

Lab – Researching Broadband Internet Access Technologies

(Instructor Version)

Instructor Note: Red font color or Gray highlights indicate text that appears in the instructor copy only.

Objectives

Part 1: Investigate Broadband Distribution

Part 2: Research Broadband Access Options for Specific Scenarios

Background / Scenario

Although broadband Internet access options have increased dramatically in recent years, broadband access varies greatly depending on location. In this lab, you will investigate current broadband distribution and research broadband access options for specific scenarios.

Required Resources

Device with Internet access

Part 1: Investigate Broadband Distribution

In Part 1, you will research broadband distribution in a geographical location.

Step 1: Research broadband distribution.

Use the Internet to research the following questions:

- For the country in which you reside, what percentage of the population has broadband Internet subscriptions? _____

As of Oct. 2012, 72.4% of Americans have a broadband Internet connection (88 million households).

- What percentage of the population is without broadband Internet options? _____

9 % of Americans currently have no broadband Internet options.

Step 2: Research broadband distribution in the United States.

Navigate to the website www.broadbandmap.gov. The National Broadband Map allows users to search and map broadband availability across the United States.

Note: For access options and ISPs for locations outside the United States, perform an Internet search using the keywords “broadband access XYZ, where XYZ is the name of the country.

- Enter your zip code, city and country that you would like to explore and click **Find Broadband**. List the zip code or city in the space provided. _____ **Answers will vary.**

- Click **Show Wired** and **Expand All**. What, if any, wired broadband Internet connections are available at this location? Complete the table below. **Answers will vary. See table below for examples.**

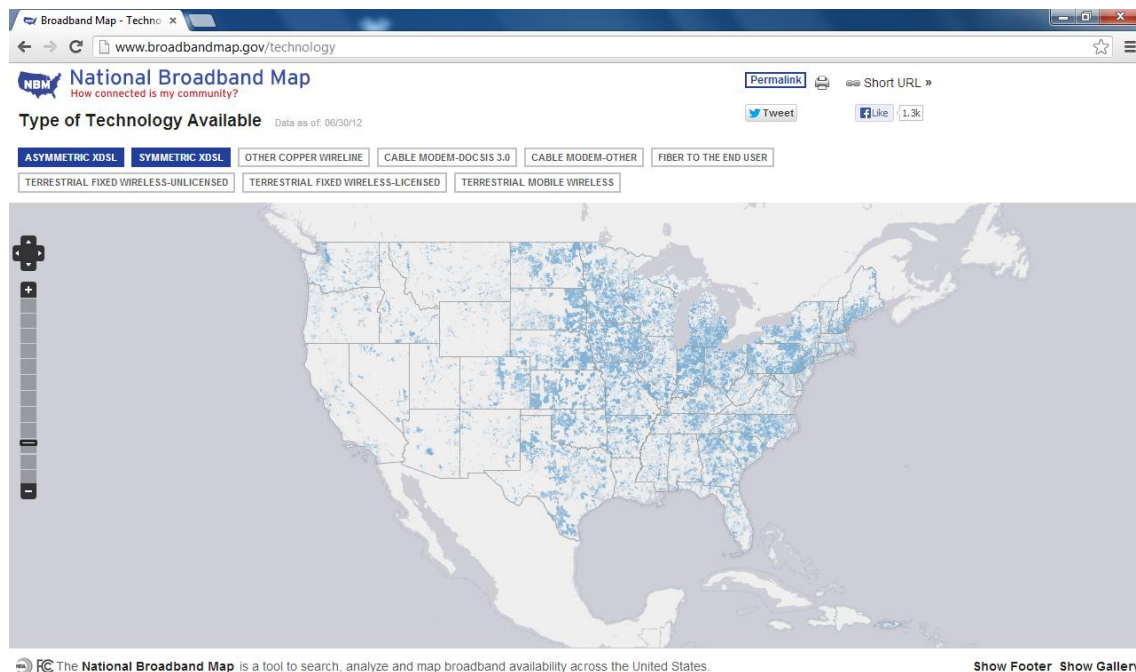
Lab – Researching Broadband Internet Access Technologies

ISP	Connection Type	Download Speed
Time Warner	Cable	10-25 Mb/s
Frontier	ADSL	6-10 Mb/s

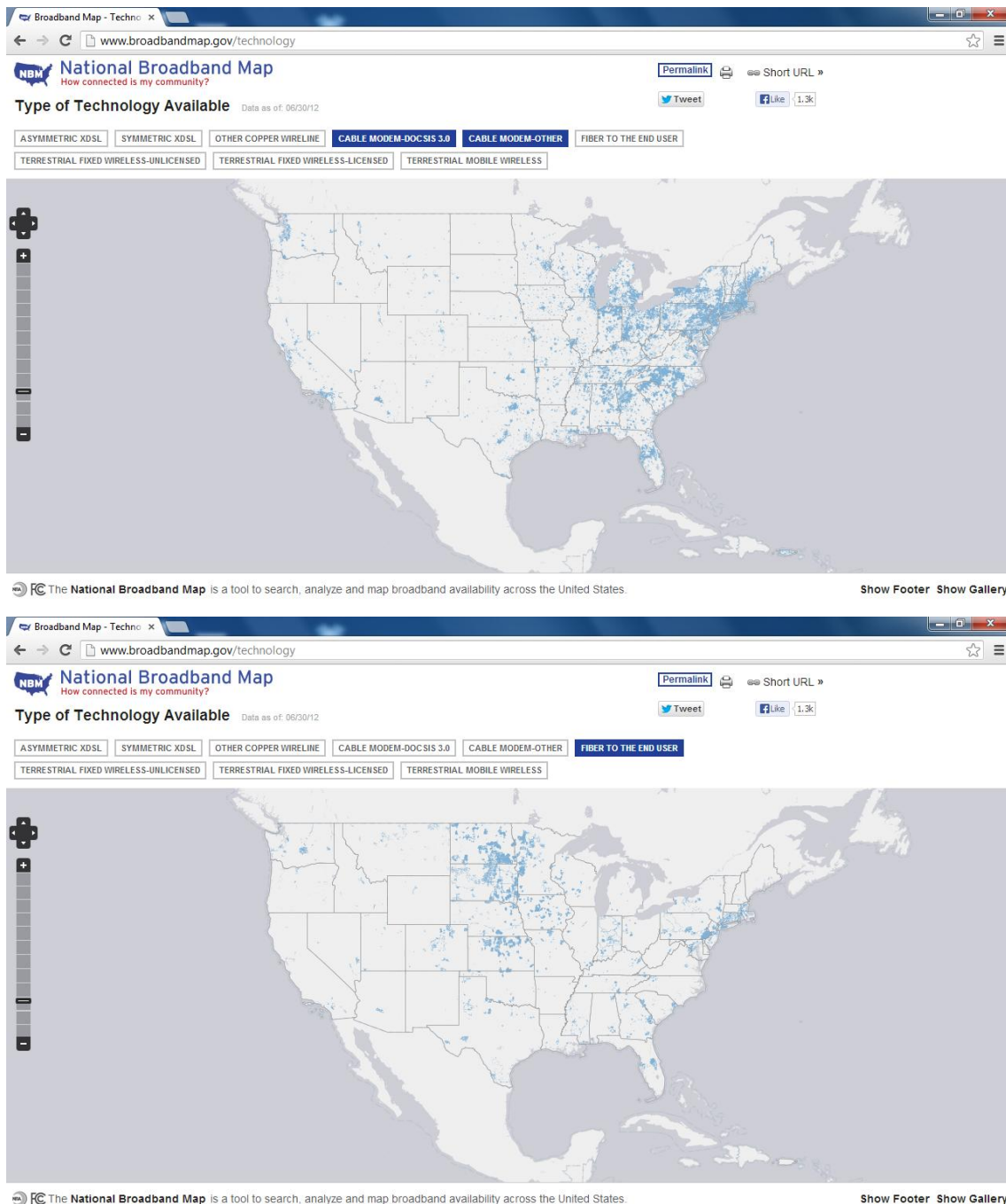
- c. Click **Show Wireless** and **Expand All**. What, if any, wireless broadband Internet connections are available in this location? Complete the table below. Answers will vary. See table below for examples.

ISP	Connection Type	Download Speed
Omnicity	Fixed Wireless	1.5-3 Mb/s
Verizon	Mobile Wireless	768 Kpbs-1.5 Mp/s
Sprint-Nextel	Mobile Wireless	768 Kpbs-1.5 Mp/s

- d. Return to the home page and click **Explore Map**. The interactive map allows you to explore the geographical availability of a number of broadband Internet options.
- e. Highlight each of the wired connections independently (DSL, cable, and fiber). Selections are highlighted in dark blue.



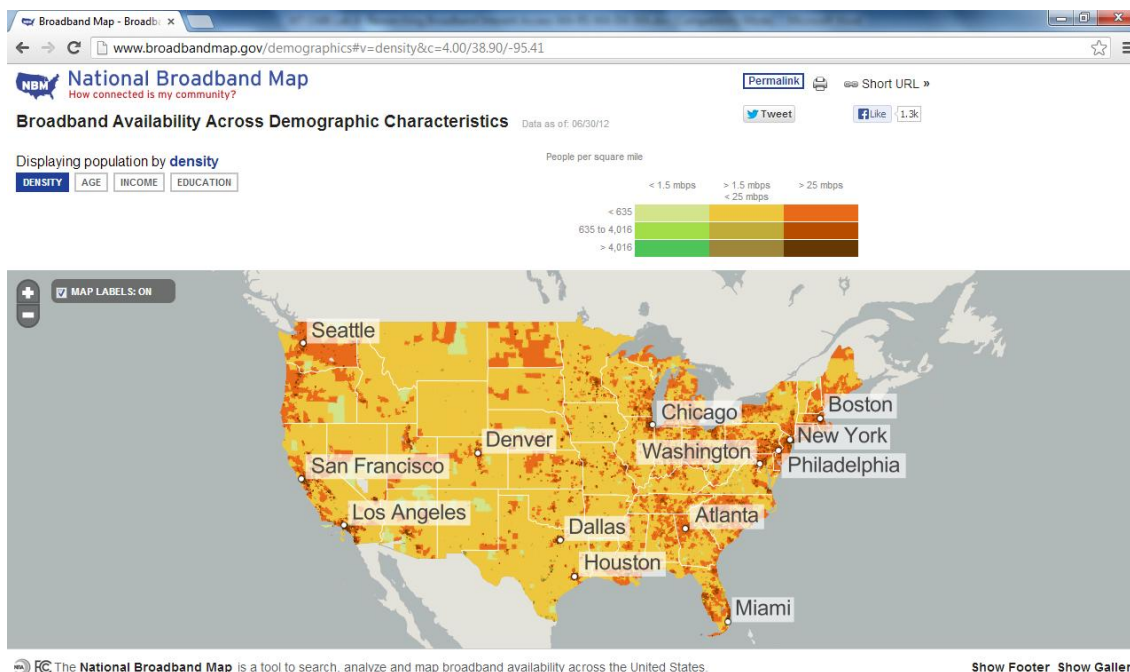
Lab – Researching Broadband Internet Access Technologies



For wired connections, order the wired broadband connections from least to greatest in terms of geographical area covered. List your answer in the space provided.

Fiber, cable, and DSL

- f. In the gallery of maps at the bottom of the web page, select **Broadband Availability Across Demographic Characteristics**. Display the population by **density** and compare the broadband connection to the population distribution of the United States. What correlations can be drawn?



Broadband access and speed is typically proportional to population density.

Part 2: Research Broadband Access Options for Specific Scenarios

In Part 2, you will research and detail broadband options for the following scenarios and select the best last-mile technology to meet the needs of the consumer. You can use the <http://www.broadbandmap.gov> site as a starting point for your research.

Scenario 1: You are moving to Kansas City, Missouri and are exploring home Internet connections. Research and detail two Internet connections from which you can select in this metropolitan area.

ISP	Connection Type	Cost per Month	Download Speed
Google Fiber	Fiber	\$70	1 Gb/s
Time Warner	Cable	\$79	50 Mb/s

Choose one from the list of local ISPs that you selected. Give the reasons why you chose that particular ISP.

Answers will vary. The reasons are typically based on price per month, Internet speeds, or packages offered.

Scenario 2: You are moving to an area outside of Billings, Montana and are exploring home Internet connections. You will be beyond the reach of cable or DSL connections. Research and detail two Internet connections from which you can select in this area.

ISP	Connection Type	Cost per Month	Download Speed
Rural Broadband	Fixed Wireless	\$40	3 Mb/s
Hughes Net	Satellite	\$60	5 Mb/s

Choose one from the list of local ISPs that you selected. Give the reasons why you chose that particular ISP.

Answers will. The reasons are typically based on price per month, Internet speeds, or packages offered.

Scenario 3: You are moving to New York City and your job requires you to have 24 hours anytime/anywhere access. Research and detail two Internet connections from which you can select in this area.

ISP	Connection Type	Cost per Month	Download Speed
Clear	Mobile Wireless	\$50	6 Mb/s
Sprint	Mobile Wireless	\$80 for 12 Mb	6 Mb/s

Choose one from the list of local ISPs that you selected. Give the reasons why you chose that particular ISP.

Answers will vary. The reasons are typically based on price per month, Internet speeds, or packages offered.

Scenario 4: You are small business owner with 10 employees who telecommute in the Fargo, North Dakota area. The teleworkers live beyond the reach of cable Internet connections. Research and detail two Internet connections from which you can select in this area.

ISP	Connection Type	Cost per Month	Download Speed
Century Link	DSL	\$29.99	12 Mb/s
129	WiMAX	\$39.99	3 Mb/s

Choose one from the list of local ISPs that you selected. Give the reasons why you chose that particular ISP.

Answers will vary. The reasons are typically based on price per month, Internet speeds, or packages offered.

Scenario 5: Your business in Washington, D.C. is expanding to 25 employees and will need to upgrade your broadband access to include equipment colocation and web hosting. Research and detail two Internet connections from which you can select in this area.

ISP	Connection Type	Cost per Month	Download Speed
Comcast	Cable	369.95	100 Mb/s
Windstream	DSL	129.99	6 Mb/s

Choose one from the list of local ISPs that you selected. Give the reasons why you chose that particular ISP.

Answers will vary. The reasons are typically based on price per month, Internet speeds, or packages offered.

Reflection

How do you think broadband Internet access will change in the future?

Answers will vary. Broadband Internet access will increase in geographical size and in speed with the further development of wired and wireless technology and infrastructure. Access options and speeds will continue to increase and with more availability to un-served and underserved areas.