

Report on the

Status of Competition in the Telecommunications Industry



AS OF DECEMBER 31, 2021



Florida Public Service Commission

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List of Acronyms

| | |
|------|--|
| CDC | Centers for Disease Control and Prevention |
| CLEC | Competitive Local Exchange Company |
| FCC | Federal Communications Commission |
| FPSC | Florida Public Service Commission |
| F.S. | Florida Statutes |
| ILEC | Incumbent Local Exchange Company |
| IP | Internet Protocol |
| Mbps | Megabits per second |
| PSTN | Public Switched Telephone Network |
| TDM | Time Division Multiplexing |
| USF | Universal Service Fund |
| USAC | Universal Service Administrative Company |
| VoIP | Voice over Internet Protocol |

Executive Summary

Section 364.386, Florida Statutes, requires the Florida Public Service Commission (FPSC or Commission) to submit a report on the status of competition in the telecommunications industry to the Legislature by August 1 of each year. As of December 31, 2021, there were 10 incumbent local exchange companies and 256 competitive local exchange companies certificated by the Commission to operate in Florida.

In 2021, the Florida wireline market continued to follow the national trend with AT&T, CenturyLink and Frontier all experiencing access line losses. The local and national markets continued to consolidate with several mergers and acquisitions. Several intrastate issues were resolved or initiated in 2021. Lifeline subscriptions in Florida fell to 273,641 in 2021, a 26.3 percent decrease.

Consumers in Florida continue to migrate from traditional wireline service to wireless and cable/Voice over Internet Protocol (VoIP) services. Carriers reported approximately 1.2 million total wireline access lines in Florida for 2021, about 16.9 percent fewer than the previous year. Residential and business wirelines both experienced significant drops in 2021.

Total residential access lines declined 19.1 percent. The transition to VoIP and wireless-only services continues to be responsible for much of this decline. For the third year in a row, AT&T edged CenturyLink as Florida's largest residential access line provider. CenturyLink experienced a 19 percent decline in residential lines during 2021 while AT&T declined 19.2 percent. Frontier again experienced the biggest residential loss with a 22.9 percent decline in residential access lines during the same period.

For the 11th year in a row, total business access lines exceeded total residential access lines; however, total business access lines declined 15.4 percent in 2021. More than half of AT&T and Frontier's wireline subscribers were business lines, while CenturyLink's business wireline subscribers made up less than half of their total access line amounts. Over 99 percent of competitors' access lines were business lines, although their business market share declined to 30.7 percent in 2021.

As reported for the past several years, intermodal competition from wireless and VoIP services continued to drive the telecommunications markets in 2021. According to the most recent FCC data, there are an estimated 22 million wireless subscriptions in Florida, and greater than 4.7 million VoIP connections.

Analysis of the telecommunications data obtained by the Commission produced the following conclusions:

- Many competitive local exchange companies (CLECs) reported offering a variety of services and packages comparable to those offered by incumbent local exchange companies (ILECs). Subscribers to wireless and business VoIP services continued to increase while cable, residential VoIP and switched access lines decreased. These factors

contribute to the conclusion that competitive providers are able to offer functionally equivalent services to both business and residential customers.

- The traditional wireline market continues to decrease; however, the population of Florida and the need for telecommunications services continues to expand. Wireless subscription growth and VoIP are meeting the increased demand for service. Consumers are choosing to obtain a majority of wireless and VoIP subscriptions from competitors. Given the decline in the traditional wireline market and competitors' substantial wireless and VoIP market shares, consumers are able to obtain functionally equivalent services at comparable rates, terms, and conditions.
- A competitive market requires comparable affordability and reliability of service. The vast majority of Florida households subscribe to telephone service. Consumers are willing and able to choose telecommunications service from competitors using a variety of technologies, so competitors have been maintaining significant market share over an extended period. Based on competitors' substantial market share and market pressures requiring comparable affordability and reliability, competition is having a positive effect on the maintenance of reasonably affordable, reliable telecommunications services.

Chapter I. Introduction and Background

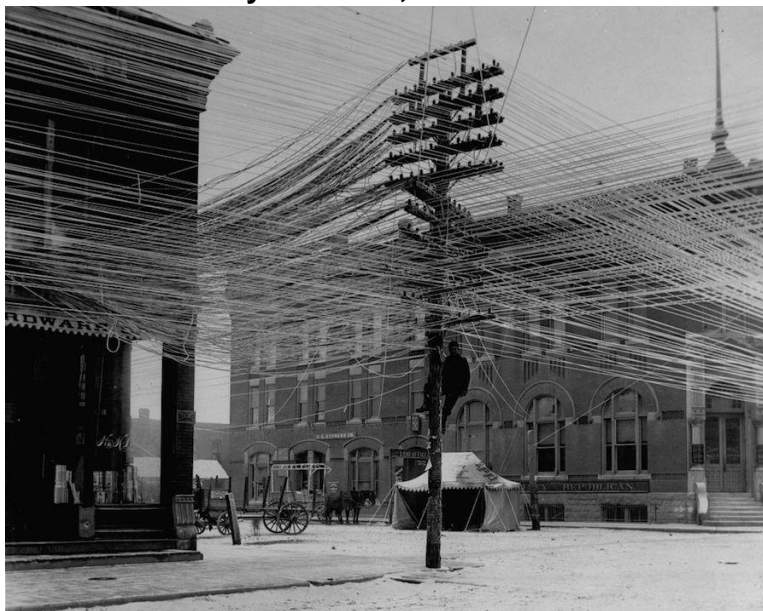
Telephone service has been regulated to some degree nearly since the moment the technology was patented by Alexander Graham Bell (Bell) in 1876.¹ This section summarizes the major historical regulatory events both at the federal and state levels. For the purposes of this report, the history of federal telecommunications regulation is useful because state regulation of these markets has always been intertwined with, and largely a derivative of, federal laws and rules.

A. Federal Regulation

When Bell's patents expired in 1894, competitors were allowed to build their own facilities. This accelerated the development of the nationwide telephone network. In the 18 years Bell held the patents, the daily calling average per 1,000 people peaked at 37. In the first 15 years of competition it increased tenfold.² Competitors gained over 50 percent market share by 1907.³

Early competition also had its drawbacks. Populated areas saw many lines crisscrossing the streets as competitors raced to build their independent networks. Figure 1-1 shows the lines in Pratt, Kansas circa 1900.

Figure 1-1
Early Network, Circa 1900



Source: America calling: a social history of the telephone to 1940

¹Diane Katz and Theodore Bolema, "Crossed Lines: Regulatory Missteps in Telecom Policy," Mackinac Center, December 3, 2003, <<https://www.mackinac.org/6033>>, accessed on June 10, 2022.

²Adam D. Thierer, "Unnatural Monopoly: Critical Moments in the Development of the Bell System Monopoly," Washington, D.C.: *The Cato Journal*, Fall 1994, p. 270, <<https://www.cato.org/sites/cato.org/files/serials/files/cato-journal/1994/11/cj14n2-6.pdf>>, accessed on June 10, 2022.

³Ibid.

Bell's American Telephone and Telegraph Company (AT&T) responded to this competition by acquiring its competitors' networks. Once it had acquired enough rivals to control a market, it would refuse to interconnect with any independent providers.⁴ AT&T even acquired a controlling interest in its chief rival, The Western Union Telegraph Company (Western Union). These actions eventually got the attention of federal antitrust lawyers and the Interstate Commerce Commission (ICC), which received authority to regulate telephone service in 1910.⁵

In 1913, AT&T reached a settlement with the Justice Department. AT&T agreed to divest its Western Union stock, interconnect with other companies, and not acquire any more independent companies without approval from the ICC.⁶ This began a decades-long practice by AT&T where, after pressure from potential competitors, courts, or regulators, AT&T would enter into agreements with state and/or federal authorities in order to maintain its control of the national telephone market.⁷

By the 1920s, AT&T had sold the idea of telecommunications as a necessary "universal service" and a "natural monopoly" to state and federal regulators, who in turn discouraged or outright banned competitive telephone services.⁸ During this period, AT&T repeatedly agreed to be subject to heavy, rate-restricted regulation in exchange for a guaranteed monopoly in a particular area.⁹ AT&T's market share rebounded during this period until it controlled nearly 80 percent of the national market.¹⁰

Telephone regulation then looked a lot like today's electric regulation. The local telephone markets were considered monopolies and were rate-of-return regulated. Companies submitted cost information, regulators established their rate base and a revenue requirement, and the companies' rates were set to recover that amount. This became the de facto regulatory regime at both the federal and state levels.

By enacting the Communications Act of 1934 (1934 Act) as part of President Roosevelt's New Deal, Congress created a new agency, The Federal Communications Commission (FCC), and

⁴Richard Gabel, "The Early Competitive Era in Telephone Communication, 1893-1920," 34 *Law and Contemporary Problems*, Spring 1969, p. 350, <<https://scholarship.law.duke.edu/lcp/vol34/iss2/8>>, accessed on June 10, 2022.

⁵Frank Dixon, "The Mann-Elkins Act, Amending the Act to Regulate Commerce," *The Quarterly Journal of Economics*, Oxford University Press, vol. 24, no. 4, August 1910, p. 596, <<https://www.jstor.org/stable/pdf/1883490.pdf>>, accessed on June 10, 2022.

⁶Milton Mueller, "Universal Service: Competition, Interconnection and Monopoly in the Making of the American Telephone System," Syracuse University, 2013, pp. 127-128, <<https://surface.syr.edu/books/18>>, accessed on June 10, 2022.

⁷Matthew Lasar, "How AT&T Conquered the 20th Century," *Wired*, September 3, 2011, <<https://www.wired.com/2011/09/att-conquered-20th-century/>>, accessed on June 10, 2022.

⁸Ibid.

⁹Ibid.

¹⁰Ibid.

transferred to it the ICC's telecommunications jurisdiction.¹¹ The new law enabled the FCC to codify its rate-of-return regulation of AT&T while also protecting AT&T's monopoly market position.¹² This regulatory regime continued for several decades, allowing AT&T to grow into the largest corporation in the world. At its peak, AT&T became larger than most countries' economies, and larger than the five largest U.S. oil companies combined.¹³

Starting in the 1950s, cracks in the monopoly regime began to develop, and AT&T's ability to negotiate its way out of competition began to erode, first with the courts, and eventually with the FCC itself. Federal proceedings and lawsuits with nicknames such as "Hush-A-Phone," "Carterfone," and "Above 890" forced AT&T to interconnect with competitors' telephone equipment, wireless radio phones, and microwave networks.

Still, AT&T remained the largest corporation in the world when the federal government filed another antitrust suit in 1974. This action led AT&T to enter into one final agreement; this time to break itself up into smaller companies. The long distance and equipment markets had slowly become competitive and would soon be federally deregulated. AT&T offered to divest itself into eight major companies: seven regional Bell Operating Companies were established to continue the local monopolies, and AT&T, while barred from providing local service, remained as a competitor in the long distance and equipment markets.¹⁴ This action, known simply as Divestiture, became final in 1984, and as a result AT&T's size dropped 70 percent.

Between 1984 and the 1990s, technology continued to put pressure on the local and long distance telephone markets. Cable, cellular, and broadband services all showed promise as substitutes for traditional phone service. Divestiture had created the opportunity for Congress to rewrite the 1934 Act to accommodate these technologies and open the local markets to competition.

Congress passed the Telecommunications Act of 1996 (1996 Act), rewriting the majority of the 1934 Act and setting up the ground rules for local competition.¹⁵ The new law encouraged local competition nationwide, and required massive rulemakings from both the FCC and state regulators to ensure wholesale prices, consumer protections, and universal service principles were fair and reasonable.¹⁶ This effectively ended rate-of-return regulation for the vast majority of local telephone services nationwide.

Congress delegated to the FCC and the States the ability to write rules implementing the 1996 Act. Carriers were required to interconnect with one another, and the existing companies, called Incumbent Local Exchange Carriers (ILECs), were required to lease elements of their networks to the new competitors, called Competitive Local Exchange Carriers (CLECs). Wholesale rates

¹¹Communications Act of 1934, Pub. L. No. 73-416, 48 Stat. 1064.

¹²Ibid.

¹³Ray Horak, *Webster's New World Telecom Dictionary*, Wiley Publishing, Indianapolis, Indiana, 2008, p. 42.

¹⁴*United States v. American Tel. and Tel. Co.*, 552 F. Supp. 131 (D.D.C. 1982).

¹⁵"Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56.

¹⁶Ibid.

for these Unbundled Network Elements (UNEs) had to be established at the state level using a specific and complicated cost methodology. Small, rural, independent ILECs could escape the voluminous interconnection rules if they could demonstrate to the state utility commission that they could not implement the rules or if there was no demand by competitors in their area.¹⁷

Companies were encouraged to negotiate interconnection agreements, adopt another company's agreement, or resell a complete service. A process was also established for the regulator to step in should companies disagree and require arbitration. While the FCC was responsible for establishing the national framework for executing the 1996 Act, it took several years for the States and the FCC to complete the initial implementation of the 1996 Act.

While Congress hoped that the 1996 Act would settle the endless litigation in the telecommunications market, the opposite proved true. The FCC's attempts to implement the interconnection and UNE access provisions were struck down, at least in part, no fewer than three times by federal courts. Finally, four tries and over eight years after the 1996 Act was passed, the FCC's "Triennial Review Remand Order" was issued.¹⁸ The Triennial Review Remand Order, following directives from the courts, limited CLEC access to several UNEs where competitive alternatives existed, as well as local loops combined with local switching, known as the UNE Platform. The UNE Platform was the primary method non-cable CLECs used to provide residential service. Once the courts struck down UNE Platform access, CLECs essentially abandoned the residential market to cable and wireless companies.

B. Florida Regulation

While all this activity was occurring at the federal level, state actions were just as busy. The Florida Legislature added telephone and telegraph regulation to the Florida Railroad Commission's responsibilities in 1911.¹⁹ The agency's name was changed to the Florida Public Service Commission (FPSC or Commission) in 1965.

As previously described, rate-of-return regulation was the norm up through the 1980s in Florida. In 1990, the Florida Legislature recognized the emerging competitive markets for some telecommunications services provided by the local carriers and delegated to the FPSC the authority to, in some circumstances, allow price cap regulation for those services.²⁰ If the FPSC decided that effective competition existed for a particular service or market, it could allow

¹⁷47 U.S.C. § 251(f).

¹⁸FCC 04-290, WC Docket No. 04-313, CC Docket No. 01-338, Unbundled Access to Network Elements, Review of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Order on Remand, released February 4, 2005.

¹⁹See 1911 Fla. Laws 6186.

²⁰Price caps are a regulatory scheme where, instead of regulators limiting a company's percent return on investment, a company could elect to have its prices capped at a regulator-approved level, allowing the company to keep any profits generated by selling its services at or below the price caps.

market conditions to control prices and eliminate rate-of-return regulation for that service or market.²¹

Competition for more services developed and, by 1995, the emergence of cable companies made it obvious that competition for all local services was inevitable. In anticipation of a federal law becoming imminent, the Florida Legislature passed a sweeping revision to Chapter 364, Florida Statutes (F.S.), finding that “the competitive provision of telecommunications services, including local exchange service, is in the public interest.”²² Competitive entry into the local market was allowed, and CLECs were able to enter subject to a lesser degree of regulatory oversight than ILECs. Also, ILECs were allowed to elect price caps for all their services, eliminating them from rate-of-return regulation altogether.²³ The Legislature also required the FPSC to start publishing this report on the status of competition in Florida.

The Legislature followed up in 1998 by requiring the FPSC to issue a series of five reports on competition, including forward-looking cost estimates of local service, impacts to low-income assistance programs such as Lifeline, the relationships between costs and existing prices, what are fair and reasonable local rates, and impacts on multi-tenant environments.²⁴

To further accommodate the growing competitive landscape, in 2003 the Legislature passed another major amendment to Chapter 364, F.S. The changes included lesser FPSC oversight of long distance companies, and ILECs were allowed to petition the FPSC for lesser regulatory oversight, similar to the regulation of their local competitors. It also expanded Lifeline eligibility for low-income Florida consumers, and exempted from FPSC jurisdiction Voice-over-Internet-Protocol (VoIP) services, which at that time were largely utilized by cable companies to provide telephone service.²⁵

In 2005, the Legislature again amended Chapter 364, F.S., addressing local governments and broadband deployment, FPSC jurisdiction regarding advanced services, Lifeline awareness and participation, and storm damage recovery. The Amendment established rules that governmental entities, such as municipalities, must follow in order to provide communications services (cable, broadband, etc.) in competition with private providers. The 2005 revisions also clarified the FPSC’s jurisdiction, or more precisely the exemption from the FPSC’s jurisdiction, for advanced services, including wireless, broadband, and VoIP. The new law also further clarified and expanded Lifeline eligibility and procedures. Finally, as a result of the storm season in 2004, it permitted the recovery of costs and expenses related to damage caused by named tropical storms.²⁶

²¹See 1990 Fla. Laws 244.

²²See 1995 Fla. Laws 403.

²³Ibid.

²⁴See 1998 Fla. Laws 277.

²⁵See 2003 Fla. Laws 32.

²⁶See 2005 Fla. Laws 107 and 132.

In 2006, carrier of last resort obligations in multitenant environments were amended, and some previously enacted rate requirements were repealed.²⁷ In 2007, changes included further rate reductions, rebalancing, and repeals. Also, an automated enrollment process for Lifeline was created, and the ILECs' overall carrier of last resort obligations were allowed to sunset.²⁸

In 2009, the definition of basic service was narrowed and regulation for non-basic services was decreased. Service quality oversight for non-basic services was eliminated and company tariffs were no longer required to be filed with the Commission. Lifeline eligibility was again expanded. The Florida Department of Management Services was designated as the agency to oversee broadband deployment in Florida. In 2010, the rate-of-return sections in Chapter 364, F.S., were repealed.²⁹

The most recent revision to Chapter 364, F.S., came in 2011. This amendment finalized the deregulation of all retail services by the ILECs. This included the elimination of rate caps, the consumer protection and assistance duties of the FPSC, and all service quality oversight. It also repealed the previously-enacted storm damage recovery provisions.³⁰

Although telecommunications is largely deregulated in Florida at this time, the FPSC still retains authority to monitor intercarrier relations and resolve wholesale disputes, oversee the Lifeline and Florida relay programs, and issue certificates of authority to provide telecommunications service. The FPSC has continuing authority over numbering issues, including area code relief, number conservation, and local number portability. The FPSC also resolves complaints relating to Lifeline, relay service, and payphones.

C. Status of Competition Report

Chapter 364, F.S., requires the Commission to prepare and deliver a report on the status of competition in the telecommunications industry to the President of the Senate, the Speaker of the House of Representatives, and the majority and minority leaders of the Senate and the House of Representatives on August 1 of each year. Section 364.386, F.S., requires that the report address the following four elements:

1. The ability of competitive providers to make functionally equivalent local exchange services available to both residential and business customers at competitive rates, terms, and conditions.
2. The ability of customers to obtain functionally equivalent services at comparable rates, terms, and conditions.
3. The overall impact of competition on the maintenance of reasonably affordable and reliable high-quality telecommunications services.

²⁷See 2006 Fla. Laws 080.

²⁸See 2007 Fla. Laws 029.

²⁹See 2009 Fla. Laws 226.

³⁰Regulatory Reform Act, ch. 36, 2011 Fla. Laws 1231.

4. A list and short description of any carrier disputes filed under Section 364.16, F.S.

The Commission is required to make requests to local exchange telecommunications providers each year for the data required to complete the report. The data request was mailed on February 28, 2022, to 10 ILECs and 256 CLECs. Responses were due April 15, 2022. The data and analyses that follow accurately reflect the information provided by the ILECs and the reporting CLECs.

This report is divided into chapters that summarize key events and data that may have a short-term or long-term effect on the Florida telecommunications market. Chapter II presents data regarding wireline access line competition in Florida, including access line trends, residential/business access line mix, and market share. Chapter III discusses the continued development of the wireline market's principle forms of intermodal competition: broadband, wireless, and VoIP. Chapter IV primarily uses data outlined in the other chapters to address the four statutory issues delineated above. Chapter V provides a summary of state activities affecting local telecommunications competition in 2021, including intercarrier matters, Lifeline, and the Telecommunications Relay Service. Chapter VI details some of the major federal activities that may affect the Florida market.

Chapter II. Wireline Competition Overview

For the past decade, the technologies used to deliver voice telephony have continued to evolve. Analog circuits using traditional copper wires and Time Division Multiplexing (TDM) are being replaced by wireless cell-based transmission and VoIP, which is provided via a digital broadband connection, either wireless or wired. Wireless, VoIP, and broadband are all exempt from FPSC jurisdiction. The FPSC is therefore limited in what data it can collect regarding these technologies. Trends in these technologies are summarized in Chapter III.

TDM-based wireline service, which is the primary subject of this report, is still used throughout the country and Florida. In fact, the wireless and broadband networks utilize many of the traditional wireline facilities for interoffice and long distance transport.

This chapter discusses the incumbent carriers' corporate trends as disclosed in their federal financial reports. It then discusses the number, market mix, and market share of residential and business wirelines. Knowledge of the number of wirelines and the trends for market participants is essential to understanding the state of the market.

A. Incumbent Carriers

Florida's ILECs have been experiencing switched access line losses for well over a decade. These losses appear consistent with the companies' national trends reflected in the companies' respective annual reports filed with the Securities and Exchange Commission. There are 10 ILECs providing wireline services in Florida, the largest of which are AT&T, CenturyLink, and Frontier.³¹ These companies' annual reports showed that, like in Florida, they continue to face access line losses nationally as customers disconnect traditional landline services and migrate to alternative services.

In Florida, AT&T's switched access lines declined by over 88,000 (17.8 percent), with residential access lines decreasing by over 42,000 (19.2 percent) and business lines by over 46,000 (16.7 percent).³² Nationwide, AT&T reported losses of approximately 1,086,000 switched access lines (14.95 percent) in 2021. AT&T is the only major ILEC in Florida that reports access line numbers at the national level in its annual reports. AT&T reported a nearly 4.2 percent increase in operating revenues nationally.³³

CenturyLink's Florida switched access lines declined by nearly 52,000 (15.6 percent), with residential access lines decreasing nearly 35,000 (19.0 percent) and business access lines

³¹Responses to local competition data request 2022.

³²AT&T's response to the local competition data request 2022.

³³AT&T Inc., "Form 10-K," December 31, 2021, <<https://otp.tools.investis.com/clients/us/atnt2/sec/sec-show.aspx?Type=html&FilingId=15576872&Cik=0000732717>>, accessed on April 21, 2022; responses to local competition data request 2022.

decreasing over 17,000 (11.6 percent).³⁴ Nationwide, CenturyLink reported operating revenues of approximately \$19.69 billion, reflecting a decline of nearly 4.95 percent from 2020.³⁵

Frontier's switched access lines in Florida declined by over 19,000 (11.5 percent), with residential access lines decreasing over 11,000 (22.9 percent) and business lines by over 8,000 (6.9 percent).³⁶ Nationwide, Frontier reported 2021 revenue of \$6.4 billion, reflecting a decline of eight percent.³⁷

The seven rural Florida ILECs experienced a contraction in the number of switched access lines. In 2021, rural carriers in Florida saw their total access lines decline by over 16,400 (15.4 percent). Residential lines decreased over 13,900 (18.2 percent) and business lines decreased by nearly 2,500 (8.4 percent).³⁸

B. Wireline Trends in Florida

Figure 2-1 illustrates the overall trend in Florida for both residential and business lines (not including VoIP connections). Based on current data, the rate of decline in residential and business lines accelerated somewhat in 2021. Business access lines totaled over 700,000, representing a decrease of 15.4 percent from 2020 to 2021. Residential access lines totaled over 400,000 as of December 2021, representing a decline of 19.1 percent from the previous year. Total combined traditional wirelines for ILECs and CLECs declined 16.9 percent, from approximately 1.4 million in December 2020 to nearly 1.2 million as of December 2021. For the five-year period from 2017 through 2021, the total number of traditional wirelines decreased by over 1.3 million, a decline of 53.7 percent.

³⁴ CenturyLink/Lumen's response to local competition data request 2022.

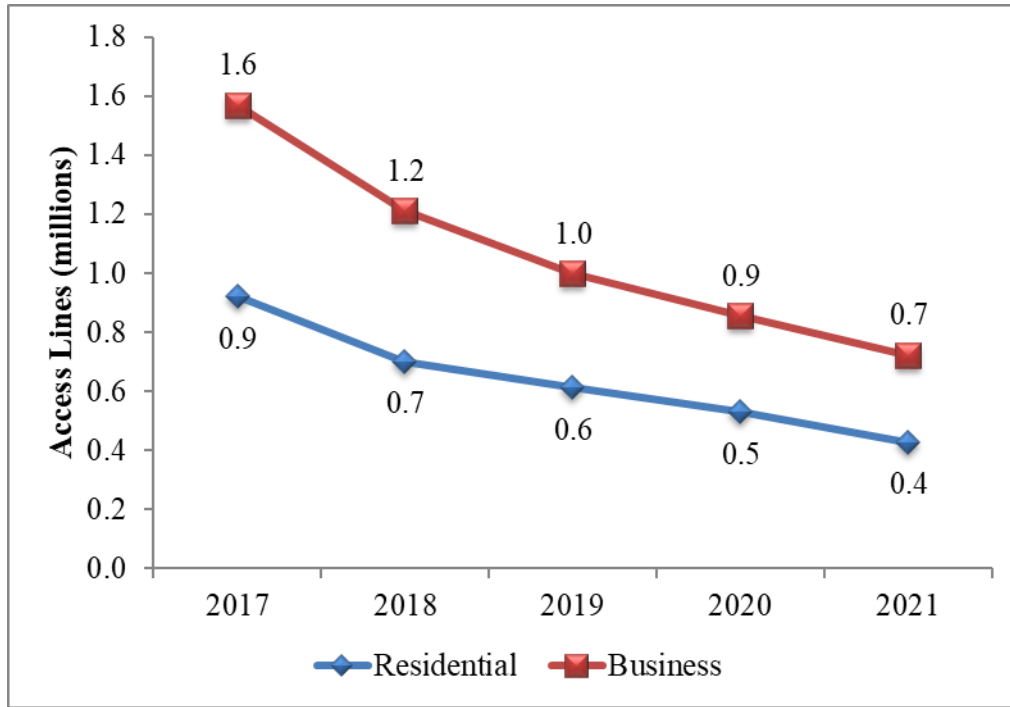
³⁵Lumen Technologies, Inc., "Form 10-K," December 31, 2021, <https://d18rn0p25nwr6d.cloudfront.net/CIK-0000018926/7a81bfa0-4166-42bc-bae9-e1f1edbc7e06.html>, accessed on April 25, 2022.

³⁶Frontier's response to local competition data request 2022.

³⁷Frontier Communications Corporation, "Form 10-K," December 31, 2021, <https://d18rn0p25nwr6d.cloudfront.net/CIK-0000020520/d0ec56a0-e576-48bf-826c-15d77432897b.html>, accessed on April 25, 2022.

³⁸Responses to local competition data request 2022.

**Figure 2-1
Florida Wireline Access Line Trends**



Source: Responses to local competition data request (2018-2022)

C. Wireline Market Mix, Market Share, and Market Composition

1. Market Mix

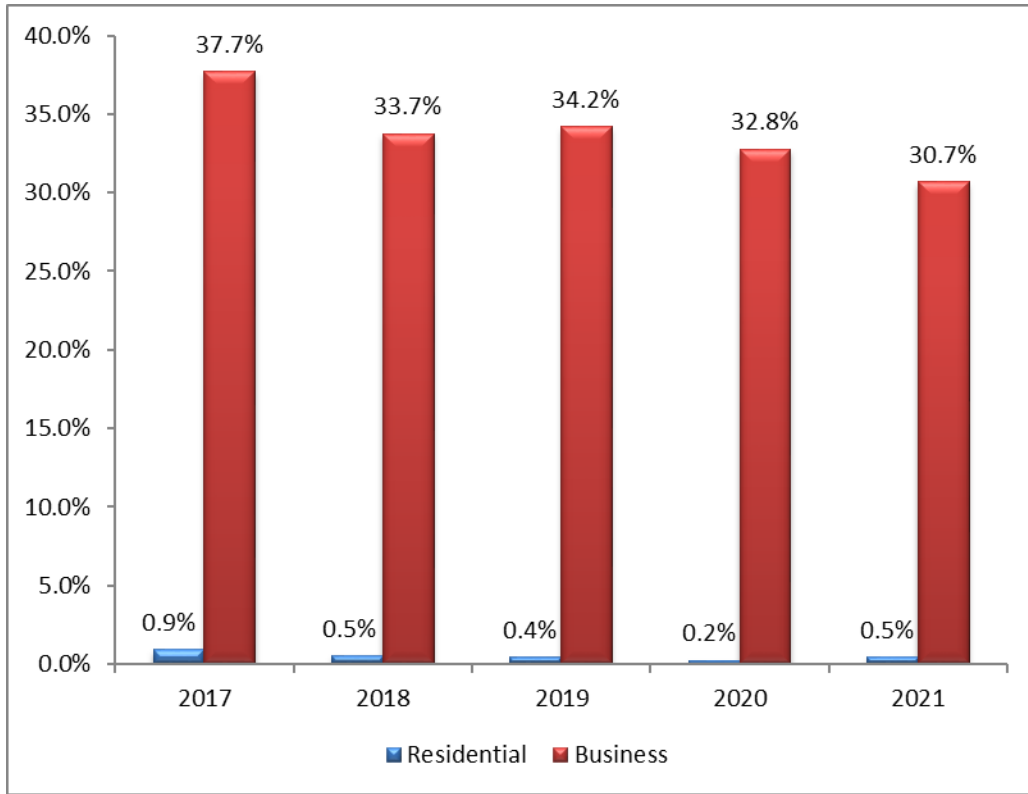
The business-to-residential ratio of customers served by ILECs and CLECs has shifted over time. In general, both ILECs and CLECs have seen an increased concentration of traditional wireline business customers as residential customers migrate to other options. The business-to-residential customer mix for ILECs was about 30 percent business and 70 percent residential in 2004. By 2017, the mix for ILECs had shifted so much that the percentage of business wirelines exceeded the percentage of residential wirelines. In 2021, the ILECs' ratio was 54 percent business lines to 46 percent residential lines.

The shift in mix has been even more pronounced in the CLEC market. In 2004, the business-to-residential customer mix for CLECs was about 63 percent business to 37 percent residential. In 2021, the CLEC customer mix was over 99 percent business lines.

2. Market Share

CLECs have traditionally focused more on business customers. Figure 2-2 illustrates FPSC data on CLEC market share by business and residential customer classes. The inverse of this percentage would be market share for the ILECs in Florida. According to FPSC data, the CLEC residential market share increased slightly from 0.2 percent in 2020 to 0.5 percent in 2021, while the CLEC business market share decreased from 32.8 percent in 2020 to 30.7 percent in 2021.

**Figure 2-2
Florida Residential & Business CLEC Market Share**



Source: Responses to local competition data request (2018-2022)
 Note: 2020 data updated from previous report

3. Market Composition

The market composition of access lines served by local exchange companies is illustrated in Table 2-1. In 2021, ILEC residential access lines decreased by 19.3 percent, while ILEC business lines decreased by 12.9 percent. The CLECs experienced a slight increase in the number of residential access lines, but given their small market presence, this yielded a substantial percentage gain of 55.8 percent. CLEC business access lines decreased by 20.7 percent.

**Table 2-1
Florida Wireline Access Line Comparison**

| | | ILECs | CLECs | Total |
|-----------------------------|-------------|-----------|---------|-----------|
| 2018 | Residential | 698,975 | 3,695 | 702,670 |
| | Business | 803,240 | 409,122 | 1,212,362 |
| | Total | 1,502,215 | 412,817 | 1,915,032 |
| 2019 | Residential | 611,329 | 2,600 | 613,929 |
| | Business | 658,040 | 341,707 | 999,747 |
| | Total | 1,269,369 | 344,307 | 1,613,676 |
| 2020 | Residential | 528,480 | 1,265 | 529,745 |
| | Business | 575,682 | 280,541 | 856,223 |
| | Total | 1,104,162 | 281,806 | 1,385,968 |
| 2021 | Residential | 426,460 | 1,971 | 428,431 |
| | Business | 501,370 | 222,608 | 723,978 |
| | Total | 927,830 | 224,579 | 1,152,409 |
| Change 2018-2021 | Residential | -19.3% | 55.8% | -19.1% |
| | Business | -12.9% | -20.7% | -15.4% |
| | Total | -16.0% | -20.3% | -16.9% |

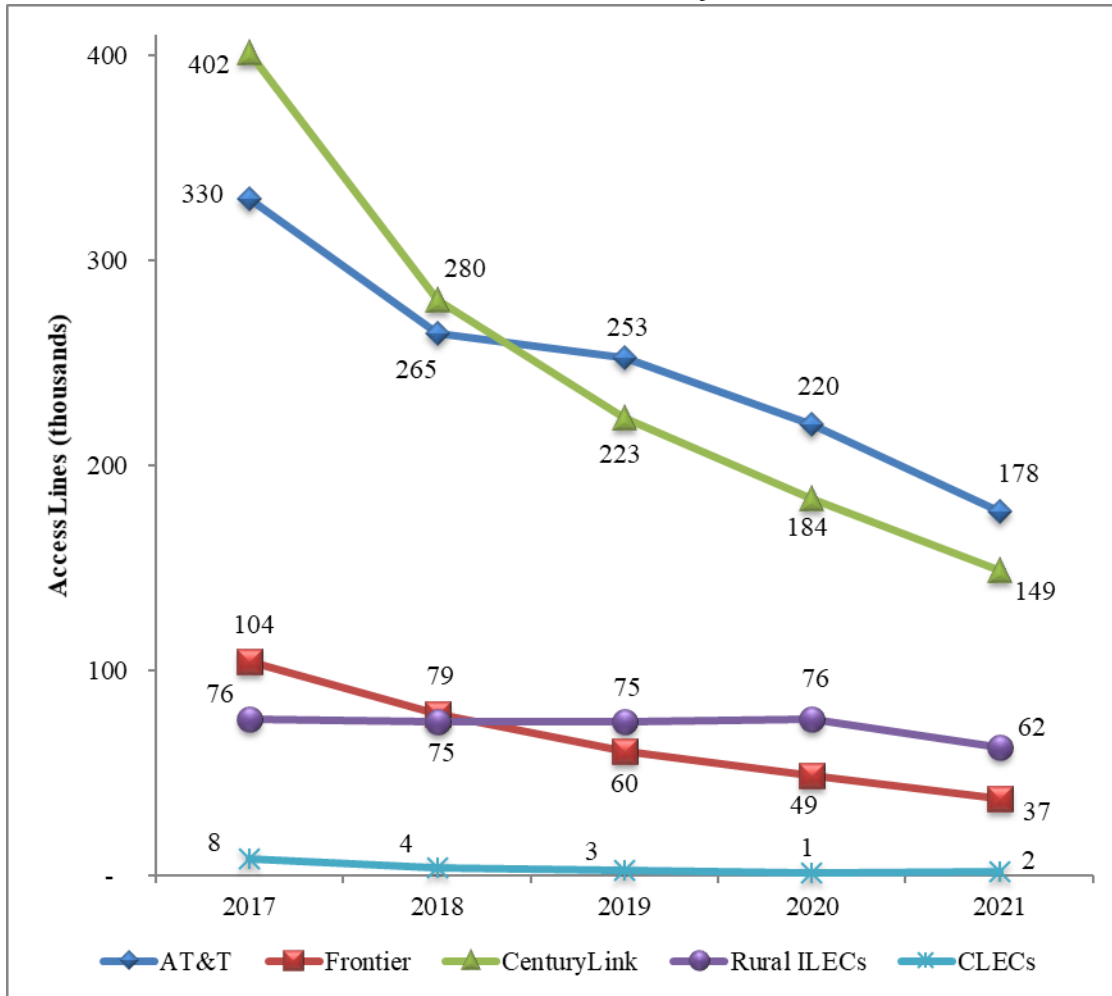
Source: Responses to local competition data request (2019-2022)

Note: 2020 data updated from previous report

4. Residential Wireline Access Line Trends

Figure 2-3 displays the wireline residential access line trends separately for AT&T, Frontier, CenturyLink, aggregate rural ILECs, and aggregate CLECs. Over the past five years, AT&T has averaged losses of nearly 16 percent per year. Frontier and CenturyLink exceeded AT&T with average respective losses of approximately 23 percent per year. During that period, CLEC residential lines declined by an annual average of nearly 25 percent, while rural ILEC access lines declined by an average of nearly six percent.

**Figure 2-3
Florida Residential Wireline Trends by ILECs and CLECs**



Source: Responses to local competition data request (2018-2022)

Note: 2020 data updated from previous report

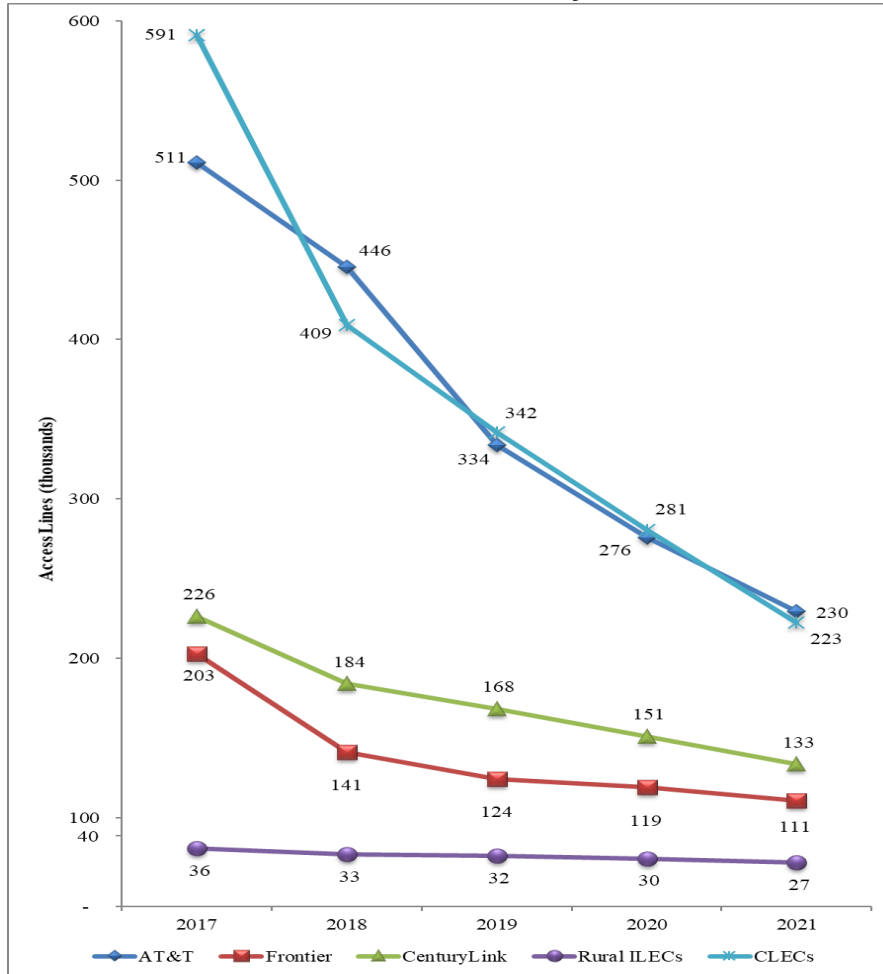
AT&T experienced residential wireline losses of 13.0 percent in 2020 and 19.2 percent in 2021. Frontier lost 19.5 percent of its residential wirelines in 2020 and 22.9 percent in 2021, while CenturyLink lost 17.6 percent of its residential lines in 2020 and 19.0 percent in 2021. The rural ILECs reported line gains of 1.4 percent in 2020 and losses of 18.2 percent in 2021, and the CLECs reported residential wireline declines of 51.3 percent in 2020 and gains of 55.8 percent in 2021. The rate of line loss in all categories accelerated, except for CLECs which experienced an increase in residential lines.

5. Business Wireline Access Line Trends

Figure 2-4 displays the wireline business access line levels separately for AT&T, Frontier, CenturyLink, aggregate rural ILECs, and aggregate CLECs. Over the past five years, AT&T has experienced an average decline of over 17 percent per year, while Frontier and CenturyLink have experienced average annual declines of nearly 13 percent and 12 percent, respectively. The average annual decline in rural ILEC business access lines over the past five years is nearly six

percent, while CLEC business access lines declined by nearly 20 percent annually over the same period.

Figure 2-4
Florida Business Wireline Trends by ILECs and CLECs



Source: Responses to local competition data request (2018-2022)

Note: 2020 data updated from previous report

AT&T's rate of business line losses moderated, while the rate of loss for all other categories accelerated. AT&T experienced business wireline losses of 17.4 percent in 2020 and 16.7 percent in 2021. Frontier lost 4.3 percent of its business wirelines in 2020 and 6.9 percent in 2021, while CenturyLink lost 10.3 percent of its business lines in 2020 and 11.6 percent in 2021. The rural ILECs reported line losses of 5.6 percent in 2020 and 8.4 percent in 2021, and the CLECs reported business wireline declines of 17.9 percent in 2020 and 20.7 percent in 2021.

Chapter III. Intermodal Competition Overview

Total wireline access lines in Florida peaked over 20 years ago at approximately 12 million.³⁹ Florida's population has increased significantly since that time and communications services have continued to expand, yet as previously shown in Table 2-1, wirelines were down below 1.2 million by the end of 2021. So where did 90 percent of the access lines go?

Wireless companies began attracting customers in the 1980s and by 1995 there were over 24 million cellular subscribers in the U.S.⁴⁰ Cable companies discovered that they could provide telephone service using VoIP and sought authorization from Congress to do so. These pressures resulted in the 1996 Act, which set up rules for these technologies to directly compete with ILECs, as well as companies that wished to compete using the ILECs' own technology and networks. While the ILECs have continued to dominate the traditional wireline markets, demand and competition has exploded for the wireless and VoIP services. These other modes are simply different technological evolutions of telephone service, much as connecting a call through an operator was replaced by direct dialing many decades ago. The additional capabilities available with these technologies have led the vast majority of residential consumers and businesses to make the transition to these modes.

A major development that has attracted so many customers to these technologies is the speed and volume of information that can be transmitted. High-speed Internet and data services, generically known as broadband, allow customers to do much more than talk: they can send and receive audio, video, and other large streams of data to meet many of their business and entertainment needs. Broadband facilities not only serve retail customers, but they have also become the backbone of wired and wireless interoffice data transport.

The benefit of real-time broadband services became evident during the recent COVID-19 pandemic. Sportscasters and other announcers needed to be able to remotely broadcast events due to travel restrictions. Historically, long distance interviews have been done via satellite with a noticeable delay between transmission and reception. With broadband, however, sports events were broadcast live with announcers thousands of miles apart. John McEnroe announcing the 2020 French Open tennis tournament from his home office in Malibu, California, nine time zones away, could only be accomplished by using terrestrial broadband facilities that carried his voice across the globe nearly instantaneously.⁴¹

³⁹Florida Public Service Commission, "Competition in Telecommunications Markets in Florida," Tallahassee, FL, December 2000, p. 46, <<http://www.floridapsc.com/Files/PDF/Publications/Reports/Telecommunication/TelecommunicationIndustry/2000.pdf>>, accessed on May 10, 2022.

⁴⁰Statement of Anne K. Bingaman Assistant Attorney General Antitrust Division United States Department of Justice, Submitted to the Subcommittee on Oversight and Investigations United States House of Representatives On Competition in the Cellular Telephone Service Industry, October 12, 1995, <<https://www.justice.gov/archive/atr/public/testimony/0460.pdf>>, accessed on May 10, 2022.

⁴¹Marc Berman, "Mary Carillo will call French Open remotely amid 'shabby' COVID-19 protocols" New York Post, September 23, 2020, <<https://nypost.com/2020/09/23/mary-carillo-will-call-french-open-remotely-amid-covid-19-spike/>>, accessed on May 10, 2022.

A. Wireless

In the early 1990s, wireless service was still new, signal strength and network availability were limited, and the services were marketed primarily to enterprise and other business users. The general population of consumers could not afford the cost of the cellular phone, and the limited availability of network access meant that mass adoption of the platform would take time.

However, as technology became more affordable and easier to upgrade, consumers started to enter the wireless market en masse. Eventually this led to the integration of wireless technology and broadband internet connections. Past reports have consistently shown that adoption of wireless services in the United States, and Florida specifically, far surpasses the adoption of other modes of communications.

1. Market Share

As shown in Figure 3-1, US market share among the top five wireless companies was split with AT&T leading at 43.2% (approximately 201.8 million subscribers), followed by Verizon at 30.6% (142.8 million), T-Mobile at 24.8% (108.7 million), Dish Network at 1.8% (8.5 million), and UScellular at 1% (approximately 4.9 million).^{42,43,44,45,46}

⁴²AT&T Inc. “Form 10-K,” December 31, 2021, <<https://otp.tools.investis.com/clients/us/atnt2/sec/secshow.aspx?FilingId=15576872&Cik=0000732717&Type=PDF&hasPdf=1>>, accessed on April 26, 2022.

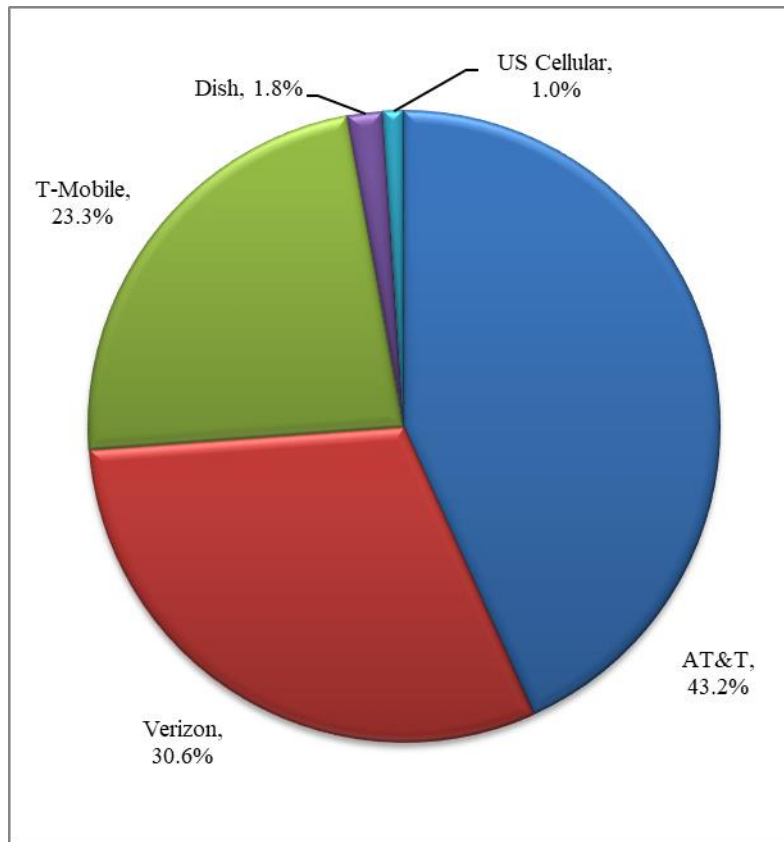
⁴³Verizon Communications Inc., “4Q 2021 Earnings Results,” January 25, 2022, <<https://www.verizon.com/about/investors/quarterly-earnings>>, accessed on April 26, 2022.

⁴⁴T-Mobile US Inc., “Form 10-K,” February 11, 2022, <https://s29.q4cdn.com/310188824/files/doc_financials/2021/q4/TMUS_12_31_2021_FORM_10-K_14.pdf>, accessed on April 26, 2022.

⁴⁵DISH Network Corporation, “Dish Network reports fourth quarter, year-end 2021 financial results,” February 24, 2022, <<https://about.dish.com/2022-02-24-DISH-Network-reports-fourth-quarter.-year-end-2021-financial-results>>, accessed on April 26, 2022.

⁴⁶United States Cellular Corporation, “UScellular reports fourth quarter and full year 2021 results,” February 17, 2022, <<https://investors.uscellular.com/news/news-details/2022/UScellular-reports-fourth-quarter-and-full-year-2021-results/default.aspx>>, accessed on April 26, 2022.

Figure 3-1
U.S. Wireless Market Share, Fourth Quarter 2021



Source: Companies' 2021 10K Earnings Reports

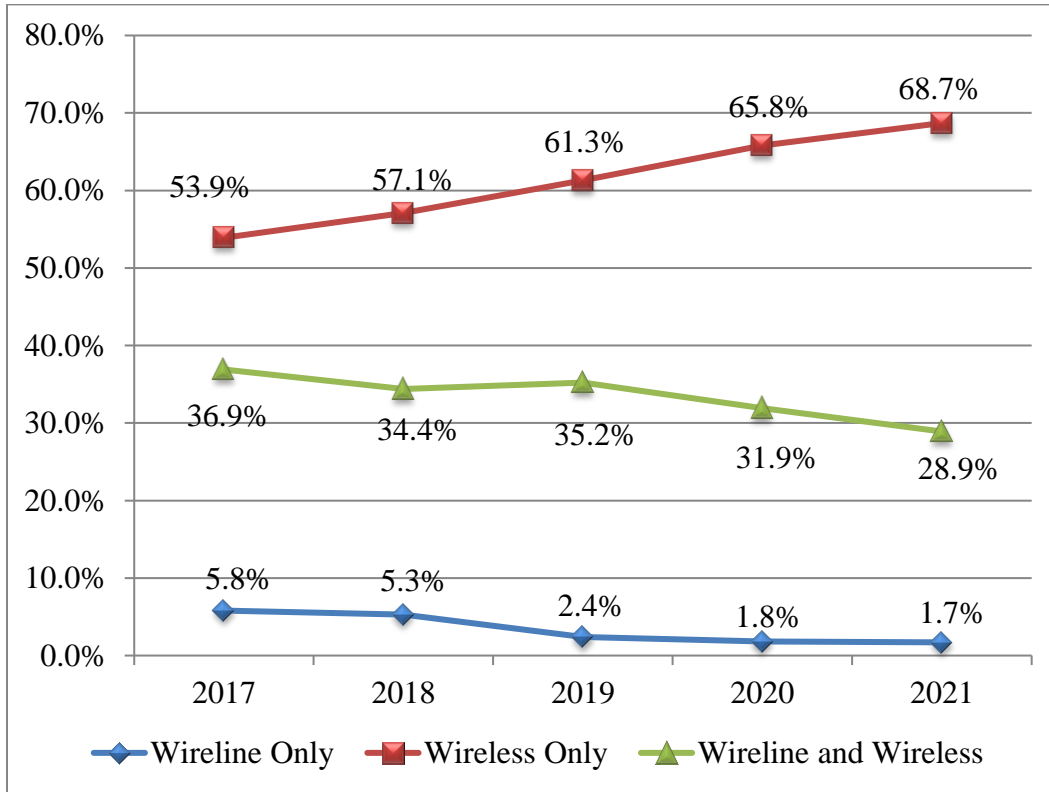
2. Wireless Substitution

According to the most recent data from carriers' financial reports, the five largest wireless service providers in the United States accounted for over 439 million connections by year-end 2021.⁴⁷ Less than 30 percent of U.S. households subscribe to both wireline and wireless service. As shown in Figure 3-2, wireless-only households in the United States rose from 61.3 percent in June 2019 to 68.7 percent in 2021.⁴⁸

⁴⁷Companies' 2021 Quarterly and Annual filings with the SEC.

⁴⁸Steven Blumberg and Julian Luke, "Wireless substitution: Early release of estimates from the National Health Interview Survey January-June 2021," National Center for Health Statistics, November 2021, <<https://doi.org/10.15620/cdc:111171>>, accessed on April 26, 2022.

**Figure 3-2
U.S. Wireless Substitution Rates**



Source: CDC/NCHS, National Health Interview Survey

3. Florida Trends

Updated information for Florida’s wireless trends is not regularly available, but in the past Florida’s wireless subscription distribution has tracked closely with national trends. The most recent data available from the FCC, from December 2019, estimated Florida’s wireless subscriptions to be 22,279,000. This was an increase of approximately 1.8 percent from December 2018 (21,419,000).⁴⁹ Florida’s population was estimated at 21,477,737 in 2019, and with over 22 million wireless subscriptions, Florida had more connected wireless devices than people.⁵⁰

By the end of 2019, 61.6 percent of Florida adults subscribed to wireless only service, 32.6 percent subscribed to both wireless and wireline service, and 3.6 percent subscribed to wireline-

⁴⁹FCC, “Voice Telephone Services Report, State-Level Subscriptions,” released March 2022, <<https://www.fcc.gov/voice-telephone-services-report>>, accessed on April 26, 2022.

⁵⁰United States Census Bureau, Florida Population Estimate 2019, <https://datacommons.org/tools/timeline#&place=geoId/12&statsVar=Count_Person>, accessed on June 22, 2022.

only service.⁵¹ By comparison, the national averages for the same period were 61.3 percent, 35.2 percent, and 2.4 percent, respectively.⁵²

4. New Technology

The demand for wireless broadband service continues to grow with each new evolution of technology. The fifth generation of wireless connectivity, known as 5G, has brought a more robust broadband experience to wireless services. Advancements made from spectrum auctions aimed at repurposing existing sub-6GHz spectrum such as “C-Band” frequencies are allowing wireless providers to develop new products that will offer 5G speeds in the 50-500 Mbps range over broader areas. Millimeter wave (mmWave) frequencies, usually near 20GHz and above, will ultimately offer Gigabit and higher speeds, but have a relatively short range and require more expensive equipment, thus at present are best suited for high-density urban areas. Fiber wireless access service (FWA) is a fiber-based last-mile technology that can be easily deployed to provide super high speed broadband services in harder-to-reach service areas.⁵³

AT&T began to deploy its C-Band spectrum in January 2022 in select areas. Its initial rollout included parts of Jacksonville, Orlando, and Miami. Its “5G+” mmWave service is available in Florida’s NFL, NBA, and NHL stadiums.^{54,55,56}

According to its 10-K annual report, by year-end 2021 Verizon’s mmWave “5G Ultra Wideband” was available in parts of 87 cities, and “5G Home” was available in parts of 65 cities, while Verizon’s C-Band spectrum reached approximately 100 million people by the end of February 2022.⁵⁷ According to its coverage map, Verizon offers both C-Band and mmWave service in parts of Jacksonville, Tampa, Orlando, Miami, Panama City, and Pensacola. Verizon is also deploying FWA service in these areas.

⁵¹Centers for Disease Control and Prevention, “National Health Interview Early Release Program, Wireless Substitution: State-Level Estimates from the National Health Interview, 2019,” released August 24, 2021, <<https://www.cdc.gov/nchs/nhis/erwirelessubs.htm>>, accessed April 26, 2022.

⁵²Steven Blumberg and Julian Luke, “Wireless substitution: Early release of estimates from the National Health Interview Survey January-June 2021,” National Center for Health Statistics, November 2021, <<https://doi.org/10.15620/cdc:111171>>, accessed on April 26, 2022.

⁵³Salvatore Salamone, “Is 5G Fixed Wireless Access the New ISDN?,” *Network Computing*, February 4, 2019, <<https://www.networkcomputing.com/wireless-infrastructure/5g-fixed-wireless-access-new-isdn>>, accessed on May 12, 2022.

⁵⁴Chloe Albanesius, “AT&T C-Band Rollout Begins in 8 US Cities,” *PCMag*, January 19, 2022, <<https://www.pcmag.com/news/att-c-band-rollout-begins-in-8-us-cities>>, accessed on June 22, 2022.

⁵⁵AT&T Inc., “Form 10-K,” December 31, 2021, <<https://otp.tools.investis.com/clients/us/atnt2/sec/sec-show.aspx?FilingId=15576872&Cik=0000732717&Type=PDF&hasPdf=1>>, p. 3, accessed on April 26, 2022.

⁵⁶AT&T Inc., “Wireless Coverage,” <<https://www.att.com/maps/wireless-coverage.html>>, accessed on June 22, 2022.

⁵⁷Verizon Communications Inc., “4Q 2021 Earnings,” January 25, 2022, <https://www.verizon.com/about/file/60091/download?token=f8DUOn9->, pp. 8-9, accessed on April 26, 2022.

By December 31, 2021, T-Mobile’s C-Band-based “Extended Range 5G” covered 310 million people, reaching 94 percent of Americans. Its mmWave-based “Ultra Capacity 5G” service covered 210 million people by the end of 2021 and can deliver 400 Mbps or more.⁵⁸ In Florida, T-Mobile advertises wide availability of both its Extended Range 5G and Ultra Capacity 5G throughout the state.⁵⁹

Dish Network expects to launch its 5G network in Las Vegas in 2022 and plans to begin offering service in 25 major markets and 100 smaller cities by June, 2022.⁶⁰ Its initial rollout in Florida plans to include the Ocala, Orlando, Daytona, and Melbourne areas in the central part of the state.⁶¹

UScellular is continuing its modernization program and improved its mid-band spectrum holdings.⁶² The company offers fixed wireless access using 5G and mmWave spectrum delivering speeds of up to 300 Mbps.⁶³ It does not claim to have deployed any 5G coverage directly in Florida, but advertises a widely available 5G Roaming service through 5G Partner Coverage.⁶⁴

B. Voice over Internet Protocol (VoIP)

VoIP technology utilizes digital computer protocols in order to complete telephony voice calls over the Internet. Interconnected VoIP allows users to make and receive calls between their VoIP networks and the public switched telephone network (PSTN).⁶⁵ These calls can be provided via separate interconnected digital channels, privately managed, or “over the top” of existing Internet traffic. Interconnected VoIP is a substitute for traditional TDM-based service, and so is included in this report to the extent information is available. Non-interconnected VoIP services lack the

⁵⁸T-Mobile, “U.S. Q4 2021 Consolidated Balance Sheets,” December 31, 2021, <https://s24.q4cdn.com/400059132/files/doc_financials/2021/q4/ER-tables-2021.pdf>, pp. 6-7, accessed on April 26, 2022.

⁵⁹T-Mobile, coverage map, <<https://www.t-mobile.com/coverage/coverage-map>>, accessed on June 22, 2022.

⁶⁰Bevin Fletcher, “Dish Promises 5G launch in 25 major markets before June deadline,” *Fierce Wireless*, February 24, 2022, <https://www.fiercewireless.com/5g/dish-marks-5g-progress-plans-launch-5g-25-major-markets-june>, accessed on May 9, 2021.

⁶¹Sascha Segan, “Can Dish Launch 125 5G Cities by Tomorrow?,” *PCMag*, June 13, 2022, <<https://www.pcmag.com/news/can-dish-launch-125-5g-cities-by-tomorrow>>, accessed on June 22, 2022.

⁶²US Cellular Corporation, “UScellular reports fourth quarter and full year 2021 results,” February 17, 2022, <<https://investors.uscellular.com/news/news-details/2022/UScellular-reports-fourth-quarter-and-full-year-2021-results/default.aspx>>, accessed on April 26, 2022.

⁶³Monica Allevan, “UScellular launches mmWave-based FWA in 10 cities,” *Fierce Wireless*, April 28, 2022, <<https://www.fiercewireless.com/tech/uscellular-launches-mmwave-based-fwa-10-cities>>, accessed on May 9, 2022.

⁶⁴UScellular, coverage map, <<https://www.uscellular.com/coverage-map>>, accessed on June 23, 2022.

⁶⁵47 C.F.R. § 9.3.

capability of interconnecting with the PSTN and are not considered a substitute for TDM.⁶⁶ Non-interconnected VoIP is not discussed in this report.

VoIP providers include cable companies, ILECs, CLECs, and Over the Top (OTT) providers. Customers usually subscribe to a broadband service and lease/purchase telephone equipment from the VoIP provider. Calls are sent through the broadband connection.

OTT companies include Magic Jack, Vonage and Skype. OTT calls can be viewed as interconnected VoIP services because of their ability to connect to internet infrastructure and route calls through the PSTN. These companies require the customer to have a broadband internet connection. Some use plugin converters between the consumer's existing phone and their standard phone jack. Calls are made through an existing internet connection.

Because VoIP is not regulated in Florida, the FPSC has no direct way to access VoIP access line data. Florida Internet and Television (FiTV) is able to provide some information on residential VoIP subscriptions, but the FPSC staff relies on FCC data for Florida business VoIP subscriptions.⁶⁷ The FCC tracks this data and periodically reports it. However, the FCC's currently-published data only includes information through December 2019 and so is two years behind most of the other data in this report.

FCC data from December 2016 through end of year 2019 showed an annual growth rate for VoIP of two percent per year, while subscribership to traditional wireline services decreased by 13 percent.⁶⁸ The FCC also reported that there were nearly 68 million Interconnected VoIP subscribers in the U.S.⁶⁹ Table 3-1 shows U.S. VoIP subscribership by customer type as of December 31, 2019. Data collected by the FPSC also shows nearly 2 million residential VoIP subscribers in Florida as of December 2021.⁷⁰

⁶⁶47 U.S.C. § 153(36). An example of a non-interconnected VoIP network is a video game console service such as Xbox Live.

⁶⁷ FiTV represents Florida's largest cable-based communications providers.

⁶⁸FCC, "Voice Telephone Services: Status as of December 31, 2019," released March 9, 2022, <<https://www.fcc.gov/voice-telephone-services-report>>, accessed on April 28, 2022.

⁶⁹Ibid, Figure 3, accessed on April 28, 2022.

⁷⁰Responses to FPSC competition data request 2022.

Table 3-1
U.S. Interconnected VoIP Subscriberhip by Customer Type
(In Thousands)

| Total | Over-the-Top | All Other VoIP | Total |
|--------------------|---------------------|-----------------------|---------------|
| ILEC | 71 | 12,240 | 12,310 |
| Non-ILEC | 11,715 | 43,956 | 55,671 |
| Total | 11,786 | 56,195 | 67,981 |
| Residential | | | |
| ILEC | 2 | 7,964 | 7,966 |
| Non-ILEC | 2,249 | 26,082 | 28,331 |
| Total | 2,251 | 34,046 | 36,297 |
| Business | | | |
| ILEC | 69 | 4,275 | 4,344 |
| Non-ILEC | 9,467 | 17,874 | 27,340 |
| Total | 9,535 | 22,149 | 31,684 |

Source: FCC Voice Telephone Services Report, December 31, 2019 (Figure 3)

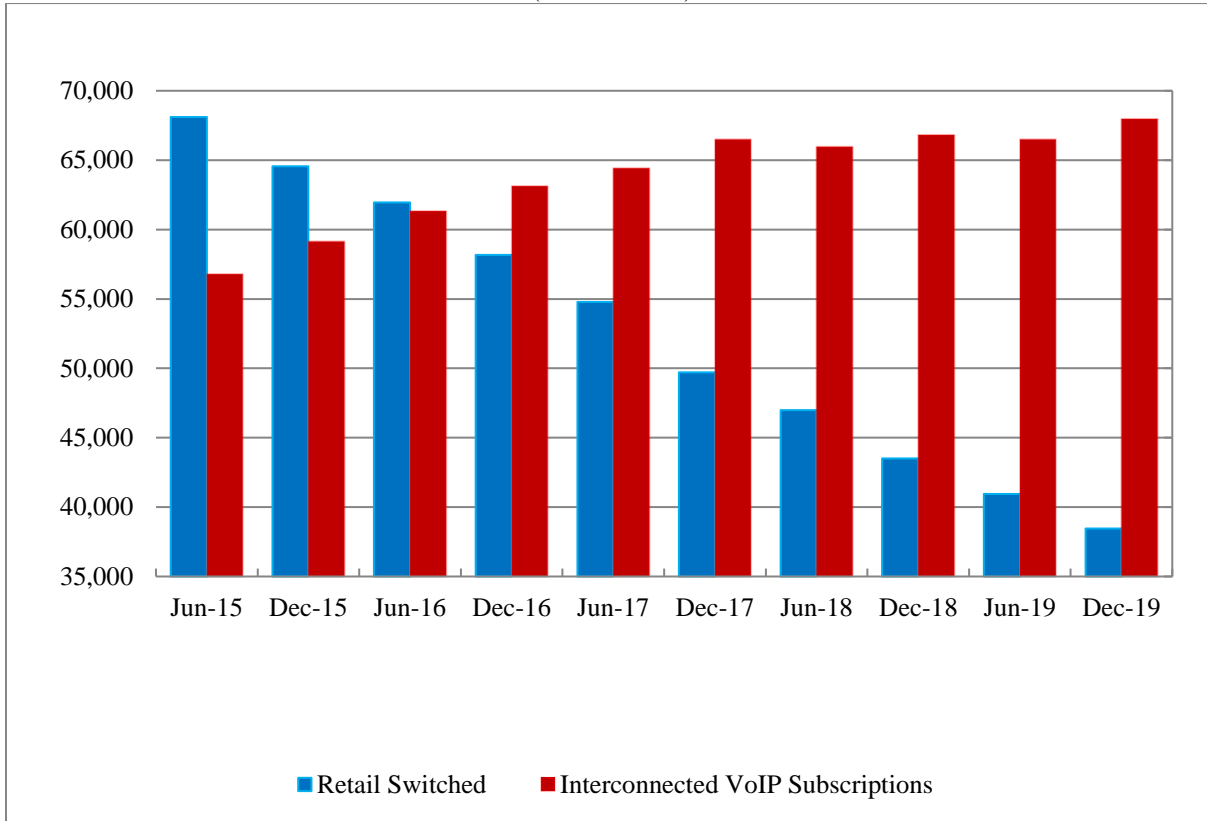
1. National Market

VoIP subscriptions have experienced steady increases for the past several years, both nationally and in Florida, while traditional switched lines have decreased. However, recent data continues to indicate that customer migration to VoIP, particularly for residential customers, may have plateaued. Shown in Figure 3-3, the FCC reported approximately 67.9 million VoIP subscriptions and nearly 38.4 million retail switched lines by December 2019. These figures total approximately 106 million wireline voice retail connections.⁷¹ Of those 106 million connections, 49 percent (52 million) were residential and 51 percent (55 million) were business.⁷²

⁷¹FCC, “Voice Telephone Services: Status as of December 31, 2019,” released March 9, 2022, <<https://www.fcc.gov/voice-telephone-services-report>>, accessed on April 28, 2022.

⁷²Ibid.

Figure 3-3
U.S. Retail Voice Telephone Subscriptions
(In Thousands)



Source: FCC VoiceTelephone Services Report, December 2019

a. Facilities-Based VoIP Providers

According to the FCC, non-ILEC companies accounted for nearly 28.3 million residential VoIP subscribers as of December 2019, compared to nearly eight million residential ILEC VoIP subscribers. This represents a market share of 78 percent for the non-ILECs in this market.⁷³ Comcast, the country’s largest cable provider, reported a decrease just above five percent from 2020 (9.6 million) to 2021 (9.1 million).⁷⁴ The second largest cable provider, Charter Communications, reported a total of approximately 8.6 million residential VoIP subscribers at year-end 2021, a decrease of just under six and a half percent from 2020.⁷⁵ AT&T reported

⁷³Responses to FPSC competition data request 2022.

⁷⁴Comcast Corporation, “Comcast 2021 Annual Report on Form 10-K,” released February 04, 2021, <<https://www.comcast.com/financials/annual-reports>>, accessed on May 2, 2022.

⁷⁵Charter Communications, Inc., “Charter Investors: Results, SEC Filings & Tax Information,” News Release, released January 28, 2021, <<https://ir.charter.com/financial-information/annual-reports>>, accessed on May 2, 2022.

approximately 3.3 million U-verse VoIP subscribers at year-end 2021, which is nearly a 12.7 percent decrease from the previous year.⁷⁶

Each of these top three facilities-based providers reported that improvements in wireless carriers' broadband infrastructure is a factor in consumer decisions to leave wireline broadband and VoIP services. These providers have developed wireless and video services and bundle them in an attempt to retain customers.

b. Over the Top VoIP Providers

Routing voice calls over a customer's existing Internet connection allows over-the-top providers to have a much lower cost of service than wireline and wireless competition. According to the FCC, there were nearly 11.7 million OTT VoIP subscribers in the U.S. as of December 2019. This total included more than 2.2 million residential subscribers and over 9.5 million business subscribers nationwide. The FCC's figures showed a decrease of just under three percent in residential subscribers, and approximately 23.5 percent increase in business subscribers from December 2018 to end of year 2019.⁷⁷

2. Florida Market

As previously stated, the FPSC does not have jurisdiction over VoIP services, which limits the agency's ability to determine an accurate estimate of the total number of VoIP subscribers in Florida. However, several ILECs and CLECs in Florida voluntarily responded to the Commission's data request and provided information on the number of residential VoIP subscribers. FiTV reported over 1.6 million residential VoIP subscribers for the five largest member providers in 2021. The FCC reported non-ILECs in Florida served approximately 1.9 million business interconnected VoIP subscribers by December 2019, an increase of just over 13 percent from end of year 2018.⁷⁸ In total, the FCC reported that Florida had 4.7 million Interconnected VoIP subscriptions in 2019.⁷⁹

Figure 3-4 shows an estimated 2.1 million residential VoIP subscribers in Florida as of 2021. This data indicates a decrease of roughly 212,000 residential VoIP subscriptions from 2020 through 2021. Over a five year time frame, the Florida residential VoIP market has averaged a decline rate just over eight percent. As previously stated, the major VoIP carriers have expressed that increased competition from wireless competitors has affected VoIP subscriptions.

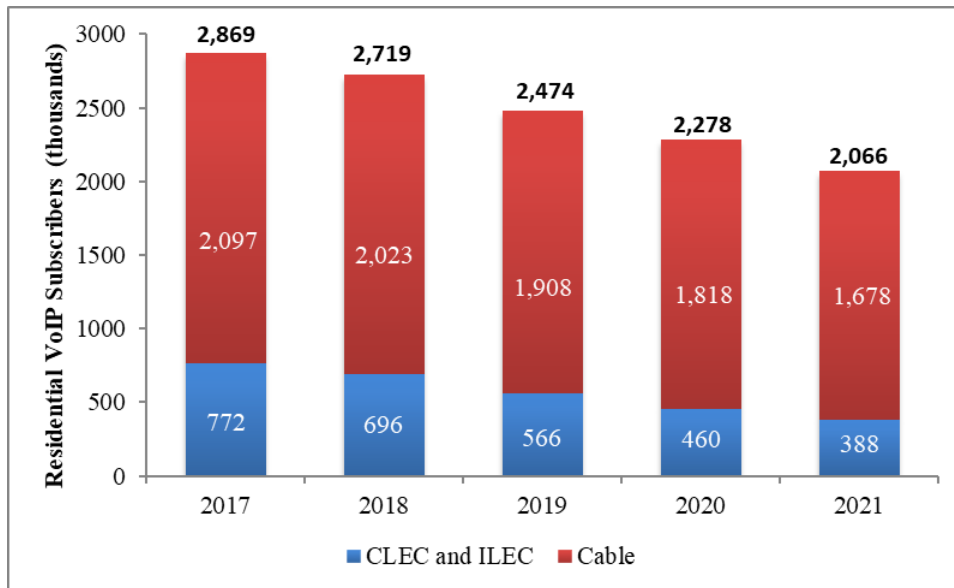
⁷⁶AT&T Inc., "2021 Annual Report 10-K," released February 25, 2021, <<https://otp.tools.investis.com/clients/us/atnt/SEC/secfiling.aspx?comingfrom=secshow>>, accessed on May 2, 2022.

⁷⁷FCC, "Voice Telephone Services: Status as of December 31, 2019," Table 1, released March 9, 2022, <<https://www.fcc.gov/voice-telephone-services-report>>, accessed on May 2, 2022.

⁷⁸FCC, "Voice Telephone Services Report, State-Level Subscriptions," Supplemental Table 1, Florida, released March 9, 2022, <<https://www.fcc.gov/voice-telephone-services-report>>, accessed on May 2, 2022.

⁷⁹Ibid.

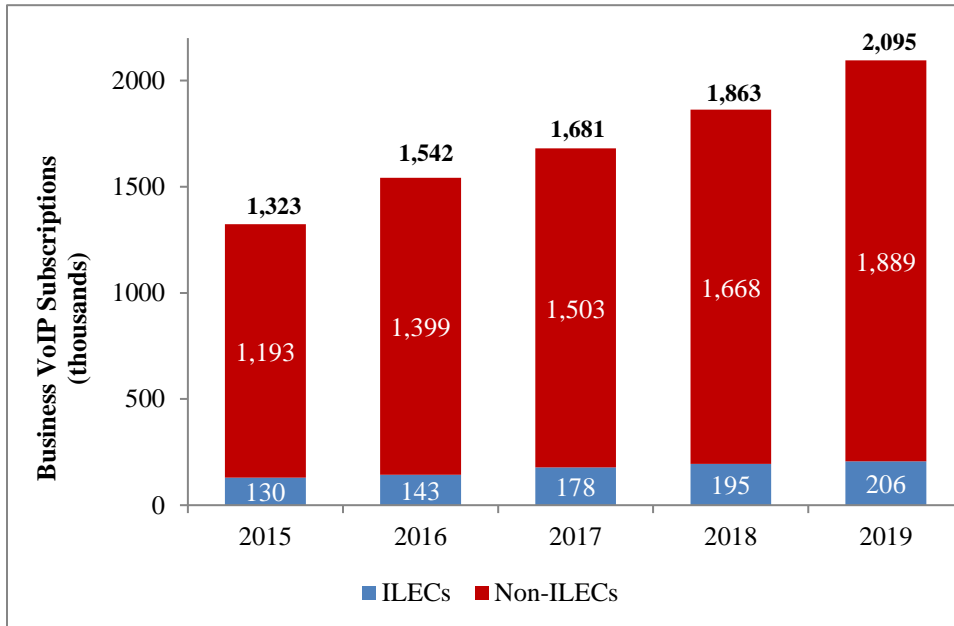
Figure 3-4
Florida Residential Interconnected VoIP Subscribers



Source: Responses to FPSC data requests (2016-2022)

While Florida’s residential VoIP market contracted over the past five years, its business VoIP market, continued to expand, at least through 2019. Figure 3-5 displays VoIP business subscribers by ILEC and non-ILEC carriers as reported by the FCC. Business VoIP growth lagged behind residential growth for several years as cable companies concentrated on the residential market, but as that market matured, they turned their attention towards business customers.

Figure 3-5
Florida Business Interconnected VoIP Subscribers



Source: FCC, Voice Telephone Services Report, December 2019, State Level Subscriptions

Chapter IV. Competitive Market Analysis & Statutory Issues

A. Statutory Issue – Competitive Providers

The ability of competitive providers to make functionally equivalent local exchange services available to both residential and business customers at competitive rates, terms, and conditions.

The data discussed in previous chapters suggests that competitive carriers are able to provide functionally equivalent services to residential and business customers at acceptable rates, terms, and conditions. As of June 16, 2022, 221 CLECs responded to the Local Competition Report data request. Several CLECs reported providing a number of services: local phone service (54), VoIP (92), broadband Internet access (68), video services (12), and bundled services (53).⁸⁰

In response to FPSC data request questions, the majority of CLECs reported no barriers to competition or elected not to respond. However, the companies that did report competitive concerns mentioned issues with the speed of how interconnection agreements are processed by ILEC carriers and the need to improve communications between the involved entities.⁸¹ We note that the CLECs have not filed any petitions with the Commission to address these issues. Some of these issues may be addressed by the FCC.

Conclusion: Dozens of competitors offered multiple combinations of services to attract customers. Also, subscriptions to wireline telephony decreased again in 2020, indicating consumer choice continues to be primarily wireless and VoIP services. Based on the multiple services offered by alternative providers and their significant market share, companies are offering functionally equivalent services to both business and residential customers.

B. Statutory Issue – Consumers

The ability of consumers to obtain functionally equivalent services at comparable rates, terms, and conditions.

If companies are making functionally equivalent services available at comparable rates, terms, and conditions, as concluded in the previous issue, this issue determines whether or not there are significant impediments to consumers obtaining those services. One of the best determinants of whether consumers can obtain alternative services is the degree to which they are actually subscribing to them in large numbers.

Since reaching a peak in the year 2000, total traditional access lines have declined by over 90 percent in Florida, even as the population has grown significantly. Given the importance of telecommunications service and the large decline in traditional access lines, consumers must be finding service elsewhere. Competitors have been successfully maintaining substantial and increasing shares in traditional access lines and other technologies, such as wireless and VoIP.

⁸⁰Responses to local competition data request 2022 as of June 16, 2022.

⁸¹Responses to local competition data request 2022.

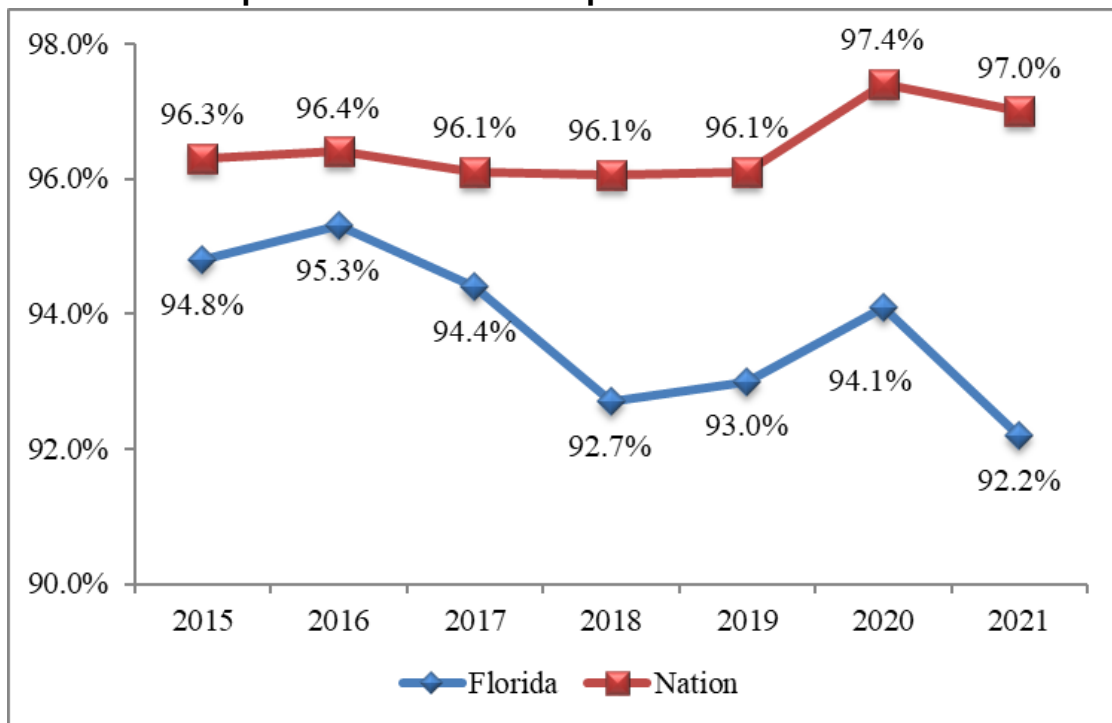
Conclusion: The ILEC wireline residential market share continues to increase; however, the traditional wireline market continues to decrease despite population growth. Increasing demand for service is being met by wireless subscription growth and VoIP. There are more wireless connections in Florida than people. The majority of consumers are choosing to obtain wireless and VoIP service from competitors. Given competitors’ substantial wireless and VoIP market shares, consumers are able to obtain functionally equivalent services at comparable rates, terms, and conditions.

C. Statutory Issue – Affordability & Reliability

The overall impact of competition on the maintenance of reasonably affordable and reliable high-quality telecommunications services.

In order to successfully compete in a free market, a business needs to provide equivalent value to consumers. The value of telecommunications service is most broadly determined by affordability and reliability. As shown in Figure 4-1, the average Florida household telephone subscription rate has averaged 93.8 percent over the last seven years.⁸² This high telephone subscription rate is not a recent occurrence; the average household telephone subscription rate has been 93.3 percent over the past 35 years.⁸³

**Figure 4-1
Telephone Service Subscription: Florida vs. Nation**



Source: FCC staff interviews

⁸²FCC staff, interview, April 4, 2022.

⁸³FCC staff, interviews (1986-2022).

Following the passage of the Florida Regulatory Reform Act in 2011, the FPSC no longer retains jurisdiction over telecommunications consumer complaints and holds no data on quality of service.⁸⁴ However, consumers freely choosing competitors for telecommunications service suggests that they view competitors' services as having reliability that is sufficiently comparable to ILEC service.

Conclusion: A competitive market requires comparable affordability and reliability of service. The vast majority of Florida households subscribe to telephone service. Consumers are willing and able to choose telecommunications service from competitors using a variety of technologies. Based on competitors' substantial market share and market pressures requiring comparable affordability and reliability, competition is having a positive effect on the maintenance of reasonably affordable, reliable telecommunications services.

D. Statutory Issue – Carrier Disputes

A listing and short description of any carrier disputes filed under Section 364.16, F.S.

Conclusion: There were no carrier disputes filed with the FPSC under Section 364.16, F.S., in 2021.

⁸⁴ Regulatory Reform Act, Ch. 36, 2011 Fla. Laws 1231.

Chapter V. State Activities

This chapter provides a summary of state activities affecting local telecommunications competition in 2021. The state activities discussed in this chapter are important in helping to gauge how well the market is functioning for Florida businesses and consumers.

A. Intercarrier Matters

Wholesale performance measurement plans provide a standard against which the Commission can monitor performance over time to detect and correct any degradation in the quality of service ILECs provide to CLECs. The Commission adopted performance measurements for AT&T in August 2001 (revised in 2010), for CenturyLink in January 2003 (revised in 2013 and 2016), and for Verizon in June 2003 (revised in 2007 and later adopted by Frontier). Trending analysis is applied to monthly performance measurement data provided by each ILEC.⁸⁵

AT&T is the only ILEC that is required to make payments to CLECs when certain performance measures do not comply with established standards and benchmarks. AT&T's current Performance Assessment Plan consists of 47 measurements; financial remedies are applied to 24 of these measures. In 2021, AT&T declared brief statewide force majeure events in February for Ordering and Billing measures, and also had COVID-19 declarations remaining from March 2020 for Maintenance and Repair and Provisioning measures persist until June 2021. AT&T paid \$131,998 in remedies in 2021, representing an increase of 45.2 percent from 2020.

On October 15, 2015, CenturyLink filed proposed revisions to its Performance Measurement Plan as a result of a negotiated settlement with the Nevada Public Utilities Commission. The revisions included revising reporting requirements from monthly to quarterly, eliminating several performance measures from the plan, and amending two measures. The proposal was approved for Florida by the Commission on February 15, 2016.⁸⁶ CenturyLink has reported no noncompliances since the revisions were adopted.

Frontier Communications completed its purchase of Verizon Florida's wireline operations in April 2016. In its role as a major ILEC, Frontier is responsible for a Performance Measurement Plan that includes 29 measures. In 2021, Frontier maintained an average monthly compliance rate of 84.2 percent. This result improved upon 2020's average monthly compliance rate of 83.1 percent.

The Commission processed a number of other telecommunications-related items in 2021. The Commission processed 76 service schedule and tariff filings, 66 interconnection agreements and amendments, 9 carrier certifications, 11 certificate cancellations, and 22 general inquiries/informal complaints.

⁸⁵FPSC Dockets: Nos. 20000121A-TP (AT&T), 20000121B-TP (CenturyLink), and 20000121C-TP (Frontier FL).

⁸⁶FPSC Order No. PSC-2016-0072-PAA-TP, Docket No. 20000121B-TP, Investigation into the establishment of operations support systems permanent performance measures for incumbent local exchange telecommunications companies (CenturyLink Florida Track), issued February 15, 2016, <<http://www.psc.state.fl.us/library/filings/2016/00858-2016/00858-2016.pdf>>, accessed on May 4, 2022.

B. Lifeline

In 2007, the FPSC established the Lifeline Electronic Coordinated Enrollment Process (Coordinated Enrollment) in conjunction with the Florida Department of Children and Families (DCF).⁸⁷ The Coordinated Enrollment process establishes a computer interface between the FPSC and DCF. Prior to 2020, prospective Lifeline customers applying for either the Supplemental Nutrition Assistance Program (SNAP) or Medicaid could automatically be enrolled in the Lifeline program. Customers opting to be enrolled in the Lifeline program would then be directed to choose an eligible telecommunications carrier (ETC) from which to receive Lifeline service. That customer's information would be uploaded to an FPSC database that is accessible by the relevant ETC.

This Coordinated Enrollment process can no longer directly enroll eligible consumers for the federal Lifeline program as a result of reforms by the FCC. Specifically, the FCC directed the Universal Service Administrative Company (USAC) to develop the National Lifeline Eligibility Verifier (National Verifier).⁸⁸ The purpose of the National Verifier is to determine initial subscriber eligibility, conduct annual recertification, populate a national database consisting of Lifeline customers, and provide support payments to providers serving these customers. On March 24, 2020, the National Verifier became the sole eligibility verification process for Florida Lifeline customers.⁸⁹

Following the adoption of the National Verifier, the Coordinated Enrollment database functionality has shifted. While DCF continues to populate the database with customer information, these customers are no longer deemed eligible at the time ETCs access this information. ETCs are now charged with contacting and directing their customers to apply for the Lifeline program with USAC before being able to provide Lifeline service to them.

Though consumers are encouraged to apply for the Lifeline program online through the National Verifier portal, ETCs have been instructed by USAC on how to assist customers applying for the National Verifier.⁹⁰ Upon completion of an application, and subsequent approval for the Lifeline program, customers are able to find a Lifeline service provider through USAC's "Companies

⁸⁷§ 364.10(g) (2), F.S.

⁸⁸FCC 16-38, WC Docket No. 11-42, WC Docket No. 09-197, WC Docket No. 10-90, Lifeline and Link Up Modernization, Telecommunications Carriers Eligible for Universal Service Support, Connect America Fund, Third Report and Order, FCC 16-38, released April 27, 2016, <<https://docs.fcc.gov/public/attachments/FCC-16-38A1.pdf>>, accessed on May 5, 2022.

⁸⁹Prior to the National Verifier's hard launch status in Florida, Lifeline customer eligibility verification was conducted by ETCs for qualifying program participation, and by the Florida Office of Public Counsel for income eligibility verification.

⁹⁰USAC, "National Verifier Application Portal," <<https://nationalverifier.servicenowservices.com/lifeline>>, accessed on May 5, 2022.

Near Me” tool.⁹¹ Consumers who wish to receive a paper application, or who do not have access to the internet, may call the Lifeline customer service hotline.⁹² Individuals who are disabled may request assistance in completing an application by phone using the same Lifeline customer service hotline.

Using SNAP participation as a proxy for Lifeline eligible households, as of June 2021 eligible households decreased by 12.5 percent, while enrollment of those households in the Lifeline program decreased by 26 percent from the prior year.⁹³ The decline in subscribership for this year is largely attributed to the decline in subscribership of one major ETC stemming from the expiration of Lifeline program rule waivers. Table 5-1 shows the Lifeline eligibility and participation rates in Florida for the last six years.⁹⁴

**Table 5-1
Florida Lifeline Eligibility and Participation Rate**

| Year | Lifeline Enrollment | Eligible Households | Participation Rate |
|-------------|----------------------------|----------------------------|---------------------------|
| Jun-16 | 852,255 | 1,747,684 | 48.76% |
| Jun-17 | 685,864 | 1,690,899 | 40.56% |
| Jun-18 | 694,647 | 1,655,134 | 41.97% |
| Jun-19 | 604,693 | 1,540,682 | 39.25% |
| Jun-20 | 371,180 | 2,151,503 | 17.25% |
| Jun-21 | 273,641 | 1,882,842 | 14.53% |

Source: Florida DCF, ACCESS Florida: Standard Data Reports

C. Telecommunications Relay Service

Telecommunications Relay Service (TRS) facilitates telephone calls between people with hearing loss or speech disabilities and other individuals by using special equipment and a communications assistance operator to relay information. Section 427.704, F.S., charges the Commission with overseeing the administration of a statewide telecommunications access

⁹¹USAC, “Companies Near Me Tool,” <<https://data.usac.org/publicreports/CompaniesNearMe/Download/Report>>, accessed on May 5,2022.

⁹²USAC, Lifeline Customer Service Hotline, 1 (800) 234-9473.

⁹³FPSC, “2021 Florida Lifeline Report,” released December 2021,<<http://www.psc.state.fl.us/Files/PDF/Publications/Reports/Telecommunication/LifelineReport/2021.pdf>>, Figure 3, accessed on May 5, 2022.

⁹⁴Ibid.

system which provides TRS. Funding for TRS in Florida is through a surcharge on telephone landlines. The current assessment rate is \$0.10 per line per month.⁹⁵

Relay services are currently provisioned under contract by Sprint Communications Company, L.P., a wholly-owned subsidiary of T-Mobile USA, Inc. (Sprint). On March 4, 2021, staff opened a docket to initiate a new Request for Proposals (RFP) to provide relay service in Florida.⁹⁶ On May 11, 2021, the FPSC issued a Request for Proposals for a new relay service contract beginning March 1, 2022. In response, Hamilton Relay and Sprint filed proposals. On October 12, 2021, the Commission approved staff's recommendation to select Sprint's proposal, based on staff's evaluation of technical, financial, and price elements.

⁹⁵The rate may not exceed \$.25 per landline.

⁹⁶ Docket No. 20210049-TP, Request for submission of proposals for relay service for the deaf, hard of hearing, deaf/blind, or speech impaired, and other implementation matters in compliance with the Florida Telecommunications Access System Act of 1991, <<http://www.floridapsc.com/ClerkOffice/DocketFiling?docket=20210049>>, accessed October 20, 2021.

Chapter VI. Federal Activities

A. Mergers and Acquisitions

Telecommunications carriers seeking to transfer assets or corporate control in mergers and acquisitions must first receive approval from the FCC, which examines the public interest impact of proposed mergers or acquisitions. In 2021, there were approximately 67 completed telecommunications mergers and acquisitions nationally. Recent transactions of interest to Florida are described below.

1. CenturyLink/Lumen Technologies

On September 14, 2020, CenturyLink announced it was rebranding itself as Lumen Technologies, Inc. (Lumen).⁹⁷ Lumen separated its business segments into three brands: Lumen, Quantum Fiber, and CenturyLink.⁹⁸ Lumen will focus on enterprise and wholesale markets. Quantum Fiber will provide fiber-based services to residential and small businesses. CenturyLink will continue to provide legacy copper-based services.

On August 3, 2021, Lumen announced it was selling twenty of its 36 U.S.-based, CenturyLink-branded ILEC service territories to Apollo Global Management for a total of \$7.5 billion. The divestiture included fiber, copper networks, tower site connections and central offices.⁹⁹ The Florida ILEC was not among the territories sold and will remain a CenturyLink-branded Lumen subsidiary.¹⁰⁰ The transaction is expected to close in the second half of 2022.¹⁰¹

2. Hargray of Tallahassee LLC, Hargray Long Distance & Metronet Systems, LLC

On December 13, 2021, Hargray of Tallahassee (HOT) and Low Country Carriers d/b/a Hargray Long Distance (LCC), both subsidiaries of Cable One, Inc., entered into an Asset Purchase and Contribution Agreement with MetroNet Systems, LLC (MetroNet). Under the terms of the

⁹⁷Lumen Technologies, Inc., “CenturyLink Transforms, Rebrands as Lumen,” September 14, 2020, <<https://ir.centurylink.com/news/news-details/2020/CenturyLink-Transforms-Rebrands-as-Lumen/default.aspx>>, accessed on April 6, 2022.

⁹⁸Lumen Technologies, Inc., “Form 10-K for the fiscal year ended December 31, 2021,” February 24, 2022, <<https://d18rn0p25nwr6d.cloudfront.net/CIK-0000018926/12795305-7ff0-4e6a-ba1f-e0f9335f51d8.pdf>>, accessed on April 6, 2022.

⁹⁹Catherine Sbeglia Nin, “Lumen sells CenturyLink ILEC assets to Appollo in \$7.5 billion deal,” *RCRWireless.com*, August 5, 2021, <<https://www.rcrwireless.com/20210805/business/lumen-sells-centurylink-ilec-assets-to-apollo-in-7-5-billion-deal>>, accessed on April 6, 2022.

¹⁰⁰Lumen is **selling** its ILEC network and assets in Alabama, Arkansas, Georgia, Illinois, Indiana, Kansas, Louisiana, Michigan, Mississippi, Missouri, New Jersey, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia and Wisconsin. Lumen is **retaining** its ILEC network and assets in Arizona, Colorado, Florida, Idaho, Iowa, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington and Wyoming. <<https://news.lumen.com/apollo-transaction-faqs>>, accessed on May 23, 2022.

¹⁰¹C. S. Nin.

agreement MetroNet will purchase certain assets and customers of HOT. As a result of the purchase, MetroNet will provide interstate and international telecommunication services to previous customers of HOT and LCC.¹⁰² HOT is currently a CLEC certificated by the FPSC. After the transfer, HOT will no longer be in operation and will cancel its Florida CLEC certificate.

3. Global Communication Networks, Inc. & UPSTACK GLOBAL LLC

On October 15, 2021, UPSTACK GLOBAL LLC (UPSTACK), and Global Communications Network, INC. (GCN) executed an Asset Purchase Agreement for UPSTACK to purchase all of the assets of GCN. GCN is a Florida-based corporation that offers resale broadband internet access and telecommunication services. UPSTACK is headquartered in New York; it offers services using network, datacenter and cloud technologies. UPSTACK will continue to provide telecommunication services to current GCN customers. The Joint Application to the FCC states that the proposed transfer of GCN's customer base to UPSTACK will have no adverse impact on GCN's existing customers. Current customers will continue to receive the same services at the same rates, terms and conditions.¹⁰³

4. Wholesale Carrier Service, Inc. & BCM One, Inc.

On February 23, 2021, BCM One, Inc. (BCM) and Wholesale Carrier Services, Inc. (WCS) entered a Share Purchase Agreement for BCM to acquire WCS. WCS is a Florida-based corporation that provides enterprise solutions and telecommunication services to businesses. WCS offers TDM, VoIP and data connectivity services. BCM is a telecommunications provider in New York that provides integrated technological solutions to help businesses increase connectivity efficiency. Both corporations are regulated by the FCC and FPSC.¹⁰⁴ Upon closing, BCM will continue to provide services to existing customers of WCS at the same rates, terms and conditions.¹⁰⁵

B. Broadband Deployment

The federal government has recognized there is no one-size-fits-all solution to delivering broadband service to rural areas. The 2021 Infrastructure Investment and Jobs Act (IIJA)

¹⁰²Domestic Section 214 Application Filed For The Transfer Of Control Of Hargray Of Florida, Inc., Hargray Of Georgia, Inc., And Delta Communications, L.L.C. To Newco, November 17, 2021, <<https://docs.fcc.gov/public/attachments/DA-21-1445A1.pdf>>, accessed on April 15, 2022.

¹⁰³FCC, Domestic Section 214 Application Filed For The Acquisition Of Assets Of Global Communication Networks, Inc. By UPSTACK GLOBAL LLC, November 16, 2021, <<https://docs.fcc.gov/public/attachments/DA-21-1438A1.pdf>>, accessed on April 15, 2022.

¹⁰⁴Ibid, footnote 8.

¹⁰⁵FCC, Domestic Section 214 Application Filed For The Transfer Of Control Of Wholesale Carrier Services, Inc. To Thompson Street Capital Partners V. L.P., March 17, 2021, <<https://docs.fcc.gov/public/attachments/DA-21-321A1.pdf>>, accessed on April 15, 2022.

allocates \$65 billion in broadband infrastructure investment, creating multiple programs that envision using many technologies including fiber, fixed wireless, and satellites.¹⁰⁶

Multiple federal agencies are responsible for broadband deployment and affordability programs through existing mechanisms as well as the IJA. The FCC is in charge of several programs, including the Rural Digital Opportunity Fund (RDOF), which will provide \$20.4 billion in support to providers nationally over ten years for unserved and underserved areas. The FCC initially awarded RDOF support of nearly \$192 million to 11 providers over ten years to provide service in Florida. More details about the status of that support may be found in the High Cost discussion under the Universal Service section of this chapter.¹⁰⁷

The FCC's Affordable Connectivity Program (ACP) was created from the Emergency Broadband Benefit Program with an allocation of \$14.2 billion from the IJA. The ACP provides a discount of up to \$30 per month toward internet service for eligible households and up to \$75 per month for households on qualifying Tribal lands. It also provides a one-time discount of up to \$100 to purchase a laptop, desktop computer, or tablet from participating providers.^{108,109} As of April 18, 2022, 820,345 households in Florida were enrolled in the ACP through 78 providers offering mobile and/or fixed broadband access.¹¹⁰ The FCC has also implemented COVID-19 related programs such as the Connected Care Pilot Program, COVID-19 Telehealth Program, and the Emergency Connectivity Fund.

NTIA has been charged by the IJA with administering nearly a dozen different broadband deployment programs. These programs will invest over \$47 billion in broadband infrastructure.^{111,112,113}

¹⁰⁶117th Congress (2021-2022), "H.R.3684 - Infrastructure Investment and Jobs Act," November 15, 2021, <<https://www.congress.gov/bill/117th-congress/house-bill/3684>>, accessed on June 23, 2022.

¹⁰⁷FCC, Auction 904: Rural Digital Opportunity Fund, updated April 15, 2022, <<https://www.fcc.gov/auction/904>>, accessed on April 20, 2022.

¹⁰⁸FCC, "FCC Launches Affordable Connectivity Program," released December 31, 2021, <<https://www.fcc.gov/document/fcc-launches-affordable-connectivity-program>>, accessed on April 13, 2022.

¹⁰⁹FCC, "FCC Adopts Rules To Implement Affordable Connectivity Program," released January 14, 2022, <<https://www.fcc.gov/document/fcc-adopts-rules-implement-affordable-connectivity-program>>, accessed on April 13, 2022.

¹¹⁰ USAC, ACP Enrollment and Claims Tracker, updated April 18, 2022, <<https://www.usac.org/about/affordable-connectivity-program/acp-enrollment-and-claims-tracker/>>, accessed on April 20, 2022.

¹¹¹NTIA, "Commerce Department's NTIA Announces \$288 Million in Funding Available to States to Build Broadband Infrastructure," released May 19, 2021, <<https://www.ntia.doc.gov/press-release/2021/commerce-department-s-ntia-announces-288-million-funding-available-states-build>>, accessed on April 13, 2022.

¹¹²NTIA, Connecting Minority Communities Pilot Program, updated December 2, 2021, <<https://www.ntia.doc.gov/press-release/2021/commerce-department-s-ntia-announces-288-million-funding-available-states-build>>, accessed on April 20, 2022.

¹¹³NTIA, "NTIA's Role in Implementing the Broadband Provisions of the 2021 Infrastructure Investment and Jobs Act," released November 16, 2021, <<https://broadbandusa.ntia.doc.gov/news/latest-news/ntias-role-implementing-broadband-provisions-2021-infrastructure-investment-and>>, accessed on April 13, 2022.

The Rural Utilities Service of the United States Department of Agriculture maintains several programs for broadband deployment, including the Community Connect Grant Program (\$35 million in 2021), the Rural Broadband Loan and Loan Guarantee Program (over \$11 million in 2021), and the Rural eConnectivity Program (\$1.15 billion available in 2021).¹¹⁴

C. Universal Service

Universal service is the policy that seeks to ensure all Americans have access to communications services through a series of financial support programs. The federal Universal Service Fund (USF) supports the budgets of universal service programs. The USF is funded by telecommunications providers based on an assessment of interstate and international revenues. Carriers are allowed by federal rules to pass these costs on to their customers through their bills.

In general, Florida consumers pay more into the USF than what is returned to eligible service providers in Florida.¹¹⁵ For 2021, only consumers in California and New York were larger net contributors than consumers in Florida. The FPSC monitors and participates in ongoing proceedings at the FCC and with the Federal-State Joint Board on Universal Service. The FCC and USAC publish annually the incoming contributions to as well as the outgoing payments from the fund. This data is generally about one year in arrears, so the most current data for this report is through December 2020. Table 6-1 shows Florida's estimated contribution and receipts for 2020 and provides a comparison of net contributions for 2018 and 2019. The total estimated consumer contribution for 2020 includes approximately \$11 million related to USAC's administrative expense.

¹¹⁴USDA Rural Development, Telecom Programs, <<https://www.rd.usda.gov/programs-services/telecommunications-programs>>, accessed on April 20, 2022.

¹¹⁵FCC, "Universal Service Monitoring Report-2021," released January 14, 2022, <<https://docs.fcc.gov/public/attachments/DOC-379181A1.pdf>>, accessed on May 6, 2022.

Table 6-1
Federal Universal Service Payments and Contributions in Florida
(Thousands of Dollars)

| | 2018 | 2019 | 2020 | | |
|---------------------|---------------|---------------|----------------------------|-------------------------|---------------|
| | Estimated Net | Estimated Net | Service Providers Payments | Estimated Contributions | Estimated Net |
| High-Cost | (230,036) | (249,610) | 41,420 | (289,718) | (248,298) |
| Low Income | \$11,342 | 2,486 | 39,875 | (48,853) | (8,978) |
| Schools & Libraries | (42,707) | (37,729) | 85,951 | (117,876) | (31,925) |
| Rural Health Care | (13,412) | (9,705) | 4,795 | (17,050) | (12,255) |
| Admin. Expense | (12,088) | (11,233) | | (11,648) | (11,648) |
| Total | (\$286,901) | (\$305,791) | 172,041 | (485,145) | (313,104) |

Source: FCC Universal Service Monitoring Report, various years, Table 1.9

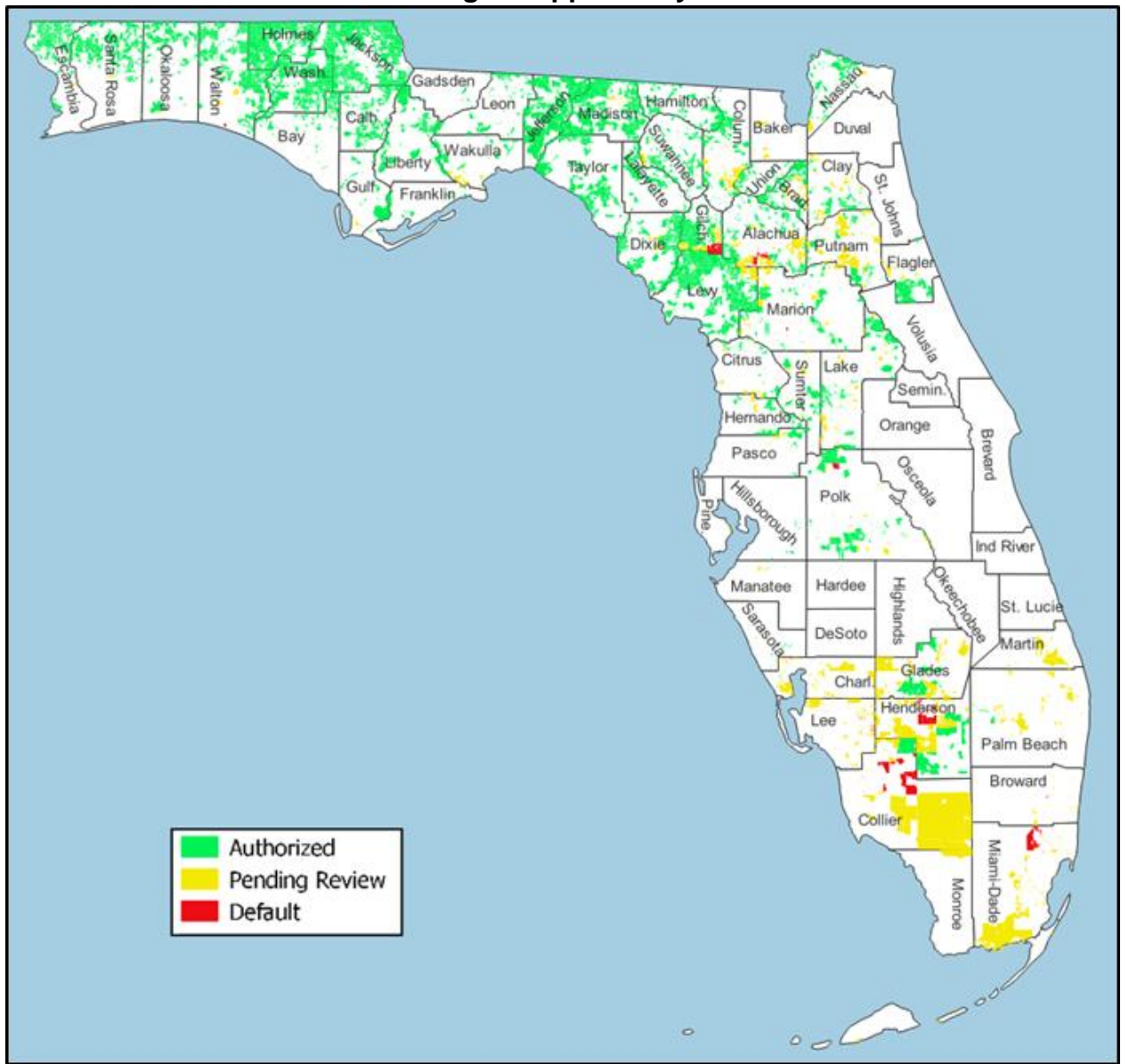
1. High Cost

Since 2011, the FCC has been modernizing the federal high-cost programs to maintain voice services and extend broadband capable infrastructure.¹¹⁶ On January 30, 2020, the FCC adopted a Report and Order establishing the framework for the \$20.4 billion Rural Digital Opportunity Fund (RDOF) to bring high speed fixed broadband service to rural homes and small businesses, using reverse auctions in two phases.

The Phase I auction will target over six million homes and businesses in census blocks that are entirely unserved by voice and broadband with download speeds of at least 25 Mbps. The RDOF is structured to prioritize higher network speeds and lower latency. Figure 6-1 provides a map identifying areas in Florida eligible for Phase I RDOF support.

¹¹⁶FCC 11-161, WC Docket No. 10-90, Connect America Fund, Report and Order and Further Notice of Proposed Rulemaking, released November 18, 2011, <<https://docs.fcc.gov/public/attachments/FCC-11-161A1.pdf>>, accessed on May 6, 2022.

Figure 6-1
Areas in Florida Eligible for Phase I
Rural Digital Opportunity Fund



Source: FCC, US Census Bureau Shapefile

Seven providers in Florida have been authorized by the FCC to receive RDOF support of over \$152.1 million over ten years.¹¹⁷ The FCC decision on RDOF support of \$33.6 million over ten

¹¹⁷Designated by the FCC as “authorized” include: Bright House Network Information Services, Conexon Connect LLC, Consolidated Communications of Florida Company, Embarq Florida, Inc., Frontier Florida LLC, Mediacom Wireless of Florida LLC, and Windstream Florida LLC.

years for StarLink remains pending.¹¹⁸ Default areas will not receive RDOF funding in Phase I. Phase II will cover locations in census blocks that are partially served, as well as locations not funded in Phase I.

2. Schools and Libraries

The schools and libraries support program, commonly known as the E-Rate Program, provides financial support to eligible schools and libraries for connectivity. The discounts range from 20 percent to 90 percent of the costs of eligible services, depending on the level of poverty and whether the school or library is located in an urban or rural area. The E-Rate program has two funding categories that support schools and libraries. Category One provides connectivity to schools and libraries (e.g. access lines, broadband connections, etc.) and Category Two provides connectivity for services within schools and libraries (e.g. routers, servers, etc.).

3. Low Income

The Lifeline program provides a monthly discount on phone or broadband service for qualifying low-income consumers. The FCC reformed the Lifeline program in 2016 to transition to a more broadband-focused program.^{119,120}

The FCC's 2016 reforms included a phase-down of federal support for voice-only services. On December 1, 2019, the support provided for voice-only services was reduced to \$7.25 per Lifeline customer. Support for voice-only Lifeline service was originally scheduled to be completely phased out on December 1, 2021. However, on November 5, 2021, and again on July 1, 2022, the FCC released an orders that delayed the complete phase-out of voice-only Lifeline service support until December 1, 2023.¹²¹ Broadband services that include a voice component will continue to be eligible to receive Lifeline support after the new phase-out date. Table 6-2 outlines the FCC's revised phase-down schedule.

¹¹⁸FCC, Auction 904: Rural Digital Opportunity Fund, updated April 15, 2022, <<https://www.fcc.gov/auction/904>>, accessed on April 20, 2022.

¹¹⁹FCC 16-38, WC Docket No. 11-42, WC Docket No. 09-197, WC Docket No. 10-90, Lifeline and Link Up Modernization, Telecommunications Carriers Eligible for Universal Service Support, Connect America Fund, Third Report and Order, Further Report and Order, and Order on Reconsideration, released April 27, 2016, <<https://docs.fcc.gov/public/attachments/FCC-16-38A1.pdf>>, accessed on June 11, 2021.

¹²⁰USAC, "Universal Service Administrative Company 2020 Annual Report," <https://www.usac.org/wp-content/uploads/about/documents/annual-reports/2020/USAC_Annual_Report_2020.pdf>, page 5, accessed on June 8, 2021.

¹²¹FCC DA 21-1389, WC Docket No. 11-42, Lifeline and Link Up Reform and Modernization, order, released November 5, 2021, <<https://docs.fcc.gov/public/attachments/DA-21-1389A1.pdf>>, accessed on May 5, 2022; FCC DA 22-706, WC Docket No. 11-42, Lifeline and Link Up Reform and Modernization, order, released July 1, 2022, <<https://docs.fcc.gov/public/attachments/DA-22-706A1.pdf>>, accessed on July 11, 2022.

**Table 6-2
Lifeline Support Phase Down Schedule**

| Effective Dates | Fixed Voice | Mobile Voice | Fixed Broadband | Mobile Broadband |
|--------------------------|--------------------|---------------------|------------------------|-------------------------|
| Through 11/30/20 | \$7.25 | \$7.25 | \$9.25 | \$9.25 |
| From 12/1/20 to 11/30/23 | \$5.25 | \$5.25 | \$9.25 | \$9.25 |
| After 11/30/23 | 0 | 0 | \$9.25 | \$9.25 |

Source: FCC 2016 Lifeline Modernization Order (FCC 16-38) and 2022 Phase Down Pause order (DA 22-706)

4. Rural Health Care

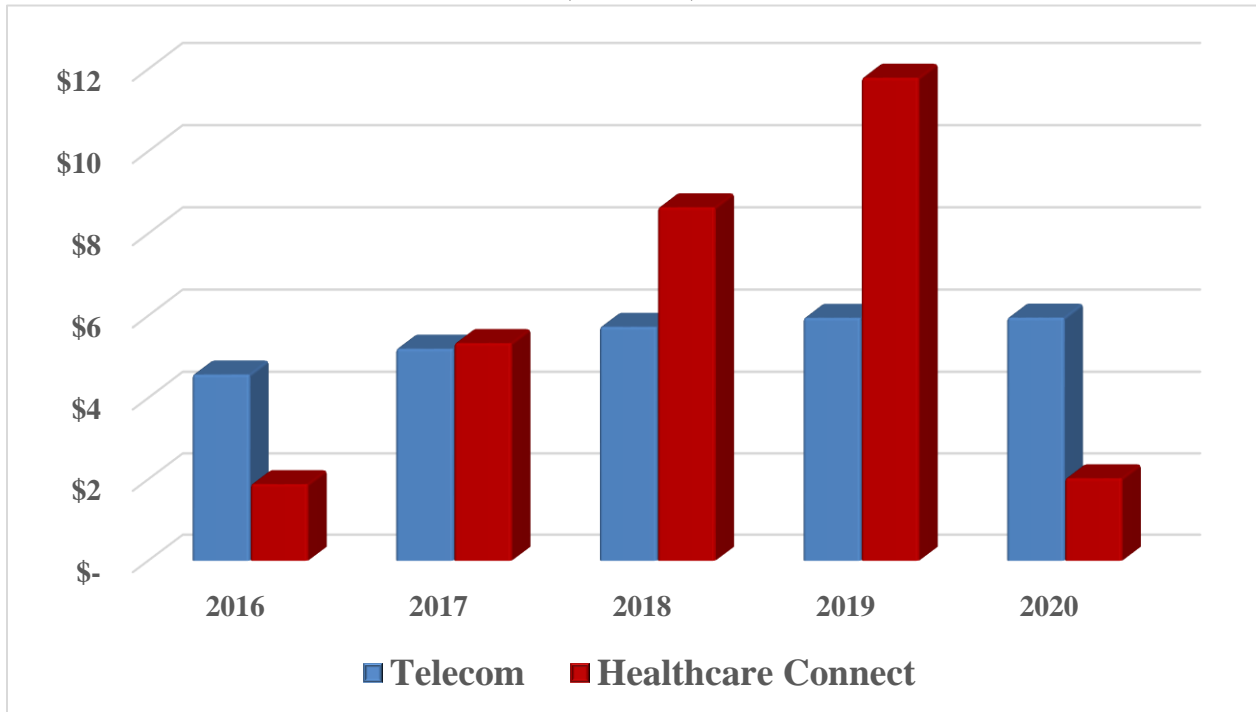
The goal of the Rural Health Care (RHC) Program is to ensure the affordability of telehealth services in rural communities to promote healthcare in underserved and hard to reach geographic areas. To achieve these goals, the RHC Program provides funding to eligible rural healthcare providers for broadband and telecommunications services.¹²² Funding is distributed through two programs: the Telecommunications Program and the Healthcare Connect Fund Program.

The Telecommunications Program subsidizes the difference between urban and rural rates for telecommunications services. By comparison, the Healthcare Connect Fund Program promotes the use of broadband services by providing a flat 65% discount on an array of communications services to both individual rural healthcare providers and any related healthcare consortia.¹²³ Figure 6-4 illustrates a comparison of the amounts disbursed for funding years 2016-2020 (the latest data years available) by each program in the state of Florida.

¹²²USAC, “2020 Annual Report,” <https://www.usac.org/wp-content/uploads/about/documents/annual-reports/2020/USAC_Annual_Report_2020.pdf>, page 16, accessed on June 11, 2021.

¹²³FCC, “Universal Service Monitoring Report - 2020,” <<https://docs.fcc.gov/public/attachments/DOC-369262A1.pdf>>, accessed on June 11, 2021.

Figure 6-2
Rural Health Care Funding Disbursements for Florida by Program
(In Millions)



Source: Universal Service Monitoring Report

D. Public Safety

Florida has faced numerous public safety challenges in the use of its telecom networks.

1. COVID-19

The increase in the use of telework, telemedicine, remote learning, and other network applications caused by COVID-19 has highlighted the importance of internet access. In response, the federal government has provided extensive support for broadband connectivity.

- ◆ The FCC’s Connected Care Pilot Program will provide up to \$100 million from the Universal Service Fund over a three-year period to selected applicants to support the provision of connected care telehealth services; in Florida, the FCC awarded over \$1.5 million to two projects in 2021.¹²⁴

¹²⁴FCC, Connected Care Pilot Program, updated March 21, 2022, <<https://www.fcc.gov/wireline-competition/telecommunications-access-policy-division/connected-care-pilot-program>>, accessed April 21, 2022.

- ◆ The FCC’s COVID-19 Telehealth Program supports telecommunications services, information services, and connected devices necessary to enable telehealth during the COVID-19 pandemic; in the final round of support in 2021 and 2022, the FCC awarded over \$16.4 million in support of 28 telehealth projects in Florida.¹²⁵
- ◆ The FCC's Emergency Connectivity Fund is a \$7.17 billion program that will help schools and libraries provide the tools and services their communities need for remote learning during the COVID-19 emergency period. In Florida, the FCC provided a total of over \$226 million to 377 schools, school districts, libraries, library systems and consortia during first two application windows in 2021 and 2022.¹²⁶

In addition to these programs, the FCC has also extended multiple waivers for compliance with Lifeline Program rules and Telecommunications Relay Service rules to June 30, 2022.^{127,128}

2. Emergency Response

The FCC has taken various steps to ensure efficient emergency response. On September 30, 2021, the FCC proposed rules to improve the reliability of communications networks when disasters strike by promoting resilient communications and situational awareness during disasters through roaming agreements, mutual aid, and other measures under the existing Wireless Network Resiliency Cooperative Framework. The proposed rules also seek comment on improving backup power availability at key communications sites, enhancing coordination between communications providers and power companies, and other measures to reduce power-related disruptions.¹²⁹

¹²⁵FCC, COVID-19 Telehealth Program (Invoices & Reimbursements), updated March 14, 2022, <<https://www.fcc.gov/covid-19-telehealth-program-invoices-reimbursements>>, accessed on April 21, 2022.

¹²⁶FCC, Emergency Connectivity Fund, updated April 19, 2022, <<https://www.fcc.gov/emergency-connectivity-fund>>, accessed on April 21, 2022.

¹²⁷FCC, “WCB Extends Prior COVID Lifeline Program Waivers to June 30, 2022,” released March 25, 2022, <<https://www.fcc.gov/document/wcb-extends-prior-covid-lifeline-program-waivers-june-30-2022>>, accessed on April 13, 2022.

¹²⁸FCC, “TRS COVID-19 Waivers Extended through June 30, 2022,” released March 25, 2022, <<https://www.fcc.gov/document/trs-covid-19-waivers-extended-through-june-30-2022>>, accessed on April 13, 2022.

¹²⁹FCC, “FCC Acts to Improve Communications Reliability During Disasters,” released September 30, 2021, <<https://www.fcc.gov/document/fcc-acts-improve-communications-reliability-during-disasters>>, accessed on April 14, 2022.

Appendix - List of Certificated CLECs as of 12/31/2021

** Indicates the company did not respond to the Commission's data request

Access One, Inc.
ACN Communication Services, LLC
Airespring, Inc.
Airus, Inc.
Altaworx LLC
American Dark Fiber, LLC
American Telephone Company LLC
ANEW Broadband, Inc.
ANPI Business, LLC
AT&T Corp.
AT&T Florida
ATC Outdoor DAS, LLC
Atlantic Broadband Enterprise, LLC
Atlantis Communications LLC
ATN, Inc.
Bandwidth.com CLEC, LLC
Barr Tell USA, Inc.
Batchlink, Inc.
BCM One, Inc.
BCN Telecom, Inc.
BeCru
BetterWorld Telecom
Branch Communications, LLC
Bright House Networks Information Services (Florida), LLC
Broadband Dynamics, L.L.C.
BroadRiver Communication Corporation
Broadsmart Florida, Inc.
Broadview Networks, Inc.
Broadvox-CLEC, LLC
Broadwing Communications, LLC
BT Communications Sales LLC
BullsEye Telecom, Inc.
Business Telecom, LLC
C3
Call One Inc. of Illinois
Callis Communications, Inc.
Campus Communications Group, Inc.
CBTS Technology Solutions LLC
**Citadel Design & Construction, LLC
City Communications, Inc
City of Bartow
City of Lakeland
City of Ocala
Clear Rate Communications, Inc.
Cogent Communications of Florida
Comcast Business Communications, LLC
Comcast Digital Phone
Communications Authority, Inc
ComNet (USA) LLC
**Compu-Design USA Inc. dba Dade Institute of
Technology
Comtech21, LLC
Consolidated Communications Enterprise
Services, Inc.
Conterra Ultra Broadband, LLC
Convergia, Inc.
CoreTel Florida, Inc.
Cox Florida Telecom, L.P.
CREXENDO BUSINESS SOLUTIONS, INC.
Crosstel Tandem, Inc.
Crown Castle Fiber LLC
Custom Network Solutions, Inc.
Custom Tel, LLC
Dais Communications, LLC
Data Stream Telecom of Florida Inc.
DeltaCom LLC
Discount CLEC Services Corporation
dishNET Wireline L.L.C.
DSCI, LLC
Easton Telecom Services, L.L.C.
Easy Telephone Services Company
Embarq Communications
ENA Services, LLC
eNetworks NC, LLC
ENGAGE COMMUNICATIONS
Enhanced Communications Network, Inc.
Entelegant Solutions, Inc.
ExteNet Asset Entity, LLC
ExteNet Systems, Inc.
Faster.IO, Inc.
FiberLight, LLC
First Choice Technology, Inc.
First Communications, LLC
FL Network Transport, LLC
Florida Phone Systems, Inc.
FPUAnet Communications
France Telecom Corporate Solutions L.L.C.
Frontier Communications of America, Inc.
Frontier Florida LLC
Fusion
Fusion Cloud Services, LLC

Fusion Communications, LLC d/b/a Fusion
 Communication Services, LLC
 Georgia Public Web, Inc.
 GetGo Communications LLC
 GIGAMONSTER NETWORKS, LLC
 Global Capacity
 Global Crossing Local Services, Inc.
 Granite Telecommunications, LLC
 Great America Networks, Inc.
 GRU Communication Services/GRUCom/GRU
 GRUCom
 Harbor Communications, LLC
 Hargray of Florida, Inc.
 Hayes E-Government Resources, Inc.
 HD Carrier, LLC
 HFA of Florida LLC
 Home Town Telephone, LLC
 Hotwire Communications, Ltd.
 Hudson Fiber Network Inc
 IDT America, Corp.
 inContact, Inc.
 Indigital
 INNOVATIVE TECH PROS
 **Integrated Path Communications, LLC
 InteleTel, LLC
 Intellectrace, Inc.
 Intellifiber Networks, LLC
 Interactive Services Network, Inc.
 InterGlobe Communications, Inc.
 InterMetro Fiber, LLC
 Intrado Communications, LLC
 Intrado Safety Communications, Inc.
 IPC Network Services, Inc.
 ITS Fiber
 ITS Fiber
 JEA
 Joytel Wireless Communications, Inc.
 Keys Energy Services
 Level 3 Communications, LLC
 Level 3 Telecom of Florida, LP
 Light Source Communications, LLC
 **Lightspeed CLEC, Inc.
 Litestream Holdings, LLC
 Luxury Telecommunications LLC d/b/a Luxury
 Telecommunications
 Magna5 LLC
 Maryland TeleCommunication Systems, Inc.
 MassComm, LLC
 MasTec Network Solutions, LLC
 Matrix Telecom, LLC
 MCC Telephony of Florida, LLC

McLeodUSA Telecommunications Services, L.L.C.
 MetroNet
 MetTel
 Micro-Comm, Inc.
 MIX Networks, Inc.
 Mobilitie Management, LLC
 Mobilitie, LLC
 MOSAIC NETWORKX LLC
 MULTIPHONER LATIN AMERICA, INC.
 Myakka Communications, Inc.
 Nebula Telecommunications of Florida LLC
 Netsync Fiber Inc
 Network Innovations, Inc.
 Network Telephone, LLC
 Neutral Tandem-Florida, LLC
 New Horizons Communications Corp.
 NextCity Networks, LLC
 NGA 911, L.L.C.
 **Norstar Telecommunications, LLC
 NOS Communications, Inc.
 One Voice Communications, Inc.
 Onvoy, LLC
 **Opextel LLC d/b/a Alodiga
 PacOptic Networks, LLC
 PaeTec Communications, LLC
 PBX-Change
 PeakNet, LLC
 Peerless Network of Florida, LLC
 Phone Club Corporation
 Pioneer Telephone
 PowerNet Global Communications
 Preferred Long Distance, Inc.
 QCSTelecom, Inc.
 QuantumShift Communications, Inc.
 RCLEC, Inc.
 **Reddot Networks Inc.
 SanTel Communications
 SBA DAS & Small Cells, LLC
 Seminole Telecom of Florida, LLC
 **SH Services LLC
 Simwood Inc.
 **SKYNET360, LLC
 Smart Choice Communications, LLC
 Smart City Communications
 Smart City Networks, Limited Partnership
 Smart City Solutions II, LLC
 Southeastern Services, Inc.
 Southern Light, LLC
 Southern Light, LLC
 Southern Telecom

**Spectrum Fiberlink Florida, LLC
Sprint Communications Company Limited
Partnership
SQF, LLC
Stanley Utility Contractor, Inc.
Stratus Networks, Inc.
Summit Broadband
Synergem Technologies, Inc.
T3 Communications, Inc.
Talk America Services, LLC
TALKIE COMMUNICATIONS, INC.
Telco Experts, LLC
TelCove Operations, LLC
Telepak Networks, Inc.
Teleport Communications America, LLC
Teliix, Inc.
Telrite Corporation
**Tel-Star Communications of Florida Inc.
Terra Nova Telecom, Inc.
TerraNovaNet, Inc.
The Other Phone Company LLC
TIME CLOCK SOLUTIONS, LLC
Time Warner Cable Business LLC
Tone Communication Services LLC
TotalComUSA
Touch Base Communications
Touchtone Communications Inc. of Delaware
**Tristar Communications Corp.
Triton Networks LLC
United Commercial Telecom, LLC
Uniti Fiber LLC

Uniti National LLC
US LEC of Florida, LLC
US Signal Company, L.L.C.
USA FIBER
Vanco US, LLC
**Vector Axis Florida LLC
Velocity, A Managed Services Company, Inc.
Verizon Access Transmission Services
Verizon Select Services Inc.
Vero Networks
Vesta Solutions, Inc.
VoDa Networks, Inc.
Vodafone US Inc.
Voxbeam Telecommunications Inc.
WANRack, LLC
Webpass Florida LLC
Wholesale Carrier Services, Inc.
Wide Voice, LLC
WiMacTel, Inc.
Windstream KDL, LLC
Windstream New Edge, LLC
Windstream Norlight, LLC
Windstream NuVox, LLC
Windstream Talk America, LLC
**WonderLink Communications, LLC
WOW! Internet, Cable and Phone
XO Communications
YMax Communications Corp.
Zayo Group, LLC

Glossary

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| 5G | 5G is the short name for fifth-generation wireless broadband technology. 5G provides higher bandwidth, faster speeds and coverage than the current 4G. 5G offers speeds of up to 1 Gb/s for tens of connections or tens of Mb/s for tens of thousands of connections. |
| Access Line | The circuit or channel between the demarcation point at the customer's premises and the serving end or class 5 central office. |
| Broadband | A term describing evolving digital technologies offering consumers integrated access to voice, high-speed data, video on demand, and interactive information delivery services. |
| C-Band | The electromagnetic radio spectrum between 4GHz and 8GHz. Specifically, 3.7-3.98GHz is being used to transmit 5G cellular data. |
| Circuit | A fully operational two-way communications path. |
| CLEC | <i>Competitive Local Exchange Company</i> . Any company certificated by the Florida Public Service Commission to provide local exchange telecommunications service in Florida on or after July 1, 1995. |
| Communications Act, 1996 Act or The Act | The federal Communications Act of 1934, as amended by the Telecommunications Act of 1996, established a national framework to enable CLECs to enter the local telecommunications marketplace. |
| Facilities-based VoIP service | VoIP service provided by the same company that provides the customer's broadband connection. Facilities-based VoIP services are generally provided over private managed networks and are capable of being provided according to most telephone standards. While this service uses Internet Protocol for its transmission, it is not generally provided over the public Internet. |
| Fixed Wireless Access (FWA) | Wireless broadband Internet service provided through stationary customer premise equipment that connects to a cellular network. |
| ILEC | <i>Incumbent Local Exchange Company</i> . Any company certificated by the FPSC to provide local exchange telecommunications service in Florida on or before June 30, 1995. |
| Interconnected VoIP service | According to the FCC, it is a VoIP service that (1) enables real-time, two-way voice communications; (2) requires a broadband connection from the user's location; (3) requires Internet protocol-compatible customer premises equipment; and (4) permits users generally to receive calls that originate and terminate on the public switched telephone network. |

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| Intermodal | The use of more than one type of technology or carrier to transport telecommunications services from origination to termination. When referring to local competition, intermodal refers to non-wireline voice communications such as wireless or VoIP. |
| Internet Protocol (IP) | The standards that keep the Internet functioning. It describes software that tracks the Internet address of nodes, routes outgoing messages, and recognizes incoming messages. |
| Millimeter Wave (mmWave) | The band of electromagnetic radio frequency spectrum with wavelengths between 10 millimeters (30GHz) and 1 millimeter (300GHz) and are often associated with 5G deployments. mmWave signals are capable of high bandwidth transmission, but are limited to relatively short range, line-of-sight applications vs. longer range Wi-Fi (2.4GHz, 5GHz, 6GHz) and cellular (2.5-3.7GHz, 600MHz-700MHz) networks. |
| Over-the-Top VoIP service | VoIP service that is provided independently from a particular broadband connection and is transmitted via the public Internet. |
| Switched Access | Local exchange telecommunications company-provided exchange access services that offer switched interconnections between local telephone subscribers and long distance or other companies. |
| Time Division Multiplexing (TDM) | A method of transmitting and receiving independent signals over a common signal path. TDM circuit switched lines represent the traditional wireline access line data within this report and do not include VoIP connections. |
| Universal Service Fund | Provides compensation to communications entities for providing access to telecommunications services at reasonable and affordable rates throughout the country, including rural, insular, high-cost areas, and public institutions. |
| Universal Service Administrative Company (USAC) | An independent American nonprofit corporation designated as the administrator of the federal Universal Service Fund by the Federal Communications Commission. USAC is a subsidiary of the National Exchange Carrier Association. |
| Voice over Internet Protocol (VoIP) | The technology used to transmit voice conversations over a data network using Internet Protocol. |
| Wireline | Synonymous with “landline” or land-based technology for providing telephone service. |