

**AVAILABILITY OF ADVANCED TELECOMMUNICATIONS  
CAPABILITY IN PUBLIC BODIES**

**YEAR 2009 REPORT**

Economic Research and  
Financial Analysis Division

Public Utility Commission of Oregon

December 2009

## **Availability of Advanced Telecommunications Capability in Public Bodies - 2009**

Among the amendments HB 2577 enacted in 2003, was the requirement for the OPUC to develop information on "The number of public bodies, as defined by ORS 174.109, providing basic telecommunications infrastructure so that private entities may use that infrastructure to provide advanced information and communications services."

According to ORS 285B.486, "advanced telecommunications facilities" means high-speed, dedicated, or switched broadband telecommunications infrastructure or equipment that enables users to send or receive high quality voice, data, or video telecommunications using any technology.

While the statutory requirement to conduct the survey has sunset, in order to monitor and analyze the market for telecommunications services, during fall 2009, the OPUC staff identified and surveyed public bodies in Oregon to gather information on the existence and use of advanced telecommunications facilities.

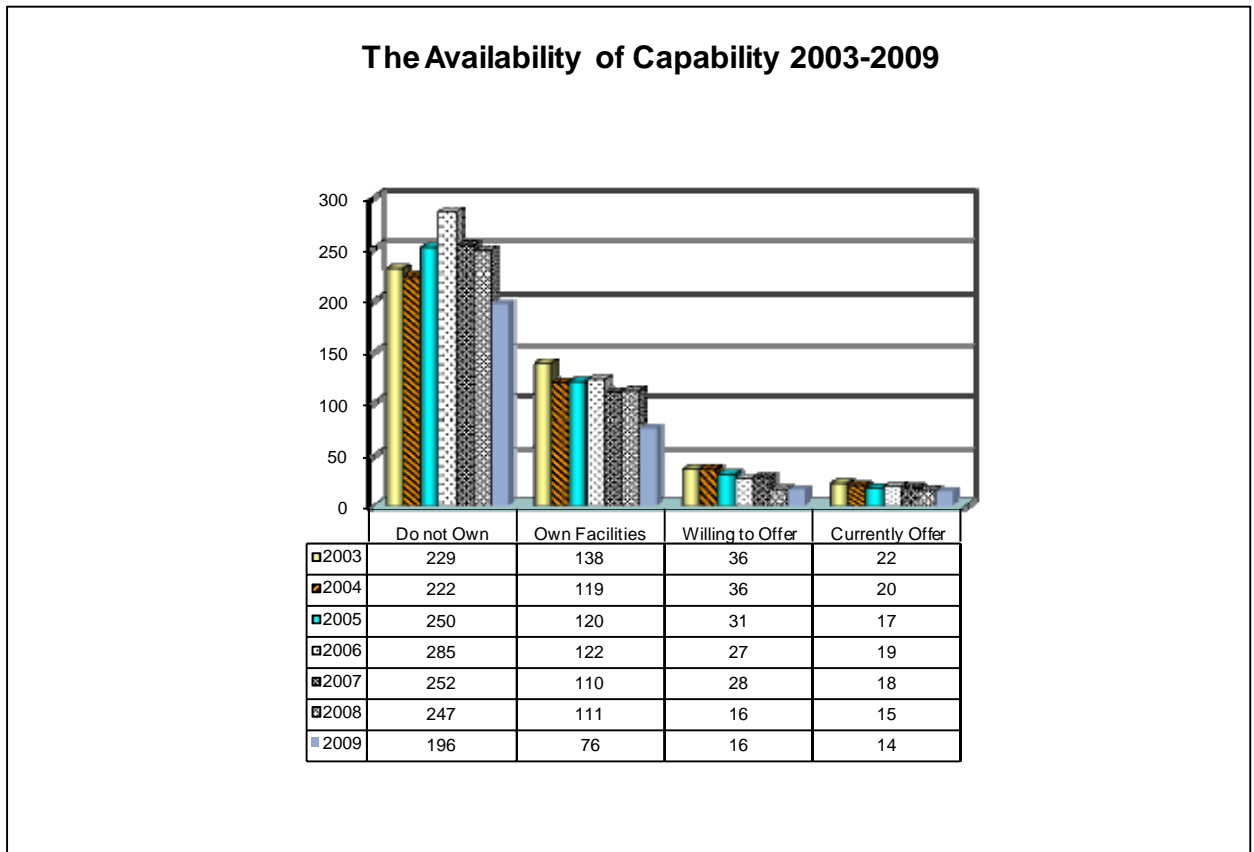
### **Survey Results:**

#### **I. Market in General - Statewide**

This is the fourth annual survey of public bodies on the availability of advanced telecommunications capability. The survey was sent to 526 public bodies in Oregon of which 272 were completed and returned for a response rate of 52 percent.

Of the 272 respondents, 72 percent (196) do not own advanced telecommunications facilities, while 28 percent (76) of the respondents own some types of facilities. About 21 percent (16/76) of respondents who own some types of facilities are willing to offer some type of high-speed telecommunications services. About 18 percent (14/76) of respondents currently offer high-speed telecommunications services (see Figure 1).

**Figure 1. The Availability of High-Speed and Advanced Telecommunications Capability in Public Bodies**



## 1. The Survey Questions

The first part of the survey includes three questions.

### Q1. Do you own the following telecommunications facilities?

- a. DSL (digital subscriber line)
- b. Coaxial Cable
- c. Fiber Optics (DS-1, DS-3, OCn, SONET, includes Dark Fiber)
- d. Copper Cable (T-1, DS-1)
- e. Satellite or Fixed Wireless
- f. High Bandwidth Switches
- g. Other

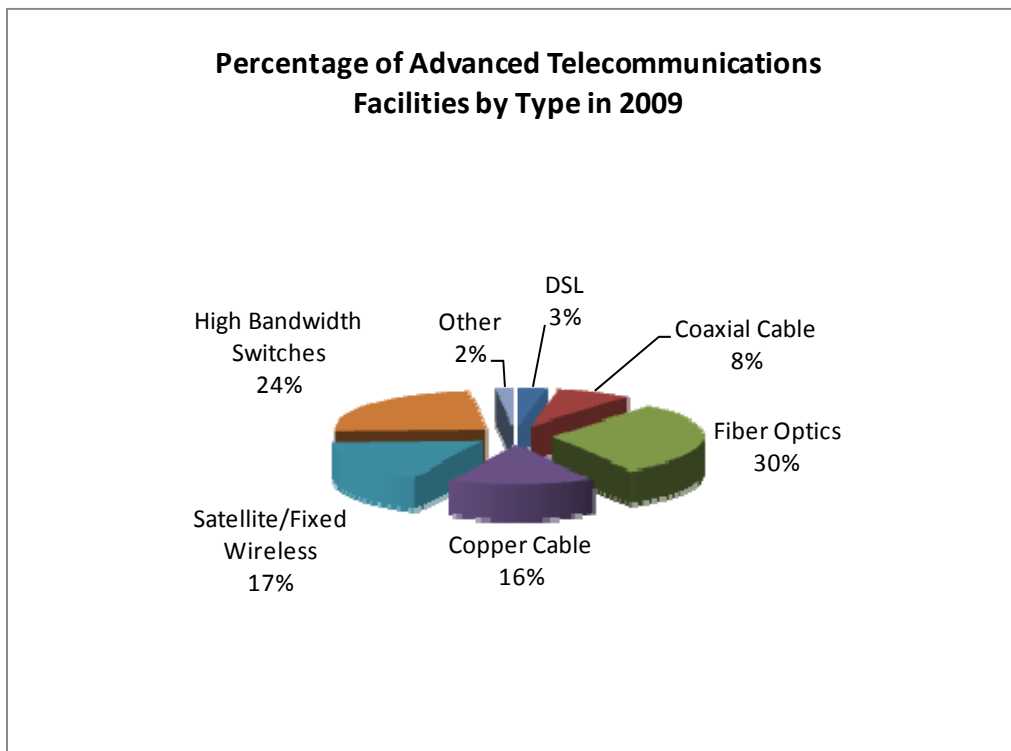
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Following are descriptions of the various types of advanced telecommunication facilities:

- a. **DSL:** Digital Subscriber Line - is a communication technology that uses existing twisted-pair telephone lines to transport high-bandwidth data, such as Internet, multimedia, and video.
- b. **Coaxial Cable:** Typically used to connect a television to cable TV services, coaxial cable consists of a small copper tube or wire surrounded by an insulating material and another conductor with a larger diameter, usually in the form of a tube or copper braid.
- c. **Fiber Optics:** High-speed transmission using light to send images (in telecommunications: voice or data) through a bundle of glass fibers.
- d. **Copper Cable:** Copper cable is a pair of traditional copper telephone lines using electric current to carry signals.
- e. **Satellite or Fixed Wireless:** A satellite that is used to relay telecommunications information. Fixed wireless means the use of radio or microwaves to connect any two stationary points.
- f. **High Bandwidth Switches:** Bandwidth, in digital systems, refers to data speed usually measured in bits per second (bps). High bandwidth is often equated with high-speed. ATM (Asynchronous Transfer Mode) is a high bandwidth, low-delay, connection-oriented, packet-like switching and multiplexing technique.
- g. **Other:** Item "other" includes video telecommunications equipment.

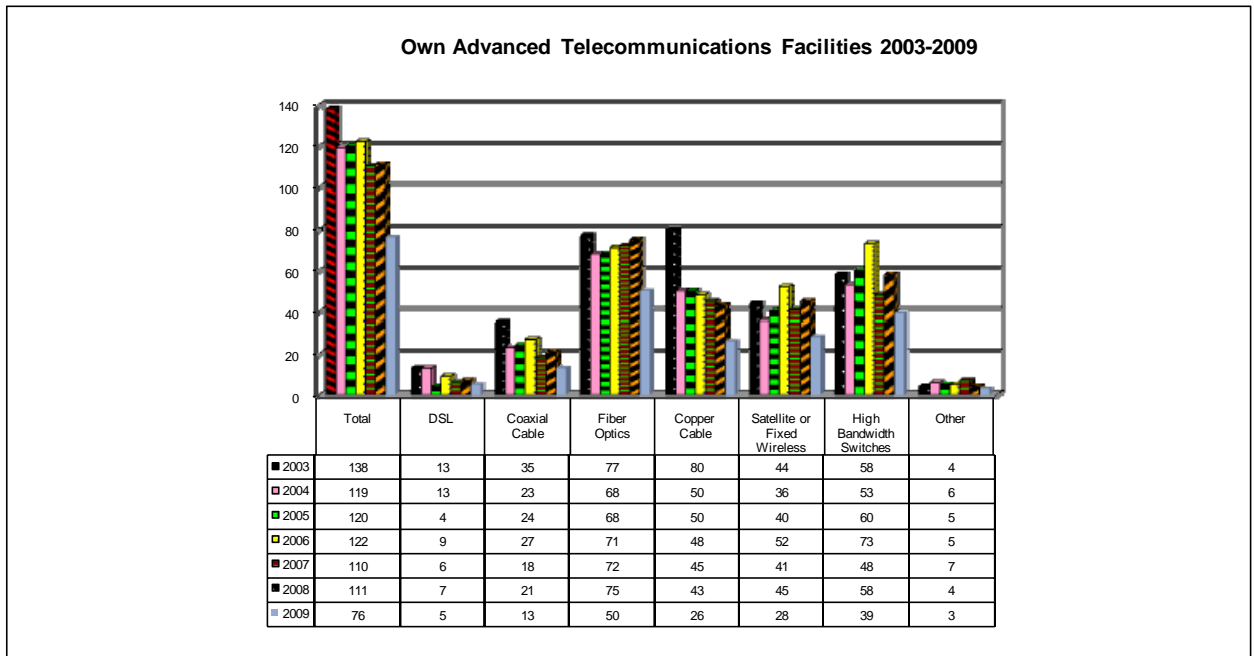
Currently, of 526 public bodies in Oregon, 76 own some type(s) of advanced telecommunications facilities. Fifty (50) respondents own fiber optics, 39 own high bandwidth switches, 28 own copper cable, 28 own satellite or fixed wireless connections, 13 own Coaxial Cable, 5 own DSL, and 3 own other telecommunications facilities. (See Figure 2 for the percent of advanced facilities by type).

**Figure 2. Percentage of Advanced Telecom Facilities by Type in 2009**



The pie chart of Advanced Telecommunications Facilities by Type shows that 24 percent was High Bandwidth Switches, 3 percent was DSL, 30 percent was Fiber Optics, 16 percent was Copper Cable, 8 percent was Coaxial Cable, and 17 percent was Satellite or Fixed Wireless. The bar chart below displays the data (see Figure 3). The total of the numbers in each row in Figure 3 exceeds the number of responding public bodies with advanced facilities because some own more than one type of advanced telecommunications facilities.

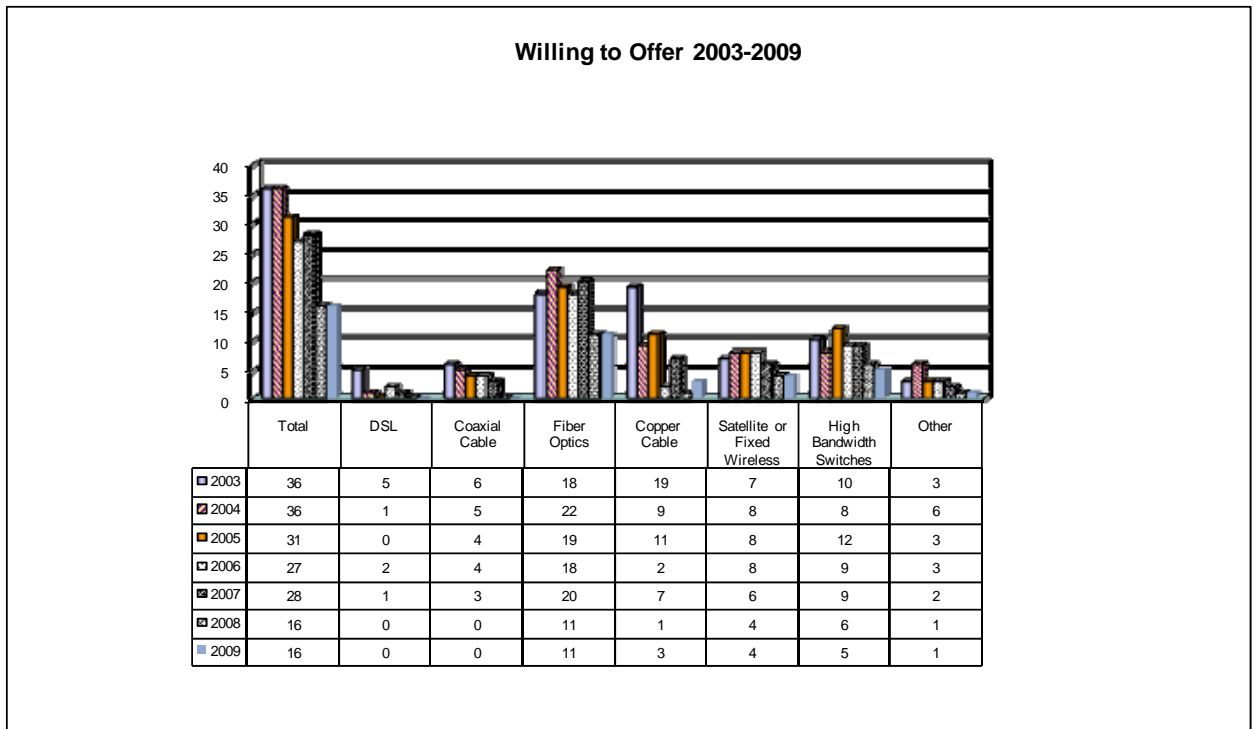
**Figure 3. Number of Public Entities Owning Advanced Telecommunications Facilities by Type 2003-2009**



**Q2. If you own telecommunications facilities above, are you willing to offer telecommunications facilities to private entities for their use for advanced telecommunication services? If yes, indicate which facilities from the above list?**

Of the respondents who own facilities 21 percent (16 public bodies) said they are willing to offer their facilities for use by private entities. Eleven respondents are willing to offer fiber optics, while three are willing to offer Copper Cable, four are willing to offer satellite or fixed wireless, and five are willing to offer high bandwidth switches. (See Figure 4).

**Figure 4. Number of Public Bodies Owning Facilities Willing to Offer Use to Private Entities**

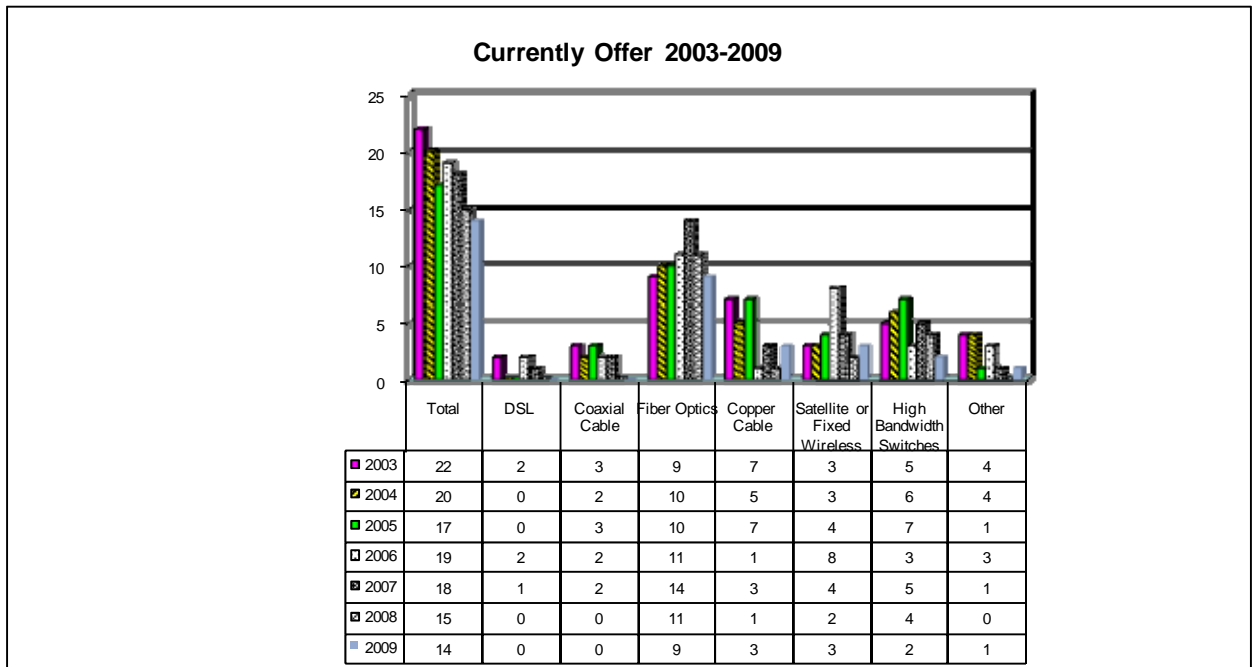


Fourteen percent of Fiber Optics owners (11/76) are willing to offer those facilities to private entities, followed by 7 percent for High Bandwidth Switches, and 5 percent for Satellite or Fixed Wireless.

**Q3. If you own telecommunications facilities above, do you currently offer telecommunications facilities to private entities for their use for advanced telecommunications services? If yes, indicate which facilities from the above list?**

Eighteen percent (14/76) of the public bodies with advanced facilities said they currently offer those facilities to private entities for their use for advanced telecommunications services. Nine respondents currently offer Fiber Optics, three offer Satellite or Fixed Wireless, three offer Copper Cable, and two offer High Bandwidth Switches facilities. As Figure 5 indicates, there has been little change over the last six years in the number of public bodies that offer the use of their advanced telecommunications facilities to private entities.

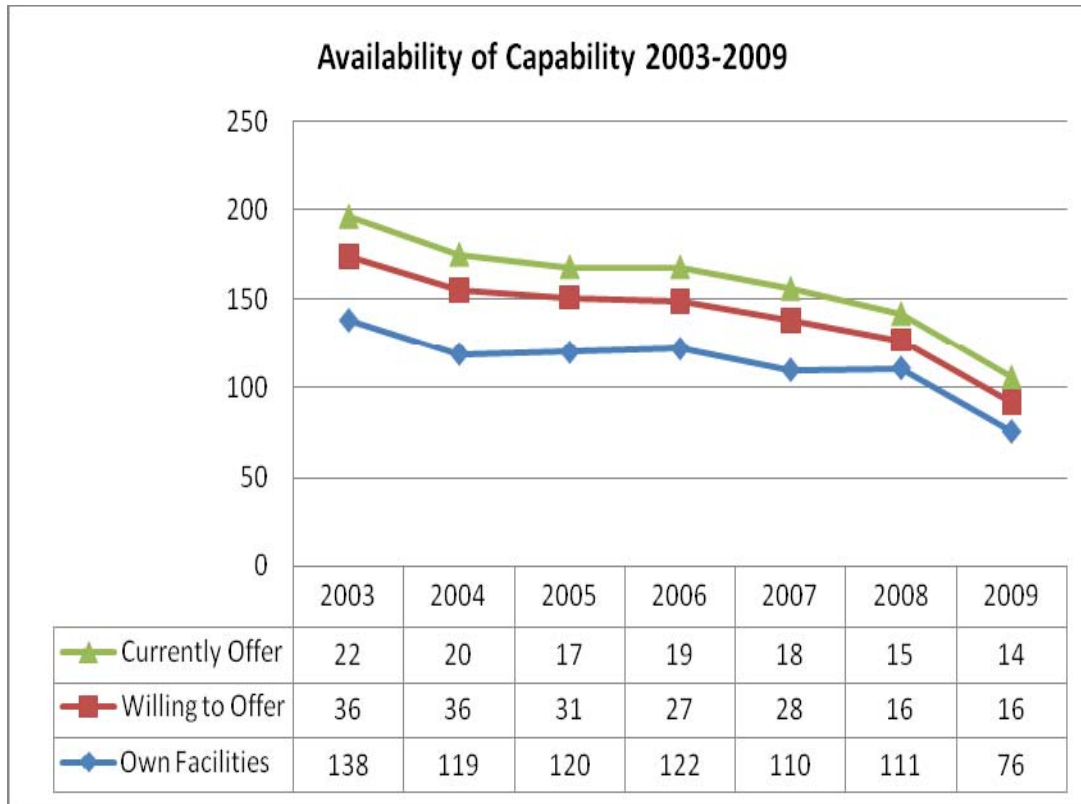
**Figure 5. Number of Respondents Owning Facilities Currently Offering Service to Others**



## 2. Market Trends

The availability of high-speed and the advanced telecommunications capability in public bodies have been on a downward trend.

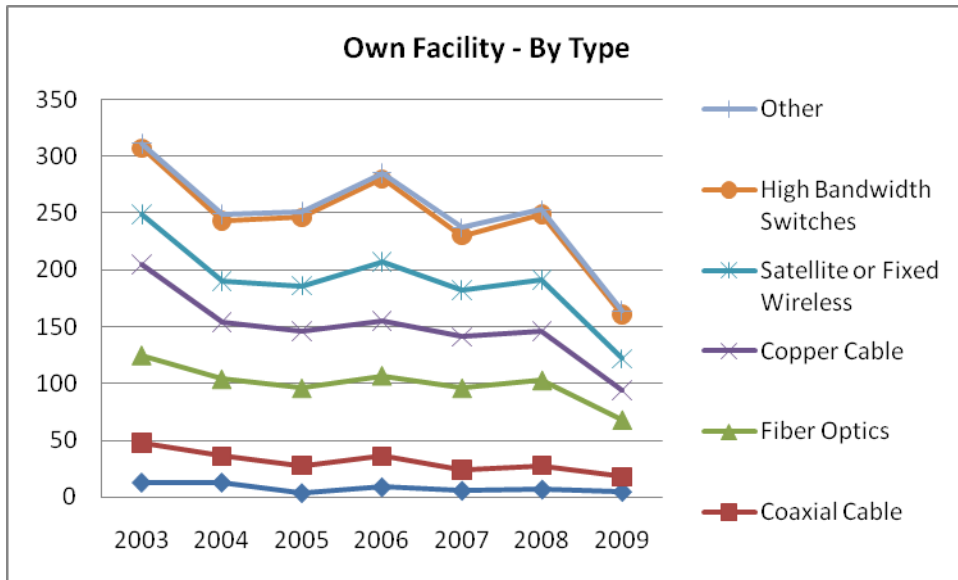
**Figure 6. Availability of Capability 2003-2009**



The downward trends were presented in availability of advanced telecommunications capability in public bodies:

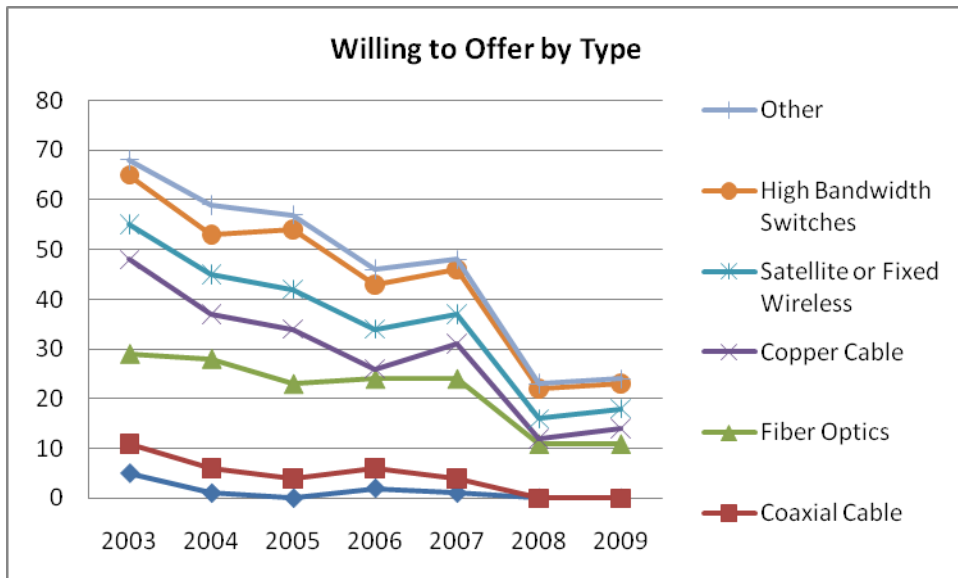
- (1) an annual average decrease of 9 percent from 2003 to 2009 on the public bodies who OWN advanced telecommunication facilities, and total decreased 45 percent. (see Figure 7)

**Figure 7. Own Facilities**



(2) an annual average decrease of 12.6 percent from 2003 to 2009 on the public bodies who OWN advanced telecommunication facilities and WILLING TO OFFER the service to others, and total decreased 56 percent. (see Figure 8)

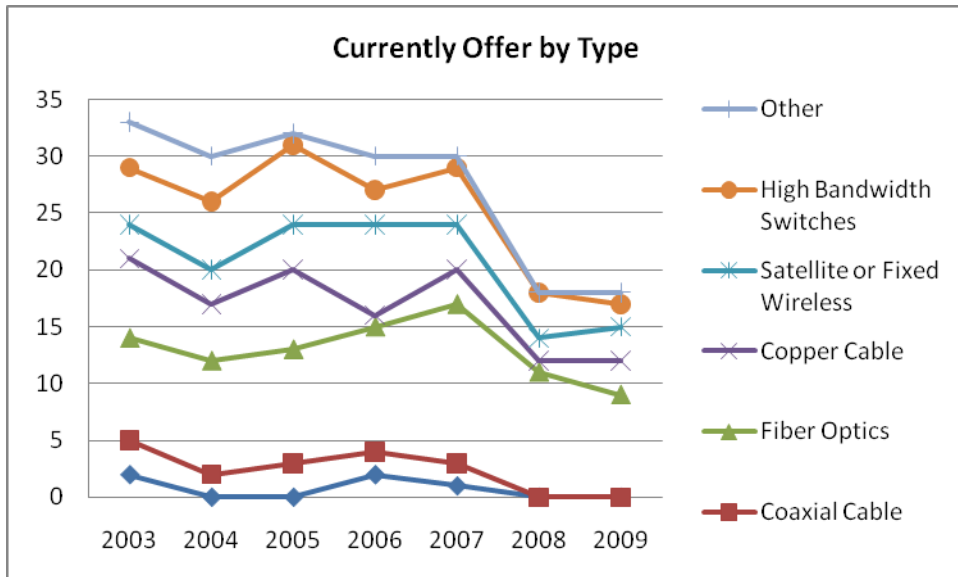
**Figure 8. Willing to Offer**



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(3) an annual average decrease of 7.3 percent from 2003 to 2009 on the public bodies who OWN advanced telecommunication facilities and CURRENTLY OFFER the service to others, and total decreased 36 percent. (see Figure 9)

**Figure 9. Currently Offer**

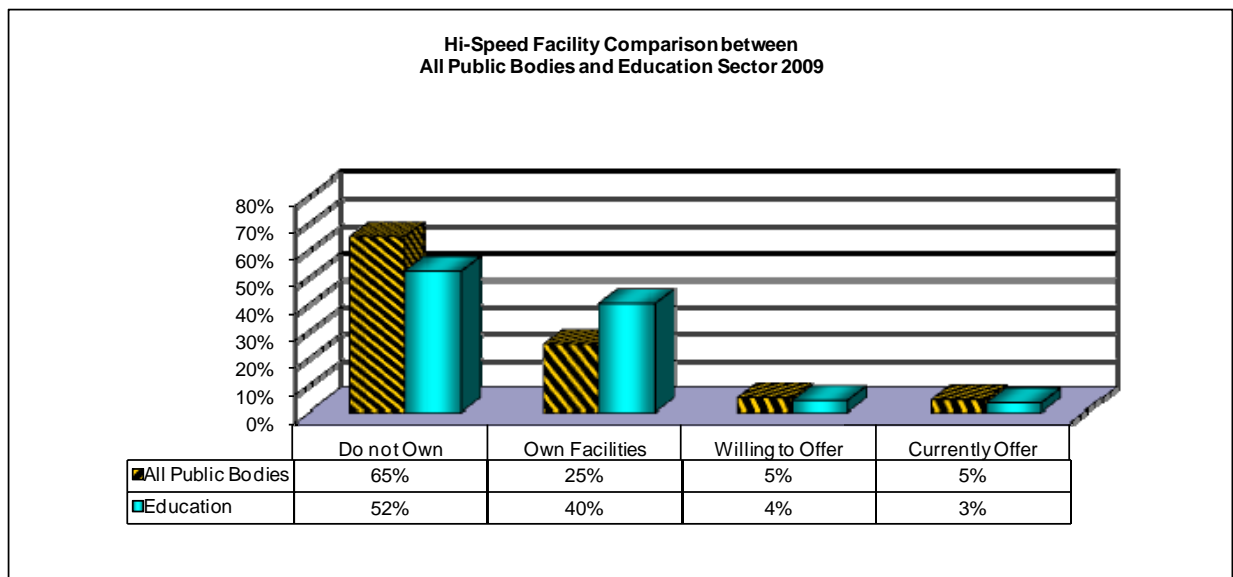


## II. Education Sector

Quality education is driving demand for high-speed connections and faster computers. Advanced high-speed telecommunications infrastructure is crucial in order to achieve the expected growth for the public education sector targeted by the state. The greater bandwidth access and higher speed data transmission will clearly provide a competitive advantage to the quality education and information solutions in Oregon.

The survey showed that 44% of public bodies in Oregon are education groups. Among 272 respondents, 108 (40%) are school districts, colleges, and universities. Findings show that of the 108 respondents in the education sector, 44 percent (47 schools) own some form of advanced telecommunications facilities, compared to 28 percent of public bodies statewide. Ten percent (5 schools) of the education sector respondents that own advanced facilities are willing to offer use of those facilities to private entities, compared to 21 percent of all public bodies statewide. Nine percent (4 schools) of respondents currently offer high-speed telecommunications services, compared to 18 percent of all public bodies statewide (see Figure 10).

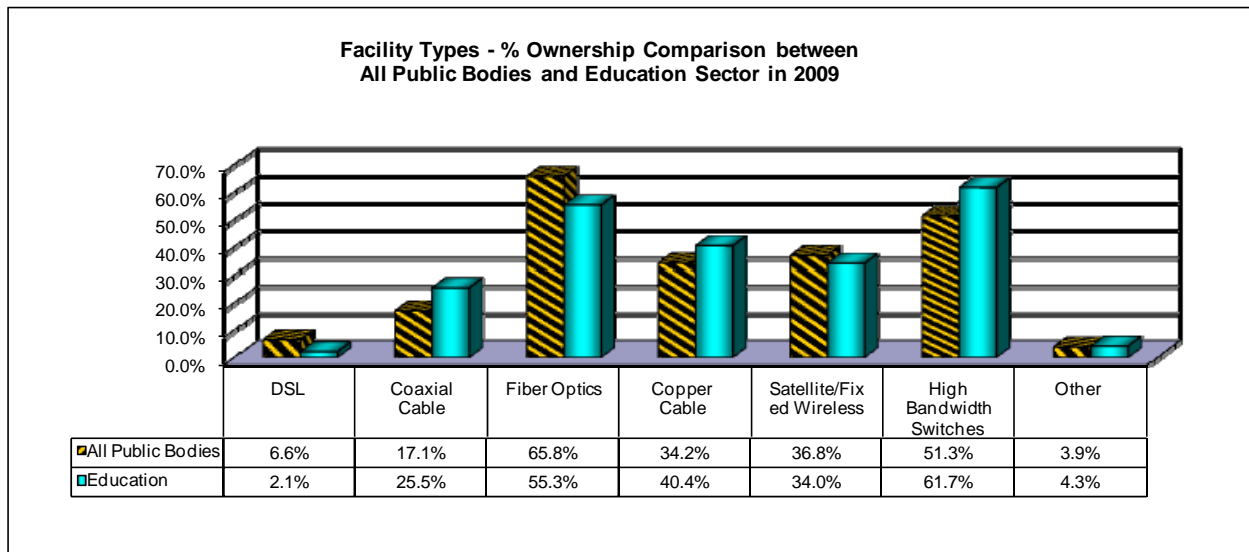
**Figure 10. High-Speed Facility Comparison between All Public Bodies and the Education Sector 2009**



### 1. Schools Ownership of Telecommunications Facilities

Among Oregon Schools, 26 of the survey respondents own fiber optics, 19 own copper cable, 29 own high bandwidth switches, while 16 own Satellite/Fixed Wireless.

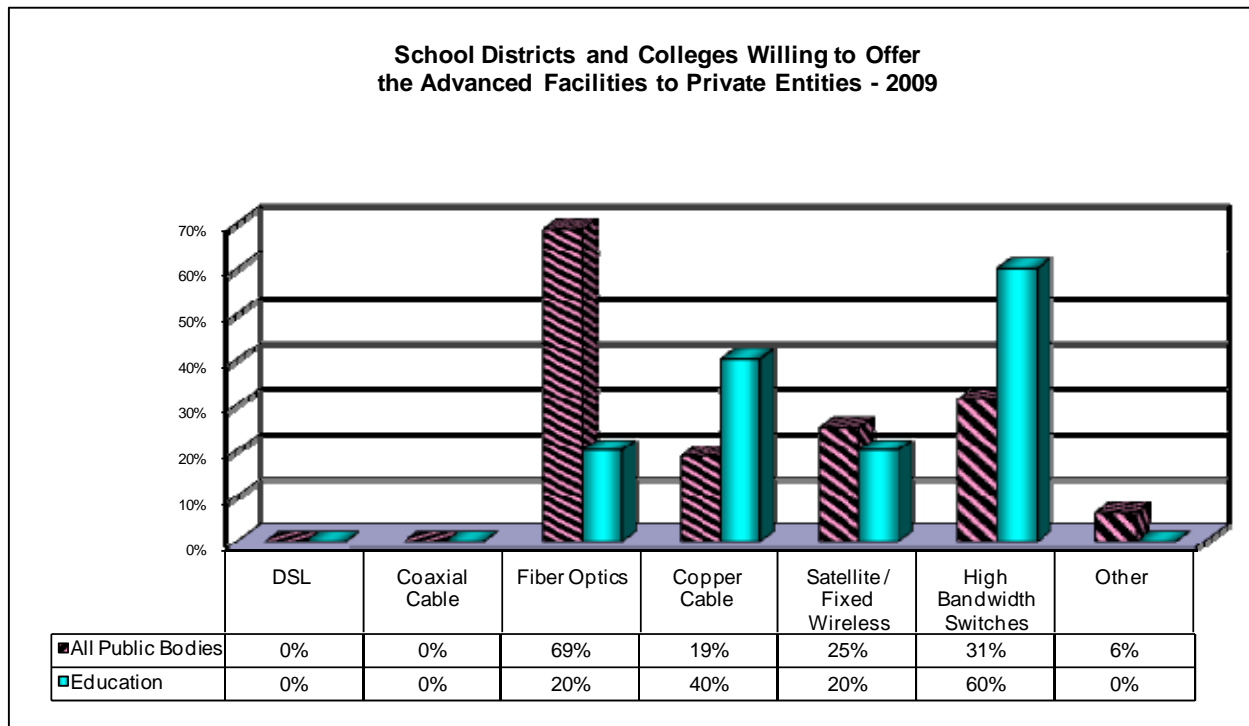
**Figure 11. Distribution of Advanced Telecommunications Facilities Types - Comparison between All Public Bodies and the Education Sector in 2009**



## 2. Schools Willingness to Offer the Telecommunications Facilities

Ten percent (5 schools) of the school respondents said they are willing to offer their owned telecommunications facilities to private entities. This compares to 21 percent (16 public bodies) of all public body respondents that are willing to offer their owned telecommunications facilities to private entities.

**Figure 12. Distributions of Advanced Facility Types - Owners Willing to Offer to Private Entities – All Public Bodies vs. Education Sector in 2009**



**3. Percentage of Responding Schools That Currently Offer use of their Telecommunications Facilities to Private Entities**

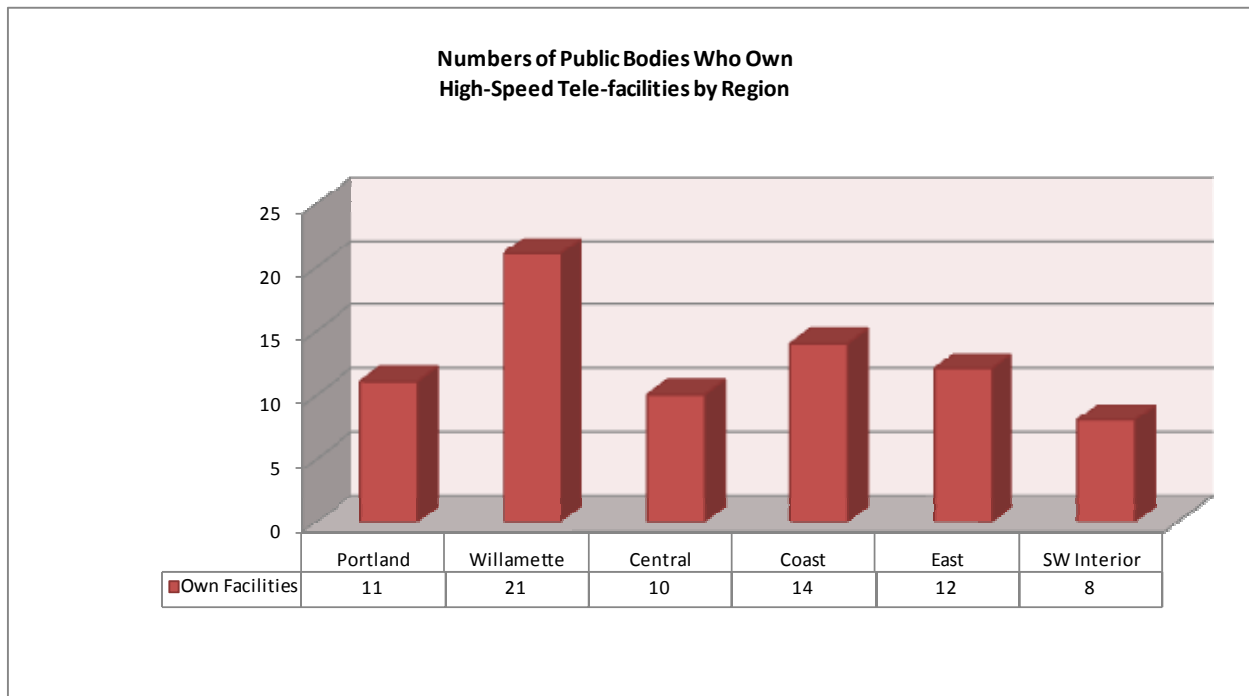
Four schools out of all school respondents currently offer advanced telecommunications facilities compared to 14 of all public bodies. One schools offer fiber optics compared to 9 of all public bodies, one schools offers High Bandwidth Switches compared to 2 of all public bodies.

### III. Market Distribution – by Region

The 526 public entities were grouped into six regions based on geographic locations. The six regions are: Portland Metropolitan, Willamette Valley, Coast, Central, East, and Southwest Interior.

Distribution across the state of the 76 public entities that own some type of advanced telecommunications facilities is as follows: Willamette 21, East 12, Portland 11, Central 10, Coast 14, and Southwest 8 (see Figure 13).

**Figure 13. Numbers of Public Bodies Who Own Advanced Tele-Facilities by Region**



The survey identified advanced facilities currently owned, those public entities willing to offer use of their advanced facilities to private entities, and those who currently do offer use of their facilities by geographic area. Statewide, of the 76 public bodies that own high-speed facilities, 16 are willing to offer their facilities to private entities to use, and 14 currently do offer use of their facilities.

Of the 76 public bodies that own advanced facilities, 28 percent (21/76) are in the Willamette Valley; followed by the East (11%), Portland (14%), Central (13%), Southwest Areas (11%) and Coast (18%).

Of the 16 public entities that are willing to offer their advanced facilities for use by private entities, 3 are in the Willamette Valley, 1 in the Southwest, 4 in East, 2 in the Central, 5 in Coast, and 1 in Portland areas.

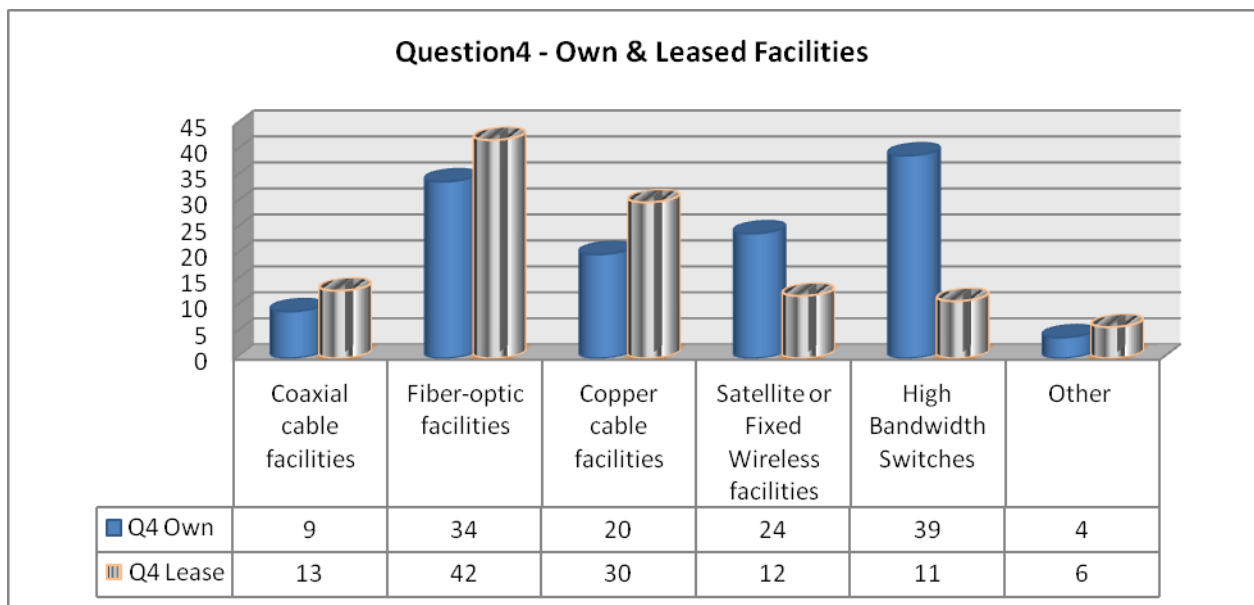
Of the 14 public entities that currently offer advanced facilities to others to use, three are in the Willamette area, five are in the East and Southwest, and six in the Central, Coast, and Portland areas

### III. New Questions in Survey

Statistics released here also reflect data collected under the new questions (questions 4-11) in 2009's questionnaire. To have a better understanding of the capability of the hi-speed telecom market, the new questions asked the respondents to identify more detailed information. From the charts and tables listed below, viewers can draw the following broad conclusions from the data summarized in this report:

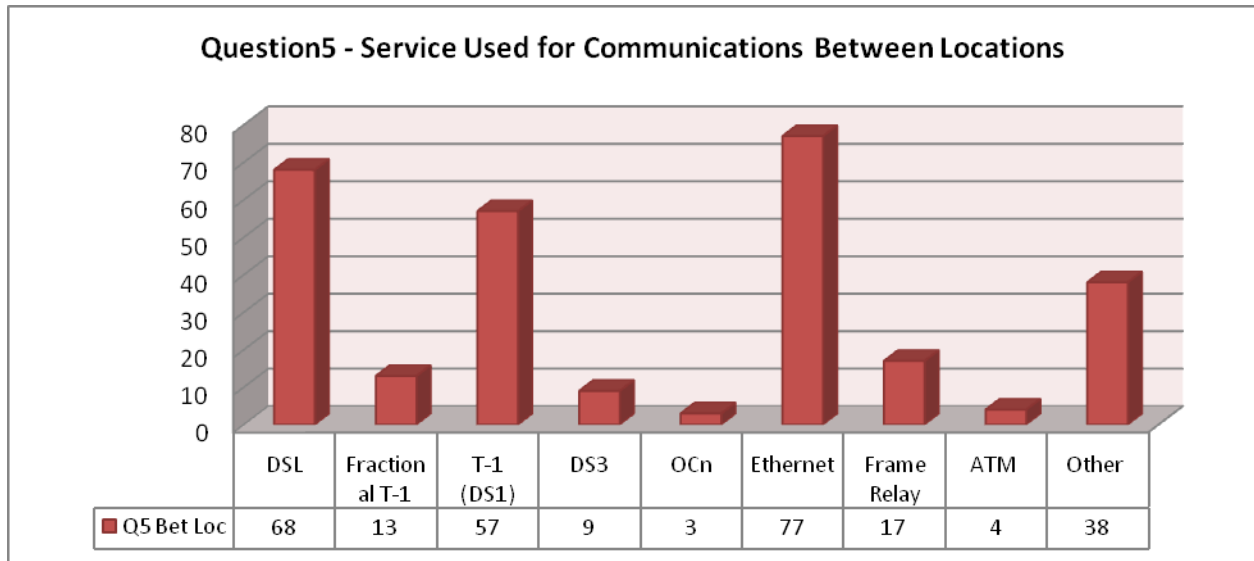
**Q4. Please indicate which of the following telecommunications facilities are either owned or leased by your organization, indicating which are owned versus which are leased (if a given type of facility is both owned and leased, circle both "Owned" and "Leased").**

Figure 14



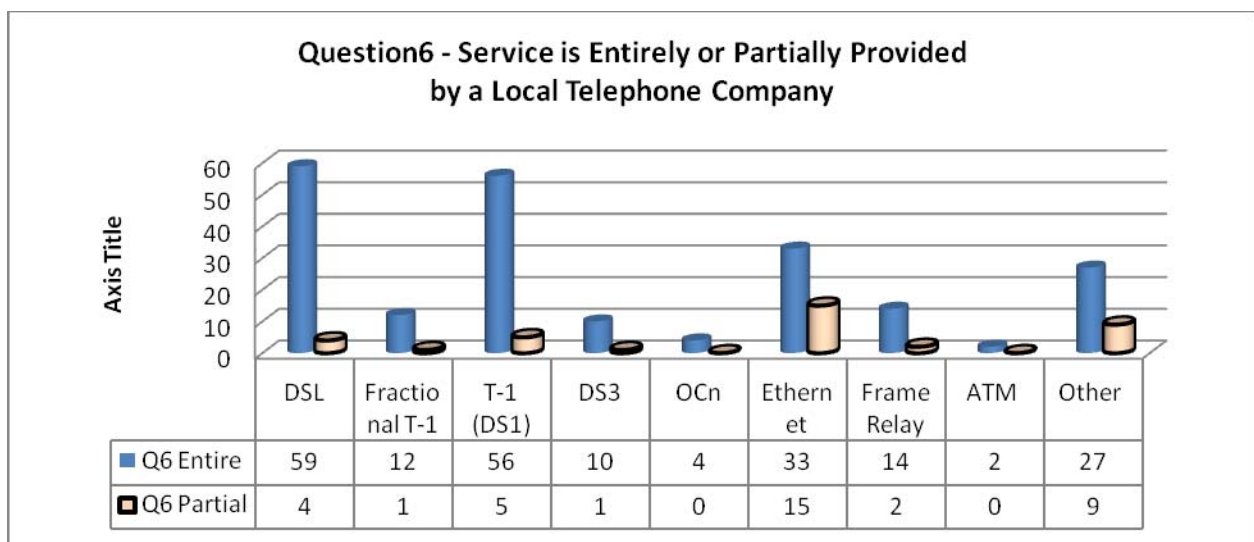
**Q5. Please indicate which of the following telecommunication services are used by your organization for communications between locations.**

**Figure 15**



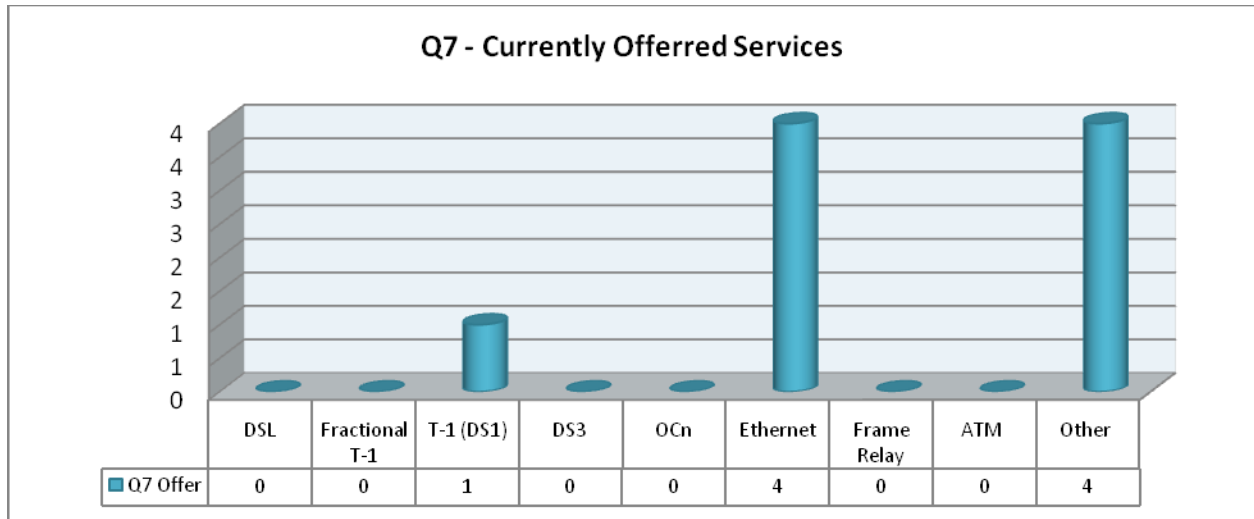
**Q6. For each of the telecommunication services you indicated (in Question 5) are used by your organization for communications between locations, please indicate whether the service is entirely or is partially provided by a local telephone company or competitive telecommunications provider. If the service is entirely self-provisioned, do not mark either "Entirely" or "Partially" for that service.**

**Figure 16**



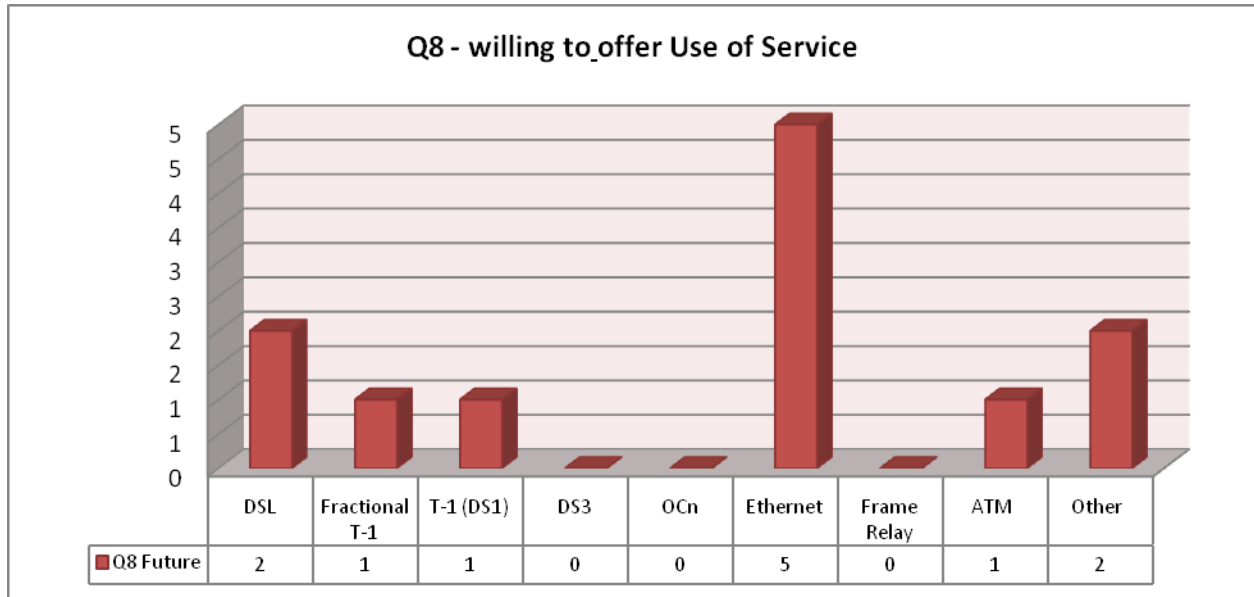
**Q7. If your organization owns, leases, or otherwise controls any of the telecommunications services listed below, does your organization currently offer the use of these capabilities to third party private entities to use for providing advanced telecommunications services? If “yes,” please indicate which services are offered to such private entities.**

**Figure 17**



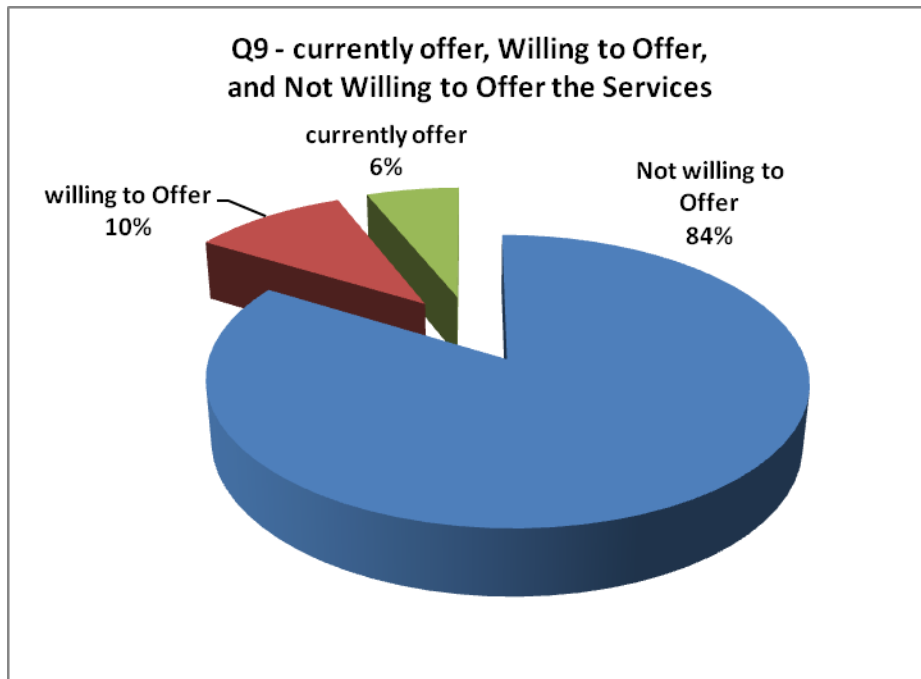
**Q8. If your response to the immediately preceding question is “no,” is your organization willing to offer the use of these capabilities in the future to third party private entities to use for providing advanced telecommunications services? If “yes,” please indicate which services might be offered to such private entities.**

Figure 18



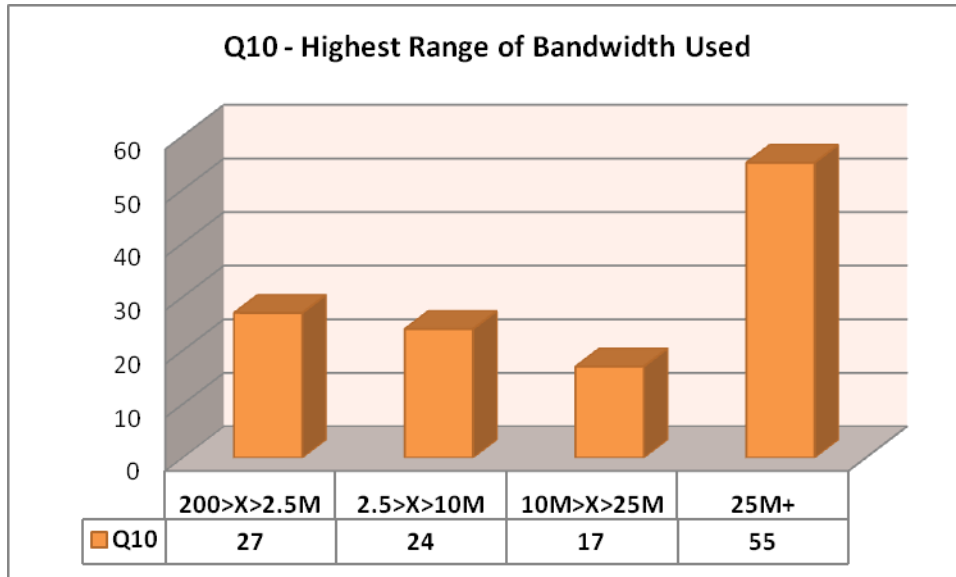
**Q9. Does your organization currently offer the use of basic telecommunications infrastructure to private entities, with such private entities using your organization's infrastructure to provide advanced information and communications services? If "no," would your organization be willing to do so in the future?**

Figure 19



**Q10. Does your organization currently use a high-speed, switched, broadband<sup>1</sup> telecommunications capability between locations? If “yes,” please indicate the highest range of bandwidth used.**

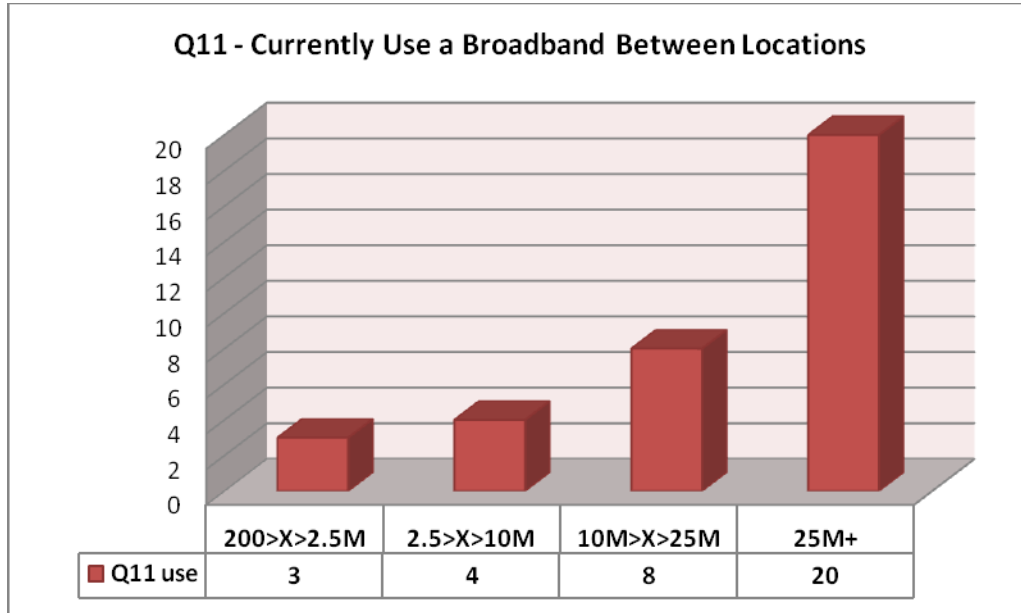
**Figure 20**



<sup>1</sup> If bandwidth is a greater in one direction than in another, please indicate the range which includes the greater bandwidth.

**Q11. Does your organization currently use a high-speed, non-switched, broadband<sup>2</sup> telecommunications capability between locations? If “yes,” please indicate the highest range of bandwidth used.**

**Figure 21**



<sup>2</sup> If bandwidth is greater in one direction than in another, please indicate the range which includes the greater bandwidth.