion                           | \$59,500            |
| <b>Total</b>                                       | <b>\$47,362,242</b> |
| <b>Annual Recurring Costs</b>                      |                     |
| <b>Category</b>                                    | <b>Amount</b>       |
| NG9-1-1 recurring costs                            | \$10,749,443        |
| Originating service provider (OSP) recurring cost  | \$5,000,000         |
| Data analytics recurring costs                     | \$561,404           |
| <b>Total</b>                                       | <b>\$16,310,847</b> |

With the approximate \$12.6 million already being spent annually on E9-1-1 and the \$69 million already planned for the transition to NG9-1-1 by the Board, there is sufficient revenue to support the full cost of this budget. As noted previously, borrowing authority of \$30 million will be required to support the cash flow required to fund the deployment. As a result, the Board is not recommending an increase to the wireless surcharge rate at this time.

An outstanding financial issue for the Board is the uncertainty of its ability to receive future federal funding given the ongoing transfers of \$3.7 million and \$8 million to the VSP and Compensation Board, respectively. Federal law enacted in 2004 requires states that apply for federal 9-1-1 grant funding (or the PSAPs within the states) to certify that no 9-1-1 funding raised through state charges was diverted for any purpose other than the purposes for which such charges are designated or presented. A state that has diverted funding shall be ineligible for federal funding for 18 months after the diversion. Federal law enacted in 2008 also provides that state expenditures of 9-1-1 charges are to be in support of 9-1-1 and enhanced 9-1-1 services, or enhancements of such services, as specified in the provision of state law adopting the fee or charge. *Virginia Code* § 56-484.17 does not address other purposes generally and does not mention the transfers to the VSP and Compensation Board specifically. If the transfers are determined to be a non-compliant diversion by the federal government, this would impact the commonwealth's ability to receive federal 9-1-1 grant funding in the future.

## Developments in Enhanced 9-1-1 Service and Multi-Line Telephone Systems

As technology advances, particularly networks and end-user devices with increasingly higher levels of functionality, legacy public safety networks and associated technology are approaching the end of their useful lives. Notification has already been received that Verizon, a 9-1-1 service provider in the commonwealth, is exiting the 9-1-1 market and will no longer sell or maintain PSAP equipment after a certain date. In other states legacy 9-1-1 systems providers are asking for deregulation and the ability to decommission the selective routers used for 9-1-1 call processing. Other providers are initiating migrations to retire their current analog technologies as more customers opt for IP-based services. When 9-1-1 becomes the only service that is still using the PSTN for transport of 9-1-1 calls, the cost becomes prohibitive for the remaining users, rather than the multitude that shared the cost in the past. For these reasons, the Board is actively engaged in deploying NG9-1-1 in Virginia.

Although the transition to NG9-1-1 often involves a high initial cost and capital investment, savings do occur over time. This is especially true when considering the challenges of maintaining and upgrading legacy technology, which will become increasingly more expensive to operate as less and less equipment and services are utilized for mainstream communications. NG9-1-1 offers many opportunities to share technologies and costs. In order to take advantage of these opportunities, the commonwealth must ensure that the appropriate policy and governance are in and are foundationally sound, yet flexible and responsive.

Furthermore, the Board has gone to great lengths to ensure consumers have 9-1-1 service available to them through existing services, including MLTS. Every day citizens of and visitors to the commonwealth utilize MLTS to place a 9-1-1 call. Initially, many of these systems weren't configured to allow for direct dialing of 9-1-1. However, legislation enacted on July 1, 2007 required MLTS providers of multi-line telephone systems by July 1, 2009, to maintain and operate the MLTS in such a manner that a 9-1-1 call made from any telephone on the MLTS is routed to a PSAP. Virginia is one of only 16 states that have enacted MLTS legislation and the Board continues to monitor new developments. Given the limited number of states with MLTS legislation, there is strong federal interest for nationwide ability for direct dialing of 9-1-1 from an MLTS.

## Conclusion

The Board is leading Virginia's efforts to transform an outdated 9-1-1 system into a digital network that is faster, more efficient, and has greater PSAP capabilities to better serve its citizens and visitors for years to come. As a result, Virginia continues to be a nationally recognized leader in 9-1-1. Throughout FY 2018, the Board has made significant progress in the implementation of NG9-1-1. This progress has been consistent with the Board's guiding principles:

- 9-1-1 is an essential, local/regional, public safety service
- Need to address ALL of 9-1-1 not just NG
- Full stakeholder engagement is needed
- Services must not be degraded
- Economies need to be leveraged
- Doing nothing is NOT an option

The Board's legislative agenda for the upcoming 2019 General Assembly session is to seek \$30 million in borrowing authority from the Virginia Treasury to complete the implementation of NG9-1-1 by July 1, 2023. This will allow the Board to fully fund all transitional costs for every PSAP in Virginia.

However, an outstanding financial issue for the Board remains. The Appropriations Act for the current biennium budget continues the transfer of \$3.7 million to the VSP and the \$8 million transfer from the Fund to the Compensation Board to pay the salaries of sheriffs' dispatchers. These transfers may impact the commonwealth's ability to receive federal funding in the future if these transfers are determined to be non-compliant by the federal government. Even with this outstanding issue, the Board continues to remain well positioned to address new and coming challenges to the 9-1-1 ecosystem in Virginia.