

**TESTIMONY OF ROBERT SACHS  
PRESIDENT AND CHIEF EXECUTIVE OFFICER  
NATIONAL CABLE & TELECOMMUNICATIONS ASSOCIATION**

**on**

**COMPETITION AND OVERBUILDS IN THE VIDEO MARKET**

**Before the**

**SUBCOMMITTEE ON ANTITRUST,  
COMPETITION POLICY AND CONSUMER RIGHTS  
COMMITTEE ON THE JUDICIARY  
UNITED STATES SENATE  
WASHINGTON, D.C.**

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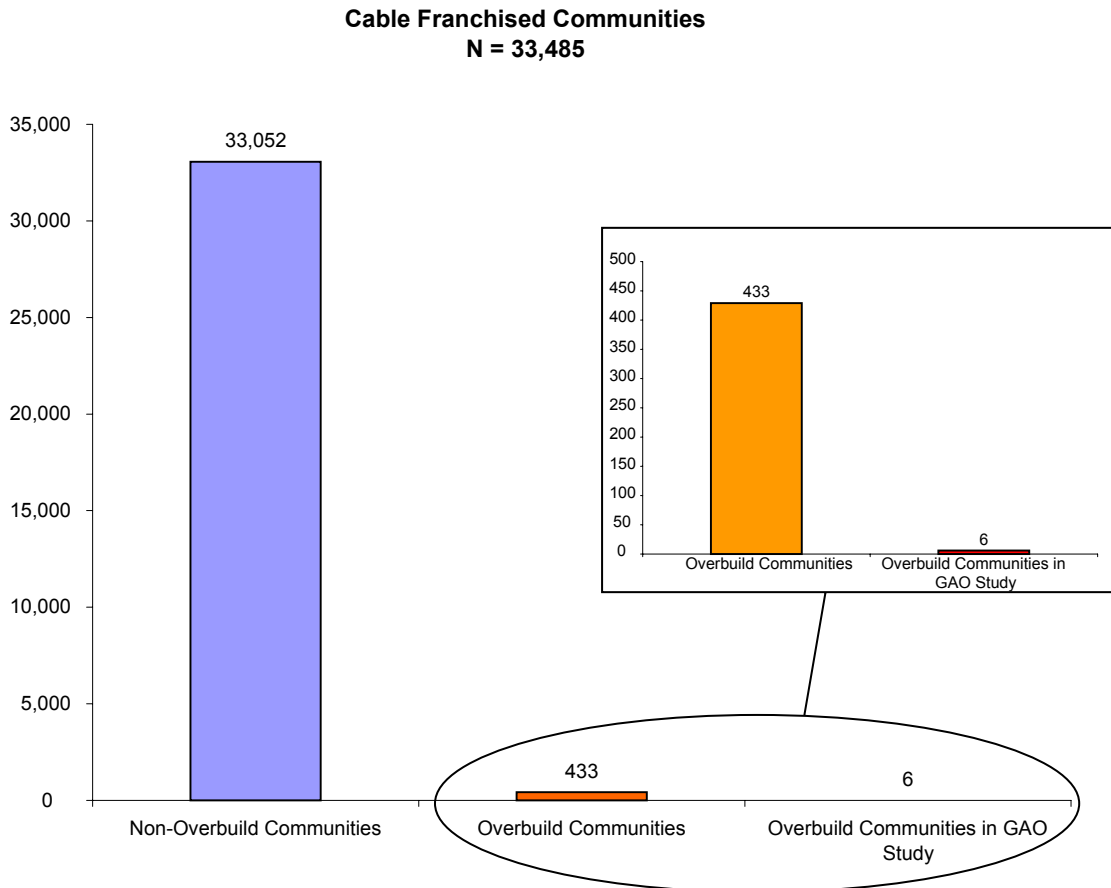
Mr. Chairman, Senator Kohl, and members of the committee, my name is Robert Sachs and I am President & CEO of the National Cable & Telecommunications Association. NCTA is the principal trade association of the cable television industry in the United States. It represents cable operators serving more than 90% of the nation's 73.4 million cable television households and more than 200 cable program networks, as well as equipment suppliers and providers of other services to the cable industry. Thank you for providing us with the opportunity to testify this morning.

### **Introduction**

In assessing the subject of this hearing – namely, the competitive effect of wireline overbuilders on incumbent cable operators – it is appropriate at the outset to establish the context. There are more than 9,000 cable systems serving 33,000 communities in the United States. As is documented by the Federal Communications Commission's recent ten-year review of the status of competition in the video marketplace, virtually all those systems face vigorous competition from two well-established national Direct Broadcast Satellite (DBS) providers who together serve more than 21% of the multichannel video programming market. And, as the General Accounting Office has pointed out, this competition has resulted in an explosive growth of new video and non-video services, as well as slightly lower prices for cable subscribers.

While fierce competition from DBS is ubiquitous, competition between wireline cable operators is scarce – and often precarious. Only about 400 of the 33,485 cable

communities nationwide have two competing franchised wireline providers. Many of these franchised overbuilders, however, have either never deployed and launched their services, launched and failed, or are in danger of bankruptcy.



GAO's most recent study of cable overbuilds is based on a tiny percentage of these rare communities. GAO examined only six overbuild communities, and compared them with six other communities that appeared to share certain characteristics with the overbuild communities but had only a single cable operator. The half dozen overbuilds exemplified many of the difficulties faced by overbuilders, and GAO identified the reasons for these problems.

A major reason was that overbuilders simply underestimated the extent to which the marketplace they chose to enter was already fiercely competitive. Overbuilders may have assumed that they could easily and profitably capture customers from incumbent providers with lower prices. But sustainable competition from DBS, which enjoys nationwide economies of scale, had already ensured that cable operators were providing the services that best met consumer demand, at competitive prices. So, overbuilders were caught in an economic bind. To entice customers away from the incumbent, they might have to charge lower prices than the incumbent. But those lower prices were insufficient to cover their costs and investment risk and were economically unsustainable for more than an introductory period.

Moreover, the vast majority of overbuilders only came into existence in the last few years. As rare as overbuilds are now, they were even less prevalent during the first four decades of cable's existence. Cable television is an extremely capital-intensive business. To serve a community, cable operators typically must deploy facilities that pass and extend to all households in the community, whether or not particular households choose to purchase their service.

The viability of such an investment required that a substantial portion of the homes passed by the system did choose to purchase the system. Competing builders, such as in the well known example of Allentown, Pennsylvania, who constructed systems simultaneously in an area where off-air reception was poor, had the best chance of being viable. But for many years, the prospect that multiple cable operators could build such facilities and each capture a sufficient number of subscribers to support their investment was, in most cases, implausible. Therefore, few overbuilds were deployed.

But several developments in the last decade of the twentieth century encouraged new overbuild ventures. For example, the technological ability to provide voice, video and data services over shared broadband facilities – and the emergence of the Internet as a new source of data services for consumers – altered the economics of overbuilds.

Existing telephone companies, whose narrowband facilities were not particularly well suited to the provision of video and Internet broadband services, made significant investments in new stand-alone broadband facilities so that they could offer video (and cable modem) service along with the telephone and DSL Internet services provided over their existing facilities. Meanwhile, the Telecommunications Act of 1996 encouraged the emergence of new “competitive local exchange carriers.” With new broadband facilities, these new companies saw opportunities to offer competing cable television service and cable Internet service along with telephone service.

In short, the bundling of video, Internet and telephone services over shared facilities was expected to make it possible to provide an economically viable competing wireline cable service. But just as they may have underestimated the competitive effects of DBS, overbuilders also faced more competition and less demand for their non-video services than they anticipated.

The boom in wireless telephony (and the increasing availability of telephone service from incumbent cable operators and other competitive local exchange carriers) reduced potential revenues from telephone service. Similarly, vigorous competition between cable operators’ cable modem service and telephone companies’ DSL reduced the ability of overbuilders to subsidize their video prices with revenues from high-speed Internet service. And in this competitive environment, overbuilders have had serious

difficulty obtaining the capital they anticipated and need to deploy and build out their systems.

What all this suggests is that the prices and service offerings of overbuilders at any recent point in time can hardly be viewed as representative of a “competitive” standard that all cable operators would meet if only they faced effective competition. To the contrary, cable operators do face effective competition in all the services that they provide. It’s the prices and services offered across the nation by cable operators that face strong competition from DBS, DSL and competing telephony providers that provide the best indication of a competitive marketplace at work. There is no basis for looking to the prices offered by an anomalous handful of unprofitable overbuild systems as an appropriate benchmark for video prices.

#### **Why Overbuild Prices Are Artificially or Uneconomically Low**

With the foregoing in mind, it may still be useful to take a closer look at the small number of overbuild systems that have come into (and out of) existence in order to see why some recent studies – including GAO’s most recent reports – have found that a snapshot of average prices of overbuilders tend to be lower than the prices charged by cable operators in areas without overbuilds. NCTA has done such an analysis.

Unlike GAO’s most recent study, which looked at only six overbuild communities, we examined all of the 433 communities with identifiable overbuild systems for which information was obtainable. We confirmed that most of them did, in fact, display anomalous characteristics that explain why their prices (and the prices of competing cable operators in those communities) may, at least temporarily, be lower than prices in other communities. As analyzed more fully by Steven S. Wildman, Professor of

Telecommunication Studies at Michigan State University, in a white paper attached to this testimony, those anomalous characteristics show that lower rates do not indicate that those overbuild markets are more “competitive” than other markets. To the contrary, as Professor Wildman concludes, “[a] close look at overbuilders and the communities they serve shows that it would be imprudent to use prices in these communities as benchmarks for evaluating prices in other cable communities.”<sup>1</sup>

**1. Overbuild prices are often unsustainable.** First of all, the vast majority of overbuilds have only been in existence for a very short time. 388 of the 433 overbuilds did not exist before 1996 – and 92 of them did not exist before 2001. This means that it’s impossible to view a snapshot of prices at any given point in time as representative of the stable prices of long-term, established competitors. (Typically, cable franchises are awarded for 15 years and then are eligible for successive renewal periods of 10 years.) A “moment in time” snapshot does not show whether the reported prices were sustainable for even an initial franchise term. It does not show how many overbuilders failed to survive with such prices. Nor does it show whether such prices were merely temporary and soon rose to higher levels.

In fact, 83 of the overbuilds that we identified either have failed and are no longer operational or are not yet operating to any meaningful extent. In a competitive market, companies are expected to charge prices sufficient to cover their costs and to earn a fair, risk-adjusted return on their investment over time. The prices of companies that have failed or are failing obviously cannot be viewed as benchmarks for what competitive systems should charge.

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<sup>1</sup> S. Wildman, “Assessing the Policy Implications of Overbuild Competition,” February 9, 2004, at 27.

The overbuild landscape is populated with such failed or failing companies. Some, like Altrio, Everest Connections, TOTALink, and WINfirst briefly got started operating overbuild systems before they went bankrupt and/or stopped further construction. Other well-financed companies like Ameritech and GTE constructed and operated systems only to sell them for a small fraction of their original cost.

In addition, a large number of overbuilders never even built their systems and launched their services. For example:

- **American Broadband**

American Broadband announced that it would overbuild cable systems in major cities in Rhode Island as well as Baltimore, Buffalo, Jacksonville and other medium size markets on the East Coast. When it initially filed in January 2000 with the Rhode Island PSC, American Broadband told the PSC that it would cost \$170 million to build systems in 20 markets serving 80% of the state's households in the towns of Barrington, Bristol, Central Falls, Coventry, Cranston, Cumberland, East Greenwich, East Providence, Johnston, Lincoln, North Providence, North Smithfield, Pawtucket, Providence, Scituate, Smithfield, Warren, Warwick, West Warwick and Woonsocket.

American Broadband initially received a commitment for \$50 million in equity capital from Great Hill, and expected to receive another \$120 million in equity and debt for the Rhode Island project. Great Hill Partners and venture capital companies pulled back on their initial commitment. CIBC World Markets that in 2000 committed to provide the company up to \$150 million in senior debt financing opted not to make the loan. In addition, \$50 million in equity promised by Great Hill Partners, a Boston venture capital firm was placed on hold. Great Hill owned 83 percent of ABI.

Unable to attract other financing, American Broadband decided not to go into business in January 2001.

- **Carolina Broadband**

Carolina Broadband was formed in 2001 and targeted major markets in North and South Carolina including: Charlotte (pop. 540,828), Raleigh/Durham (pop. 276,093 and 187,035 respectively), Winston-Salem



(pop. 185,776), Greenville/Spartanburg (pop. 56,002 and 39,673 respectively), and Columbia, SC (pop. 116,278).

In 2001, the company received \$402 million from Charlotte's Carousel Capital and the venture capital arms of banks such as Bank of America Corp. and First Union Corp. Other investors included M/C Ventures, Spectrum, Chase, JH Whitney, Haborvest and Providence.

After raising \$402 million in equity, Carolina Broadband was unable to obtain another \$400 million in debt financing. The investors did not want to commit all of the money until the company received additional loans needed to fully fund its construction projects.

Carolina Broadband spent about \$40 million before the company folded without significant construction.

- **DeCom**

DeCom was a Midland Park, NJ-based firm headed by a veteran cable operator. In mid-2000, DeCom announced that it hoped to be OVS provider in Charlotte, NC (pop. 540,828). The company never moved forward with its plans to provide service.

- **Digital Access Corporation**

Digital Access announced plans to overbuild cable systems in Indianapolis, IN (pop. 781,870), Kansas City, MO (pop. 441,545), Milwaukee, WI (pop. 596,974), and Nashville, TN (pop. 1,270,520) in 1999. The company's major investors included Bachow & Associates, CALPERS, Cornerstone Equity, First Union Capital, Goldman Sachs, M/C Venture Partners, Norwest Equity, Providence Equity, M/C Venture Partners, Navis Partners (formerly Fleet Equity Partners) and Spectrum Equity Investors. Digital Access was able to raise \$450 million in equity but unsuccessfully sought \$850 million in debt financing. Digital Access went out of business in early 2001 after trying for two years to obtain debt financing.

- **Digital Union**

During mid-2000, Digital Union (affiliated with a Local Utility) announced that it was going to overbuild the incumbent cable system in Austin, TX (pop. 656,562). After a few months, Digital Union abandoned its plan to provide service.

- **LyncStar**

LyncStar was a private company that planned to overbuild the cable system serving Little Rock, AR (pop. 183,133). The company never moved forward with its plans to compete in this market.

- **Quality Entertainment**

Quality Entertainment was a private company with plans to provide service in Poteau, OK (pop. 7,939). The Company never proceeded with these plans.

What seems apparent is that the investment community has not been persuaded that the overbuild business model, which is built on capturing market share with low prices, is an economically sound and sustainable model. As Professor Wildman points out, “[t]he fact that only a tiny fraction of a percent of cable communities attract overbuilder entry in any given year in itself suggests that most knowledgeable potential investors see little prospects for profit in the overbuilder strategy.”<sup>2</sup> And the recent failures of existing overbuilders confirms that this is the case. Thus, as Altrio stated two months ago when informing the City of Los Angeles of the company’s decision to shut down the company, “the capital markets are not friendly to early stage telecommunication companies today. After six months of effort, we have been unable to raise the necessary capital to continue operations.”<sup>3</sup>

Even some of the more established and recognizable overbuild companies have been on or over the brink of bankruptcy. For example, Knology, which has 127,500 subscribers, went through bankruptcy in 2002. On September 18, 2002, Knology filed for Chapter 11 bankruptcy protection with debts that exceeded \$473 million. On November 7, 2002, Knology announced that the bankruptcy allowed it to exchange \$444

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<sup>2</sup> Wildman at 28.

million in bonds for \$193.5 million in newer bonds and a 19.3% equity ownership in the company. In total, the bankruptcy reduced Knology's debt by \$250 million.

Meanwhile, RCN, the largest and most established overbuilder, is reportedly in serious economic peril and "skating on thin ice."<sup>4</sup> Its stock has not bounced back even as the telecommunications sector has begun to recover. RCN's stock plummeted from a high of \$72 per share in February 2000 to 68 cents per share as of December 31, 2003. On January 15, 2004, RCN missed a \$10.3 million payment on senior debt. According to one trade publication report, RCN's cash supply is rapidly disappearing: "Its most recent available results show in Q3 it lost \$110.5 mil[lion]. RCN in Oct. 2001 had \$1 bil[lion] in cash. It now holds \$289.5 mil[lion] in cash, and is burning through its once-formidable fund at a clip of about \$70 mil[lion] per quarter."<sup>5</sup>

Moreover, just two weeks ago, regional power company Pepco Holdings Inc., RCN's partner in Washington, DC area overbuilder Starpower Communications LLC, announced that it was that it was "getting out of the telecommunications and cable TV business by selling its 50 percent stake in" the venture.<sup>6</sup>

As mentioned, even some of the large, established telephone companies that promised to compete with incumbent cable operators in their telephone service areas have ultimately backed away from those plans and have emphasized the marketing of DBS services instead.<sup>7</sup> As the FCC recently noted,

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<sup>3</sup> Letter from David G. Rozzelle and Stephen R. Ross to Ms. Liza Lowery, Chief Information Officer, City of Los Angeles, Dec. 10, 2003.

<sup>4</sup> "RCN Skating on Thin Ice," Broadband Technology, Jan. 21, 2004, p. 10.

<sup>5</sup> Id.

<sup>6</sup> "Pepco to Sell Starpower; Shedding Cable Stake Will Come at a Loss," Washington Post, Jan. 30, 2004, p. E1.

<sup>7</sup> See "Bells Fight Cable War with Satellite-TV Deals," Wall Street Journal, February 9, 2004, p. B1.

The 1996 Act amended Section 651 of the Communications Act in order to permit telephone companies to provide video services in their telephone service areas. . . .As a result the presence of LECs in the MVPD market grew. By 1998 the Commission indicated that “LECs are already or are becoming significant regional competitors.” Ameritech (later acquired by SBC) was a significant overbuilder in the Midwest, BellSouth was an overbuilder and MMDS operator in the southeast, . . . and Bell Atlantic (now Verizon) and SBC were selling, marketing and installing DirectTV DBS video service. Additionally, LECs briefly owned and operated two joint programming and packaging ventures, but by 1998 both of these efforts were ended or scaled back, and today no longer exist.

Today facilities-based cable franchise services provided by the large, former “baby bells” are much less prominent . . . , with only BellSouth and Qwest offering such services. Some LECs have come full circle, however, and are marketing DBS service as they did in 1998.<sup>8</sup>

There have also been many reported examples of overbuilders entering markets with very low prices but, before long, implementing substantial price increases. As Professor Wildman points out,

It is not uncommon for firms entering a market to offer their products or services at prices too low to cover their costs over the long term. They do this to rapidly build their customer base to a level large enough to ensure profitability once prices return to sustainable levels. Incumbents often respond to such tactics with lower prices of their own. Because market prices frequently rebound to higher levels once entrants’ initial price-cutting strategies have run their course, it is important that prices in markets with recent entry not be used as competitive benchmarks for prices in other markets.<sup>9</sup>

One example is RCN’s system in Boston. Since entering the market there in 1997 RCN’s price for the expanded basic tier has nearly doubled

**2. Overbuilders often targeted communities where cable operators had not yet rebuilt their systems.** While cable operators nationwide have been rapidly

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<sup>8</sup> Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Tenth Annual Report, MB Docket No. 03-172, ¶¶ 113-115 (released January 28, 2004).

<sup>9</sup> Wildman at 11.

rebuilding and upgrading their facilities to provide more channels and advanced broadband services, at least 107 of the overbuilders targeted communities where the incumbent operator had not yet rebuilt its system. In those markets, overbuilders might have expected to be able to lure customers away from the incumbent to a more advanced system with artificially low prices and advanced services that the incumbent was not (yet) able to offer. But it does not follow that either the rates or the overbuild itself would be sustainable after the incumbent rebuilt its system. And, as the FCC's recently released Tenth Annual Report on video competition shows, communities with non-rebuilt systems are quickly disappearing. Just between 2001 and 2002, the percentage of systems with at least 750 MHz leapt from approximately 64% to approximately 73%,<sup>10</sup> and the percentage continues to grow.<sup>11</sup> This is, in other words, a strategy available only in a rapidly dwindling number of communities and only for a very limited period of time.

**3. Many overbuild systems were purchased at a substantial discount from failing companies.** In many cases, overbuilders faced costs significantly lower than those of incumbent cable operators for artificial reasons that had nothing to do with competitive efficiency. For example, in 77 communities – almost 20% of the cases – the systems were purchased from failed or failing overbuild companies at pennies on the dollar.

These cases include the sale of systems and assets owned by the bankrupt Western Integrated Networks (“WIN”). While WIN had announced plans for building all-fiber networks in many southwestern and western cities, it only built and began operating a system in Sacramento. WIN sold its Sacramento assets to SureWest

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<sup>10</sup> Id., ¶ 25, Table 3.

<sup>11</sup> Id., ¶ 25 n.58.

Communications for less than 15% of what it had invested in the system – and a much smaller percentage of what the assets were worth at the time of sale. WIN’s assets in Sacramento were worth \$200 million; they were sold to SureWest for \$12 million. Similarly, in December 2001, SBC sold the assets of the stand-alone cable systems that Ameritech had built in the 1990’s. WideOpenWest acquired those mid-western systems at fire-sale prices far below the costs of building them. Likewise, in December 2003, Verizon Media Ventures Inc., a subsidiary of Verizon Communications Inc., sold off its cable television systems in Pinellas County, Florida and Cerritos, California to Knology for a price dramatically below the value of the assets. When companies purchase systems for much less than what it cost to build them, they, of course, can charge prices that reflect this discount. But there is no reason to view such prices as in any way indicative of what an economically efficient incumbent or new cable operator facing marketplace competition would or should charge. They are, in effect, subsidized by the initial overbuilder who mistakenly invested in a system that should never have been built in the first place, given the real costs of construction and operation.

**4. Franchising authorities often impose fewer requirements on overbuilders.**

Many overbuilders faced significantly less extensive and costly franchise requirements than those imposed on incumbent cable operators. Although NCTA has not been able to review all the franchises in overbuild communities, we have identified 96 communities in which the overbuilder does not have the same requirements as the incumbent. It may be possible for local governments to create a price differential between overbuild and non-overbuild communities simply by creating a cost differential between overbuilders and incumbent cable systems. But where this is the case, there is no reason to suppose that

the lower prices in overbuild communities are any more “competitive” than the prices of incumbents in non-overbuild communities.

**5. Overbuilders often target high-density areas.** We found 103 instances in which the overbuilder was not required to build out and serve the entire franchise area. In Montgomery County, Maryland, for instance, Starpower was not required to extend service to lower density areas of the county despite the fact that the incumbent’s franchise requires universal service. Not surprisingly, given this green light to cream skim, we found 175 instances where the overbuilder targeted high density areas to provide service. By picking and choosing areas that are less costly to serve on a per-household basis because density is greater overall, overbuilders can charge rates that are lower than if they, like virtually all incumbent cable operators, were required to serve all areas of a community.

**6. Some overbuilders operate on a not-for-profit basis.** In some cases, overbuilders’ prices may be artificially low because the overbuilder is a not-for-profit entity that has no need even to project, much less recover, a profit. For example, we identified 31 municipally-owned overbuilders and ten overbuilders owned by cooperatives.

**7. Many overbuilders are owned by utilities or telecommunications companies.** In 20 cases, the overbuilder is owned by a utility. And in 91 cases, the overbuilder is affiliated with a local telecommunications company. These operations present unique cost advantages of shared facilities for similar, plant-intensive businesses. They also present cross-marketing advantages that accompany such utility ownership.

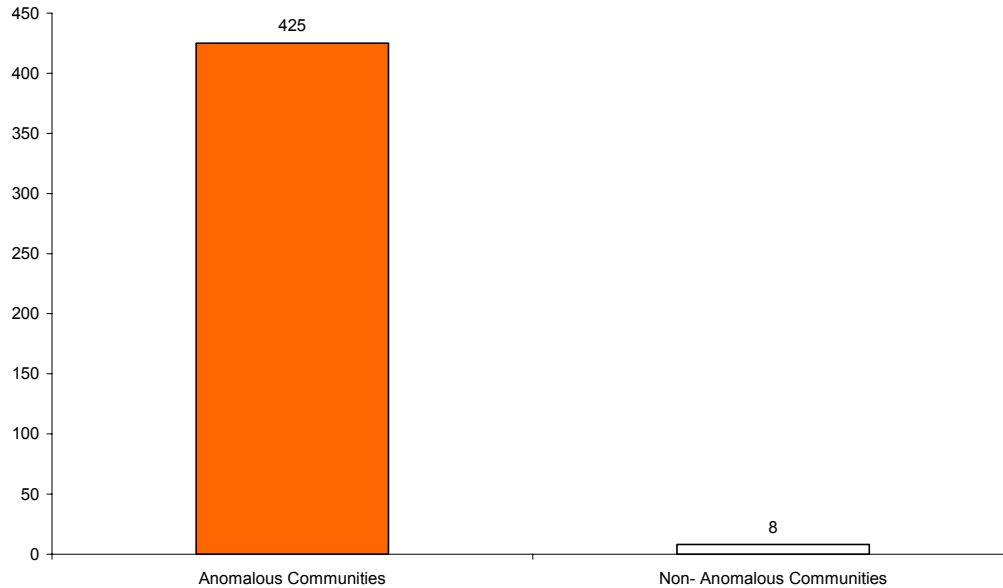
And the rates of such overbuilders may be artificially low to the extent that they can be cross-subsidized by the ratepayers of the regulated utility service.

**8. Most overbuilders bundle video services with other services.** Finally, a large number of overbuilders entered the market offering bundled video, Internet and telephone services. More than ¾ of them – 310 – offer high-speed Internet service. And 179 offer all three services. When multiple services are offered over the same shared facilities, prices for the service offerings will be based on projected demand for all the bundled services. The shared cost of common plant may make the attributable costs for video lower, assuming that buy rates for the Internet and telephone services are sufficient to contribute to support of the system's costs. But if overbuilders' projections regarding their telecommunications and Internet offerings were unduly optimistic (as may well have been the case during the recent years when most overbuilds were initiated), then the prices for their video programming services may have been lower than necessary to cover costs – i.e., lower than economically competitive levels.

As the foregoing discussion shows, there are a number of clearly identifiable circumstances in which the prices of overbuild systems may be artificially and uneconomically low – and these circumstances apply in a large number of overbuild communities. The chart below illustrates how the vast majority of observations in the Overbuild sample involve anomalous situations.



**Breakdown of Overbuild Communities**  
N= 433



\* Anomalous Communities: Includes Failed/Failing, Purchased assets below value, targeted non-rebuilds, targeted high density, unique ownership issues (telco, utility, co-op, municipal), different franchise or buildout requirements, or offers bundled services.

In fact, according to Professor Wildman, “it is striking how few communities remain in the comparison sample [of overbuild communities] when all identifiable sources of potential bias are eliminated.”<sup>12</sup>

### **GAO’s Survey of Six Overbuilders Is Not a Useful Indicator of Competitive Rates**

Even if there were no such multiple explanations for the price differentials between overbuild and non-overbuild communities, it would still be necessary to take any price comparisons in GAO’s most recent study with a large grain of salt. That study only examined six overbuild communities – only about 1.5% of all overbuild communities, and a very small fraction of one percent of all cable communities – and compared their

<sup>12</sup> Wildman at 19 (emphasis in original).

prices with the prices of six superficially similar cable systems in non-overbuild communities. It's hard to see how the differentials between the overbuild and non-overbuild systems in such a minuscule number of cases could possibly be deemed to have any statistical significance.

In any event, not surprisingly, the six overbuilders in GAO's study – like most of the overbuilders nationwide – appear to share one or more of the identifiable characteristics, described above, that are likely to result in artificially and anomalously low prices.

For example, Everest Connections is, first of all, owned by an energy utility company (Aquila, Inc.). In addition, it is a company facing serious economic difficulties. Everest, which was formed in 2000, initially planned overbuilds in Amarillo, Lubbock and several smaller Texas communities. It also was granted franchises in the Kansas City and Minneapolis-St. Paul regions and had applied for more than a dozen franchises in the Grand Rapids, Michigan area. But it has never expanded beyond its two systems in Lenexa and Mission, Kansas.

During the first half of 2003, Everest's energy company parent restructured Everest and terminated 160 of its employees. It recently told the FCC that it had stopped funding Everest because of the company's poor long-term prospects. And Everest has told the Federal Communications Commission that it will "soon cease all construction in Kansas City due to lack of funding."

Grande, the overbuilder in Waco, Texas, offers bundled video, Internet and telephony services. It acquired its system from a financially impaired company, ClearSource, two years ago. Although the sale price was not reported, it is reasonable to

assume that the assets were purchased at a substantial discount, reducing Grande's costs – and potentially supporting prices – substantially below what would have been sustainable if the company had to cover the true costs of the system.

Seren Innovations is another utility-owned and funded overbuilder. It was founded in April 1996 as a subsidiary of Northern States Power Co. and is now owned by Xcel Energy, Inc., which was formed by the merger of NSP and New Century Energy of Colorado.

PrairieWave is an investment company formed in 2002, which is affiliated with local telephone companies. It was formed to purchase the assets and operations of McLeodUSA Incorporated, a financially impaired operator of incumbent telephone systems in South Dakota and competitive telephone, cable and Internet services in South Dakota, southwestern Minnesota, and northwestern Iowa. Again, it is likely that the cable systems were acquired at a substantial discount to their initial cost.

The two remaining overbuild companies in the GAO study are Knology and RCN – both of which have already been described above in the discussion of companies that have gone through bankruptcy (Knology) or are in economic distress (RCN). Both systems offer bundled video, Internet and telephony services. And RCN, as noted above, has been around long enough to demonstrate – with rate increase after rate increase – that the low rates charged by overbuilders when they enter a market are far from sustainable.

### **Conclusion**

The bottom line is that overbuilders are the results of anomalous circumstances in nearly all cases and often exist, if at all, in financial distress or as the aftermath of financial distress – unless they are tied to a utility or not-for-profit cooperative. In the

rare circumstances where they exist, incumbent cable operators cannot afford to ignore such wireline competition. But they already face vigorous competition from DBS in virtually every community that they serve. And the services they offer and the prices they charge are already dictated and driven by such competition – whether or not they face an additional wireline competitor.

Overbuilders may enter the market with prices that are lower than these competitive prices. And incumbent cable operators may have no choice but to reduce their prices to such levels. But, as we have shown, these lower prices are either not economically sustainable by the overbuilders or are sustainable only because of anomalous artificial cost advantages and subsidies that are not available to incumbent operators. Whether or not overbuilders ever figure out a sustainable business model, their current model cannot serve as a benchmark for assessing the prices and conduct of cable operators in today's highly competitive video marketplace.

## Assessing the Policy Implications of Overbuild Competition

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February 9, 2004

### I. Introduction

Unlike the situation prior to the emergence of the national direct broadcast satellite (DBS) television services in the mid-1990's, it is indisputable that cable operators face direct competition in the provision of their primary service, multichannel television. Today the local cable operator competes directly with two highly successful DBS services who, nationwide, have captured approximately 22 percent of all multichannel television service customers.<sup>1</sup> Most operators also now offer a high speed Internet service for which they face competition from the incumbent local telephone company and frequently a number of other suppliers of high speed data services as well. And a small but growing fraction of cable operators offer voice telephony in competition with at least one, and increasingly, several telephone companies. The question now is whether this multifaceted competition, and especially the competition between the cable and DBS providers of multichannel video services, is intense enough to provide consumers with the benefits of lower prices and better services policymakers expect competition to provide.

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<sup>1</sup> Federal Communications Commission, Annual Assessment of the Status of Video Competition in the Market for the Delivery of Video Programming, Tenth Annual Report, MB Docket No. 03-172, Released January 28, 2004, Appendix B, Table B-1.

In a tiny fraction (less than two percent) of the communities they serve, incumbent cable operators also compete with newer wireline providers of multichannel video service, commonly known as “overbuilders.” Although it is not always the case, a few empirical studies have suggested that on average prices are lower in markets with overbuild competition than in markets where the incumbent is the only wireline provider of multichannel video service.<sup>2</sup> These studies have not systematically controlled for short run factors, such as low introductory prices charged by recent entrants and the presence of competitors who are not viable long-term, that might drive prices below their competitive equilibrium levels. Nevertheless, their findings have been offered as evidence that prices charged by cable operators in non-overbuild communities are too high.

Unfortunately, the world is more complex than this simple argument would imply and the evidence offered is not, by itself, sufficient to support the claim that is made. While the claim that lower prices in overbuilt communities are an indicator that prices in other cable communities are too high might be true, it may also be false. Because there are situations in which market prices may fall below the efficient market standard

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<sup>2</sup> The most recent published study is an article by J. A. Karikari, S. M. Brown and A. D. Abramowitz, “Subscriptions for direct broadcast satellite and cable television in the US: an empirical analysis,” *Information Economics and Policy*, vol. 15 (2003), pp. 1-15. Karikari, Brown and Abramowitz estimate that overbuild competition produces an approximately 10 percent reduction in cable prices. Their coefficient estimate is similar in magnitude to that found in an empirical study using earlier data by Dertouzos and Wildman, but the price effect in the Dertouzos and Wildman study was not statistically distinguishable from zero by commonly applied criteria for statistical significance. See, J. N. Dertouzos and S. S. Wildman, “Regulatory Standards: The Effect of Broadcast Signals on Cable Television,” in R. Noll and M. Price, eds., *A Communications Cornucopia*, Brookings Institution, 1998. In its October 2003 Report, “Issues Related to Competition and Subscriber Rates in the Cable Television Industry,” the GAO reports finding that overbuild competition reduced cable TV rates by about 15 percent.

associated with a competitive equilibrium, policymakers must take care to determine that the lower prices are in fact the efficient competitive prices and that the market structures generating those prices are sustainable in the long term. While consumers may benefit if supracompetitive prices are lowered, they may also be hurt by deteriorating quality and the exit of service providers if companies are forced to set prices below their competitive levels.

To convincingly demonstrate that lower prices in overbuild markets show that prices in non-overbuild markets are too high it would be necessary to provide: (1) evidence that cable prices charged in overbuild communities might reasonably be interpreted as competitive equilibrium prices, and (2) empirical support for the proposition that the prices (and numbers of competitors) observed in these markets would also be sustainable long-term in communities currently not served by overbuilders. Until evidence supporting the existence of both of these relationships is provided, the argument that lower prices in overbuild markets show that prices in other cable markets are too high must be considered empirically unsubstantiated. On the other hand, this argument would be empirically refuted by a demonstration that either of these relationships does not hold.

To this end, I have reviewed data on overbuild competitors and the communities they serve compiled from a NCTA-commissioned study by Kagan World Media<sup>3</sup> and data descriptive of cable communities and markets from trade data sources. My review of this evidence suggests that it is highly likely that prices in overbuild communities are below long-run competitive levels and that, unless recent and/or new technological

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<sup>3</sup> Kagan World Media, "Survey of Incumbent Cable Operators in Overbuild Communities," January 2003. See Attachment A.

developments substantially change the economics of competition in multichannel video services, the overbuilders in these communities are not equilibrium features of the markets they serve. Furthermore, based on the US experience with overbuild competition to date, it would be dangerous to assume that overbuilders could profitably enter and offer services in the typical community in which a single cable company currently competes with the two satellite services.

The analysis that lead me to these conclusions is presented in the remainder of this report, which is organized as follows. Section II briefly describes the properties of a competitive equilibrium and identifies factors unrelated to differences in competitiveness that may lead to departures from a competitive equilibrium. Indicators of when such factors may be influencing overbuild markets are then discussed. Section III uses the framework presented in Section II to classify overbuilders and assess the long-term viability of overbuilders in current overbuild communities. The implications of this exercise for the interpretation of earlier studies comparing cable prices in communities with and without overbuild systems is then discussed. Section IV builds on the findings presented in Section III to examine the usefulness of the experience with overbuild services in the United States for assessing how close prices for cable services in communities without overbuilders come to their competitive equilibrium values. The findings of the study are summarized in Section V.



## II. Competitive Prices and the Competitive Market Standard

### A. Using the competitive market standard to judge market performance

The competitive price standard commonly employed in policy analyses is the long-run equilibrium price of the textbook model of a perfectly competitive market. In a perfectly competitive market in equilibrium, each buyer pays no more than the cost of the output purchased and sellers' revenues are just sufficient to cover their costs. Because price paid is a measure of value delivered to the buyer, this equation of cost with value at the margin indicates that the market is providing the maximum value possible with the resources at hand. The market output associated with this desirable state is the competitive equilibrium output or supply. Departures from equilibrium values for prices and outputs may rightly be interpreted as evidence that the societal resources employed to serve a market are not delivering the value they should.<sup>4</sup>

Policy intervention may be warranted *if departures from equilibrium are not naturally corrected by market forces*. Thus, for example, if output was held below its competitive equilibrium value for an extended period of time, the increase in price attendant on the reduction in supply would be a measure of how much the added value to consumers from increasing output might exceed the cost of doing so. Similarly, if supply exceeded its competitive equilibrium value, price would fall to less than the cost of delivering the market's product or service, and the excess of cost over price could be

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<sup>4</sup> For a straightforward presentation of the basic argument for the efficiency advantages of competitive equilibrium prices and quantities, see F. M. Scherer, Industrial Market Structure and Economic Performance, Second Edition, Rand McNally Publishing Company: Chicago, 1980, Chapter 2.

interpreted as a measure of how much more value the resources employed could contribute to society if used to create other goods and services.

Because observed prices may be above or below their competitive market values, the simple observation that the price for a product or service is lower in one market than in another is not sufficient to determine which, if either, is closest to the competitive equilibrium price. For this reason, policy-driven comparisons of prices in different markets must be sensitive to the implications of factors that may cause prices (and numbers of competitors) to depart from their equilibrium values. Analysts must also be sensitive to the possibility that differences in underlying demand and/or cost conditions may lead to differences among markets in equilibrium prices and numbers of competitors, which is considered in Section IV. The remainder of this section focuses on factors that may cause prices and numbers of competitors to differ from equilibrium values and how these might be incorporated in a study of competition in the supply of multichannel subscription television services.

Four types of factors other than deficiencies in the competitive process may cause prices and numbers of competitors to depart from their competitive equilibrium values. These are: (1) Errors in judgment by entrants, potential entrants and incumbents, which may include bets on new technologies, (2) Changes in market conditions, (3) Low, but unsustainable, introductory prices, and (4) Government policies. Each of these four types of factors should be considered in constructing a sample of communities with overbuilders, which I will call a comparison sample, to be compared with communities not served by overbuilders to assess the competitive performance of the latter.

## **B. Errors in judgment by entrants, potential entrants, and incumbents**

The ideal of a competitive equilibrium that has become a touchstone of competition policy analysis is an analytical abstraction, the properties of which rest on a set of assumptions that are at best only approximated in real world markets. Critical among these assumptions is that market participants be completely informed about cost and demand conditions and about the strategies employed by their competitors. The reality, of course, is that market participants are never perfectly informed and are constantly scouring the market and the larger economic and political environment for bits of information that might help them better align their strategies with the true states of the markets they serve. Because they must work with incomplete information, the decision to commit resources to provide service in a market always entails some risk of loss as well as the possibility of gain.<sup>5</sup> This is true for firms already serving a market as well as for firms contemplating entry.

Entry in competitive markets is always an uncertain prospect because entrants must predict on the basis of incomplete information the reception their products will receive once they are introduced and the costs they will incur in supplying them. Potential entrants may err by both underestimating the profits they might earn if they enter and by overestimating their post-entry profits. Both types of mistakes will be corrected by the market in the long run, but the short term impacts will be quite different. The first type of mistake will be corrected either through the entry of other firms who more accurately assess their prospects, or as high prices and high profits earned by

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<sup>5</sup> For a recent treatment of how uncertainty about demand conditions influences firms' entry strategies, see G. Pacheco-de-Ameida and P. Zemsky, "The Effect of Time-to-Build on Strategic Investment Under Uncertainty," RAND Journal of Economics, Vol. 34 (2003), pp. 166-182,

incumbents cause initially unenthusiastic potential entrants to change their minds. The short-term consequences of potential entrants' failures to take advantage of opportunities for profitable entry will thus be prices that exceed their competitive equilibrium values. It is important to note, however, that prices that exceed competitive equilibrium levels are not evidence that markets that are less than competitive if there is nothing to prevent the entry of new competitors to bring about the efficient competitive outcome in the long term.

The price-effects of entry spurred by overly-optimistic predictions of post-entry profits are just the opposite of those for overly pessimistic forecasts that delay entry in markets where entrants could prosper. When the number of firms in a market exceeds the number the market can realistically support, the competition to determine who remains in the market will often drive prices to levels that are too low to cover the costs of investments and ongoing operations in the long term. Visible signs of failed investments of this type would include business closures, reorganizations under the protection of bankruptcy, and the sale of assets at less than their original cost. However, not all failed investments will be publicly revealed because owners with sufficient resources may choose to keep open business that cover their operating costs even if they don't fully recover their sunk investments.

Just as entrants may misjudge market circumstances or their own capabilities and enter when it is inefficient to do so, so may incumbents invest in new services or capacity that fail to generate revenues commensurate with their costs. Depending on their magnitude, incumbent mistakes of this type may lead to the same financial consequences just described for failed entrants.

Incumbents may also make mistakes that encourage entry in situations in which it would not normally occur. For example, an incumbent cable operator, whether through inattentiveness, lack of capital, or a wrong bet on the direction and implications of technological change, may fail to upgrade its plant in a timely manner, leaving it unable to supply the quality, breadth and variety of services a more up-to-date operator could profitably provide. Because a market served by such an operator is in effect underserved, an opening may be created for profitable entry that would not have arisen had the incumbent been on its toes. The consequences of entry of this type are good for consumers, and, because the threat of entry by suppliers using more advanced technology gives incumbents an incentive to continually improve their services, beneficial to society at large.

Nevertheless, as long as entry in response to incumbent inefficiency remains the exception rather than the rule, it would be inappropriate to regard prices in markets where this occurs as reliable benchmarks for evaluating cable prices generally. The competitive equilibrium standard assumes a market served by efficient competitors and in the long run it must be expected that inefficient cable operators will exit the markets they currently serve. Evidence that entrants were responding to opportunities created by inefficient incumbents would include entry concentrated in markets where incumbents failed to keep up with the rest of the industry in upgrading their services and facilities.

### C. Changes in market conditions

Equilibrium prices and the number of firms a competitive market can support may both change with changes in market demand and changes in the costs firms incur in supplying the market. Increased demand is typically associated with a larger number of firms in equilibrium while increases in costs tend to increase equilibrium prices and may reduce the number of viable competitors. Of course the opposite is true when demand and costs fall. Because entry and exit are both time consuming processes, new equilibria may lag considerably the changes that produced them and prices during the transition may differ considerably from their values in either the original or the new equilibrium.

New technologies are important agents of market change.<sup>6</sup> Advances in technology may lower costs or make possible delivery of combinations of services that were not feasible with earlier generations of technology. New firms can be expected to adopt these technologies from their inception, while incumbents may find it more prudent to adopt them more slowly over time as they replace or enhance existing facilities. Anticipated cost savings and the possibility of selling different mixes of services may stimulate entry in markets where entry otherwise would not have occurred. Optimism based on the allure of new technologies often turns out to be unfounded, however, and ventures built on them may fail, as we recently witnessed with the implosion of so many of the early dotcom businesses. But even when the investments supporting technology-driven entry are proved wise in hindsight, it is inappropriate to view post entry prices as

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<sup>6</sup> For example, D. Clark shows how evolution in the local loop technology underlying Internet access may change the nature of competition to provide Internet access to consumers. D. Clark, "Implications of Local Loop Technology for Industry Structure," in S. E. Gillett and I. Vogelsang, eds., Competition, Regulation, and Convergence: Current Trends in Telecommunications Policy Research, Lawrence Erlbaum Associates, Publishers: Mahwah, NJ, 1999, pp. 283-296.

evidence of what competitive prices would have been pre-entry with the older technology. Instead, costs and prices are likely to depend on the technology employed. Furthermore, entrants employing new technologies should not be counted as permanent features of their markets until they have demonstrated the viability of their business plans.

#### **D. Low, but unsustainable, introductory prices**

It is not uncommon for firms entering a market to offer their products or services at prices too low to cover their costs over the long term. They do this to rapidly build their customer base to a level large enough to ensure profitability once prices return to sustainable levels. Incumbents often respond to such tactics with lower prices of their own. Because market prices frequently rebound to higher levels once entrants' initial price-cutting strategies have run their course, it is important that prices in markets with recent entry not be used as competitive benchmarks for prices in other markets.

#### **E. Government policies.**

Due to their powers of taxation and regulation, decisions made by governments at all levels may significantly affect the costs of doing business and the prices charged by firms serving local markets. As a result, differences in local government policies may lead to substantial differences in local prices and the numbers of firms serving local markets

Privately-owned cable operators must acquire franchises to provide service from local regulatory authorities, and franchises are typically awarded contingent on the operator meeting obligations specified by the local authority. Such obligations may

substantially increase the cost to an operator of providing service in a local community. Variation in franchise obligations is one reason cable prices may differ among communities. Because franchise obligations influence costs, they also affect the prospects for entry by new cable providers. Results of the survey described in more detail later in this report suggest that in a number of communities franchise authorities have favored entrants with less onerous, and thus less costly, franchise obligations than those of the incumbent operators already serving these markets. While the cost advantages of more favorable regulatory treatment may be a powerful inducement to entry in some markets, and prices may fall when entry occurs, it clearly would be a mistake to attribute either entry or any subsequent reductions in prices to the workings of competitive forces when the entry occurs in response to a regulatory advantage.

In a number of overbuild communities, the competition to a privately-owned incumbent operator comes from a government-owned system. Because a cable system operated as a government service serves both political and economic goals, and especially because the economic constraint of earning a market-return on capital investments cannot be assumed to apply to government-owned enterprises, it would be inappropriate to use prices in markets with government-owned systems as benchmarks for competitive prices.

### **III. Overbuilder Viability and the Questionable Value of Price Comparisons**

The discussion of Section II makes clear that a number of factors might cause the prices and numbers of competitors in a market to depart from their long-run competitive values. For this reason, if comparisons of overbuild markets to markets without overbuilders are employed to inform a policy analysis, it is important that the overbuild



markets employed be ones for which the likelihood is small that prices and numbers of competitors differ substantially from the competitive equilibrium values for these markets. While it is not possible in practice to guarantee that prices and the number of competitors observed in any given market are at their long-run equilibrium values, it is possible with the framework developed in Section II to identify markets mostly likely to be tainted by factors known to be potential sources of bias and exclude them from any comparison samples.

This section reports the results of such an exercise using data for a sample of 433 communities with an overbuilder presence<sup>7</sup> (the overbuild data set), based on a study of overbuilders by Kagan World Media commissioned by NCTA,<sup>8</sup> which was supplemented with additional information from trade data sources compiled by NCTA. The analysis presented in this report is a secondary analysis of this data. The sample and the methodology employed in constructing it are described in Section III.A. A set of potential comparison samples constructed using the framework developed in Section II is described in Section III.B. The implications of this exercise in classification and comparison sample construction for policy interpretations of comparisons of prices in cable communities with and without overbuild services are discussed in Section III.C.

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<sup>7</sup> Some of the overbuild franchises awarded were not built out or never offered service. The data set includes these communities along with those built out that offered service as communities with an overbuilder presence.

<sup>8</sup> Kagan World Media, "Survey of Incumbent Cable Operators in Overbuild Communities," January 2003.

## **A. The overbuild data set**

NCTA retained veteran cable industry analyst John Mansell of Kagan World Media to conduct and supervise the data collection regarding overbuilds from the incumbent cable operator in each overbuild market with the goal of identifying and gathering information on all of the wireline systems that compete with incumbent cable television systems in the United States. NCTA used Kagan World Media data from the *2003 Broadband Cable Financial Databook*<sup>9</sup> to identify 465 “Cable TV competitive franchises,” which Kagan considers a near-comprehensive listing of existing overbuild franchises as of mid-2003 when the data in the *Databook* was compiled. The Kagan data lists the City and State and name of each Overbuilder. NCTA used a Nielsen Media Research database (FOCUS) to identify the incumbent cable system operators in each of these communities. NCTA then developed a survey instrument to collect information about the challenger in each market. Specifically, the survey included questions addressing the following overbuilder characteristics:

1. Name of current overbuilder.
2. The year in which overbuild commenced service.
3. Capacity of overbuilder (in MHz)
4. List of services offered by overbuilder .
5. Ownership Information. Is the overbuild owned by local government (town, city or county), a utility company (gas, electric), a local telephone company, a co-op, or privately owned.
6. Name of incumbent at the time of overbuild.
7. Similarity of build-out requirements.
8. Demographics of neighborhoods where overbuild currently offers service.
9. The population density of the markets targeted.

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<sup>9</sup> Kagan World Media, 2003 Broadband Cable Financial Databook, pp.81-84.

10. Sales/acquisition information. Whether current owner is the original owner and sales price if not.
11. Similarity of franchising requirements to those of incumbent.

The survey of incumbent cable operators was conducted between October 21, 2003 and January 2, 2004. Each MSO (or individual system if not affiliated with the Top 10 MSOs) was provided an electronic copy of the questionnaire and a list of communities where their companies faced a wireline competitor according to the Kagan data. In some cases, the MSOs collected the data directly from their cable systems and forwarded their results on to John Mansell and in other cases the data was collected by Mansell at the system level. Since a few overbuilders have exited the business in recent years, public information about these companies was used to collect data for these observations. All data gathered from the questionnaires and public sources were tabulated electronically by Mansell to create the spreadsheet attached to this report.

In total, information on 433 communities was collected and compiled. Because survey respondents identified several overbuilders that had entered their communities in late 2003 or early 2004 after Kagan stopped collecting information for the *2003 Databook*, the final tally was 470 identified communities with an overbuilder presence. Survey respondents did not provide information for 39 of the 114 former Ameritech New Media franchises sold by SBC to WideOpenWest, which is two more than the difference between the 470 communities identified and the 433 in the sample for which information was collected. This suggests that two of the former Ameritech New Media franchises

may have been missed in the Kagan census of cable communities, or, perhaps shut down since their sale to WideOpenWest.<sup>10</sup>

## **B. Constructing comparison samples**

Of the 433 overbuild communities identified by the survey, 62 had overbuilders that had already failed,<sup>11</sup> six were identified as failing,<sup>12</sup> and 15 had not yet begun to build out their franchises or were not yet offering service at the time of the survey. Clearly failed and failing franchises do not belong in a comparison sample, and systems that are not operating provide no performance measures. Therefore all 83 communities with failed, failing and not built systems were eliminated from the comparison sample. These deletions reduced the sample to 350.

While not classified as failed or failing systems because they are still in business and offering service, an additional 76 communities were served by overbuilders who purchased their plant from previous owners at a small fraction of the original construction cost. (Systems serving 77 communities were sold for less than cost, but one of them also failed.) The fact that the original owners of these systems were forced to sell them for substantial discounts relative to their investments in them shows that that the markets they served did not generate revenues sufficient to both cover their operating costs and provide a fair return on upfront investments. There are numerous potential buyers capable of operating these systems. Therefore, the ability of the actual buyers to pick up

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<sup>10</sup> All 114 of the former Ameritech New Media systems are assumed to still be providing service in their franchise communities in various calculations reported below.

<sup>11</sup> This includes operators who failed after offering services, which is the majority of this category, and operators who experienced financial failure before commencing service.

<sup>12</sup> These operators were either in the process of filing for bankruptcy or in negotiations with creditors.

them up at pennies on the dollar shows that they would not have been willing to pay the full costs of building these systems if that were the price of entry. Systems in these communities are properly classified as the types of investor mistakes that will be eliminated from competitive markets in the long run. Subtracting the 76 systems purchased for less than original construction costs leaves 274 systems in the comparison sample.

31 of the communities with overbuilders were served by municipally-owned systems, but one is one of the failed systems eliminated above. Because such systems are likely to be operated to address political as well as economic goals, and because access to public funding is likely to be reflected in both build and pricing decisions, these systems must also be eliminated from the comparison sample, leaving a total of 244.

244 is the absolute maximum number of overbuild communities that might be retained in the comparison sample. Call this sample CS1. There are several reasons to believe that the number of communities served by overbuilders where two cable services might plausibly be viable in a competitive equilibrium is substantially smaller than the 244 communities in CS1. One reason is the 107 communities identified by survey participants where the overbuilder came in with new plant to compete against an incumbent who had fallen behind industry standards in upgrading its facilities. As explained in Section II, an inefficient incumbent may create an attractive opportunity for a more efficient entrant, but the competitive equilibrium used as a standard for policymaking is one in which efficient firms compete against each other. To ensure that the comparison sample is not tainted by the inclusion of communities whose overbuilders entered in response to incumbent incompetence, overbuild communities where the

incumbent operates outdated plant should be eliminated from the comparison sample as well.

Overbuilders in eight of the 107 overbuild communities with incumbents operating outdated systems were municipally owned, 52 were purchased at a fraction of construction cost, four had failed or failing systems, and one had a failed/failing system purchased at a fraction of its buildout cost. As all of these communities were already excluded from CS1, we are left with an additional 42 overbuild communities served by inefficient incumbents that probably should be subtracted from CS1 to ensure that inefficient incumbents do not bias the sample. Call the resulting sample CS2. CS2 has 202 cable communities.

A second reason to believe that that CS1 includes many communities where overbuild competition is not likely to be sustained in a competitive equilibrium is that the 76 communities served by overbuilders who purchased prior operators' assets for less than construction cost were identified through publicly-available documents. These are all the communities for which system cost and purchase price was found. An additional 39 communities served by systems operated by second or subsequent owners were identified by survey respondents. Given the numbers of failed and failing systems and the fact that systems for which information on construction cost and sales price was found were sold at less than cost, it seems likely that many, if not most, of the resold systems for which construction cost and purchase price were not available were also sold at a loss. At any rate, the strong possibility that they were sold for less than cost suggests that they should be eliminated from the comparison sample. In six of the communities served by these second (or subsequent) owner systems, the incumbent was operating outdated plant

and thus was already eliminated from the comparison sample. If we subtract the remaining 33 communities from CS2 to completely eliminate the possibility that failed systems are included in the comparison sample, we are left with 169 communities. Call this sample CS3.

The possibility that local politics played a role in entry decisions must be also be considered in situations in which overbuilders' franchise authority-imposed conditions for operation differ from those required of the incumbent. This is a third reason to believe that CS1, as well as CS2 and CS3, includes communities in which overbuilders would not be viable in a true competitive equilibrium. While cost advantages based on regulatory favoritism may be a reason for entry, entry in such cases cannot be considered the outcome of a competitive process. Respondents to the survey identified a total of 96 communities for which the overbuilder did not have the same franchise requirements as the incumbent and 103 communities where the overbuilder was not required to serve the entire franchise area. To eliminate the possibility that the overbuilder's entry decision was based on favorable regulatory treatment, communities where the overbuilder and the incumbent have different franchise and build-out requirements should also be eliminated from the comparison sample. Subtracting these communities from CS1, CS2 and CS3 would produce the most restricted, but methodologically purest, comparison samples. Call these purer samples CS1P, CS2P and CS3P. CS1P has 131 communities, CS2P has 109 communities, and CS3P has 94 communities. It is striking how few communities remain in the comparison sample when all *identifiable* sources of potential bias are eliminated.

**Table 1**  
**Eliminating Sources of Bias from Comparison Samples**

Complete Sample	CS1	CS2	CS3	CS1P	CS2P	CS3P
433	244	202	169	131	109	94

A fourth reason to believe that all the comparison samples just described, including the last three, include communities served by systems that are not long-term viable is that the vast majority of systems for which no financial information was available were assumed to be viable. That is, if some of the systems for which no financial data was available were failing, they would have been misclassified as viable. If overbuilders for which financial data is not available experience financial difficulties and failure at the same rate as those for which data is available, then most of these systems have been misclassified. In addition, the newness of many of the overbuilders in the sample also introduces a bias against a failed or failing classification because the process of failure has not yet had time to work itself out, which is a fifth reason to believe that the comparison samples include communities served by systems that in the long run will be proved nonviable.

**C. The questionable relevance of overbuild price studies for cable policy**

The question of whether overbuild competition lowers cable prices is relevant for policymaking only if the overbuilders in the overbuild communities examined are realizing market returns on their infrastructure investments. The results of the study of



overbuilder viability reported in Section III.B show that it would be incautious to assume long-term viability for more than a small fraction of existing overbuilders. For the remaining systems, any effects they might have on prices in the markets they serve should be considered departures from equilibrium prices. Because studies of the price effects of overbuild competition reported to date did not control for viability with anything close to the rigor applied in the study reported in Section III.B, the odds are high that many, and perhaps most, of the overbuilders included in these studies were the products of failed investments. This being the case, it would be inappropriate to rely on the findings of these studies to assess the competitiveness of cable prices in communities without overbuilders.

#### **IV. The Real Lessons from the US Experience with Overbuild Competition**

The statistics on indicators of overbuilder viability presented in Section II.B provide strong reasons to suspect that most of the current crop of overbuild services likely are not viable participants in the markets they serve in the long term. The 365 communities currently served by privately-owned overbuilders constitute just 1.1% of the approximately 33,000 cable-served communities in the United States.<sup>13</sup> The fact that overbuilders are offering services in such a small fraction of US cable communities suggests that in general potential investors in such services view their prospects as poor. The trend of overbuilder entry over time tells the same story. Table 2 presents data on the number of communities in the entire Kagan sample entered by privately-owned overbuilders for two-year intervals from 1995 through the present.

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<sup>13</sup> 365 is calculated as 433 communities in the sample minus a total of 77 that either never offered service or failed minus 30 operating municipally-owned systems plus 39 former Ameritech New Media franchises not in the sample but assumed to still be operating. This count includes a handful of co-operatives that may be non-profit.

**Table 2**  
**Overbuilder Entry Over Time**  
(built-out commercial systems)

Pre-1995	1995-1996	1997-1998	1999-2000	2001-2002	2003-2004	No Entry Date
33	46	66	77	70	17	42

The Cable Act of 1992<sup>14</sup> eliminated any statutory authority local franchise authorities may once have had to restrict franchise awards to incumbent providers and the Telecommunications Act of 1996<sup>15</sup> (Telecom Act) provided further encouragement to entry in local markets for communications services, including cable. The pace of overbuilder entry did increase beginning in 1997, but this also coincided with increased adoption of new technologies that would allow the provision of high speed data and telephone services over cable plant throughout the cable industry, so it is difficult to know to what extent the Telecom Act, as opposed to the lure of new technologies, influenced the pace of overbuilder entry.

Missing data on entry dates for some communities make it impossible to determine exactly how much entry occurred in each of the periods listed in Table 2, but we can determine reasonable upper bounds on the rate of entry. The 17 startups identified for 2003-2004 represent Kagan observations for a little more than the first half of 2003 plus a few additional entrants identified by survey respondents after that time. If

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<sup>14</sup> 47 USC § 541 (a) (1).

<sup>15</sup> 47 USC §§ 251et seq.

we assume all 17 started up in the first half of 2003, this would reflect a two-year entry rate of 68, which is close to the pace of entry for the prior three two-year periods. Entry date is provided for 74 of the 75 former Ameritech New Media communities in the sample, and all were from 1996 to 2001. If we assign the remaining 39 Ameritech New Media franchises to the six years from 1977 through 2002, total private entry would have been 252, or 42 per year. This pace amounts to entry into just under thirteen one-hundredths of one percent (0.0013) of US cable communities annually.

Data on the technology deployed in communities with overbuilders presented later in Table 3 shows that a higher percentage of the 42 communities for which date of overbuilder entry was not provided are served by overbuild systems utilizing last generation technology with no advanced features than is indicated for the pre-1995 communities in the built-out sample. If we assume instead that entry in all of these communities occurred from 1997 through 2002, total entry during the period would have been 294, the average annual rate of entry would have been 49, and the average fraction of cable communities entered annually would have been fifteen one-hundredths of one percent (0.0015).

These figures on the pace of overbuilder entry may be interpreted in either of two ways. If, counter to the evidence developed in Section III, overbuilders are assumed viable in all of the communities they serve, the failure of the overbuild strategy to catch on elsewhere suggests that potential investors in overbuild systems have serious doubts that they can be profitable in other cable communities. That is, the capital market response to the experience with overbuild operations accumulated in the US to date

suggests that there is little confidence a second cable system can be viable in a typical cable community.

The second interpretation of the data on entry presented above is more consistent with the evidence on overbuilder viability presented in Section III.B. That is that the capital market has seen overbuild operations fail repeatedly and has concluded that in general overbuild systems are not good business opportunities. By both interpretations of the entry data, it seems clear that investors have concluded that in general competitive markets that include two satellite services will not support a second cable provider of multichannel video services, at least with the technologies currently available.

If there are exceptions to this general conclusion, the best bets would seem to be overbuilds operated by telephone companies and co-operatives in small rural communities. Of the 382 communities in the sample with built out systems, a total of 244 survived the various elimination criteria to be included in CS1, for a survival rate of 64 percent.<sup>16</sup> Yet of the 89 communities with built out systems currently operated by telephone companies, 86 are in CS1. These communities are predominantly small and rural. Community population is available for 76 of the 86 communities in CS1 served by telco-owned systems. Nearly 59 percent have fewer than 15,000 residents, 47 percent are communities with fewer than 10,000 residents, and approximately 36 percent are communities with fewer than 5,000 residents. Over six percent of these telco-served communities have fewer than 1,500 residents. All ten built-out communities served by

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<sup>16</sup> The 39 former Ameritech New Media systems not included in the larger sample would not have been in CS1 in any case because Ameritech New Media sold its systems to WideOpenWest for substantially less than the cost of building them.

cable co-operatives are in CS1.<sup>17</sup> Nine of these communities had fewer than 10,000 residents, six had fewer than 5,000. (Population was not listed for one of the co-op communities.)

It is not clear why rural telephone companies and co-operatives may be more successful than other types of owners as operators of overbuild systems. One possibility is that closer relationships with customers in smaller communities make it easier for rural telephone companies to sell new services, and perhaps the co-operative organizational form may have advantages in small, close-knit communities. It may also be the case that with convergence the natural long-run market structure in small communities is one with a single wireline provider of video, high speed data and voice services and what we are witnessing is a necessary step toward that future if the local telephone company is to be the surviving wireline competitor. Whatever the reason, the character of these rural settings likely is not replicable in the more typical urban cable communities.

A closer look at the data collected in the Kagan study suggests that most of the more recent overbuild experiments were inspired by the capabilities of relatively recent technological advances that make it possible to use cable plant to provide telephony and high speed Internet service in addition to more traditional video services. Table 3 adds to the entry data reported in Table 2 numbers and percentages of entrants offering the combination of video, high-speed Internet and telephony (the three bundled services) and the numbers of entrants offering either the three bundled services or the two services of video plus high speed Internet service.

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<sup>17</sup> Systems serving two of the overbuild communities operated by telephone co-operatives were counted as co-op operated rather than telephone company operated.

**Table 3**  
**New Technology and Overbuild Entry Decisions**  
(built-out commercial systems)

	Pre-1995	1995-1996	1997-1998	1999-2000	2001-2002	2003-2004	No Entry Date
Number of Communities	33	46	66	77	70	17	42
# 3 Bundled Services	7	15	30	61	38	14	3
% 3 Bundled Services	21.2%	32.6%	45.5%	79.2%	54.3%	82.4%	7.1%
# HSD or 3 Bundled Services	23	40	61	70	63	15	12
% HSD or 3 Bundled Services	69.7%	87.0%	92.4%	90.9%	90.0%	88.2%	28.6%

Table 3 shows a heavy reliance on high-speed data or high-speed data and telephony technology strategies by overbuilders, including those who entered prior to the Telecom Act, and that reliance on multi-service platforms has in general been increasing over time. Notable is the growing percentage of overbuilders offering video services, high speed Internet service, and telephony, which has averaged well over 50 percent from 1999 on.

As was discussed in Section II, new entrants into established markets are often inspired by the potential they perceive in new technologies. It is also frequently the case

that pre-entry optimism is shown unwarranted by the post-entry market responses to the entrants' products and services. At least at this point, capital markets appear to have concluded that the overbuilder strategy is not one that can profitably be applied in most cable markets, even when it is supported by advanced distribution technology and triple play service offerings. However, even if this were not the case and we restricted our attention to overbuilders with the most technologically advanced systems, it would still be inappropriate to assume that prices observed in overbuild communities are the prices that should prevail in communities without overbuild systems. If the future is one in which all wireline competitors offer multi-service bundles, we are still early in the transition to that future. Because the new technologies imply different cost structures and, with multi-service offerings, new strategies for exploiting demand, there is no way to know how competitive prices with the new technologies will compare to competitive prices with the old technologies, or how prices might move during a period of transition.

## **V. Conclusions**

A close look at overbuilders and the communities they serve shows that it would be imprudent to use prices in these communities as benchmarks for evaluating prices in other cable communities. The competitive price standard employed for policy analysis assumes competition among firms able to cover their investment and operating costs from the revenues they generate. The evidence reviewed in this report suggests that this likely is not the case for many, and perhaps most, of the overbuilders operating in the United States today. To the contrary, the evidence for a high rate of financial failure is compelling and it would be analytically inappropriate to view the effects on price of

systems that can't recover their own investment costs as evidence of how competitive multichannel video markets should behave.

The fact that only a tiny fraction of a percent of cable communities attract overbuilder entry in any given year in itself suggests that most knowledgeable potential investors see little prospects for profit in the overbuilder strategy. Empirical studies of the price effects of overbuild competition have not controlled for overbuilder viability or for the possibility that new overbuilders may be charging low introductory prices to rapidly build market share. For this reason, these studies shed no light on what competitive cable service prices might be. Even if this was not the case, the failure of capital markets to support a broad rollout of overbuild systems suggests that the conditions under which overbuild operations can thrive are quite different from those in the typical cable community.



**Survey of Incumbent Cable Operators in Overbuild Communities**

CITY	ST	CHALLENGER	Population	Began	Not Orginial Owner	Offers High-Speed Internet	Offers Bundled Services (Voice, Video, Data)	New Firm that purchased assets for small fraction of orginal costs
20 cities	RI	ABI						
La Crescent	MN	ACE Comm.	4,239	2003		✓	✓	
Camarillo	CA	Adelphia	57,077					
Encinitas	CA	Adelphia	58,014	1991	✓	✓		
Malibu	CA	Adelphia	12,575	1996	✓	✓		
Oxnard	CA	Adelphia	170,358		✓	✓		
Port Hueneme	CA	Adelphia	21,845	1998	✓	✓		
San Marcos	CA	Adelphia	54,977	1991	✓	✓		
Ventura	CA	Adelphia	100,916			✓		
Flora	IL	Advance Technologies	5,086	2002		✓		
Alameda	CA	Alameda Power	72,259	2002		✓		
Algona	IA	Algona Municipal Util.	5,741	2002		✓	✓	
Evanston	WY	All West Comm.	11,507	2001		✓	✓	
Alta	IA	Altatec	1,865	2000		✓		
Arcadia	CA	Altrio	53,054	2001		✓	✓	
Monrovia	CA	Altrio	36,949	2002		✓	✓	
San Gabriel Valley	CA	Altrio	39,084	2001		✓	✓	
Sierra Madre	CA	Altrio	10,578	2004		✓	✓	
Ann Arbor	MI	American Broadband	114,024					
E. Lansing	MI	American Broadband	46,525					
Lansing	MI	American Broadband	119,128					
St. Joseph Twp.	MN	Astound Broadband	4,681	2001		✓		
Pultney	OH	Bellaire Cable TV	4,892	1978				
Bartlett	TN	BellSouth						
South Dade County	FL	BellSouth	2,253,362	1999				
Winder	GA	BellSouth	10,201					
Cherokee County	GA	BellSouth Entertainment	141,903	1996	✓	✓	✓	
Cobb County	GA	BellSouth Entertainment	607,751	1996	✓	✓	✓	
Duluth	GA	BellSouth Entertainment	22,122	1996	✓	✓	✓	
Gwinnett County	GA	BellSouth Entertainment	588,448	1996	✓	✓	✓	
Roswell	GA	BellSouth Entertainment	79,334	1996	✓	✓	✓	
Woodstock	GA	BellSouth Entertainment	10,050	1996	✓	✓	✓	
Chamblee	GA	BellSouth Interactive	9,552					

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CITY	ST	CHALLENGER	Population	Began	Not Orginial Owner	Offers High-Speed Internet	Offers Bundled Services (Voice, Video, Data)	New Firm that purchased assets for small fraction of orginal costs
DeKalb	GA	BellSouth Interactive	665,865					
St. John's County	FL	BellSouth Interactive		1999		✓	✓	
Fallowfield	PA	Bentleyville Cable	2,502	1998				
Albany	NY	Berkshire Tel	1,275	1995		✓		
Rapid City	SD	Black Hills GLA	59,607	2001		✓	✓	
Skagit County	WA	Black Rock Cable	102,979					
Snohomish County	WA	Black Rock Cable	606,024					
Whatcom County	WA	Black Rock Cable	166,814					
Braintree	MA	Braintree Elec. Light	33,828	2001		✓		
Elizabethtown/Hardi	KY	Brandenburg Telecom	22,542	2001		✓	✓	
Ocala	FL	BrightHouse	45,943	1979		✓	✓	
Abington	VA	Bristol Virginia Utilities	7,780	2003		✓	✓	
Glade Spring	VA	Bristol Virginia Utilities	1,374	2003		✓	✓	
Horton Twp.	PA	Brockway TV		1997				
Kane	PA	Brockway TV	4,126	1997				
Bryan	OH	Bryan Municipal Cable	1,833	1999		✓		
Waterville	OH	Buckeye Cable	4,828	1999		✓		
Maryland Hts	MO	Cable America	25,756	1991		✓		
Mesa	AZ	Cable America	396,375	1988		✓		
Sacramento	CA	Cable America	407,018	1990		✓		
Cameron	LA	Cameron Tel.	1,965	2003		✓	✓	
Hackberry	LA	Cameron Tel.	1,699	2003		✓	✓	
Charlotte	NC	Carolina Broadband	540,828					
Columbia	SC	Carolina Broadband	116,278					
Durham	NC	Carolina Broadband	187,035					
Greensboro	NC	Carolina Broadband	223,891					
Greenville	SC	Carolina Broadband	56,002					
Raleigh	NC	Carolina Broadband	276,093					
Spartanburg	SC	Carolina Broadband	39,673					
Winston Salem	NC	Carolina Broadband	185,776					
Cedar Falls	IA	Cedar Falls Utilities	36,145	1996		✓	✓	
Clearview	WV	Centre TV	590	1979				
Ohio County	WV	Centre TV	47,427	1979				

## Survey of Incumbent Cable Operators in Overbuild Communities

Attachment A

CITY	ST	CHALLENGER	Population	Began	Not Orginial Owner	Offers High-Speed Internet	Offers Bundled Services (Voice, Video, Data)	New Firm that purchased assets for small fraction of orginal costs
Warwood	WV	Centre TV		1979				
Urbana	OH	Champaign County Tel	11,613	2001		✓	✓	
Denver	CO	Champion Broadband	554,636	2000		✓	✓	
Lakewood	CO	Champion Broadband	144,126	2000		✓	✓	
Kanawha County	WV	Charter	200,073	1985		✓		
Terre Haute	IN	Charter	59,614	1992	✓			
Danville	VA	Chatmoss Tel.	48,411	1991				
Hayward	MN	Chequamegon Coop	249	2001		✓	✓	
Barron	WI	Chibardun Coop	3,248	1998		✓	✓	
Camron	WI	Chibardun Coop	1,546	1998		✓	✓	
Chetek	WI	Chibardun Coop	2,180	1998		✓	✓	
Unity Twp.	PA	Citizens Cable		1997				
Daleville	AL	City Cablevision	4,653	1994				
Bridgeport	CT	City of Bridgeport	139,529					
Galesburg	IL	City of Galesburg						
Lebanon	OH	City of Lebanon	16,962	1999	✓	✓	✓	
Negaunee	MI	City of Negaunee	4,576	1985				
Clear Lake	IA	CL Tel	8,161	2002		✓	✓	
Lake County	FL	Clear Link	210,528	2001		✓		
Bellmead	TX	ClearSource (Grande)						
Lacy-Lakeview	TX	ClearSource (Grande)						
Monroe	LA	CMA Cablevision	53,107	1985	✓	✓		
Coldwater	MI	Coldwater BPU	12,697	1998		✓	✓	
Columbus Grove	OH	Columbus Grove Tel.		1997	✓	✓	✓	
Dothan	AL	Comcast	57,737	1981	✓	✓		
Monroe	MI	Comcast	22,076	1995		✓		
Parkersburg	WV	Community Antenna	33,099	1998		✓		
Ashtabula	VA	Conneaut Tel.	20,962	2001		✓	✓	
Painesville	OH	Conneaut Tel.	17,503	2001		✓	✓	
Big Lake	MN	Connections	6,063	2001		✓	✓	
Barrington	RI	Cox	16,819	2002		✓	✓	
Bristol	RI	Cox	22,469	2002		✓	✓	
Central	FL	Cox		2001		✓	✓	

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Central	FL	Cox		2003		✓	✓	
Claremore	OK	Cox	15,873	1998		✓	✓	
Spotsylvania	VA	Cox		1991		✓		
Warren	RI	Cox	11,360	2002		✓	✓	
Arma	KS	Craw-Kan Tel. Coop	1,529	2002		✓	✓	
Franklin	KS	Craw-Kan Tel. Coop		2002		✓	✓	
State College	PA	D&E Comm.		1997	✓	✓	✓	
Britton	MI	D&P Cable	699	2002		✓	✓	
Morenci	OH	D&P Cable	2,398	1998		✓		
Darien	GA	Darien Cable	1,719	2003		✓		
Middleburg	NJ	DeCom						
Charlotte	NC	DeCom Corp	540,828					
Blissfield	MI	Deerfield Farmers Tel	3,223	1996		✓	✓	
Delhi	NY	Delhi Tel.	2,583	2001		✓	✓	
Indianapolis	IN	Digital Access	781,870					
Kansas City	MO	Digital Access	441,545					
Milwaukee	WI	Digital Access	596,974					
Nashville	TN	Digital Access	1,270,520					
Austin	TX	Digital Union	656,562					
Chippewa Twp.	OH	Doylestown Comm.		1997		✓	✓	
Doylestown Village	OH	Doylestown Comm.	2,799	1997		✓	✓	
Elberton	GA	Elberton Utilities	4,743	2001		✓		
Willmar	MN	En-Tel	18,351	2000		✓	✓	
Eden Prairie	MN	Everest						
Edina	MN	Everest						
Hopkins	MN	Everest						
Minnetonka	MN	Everest						
Lenexa	KS	Everest Connections	40,238	2001		✓	✓	
Mission	KS	Everest Connections	9,727	2001				
Mission	KS	Everest Connections				✓	✓	
St. Charles County	MO	Everest Connections						
O'Fallon	MO	Everest/WideOpenWest						
Fairburn	GA	Fairburn Utilities	5,464	1997		✓		

## Survey of Incumbent Cable Operators in Overbuild Communities

Attachment A

CITY	ST	CHALLENGER	Population	Began	Not Orginal Owner	Offers High-Speed Internet	Offers Bundled Services (Voice, Video, Data)	New Firm that purchased assets for small fraction of orginal costs
Bridgeport	CT	FiberVision	139,529					
Hartford	CT	FiberVision	121,578					
New Haven	CT	FiberVision	123,626					
Elk Grove	CA	Frontier	59,984	2004		✓	✓	
Laurens	IA	Future Net	1,476	1998		✓	✓	
Blackwell	OK	Get LLC	7,688	1998				
Dothan	AL	Graceba	57,737	1999		✓	✓	
Dothan	AL	Graceba	57,737	2000		✓	✓	
Alamo Heights	TX	Grande Comm.	7,319	2000		✓	✓	
Austin	TX	Grande Comm.	656,562	2003		✓	✓	
Balcones Heights	TX	Grande Comm.	3,016	2000		✓	✓	
Castle Hilles	TX	Grande Comm.	4,202	2000		✓	✓	
Cibolo	TX	Grande Comm.	3,035	2000		✓	✓	
Corpus Christi	TX	Grande Comm.	277,454	2000	✓	✓	✓	
Houston	TX	Grande Comm.	1,953,631	new				
Kirby	TX	Grande Comm.	8,673	2000		✓	✓	
Leon Valley	TX	Grande Comm.	9,239	2000		✓	✓	
Live Oak	TX	Grande Comm.	9,156	2000		✓	✓	
Midland	TX	Grande Comm.	94,996	2000	✓	✓	✓	
Odessa	TX	Grande Comm.	90,943	2000	✓	✓	✓	
Olmos Park	TX	Grande Comm.	2,343	2000		✓	✓	
San Antonio	TX	Grande Comm.	1,144,646	2000		✓	✓	
San Marcos	TX	Grande Comm.	34,733	2003		✓	✓	
Schetz	TX	Grande Comm.	18,694	2000		✓	✓	
Selma	TX	Grande Comm.	788	2000		✓	✓	
Terrell Hills	TX	Grande Comm.	5,019	2000		✓	✓	
Waco	TX	Grande Comm.	113,726	1999	✓	✓	✓	
Windcrest	TX	Grande Comm.	5,105	2000		✓	✓	
Greenville	TX	Greenville Elec. Util.	23,960	1999		✓		
Grundy Center	IA	Grundy Center Munic.	2,596	1998		✓		
Savannah	GA	Hargray Comm.	33,862	2001		✓		
Harlan	IA	Harlan Municipal Util.	5,282	1996		✓	✓	
Hartwell	GA	Hart Cable	4,188	2002				

**Survey of Incumbent Cable Operators in Overbuild Communities**

CITY	ST	CHALLENGER	Population	Began	Not Orginal Owner	Offers High-Speed Internet	Offers Bundled Services (Voice, Video, Data)	New Firm that purchased assets for small fraction of orginal costs
Winona	MN	Hiawatha Broadband	27,069	1999		✓	✓	
Hawarden	IA	HiTec Municipal	2,478	1997		✓	✓	
Mason County	WA	Hood Canal Cable	49,905	1993		✓	✓	
Shelton	WA	Hood Canal Cable	8,422	1993		✓	✓	
Chillicothe	OH	Horizon Telecom	21,796	2000		✓	✓	
Conway	SC	Horry Tel. Coop	11,788	1999		✓	✓	
Georgetown	SC	Horry Tel. Coop	8,950	2001				
Horry County	SC	Horry Tel. Coop	196,629	1980		✓	✓	
N. Myrtle Beach	SC	Horry Tel. Coop	10,974	2001		✓	✓	
Cecil	PA	HTC Comm.	9,756	1996				
Houston	PA	HTC Comm.	1,314	1996				
Mt. Pleasant	PA	HTC Comm.	4,728	1996				
Independence	IA	Indep. Light & Power	6,014	2000		✓		
Kenmore	NY	Intertech Private Cable						
Kenton-Boone City	KY	Kenton Boone City						
Augusta	GA	Knology	195,182	1998		✓	✓	
Charleston	SC	Knology	173,890	2000		✓	✓	
Huntsville	AL	Knology	158,216	1993	✓	✓	✓	
Knoxville	TN	Knology	173,890	2000		✓	✓	
Louisville	KY	Knology	96,650	1998				
Nashville (Mid. TN)	TN	Knology	704,431					
Panama City	FL	Knology	36,417	1993	✓	✓	✓	
Summerville/Dorches.	SC	Knology	27,752	2000		✓	✓	
Durand	MI	Lennon Tel. Co.	3,933	1998				
Lexington	NC	LexCom						
Davidson County	NC	Lexicom Cable Ser.	147,246	1997		✓	✓	
Fallsburg	KY	Lycom	2,018					
Little Rock	AR	Lyncstar	183,133					
Sauk Centre	MN	Mainstreet Comm.	3,930	1999		✓	✓	
Milledgeville	GA	Mallard Cablevision	18,575	1996				
Naples	FL	Marco Island Cable	14,879	1990		✓		
Cedar Rapids	IA	McLeod	120,573	1998		✓	✓	
Memphis	TN	Memphis Networx						

**Survey of Incumbent Cable Operators in Overbuild Communities**

CITY	ST	CHALLENGER	Population	Began	Not Orginal Owner	Offers High-Speed Internet	Offers Bundled Services (Voice, Video, Data)	New Firm that purchased assets for small fraction of orginal costs
Shelby County	TN	Memphis Networx						
Albany	NY	Midtel Cable TV	1,398	1995				
Anne Arundel Cnty	MD	Millennium	489,656	1999		✓		
Social Circle	GA	Monroe Utilities	3,379	1996		✓		
Walton County	GA	Monroe Utilities	11,407	1979		✓		
Morristown	NJ	Morristown Util. System	18,544					
Dodgeville	WI	Mount Horeb Telecom	4,220	2002		✓	✓	
Murray	KY	Murray Electric	2,400	2001		✓	✓	
Minster	OH	New Knoxville Tel.	2,794	1995		✓		
Moulton	OH	New Knoxville Tel.		2001		✓	✓	
Bakersfield	CA	Newhouse	247,057		✓	✓		
Coweta County	GA	Newman Utilities	89,215	1996		✓	✓	
Tyrone	GA	Newman Utilities	3,196	2001		✓	✓	
Iron Mountian	MI	Northside Cable TV	8,154	2000		✓		
Norwood	MA	Norwood Elec. Light	28,578	2002		✓		
New Ulm	MN	NuTel	13,594	2001		✓	✓	
Ft. Worth	TX	One Source	13,594	1997		✓	✓	
Osage	IA	Osage Municipal Util.	3,451	2002		✓	✓	
Livingston	TN	Overton County Cable	3,498	1986				
Auburn	ME	Oxford Networks	23,203	2004		✓	✓	
Lewiston	ME	Oxford Networks	35,690	2004		✓	✓	
Bemidji	MN	Paul Bunyan Tel	11,917	2000		✓	✓	
Lower Burrell	PA	PCOM Comm.	12,608	2003				
Pembroke	WV	Pembroke Tel		1991	✓			
Houston	TX	Phonoscope	1,953,631	1986		✓	✓	
Colman	SD	Prairie Wave		2001	✓	✓	✓	
Flandreau	SD	Prairie Wave	2,376	2001	✓	✓	✓	
Gayville	SD	Prairie Wave		2001	✓	✓	✓	
Luverne	MN	Prairie Wave	4,617	2000	✓	✓	✓	
Marshall	MN	Prairie Wave	12,735	1999		✓	✓	
Pipestone	MN	Prairie Wave	4,280	1999	✓	✓	✓	
Slayton	MN	Prairie Wave	2,072	2000	✓	✓	✓	
Storm Lake	IA	Prairie Wave	10,076	2000	✓	✓	✓	

## Survey of Incumbent Cable Operators in Overbuild Communities

Attachment A

CITY	ST	CHALLENGER	Population	Began	Not Orginial Owner	Offers High-Speed Internet	Offers Bundled Services (Voice, Video, Data)	New Firm that purchased assets for small fraction of orginal costs
Tracy	MN	Prairie Wave	2,268	1999		✓	✓	
Worthington	IA	Prairie Wave		2000	✓	✓	✓	
Yankton	SD	Prairie Wave	13,528	2000	✓	✓	✓	
Albany	NY	Princetown Cable	61,821	1990		✓		
Rupert	ID	Project Mutual Tel Coop	5,645	1995		✓	✓	
Provo	UT	Provo Cable/Provo	105,166	1993	✓	✓		
Poteau	OK	Quality Entertainment	7,939					
Boulder	CO	Qwest	94,673	1999		✓	✓	
Chandler	AZ	Qwest	176,581	1999		✓	✓	
Douglas County	CO	Qwest	175,776	1999		✓	✓	
Gilbert	AZ	Qwest	109,697	1999		✓	✓	
Glendale	AZ	Qwest	218,812	1999		✓	✓	
Maricopa County	AZ	Qwest	3,072,149	1999		✓	✓	
Omaha	NE	Qwest	390,007	1995		✓	✓	
Paradise Valley	AZ	Qwest	13,664	1999		✓	✓	
Peoria	AZ	Qwest	108,364	1999		✓	✓	
Phoenix	AZ	Qwest	1,321,043	1999		✓	✓	
Scottsdale	AZ	Qwest	202,705	1999		✓	✓	
Eatonville	WA	Ranier Group	2,012	1995		✓	✓	
Pierce County	WA	Ranier Group	700,820	1995		✓	✓	
Arlington	MA	RCN	42,389	1997		✓	✓	
Bayonne	NJ	RCN	61,842					
Beverly Hills	CA	RCN	33,784					
Boston	MA	RCN	589,141	1997		✓	✓	
Brookline	MA	RCN	57,107	1997		✓	✓	
Burlingame	CA	RCN	28,158	2000		✓	✓	
Burlington	MA	RCN	22,876	1997		✓	✓	
Carson	CA	RCN	89,730	2001		✓	✓	
Chicago	IL	RCN	2,896,016	1999	✓	✓	✓	
Daly City	CA	RCN	103,621	1999		✓	✓	
Dedham	MA	RCN	23,464	1997		✓	✓	
Delaware County	PA	RCN	550,864	2000		✓	✓	
Framingham	MA	RCN	66,910	1997		✓	✓	



## Survey of Incumbent Cable Operators in Overbuild Communities

Attachment A

CITY	ST	CHALLENGER	Population	Began	Not Orginial Owner	Offers High-Speed Internet	Offers Bundled Services (Voice, Video, Data)	New Firm that purchased assets for small fraction of orginal costs
Gardena	CA	RCN	57,746	2001		✓	✓	
Hermosa Beach	CA	RCN	18,566					
Hoboken	NJ	RCN	38,577					
Lexington	MA	RCN	30,355	1997		✓	✓	
Marlborough	MA	RCN	36,255	2001				
Milton	MA	RCN	26,062	2000				
Natick	MA	RCN	32,170	1997		✓	✓	
Needham	MA	RCN	28,911	1997		✓	✓	
New York	NY	RCN	8,008,278	1999	✓	✓	✓	
Newton	MA	RCN	83,829	1997		✓	✓	
Quincy	MA	RCN	88,025	1999				
Randolph	MA	RCN	30,963	2000				
Redwood City	CA	RCN	75,402	2003		✓	✓	
S. San Francisco	CA	RCN	776,733	1999		✓	✓	
San Carlos	CA	RCN	27,718	2000				
San Mateo	CA	RCN	92,482	2001		✓	✓	
Saugus	MA	RCN	26,078	2001				
Somerville	MA	RCN	77,478	1997		✓	✓	
Stoneham	MA	RCN	22,219	2000		✓	✓	
Stoneham	MA	RCN	22,219	1997				
Wakefield	MA	RCN	24,804	1997		✓	✓	
Waltham	MA	RCN	59,226	1997		✓	✓	
Watertown	MA	RCN	32,986	1997		✓	✓	
Weymouth	MA	RCN	53,988	2001				
Winchester	MA	RCN	20,810	2000				
Woburn	MA	RCN	37,258	1997		✓	✓	
Falls Church	VA	RCN Starpower	10,377	1999		✓		
Fredricksburg	VA	RCN Starpower	19,279	1999		✓		
Reinbeck	IA	Reinbeck Tel. & Util.				✓	✓	
St. John the Baptist	LA	Reserve Telecom	43,044	2000		✓	✓	
Archbold	OH	Ridgeville Tel	4,290	2001		✓		
Colby	KS	S&T Comm.	5,450	2003				
Cave City	KY	S.Central Rural Tel.	1,880	2002		✓	✓	

**Survey of Incumbent Cable Operators in Overbuild Communities**

CITY	ST	CHALLENGER	Population	Began	Not Orginal Owner	Offers High-Speed Internet	Offers Bundled Services (Voice, Video, Data)	New Firm that purchased assets for small fraction of orginal costs
Hiseville	KY	S.Central Rural Tel.	222	2002		✓	✓	
Horse Cave	KY	S.Central Rural Tel.	2,252	2002		✓	✓	
Concord	CA	Seren Innovations	121,780	2001		✓	✓	
St. Cloud	MN	Seren Innovations	59,107	1998		✓	✓	
Walnut Creek	CA	Seren Innovations	64,296	2002		✓	✓	
Plaquemine	LA	Service One	7,064	1993				
Newburgh	IN	Sigecom	3,088	2000		✓	✓	
Spanish Fork	UT	Spanish Fork Com. Net	20,246	2001		✓		
Spencer	IA	Spencer Munic. Util.	11,317	2000		✓		
Arlington	VA	Starpower	189,453	2000				
Montgomery Cnty	MD	Starpower	873,341	1999		✓	✓	
Prince George's Cnty	MD	Starpower	801,515			✓	✓	
Washington	DC	Starpower	572,059	2000		✓	✓	
Sacramento	CA	Strategic Technologies	407,018	1996		✓		
Houston County	GA	SunTel	110,765		✓	✓	✓	✓
Sacramento	CA	Sure West	407,018	2003	✓	✓	✓	✓
Pierce County	WA	Tacoma Power	7,000,820	1998		✓		
St. Marys	OH	Telephone Service Co.	8,324	2003		✓	✓	
Wapakoneta	OH	Telephone Service Co.	9,474	1999		✓	✓	
Dothan	AL	Time Warner	57,737		✓	✓		
Louisville	KY	TotalLink (Utilicom/Vectren)						
Houston	TX	TV Max	1,953,631	1989	✓			
Cincinnati (N. Ohio)	OH	TWC	331,285	1999				
Citrus County	FL	TWC	118,085					
Leander	TX	TWC	7,596			✓		
Mount Airy	NC	TWC	8,484	1996				
Orlando	FL	TWC	185,951					
Pflugerville	TX	TWC	16,335			✓		
Poway	CA	TWC	48,044	1961		✓		
San Diego	CA	TWC	1,223,400	1961		✓		
Tampa	FL	TWC	303,447					
Chula Vista	CA	Ultronics	173,556	1987		✓		
National City	CA	Ultronics	54,260	1987		✓		

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CITY	ST	CHALLENGER	Population	Began	Not Orginial Owner	Offers High-Speed Internet	Offers Bundled Services (Voice, Video, Data)	New Firm that purchased assets for small fraction of orginal costs
Cobb County	GA	United Telesystems	607,751	2001		✓		
Park Rapids	MN	Unitel (W.Central Tel.)	3,276	1998		✓	✓	
Salem	IL	US Sonet	7,909	2003		✓	✓	
Centerville	GA	Watson Cable	4,278			✓		
Lake Wildwood	GA	Watson Cable		1991		✓		
Macon	GA	Watson Cable	97,255			✓		
Warner Robins	GA	Watson Cable	48,804			✓		
Berea	OH	WideOpenWest	18,970	1996	✓	✓		✓
Berkley	MI	WideOpenWest	15,531	2001	✓	✓		✓
Bexley	OH	WideOpenWest	13,203	1996	✓	✓		✓
Brentwood	MO	WideOpenWest						
Brook Park	OH	WideOpenWest	21,218	1998	✓	✓		✓
Brooklyn	OH	WideOpenWest	11,586	1998	✓	✓		✓
Canton	MI	WideOpenWest	76,366	1996	✓	✓	✓	✓
Centerline	MI	WideOpenWest	8,531	2001	✓	✓		✓
Chicago	IL	WideOpenWest	2,896,016	1998	✓	✓		✓
Chicago Heights	IL	WideOpenWest	32,776	1998	✓	✓		✓
Clawson	MI	WideOpenWest	12,732	2001	✓	✓		✓
Clinton	MI	WideOpenWest	95,648	2001	✓	✓		✓
Clinton Twp	OH	WideOpenWest	1,337	1996	✓	✓		✓
Colorado Springs	CO	WideOpenWest						
Columbus	OH	WideOpenWest	711,470	1996	✓	✓		✓
Crestwood	IL	WideOpenWest	11,251	1998	✓	✓		✓
Creve Coeur	MO	WideOpenWest						
Des Plaines	IL	WideOpenWest	58720	1998	✓	✓		✓
Dublin	OH	WideOpenWest	31,392	1996	✓	✓		✓
Eastpointe	MI	WideOpenWest	34,077	2001	✓	✓		✓
Elgin	IL	WideOpenWest	94,487	1998	✓	✓		✓
Fairview Park	OH	WideOpenWest	17,572	1997	✓	✓		✓
Ferndale	MI	WideOpenWest	22,105	2001	✓	✓		✓
Fraser	MI	WideOpenWest	15,297	2001	✓	✓		✓
Gahanna	OH	WideOpenWest	32,636	1996	✓	✓		✓
Garfield Heights	OH	WideOpenWest	30,734	1999	✓	✓		✓

Survey of Incumbent Cable Operators in Overbuild Communities

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Glen Ellyn	IL	WideOpenWest	2,699	1998	✓	✓		✓
Glenview	IL	WideOpenWest	41,847	1998	✓	✓		✓
Grandview Heights	OH	WideOpenWest	6,695	1996	✓	✓		✓
Hammond	IN	WideOpenWest	83,048	1998	✓	✓		✓
Harrison Twp	MI	WideOpenWest	24,461	2001	✓	✓		✓
Harvey	IL	WideOpenWest	30,000	1998	✓	✓		✓
Hilliard	OH	WideOpenWest	24,230	1996	✓	✓		✓
Jackson Twp.	OH	WideOpenWest	6,184	1996	✓	✓		✓
Kirkwood	MO	WideOpenWest						
Lakeville	MN	WideOpenWest						
Macomb	MI	WideOpenWest	50,478		✓			✓
Madison Hts	MI	WideOpenWest	31,101	2001	✓	✓		✓
Manchester	MO	WideOpenWest						
Maple Heights	OH	WideOpenWest	26,156	1999		✓		✓
Maplewood	MO	WideOpenWest						
Marble Cliff	OH	WideOpenWest	646	1996	✓	✓		✓
Middleburg Heights	OH	WideOpenWest	15,542	1997		✓		✓
Mifflin Twp.	OH	WideOpenWest	705	1996	✓	✓		✓
Minerva Park	OH	WideOpenWest	1,288	1996	✓	✓		✓
Mount Clemens	MI	WideOpenWest	17,312	2001	✓	✓		✓
Mount Prospect	IL	WideOpenWest	56,265	1998	✓	✓		✓
Naperville	IL	WideOpenWest	128,358	1998	✓	✓		✓
New Rome	OH	WideOpenWest	60	1996	✓	✓		✓
North Olmsted	OH	WideOpenWest	34,113	1996	✓	✓		✓
North Royalton	OH	WideOpenWest	28,648	1997	✓	✓		✓
Northville	MI	WideOpenWest	6,459	1996	✓	✓	✓	✓
Oak Forest	IL	WideOpenWest	28,051	1998	✓	✓		✓
Obetz	OH	WideOpenWest	3,977	1996	✓	✓		✓
Orland Park	IL	WideOpenWest	51,077	1998	✓	✓		✓
Palos Park	IL	WideOpenWest	4,689	1998	✓	✓		✓
Palos Park	IL	WideOpenWest	4,689	1998	✓	✓	✓	✓
Perry Twp.	OH	WideOpenWest	1,195	1996	✓	✓		✓
Plymouth	MI	WideOpenWest	9,022	1996	✓	✓	✓	✓

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Prospect Park	IL	WideOpenWest	17,081	1998	✓	✓		✓
Riverlea	OH	WideOpenWest	499	1996	✓	✓		✓
Robbins	IL	WideOpenWest	6,635	1998	✓	✓		✓
Rochester	MI	WideOpenWest	10,467	2001	✓	✓		✓
Rochester Hills	MI	WideOpenWest	68,825	2001	✓	✓		✓
Royal Oak	MI	WideOpenWest	60,062	2001	✓	✓		✓
Schaumburg	IL	WideOpenWest	75,386	1998	✓	✓		✓
Shaker Heights	OH	WideOpenWest	29,405	1999	✓	✓		✓
Sharon Twp.	OH	WideOpenWest		1996	✓	✓		✓
South Holland	IL	WideOpenWest	22,147	1998	✓	✓		✓
St. Ann	MO	WideOpenWest						
St. Clair Shores	MI	WideOpenWest	63,096	2001	✓	✓		✓
St. Louis	MO	WideOpenWest						
St. Peters	MO	WideOpenWest						
Sterling Hts.	MI	WideOpenWest	124,471	2001	✓	✓		✓
Streamwood Village	IL	WideOpenWest	36,407	1998	✓	✓		✓
Strongsville	OH	WideOpenWest	43,858	1998	✓	✓		✓
Troy	MI	WideOpenWest	80,959	2001	✓	✓		✓
University City	MO	WideOpenWest						
Upper Arlington	OH	WideOpenWest	33,686	1996	✓	✓		✓
Utica	MI	WideOpenWest	4,577	2001	✓	✓		✓
Valley View	OH	WideOpenWest	2,179	2001	✓	✓		✓
Vernon Hills	IL	WideOpenWest	20,120	1998	✓	✓		✓
Warren	MI	WideOpenWest	138,247	2001	✓	✓		✓
Westlake	OH	WideOpenWest	31,719	1997	✓	✓		✓
Wheeling	IL	WideOpenWest	34,496	1998	✓	✓		✓
Worthington	OH	WideOpenWest	14,125	1996	✓	✓		✓
Minneapolis	MN	WideOpenWest/Everest						
Richfield	MN	WideOpenWest/Everest						
Austin	TX	WIN	656,562					
Houston	TX	WIN	1,953,631					
Phoenix	AZ	WIN	1,321,045					
San Diego	CA	WIN	1,223,400					

## Survey of Incumbent Cable Operators in Overbuild Communities

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San Francisco	CA	WIN	776,733					
Las Vegas	NV	WIN	478,434					
Seattle	WA	WIN/RCN	563,374					
Texline	TX	XIT Comm.	7,237	2001				

## Survey of Incumbent Cable Operators in Overbuild Communities

Attachment A

CITY	ST	CHALLENGER	Failed Overbuild	Failing Overbuild	Overbuilds which have yet to be built	Overbuild targeted non-rebuilt communities	Overbuild is affiliated with a Utility	Overbuilder is owned by Co-op
20 cities	RI	ABI	✓					
La Crescent	MN	ACE Comm.						✓
Camarillo	CA	Adelphia				✓		
Encinitas	CA	Adelphia				✓		
Malibu	CA	Adelphia				✓		
Oxnard	CA	Adelphia						
Port Hueneme	CA	Adelphia						
San Marcos	CA	Adelphia				✓		
Ventura	CA	Adelphia						
Flora	IL	Advance Technologies						
Alameda	CA	Alameda Power				✓		
Algona	IA	Algona Municipal Util.						
Evanston	WY	All West Comm.				✓		
Alta	IA	Altatec						
Arcadia	CA	Altrio		✓		✓		
Monrovia	CA	Altrio		✓		✓		
San Gabriel Valley	CA	Altrio		✓				
Sierra Madre	CA	Altrio		✓		✓		
Ann Arbor	MI	American Broadband			✓			
E. Lansing	MI	American Broadband			✓			
Lansing	MI	American Broadband			✓			
St. Joseph Twp.	MN	Astound Broadband						
Pultney	OH	Bellaire Cable TV						
Bartlett	TN	BellSouth	✓					
South Dade County	FL	BellSouth				✓		
Winder	GA	BellSouth				✓		
Cherokee County	GA	BellSouth Entertainment						
Cobb County	GA	BellSouth Entertainment						
Duluth	GA	BellSouth Entertainment						
Gwinnett County	GA	BellSouth Entertainment						
Roswell	GA	BellSouth Entertainment						
Woodstock	GA	BellSouth Entertainment						
Chamblee	GA	BellSouth Interactive						

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DeKalb	GA	BellSouth Interactive						
St. John's County	FL	BellSouth Interactive						
Fallowfield	PA	Bentleyville Cable						
Albany	NY	Berkshire Tel						
Rapid City	SD	Black Hills GLA					✓	
Skagit County	WA	Black Rock Cable			✓			
Snohomish County	WA	Black Rock Cable			✓			
Whatcom County	WA	Black Rock Cable			✓			
Braintree	MA	Braintree Elec. Light				✓		
Elizabethtown/Hardi	KY	Brandenburg Telecom						
Ocala	FL	BrightHouse						
Abington	VA	Bristol Virginia Utilities						
Glade Spring	VA	Bristol Virginia Utilities						
Horton Twp.	PA	Brockway TV				✓		
Kane	PA	Brockway TV				✓		
Bryan	OH	Bryan Municipal Cable				✓		
Waterville	OH	Buckeye Cable				✓		
Maryland Hts	MO	Cable America						
Mesa	AZ	Cable America						
Sacramento	CA	Cable America						
Cameron	LA	Cameron Tel.						
Hackberry	LA	Cameron Tel.						
Charlotte	NC	Carolina Broadband	✓					
Columbia	SC	Carolina Broadband	✓					
Durham	NC	Carolina Broadband	✓					
Greensboro	NC	Carolina Broadband	✓					
Greenville	SC	Carolina Broadband	✓					
Raleigh	NC	Carolina Broadband	✓					
Spartanburg	SC	Carolina Broadband	✓					
Winston Salem	NC	Carolina Broadband	✓					
Cedar Falls	IA	Cedar Falls Utilities						
Clearview	WV	Centre TV						
Ohio County	WV	Centre TV						



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Warwood	WV	Centre TV						
Urbana	OH	Champaign County Tel						
Denver	CO	Champion Broadband				✓		
Lakewood	CO	Champion Broadband				✓		
Kanawha County	WV	Charter						
Terre Haute	IN	Charter						
Danville	VA	Chatmoss Tel.				✓		
Hayward	MN	Chequamegon Coop						✓
Barron	WI	Chibardun Coop						✓
Camron	WI	Chibardun Coop						✓
Chetek	WI	Chibardun Coop						✓
Unity Twp.	PA	Citizens Cable				✓		
Daleville	AL	City Cablevision						
Bridgeport	CT	City of Bridgeport	✓					
Galesburg	IL	City of Galesburg	✓					
Lebanon	OH	City of Lebanon						
Negaunee	MI	City of Negaunee						
Clear Lake	IA	CL Tel						
Lake County	FL	Clear Link						
Bellmead	TX	ClearSource (Grande)	✓					
Lacy-Lakeview	TX	ClearSource (Grande)	✓					
Monroe	LA	CMA Cablevision						
Coldwater	MI	Coldwater BPU						
Columbus Grove	OH	Columbus Grove Tel.						
Dothan	AL	Comcast						
Monroe	MI	Comcast						
Parkersburg	WV	Community Antenna				✓		
Ashtabula	VA	Conneaut Tel.				✓		
Painesville	OH	Conneaut Tel.				✓		
Big Lake	MN	Connections						
Barrington	RI	Cox						
Bristol	RI	Cox						
Central	FL	Cox						

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Central	FL	Cox						
Claremore	OK	Cox				✓		
Spotsylvania	VA	Cox				✓		
Warren	RI	Cox						
Arma	KS	Craw-Kan Tel. Coop						✓
Franklin	KS	Craw-Kan Tel. Coop						✓
State College	PA	D&E Comm.				✓		
Britton	MI	D&P Cable				✓		
Morenci	OH	D&P Cable				✓		
Darien	GA	Darien Cable						
Middleburg	NJ	DeCom	✓					
Charlotte	NC	DeCom Corp	✓					
Blissfield	MI	Deerfield Farmers Tel						
Delhi	NY	Delhi Tel.						
Indianapolis	IN	Digital Access	✓					
Kansas City	MO	Digital Access	✓					
Milwaukee	WI	Digital Access	✓					
Nashville	TN	Digital Access	✓					
Austin	TX	Digital Union	✓					
Chippewa Twp.	OH	Doylestown Comm.						
Doylestown Village	OH	Doylestown Comm.						
Elberton	GA	Elberton Utilities						
Willmar	MN	En-Tel					✓	
Eden Prairie	MN	Everest	✓					
Edina	MN	Everest	✓					
Hopkins	MN	Everest	✓					
Minnetonka	MN	Everest	✓					
Lenexa	KS	Everest Connections					✓	
Mission	KS	Everest Connections		✓				
Mission	KS	Everest Connections					✓	
St. Charles County	MO	Everest Connections	✓					
O'Fallon	MO	Everest/WideOpenWest	✓					
Fairburn	GA	Fairburn Utilities						

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Bridgeport	CT	FiberVision	✓					
Hartford	CT	FiberVision	✓					
New Haven	CT	FiberVision	✓					
Elk Grove	CA	Frontier						
Laurens	IA	Future Net						
Blackwell	OK	Get LLC						
Dothan	AL	Graceba						
Dothan	AL	Graceba						
Alamo Heights	TX	Grande Comm.						
Austin	TX	Grande Comm.						
Balcones Heights	TX	Grande Comm.						
Castle Hill	TX	Grande Comm.						
Cibolo	TX	Grande Comm.						
Corpus Christi	TX	Grande Comm.				✓		
Houston	TX	Grande Comm.			✓			
Kirby	TX	Grande Comm.						
Leon Valley	TX	Grande Comm.						
Live Oak	TX	Grande Comm.						
Midland	TX	Grande Comm.						
Odessa	TX	Grande Comm.						
Olmos Park	TX	Grande Comm.						
San Antonio	TX	Grande Comm.						
San Marcos	TX	Grande Comm.						
Schetz	TX	Grande Comm.						
Selma	TX	Grande Comm.						
Terrell Hills	TX	Grande Comm.						
Waco	TX	Grande Comm.						
Windcrest	TX	Grande Comm.						
Greenville	TX	Greenville Elec. Util.				✓		
Grundy Center	IA	Grundy Center Munic.						
Savannah	GA	Hargray Comm.						
Harlan	IA	Harlan Municipal Util.						
Hartwell	GA	Hart Cable						

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Winona	MN	Hiawatha Broadband						
Hawarden	IA	HiTec Municipal						
Mason County	WA	Hood Canal Cable				✓		
Shelton	WA	Hood Canal Cable				✓		
Chillicothe	OH	Horizon Telecom				✓		
Conway	SC	Horry Tel. Coop						
Georgetown	SC	Horry Tel. Coop				✓		
Horry County	SC	Horry Tel. Coop						
N. Myrtle Beach	SC	Horry Tel. Coop						
Cecil	PA	HTC Comm.						
Houston	PA	HTC Comm.						
Mt. Pleasant	PA	HTC Comm.						
Independence	IA	Indep. Light & Power						
Kenmore	NY	Intertech Private Cable	✓					
Kenton-Boone City	KY	Kenton Boone City			✓			
Augusta	GA	Knology						
Charleston	SC	Knology						
Huntsville	AL	Knology						
Knoxville	TN	Knology						
Louisville	KY	Knology			✓			
Nashville (Mid. TN)	TN	Knology			✓			
Panama City	FL	Knology						
Summerville/Dorches.	SC	Knology						
Durand	MI	Lennon Tel. Co.						
Lexington	NC	LexCom	✓					
Davidson County	NC	Lexicom Cable Ser.						
Fallsburg	KY	Lycom						
Little Rock	AR	Lyncstar	✓					
Sauk Centre	MN	Mainstreet Comm.						
Milledgeville	GA	Mallard Cablevision		✓		✓		
Naples	FL	Marco Island Cable						
Cedar Rapids	IA	McLeod						
Memphis	TN	Memphis Networx	✓					

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Shelby County	TN	Memphis Networx	✓					
Albany	NY	Midtel Cable TV						
Anne Arundel Cnty	MD	Millennium						
Social Circle	GA	Monroe Utilities						
Walton County	GA	Monroe Utilities						
Morristown	NJ	Morristown Util. System	✓				✓	
Dodgeville	WI	Mount Horeb Telecom						
Murray	KY	Murray Electric					✓	
Minster	OH	New Knoxville Tel.				✓		
Moulton	OH	New Knoxville Tel.						
Bakersfield	CA	Newhouse						
Coweta County	GA	Newman Utilities					✓	
Tyrone	GA	Newman Utilities				✓	✓	
Iron Mountian	MI	Northside Cable TV						✓
Norwood	MA	Norwood Elec. Light				✓		
New Ulm	MN	NuTel						
Ft. Worth	TX	One Source					✓	
Osage	IA	Osage Municipal Util.						
Livingston	TN	Overton County Cable						
Auburn	ME	Oxford Networks				✓		
Lewiston	ME	Oxford Networks				✓		
Bemidji	MN	Paul Bunyan Tel						
Lower Burrell	PA	PCOM Comm.	✓					
Pembroke	WV	Pembroke Tel						
Houston	TX	Phonoscope						
Colman	SD	Prairie Wave						
Flandreau	SD	Prairie Wave						
Gayville	SD	Prairie Wave						
Luverne	MN	Prairie Wave						
Marshall	MN	Prairie Wave						
Pipestone	MN	Prairie Wave						
Slayton	MN	Prairie Wave						
Storm Lake	IA	Prairie Wave						

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Tracy	MN	Prairie Wave						
Worthington	IA	Prairie Wave						
Yankton	SD	Prairie Wave						
Albany	NY	Princetown Cable						
Rupert	ID	Project Mutual Tel Coop						✓
Provo	UT	Provo Cable/Provo						
Poteau	OK	Quality Entertainment	✓					
Boulder	CO	Qwest						
Chandler	AZ	Qwest						
Douglas County	CO	Qwest				✓		
Gilbert	AZ	Qwest						
Glendale	AZ	Qwest						
Maricopa County	AZ	Qwest						
Omaha	NE	Qwest						
Paradise Valley	AZ	Qwest						
Peoria	AZ	Qwest						
Phoenix	AZ	Qwest						
Scottsdale	AZ	Qwest						
Eatonville	WA	Ranier Group						
Pierce County	WA	Ranier Group						
Arlington	MA	RCN						
Bayonne	NJ	RCN	✓					
Beverly Hills	CA	RCN	✓					
Boston	MA	RCN						
Brookline	MA	RCN						
Burlingame	CA	RCN				✓		
Burlington	MA	RCN						
Carson	CA	RCN						
Chicago	IL	RCN				✓		
Daly City	CA	RCN				✓		
Dedham	MA	RCN						
Delaware County	PA	RCN						
Framingham	MA	RCN						

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Gardena	CA	RCN						
Hermosa Beach	CA	RCN	✓					
Hoboken	NJ	RCN	✓					
Lexington	MA	RCN						
Marlborough	MA	RCN						
Milton	MA	RCN						
Natick	MA	RCN						
Needham	MA	RCN						
New York	NY	RCN						
Newton	MA	RCN						
Quincy	MA	RCN						
Randolph	MA	RCN						
Redwood City	CA	RCN				✓		
S. San Francisco	CA	RCN				✓		
San Carlos	CA	RCN			✓			
San Mateo	CA	RCN						
Saugus	MA	RCN						
Somerville	MA	RCN						
Stoneham	MA	RCN						
Stoneham	MA	RCN						
Wakefield	MA	RCN						
Waltham	MA	RCN						
Watertown	MA	RCN						
Weymouth	MA	RCN						
Winchester	MA	RCN						
Woburn	MA	RCN						
Falls Church	VA	RCN Starpower						
Fredricksburg	VA	RCN Starpower						
Reinbeck	IA	Reinbeck Tel. & Util.						
St. John the Baptist	LA	Reserve Telecom						
Archbold	OH	Ridgeville Tel				✓		
Colby	KS	S&T Comm.						✓
Cave City	KY	S. Central Rural Tel.						

Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Failed Overbuild	Failing Overbuild	Overbuilds which have yet to be built	Overbuild targeted non-rebuilt communities	Overbuild is affiliated with a Utility	Overbuilder is owned by Co-op
Hiseville	KY	S.Central Rural Tel.						
Horse Cave	KY	S.Central Rural Tel.						
Concord	CA	Seren Innovations				✓	✓	
St. Cloud	MN	Seren Innovations					✓	
Walnut Creek	CA	Seren Innovations				✓	✓	
Plaquemine	LA	Service One						
Newburgh	IN	Sigecom				✓	✓	
Spanish Fork	UT	Spanish Fork Com. Net						
Spencer	IA	Spencer Munic. Util.						
Arlington	VA	Starpower			✓		✓	
Montgomery Cnty	MD	Starpower					✓	
Prince George's Cnty	MD	Starpower			✓		✓	
Washington	DC	Starpower					✓	
Sacramento	CA	Strategic Technologies				✓		
Houston County	GA	SunTel						
Sacramento	CA	Sure West				✓		
Pierce County	WA	Tacoma Power				✓		
St. Marys	OH	Telephone Service Co.						
Wapakoneta	OH	Telephone Service Co.						
Dothan	AL	Time Warner						
Louisville	KY	TotalLink (Utilicom/Vectren)	✓					
Houston	TX	TV Max						
Cincinnati (N. Ohio)	OH	TWC				✓		
Citrus County	FL	TWC					✓	
Leander	TX	TWC						
Mount Airy	NC	TWC				✓		
Orlando	FL	TWC					✓	
Pflugerville	TX	TWC						
Poway	CA	TWC						
San Diego	CA	TWC						
Tampa	FL	TWC					✓	
Chula Vista	CA	Ultronics						
National City	CA	Ultronics						



Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Failed Overbuild	Failing Overbuild	Overbuilds which have yet to be built	Overbuild targeted non-rebuilt communities	Overbuild is affiliated with a Utility	Overbuilder is owned by Co-op
Cobb County	GA	United Telesystems						
Park Rapids	MN	Unitel (W. Central Tel.)						
Salem	IL	US Sonet						
Centerville	GA	Watson Cable						
Lake Wildwood	GA	Watson Cable						
Macon	GA	Watson Cable						
Warner Robins	GA	Watson Cable						
Berea	OH	WideOpenWest				✓		
Berkley	MI	WideOpenWest				✓		
Bexley	OH	WideOpenWest						
Brentwood	MO	WideOpenWest	✓					
Brook Park	OH	WideOpenWest				✓		
Brooklyn	OH	WideOpenWest				✓		
Canton	MI	WideOpenWest						
Centerline	MI	WideOpenWest				✓		
Chicago	IL	WideOpenWest				✓		
Chicago Heights	IL	WideOpenWest				✓		
Clawson	MI	WideOpenWest				✓		
Clinton	MI	WideOpenWest				✓		
Clinton Twp	OH	WideOpenWest						
Colorado Springs	CO	WideOpenWest			✓			
Columbus	OH	WideOpenWest						
Crestwood	IL	WideOpenWest				✓		
Creve Coeur	MO	WideOpenWest	✓					
Des Plaines	IL	WideOpenWest				✓		
Dublin	OH	WideOpenWest						
Eastpointe	MI	WideOpenWest				✓		
Elgin	IL	WideOpenWest				✓		
Fairview Park	OH	WideOpenWest						
Ferndale	MI	WideOpenWest				✓		
Fraser	MI	WideOpenWest				✓		
Gahanna	OH	WideOpenWest						
Garfield Heights	OH	WideOpenWest				✓		

## Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Failed Overbuild	Failing Overbuild	Overbuilds which have yet to be built	Overbuild targeted non-rebuilt communities	Overbuild is affiliated with a Utility	Overbuilder is owned by Co-op
Glen Ellyn	IL	WideOpenWest				✓		
Glenview	IL	WideOpenWest				✓		
Grandview Heights	OH	WideOpenWest						
Hammond	IN	WideOpenWest				✓		
Harrison Twp	MI	WideOpenWest				✓		
Harvey	IL	WideOpenWest				✓		
Hilliard	OH	WideOpenWest						
Jackson Twp.	OH	WideOpenWest						
Kirkwood	MO	WideOpenWest	✓					
Lakeville	MN	WideOpenWest	✓					
Macomb	MI	WideOpenWest	✓			✓		
Madison Hts	MI	WideOpenWest				✓		
Manchester	MO	WideOpenWest	✓					
Maple Heights	OH	WideOpenWest				✓		
Maplewood	MO	WideOpenWest	✓					
Marble Cliff	OH	WideOpenWest						
Middleburg Heights	OH	WideOpenWest				✓		
Mifflin Twp.	OH	WideOpenWest						
Minerva Park	OH	WideOpenWest						
Mount Clemens	MI	WideOpenWest				✓		
Mount Prospect	IL	WideOpenWest				✓		
Naperville	IL	WideOpenWest				✓		
New Rome	OH	WideOpenWest						
North Olmsted	OH	WideOpenWest				✓		
North Royalton	OH	WideOpenWest				✓		
Northville	MI	WideOpenWest						
Oak Forest	IL	WideOpenWest				✓		
Obetz	OH	WideOpenWest						
Orland Park	IL	WideOpenWest				✓		
Palos Park	IL	WideOpenWest				✓		
Palos Park	IL	WideOpenWest						
Perry Twp.	OH	WideOpenWest						
Plymouth	MI	WideOpenWest						

## Survey of Incumbent Cable Operators in Overbuild Communities

Attachment A

CITY	ST	CHALLENGER	Failed Overbuild	Failing Overbuild	Overbuilds which have yet to be built	Overbuild targeted non-rebuilt communities	Overbuild is affiliated with a Utility	Overbuilder is owned by Co-op
Prospect Park	IL	WideOpenWest				✓		
Riverlea	OH	WideOpenWest						
Robbins	IL	WideOpenWest				✓		
Rochester	MI	WideOpenWest				✓		
Rochester Hills	MI	WideOpenWest				✓		
Royal Oak	MI	WideOpenWest				✓		
Schaumburg	IL	WideOpenWest				✓		
Shaker Heights	OH	WideOpenWest				✓		
Sharon Twp.	OH	WideOpenWest						
South Holland	IL	WideOpenWest				✓		
St. Ann	MO	WideOpenWest	✓					
St. Clair Shores	MI	WideOpenWest				✓		
St. Louis	MO	WideOpenWest	✓					
St. Peters	MO	WideOpenWest	✓					
Sterling Hts.	MI	WideOpenWest				✓		
Streamwood Village	IL	WideOpenWest				✓		
Strongsville	OH	WideOpenWest				✓		
Troy	MI	WideOpenWest				✓		
University City	MO	WideOpenWest	✓					
Upper Arlington	OH	WideOpenWest						
Utica	MI	WideOpenWest				✓		
Valley View	OH	WideOpenWest				✓		
Vernon Hills	IL	WideOpenWest				✓		
Warren	MI	WideOpenWest				✓		
Westlake	OH	WideOpenWest				✓		
Wheeling	IL	WideOpenWest				✓		
Worthington	OH	WideOpenWest						
Minneapolis	MN	WideOpenWest/Everest	✓					
Richfield	MN	WideOpenWest/Everest	✓					
Austin	TX	WIN	✓					
Houston	TX	WIN	✓					
Phoenix	AZ	WIN	✓					
San Diego	CA	WIN	✓					

## Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Failed Overbuild	Failing Overbuild	Overbuilds which have yet to be built	Overbuild targeted non-rebuilt communities	Overbuild is affiliated with a Utility	Overbuilder is owned by Co-op
San Francisco	CA	WIN	✓					
Las Vegas	NV	WIN	✓					
Seattle	WA	WIN/RCN			✓			
Texline	TX	XIT Comm.						

## Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
20 cities	RI	ABI					
La Crescent	MN	ACE Comm.					✓
Camarillo	CA	Adelphia			✓		✓
Encinitas	CA	Adelphia			✓	✓	
Malibu	CA	Adelphia			✓		✓
Oxnard	CA	Adelphia			✓		✓
Port Hueneme	CA	Adelphia			✓		✓
San Marcos	CA	Adelphia			✓	✓	✓
Ventura	CA	Adelphia			✓	✓	✓
Flora	IL	Advance Technologies					
Alameda	CA	Alameda Power	✓				
Algona	IA	Algona Municipal Util.	✓				
Evanston	WY	All West Comm.			✓		✓
Alta	IA	Altatec					
Arcadia	CA	Altrio					✓
Monrovia	CA	Altrio					✓
San Gabriel Valley	CA	Altrio			✓	✓	
Sierra Madre	CA	Altrio					✓
Ann Arbor	MI	American Broadband					
E. Lansing	MI	American Broadband					
Lansing	MI	American Broadband					
St. Joseph Twp.	MN	Astound Broadband					✓
Pultney	OH	Bellaire Cable TV			✓		
Bartlett	TN	BellSouth					
South Dade County	FL	BellSouth		✓			
Winder	GA	BellSouth		✓			
Cherokee County	GA	BellSouth Entertainment		✓	✓	✓	
Cobb County	GA	BellSouth Entertainment		✓	✓	✓	
Duluth	GA	BellSouth Entertainment		✓	✓	✓	
Gwinnett County	GA	BellSouth Entertainment		✓	✓	✓	
Roswell	GA	BellSouth Entertainment		✓	✓	✓	
Woodstock	GA	BellSouth Entertainment		✓	✓	✓	
Chamblee	GA	BellSouth Interactive		✓			✓

**Survey of Incumbent Cable Operators in Overbuild Communities**

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
DeKalb	GA	BellSouth Interactive		✓			✓
St. John's County	FL	BellSouth Interactive		✓	✓		✓
Fallowfield	PA	Bentleyville Cable		✓	✓		
Albany	NY	Berkshire Tel		✓	✓		
Rapid City	SD	Black Hills GLA					
Skagit County	WA	Black Rock Cable					
Snohomish County	WA	Black Rock Cable					
Whatcom County	WA	Black Rock Cable					
Braintree	MA	Braintree Elec. Light	✓				
Elizabethtown/Hardi	KY	Brandenburg Telecom		✓			✓
Ocala	FL	BrightHouse			✓		✓
Abington	VA	Bristol Virginia Utilities	✓				
Glade Spring	VA	Bristol Virginia Utilities	✓				
Horton Twp.	PA	Brockway TV	✓				
Kane	PA	Brockway TV	✓				
Bryan	OH	Bryan Municipal Cable	✓				
Waterville	OH	Buckeye Cable					
Maryland Hts	MO	Cable America					
Mesa	AZ	Cable America			✓		
Sacramento	CA	Cable America			✓		✓
Cameron	LA	Cameron Tel.		✓			
Hackberry	LA	Cameron Tel.		✓			
Charlotte	NC	Carolina Broadband					
Columbia	SC	Carolina Broadband					
Durham	NC	Carolina Broadband					
Greensboro	NC	Carolina Broadband					
Greenville	SC	Carolina Broadband					
Raleigh	NC	Carolina Broadband					
Spartanburg	SC	Carolina Broadband					
Winston Salem	NC	Carolina Broadband					
Cedar Falls	IA	Cedar Falls Utilities	✓				✓
Clearview	WV	Centre TV			✓		
Ohio County	WV	Centre TV			✓		

## Survey of Incumbent Cable Operators in Overbuild Communities

Attachment A

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
Warwood	WV	Centre TV			✓		✓
Urbana	OH	Champaign County Tel		✓			
Denver	CO	Champion Broadband					✓
Lakewood	CO	Champion Broadband					✓
Kanawha County	WV	Charter			✓	✓	
Terre Haute	IN	Charter					✓
Danville	VA	Chatmoss Tel.					
Hayward	MN	Chequamegon Coop					✓
Barron	WI	Chibardun Coop					
Camron	WI	Chibardun Coop					
Chetek	WI	Chibardun Coop					
Unity Twp.	PA	Citizens Cable		✓	✓	✓	✓
Daleville	AL	City Cablevision	✓		✓	✓	✓
Bridgeport	CT	City of Bridgeport	✓				
Galesburg	IL	City of Galesburg					
Lebanon	OH	City of Lebanon	✓				✓
Negaunee	MI	City of Negaunee	✓		✓	✓	✓
Clear Lake	IA	CL Tel		✓			✓
Lake County	FL	Clear Link			✓	✓	
Bellmead	TX	ClearSource (Grande)					
Lacy-Lakeview	TX	ClearSource (Grande)					
Monroe	LA	CMA Cablevision			✓		
Coldwater	MI	Coldwater BPU	✓			✓	✓
Columbus Grove	OH	Columbus Grove Tel.		✓			
Dothan	AL	Comcast			✓	✓	✓
Monroe	MI	Comcast			✓		✓
Parkersburg	WV	Community Antenna			✓		✓
Ashtabula	VA	Conneaut Tel.		✓			
Painesville	OH	Conneaut Tel.		✓			
Big Lake	MN	Connections		✓			
Barrington	RI	Cox					
Bristol	RI	Cox					
Central	FL	Cox			✓		

**Survey of Incumbent Cable Operators in Overbuild Communities**

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
Central	FL	Cox					
Claremore	OK	Cox			✓	✓	✓
Spotsylvania	VA	Cox					
Warren	RI	Cox					
Arma	KS	Craw-Kan Tel. Coop		✓		✓	
Franklin	KS	Craw-Kan Tel. Coop		✓		✓	
State College	PA	D&E Comm.		✓			✓
Britton	MI	D&P Cable		✓			
Morenci	OH	D&P Cable		✓			
Darien	GA	Darien Cable		✓	✓		✓
Middleburg	NJ	DeCom					
Charlotte	NC	DeCom Corp					
Blissfield	MI	Deerfield Farmers Tel		✓	✓		✓
Delhi	NY	Delhi Tel.		✓		✓	
Indianapolis	IN	Digital Access					
Kansas City	MO	Digital Access					
Milwaukee	WI	Digital Access					
Nashville	TN	Digital Access					
Austin	TX	Digital Union					
Chippewa Twp.	OH	Doylestown Comm.		✓	✓	✓	
Doylestown Village	OH	Doylestown Comm.		✓	✓	✓	
Elberton	GA	Elberton Utilities	✓		✓		✓
Willmar	MN	En-Tel					
Eden Prairie	MN	Everest					
Edina	MN	Everest					
Hopkins	MN	Everest					
Minnetonka	MN	Everest					
Lenexa	KS	Everest Connections					✓
Mission	KS	Everest Connections					
Mission	KS	Everest Connections					✓
St. Charles County	MO	Everest Connections					
O'Fallon	MO	Everest/WideOpenWest					
Fairburn	GA	Fairburn Utilities	✓		✓	✓	



Survey of Incumbent Cable Operators in Overbuild Communities

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Bridgeport	CT	FiberVision					
Hartford	CT	FiberVision					
New Haven	CT	FiberVision					
Elk Grove	CA	Frontier		✓	✓		✓
Laurens	IA	Future Net	✓				
Blackwell	OK	Get LLC					
Dothan	AL	Graceba		✓	✓	✓	
Dothan	AL	Graceba		✓	✓	✓	✓
Alamo Heights	TX	Grande Comm.					✓
Austin	TX	Grande Comm.					✓
Balcones Heights	TX	Grande Comm.					✓
Castle Hilles	TX	Grande Comm.					✓
Cibolo	TX	Grande Comm.					✓
Corpus Christi	TX	Grande Comm.				✓	✓
Houston	TX	Grande Comm.					
Kirby	TX	Grande Comm.					✓
Leon Valley	TX	Grande Comm.					✓
Live Oak	TX	Grande Comm.					✓
Midland	TX	Grande Comm.					✓
Odessa	TX	Grande Comm.				✓	✓
Olmos Park	TX	Grande Comm.					✓
San Antonio	TX	Grande Comm.					✓
San Marcos	TX	Grande Comm.					✓
Schetz	TX	Grande Comm.					✓
Selma	TX	Grande Comm.					✓
Terrell Hills	TX	Grande Comm.					✓
Waco	TX	Grande Comm.					✓
Windcrest	TX	Grande Comm.					✓
Greenville	TX	Greenville Elec. Util.	✓		✓	✓	
Grundy Center	IA	Grundy Center Munic.	✓				
Savannah	GA	Hargray Comm.		✓	✓		✓
Harlan	IA	Harlan Municipal Util.	✓				
Hartwell	GA	Hart Cable		✓			✓

## Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
Winona	MN	Hiawatha Broadband					
Hawarden	IA	HiTec Municipal	✓				
Mason County	WA	Hood Canal Cable			✓		
Shelton	WA	Hood Canal Cable					
Chillicothe	OH	Horizon Telecom		✓			
Conway	SC	Horry Tel. Coop		✓	✓	✓	
Georgetown	SC	Horry Tel. Coop		✓			
Horry County	SC	Horry Tel. Coop		✓	✓	✓	✓
N. Myrtle Beach	SC	Horry Tel. Coop		✓	✓		✓
Cecil	PA	HTC Comm.		✓	✓		
Houston	PA	HTC Comm.		✓	✓		
Mt. Pleasant	PA	HTC Comm.		✓	✓		
Independence	IA	Indep. Light & Power	✓				✓
Kenmore	NY	Intertech Private Cable					
Kenton-Boone City	KY	Kenton Boone City					
Augusta	GA	Knology				✓	✓
Charleston	SC	Knology			✓		✓
Huntsville	AL	Knology			✓	✓	
Knoxville	TN	Knology				✓	✓
Louisville	KY	Knology					
Nashville (Mid. TN)	TN	Knology					
Panama City	FL	Knology					
Summerville/Dorches.	SC	Knology			✓		
Durand	MI	Lennon Tel. Co.		✓	✓		
Lexington	NC	LexCom					
Davidson County	NC	Lexicom Cable Ser.		✓			✓
Fallsburg	KY	Lycom			✓		
Little Rock	AR	Lyncstar					
Sauk Centre	MN	Mainstreet Comm.		✓			
Milledgeville	GA	Mallard Cablevision			✓	✓	✓
Naples	FL	Marco Island Cable				✓	✓
Cedar Rapids	IA	McLeod		✓		✓	✓
Memphis	TN	Memphis Network					

**Survey of Incumbent Cable Operators in Overbuild Communities**

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
Shelby County	TN	Memphis Networx					
Albany	NY	Midtel Cable TV		✓	✓	✓	
Anne Arundel Cnty	MD	Millennium			✓		
Social Circle	GA	Monroe Utilities	✓			✓	
Walton County	GA	Monroe Utilities	✓		✓	✓	✓
Morristown	NJ	Morristown Util. System					
Dodgeville	WI	Mount Horeb Telecom		✓			✓
Murray	KY	Murray Electric					✓
Minster	OH	New Knoxville Tel.		✓			
Moulton	OH	New Knoxville Tel.		✓	✓	✓	
Bakersfield	CA	Newhouse					
Coweta County	GA	Newman Utilities					
Tyrone	GA	Newman Utilities					
Iron Mountian	MI	Northside Cable TV			✓		✓
Norwood	MA	Norwood Elec. Light	✓				
New Ulm	MN	NuTel					
Ft. Worth	TX	One Source			✓		✓
Osage	IA	Osage Municipal Util.	✓				✓
Livingston	TN	Overton County Cable					
Auburn	ME	Oxford Networks		✓	✓	✓	✓
Lewiston	ME	Oxford Networks		✓	✓	✓	✓
Bemidji	MN	Paul Bunyan Tel		✓			
Lower Burrell	PA	PCOM Comm.			✓		
Pembroke	WV	Pembroke Tel		✓	✓		
Houston	TX	Phonoscope			✓	✓	✓
Colman	SD	Prairie Wave		✓			
Flandreau	SD	Prairie Wave		✓			
Gayville	SD	Prairie Wave		✓			
Luverne	MN	Prairie Wave		✓			
Marshall	MN	Prairie Wave					
Pipestone	MN	Prairie Wave		✓			
Slayton	MN	Prairie Wave		✓			
Storm Lake	IA	Prairie Wave		✓			

## Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
Tracy	MN	Prairie Wave					
Worthington	IA	Prairie Wave		✓			
Yankton	SD	Prairie Wave		✓			
Albany	NY	Princetown Cable			✓	✓	
Rupert	ID	Project Mutual Tel Coop					✓
Provo	UT	Provo Cable/Provo	✓		✓		✓
Poteau	OK	Quality Entertainment					
Boulder	CO	Qwest		✓			✓
Chandler	AZ	Qwest		✓	✓		
Douglas County	CO	Qwest		✓			✓
Gilbert	AZ	Qwest		✓	✓		
Glendale	AZ	Qwest		✓	✓		
Maricopa County	AZ	Qwest		✓	✓		
Omaha	NE	Qwest		✓	✓	✓	✓
Paradise Valley	AZ	Qwest		✓	✓		
Peoria	AZ	Qwest		✓	✓		
Phoenix	AZ	Qwest		✓	✓		
Scottsdale	AZ	Qwest		✓	✓		
Eatonville	WA	Ranier Group		✓		✓	
Pierce County	WA	Ranier Group		✓	✓	✓	
Arlington	MA	RCN					✓
Bayonne	NJ	RCN					
Beverly Hills	CA	RCN					
Boston	MA	RCN					✓
Brookline	MA	RCN					✓
Burlingame	CA	RCN				✓	✓
Burlington	MA	RCN					✓
Carson	CA	RCN				✓	✓
Chicago	IL	RCN			✓		✓
Daly City	CA	RCN				✓	✓
Dedham	MA	RCN					✓
Delaware County	PA	RCN			✓		✓
Framingham	MA	RCN					✓

Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
Gardena	CA	RCN				✓	
Hermosa Beach	CA	RCN					
Hoboken	NJ	RCN					
Lexington	MA	RCN					✓
Marlborough	MA	RCN					✓
Milton	MA	RCN					✓
Natick	MA	RCN					✓
Needham	MA	RCN					✓
New York	NY	RCN			✓	✓	✓
Newton	MA	RCN					✓
Quincy	MA	RCN					✓
Randolph	MA	RCN					✓
Redwood City	CA	RCN				✓	
S. San Francisco	CA	RCN			✓	✓	✓
San Carlos	CA	RCN				✓	
San Mateo	CA	RCN				✓	✓
Saugus	MA	RCN					✓
Somerville	MA	RCN					✓
Stoneham	MA	RCN					✓
Stoneham	MA	RCN					✓
Wakefield	MA	RCN					✓
Waltham	MA	RCN					✓
Watertown	MA	RCN					✓
Weymouth	MA	RCN					✓
Winchester	MA	RCN					✓
Woburn	MA	RCN					✓
Falls Church	VA	RCN Starpower			✓	✓	✓
Fredricksburg	VA	RCN Starpower			✓	✓	✓
Reinbeck	IA	Reinbeck Tel. & Util.	✓				✓
St. John the Baptist	LA	Reserve Telecom					✓
Archbold	OH	Ridgeville Tel		✓			
Colby	KS	S&T Comm.					
Cave City	KY	S. Central Rural Tel.		✓			

Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
Hiseville	KY	S.Central Rural Tel.		✓			
Horse Cave	KY	S.Central Rural Tel.		✓			
Concord	CA	Seren Innovations				✓	✓
St. Cloud	MN	Seren Innovations					
Walnut Creek	CA	Seren Innovations				✓	✓
Plaquemine	LA	Service One			✓		✓
Newburgh	IN	Sigecom					
Spanish Fork	UT	Spanish Fork Com. Net	✓			✓	✓
Spencer	IA	Spencer Munic. Util.	✓				✓
Arlington	VA	Starpower					
Montgomery Cnty	MD	Starpower			✓	✓	✓
Prince George's Cnty	MD	Starpower				✓	
Washington	DC	Starpower			✓		
Sacramento	CA	Strategic Technologies			✓		✓
Houston County	GA	SunTel		✓		✓	
Sacramento	CA	Sure West		✓			✓
Pierce County	WA	Tacoma Power	✓				
St. Marys	OH	Telephone Service Co.		✓			
Wapakoneta	OH	Telephone Service Co.		✓		✓	
Dothan	AL	Time Warner			✓	✓	
Louisville	KY	TotalLink (Utilicom/Vectren)					
Houston	TX	TV Max			✓	✓	✓
Cincinnati (N. Ohio)	OH	TWC					
Citrus County	FL	TWC					
Leander	TX	TWC			✓	✓	
Mount Airy	NC	TWC					
Orlando	FL	TWC					
Pflugerville	TX	TWC			✓	✓	
Poway	CA	TWC			✓	✓	
San Diego	CA	TWC			✓		
Tampa	FL	TWC					
Chula Vista	CA	Ultronics					✓
National City	CA	Ultronics					✓

## Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
Cobb County	GA	United Telesystems			✓		
Park Rapids	MN	Unitel (W. Central Tel.)		✓			
Salem	IL	US Sonet					
Centerville	GA	Watson Cable					
Lake Wildwood	GA	Watson Cable				✓	✓
Macon	GA	Watson Cable			✓	✓	
Warner Robins	GA	Watson Cable			✓	✓	
Berea	OH	WideOpenWest					
Berkley	MI	WideOpenWest				✓	✓
Bexley	OH	WideOpenWest					
Brentwood	MO	WideOpenWest					
Brook Park	OH	WideOpenWest					
Brooklyn	OH	WideOpenWest					
Canton	MI	WideOpenWest				✓	
Centerline	MI	WideOpenWest				✓	✓
Chicago	IL	WideOpenWest					✓
Chicago Heights	IL	WideOpenWest					✓
Clawson	MI	WideOpenWest				✓	✓
Clinton	MI	WideOpenWest				✓	✓
Clinton Twp	OH	WideOpenWest					
Colorado Springs	CO	WideOpenWest					
Columbus	OH	WideOpenWest					
Crestwood	IL	WideOpenWest					✓
Creve Coeur	MO	WideOpenWest					
Des Plaines	IL	WideOpenWest					✓
Dublin	OH	WideOpenWest					
Eastpointe	MI	WideOpenWest				✓	✓
Elgin	IL	WideOpenWest					✓
Fairview Park	OH	WideOpenWest		✓			
Ferndale	MI	WideOpenWest				✓	✓
Fraser	MI	WideOpenWest				✓	✓
Gahanna	OH	WideOpenWest					
Garfield Heights	OH	WideOpenWest					

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CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
Glen Ellyn	IL	WideOpenWest					✓
Glenview	IL	WideOpenWest					✓
Grandview Heights	OH	WideOpenWest					
Hammond	IN	WideOpenWest					✓
Harrison Twp	MI	WideOpenWest				✓	✓
Harvey	IL	WideOpenWest					✓
Hilliard	OH	WideOpenWest					
Jackson Twp.	OH	WideOpenWest					
Kirkwood	MO	WideOpenWest					
Lakeville	MN	WideOpenWest					
Macomb	MI	WideOpenWest				✓	
Madison Hts	MI	WideOpenWest				✓	✓
Manchester	MO	WideOpenWest					
Maple Heights	OH	WideOpenWest					
Maplewood	MO	WideOpenWest					
Marble Cliff	OH	WideOpenWest					
Middleburg Heights	OH	WideOpenWest					
Mifflin Twp.	OH	WideOpenWest					
Minerva Park	OH	WideOpenWest					
Mount Clemens	MI	WideOpenWest				✓	✓
Mount Prospect	IL	WideOpenWest					✓
Naperville	IL	WideOpenWest					✓
New Rome	OH	WideOpenWest					
North Olmsted	OH	WideOpenWest					
North Royalton	OH	WideOpenWest					
Northville	MI	WideOpenWest				✓	
Oak Forest	IL	WideOpenWest					✓
Obetz	OH	WideOpenWest					
Orland Park	IL	WideOpenWest					✓
Palos Park	IL	WideOpenWest					✓
Palos Park	IL	WideOpenWest					✓
Perry Twp.	OH	WideOpenWest					
Plymouth	MI	WideOpenWest				✓	



## Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
Prospect Park	IL	WideOpenWest					✓
Riverlea	OH	WideOpenWest					
Robbins	IL	WideOpenWest					✓
Rochester	MI	WideOpenWest				✓	✓
Rochester Hills	MI	WideOpenWest				✓	✓
Royal Oak	MI	WideOpenWest				✓	✓
Schaumburg	IL	WideOpenWest					✓
Shaker Heights	OH	WideOpenWest					
Sharon Twp.	OH	WideOpenWest					
South Holland	IL	WideOpenWest					✓
St. Ann	MO	WideOpenWest					
St. Clair Shores	MI	WideOpenWest				✓	✓
St. Louis	MO	WideOpenWest					
St. Peters	MO	WideOpenWest					
Sterling Hts.	MI	WideOpenWest				✓	✓
Streamwood Village	IL	WideOpenWest					✓
Strongsville	OH	WideOpenWest					
Troy	MI	WideOpenWest				✓	✓
University City	MO	WideOpenWest					
Upper Arlington	OH	WideOpenWest					
Utica	MI	WideOpenWest				✓	✓
Valley View	OH	WideOpenWest					
Vernon Hills	IL	WideOpenWest					✓
Warren	MI	WideOpenWest				✓	✓
Westlake	OH	WideOpenWest					
Wheeling	IL	WideOpenWest					✓
Worthington	OH	WideOpenWest					
Minneapolis	MN	WideOpenWest/Everest					
Richfield	MN	WideOpenWest/Everest					
Austin	TX	WIN					
Houston	TX	WIN					
Phoenix	AZ	WIN					
San Diego	CA	WIN					

## Survey of Incumbent Cable Operators in Overbuild Communities

CITY	ST	CHALLENGER	Overbuild is municipally owned	Overbuild is affiliated with a telecom	Overbuilder not required to build out the entire franchise	Overbuilder has different franchise requirements	Overbuilder targeted high density communities
San Francisco	CA	WIN					
Las Vegas	NV	WIN					
Seattle	WA	WIN/RCN					
Texline	TX	XIT Comm.		✓			

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**Curriculum Vitae**

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**EDUCATION**

Ph.D., STANFORD UNIVERSITY, Economics, 1980.

M.A., STANFORD UNIVERSITY, Economics, 1977.

B.A., WABASH COLLEGE, Economics, 1971.

**PRESENT POSITIONS**

MICHIGAN STATE UNIVERSITY, Department of Telecommunication.

James H. Quello Professor of Telecommunication Studies

MICHIGAN STATE UNIVERSITY, Quello Center for Telecommunication Management & Law.

Director

**ACADEMIC AND PROFESSIONAL EXPERIENCE**

Northwestern University, Department of Communication Studies, 1988-1999.

Associate Professor

Northwestern University, Program in Telecommunications Science, Management & Policy, 1990-1999. Director

ECONOMISTS INCORPORATED, 1983 - 1988.

Senior Economist

UNIVERSITY OF CALIFORNIA, Los Angeles, Department of Economics, 1979 - 1983.

Assistant Professor

RAND CORPORATION, 1981 - 1983.

Consultant

**FELLOWSHIPS AND AWARDS**

Van Zelst Research Professor of Communication, Northwestern University, 1996-1997

McGannon Award for Social and Ethical Relevance in Communication Policy Research for 1992.

Ameritech Research Fellow, Northwestern University, 1990 - 1991.

Ameritech Research Professorship, Northwestern University, 1989 - 1990.

National Science Foundation Fellowship, 1974 - 1977

## PUBLICATIONS

### Books

*International Trade in Films and Television Programs*, with Stephen E. Siwek, Ballinger, 1988.<sup>1</sup>

*Video Economics*, with Bruce M. Owen, Harvard University Press, 1992.<sup>2</sup>

*Electronic Services Networks: A Business and Public Policy Challenge*, co-edited with Margaret E. Guerin-Calvert, Praeger Publishers, 1991.<sup>2</sup>

*Making Universal Service Policy: Enhancing the Process Through Multidisciplinary Evaluation*, co-edited with Barbara A. Cherry and Alan H. Hammond, IV, Lawrence Erlbaum, Publishers, 1999.<sup>2</sup>

*Broadband: Bringing Home the Bits*, member of NRC committee authoring report, National Research Council, 2002.

### Edited Journal Special Issues

SPECIAL ISSUE ON TELECOMMUNICATIONS POLICY, *Industrial and Corporate Change*, vol. 4, 1995. Co-edited with David J. Teece.<sup>1</sup>

SPECIAL ISSUE ON MEDIA AND MULTIMEDIA, *Information Economics and Policy*, vol. 10, no. 2. 1998.

### Journal Articles

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“The Market for Television Advertising: Model and Evidence,” with B. D. McCullough and R. Kieschnick, *Review of Marketing Science*, Vol. 1, Issue 2 (Nov. 2001).<sup>2</sup>

“Preventing Flawed Communication Policies by Addressing Constitutional Principles,” with Barbara A. Cherry, *Law Review of the Michigan State University Detroit College of Law*, vol. 2000, No. 1 (Spring 2000).<sup>2</sup>

“An Institutional Perspective on Regulatory Regimes and Investment Decisions by Telecommunications Providers,” with Barbara A. Cherry, *Telecommunications and Broadcasting Networks under EC Law: The Protection Afforded to Consumers and Undertakings in the*

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<sup>1</sup> Senior author.

<sup>2</sup> Equal joint author.

*Information Society*, Series of Publications by the Academy of European Law Trier, Vol. 27 (2000).<sup>2</sup>

“Institutional Endowment as Foundation for Regulatory Performance and Regime Transitions: The Role of the US Constitution in Telecommunications Regulation in the United States,” with Barbara A. Cherry, *Telecommunications Policy*, vol. 23, no. 9 (1999).<sup>2</sup>

“Economic Theories of Tying and Foreclosure Applied—and Not Applied—in *Microsoft*,” with Debra J. Aron, *Antitrust*, vol. 14, no. 1 (1999), pp. 48-52.<sup>2</sup>

“Media and Multimedia: The Challenge for Policy and Economic Analysis,” in *Information Economics and Policy*, Vol. No. 1 (1998).

“Interconnection Pricing, Stranded Costs, and the Optimal Regulatory Contract”, in *Industrial and Corporate Change*, vol. 6, no 4 (1997).

“Introduction: Policy and Strategy for Rapidly Changing Telecommunications Markets,” with David Teece, *Industrial and Corporate Change*, vol. 5, no. 4 (1996).<sup>1</sup>

“The Pricing of Customer Access in Telecommunications,” with Debra J. Aron, *Industrial and Corporate Change*, vol. 5, no. 4 (1996).<sup>2</sup>

"Network Programming and Off-Network Syndication Profits: Strategic Links and Implications for Television Policy," with Karla Robinson, *Journal of Media Economics*, Vol. 8, No. 2 (1995).<sup>1</sup>

"Trade Liberalization and Policy for Media Industries," *Canadian Journal of Communication*, Vol. 20 (1995).

"Network Competition and the Provision of Universal Service," with John C. Panzar, *Industrial and Corporate Change*, Vol. 4, No. 4 (1995).<sup>2</sup>

"Funding the Public Telecommunications Infrastructure," with Bruce Egan, *Telematics and Informatics*, Fall 1994.<sup>2</sup>

"Toward a New Analytical Framework for Media Policy: Reconciling Economic and Non-Economic Perspectives," with R. Entman, *Journal of Communication*, Winter 1992.<sup>2</sup> Reprinted in part in *Taking Sides: Clashing Views on Controversial Issues in Mass Media and Society*, A. Alexander and J. Hanson (eds.), The Duskin Publishing Group, Inc., 1993.

"Selecting Advanced Television Standards for the United States: Implications for Trade in Programs and Motion Pictures," *Journal of Broadcasting and Electronic Media*, Spring 1991.

"The Privatization of European Television: Effects on International Markets for Programs," *Columbia Journal of World Business*, December 1987.<sup>1</sup>

"A Note on Measuring Surplus Attributable to Differentiated Products," *Journal of Industrial Economics*, September 1984.

"Economic Consequences of the Informational Characteristics of Mass Media," *The American Economist*, Spring 1981.

## Book Chapters

“Broadband Deployment: Toward a More Fully Integrated Policy Perspective”, with Johannes M. Bauer and Junghyun Kim, in A. Shampine (ed.), *Down to the Wire: Studies in the Diffusion and Regulation of Telecommunications Technologies*, Nova Science Press, forthcoming.<sup>2</sup>

“Conditional Expectations Communication and the Impact of Biotechnology,” in S. Braman (ed.), *Biotechnology and Communication: The Meta-Technologies of Information*, Lawrence Erlbaum Associates, Publishers, forthcoming.

“Effecting a Price Squeeze Through Bundled Pricing,” with Debra J. Aron , in S. Gillett and I. Vogelsang (eds.), *Competition, Regulation and Convergence: Current Trends in Telecommunications Policy Research*, Lawrence Erlbaum Associates, Publishers, 1999.<sup>2</sup>

“Conceptualizing Universal Service Policy: Definitions, Context, Social Process, and Politics,” with Barbara A. Cherry. In B. Cherry, S. Wildman and A. Hammond IV (eds.), *Making Universal Service Policy: Enhancing the Process Through Multidisciplinary Evaluation*, Lawrence Erlbaum Associates, Publishers, 1999.<sup>2</sup>

“Unilateral and Bilateral Rules: A Framework for Increasing Competition While Meeting Universal Service goals in Telecommunications,” with Barbara A. Cherry. In B. Cherry, S. Wildman and A. Hammond IV (eds.), *Making Universal Service Policy: Enhancing the Process Through Multidisciplinary Evaluation*, Lawrence Erlbaum Associates, Publishers, 1999.<sup>2</sup>

“Review of Federal Universal Service Policy in the United States,” with Barbara A. Cherry, in B. Cherry, S. Wildman and A. Hammond IV (eds.), *Making Universal Service Policy: Enhancing the Process Through Multidisciplinary Evaluation*, Lawrence Erlbaum Associates, Publishers, 1999.<sup>2</sup>

“Towards a Better Integration of Media Economics and Media Competition Policy,” in *A Communications Cornucopia: Markle Foundation Essays on Information Policy*, R. Noll and M. Price (eds.), Brookings Institution, 1998.

“Regulatory Standards: The Effect of Broadcast Signals on Cable Television,” with James N. Dertouzos, in *A Communications Cornucopia: Markle Foundation Essays on Information Policy*, R. Noll and M. Price (eds.), Brookings Institution, 1998.<sup>2</sup>

“The Economics of Minority Programming,” with Theomary Karamanis, in A. Garmer, ed., *Investing in Diversity: Advancing Opportunities for Minorities and the Media*, The Aspen Institute, 1998.<sup>1</sup>

“A Structure and Efficiency Approach to Reforming Access and Content Policy,” with Karen D. Frazer, in C. Firestone and A. Garmer, eds., *Digital Broadcasting and the Public Interest: Reports and Papers of the Aspen Institute Communications and Society Program*, Aspen Institute, 1998.<sup>1</sup>

“Interconnection Pricing and Network Competition,” in *Progress in Communication Science, Volume 15: Advances in Telecommunications Theory and Research*, , H. Sawhney and G. A. Barnett (eds.), Ablex, 1998.

"Funding the Public Telecommunications Infrastructure," with Bruce Egan, in *Globalism and Localism in Telecommunications*, E. Noam and A. Wolfson (eds.), Elsevier, 1997.<sup>2</sup>

"Information Technology, Private Networks, and Productivity," in *Private Networks and Public Objectives*, E. Noam (ed.), Elsevier, 1996.

"One-Way Flows and the Economics of Audiencemaking," *Audiencemaking: How the Media Create the Audience*, J. S. Ettema and D. C. Whitney (eds.), Sage, 1994.<sup>1</sup>

"The Economics of Trade in Recorded Media Products in a Multilingual World: Implications for National Media Policies," with Stephen E. Siwek, in *The International Market in Film and Television Programs*, Eli M. Noam (ed.), Ablex, 1993.<sup>1</sup>

"Investing in the Telecommunications Infrastructure: Economics and Policy Considerations," with Bruce L. Egan, in the *1992 Annual Review of the Institute for Information Studies*.<sup>2</sup>

"Electronic Services Networks: Functions, Structures, and Public Policy," with Margaret E. Guerin-Calvert, in *Electronic Services Networks: A Business and Public Policy Challenge*, Margaret E. Guerin-Calvert and Steven S. Wildman (eds.), Praeger Publishers, 1991.<sup>1</sup>

"The Economics of Industry-Sponsored Search Facilitation," in *Electronic Services Networks: A Business and Public Policy Challenge*, Margaret E. Guerin-Calvert and Steven S. Wildman (eds.), Praeger Publishers, 1991.<sup>1</sup>

"Program Competition and Diversity in the New Video Industry," with Bruce M. Owen, in *Video Media Competition: Regulation, Economics, and Technology*, Eli M. Noam (ed.), Columbia University Press, 1985.<sup>1</sup>

### Papers in Published Conference Proceedings

"Program Competition and Advertising Strategies in the Age of Digital Television," in *The Future of Digital Television: Market, Audience, and Policy*, proceedings of the KISDI-KSJCS International Conference of same title, held Nov. 29, 2001 in Seoul, Korea, pp. 29-45.

"Communication Technology and Productivity: The Role of Education," *Annual Review of Communication*, National Engineering Consortium, Vol. XXXXVII (1993-94).

"Controlling Occupational Radiation: Alternatives to Regulation," with L.A. Sagan and R. Squitieri, presented at the International Symposium on Occupational Radiation Exposure in Nuclear Fuel Cycle Facilities, Los Angeles, CA, June 18-22. Published in proceedings of same conference.<sup>2</sup>

"Economic Issues in Mass Communication Industries," with J. N. Rosse, J. N. Dertouzos and M. Robinson, presented at the FTC Symposium on Media Concentration, Washington, D.C., December 14-15, 1978. Published in the proceedings of same conference.<sup>3</sup>

"Vertical Integration in Broadcasting: A Study of Network Owned-and-Operated TV Stations," S.I.E. No. 97, Department of Economics, Stanford University, also published in the Proceedings of the FTC Symposium on Media Concentration, Washington, D.C., December 14-15, 1978.

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<sup>3</sup> Joint author credited as a "with."

### Other Publications and Working Papers

Review of *The Telecommunications Act of 1996: The "Costs" of Manged Competition*, by Dale E. Lehman and Dennis Weisman, *Journal of Economic Literature* (December 2002), vol. 40(4), pp. 1272-1273.

Review of *Much Ado About Culture: North American Trade Disputes*, by K. Acheson and C. Maule, *Journal of Economic Literature* (September 2001), vol. 39(3), pp. 938-940.

"AOL-Time Warner Merger Will Redefine Business: Deal Gives AOL Access to Homes," Lansing State Journal, Feb. 6, 2000, p. 11A.

"A Framework for Managing Telecommunications Deregulation while Meeting Universal Service Goals," with Barbara A. Cherry. Presented at the Twenty-Third Annual Telecommunications Policy Research Conference, Solomons, Maryland, October 2, 1995.

"Monopolistic Competition with Two-Part Tariffs," with Nicholas Economedes, August 1995.<sup>2</sup>

Review of *Television in Europe*, by Eli Noam, *Journal of Economic Literature*, December 1993.

"Competition in the Local Exchange: Appropriate Policies to Maintain Universal Service in Rural Areas," with John C. Panzar, September 1993.

Review of *The World Television Industry: An Economic Analysis*, by Peter Dunnett, *Journal of Communication*, Winter 1992.

"An Empirical Study of Broadcast Competition to Cable," with James N. Dertouzos, July 1990.<sup>2</sup>

"A Model of Supply and Demand for Information in a Competitive Market," October 1989.

"ATV Standards and Trade in Recorded Video Entertainment," paper presented at the Sixteenth Annual Telecommunications Policy Research Conference, October 30-November 1, 1988, Airlie, VA, revised April 1989.

"Competition, Regulation and Sources of Market Power in the Radio Industry," with Duncan J. Cameron, May 1982, revised October 1989.<sup>1</sup>

"Program Choice in a Broadband Environment," with Nancy Y. Lee, Working Paper, Center for Telecommunications and Information Studies, Columbia University, May 1989.<sup>1</sup>

"Trade in Films and Television Programming," with Stephen E. Siwek, presented at Trade in Services and Uruguay Round Negotiations, London, England, July 8, 1987, and Geneva, Switzerland, July 18, 1987.<sup>1</sup>

Review of *Oligopoly Theory*, by James Friedman, *Journal of Economic Literature*, March 1985.

"Recruiter Incentives: Effects on Performance," Rand Cooperation Working Draft, April 1983.

"Anticipated Preemption and the Determination of Initial Structure in a Growing Market," UCLA Working Paper No. 267, September 1982.

"A Spatial Model of Entry Deterrence," S.I.E. No. 103, Department of Economics, Stanford University, November 1978, revised December 1980.



"Advertising, Consumer Learning and Competitive Strategies," Dissertation filed January 1980. Also published as S.I.E. paper No. 110 by Department of Economics, Stanford University, December 1979.

"A Study of Economic Issues in the Recording Industry," with James N. Dertouzos.<sup>2</sup> Study commissioned by the National Association of Broadcasters.

#### **OTHER PROFESSIONAL ACTIVITIES**

Co-convenor, conference on telecommunications free trade zones, Northwestern University, March 30, 1992. Sponsored by the Annenberg Washington Program of Northwestern University and the Illinois Commerce Commission.

Convener, half-day conference on electronic services networks at Northwestern University, April 9, 1990.

Co-convenor, day-long Washington, D.C. conference on electronic services networks sponsored by the Annenberg Washington Program, February 23, 1990.

Member, Editorial Board, *Journal of Media Economics*.

Member of Organizing Committee for the Nineteenth and Twentieth Annual Telecommunications Policy Research Conference, Solomon Island, MD.

Member, Executive Committee, Consortium for Research in Telecommunications.

Organizer, 1996 Conference on Telecommunications Policy and Strategy of the Consortium for Research in Telecommunications Policy, Evanston, IL, May 10,11, 1996

Co-organizer, Telecommunication Policy and Law Symposium: "Preventing Flawed Communication Policies by addressing Constitutional Principles", Washington, D.C., April 18, 2000.

Member, National Research Council Broadband Last Mile Committee, Fall 1999-present.

#### **REFEREEING AND REVIEWING**

*American Economic Review*, referee

*Communication Law and Policy*, referee

*Communication Research*, referee

*Communication Theory*, referee

*Journal of Economics and Business*, referee

*Information, Economics and Policy*, referee

*Information Systems Research*, referee

*International Journal of the Economics of Business*, referee

*International Journal of Industrial Organization*, referee

*International Journal on Media Management*, Associated Reviewer and referee,

*Journal of Broadcasting and Electronic Media*, referee

*Journal of Communication*, book reviewer

*Journal of Information, Economics and Policy*, referee

*Journal of International Economics*, referee

*Journal of Economic Literature*, book reviewer

*Journal of Industrial Economics*, referee  
*Journal of Media Economics*, editorial board, referee  
*National Science Foundation*, proposal reviewer  
*The Rand Journal of Economics*, referee