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# COUNTY OF SPOTSYLVANIA



## MEMORANDUM

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October 7, 2014

To: Board of Supervisors

From: Jane Reeve, Director, Information Services Department  
Prepared by Lauren Usher

Re: Wireless Broadband Service – Commercial Service Providers

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### Intro

In response to citizen demand for broadband services where cable services are unable to be obtained, staff has prepared this report to address availability of wireless broadband in Spotsylvania County.

### Definitions

**3G (3<sup>rd</sup> Generation):** a wireless broadband that provides high-speed data service to mobile devices.

**4G (4<sup>th</sup> Generation):** a wireless broadband meant to replace 3G that provides high-speed data service to mobile devices.

**4G LTE (Long Term Evolution):** an upgraded wireless broadband that provides high-speed data to mobile devices at speeds 10 times faster than 3G. This network runs on the 700 MHz C Block spectrum.

**XLTE:** a wireless broadband that provides high-speed data service to mobile devices with a minimum of double the bandwidth of 4G LTE. This network runs on the AWS spectrum (1700/2100 MHz).

**Advanced Wireless Services (AWS):** a wireless telecommunications spectrum that runs in the 1710 – 1755 to 2110 – 2155 range.

Average Network Speeds				
	3G	3G	4G	4G
	Upload	Download	Upload	Download
	mbps	mbps	mbps	mbps
<b>AT&amp;T</b>	.96	2.97	6.62	13.90
<b>Sprint</b>	.31	.40	2.80	3.58
<b>T-Mobile</b>	1.04	3.13	2.63	8.73
<b>Verizon</b>	.52	.80	5.36	9.27

Source: <http://www.techhive.com/article/2039452/atandt-has-fastest-lte-service-t-mobile-off-to-strong-start.html>

## Summary

With the introduction of 3G technology, the internet can now be accessed wirelessly at practical speeds on mobile devices. It is now feasible to download and stream large amounts of data off of smart devices such as audio and video. Each new generation of technology means that mobile internet speeds will increase. 4G networks replaced 3G with even higher speeds, but it wasn't until 4G LTE that the speeds became just as fast as a home computer with rates up to 10 times faster than 3G. Verizon has recently released a new technology, XLTE, which is available in large cities; however, only newer devices are able to support this service as it requires an additional antenna and software. There is no visible indicator as to whether or not your device is running XLTE versus LTE.

Wireless broadband internet can be accessed from certified smartphones, basic phones, tablets, netbooks, USB modems, mobile hotspots, etc. It should be noted, however, that older devices may not be able to access newer networks due to limits of that technology. Some areas may not have coverage of newer networks and will automatically revert to older networks such as 3G.

## Service Innovation

Service providers continue to find ways to improve wireless service by working with various organizations to develop innovative technology for the future. Scientists and engineers are testing out new innovative solutions. New ideas and technologies are being developed to bring to the market and by 2020 Verizon proposes that they will have over 5 billion people connected wirelessly.

## **Service Impacts**

There are several factors that may affect wireless service such as:

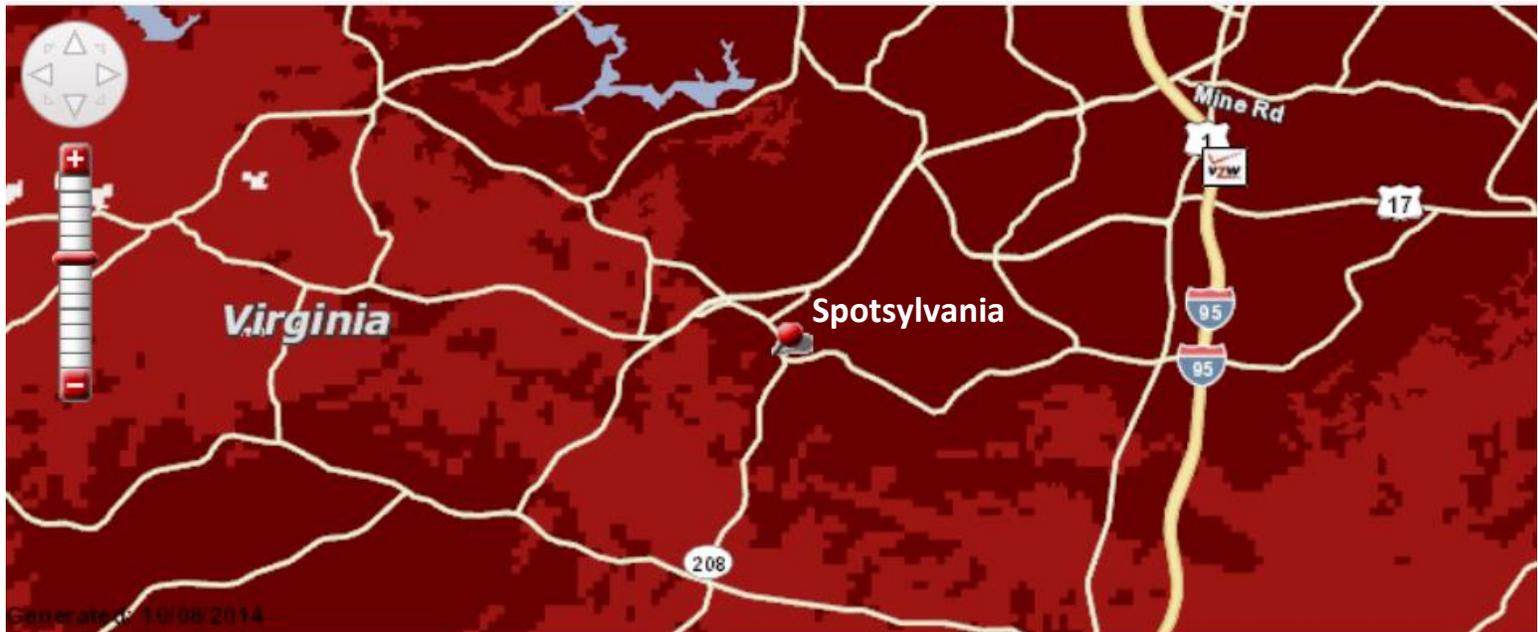
- Device's processor speed, memory, operating system
- Number of running applications
- Number of computers/Devices that share your Internet connection
- Physical obstructions such as hills, buildings, thick walls, etc.
- Weak Signal due to distance from service tower
- Internet Congestion (Between 7pm and 11pm)

## **Increasing Wireless Speeds/Capability for Home Use**

Wireless providers and third parties offer wireless signal boosters and antennas to enhance speed and capability in areas with weak signal. Contact your service provider for more details.

## **High-speed Broadband Service in Spotsylvania County**

4 primary service providers provide high-speed broadband service in Spotsylvania County. Other providers may also offer high-speed service, but citizens will need to check with their provider for advertisement speeds and availability in their area.



**Map Legend**

- Verizon 4G LTE \*
- Verizon 4G LTE Extended \*\*
- Verizon 3G
- Extended 3G
- Canada/Mexico 3G
- No Service
- VZW Store

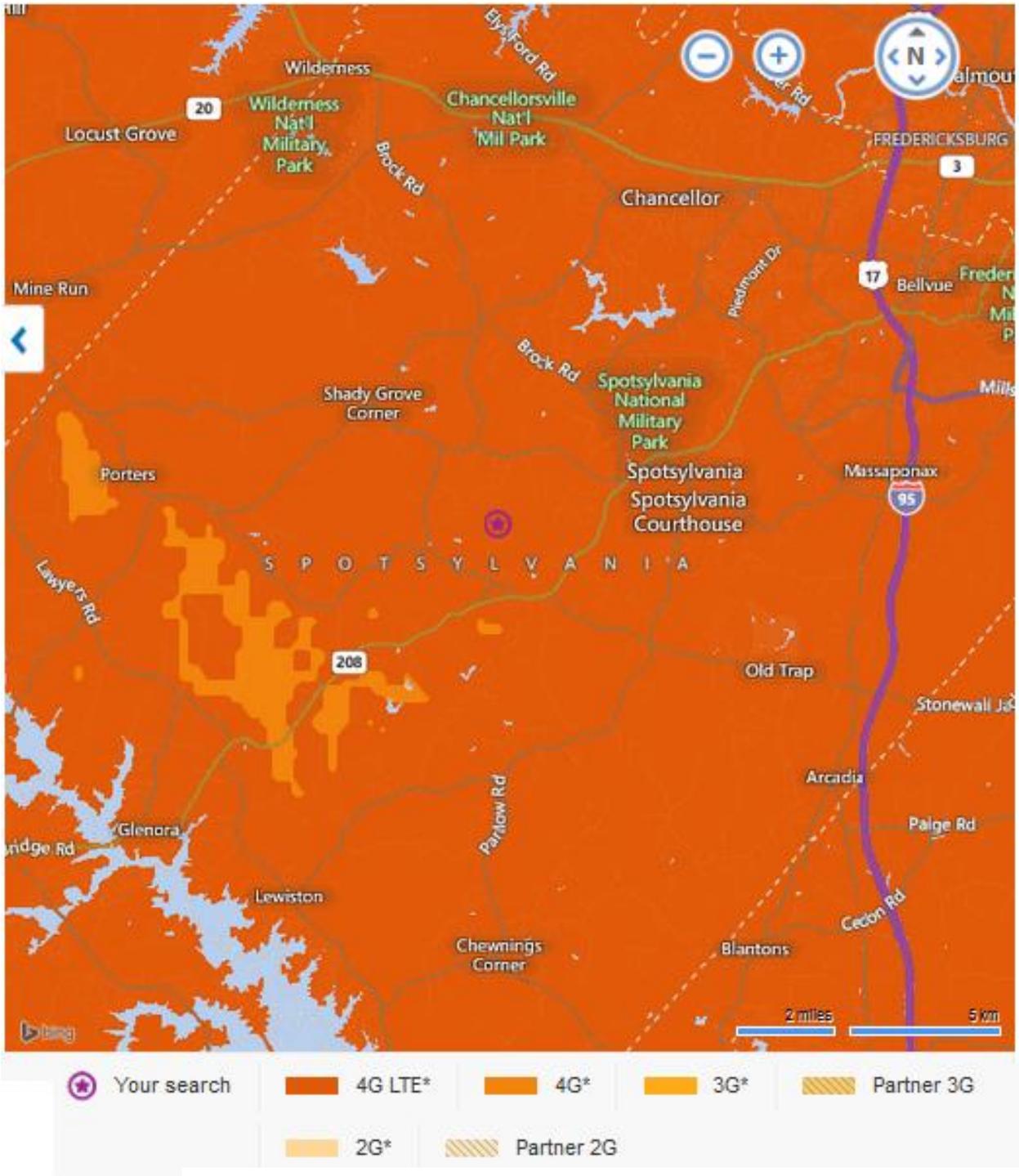
Source: <http://www.verizonwireless.com/wcms/consumer/4g-lte.html>

**XLTE Coverage Areas**

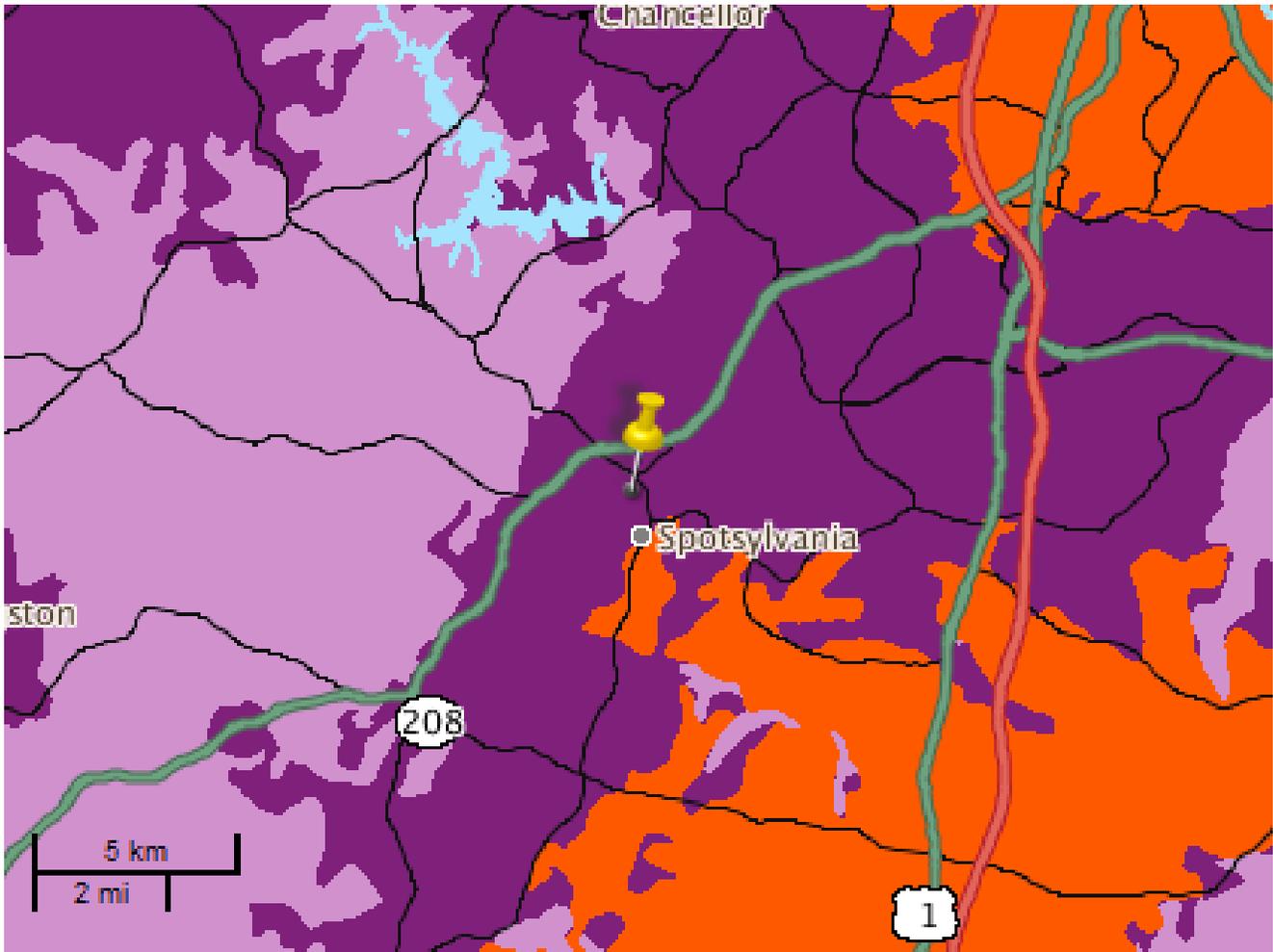
- Charlottesville, VA
- Danville, VA
- Fredericksburg, VA
- Greater Hampton Roads, VA
- Harrisonburg, VA
- Lynchburg, VA
- Richmond, VA
- Roanoke, VA
- Staunton/Waynesboro, VA
- Winchester, VA

**XLTE Ready Devices**

Apple iPad Air	LG G2	Samsung Galaxy S4
Apple iPad Mini w/ Retina Display	LG Lucid 3	Samsung Galaxy S4 mini
Apple iPhone 5 and 6	Moto X	Samsung Galaxy S5
BlackBerry Q10	Motorola Droid MAXX	Samsung Galaxy Tab 2 10.1
Brigadier	Motorola Droid Mini	Samsung Galaxy Tab 4
Droid Mini	Nokia Lumia Icon	Samsung Galaxy Tab S
HTC One M8	Samsung ATIV SE	Sony Xperia Z2 Tab
HTC One max	Samsung Galaxy Note 10.1 (2014)	Verizon Jetpack 4G LTE Mobile Hotspot MHS291L
LG G Pad 8.3 LTE	Samsung Galaxy Note 3	Verizon Jetpack 4G LTE Mobile Hotspot MiFi 5510L
LG G Vista	Samsung Galaxy Note Pro 12.2	Verizon Jetpack 4G LTE Mobile Hotspot MiFi 6620L



Source: <http://www.att.com/maps/wireless-coverage.html#fbid=Lnw1e77vnz3>



Source: <http://coverage.sprint.com/IMPACT.jsp>



**Sprint Spark™**

Sprint Spark enhanced LTE available only on select devices.



**Sprint 4G LTE**

Sprint Spark devices can also use 4G LTE. Filter coverage by [Sprint 4G LTE](#) for more info.



**Sprint 3G & more**

Filter coverage by [Sprint 3G & more](#) for more info

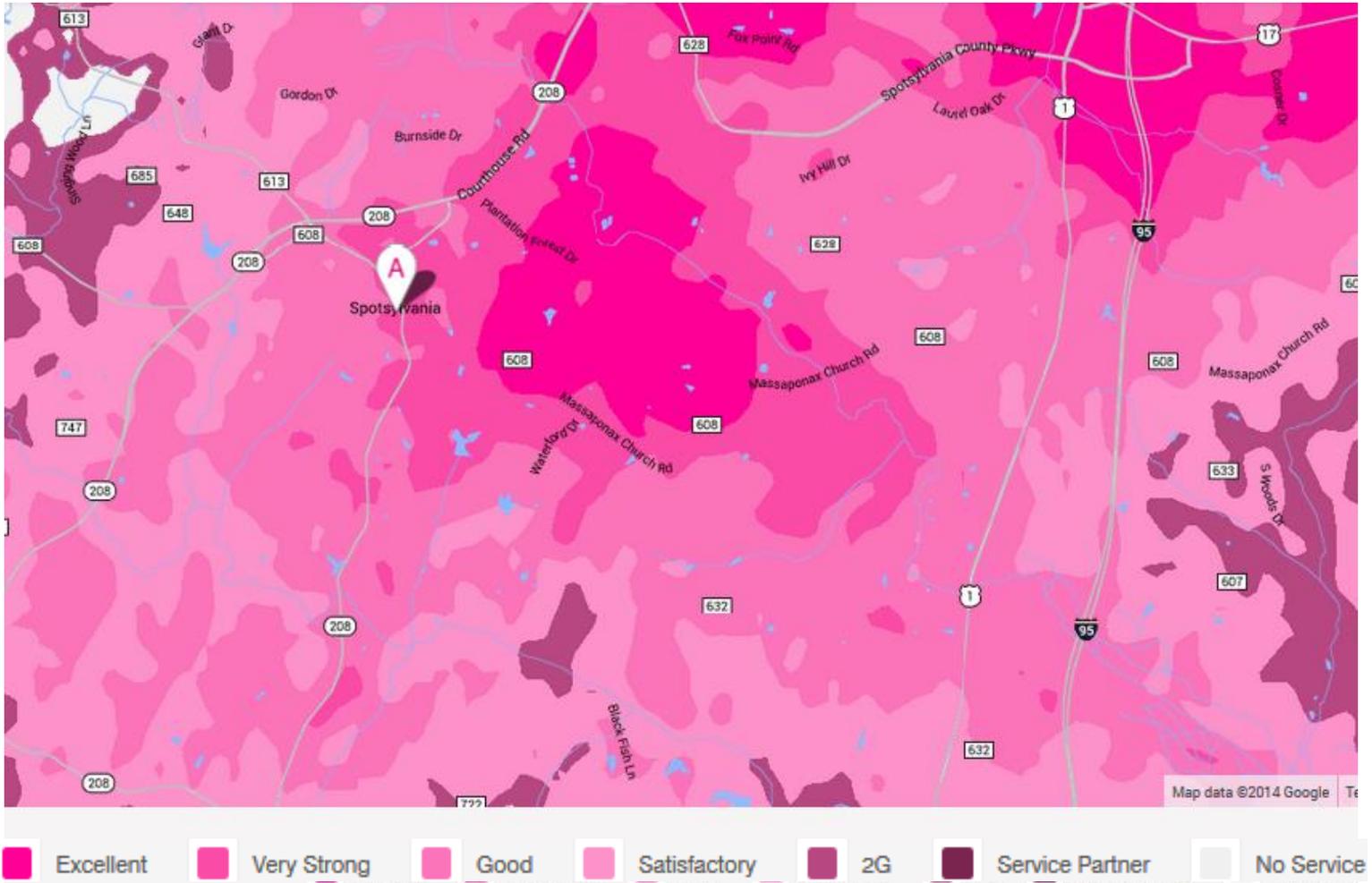


**Off-network roaming**



**No coverage**

# T-Mobile Coverage Map



Source: <http://www.t-mobile.com/coverage.html>

**For further information please contact your service provider.**