COMMONWEALTH of VIRGINIA
Wireless E-911 Services Board
FY2008 Annual Report

Prepared by the
Virginia Information Technologies Agency
Division of Public Safety Communications
October 1, 2008

COMMONWEALTH of VIRGINIA

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October 1, 2008

The Honorable Timothy M. Kaine
Governor of Virginia

The Honorable Charles J. Colgan
Chairman, Senate Finance Committee

The Honorable Lacey E. Putney
Chairman, House Appropriations Committee

The Honorable David B. Albo
Chairman, Virginia State Crime Commission

Gentlemen:

As required by Section 56-484.14 of the *Code of Virginia*, the enclosed report provides a status on the implementation of the Wireless Enhanced Public Safety Telephone Service Act.

If you have any questions regarding this report, please contact me at (804) 416-6004, or Dorothy Spears-Dean, Public Safety Communications Coordinator, (804) 416-6201, e-mail: dorothy.spearsdean@vita.virginia.gov.

Sincerely,

Michael M Cline
Chairman

Enclosure

c: The Honorable Aneesh P. Chopra
The Honorable John W. Marshall
The Honorable Leonard G. Cooke
Elizabeth B. Daley
Robert P. Vaughan
James O. Towey

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Executive Summary

The *Code of Virginia* (§56-484.14) requires the Wireless E-911 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

Though the original goal was to have all localities providing wireline E-911 service by July 1, 2003, there are still four (4) localities working to deploy this level of service. All four have been delayed by the U.S. Postal Service (USPS). These delays, which have been significant, have added additional time and complexity to these projects; however, significant progress has occurred with the USPS over the last fiscal year. It is anticipated that these remaining localities will complete their wireline projects by June 30, 2009 and the Board has granted extensions, as allowed by *Code*.

Wireless enhanced 9-1-1 (E-911) Phase I service, where the caller's telephone number and the address of the cell site are provided to the public safety answering point (PSAP), is essentially complete, with only two deployments remaining. The two localities that are not completed are among the most rural Virginia localities and are aggressively working toward deployment.

The deployment of wireless E-911 Phase II, which provides the PSAP with the caller's actual location by longitude and latitude, is nearing completion, due to the hard work and dedication of the PSAPs and telecommunications service providers. Phase II service is available to more than 99% of wireless telephone service subscribers in the Commonwealth. The wireless service providers and all of the localities involved should be commended for their efforts to protect the public. While Phase II is not 100% accurate, the locations provided are typically within 50 to 300 meters, with some calls actually showing the caller's location within a matter of a few feet. It is not the same level of accuracy as wireline E-911, but it does provide the 9-1-1 call taker with a valuable tool to quickly locate a caller in need of emergency assistance, especially if the caller is unfamiliar with their location.

With the deployment of Phase II many of the wireless service providers opted for a handset-based Phase II solution, which uses a global positioning system (GPS) chip in the telephone to locate the caller. Though this requires the subscriber to upgrade their telephone, most of the major carriers using this technology are now reporting that over 95% of their customers have GPS equipped telephones, which was the goal established by the Federal Communications Commission (FCC).

As the Commonwealth approaches completion of the deployment of enhanced 9-1-1 services on all traditional telecommunications services, the focus of the E-911 industry shifts to the future of E-911 and service improvement. Several new technologies already exist that challenge the current E-911 infrastructure such as VoIP and text messaging. The localities, telecommunications service providers and E-911 vendors should be commended for all of the effort expended thus far to provide the citizens with the best E-911 system available, but it is critical that work continue to ensure this life saving service is available when it is needed most.

The impact of, or need for, legislation affecting enhanced wireless emergency telecommunications services in the Commonwealth

The Wireless E-911 Services Board is only recommending one legislative change for the 2009 General Assembly Session. The changes made in 2006 to the funding process appear to be working well. Additionally, the Board continues to work on the planning for the future of E-911 and has completed the Statewide Comprehensive Plan for 9-1-1 http://www.va911.org/wirelesshome.shtml, which identifies the key strategic initiatives for improving 9-1-1 services and functionality across Virginia. The recommended change is to insert a definition for the term "CMRS Reseller" into Section 56-484.12 of the *Code of Virginia*. This is being recommended to remove any ambiguity about the type of entities being referenced in other *Code* sections. The Board will work with counsel to develop an adequate definition for the General Assembly to consider during the upcoming session.

The need for changes in the E-911 funding mechanism provided to the Board, as appropriate

The Wireless E-911 Fund remains fiscally sound. With the legislative changes made in 2006, the funding process has been substantially changed. The revised process, which utilizes a formula-based distribution methodology, appears to provide consistent funding to the localities while greatly reducing the administrative bureaucracy associated with applying for the funding. Additionally, three cycles have been completed for the PSAP grant program also added in 2006. This has resulted in over $16 million being provided to the localities for the replacement of outdated equipment and to expand services to the citizens of the Commonwealth.

It should be noted that the Appropriations Act for 2006-2008 continues the transfer of $3.7 million from the Wireless E-911 Fund to the Virginia State Police. However, with the exception of one locality, all local PSAPs are taking the wireless E-911 calls directly, thus removing the original justification for providing the funding to the State Police. Continuing the appropriation to the State Police after they are no longer taking the wireless 9-1-1 calls could jeopardize the eligibility of the Commonwealth and all of the localities for federal E-911 grant funding. If this transfer were to cease, the amount of funding provided to the localities would increase proportionally.

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

This is a new duty of the Board that was enacted on July 1, 2007. Since most of the provisions of Article 8 (§ 56-484.19 et seq.) of Chapter 15 of Title 56 do not take effect until July 1, 2009, the Board will provide more information on this topic in its next annual reports.

The following sections of the report provide a more detailed analysis of the current state of E-911 in the Commonwealth and the Wireless E-911 Fund.

State of Enhanced 9-1-1 in the Commonwealth

Wireline E-911

Originally, 37 jurisdictions were eligible for funding, because they had not fully deployed E-911 as of July 1, 2000. All, but four (4), of those original localities have deployed E-911 Service (Figure 1). It is anticipated that these remaining localities, Buchanan County, Dickenson County, Lee County, and Wise County, will complete their wireline projects by June 30, 2009, at the end of this current fiscal year. Specifically, Buchanan and Lee Counties have finished all of the onsite work and are waiting on the U.S. Postal Service (USPS) to verify and convert the addressing changes. This unfortunate situation has been a significant delaying factor in the completion of these two projects, but significant progress has occurred with the USPS over the last fiscal year.

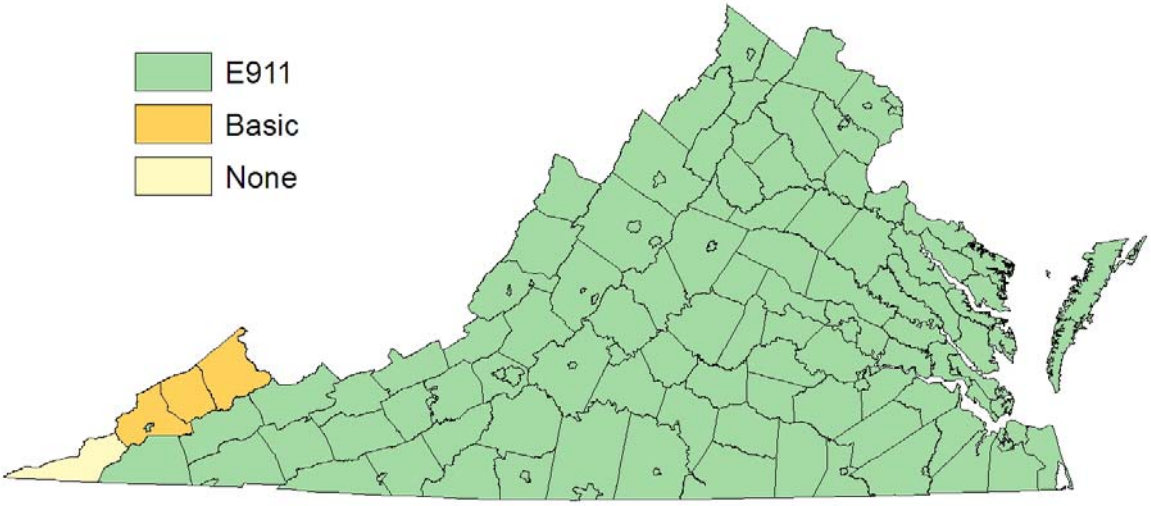

Figure 1 – Wireline E-911 Deployment Status

The other two localities, Dickenson and Wise Counties, have Basic 9-1-1, but because of previous delays with the USPS, and the fact that a portion of the localities' addresses were not considered valid by the telcos, they are in the process of address validation to make corrections and keep their address data current. These localities are currently coordinating efforts with the USPS and the appropriate telcos to become wireline E-911.

Wireless E-911

The number of wireless 9-1-1 calls has continued to grow rapidly since wireless service was introduced commercially in 1985. Though the rate of growth has slowed in recent years, the number of wireless 9-1-1 calls has surpassed the number of wireline E-911 calls in many Virginia localities. Through the 1990's, a 9-1-1 call placed from a wireless telephone would simply be forwarded to a 10-digit telephone number that went to the local PSAP or to the State Police. 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 like they were for wireline E-911. This lack of an automatic location resulted in more time for the call taker to process the call or an inability to locate

the caller at all. Several incidents were documented around the country that demonstrated the problems PSAPs were having locating a wireless 9-1-1 caller.

To respond to this issue, in 1996, the FCC released an order requiring wireless service providers to implement enhanced features and location technology. 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 is directional. Phase II provided the PSAP with the actual location of the caller within a defined margin of error depending on the location technology used by the provider (Figure 2). According to the order, the wireless service provider had to implement Phase I within six months of a request from the PSAP. The timeline for Phase II was contingent on the location technology selected by the wireless service provider, network-based (triangulation) or handset-based (global positioning system – GPS).

Phase II Accuracy

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

Figure 2 - FCC Phase II Requirements

One outstanding issue has been over what area the accuracy of Phase II is to be measured. There was stark disagreement between the wireless and E-911 industry leadership on the appropriate area for testing. Because the two location technologies perform differently in different environments, the best alternative for the wireless providers was to have a large test area (nationwide or statewide). This would allow the performance of their solution to be "averaged" across a variety of these environments providing a more general evaluation of the solution's performance. The E-911 community felt the test area should be limited to each PSAP service area thus providing each PSAP manager with an indication of how the location technology performed in their area. This would also provide assurances that the wireless provider was providing a similar level of performance in all different environments.

Unfortunately, the current location technologies are unable to achieve the desired accuracy at the PSAP service area. Each location technology has an environment type where it does not perform well. Since PSAP areas often have a dominate environment type (i.e. rural, urban, etc.), it is likely that a particular location technology solutions would have trouble with accuracy throughout a PSAP service area. As an example, a triangulation solution requires that the telephone radio signal be received by at least three cell sites. Since the cell site concentration is low in rural areas, this may not be possible. A carrier using a triangulation solution may meet the FCC requirements for accuracy if the testing results were aggregated at the state or national level since the areas with high cell site concentration would help offset the performance in more rural areas with fewer sites. Testing at the PSAP level would not allow this type of aggregation and would likely result in the failure of the triangulation solution in a rural PSAP service area. Handset based solutions, such as GPS, have similar problems inside buildings and in urban areas where large building block the telephone from "seeing" the GPS satellites high in the sky above.

On September 11, 2007, the FCC finally acted on this question ruling that wireless providers must meet the accuracy requirement at the PSAP level. Since they acknowledged that the current location technologies could not meet this requirement, the providers were given relief from enforcement of the regulation during a five-year period of transition. This has a significant impact

on the Commonwealth as it means that the current Phase II deployment does not meet the FCC requirement and may require additional investment to become compliant. Additionally, the cost of the more stringent testing will likely increase costs also. Unfortunately, as noted above, the technology to meet the new requirements does not yet exist so no cost projections can be made at this time. Since its decision last September, the FCC has not yet put into effect the enhanced 911 location accuracy rules.

Phase I Project Status

To date, one hundred twenty-eight (128) localities have implemented wireless E-911 Phase I (call back number and cell site location) with all of the wireless service providers serving the locality. A

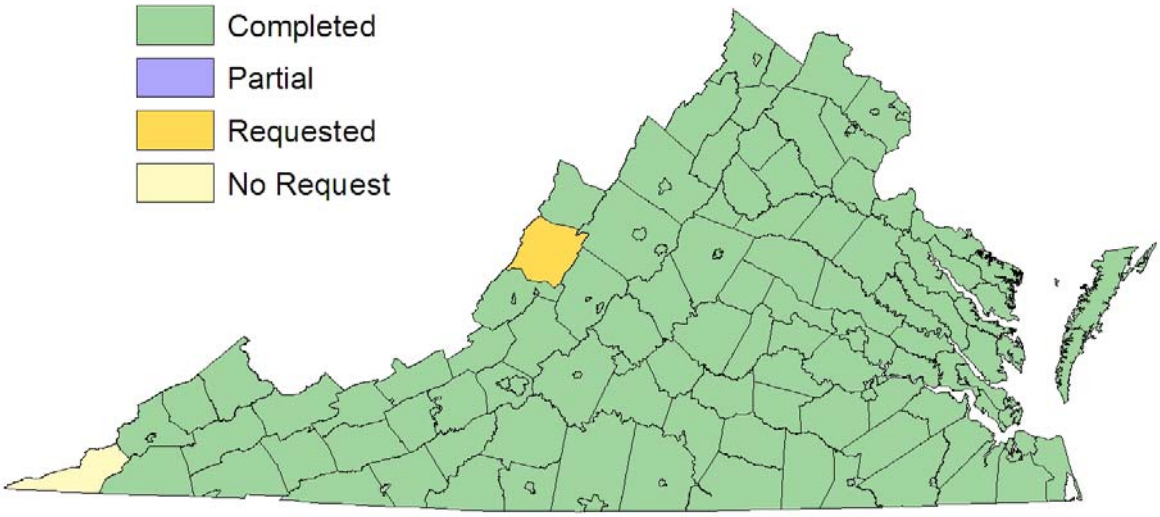

Figure 3 - Wireless E-911 Phase I Status

total of 709 out of 711 (99%) Phase I deployments have been completed as of June 30, 2008. Only 2 more deployments in 2 localities must be completed (Figure 3).

Phase II Project Status

The strong push to complete wireless E-911 Phase II deployment continued in FY2008. To date, a total of 690 Phase II deployments out of 711 have been completed (Figure 4). Approximately 99% of all wireless subscribers now have access to the Phase II location technology. Though the original FCC order required deployment to begin by October 1, 2001, every major wireless service provider sought and received a waiver of that requirement from the FCC. The waivers granted each provider an extension of time but did not relax the accuracy requirement nor extended the ultimate completion date for implementation, which was December 31, 2005 for 95% of all subscribers to have location equipped handsets. Unfortunately, none of the carriers met this deadline. In May 2006, Verizon Wireless was the first wireless provider to meet the 95% threshold. Though this is less an issue of wireless carrier performance than it is about customer choice, most of the wireless providers have now met this threshold.

Wireless service providers are required to provide the Board with monthly status reports. These reports have been mapped to provide a visual status for each provider for Phase I & II (Appendix

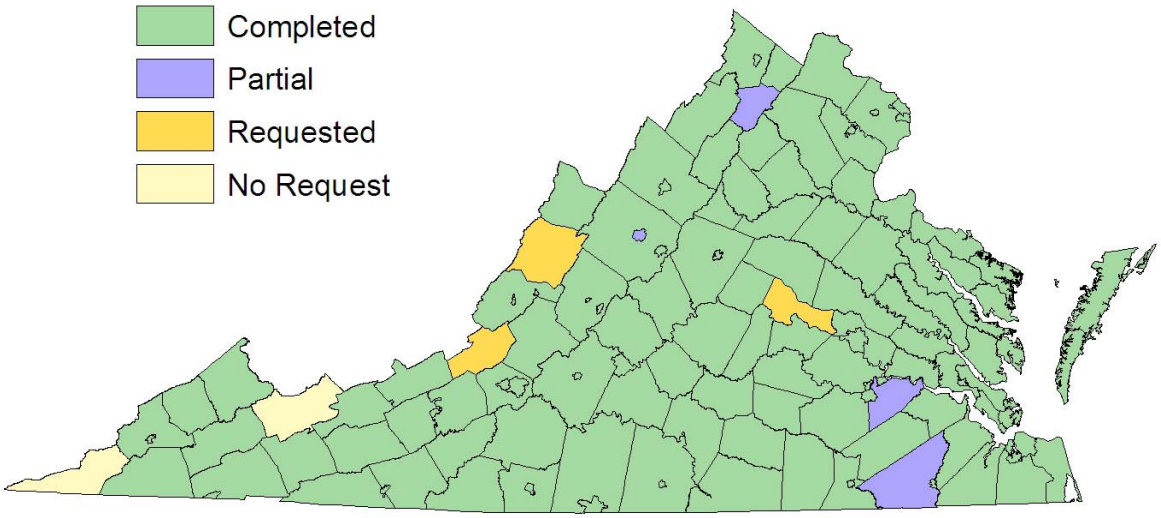

Figure 4 - Wireless E-911 Phase II Status

B). The "Requested" status means that the PSAP has requested service and that it has not yet been installed, but it does not necessarily mean that the project is behind schedule.

Wireless Responsibility

Section 56-484.16 of the *Code of Virginia* makes clear the General Assembly's intent that wireless 911 calls be answered by the local PSAP where the call is initiated instead of by the State Police. The *Code* required that by July 1, 2003, all localities be directly taking the wireless 911 calls made within their jurisdiction. Rather than just taking the call as required by Code, many localities have opted to deploy Phase I instead. As a result, the success with Phase I deployment translates into success with moving the calls from the State Police to the local PSAP.

At the close of FY2003, 19 localities were still directing their wireless 9-1-1 calls through the State Police. At the close of FY2008, that number had been reduced to only 1 locality, Bath County

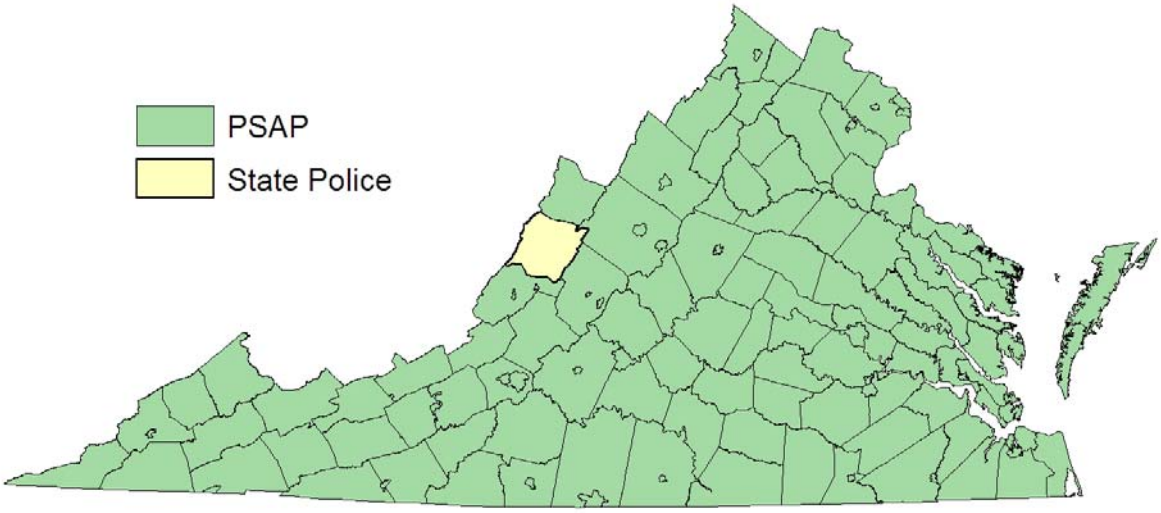

Figure 5 - Responsibility for Wireless 9-1-1

(Figure 5). This fact is significant because it means that even the 4 remaining localities with wireline projects are accepting wireless 9-1-1 calls.

State of the Wireless E-911 Fund

Wireless E-911 Fund

The Wireless E-911 Fund is generated by a $0.75 monthly surcharge collected from each wireless customer whose place of primary use is in Virginia. One question the Board is asked annually is whether the surcharge rate should be adjusted. With the changes to the funding process made during the 2006 General Assembly Session, this question requires a different approach to answer than in previous reports. In the past, the funding required was based on the actual costs incurred by the PSAPs and wireless carriers. Determining sufficiency of the fund and appropriate surcharge required a projection of the expected costs that would be incurred during the fiscal year. With large fluctuations and disparity of the initial, non-recurring costs, accurate projections were often difficult.

The 2006 legislative change (described below) modified the funding process to distribute the majority of the Wireless E-911 Fund based on a formula. As a result, sufficiency of the surcharge is less relevant except in two instances. First, thirty percent of the Wireless E-911 Fund is earmarked for wireless service cost recovery. In recommending this change, the Board's intent was that this amount be sufficient to fund the known, on-going costs of the providers. Since the providers have historically only collected approximately 26% of the fund, projections of known provider costs indicate that this portion of the fund is sufficient within the current surcharge rate. However, the recent action of the FCC to require accuracy compliance at the PSAP level may impact this. Unfortunately, no fiscal impact analysis was performed before the FCC made this policy decision.

The second instance where the surcharge rate could have a potential impact is with PSAP funding. The localities have come to rely on the wireless E-911 funding source to operate and maintain their PSAPs. Any reduction to the overall funding would be detrimental to service delivery. The surcharge rate must be sufficient so that the distribution formula results in consistent funding to the locality. Historically, the PSAPs have received forty-eight percent of the Wireless Fund for recurring and operational costs. Since the new process distributes sixty percent of the fund to the PSAPs, the funding level was projected to increase and it has. This increase was intended to provide funding for equipment replacements and upgrades. Under the previous methodology, partial funding was provided for equipment replacements and upgrade in the year they were procured. This made projecting costs in any one fiscal year difficult. Though the new methodology provides greater predictability, it also requires greater fiscal planning by the locality to ensure the funding is available when needed.

PSAPs will be eligible for additional assistance through the Wireless E-911 PSAP Grant Program, which was included in the 2006 legislative changes and is funded by the remaining ten percent of the Wireless Fund and any remaining carrier funding.

In order to appropriately analyze the effects of this new funding methodology, it is necessary to review the funding levels for both the carriers and the PSAPs. The total funding received by the carriers for the recovery of costs incurred during FY2008 was $5,399,847, which was well within the 30% of the Wireless Fund set aside for this purpose ($12,616,643). The difference will be transferred into the PSAP grant program for FY2010. The PSAPs received a total of $25,233,285 through the 60% formula distribution and were allocated another $5,624,923 from the FY2008 funding cycle PSAP Grant Program. This means that in FY2008 the PSAPs received a total of

$30,858,208. In comparison to FY2007, when the PSAPs received a total of $25,443,756 through the 60% formula distribution and the FY2007 funding cycle of the PSAP Grant Program, the overall result is an increase of 21% in available funding to the PSAPs. A list of funding by locality is provided in Appendix A.

Ensuring an appropriate funding level into the future requires sufficient revenue to be generated. Revenue is difficult to project accurately. Even wireless industry experts have had trouble predicting the growth rate of wireless services. Though current industry subscriber growth rates may result in higher revenue projections, a more conservative estimate of revenue is appropriate, especially in light of the volatility in the telecommunications industry and the economy. Since the actual revenue for FY2008 was about $49.5 million, each penny of surcharge generates approximately $660,000 of revenue annually. It is important to note that there are other draws on the Wireless E-911 Fund that reduce the amount of funding available to the PSAPs and wireless service providers. The Division of Public Safety Communications (DPSC) and a portion of the Virginia Geographical Information Network (VGIN) Division are funded through Wireless E-911. Both the DPSC and VGIN programs directly support wireless E-911. Since this funding is contained in the Appropriation Act, it is subtracted before the distribution of funding based on the formulas thus evenly reducing the amount of funding across the three funding programs.

The current biennial budget also includes a $3.7 million appropriation to the State Police for wireless 9-1-1 call taking. This appropriation also reduces the amount of funding available to the PSAPs and wireless service providers. The transition of wireless 9-1-1 calls from the State Police dispatch centers to the local PSAPs is almost complete. Only one (1) locality, Bath County, still utilizes the State Police for wireless 9-1-1 call taking and they have already requested Phase 1 and Phase II wireless service from their wireless carriers. Thus, justification for the State Police receiving Wireless E-911 funding will no longer exist. Additionally, federal legislation was signed into law on December 23, 2004 that requires states, who apply for federal E-911 grant funding (or the PSAPs within the states), to certify that no E-911 funding was diverted to other areas. A state that has diverted funding shall be ineligible for federal funding for 18 months after the diversion. Though it is unclear if the State Police funding would be considered a diversion, the likelihood of it will increase when they no longer receive the calls.

Wireless Funding Process

The Wireless E-911 Services Board began providing funding to PSAPs and wireless service providers in FY2000. Since FY2000, the Board has approved the distribution of over $155.2 million to localities and over $43 million to the carriers. The amount of funding increased each year as more localities moved to implement the service and more deployments occurred (Figure 6). However, in the most recent fiscal years, the amount of funding has stabilized. As the costs have become more stable, the PSAPs have begun receiving a more constant funding level, which is primarily comprised of personnel funding. As a result, in FY2006, the Board recommended a legislative change to implement its current formula-based funding process for the PSAPs. This not only made the costs to the Board more predictable, but also reduced much of the bureaucratic paperwork required under the previous funding process. These changes were codified with the passage of Senate Bill 395 during the 2006 General Assembly session.

This current approach to funding splits the Wireless E-911 Fund into three parts. The first part is a sixty percent allocation to be distributed to the localities for PSAP operations. The distribution

formula for this portion of the funding is based on the percentage of the PSAPs costs and call load to the total throughout the Commonwealth. Minimum costs and wireless call load percentages are applied to ensure that the smallest PSAPs in Virginia get a fair share of the funding. This funding is distributed to the PSAPs each month based on the wireless E-911 surcharge revenue collected in the previous month. The sixty percent allocation represents an overall increase of funding to the PSAPs since historically they have received approximately 46% of the fund for recurring costs. However, while this funding replaces the funding provided for recurring costs of wireless E-911, it may not cover the non-recurring costs such as equipment replacement. The projected increase in funding (the difference between 46% and 60%) will likely address these non-recurring costs (over the life cycle of the equipment) in larger localities, it will not in many smaller localities. As a result, the Board also recommended the creation of the second partition of the Wireless E-911 Fund, the Wireless E-911 PSAP Grant Program.

The Wireless E-911 PSAP Grant Program utilizes a 10% allocation of the Wireless E-911 Fund and is intended to assist the localities with the most need. While the legislation provides the Board with great latitude in the adoption of grant guidelines, the grant focus will be on equipment upgrades and ensuring continuity of the wireless E-911 service into the future. The Board formed a grant committee to develop grant guidelines as soon as the legislation was approved to ensure that funding would be available to the localities as soon as possible. Logistically, it was not possible for the Board to implement the full grant process until the FY2008 funding cycle, but the Board accepted emergency grant requests in FY2007 to ensure that no locality would lose funding during the transition from the old process to the new.

The grant guidelines for the FY2009 funding cycle, which were approved by the Board on May 24, 2007, were structured to have two categories for funding. The first category, termed Continuity and Consolidation Grants, will focus on maintaining the current services provided by the PSAPs. Continuity and Consolidation grants will receive at least 80% of the funding available in the grant program. Up to 20% of the available grant funding will be utilized for Enhancement Grants, which are the second category of grants. These will be focused on expanding services by looking toward the future of E-911 and helping the PSAPs prepare for it. It is with the FY2009 funding cycle that the scope of the PSAP Grant Program will be firmly established, with the submission of 102 separate projects that included 9-1-1 equipment, personnel projects, GIS, Next Generation 9-1-1, CAD, radio consoles, fixed and transportable back-up capability for PSAP operations, microwave links, and oblique aerial imagery.

In addition to the 10% allocation of the Wireless E-911 Fund, the grant program will also receive the remaining funding from the final part of the Fund, CMRS Cost Recovery. Wireless service providers can seek cost recovery for direct and reasonable costs for the deployment and operation of the wireless E-911 network. Since 60% of the Wireless E-911 Fund is distributed to the localities and 10% is allocated for PSAP grants, 30% remains for this part of the Fund allocation. Any funding remaining in this part of the Fund at the end of the fiscal year will be transferred to the grant program. Any funding remaining in the

FY	PSAP Funding	Wireless Provider Funding
2000	$4,316,115	$396,144
2001	$7,047,639	$1,862,736
2002	$13,930,840	$3,719,132
2003	$18,861,283	$5,288,230
2004	$16,015,454	$8,361,966
2005	$20,086,422	$8,106,850
2006	$18,680,037	$5,371,059
2007	$25,443,756	$5,019,411
2008	$30,858,208	$5,399,847
Total	$155,239,754	$43,525,375

Figure 6 - Wireless E-911 Funding History

grant program at the end of the fiscal year will be distributed to the localities in the same manner as the 60% part of the Fund; however, the Board may retain any or the entire amount if a specific need is identified in the next fiscal year.

Conclusion

The Wireless E-911 Services Board continues to be effective in their role of promoting and assisting with wireless E-911 deployment. As a result, Virginia continues to be a nationally recognized leader in E-911. With the changes made in prior sessions, no legislative changes are being proposed for wireless E-911 for the 2009 General Assembly session.

The implementation of statewide wireline enhanced 9-1-1 has progressed with only four (4) localities needing to finish. The most significant barrier to completion is the delays that have been caused by the USPS. These delays will cause additional complexity and cost for the PSAP waiting to deploy. Though some of the localities did not implement E-911 by the July 1, 2003 deadline established in *Code*, all are working toward full deployment of their E-911 system.

The implementation of wireless enhanced 9-1-1 is also nearing completion. About 99% of all wireless telephone service subscribers now have Phase I service, which provides the caller's telephone number and the address of the cell site processing the call and Phase II service, which provides the longitude and latitude of the caller. Though a few subscribers still need to upgrade their telephone handsets to take advantage of the Phase II service, the infrastructure is in place at the PSAP and within the wireless network to process the call.

The Appropriations Act for the 2006-2008 biennium continues the transfer of $3.7 million to the Virginia State Police. If this appropriation is not eliminated, it may impact the ability of the Commonwealth and its localities to received future federal grants for E-911.

The Commonwealth of Virginia has positioned itself well for the new and coming challenges to the E-911 system. The successful partnership between the Board, PSAPs and telecommunications industry established during the wireless E-911 program can now be leveraged to support the future of E-911 as well. It will take the hard work and dedication of all involved to prepare for these future challenges. Some of which, like Voice over Internet Protocol (VoIP), are already before us.

The first step in addressing future challenges has been the development of the Statewide Comprehensive Plan for 9-1-1, which identifies the key strategic initiatives for improving 9-1-1 services and functionality across Virginia. The Plan describes a future for 9-1-1 to include Next Generation 9-1-1 (NG9-1-1) and will influence Virginia's statewide decisions concerning 9-1-1. A copy is available using the following link: http://www.va911.org/wirelesshome.shtml.

Appendix A – PSAP Funding Detail

PSAP	FY2007 Total	FY2008 Total
Alexandria Police Communications	$476,907.60	$515,627.31
Alleghany County	$47,206.24	$47,133.80
Amelia County	$45,052.19	$40,362.41
Amherst County Emergency Communications	$45,053.00	$41,450.54
Appomattox County	$43,556.61	$39,838.51
Arlington County PSCC	$568,267.32	$830,447.19
Augusta County	$120,900.48	$126,624.52
Bath County	$43,556.61	$43,088.48
Bedford Communications Center	$82,901.88	$79,313.22
Blacksburg Police Communications	$59,253.06	$62,850.76
Bland County	$49,294.67	$44,660.23
Botetourt County GIS-Communications	$63,433.82	$60,713.51
Bristol 9-1-1 Communications	$94,921.03	$81,695.93
Brunswick County	$99,360.42	$126,542.41
Buchanan County	$43,556.61	$39,838.51
Buckingham County	$45,675.92	$45,817.84
Campbell County	$282,392.73	$252,691.64
Caroline County	$96,053.69	$97,721.96
Charles City County	$45,978.14	$44,382.81
Charlotte County	$44,830.66	$44,126.94
Charlottesville, UVA, Albemarle County ECC	$551,704.22	$557,064.42
Chesapeake Police Communications	$1,055,316.19	$1,309,264.24
Chesterfield County ECC	$706,974.50	$739,023.31
Chincoteague	$0	$28,541.69
Christiansburg Police Communications	$45,432.50	$43,928.62
Clarke County 9-1-1	$44,968.02	$39,919.94
Colonial Heights 9-1-1 Communications	$142,975.21	$127,723.31
Covington 9-1-1 Communications	$43,766.83	$40,605.61
Craig County	$46,002.02	$43,239.43
Culpeper Joint 9-1-1 Center	$60,543.19	$72,346.80
Cumberland County	$55,942.28	$44,008.20
Danville Emergency Services	$95,920.21	$119,270.42
Dickenson County	$56,534.42	$85,405.59
Dinwiddie County	$44,830.66	$46,479.22
Eastern Shore 9-1-1	$93,419.59	$119,299.63
Emporia Police Communications	$46,160.54	$62,264.13
Essex County	$44,830.66	$39,838.51
Fairfax County PSCC	$3,950,351.28	$4,184,438.88
Farmville Police Communications	$53,454.12	$106,725.44
Floyd County	$59,670.96	$44,883.26
Fluvanna County	$55,076.84	$54,586.72

Franklin County	$64,964.87	$52,543.56
Franklin Police Communications	$46,152.15	$44,178.41
Frederick County PSCC	$50,975.58	$50,883.18
Fredericksburg Police Communications	$241,737.56	$205,164.03
Giles County	$44,628.84	$39,978.16
Gloucester County	$45,418.78	$39,838.51
Goochland County	$44,830.66	$44,861.22
Greene County	$66,820.57	$46,124.97
Greensville Sheriff's Communications	$44,830.66	$39,838.51
Halifax County	$71,283.56	$101,810.19
Hampton Police Communications	$495,101.25	$420,970.89
Hanover County ECC	$353,896.73	$342,804.33
Harrisonburg - Rockingham ECC	$183,825.52	$217,619.30
Henrico County	$934,415.70	$930,591.56
Highland County	$43,556.61	$39,838.51
Hopewell Police Communications	$47,188.13	$45,412.76
Isle of Wight Sheriff's Office	$53,851.60	$124,187.22
James City County ECC	$117,230.53	$134,387.05
King & Queen County	$47,441.69	$40,880.09
King George County	$62,494.18	$108,036.85
King William County	$48,106.60	$44,370.65
Lancaster County	$47,052.91	$41,925.73
Lee County	$43,891.55	$40,003.61
Loudoun County Fire Communications	$419,940.46	$454,318.30
Louisa County Sheriff's Office	$49,232.36	$45,744.07
Lunenburg County	$60,228.81	$47,607.65
Lynchburg ECC	$251,483.64	$238,581.64
Madison County	$44,830.66	$43,698.65
Martinsville - Henry County 9-1-1	$145,001.20	$136,699.13
Mathews County	$44,830.66	$39,838.51
Mecklenburg County	$92,066.00	$101,627.79
Middlesex County	$44,895.56	$41,607.65
Montgomery County	$47,517.60	$43,621.87
Nelson County	$44,576.46	$42,277.51
New Kent County	$45,601.84	$41,020.23
Newport News Police Communications	$569,505.27	$571,027.25
Norfolk Emergency Services	$1,427,354.36	$1,324,923.45
Northumberland County	$45,083.76	$42,202.05
Norton 9-1-1 Communications	$44,993.47	$40,024.30
Nottoway County	$48,665.30	$41,958.08
Orange County Communications	$97,301.10	$88,565.63
Page County EOC	$79,914.48	$99,855.96
Patrick County	$54,895.10	$45,208.48
Petersburg Police Communications	$223,855.12	$280,997.85
Pittsylvania County Emergency Management	$44,606.10	$45,472.30
Poquoson Police Communications	$51,735.08	$48,465.87
Portsmouth Police Communications	$375,022.96	$533,622.36

Powhatan County Emergency Services	$62,585.53	$56,897.08
Prince George County	$48,738.11	$92,931.09
Prince William County PSCC	$860,033.90	$828,702.88
Pulaski County	$47,261.14	$44,795.52
Radford Police Communications	$44,528.73	$43,537.49
Rappahannock County	$47,660.17	$40,120.06
Richmond County	$45,788.34	$43,198.41
Richmond Police Communications	$941,660.39	$1,064,693.59
Roanoke Communications Dept.	$510,511.97	$498,472.21
Roanoke County Police Communications	$225,552.64	$209,701.85
Rockbridge Regional PSCC	$94,209.39	$111,413.29
Russell County	$49,988.76	$44,104.59
Salem Police Communications	$98,781.84	$99,394.92
Scott County	$45,809.60	$43,511.28
Shenandoah County Emergency Communications	$107,206.68	$106,030.00
Smyth County 9-1-1	$50,274.27	$41,536.86
Southampton County	$49,312.77	$44,868.12
Spotsylvania County Emergency Communications Dept.	$126,615.58	$165,226.48
Stafford County Sheriff's Communications	$228,894.68	$262,421.68
Staunton 9-1-1 Communications	$82,090.76	$77,542.62
Suffolk Police Communications	$184,230.67	$204,923.50
Surry County	$46,271.84	$41,008.81
Sussex County	$48,736.12	$41,535.17
Tazewell County	$44,648.66	$39,970.84
Twin County E-911	$100,115.70	$78,718.87
Vinton 9-1-1 Communications	$46,248.59	$44,669.73
Virginia Beach Communications Division	$1,303,591.17	$1,836,375.83
Warren County	$49,910.23	$49,291.88
Warrenton - Fauquier Joint Communications Center	$95,325.36	$92,341.48
Washington County	$51,518.94	$43,486.05
Waynesboro 9-1-1 Communications	$106,389.87	$109,149.49
West Point 9-1-1 Communications	$44,830.66	$39,838.51
Westmoreland County	$53,205.31	$44,475.74
Williamsburg Public Safety Communications Center	$44,830.66	$40,378.52
Winchester Fire/Rescue Communications	$44,864.51	$43,394.59
Wise County	$60,216.65	$67,930.22
Wythe County	$50,667.96	$43,819.45
Wytheville Public Safety E-911	$48,947.03	$42,236.43
York County Fire Communications	$174,800.76	$201,638.47
	$23,571,716.43	$25,233,285.39

Appendix B – Wireless Service Provider Status

Alltel Status

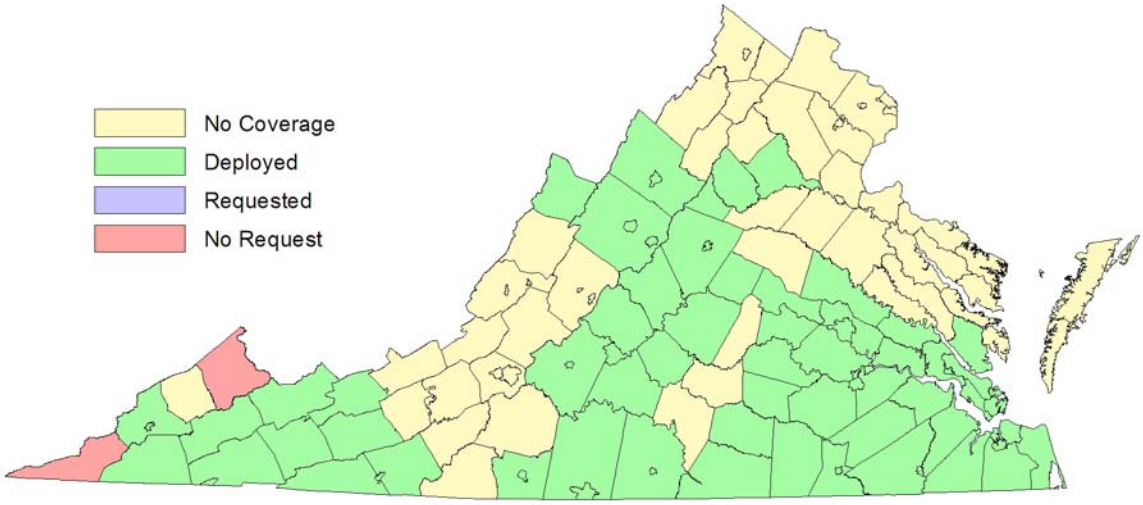

Figure 7 - Alltel Phase I Status

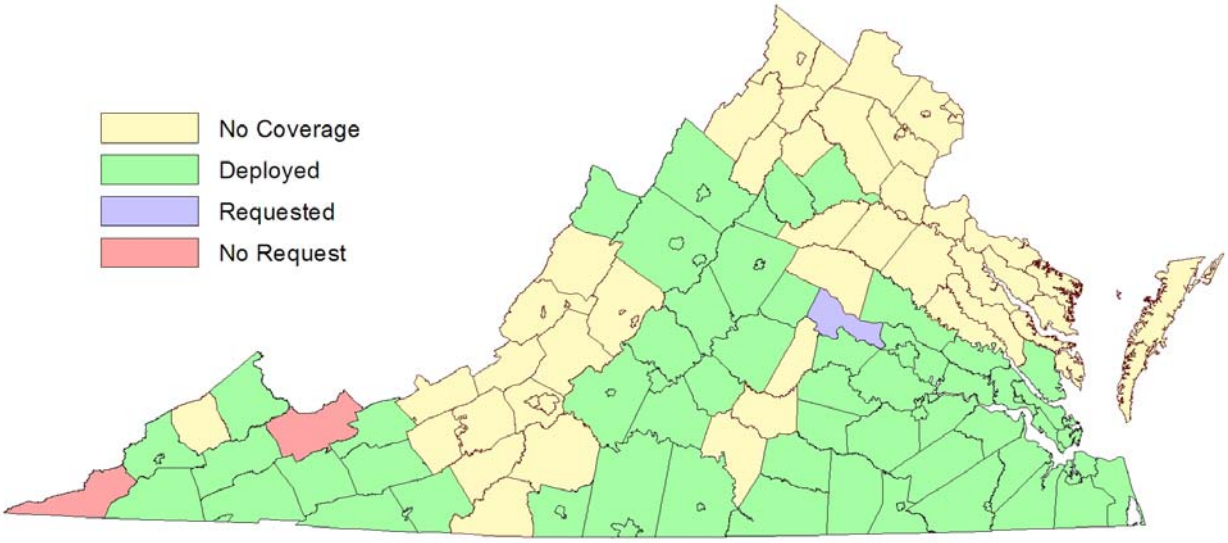

Figure 8 - Alltel Phase II Status

AT&T Status

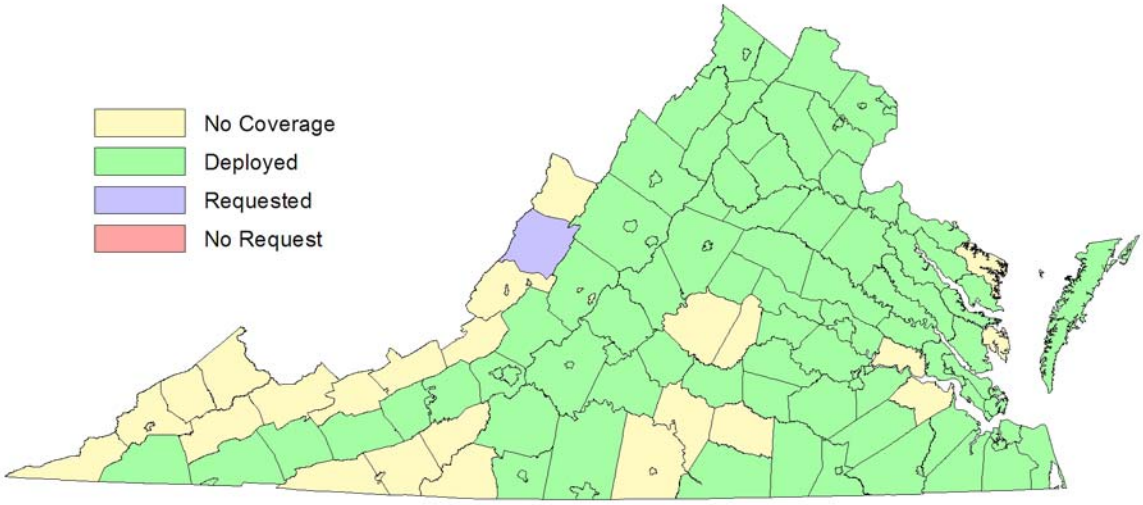

Figure 9 – AT&T Phase I Status

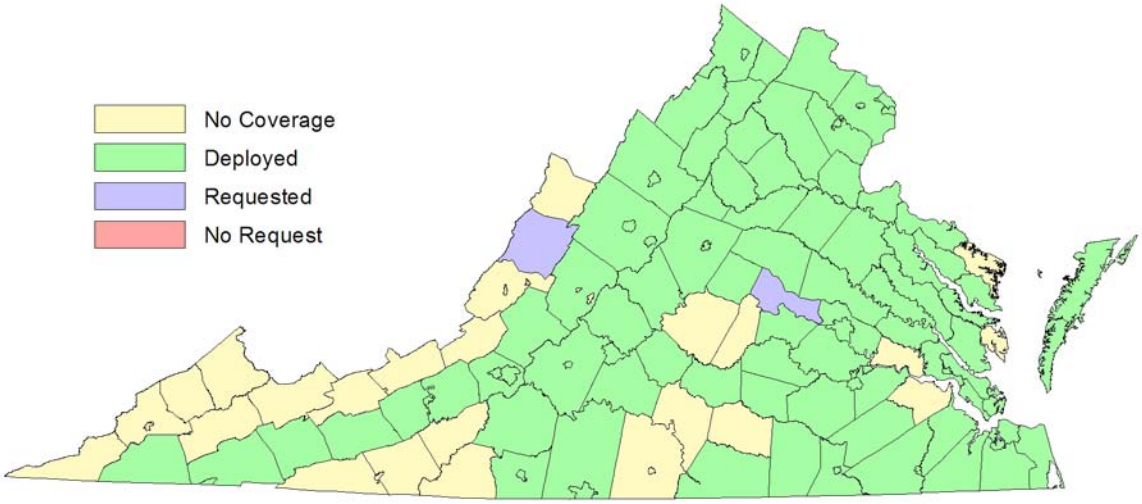

Figure 10 – AT&T Wireless Phase II Status

nTelos Status

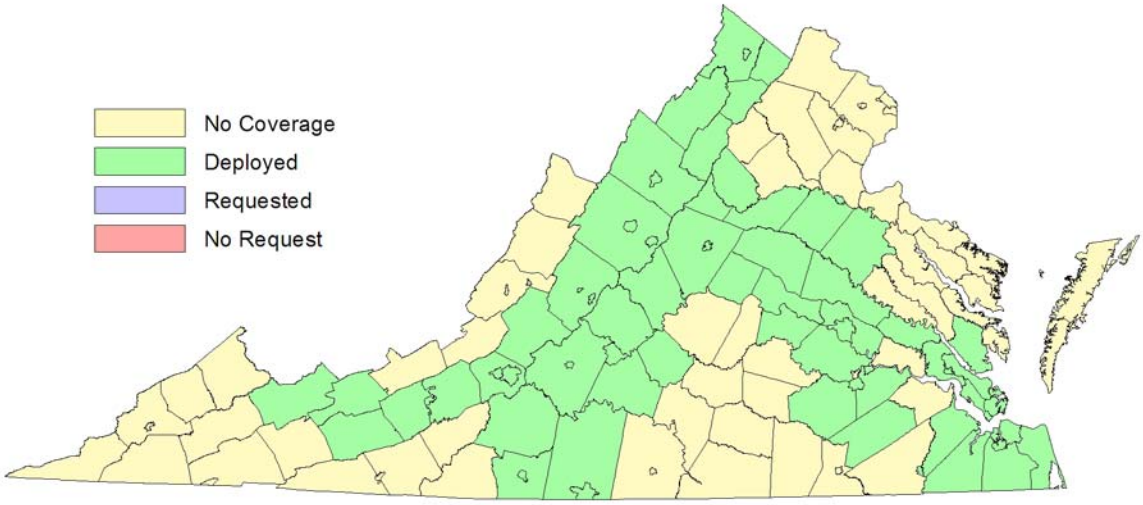

Figure 11 – nTelos Phase I Status

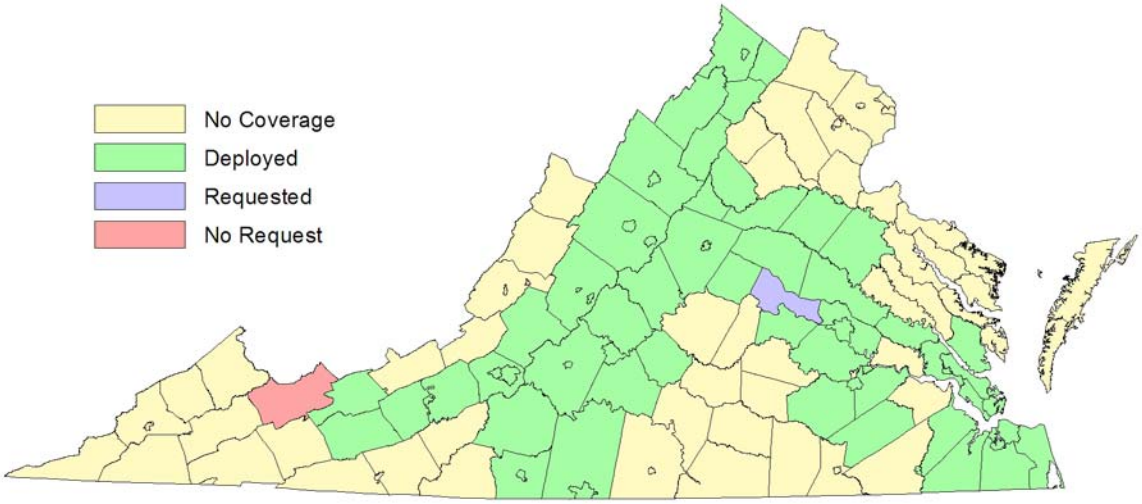

Figure 12 – nTelos Phase II Status

Sprint Status

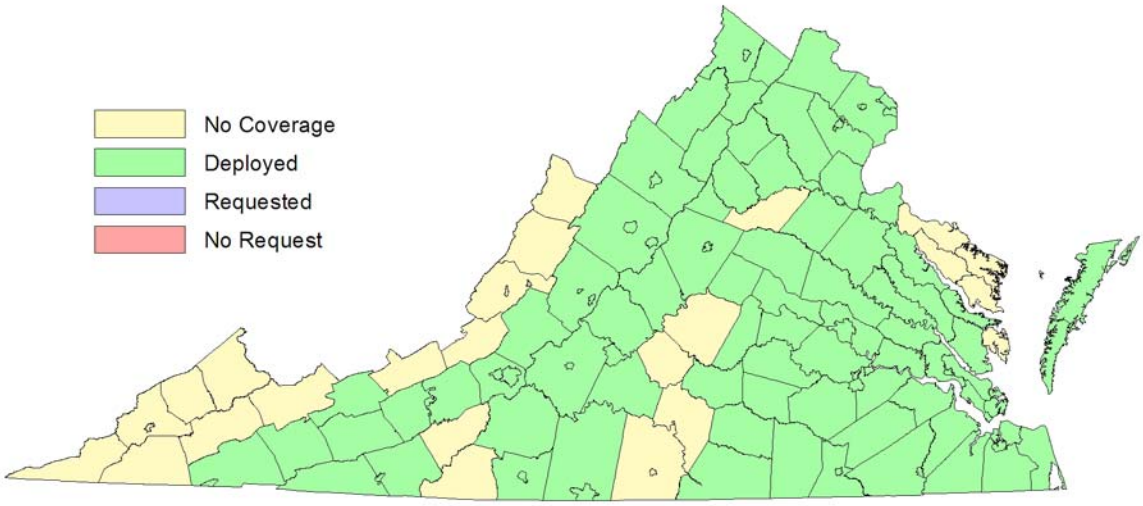

Figure 13 – Sprint Phase I Status

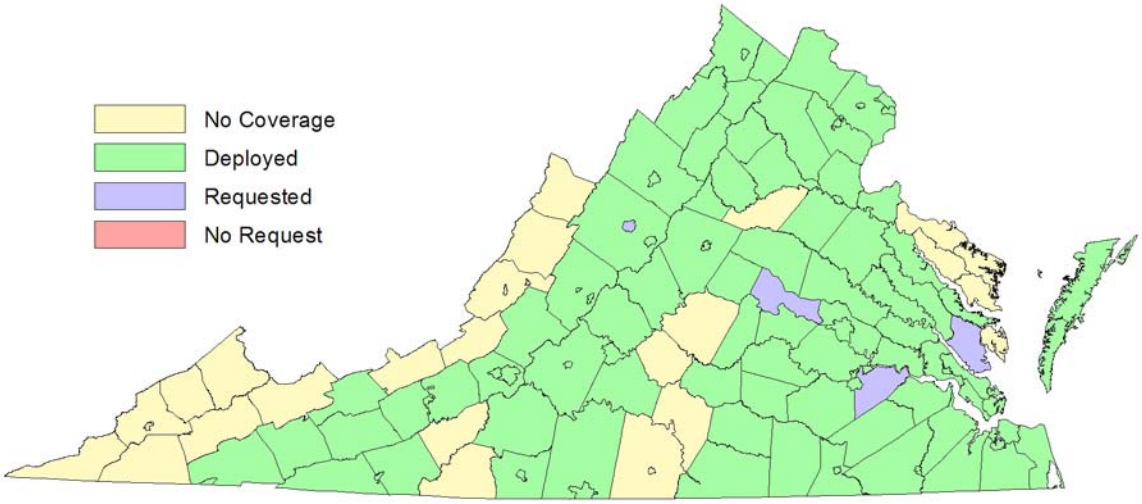

Figure 14 – Sprint Phase II Status

T-Mobile Status

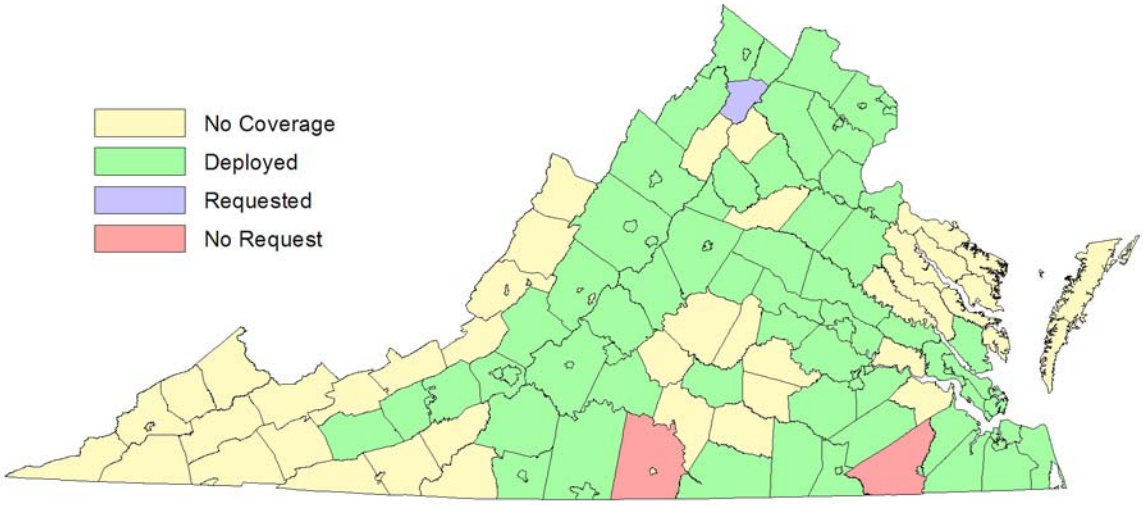

Figure 15 – T-Mobile Phase I Status

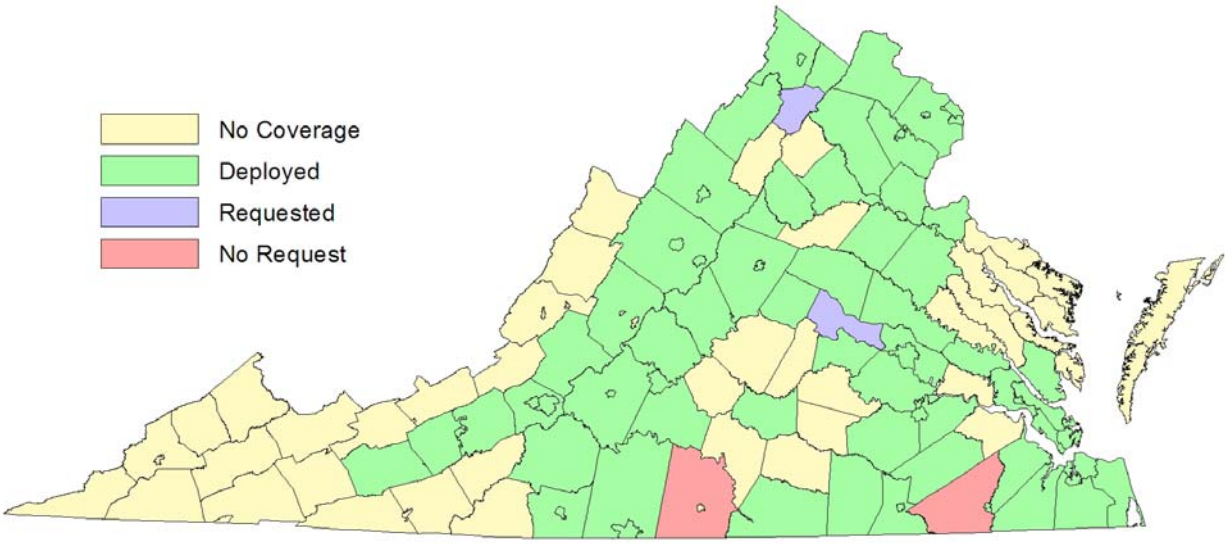

Figure 16 – T-Mobile Phase II Status

U.S. Cellular Status

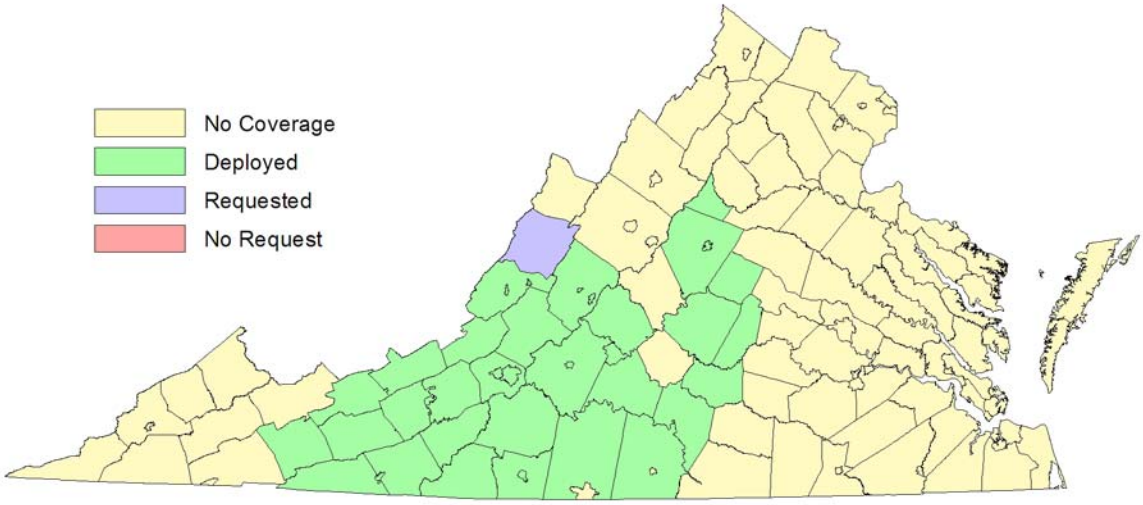

Figure 17 – U.S. Cellular Phase I Status

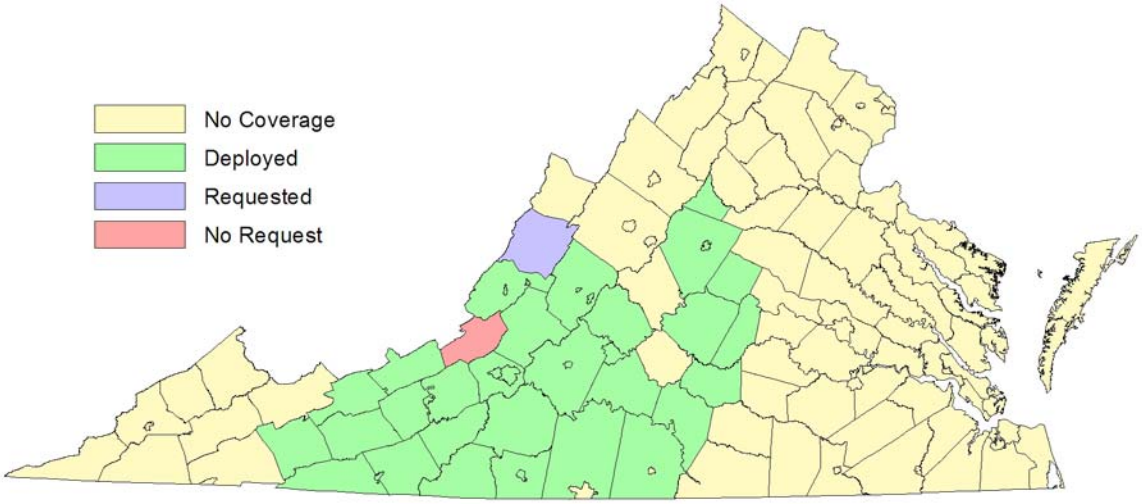

Figure 18 – U.S. Cellular Phase II Status

Verizon Wireless Status

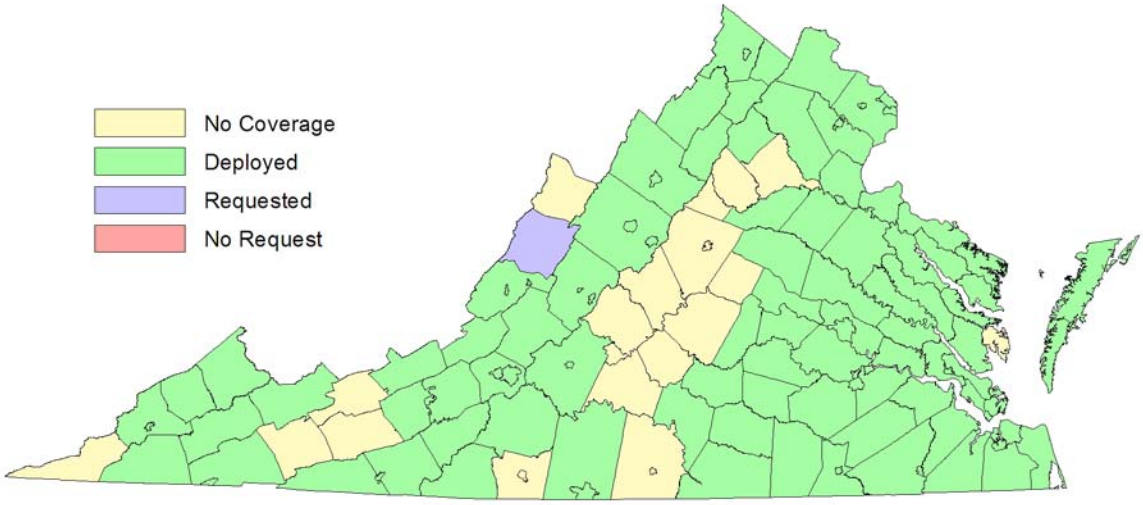

Figure 19 – Verizon Wireless Phase I Status

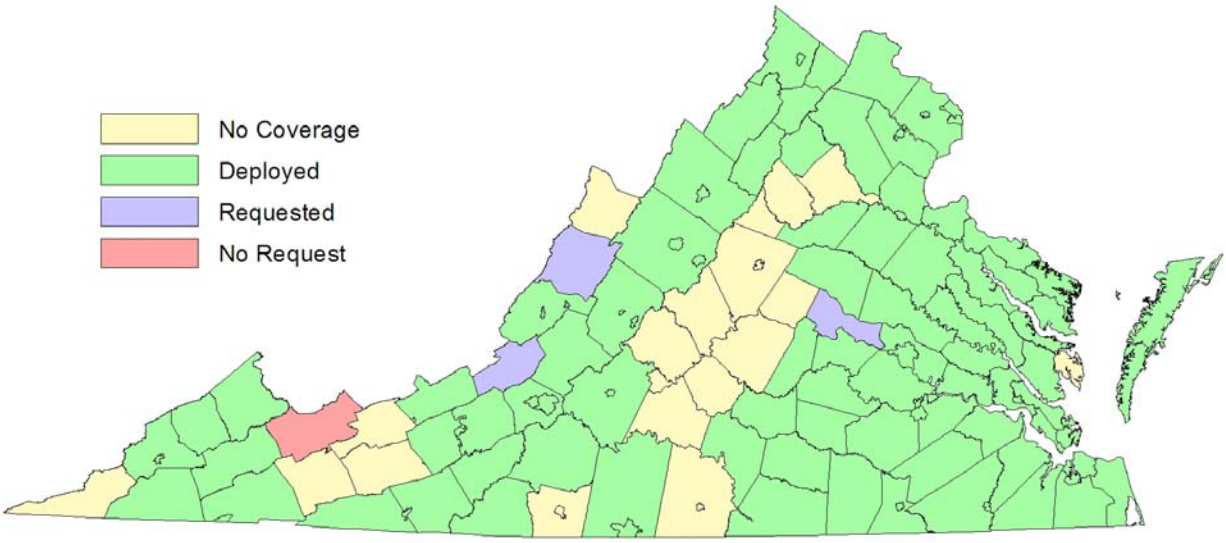

Figure 20 – Verizon Wireless Phase II Status