



**Wireline Broadband Infrastructure Identification Guide
 Summer, 2013**

UNH, the project lead, has asked towns to verify the broadband coverage maps created from data submitted by internet providers. To assist with the Broadband Service Verification Project, Southwest Region Planning Commission (SWRPC), along with UNH, has created this short informational document to facilitate the identification of cable and telephone company infrastructure on utility poles in our region. If questions arise, SWRPC and UNH staff can provide additional information.

You already know what DSL or cable internet service looks like in your home or place of work: a modem leading to a telephone jack or coaxial cable connector at the wall (this is referred to as the subscriber network). The utility also has unique identifying attributes outside the home.

This work will benefit from having the following:

1. Pencil and paper
2. Broadband service map
3. Binoculars or camera with magnification

Service Identification

Steel strands serve as the support system for all telecommunications lines between poles. They are connected at a specific tension. The various types of cable are attached to the strands with wire.

Power Transmission

Power Distribution

Fiber

Cable

Telephone



Figure 1 - A utility pole in Keene showing a typical setup: telecommunications service wires are located on the lower section of a utility pole. Power is always located at the top. A distinct safety area allows for maintenance, upgrades, and other work.

Disclaimer: The following guidelines are for the identification of telecommunications infrastructure only. In some areas, the presence of telephone or cable utility equipment may not be indicative of broadband internet service. The provided broadband map and local knowledge of your community will help to assess whether internet service is available for a given area.

Telephone

The lowest wires will generally be owned by the telephone company. Telephone companies like FairPoint Communications, TDS and Dunbarton Telephone are some of the providers of DSL internet service.

Telephone characteristics:

- A large black case or cases, hanging below the line. These structures allow the utility to make new connections to the service line.



Figure 2 - Telephone utility infrastructure can be identified by black cases or "splice cans"

- A cabinet, with cables leading from the splice can or from the service line. This structure amplifies or processes the signal from the service line before transmission to a subscriber box (referred to as a NID or network interface device) on the customer structure.



Figure 3 - Flat cables lead from an intermediate cabinet on a utility pole connect a "splice can" and customer NID or network interface device

- Flat cables from either of these structures are generally from a telephone company, as opposed to round cables used by a cable utility. They may be copper wires or fiber-optic cable.

Cable

The lines above the telephone company are generally from a cable provider (Figure 1). Cable companies often offer internet service at speeds higher than DSL.

Cable characteristics:

- Cable transmission is characterized by a pronounced dip when it approaches the pole. This is often a different color than the black line (i.e. silver). There may be multiple cable providers using a utility pole alignment even though service will only be offered to the town by a single cable provider. This expansion loop serves to allow for normal expansion and contraction in the strand.



Figure 4 - A cable connection is often characterized by a pronounced dip near a utility pole

- Cable service may also make use of an amplifier or signal processor on the line or pole. From this equipment, round coaxial cable will head towards the service address. Using binoculars, you can recognize coaxial cable connections at the pole. Tags on the cables identify the provider.

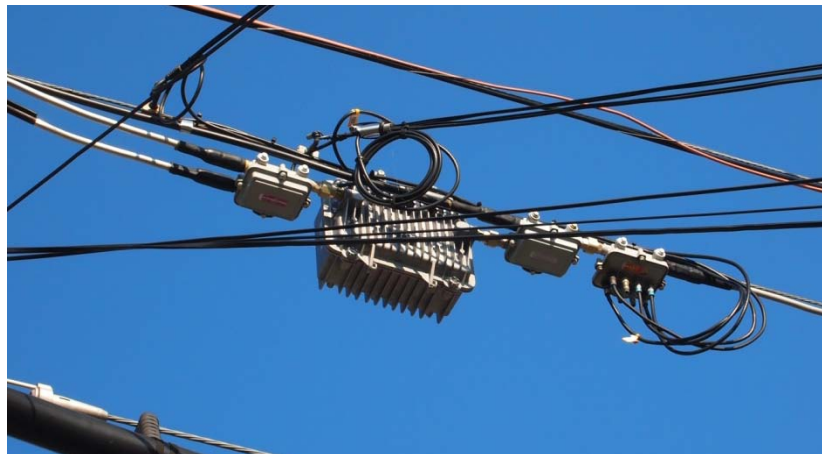


Figure 5 - A transmission cable infrastructure leading to distribution cables. The group of connections at the right of the frame use the same coaxial cable connection you may be familiar with in your home or place of work.

Other Utility Characteristics

Distribution

Utility distribution, whether it be electric, telecommunications, or some variation, can be divided into two categories:

1. *Transport or Transmission* of a utility may show some the characteristics mentioned under the headings above, however there may be no provision to distribute to a subscriber. This may typically be done, although at great expense.
2. *Delivery* is characterized by access to subscribers or the provision of access.

A “slack-loop” as shown with a “snowshoe” or extra coiled cable indicates the provision for adding delivery, or additional points of access without the expense of breaking a length of transmission line.

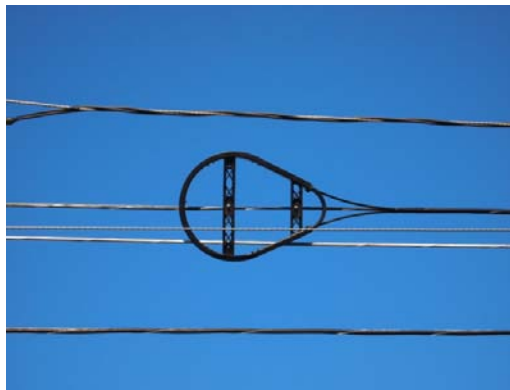


Figure 6 - A "snowshoe" in Keene along a cable transmission line.

Auxiliary Structure

A shed or small building, often paired with a generator, contains distribution equipment and other hardware. It may be identified by the telecommunications company using a sign. This is often referred to as a “central office” or “remote terminal”. These buildings are generally located in proximity to a population center.



Figure 7 – FairPoint Communications remote terminal on Main St. in Jaffrey. Note the yellow generator to the right. Photo credit: Google Street View. A town may be provided service from a central office in a neighboring town.

Fiber-Optic Cable

Fiber-optic cable, commonly referred to as “fiber”, is a technology that has been adopted by both cable and telephone companies. Telecommunications companies that handle transmission over long distances often use fiber and utility pole alignments for distribution (i.e. FastRoads).

Cable companies make use of fiber on utility poles, as a coaxial/fiber combination for distribution, but not subscriber connections.

Telephone companies use this technology primarily for transmission and not subscriber connections. However in some areas, a direct fiber connection can be leased to a customer requiring high speed and capacity.

In general, a fiber-optic cable will be orange in color or appear with orange tags (Figure 8).



Figure 8 - Sheathing of fiber-optic cable

Keep in mind that a fiber cable will most likely be bundled with other fiber cables in a black wrapping, therefore this orange color may not be visible in some areas (Figure 9).



Figure 9 - Fiber-optic cabling along with other technology types

Promotional Signage

Utilities may post temporary signs on utility poles or at the roadside to advertise service. For example, FairPoint Communications and Argent Communications have used this approach throughout Cheshire County.

Questions



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