

EXECUTIVE SUMMARY

I. Introduction

Since the break-up of AT&T 25 years ago, the communications industry has experienced dramatic change with the introduction of competition in the marketplace and the rapid development of technological innovation. Federal and state regulatory agencies have carefully managed oversight policies to encourage the continued development of competitive and efficient markets that welcome the entry of new technologies while also maintaining consumer safeguards. The Department of Telecommunications and Cable (DTC) is the state agency charged with regulating the telecommunications and cable industries in Massachusetts. This “Competition Status Report” (Report), the first of its kind issued by the DTC, is intended to provide consumers, industry, and government entities, among others, with an informational snapshot of telecommunications and cable competition throughout Massachusetts.¹ In some ways, this Report serves as a benchmark of the competitive nature of the marketplace, and lays the foundation for future reports to more thoroughly examine the benefits generated by competition and the challenges that remain ahead.

The DTC’s mission is to:

- 1. Regulate the telecommunications and cable industries** in accordance with statutory obligations imposed by the Commonwealth of Massachusetts and the federal government;
- 2. Ensure** consumers receive **high quality communications at just and reasonable rates**;
- 3. Promote sustainable competition** which will increase consumer welfare for all Massachusetts residents;
- 4. Maintain and enforce consumer protections**, consistent with the public interest, particularly where market forces alone are not sufficient to do so, including investigating and responding to inquiries and complaints from consumers and carriers; and
- 5. Provide expert input** into the development of telecommunications-related policies **for the State**.

A. Purpose

The primary purposes of the Report are to:

- evaluate competition for traditional wireline telephone (voice) and cable television (video) services;
- discuss the mass market emergence of wireless voice service;
- establish a baseline for comparison of trends in the communications industry;
- more fully understand statewide and regional differences in availability and use of telecommunication services, as well as the differences between the residential and small-to-medium business (SMB) markets; and
- identify any competitive or consumer issues that may require regulatory solutions.

The Report examines residential users of both voice and video services and SMB users of voice services. The Report does not consider internet access services, such as broadband, because the DTC does not regulate or oversee these services, and their study is more properly conducted by the Massachusetts Broadband Institute.

¹ The Report also satisfies a newly-adopted statutory reporting requirement contained in M.G.L. c. 25C §6, adopted in 2008, that requires the DTC to report on the condition of the telecommunications industry and make policy recommendations as necessary.

The Report also excludes large business voice and data customers because their purchases are typically highly individualized and well-informed by commercial market research.

B. Measuring Competition

The Report uses three dimensions to measure the extent of competition:

- **Availability** of choices: for any customer, choice may range from non-existent to robust, depending on how many different networks reach the home or business.
- **Adoption** of services: if alternatives are available but not widely taken up by users, competition is not as robust as availability alone would indicate. Factors affecting adoption include pricing, quality, and marketing. Time in the market also affects adoption. A new service may be potentially highly competitive but show little adoption until customers migrate to it. Information available to the DTC concerning these adoption factors was limited, therefore the Report's adoption analysis is restricted to subscriber counts.²
- **Geography**: because statewide averages often mask important variations across Massachusetts, the Report analyzes availability and adoption results for seven different regions identified in economic reports published by the University of Massachusetts Donahue Institute: (1) Berkshire, (2) Pioneer Valley, (3) Central, (4) Northeast, (5) Boston Metro, (6) Southeast, and (7) Cape and Islands (see, for example, Figure 1 below). This breakout assesses the level of competition separately for each area to better understand regional disparities.

Through the Report, the DTC offers previously unavailable public information about the status of competition in the telephone and cable television markets in Massachusetts. However, given the defined scope of the Report, and the limitations in the availability of data, the Report only examines part of the competitive equation by identifying the voice and video alternatives that exist and analyzing the extent of consumer adoption.³ The Report does not, for example, examine the pricing of communications services, nor does the Report consider broadband technologies and the effects of the convergence of voice, video, and data services on the marketplace. The Report also examines competitive options for consumers without being tied to formalistic economic or regulatory classifications.

II. Wireline Voice Services (Telephone)

A. Overview

Wireline Voice service is a product delivered to a specific location (i.e. a residence or place of business) that at a minimum delivers basic telephone services to the customer. In Massachusetts, the incumbent Wireline Voice

² The Report also provides limited data related to Service Quality; however, this should not be confused with a thorough analysis of product quality. Service Quality information presented in the Report pertains only to complaints about regulated services received by the DTC's Consumer Division, and a summary of the number of complaints and service inquiries received by incumbent providers for both wireline voice and cable video services.

³ In some instances, the DTC needed more complete sources of data, such as information held by providers, to conduct a more comprehensive analysis. However, the DTC could not access some of this data due to confidentiality concerns or because the DTC lacks authority to compel public reporting of such data. If the DTC were provided such authority, it would ensure that the DTC had the necessary tools to produce more complete and detailed reports in the future.

provider, Verizon, is the predominant provider of Wireline Voice services. However, in recent years, cable providers have upgraded their video networks to offer voice services. For most Massachusetts consumers, these cable operators represent the sole competitive alternative to the incumbent for Wireline Voice services. This Report recognizes three basic platforms by which a Wireline Voice operator provides service to its Massachusetts consumers:

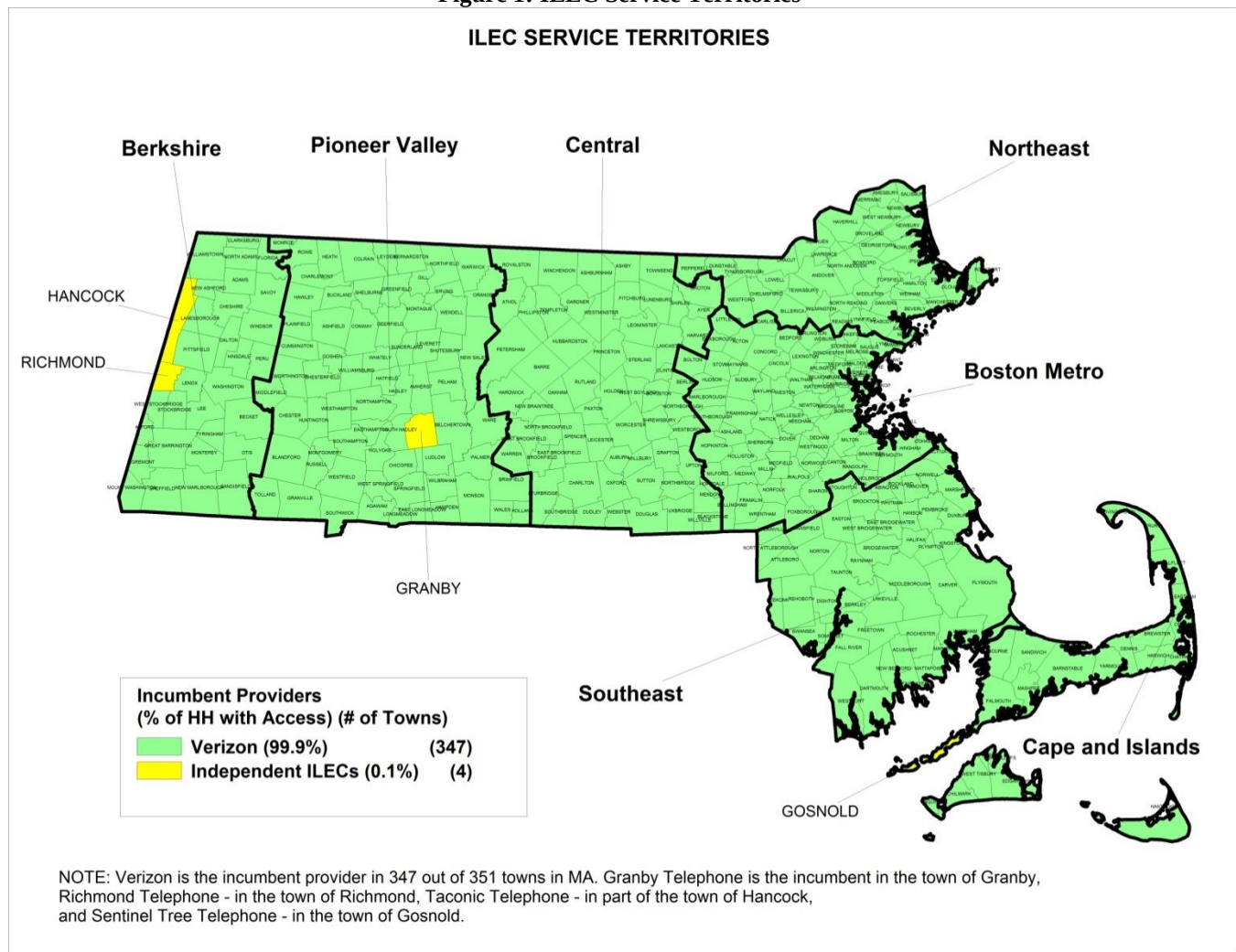
- **Incumbent Local Exchange Carriers (ILEC):** ILECs are the traditional local telephone companies that have served Massachusetts consumers for decades. As Figure 1 below shows, Verizon is the ILEC for 347 municipalities in Massachusetts, with four rural telephone companies each serving one of the remaining four municipalities. ILECs own and maintain most of the infrastructure that constitutes the public telephone network. Because of their ownership and maintenance role in the telephone network, ILECs have a number of duties in furtherance of two basic but distinctive governmental goals: (1) that all residential and business consumers have reasonable access to Wireline Voice (i.e. Carrier of Last Resort); and (2) that all telephone carriers must be permitted open and non-discriminatory access to an ILEC's network in furtherance of a competitive market for Wireline Voice.
- **Cable Voice providers:** Currently, Cable television providers such as Charter, Comcast, and Time Warner, among others, are the main wireline alternatives to the ILECs for residential voice services. Cable television companies have invested in network technology upgrades, making it possible to offer most of their customers with voice service, called Cable Voice. During the past decade, Cable Voice has developed from a new entrant voice service offering to being a widely adopted alternative in the residential voice market.
- **Competitive Local Exchange Carriers (CLECs):** CLECs include companies such as AT&T, One Communications, and XO Communications, among others. To provide service to residential consumers, CLECs typically lease some part of the ILEC's network infrastructure. However, recent changes in federal guidelines have greatly increased the cost of such leasing arrangements, and, as a result, CLECs generally do not actively serve the residential market. However, CLECs are still very active in the SMB market.

B. Residential Wireline Voice

1. Availability

As shown in Figure 1, wireline service is universally available from ILECs such as Verizon, which reflects the long-standing "Carrier of Last Resort" obligation that state regulation requires.

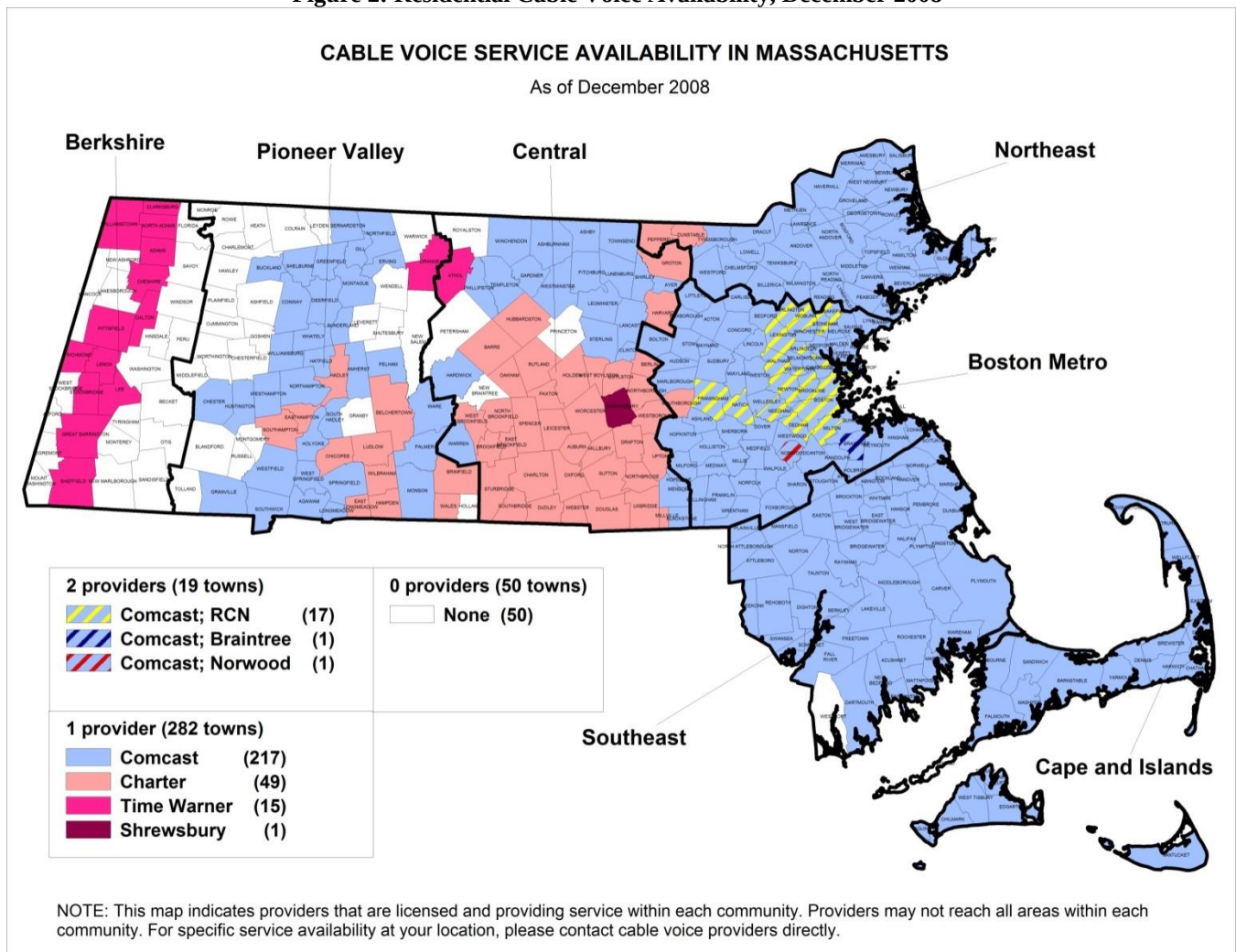
Figure 1: ILEC Service Territories



As shown in Figure 2, cable companies provide service to most communities in the state, **with notable gaps in service existing particularly in Western Massachusetts.**

- 301 of the 351 Massachusetts municipalities have at least one cable service carrier providing voice services.
- 19 Boston Metro region communities have a choice of two different cable-based voice providers.
- About 97% of households statewide have access to service from at least one Cable Voice provider.
- There are approximately 28,000 households in the 50 communities without access to a Cable Voice provider.
- When analyzing availability of service within all 351 municipalities, approximately 70,000 households lack access to Cable Voice service. Household availability of Cable Voice service ranges from 99.4% in the Cape and Islands region to 85.5% in the Berkshire region.

Figure 2: Residential Cable Voice Availability, December 2008



2. Adoption

In some regions of the state, consumers are experiencing changes in the Wireline Voice marketplace. Verizon is still the dominant provider of residential Wireline Voice service in Massachusetts, with approximately 64% market share statewide. However, by December 2008, Cable Voice providers had approximately 33% of the Wireline Voice market. By contrast, CLEC market share decreased substantially, and by December 2008, CLECs served about 2% of the market. As recently as June 2005, Verizon had almost 80% of the residential market, while Cable Voice providers had only 13%, with CLECs just over 7%. Not surprisingly, where Cable Voice service is less widely available, such as in the Berkshire region, the adoption rate of Cable Voice service is not as high as it is in the Boston Metro and Northeast regions, where the service is widely available. Consumers in towns not served by a Cable Voice competitor generally do not have any Wireline Voice competition.

3. Residential Voice Summary Findings

- **The residential Wireline Voice market is essentially a two-provider market: the ILECs and Cable Voice providers.** The number of available competitive providers for Wireline Voice services has decreased dramatically for residential customers. In particular, as a result of changes in federal regulation in 2005 which made it much more expensive to serve the residential market, relatively few CLECs actively market services to residential consumers.
- **Residential customers, at a high percentage, are using competitive voice services from cable providers.** In recent years, cable providers have steadily gained market share, and competition between Verizon and cable companies is robust in certain select areas. However, regional distinctions persist, and many rural customers that live in the 50 communities in Massachusetts that lack any Cable Voice provider have little or no competitive options for Wireline Voice service.
- **Consumers who purchase their communications services (voice, video, and internet) through a bundle have experienced an increase in competitive alternatives.** Moderate to low-income consumers, including elderly consumers, or consumers who simply want a no-frills, low-cost voice product essentially have only one provider option—Verizon. Cable providers do not offer basic plans, and the remaining CLECs that serve the residential market appear to primarily provide premium bundled services and/or service on a pre-paid basis. These trends also have impacted low-income consumers eligible for Lifeline and Link-Up service because most Cable Voice providers do not offer service through these government assistance programs.
- **Consumer protections, such as safeguards from unreasonable disconnection of service and fair resolution of billing disputes, may suffer in today's residential market, as cable companies providing voice service using new technologies (i.e., interconnected Voice over Internet Protocol (VoIP)) have not yet extended many state-mandated consumer protections to their customers.** Furthermore, the DTC believes that many Cable Voice customers may not be aware of this gap in consumer safeguards. The DTC's position is that these consumer safeguards should be extended to this type of VoIP service like other Wireline Voice services.
- **Wireline Voice service quality during the reporting period, as measured by complaints to the DTC and service quality reports submitted by Verizon, show that service quality in general has met the DTC's standards, although there appear to be disparities in some rural areas of the state.** Massachusetts rural consumers experience noticeably pronounced service quality problems as compared to consumers in more densely populated urban areas. During the summer of 2009, the DTC opened an inquiry into Service Quality in the four westernmost counties (Berkshire, Franklin, Hampden, and Hampshire) of the state to investigate possible regional disparities in service quality. This inquiry remains open.

C. Business Wireline Voice Services

1. Availability

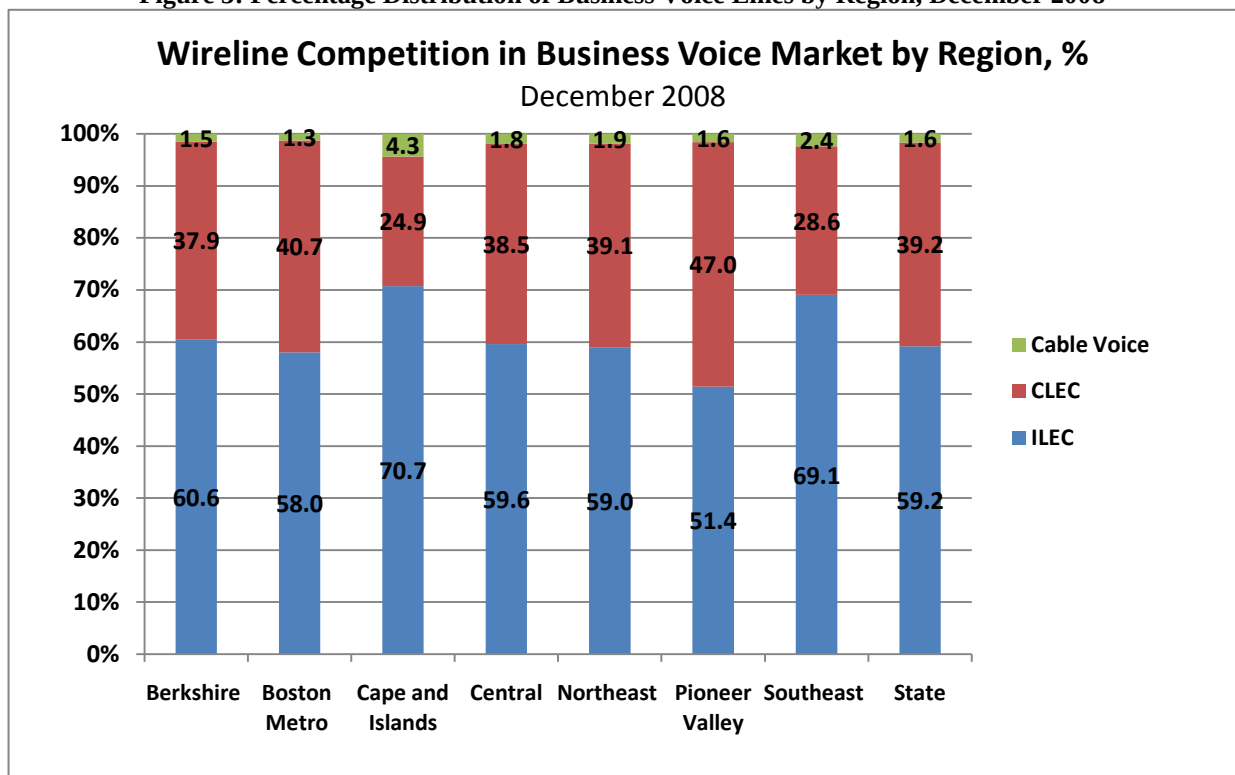
Because of its ubiquitous network, ILEC service is available to all SMBs in the state. Unlike the residential voice market, a relatively large number of CLECs offer wireline services to businesses throughout the state. Additionally, within the last year, Cable Voice carriers have begun marketing services to SMB consumers, though generally, data on business Cable Voice services were not available for the first three years of the study period.

Because CLEC services are offered over the ILEC's network, CLECs have nearly ubiquitous service in Massachusetts.

2. Adoption

Similar to residential Wireline Voice service, ILECs still hold the largest portion of the SMB voice market. As of December 2008, ILECs served about 996,600 business lines, or 59% of the market. CLECs represent the primary competition for SMB customers, while cable providers served a very small number of customers. As of December 2008, CLECs served about 660,500 end-user business lines (39% of the SMB market), an end-user line increase of more than 26% since 2005. With the recent wider-scale introduction of Cable Voice as a product offering to SMB consumers, the market share for this platform became measureable, but still is comparatively very small with about 27,700 end-user business lines (2% of the SMB market) by year end 2008. Figure 3 breaks down ILEC, CLEC, and Cable Voice market shares by region for 2008.

Figure 3: Percentage Distribution of Business Voice Lines by Region, December 2008



3. Business Voice Summary Findings

- **Competition in the Wireline Voice market for SMBs is robust.** Unlike trends realized in the Residential Wireline market, CLECs have collectively gained greater market share as measured by number of SMB lines served, up from 31% in 2005 to 39% in 2008. SMBs in more densely populated areas have the highest number of competitive alternatives, but even in rural areas, at least several competitive alternatives exist.
- **Despite the presence of multiple competing providers, the overall number of competitors has declined over the last decade, and the market trend is toward dominance by large competitors.**
- **Cable companies are just entering the business voice market and do not yet have a significant market presence.** However, they could be a major player in the future given their wide network coverage area.

III. Wireless Voice Service

A. Overview

Over the last decade, Wireless Voice has grown from a niche offering into a mass market product. Because of advances in technology and other factors that have decreased the cost of deployment, Wireless Voice providers have made their service widely available, allowing widespread adoption. Wireless Voice carriers that operate in Massachusetts are AT&T Wireless, Sprint/Nextel, T-Mobile, and Verizon Wireless.⁴

The DTC analyzes Wireless Voice separately from Wireline Voice because of the different characteristics of the service and the differing ways in which consumers use the service. Generally speaking, Wireless Voice customers are individuals rather than households. Most consumers seemingly view Wireline and Wireless Voice services as complementary services, choosing to subscribe to a Wireline Voice service for household use and to Wireless Voice service for mobility purposes.

Some residential consumers have adopted Wireless Voice as their only voice service. This trend, known as “cord-cutting” or “wireless substitution,” has been made possible in part by consumers’ ability to more freely “port” or transfer their phone numbers from wireline to wireless providers. Changes in E-911 rules that require location recognition from wireless phones have also had the effect of increasing the viability of wireless substitution. Wireless carriers are required to provide location information to public safety officials when a caller dials 911, however, there are limits on the specificity of the address and location that can be provided from a wireless service, particularly in locations such as multi-dwelling units.

B. Availability

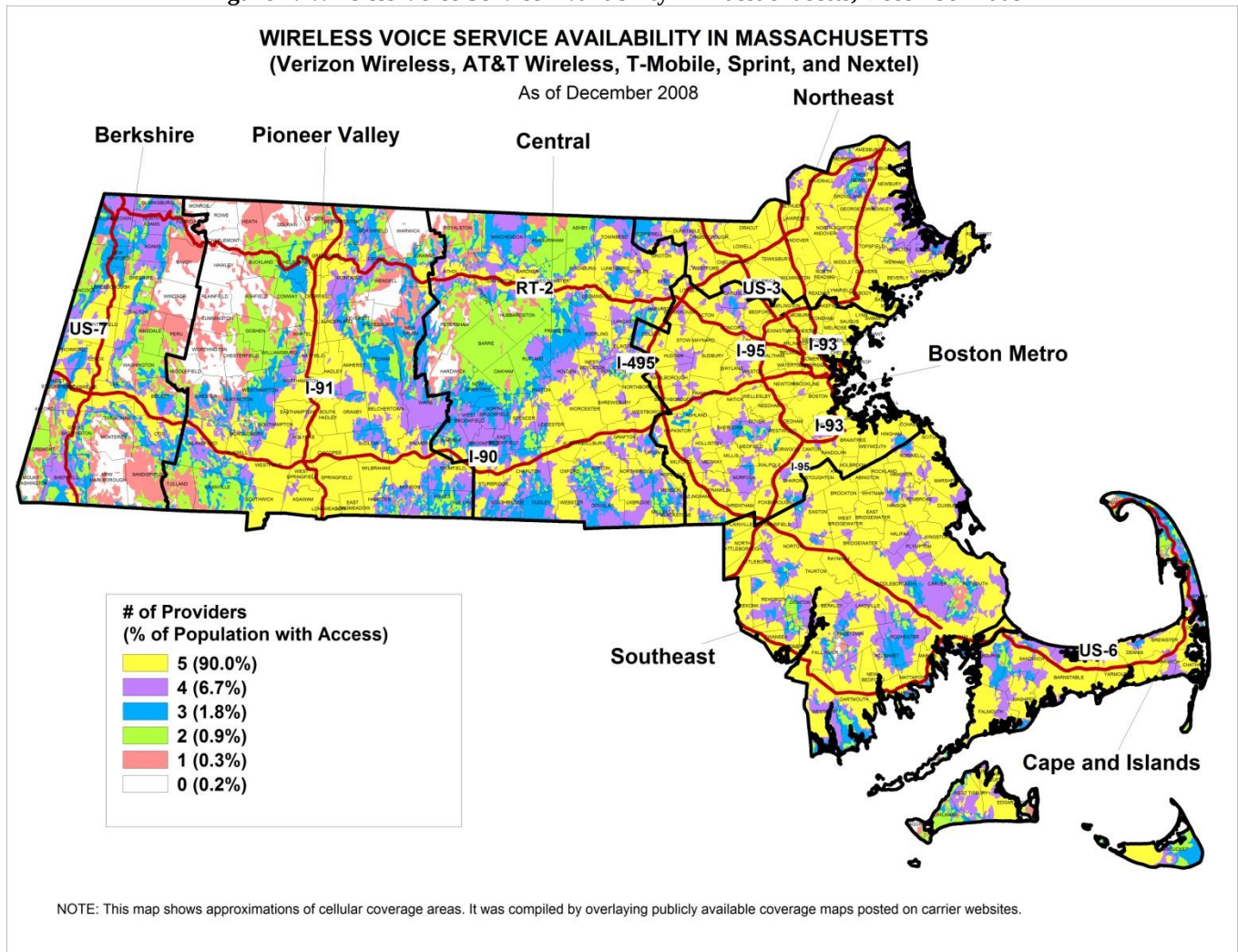
According to coverage maps provided by wireless carriers, approximately 99.8% of Massachusetts households can receive a signal from at least one of the five network-based Wireless Voice service carriers. Conversely, approximately 14,600 households (0.2%) cannot access a signal from any of the five Wireless Voice carriers.

⁴ In 2004, Sprint and Nextel merged, forming Sprint Nextel Corporation. Sprint Nextel currently operates as one single company on two separate wireless networks. Therefore, this Report analyzes five wireless networks provided by four companies operating in Massachusetts.

These households are spread across 58 towns, largely located in mountainous areas in western Massachusetts, as shown in Figure 4.

Service coverage estimates do not take into account limiting factors such as signal strength, weather variations, and obstructions which increase the propensity for low signal strength or dropped calls. Therefore, Wireless Voice service availability may not be as ubiquitous as suggested by the coverage maps. Generally speaking, rural consumers experience lower wireless coverage quality where there are fewer cell towers, the distance between towers is greater, and foliage and terrain obstructions are more prevalent. Wireless carriers may also specifically decide to not cover a given geographic area based on the difficulty of the terrain or the lack of potential customers.

Figure 4: Wireless Voice Service Availability in Massachusetts, December 2008



C. Adoption

As of December 2008, over **5.7 million Massachusetts consumers** subscribed to a Wireless Voice service, representing an increase of 33.2% since June 2005. With the growing availability of these services, some consumers are opting to forgo their home telephone and subscribe exclusively to Wireless Voice service. As of

December 2008, the DTC estimates that about 278,300 (11.3%) Massachusetts households have “cut the cord.” This number has almost tripled since June 2005.

Wireless substitution has the potential to continue to increase as more residential customers embrace wireless technology. For example, a Centers for Disease Control and Prevention study indicates that while the majority of wireless substitution is occurring among consumers below the age of 30, older consumers are becoming more willing to substitute wireless for wireline telephones. In addition, new Wireless Voice service providers are creating offerings for the moderate to low-income segments of the population that are more cost-effective and more consistent with their lifestyles (e.g., moving residences frequently).

D. Wireless Voice Summary Findings

- **Statewide, most consumers have access to service from at least one wireless carrier, although service coverage may suffer from the limiting factors mentioned earlier.**
- **Regionally, the pattern of service disparity seen in the provision of Wireline Voice services also persists for wireless signal coverage.** The zero coverage areas are prevalent across the Berkshire and Pioneer Valley regions, while much of the Boston Metro region is covered by at least three Wireless Voice carriers.
- **Wireless phones are primarily used as a complement to Wireline Voice services. However, a growing number of consumers are going all-wireless, particularly those in densely populated areas and among younger demographic groups.** As such, Wireless Voice offerings are typically premium-based services, giving consumers a range of options and ancillary functions. Accordingly, Wireless Voice service is not currently considered a true substitute to Wireline Voice service from a regulatory or economic standpoint.

IV. Video Services (Television)

A. Overview

Video services operate under a different regulatory framework from voice services, and traditionally competition is only available from companies that own and operate their own networks. Video services are offered over both wired (e.g., cable) and wireless (e.g. satellite) networks. Historically, consumers only received cable video services from companies that held the first cable video franchise in a municipality. A cable video franchise permits the franchise holder to run cables through the public rights-of-way, including along telephone poles or in underground conduits. In recent years, consumers in a growing number of communities have been offered a competitive alternative for Cable Video service.

The Report identifies two types of Cable Video providers:

- **Incumbent:** The companies, or their predecessors, that held the initial cable franchise in a municipality are considered the Incumbent providers. Six Incumbent cable companies who provide service are: Charter, Comcast, Cox, Russell (municipal), Shrewsbury (municipal), and Time Warner.

- **Overbuilder:** An alternative wire-based network built by a competitor separate from the Incumbent Cable Video network is referred to as an “Overbuilder”. Four companies provide service as an Overbuilder in Massachusetts: Braintree (municipal), Norwood (municipal), RCN, and Verizon FiOS.

Wireless video networks do not fall under the scope of the DTC’s authority; and the DTC consequently will not analyze them in detail in this report. The two types of wireless video services available to consumers include (1) Satellite TV (referred to as Direct Broadcast Satellite or DBS), offered by both DirecTV and Dish Network for a monthly fee; and (2) digital broadcast television (free over-the-air TV), which completed its federally mandated transition to all-digital broadcasting in June 2009.

B. Availability

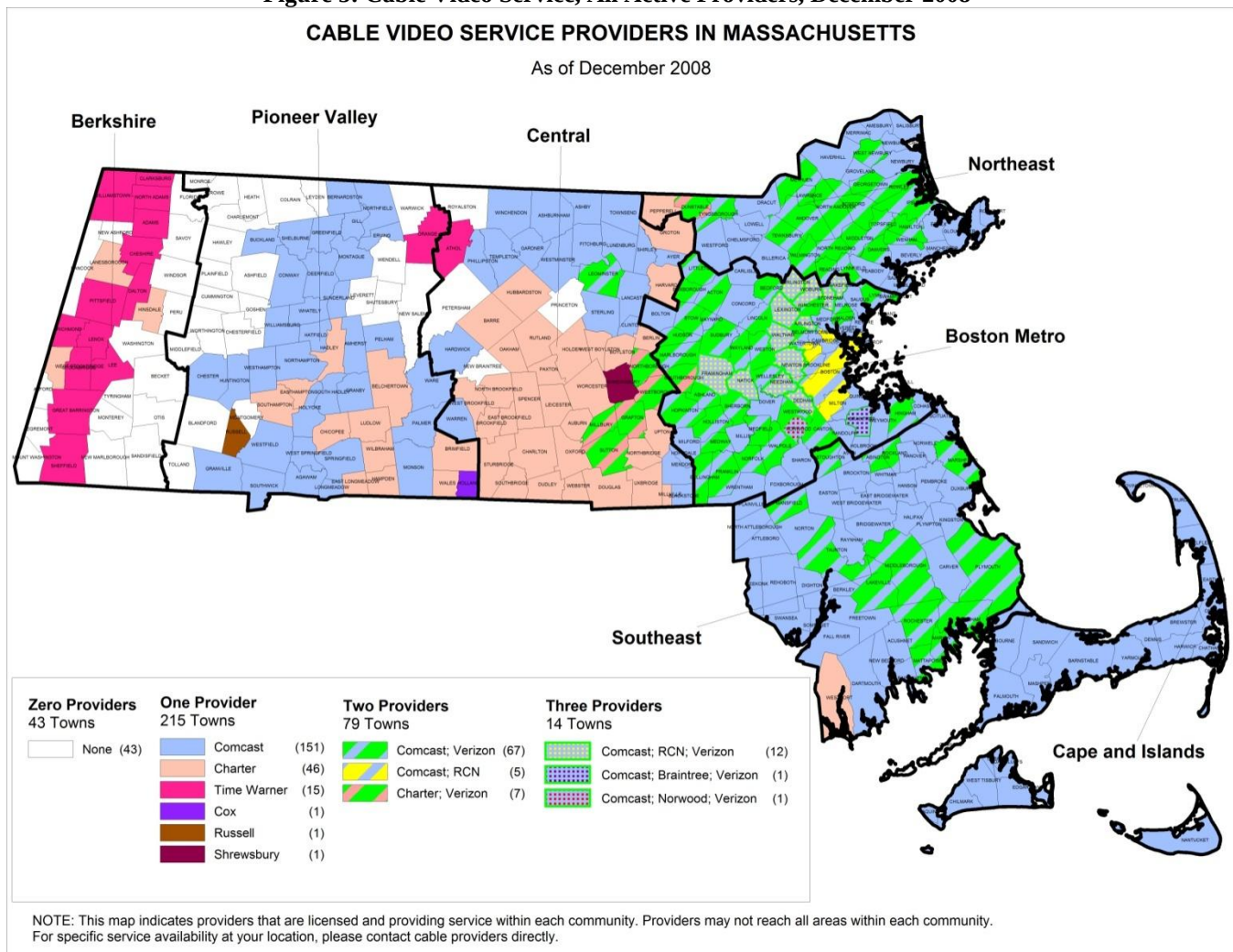
Unlike Wireline Voice service, Cable Video is not available to every household in Massachusetts. Cable Video service is offered in 308 of the state’s 351 municipalities. Forty-three municipalities, primarily concentrated in Western Massachusetts, have no Cable Video provider. As of December 2008, 214 municipalities had only one Cable Video provider, 80 municipalities had two providers, and 14 had three providers (see Figure 5). Cable Video service is available to 2.38 million (97.6%) households statewide, but 58,000 (2.4%) households remain unserved.

Service availability is directly correlated to both the number of households in franchise areas and population density. No region has 100% coverage from Incumbent cable providers because cable franchise agreements commonly set population density limits below which a provider is not required to build-out infrastructure, leaving low density neighborhoods in many municipalities without service.

Similar to voice services, regional disparities exist in the Cable Video market. For example, the Cape and Islands region has the highest Incumbent coverage rate (99.4% of households with access to Incumbent Cable Video service), while the Berkshire region has the lowest Incumbent coverage rate (90% of households with access to Incumbent Cable Video service). There are 22,000 households that lack access to Incumbent Cable Video service in the Boston Metro region (2.2% of the region’s households), which represents the largest gross number of unserved households located within any single region.

Regional distinctions are also clear in the Overbuilder market. Overbuilder service is concentrated in densely populated areas, centering on the Boston Metro region, and have little presence elsewhere. Consumers throughout the Berkshire, Cape and Islands, and Pioneer Valley regions have no Overbuilder service choices available. Overbuilders also generally cover few or no households not already served by the Incumbent cable provider. By December 2008, about 972,000 (40%) households statewide had an option to choose service from at least one Overbuilder, and 450,000 (19%) households statewide had access to service offerings from an Incumbent provider and two Overbuilders. Again, these areas with three competing providers are limited to 14 municipalities, all within the Boston Metro region.

Figure 5: Cable Video Service, All Active Providers, December 2008



C. Adoption

A large majority of Massachusetts consumers have adopted Cable Video service. By year end 2008, 2.11 million (87%) Massachusetts households subscribed to cable video service. An additional 214,000 households (8.8%) subscribed to DBS video services. Therefore, only approximately 116,000 (4.8%) households do not subscribe to any video service and rely upon over-the-air broadcast signals or do not receive video content within their homes.

Incumbent carriers remain the predominant providers of Cable Video service, as 77% of all households with access to an Incumbent subscribe to that service. However, the growth of Overbuilder service availability has been accompanied by a rapid growth in subscriber rates, nearly tripling between 2005 and 2008, with approximately 23% of households with access subscribing to Overbuilder service. Between 2005 to 2008, total Cable Voice subscribers increased by 108,666 (5.5%). Much of this growth in subscribership appears to be attributed to Overbuilder service expanding the overall market by encouraging new subscribership to Cable Voice. Indeed, Incumbents have experienced a relatively small subscriber loss (approximately 40,000 subscribers) while Overbuilders experienced a net increase of about 140,000 subscribers over the study period. Much of the increase in subscribership to Overbuilder service is attributable to the expansion of the Cable Video

product offered by Verizon FiOS, which was the first to introduce an Overbuilder offering to 74 communities between 2005 to 2008, and the second Overbuilder present in 14 additional communities.

Regional distinctions are present in adoption patterns. For example, only 67% of households in the Boston Metro region subscribe to Incumbent service, the lowest Incumbent adoption rate in the state. This can be attributed to the large presence of Overbuilders in the Boston Metro region. For those households with access to Overbuilder service, adoption rates are relatively similar across regions, varying between 17% to 24%.

D. Video Summary Findings

- **Overall, eastern Massachusetts consumers are experiencing increasing competition in video services.** With the entry of Verizon into the video market in 2005, the number of communities with two wireline video providers has increased. By June 2009, Verizon's video service was available in 96 communities, all in eastern Massachusetts, and consumers have switched to Verizon's service in noticeable numbers.
- **The Incumbent cable providers are still dominant by a significant margin.** A large number of communities still are served by only the Incumbent and satellite service.
- **Many consumers in communities where there are one or more providers lack coverage because of build-out limitations.** More troubling, 43 communities do not have cable service, and consumers are unlikely to have cable service unless providers are required to serve these towns.
- **As measured by complaints with the DTC and annual service quality reports submitted by providers, Cable Video service quality during the reporting period is volatile.** For example, the frequency of complaints received directly by cable operators noticeably increased from 2005 to 2006, then sharply declined the following year. Such volatility appears to be tied to specific and localized events, such as regional service interruptions or the loss of specific channels.

V. Report Conclusions

- **Many residential and business customers in densely populated areas of the state have competitive alternatives for voice and video services.**
- **The incumbent providers in the voice and video markets are still the dominant providers in the state.**
- **In less populated areas and for some segments of the market (e.g., moderate to lower income consumers), competitive alternatives do not exist to the same degree or have declined as a result of changing market conditions.** Consumers who simply want a no-frills, low-cost basic voice product, including low-income and elderly consumers and consumers with serious medical conditions, essentially have only one provider option, the ILECs.
- **Because of changing industry conditions, the communications markets (voice and video) in Massachusetts (and nationwide) have become more concentrated and dominated by a handful of**

large providers. In particular, this has reduced the number of competitive alternatives and providers in voice markets (both wireline and wireless), possibly to the detriment of consumers, especially residential consumers.

- **Because of these trends, policymakers may need to examine whether there are ways to increase provider diversity in the residential voice market; to address the lack of cable service in 43 towns in the state; to examine apparent disparities in voice and video service quality; and to respond to the diminishing Wireline Voice service options for consumers seeking low-cost, low-frills telephone service, among other issues identified by the Report.** The DTC fully intends to examine these issues to determine whether regulatory and/or legislative recommendations may be developed to appropriately address these market conditions.