Fiber Finder

Broadband Infrastructure Planning & Analysis

Getting Started Guide

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Introduction

This guide describes how to install and launch Fiber Finder. One can be up and running in 15 minutes.

Users are encouraged to read this "Getting Started Guide" in its entirety and to visit the whitepaper section of BroadbandToolkit.com for additional insights:

https://broadbandtoolkit.com/whitepapers

Quick Start

To getting started:

1. *Download* Fiber Finder. You will receive an e-mail with a link immediately following your purchase.

2. *Unzip the File*. Unzip and *remove* the contents and place them in a convenient location on your computer, such as the computer desktop.

3. *Download and Install QGIS*. The Visual Toolkit (part of Fiber Finder) is an application built upon an open-source world class GIS tool. You need to download and install a copy. It's free and is available to support every major operating system (Windows, macOS, Linux, BSD).

    Recommendation: download the "Long Term Release" standalone installer, 64-bit version. Long Term Release means that is extremely stable. Virtually every computer today runs a 64-bit operating system. It leverages the hardware capabilities of your computer.

    https://www.qgis.org/en/site/forusers/download

4. *Close Panels*. When you install QGIS it opens two panels by default, "Browser" and "Layers". It is recommended that you close the "Browser" panel (see Figure 1). It is not needed and it consumes valuable screen real estate. If you want to see it again you can easily enable it from the "View" pull-down menu.

5. *Launch the Application*. Go the the Visual Toolkit folder within your unzipped Toolkit and double-click on *Fiber Finder.qgz* to launch the Visual Toolkit.

There's More

- *Spreadsheets*. The "Excel Spreadsheets" folder includes additional data, complementing the contents of the Visual Toolkit.

- *Web Site Links*. The folder Web Site Links includes links to important updates. It is likely that the Toolkit documentation will be updated and that the Toolkit functionality will be enhanced over time. This folder also includes links that describe third party data in greater detail.
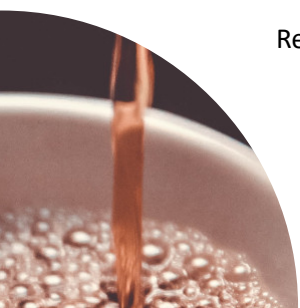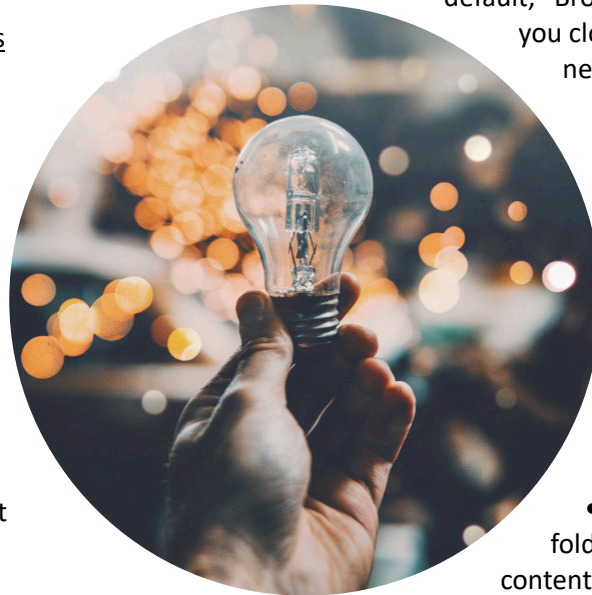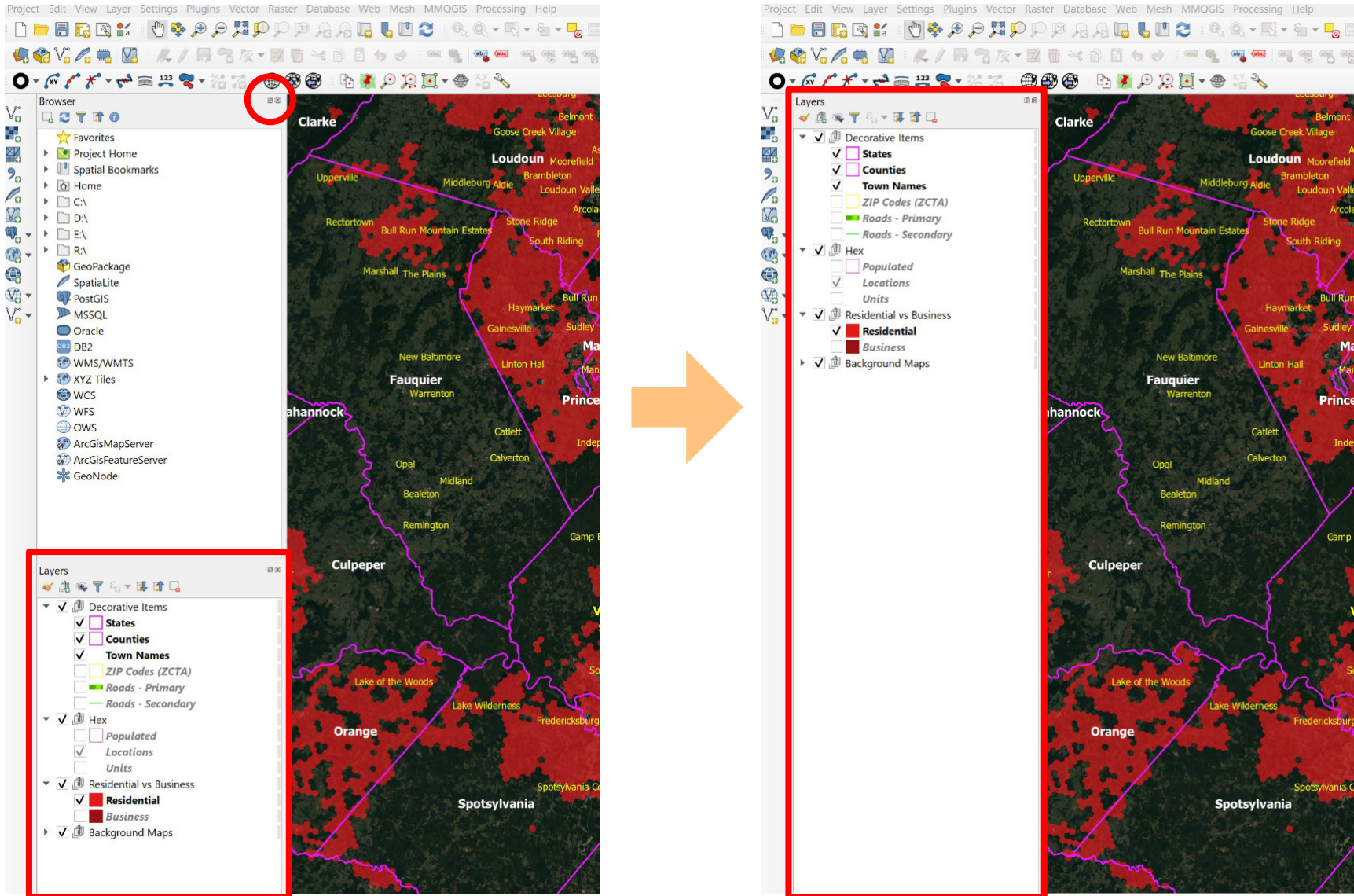
Figure 1: Reducing Clutter by Closing Unnecessary Panels in QGIS

- *Still Need Help*? The Toolkit team is happy to answer quick questions by e-mail (*support@BroadbandToolkit.com*) or more complicated questions via a Zoom meeting.

Features and Functionality

Fiber Finder enables the user to quickly visualize residential and business fiber footprints across the United States. It uses the FCC's new "hexagon" framework to provide high resolution in rural areas.

ISPs report their footprint to the FCC as part of the Broadband Data Collection (BDC) process. Each reportable location resides in a census block and also in an H3 hexagon. This toolkit shows where fiber resides by hexagon. If a single location is covered with fiber then the hexagon "turns on", indicating presence.

Other toolkits provide a deeper view of the footprint (depth, specific competitors, performance differences, etc.).

The software can be "zoomed out" by using a mouse wheel or by clicking the Zoom In or Zoom Out buttons. In zoomed out images hexagons look like pixels in a photograph (see Figure 3).

The software can also be "zoomed in" to view the exact number of broadband serviceable locations or the exact number of units per hexagon and to see more precise coverage (see Figure 4) or to view other supporting details (secondary roads, towns, zip codes, etc.)

One can see *fiber* footprints (Figure 2):

- *Residential Fiber*. Shows the presence (one or more covered locations) of residential fiber (filed as "R" or "X").

- *Business Fiber*. Shows the presence (one or more covered locations) of business fiber (filed as "B" or "X"). Does not include enterprises.

One can also see:

- *Populated Areas*. Areas enclosed by a magenta hexagons when "populated" is enabled (see Figure 3).

- *Unpopulated Areas*. Areas not enclosed by a magenta hexagons when "populated" is enabled (see Figure 3).

- *Locations*. The number of Broadband Serviceable Locations (BSLs) within each hexagon, displayed as an integer.

- *Units*. The number of units within each hexagon. Each location has one or more units associated with it. A single family home is one unit. An apartment building with 10 apartments will be 1 location with 10 units. Units are similar to "homes passed". Each unit represents a revenue opportunity. Nationwide there are approximately 1.4 units per location, although the ratio varies widely with cities having the highest ratio of units per location.

  Important: either locations or units may be displayed.   If both layers are enabled the labels will collide and not display properly.

Figure 2: The Control Panel
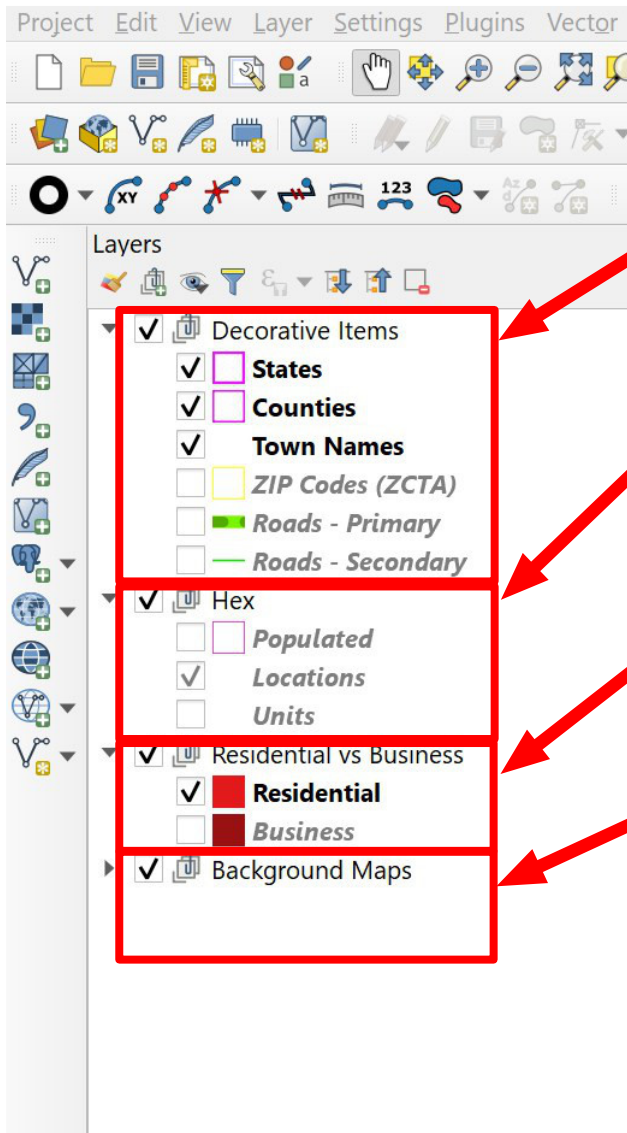
Decorative Items. These layers provide important context to the data being visualized.

Hex. These layers visualize information at the level of individual level 8 hexagons. They are extremely valuable when zoomed in.

Residential vs Business. Fiber coverage data can be viewed either zoomed in or zoomed out. Zoomed in they describe small coverage areas and can be displayed along with numerical data (locations or units).

Background Maps. This section expands to enable a variety of backgrounds. Some streaming maps have detailed street and location name and point of interest information. Others are very plain. One can also darken a map or use a solid background to allow text overlays to become more visible.

Fiber Finder also includes a number of "decorative" layers that provide valuable detail:

- *States*. State boundaries and state names. The "States" layer also includes the District of Columbia and the five US territories (Puerto Rico, the US Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa) that are eligible for BEAD.

- *Counties*. County boundaries and names.

- *Town Names*. City and town names (including informal names).

- *Zip Codes*. Zip codes are approximated using polygons provided by the US Census Bureau. These are called Zip Code Tabulation Areas (ZCTAs).

- *Primary and Secondary Roads*. Primary and secondary roads, including road names, can be toggled on and off.

- *Maps*. Fiber Finder uses streaming maps. A user can expand the "Background Maps" section to choose among popular streaming maps. Maps show varying degrees of embedded detail. The user can also choose among solid backgrounds. By default Fiber Finder uses a translucent gray background over a satellite image. This helps text "pop". Map options include Google (satellite, hybrid, and road), Bing (Ariel and Maps), and OpenStreetMap.

Important: many decorative items and labels become overwhelmingly dense as one zooms out. Consequently, some layers are designed to "disappear", even if selected, as the user zooms out. They will then reappear as the user zooms in. Importantly, the coverage footprint (red or dark red) and the background map do not disappear.

Frequently Asked Questions

How do versions of the Toolkit differ?

BroadbandToolkit.com produces a range of geospatial planning tools design to help investors, broadband providers, policy decision-makers, and others in their early stages of broadband Planning.

These include the National Hex Toolkit and the Fiber Strategy Toolkit, among others.

See the product comparison guide for more details.

Troubleshooting

QGIS launches with error messages. What should I do?

QGIS will not run property from within a zipped file folder. If you simply opened the zipped file but did not actually extract its contents (e.g. drag them to your desktop) then you will experience an error. First fully extract the zipped contents by dragging them out of the zipped file to your desktop then try

Figure 3: Wide-Area View
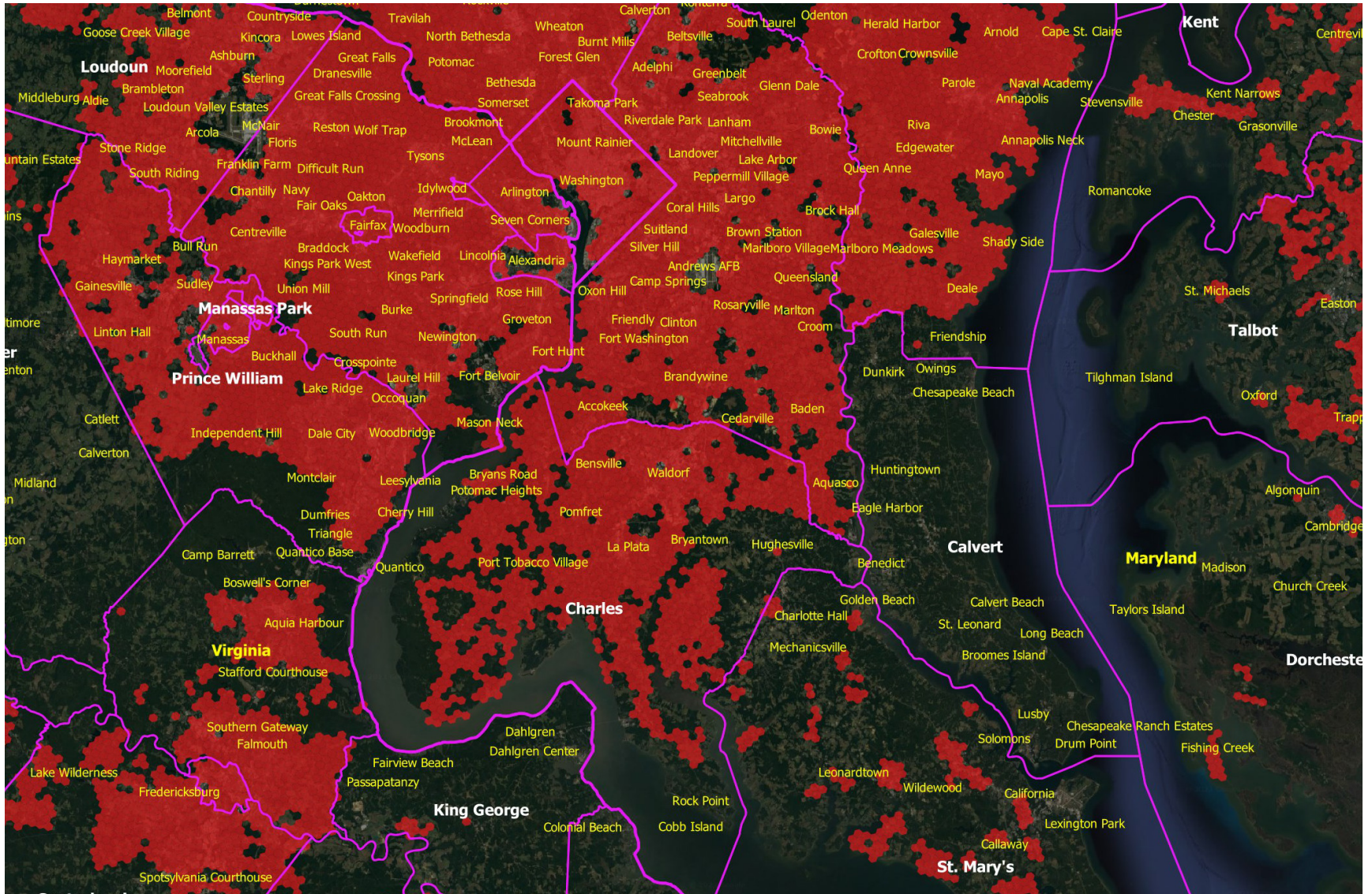
again. When you do this the files will expand to their full size and QGIS will launch properly.

How do I zoom?

The easiest way - by far - is to use a physical mouse with a zoom wheel. If you have a laptop with a mouse pad and don't happen to have a mouse with a zoom wheel you will find that a small investment in this important hardware accessory will make your life much easier, as you use the Toolkit and use GIS applications. Without a zoom wheel one can zoom in using the magnifying glass with a plus or minus sign (buttons along the top) but using a mouse with a physical zoom wheel is much easier.

The tool produces lots of beautiful pictures but does not display any numbers.

If you click on the triangle icon next to each set of data you will see a check box that enables the data labels. If you check it each polygon will have an associated numerical value. You should enable data layers when you are zoomed into a small area. As you zoom out labels for small geographic areas are likely to become unreadable. In many cases their display is disabled by default when the tool is zoomed out. The behavior / visibility of labels at various zoom levels is user configurable. Ideally one would turn on labels appropriate to the zoom level.

When I turn on additional layers of data it gets cluttered.

The Toolkit includes multiple layers of data. In addition, most users are likely to turn on some labels. Each layer is translucent, primarily to enable the user to see hints of the map below the data layer. The Toolkit is designed to display a single layer at a time. The simple solution is to turn off any existing data layers when you turn on a new one.

When I click the checkbox next to a data layer nothing happens.

The data layers are contained in "groups" (a.k.a. folders) to help users find everything in the Toolkit. A data layer will display only if each of its parent "groups" is enabled. If nothing is happening check to make sure that each of the parent "groups" is enabled with a check mark.

*I'm lost! How do I know what geography I'm viewing?*

The Toolkit includes a number of features to provide context. These include state, county, and other boundaries. Most of these can be displayed with numbers and/or names. You can also turn on roads or roads with labels. Finally, you can change the underlying map in the "Maps" section near the bottom to a map that includes local names and places of interest. Each map blocks the maps that are below it, so if you wish to try a different map make sure you turn off the default map.

I already had QGIS installed. Its not launching the Toolkit.

The Toolkit expects a recent release of QGIS (Long Term Release version 3.10) or later.

Download and install the current "Long Term Release". The Toolkit should then launch properly.

Figure 4: Zoomed-In View
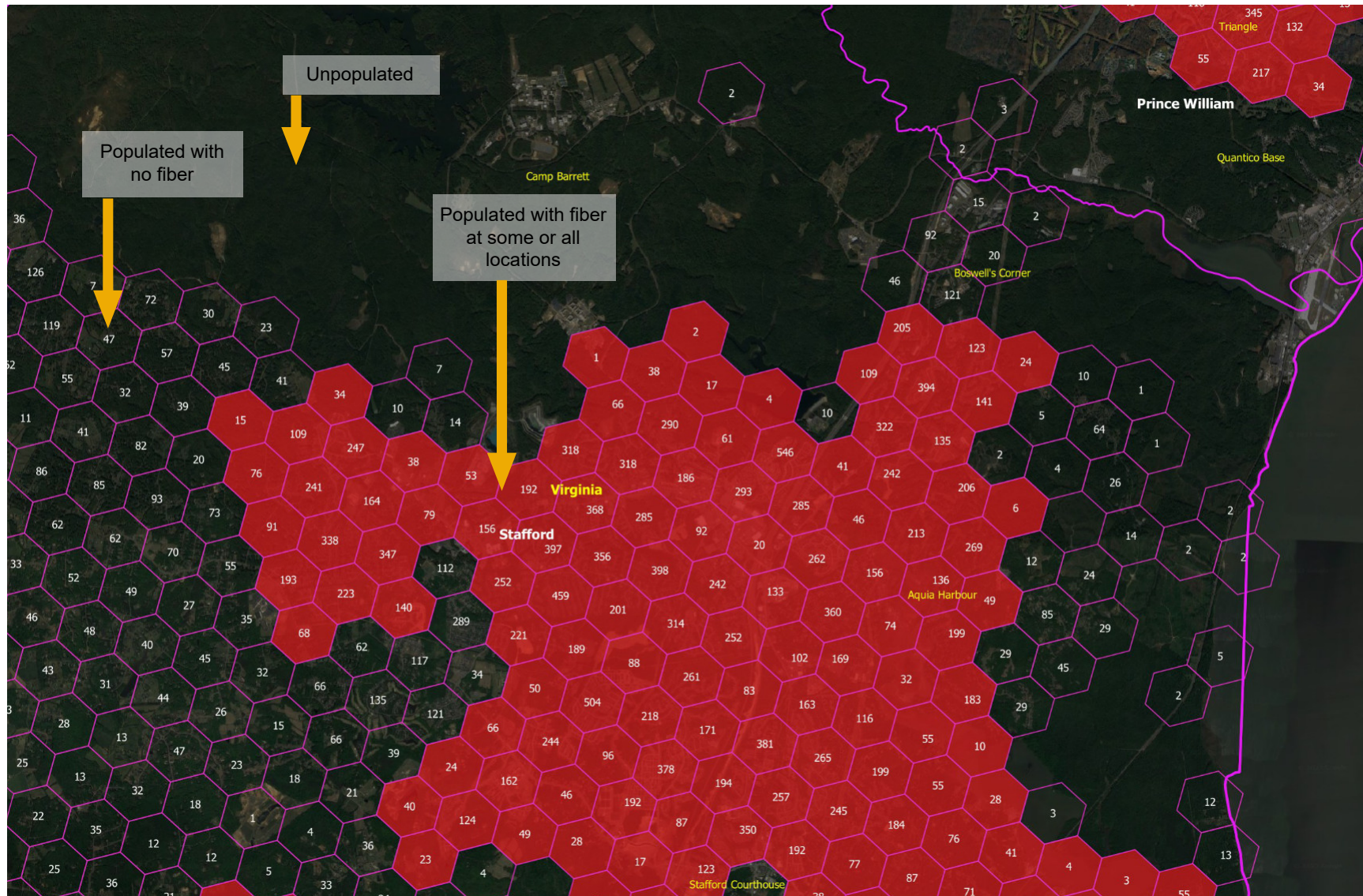
Questions?

We're here to help! Give us a call (415-346-5393) or send us an email (support@broadbandtoolkit.com). We are happy to do customer support Zoom sessions and discuss other Toolkits and resources for state broadband offices.

Additional resources:

Whitepapers:
https://broadbandtoolkit.com/pages/whitepapers

YouTube Channel
https://www.youtube.com/@broadbndtoolkit

Geospatial Business Planning Toolkits:

National Hex Toolkit
(Includes all BEAD technologies, a BEAD compliance layer,
and many other supporting data layers)
https://broadbandtoolkit.com/products/national-hex-toolkit

Fiber Strategy Toolkit
(Advanced analysis of everything related to fiber, including
detailed competitive information)
https://broadbandtoolkit.com/products/national-fiber-toolkit

Other (home page)
https://broadbandtoolkit.com/

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