

BEFORE THE  
FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, D.C. 20554

*Application of* )  
 )  
**EchoStar Communications Corporation,** )  
**General Motors Corporation,** )  
**Hughes Electronics Corporation,** )  
 )  
**Transferors** ) **CS Dkt. No. 01-348**  
 )  
**and** )  
 )  
**EchoStar Communications Corporation,** )  
 )  
**Transferee,** )  
 )  
**For Authority to Transfer Control,** )

**DECLARATION OF PAUL W. MACAVOY\***

**The Effects of the Proposed EchoStar – DirecTV Merger on Competition in Direct  
Broadcast Satellite Rural Markets Where Cable Is Not Available.\*\***

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\*\* Declaration on Behalf of the National Rural Telecommunications Cooperative

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## I. INTRODUCTION

1. The advent of direct broadcast satellite (DBS) service in 1994 introduced new sources of services into the multichannel video programming distribution (MVPD) market, which until that time had been dominated by exclusive, terrestrial cable television franchises typically offering as few as 54 analog channels.<sup>1</sup> DirecTV and EchoStar launched DBS service with 150 and 126 digital channels, respectively, with availability to most households in the continental United States.<sup>2</sup> Despite significant up-front investment in rooftop satellite receiver dish and set-top equipment required of DBS customers, DBS subscribership increased from approximately 5.0 million in the summer of 1997 to more than 16 million by the summer of 2001.<sup>3</sup> In 2001, DBS subscribership grew more than 23.7 percent and the ratio of DBS customers to cable customers increased to nearly one-to-four.<sup>4</sup> The FCC's Eighth Annual Assessment of Video Programming Delivery noted that, since June 1997, DBS subscribership has tripled, whereas cable penetration rate has decreased nine percent.<sup>5</sup> DirecTV and EchoStar have achieved this rapidly increasing high level of penetration *because* of their intense competition with cable providers and because of competition between them where cable is not available.

2. DBS services are provided in two generic classes of markets. In the first class, in countryside and small towns, there are clusters of local markets not served by cable where customers have had a choice only between the Ku-band DBS services of DirecTV and EchoStar.

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<sup>1</sup> Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Second Annual Report, CS Dkt. No. 95-61, 11 F.C.C.R. 4, 2069 ¶ 18 (1995) [hereinafter *Second Annual Report*]. Only 41.4 percent of cable subscribers were serviced by systems offering at least 53 channels.

<sup>2</sup> *Id.* at 2082 ¶¶ 51, 52.

<sup>3</sup> Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Eighth Annual Report, CS Docket No. 01-129 (released January 14, 2002) [hereinafter *Eighth Annual Report*] at ¶ 18.

<sup>4</sup> *Id.*

<sup>5</sup> *Id.* at Appendix C-1.

These two firms have provided comparable but differentiated programming and pricing packages. In the second general class of markets, in urban and suburban locations, there have been two DBS and one, or slightly more than one, wireline cable operator on average, with the footprint of the cable provider constituting one of numerous separate markets in those locations containing most of the subscribers throughout the United States. A fringe of home satellite dishes (HSD) operating in the C-band, multichannel multipoint distribution service (MMDS), satellite master antenna systems (SMATV), and open video system (OVS) operators have not emerged as effective competitors to these two DBS service providers or, where available, the local cable provider. Moreover, as discussed below, the distinction between *analog* cable and *digital* cable in quality of service is substantial, to an extent suggesting that analog cable also does not compete with DBS.

3. If the proposed merger between EchoStar and DirecTV is approved, so that DBS rivalry between these two providers is terminated, consumers in the first class of markets where cable is not available will lose the benefits of competition on price and product features that is now available to them. In response to this evident creation of a monopoly, various promises of the proposed merged firm have been made including the promise that it would set prices in rural markets to be the same as in non-rural markets where there are both cable and DBS service. Promises notwithstanding, the merger-to-monopoly that would result in rural markets is, by itself, of sufficient concern for courts to declare this transaction unlawful and the Federal Communications Commission to deem it contrary to the public interest.

4. To assist the government reviewing authorities in focusing on the most salient of economic consequences that would flow from the proposed merger, my declaration confines itself to answering a single question: Would the merger of EchoStar and DirecTV unacceptably raise prices and reduce choice for the millions of consumers who reside in rural America? My

empirical analysis supports the singular answer: that higher (monopoly) prices and/or lower quality of service has to result from the merger.

5. Because the DBS service providers already face no competition in many rural markets, the proposed merger of EchoStar and DirecTV, by creating a monopoly, would generate significant welfare losses for millions of households. In this declaration, I provide estimates of significant subscriber losses in certain illustrative rural markets where cable is not available. But it is alleged by the merger proponents that rural subscribers would be spared such losses given that the combined DBS provider pledges to set a uniform “national price,” geared to the more competitive urban markets. I consider such a hypothetical constraint and conclude that as a practical matter it will be impossible to implement and enforce for the benefit of consumers. Moreover, even if it could be implemented and enforced, a “national price” does not address other problems inherent in a monopoly, and would result in a material price increase for all consumers.

## II. THE STRUCTURE OF THE MARKET

6. The initial step in evaluating the competitive impact of a proposed merger is set forth in the *Merger Guidelines* published by the Department of Justice (DOJ) and Federal Trade Commission (FTC). The DOJ/FTC methodology to define economically meaningful markets that the merger would affect<sup>6</sup> uses the convention of specifying the *narrowest* group of products and *smallest* geographic area within which a hypothetical monopolist would be able to profitably impose a “significant and nontransitory” price increase.<sup>7</sup> The *Merger Guidelines* also explain how to assess whether entry would be timely, likely, and sufficient to deter or to counteract the anticompetitive effects of this price increase. Once the relevant market is so defined, market

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<sup>6</sup> U.S. Dept. of Justice and Federal Trade Commission, Horizontal Merger Guidelines §§ 0.2, 1.0 (revised Apr. 8, 1997) [hereinafter *Merger Guidelines*].

<sup>7</sup> *Id.* at § 1.0.

concentration is measured both before and after the merger by the number of firms in a market and their respective market shares using, among other measures, the Herfindahl-Hirschman Index (HHI).<sup>8</sup> If market share increases exceed certain levels, then there is a presumption that such mergers increase price-setting power and thus prices.<sup>9</sup> In other words, under the *Merger Guidelines*, the proposed combination of EchoStar and DirecTV would be a merger-to-monopoly in markets not served by cable.

#### A. The Relevant Market

7. To define the relevant product market using DOJ/FTC methodology is not possible for MVPD-type services because we lack estimates of specific firm elasticities of demand. We instead rely on market definition developed judgmentally by the FCC, namely, that the markets consist of MVPD services. EchoStar/DirecTV transactions with their subscribers are in this market, along with other MVPD service providers at any one location. Determinations by both the FCC<sup>10</sup> and the DOJ<sup>11</sup> have defined the MVPD market as encompassing cable television systems (both analog and digital), DBS systems, SMATV, MMDS, and home satellite dishes (HSDs) operating in the C-band. However, because the *Merger Guidelines* qualify the *narrowest* set of products needed for a hypothetical monopolist to exercise market power, as the relevant market, the inclusion of DBS service with some of these other product offerings into one large market may not be consistent with the most accurate product market definition.

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<sup>8</sup>. The HHI is the sum of the squares of the individual market shares of all market participants; the higher the HHI, the greater market concentration. *See, e.g.*, DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION 247 (Addison Wesley 3rd ed. 2000).

<sup>9</sup>. The pre-merger HHI in areas not served by cable plant is 5,413, and the post-merger HHI in those areas is 10,000. I assume that the relative market shares of DirecTV and EchoStar in areas not passed by cable are the same as their relative market shares nationwide.

<sup>10</sup>. Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, *Seventh Annual Report*, CS Dkt. No. 00-132, 16 F.C.C.R. 6037 ¶¶ 61, 65 (2001) [hereinafter *Seventh Annual Report*].

<sup>11</sup>. *United States v. Primestar, Inc.*, Civ. No. 1:98CV01193 (JLG) (D.D.C. May 12, 1998) (DOJ complaint alleged that MVPD market was the relevant product market for the purpose of evaluating Primestar's proposed purchase of DBS assets held jointly by News Corp. and MCI Telecommunications Corp.).

8. Consider a hypothetical unregulated monopoly provider of DBS service in Chelsea, Vermont (a small, rural community where there is no wired cable service). If that monopoly provider of DBS service could raise its price in a nontrivial way for a nontransitory period of time and, in so doing, offset the losses on marginal customers (that is, customers who leave) with increased margins on inframarginal customers (that is, customers who remain), then DBS service must be considered a relevant product market. But if the losses were to exceed the gains, then the product market would need to be expanded to include the substitute products. That is, the hypothetical market would need to include other products that consumers perceived to be close substitutes for DBS service; DBS service in Chelsea alone thus would not constitute a relevant product market. This approach, while cautious, appears not to be correct in this case. But a monopolist in DBS without cable services competition would not need to control SMATV,<sup>12</sup> MMDS,<sup>13</sup> and HSD<sup>14</sup> in order to exercise market power, given that the share of those peripheral services is collectively less than one percent and actually *declined* in 2001 prior to the proposed merger.<sup>15</sup> This fact constitutes a *prima facie* finding that consumers do not perceive those services to be close substitutes to DBS services, and the relevant market is therefore only DBS and cable services.

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<sup>12.</sup> SMATV systems only serve multiple dwelling units (MDU's) and thus are not a viable alternative for the vast majority of rural Americans, who do not live in multiple dwelling units.

<sup>13.</sup> MMDS is not cost effective to deploy in rural areas because the costs to build large towers are excessive in order to serve few rural households. With only 700,000 subscribers, MMDS (also known by as "wireless cable") represented a 0.8 percent share of the national MVPD market in June 2001. As noted in the *Eighth Annual Report*, most MMDS operators are converting the spectrum to non-video uses.

<sup>14.</sup> Because of C Band's high costs and the unsightly large dishes, the C band business will likely continue to diminish as existing customers replace their larger dishes with smaller, less expensive DBS equipment wherever DBS is available for installation. According to the *Eighth Annual Report*, HSD subscribership declined by more than 30 percent in the 12 months ending June 2001.

<sup>15.</sup> *Eighth Annual Report*, *supra* note 3.

9. But the relevant product market could be narrower than including all cable and DBS services to the extent that *analog* cable offerings do not discipline the pricing of digital cable and/or DBS service. Analog signals typically are delivered by coaxial cable of 330 MHz or less, so that the capacity of the system is limited to a maximum of 54 6-MHz channels. Analog cable has poor picture quality, few or no pay-per-view movies, significantly higher per channel cost, and an inability to use new technologies, such as interactive television. Digital signals use digital compression to permit multiple streams to be transmitted on the 6-MHz channel, increasing the number of channels that a subscriber can view. In addition, digital cable systems have more bandwidth (as much as 750 MHz) resulting in better quality video and audio and they often have two-way capability that allow a subscriber to interact with the operator to order special programming. According to Nielsen's 1999 Digital Cable TV Customer Satisfaction Survey, the service quality characteristics of digital cable and DBS are perceived by subscribers to be much closer than are the characteristics of DBS and analog cable.<sup>16</sup> The survey also reported that "in most instances DBS viewing patterns parallel digital cable."<sup>17</sup> In Austin, Texas, for example, Time Warner Cable ran an advertisement that touted "the advantages of digital cable over satellite."<sup>18</sup> According to The Yankee Group, which surveys and analyzes MVPD data, the real competition is between digital cable and satellite. Those aspects of substitutability suggest that cable plant not yet upgraded to digital and not to be upgraded within the next two years should be excluded from the relevant product market in rural areas where

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<sup>16.</sup> Dave Zornow, *The Dawn of Digital*, CABLE WORLD, Mar. 30, 2000, at \*1 ("These [digital cable] numbers are almost an exact match for the digital but unwired world.").

<sup>17.</sup> *Id.*

<sup>18.</sup> Diane Holloway, *The heavyweight bout in your living room has no clear winner*, AUSTIN AMERICAN-STATESMAN, Nov. 29, 2001, at D1.

DBS<sup>19</sup> otherwise is all that is available. Nevertheless, because of the absence of price data at the local level, necessary for determining price and cross elasticity between DBS and analog, I have been unable to conduct the DOJ/FTC Merger Guidelines test for a hypothetical price increase that would establish whether to either include or exclude analog cable from the product market. Therefore, to be conservative, I consider digital and analog systems to be the same in determining the extent of markets analyzed below.

10. The geographic dimension of market definition requires determination of those geographic areas in which EchoStar, DirecTV, and cable system operators alternately deliver multichannel video programming services to subscribers. The relevant geographic market includes the area over which consumers have similar choices regarding the defined set of services. The FCC, in defining this area, concludes that the market for the MVPD service *by consumers* is local in nature.<sup>20</sup> In the past, the Commission has examined point-to-point markets collectively. That treatment does not imply, however, that the relevant geographic market is national, but rather that there are “collections” of similar local markets that can be examined together for the purpose of characterizing competitive conditions. The FCC has aggregated local markets on the basis that:

when a group of point-to-point markets exhibit sufficiently similar competitive characteristics (i.e., essentially the same set of carriers offer the same set of choices to customers on those point-to-point routes), we will examine that group of markets using aggregate data that encompasses all point-to-point markets in the relevant area, rather than each individual point-to-point market separately.<sup>21</sup>

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<sup>19</sup>. The proponents of the merger seize on a broad definition of the market. In his declaration filed on behalf of the merger proponents, consultant Robert D. Willig embraces the MVPD market definition. Willig’s definition of the relevant market is important not for what it states, but for what it does not say: Although he spends nine paragraphs discussing the relevant market, he makes no effort to carry out the DOJ test for validating the product mix and geographic extent of the markets relevant to this proceeding.

<sup>20</sup>. *Seventh Annual Report, supra* note 1, at 59 ¶ 135.

<sup>21</sup>. *Id.* at 15,804 ¶ 85.

In the *LEC Classification Order*,<sup>22</sup> which evaluated competition in the point-to-point market for interLATA services, the Commission found that each point-to-point service constituted a separate relevant geographic market. We follow this procedure, for the convenience of not having to examine thousands of rural markets, many of which are similar, by examining 14 “clusters” of these markets that because of locational proximity exhibit similar supply conditions.

11. In the *Bell Atlantic/NYNEX Order*, the Commission clarified that it would treat as a single relevant geographic market “an area in which all customers in that area will likely face the same competitive alternatives for a [relevant service].”<sup>23</sup> This approach still allows for the assessment of market power based on unique situations by recognizing, for example, that certain carriers may target particular types of customers, provide specialized services, or control independent facilities in specific geographic areas. This is indicated by the 1998 *COMSAT Non-Dominance Order*,<sup>24</sup> in which the FCC analyzed COMSAT’s provision of switched-voice, private-line, and occasional-use video services to and from separate and distinct point-to-point geographic markets, rather than in one global market, even though it aggregated point-to-point route markets according to two broad categories.<sup>25</sup>

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<sup>22</sup>. Regulatory Treatment of LEC Provision of Interexchange Services Originating in the LEC’s Local Exchange Area and Policy and Rules Concerning the Interstate, Interexchange Marketplace, CC Dkt. No. 96-149, 12 F.C.C.R. 15,756, 15,804 ¶ 85 (1997) [hereinafter *LEC Classification Order*].

<sup>23</sup>. Application of NYNEX Corporation and Bell Atlantic Corporation For Consent to Transfer Control of NYNEX Corporation and Its Subsidiaries, Memorandum Opinion and Order, 12 F.C.C.R. 19,985 ¶ 50 (1997) [hereinafter *Bell Atlantic/NYNEX Order*].

<sup>24</sup>. COMSAT Corp., Petition Pursuant to Section 10(c) of the Communications Act of 1934, as amended, for Forbearance from Dominant Carrier Regulation and for Reclassification as a Non-Dominant Carrier, Order and Notice of Proposed Rulemaking, CC Dkt. 80-634, IB Dkt. 98-60, 13 F.C.C.R. 14,099, 14,110 ¶¶ 27, 49 (1998) [hereinafter *COMSAT Non-Dominance Order*].

<sup>25</sup>. The two categories were defined as follows: (1) “thick routes” between the developed nations of United States, Europe, the Americas, Asia, and Australia, served by multiple competing satellite carriers and undersea cable facilities and characterized by relatively low entry barriers; and (2) “thin routes” connecting the United States with nations located in Africa and Eastern Europe as well as low density, remotely located island nations, such as Mauritius and New Caledonia, as to which COMSAT was the sole satellite provider of switched and private-line

12. For *service providers*, the locational options for providing service consists of residences that serve as alternative sources of demand. The local cable system footprints represent such a geographic market; different cable footprints constitute different markets since these options vary according to the characteristics of each cable company's strategy. According to the FCC, "[i]n the 1996 Report, we found that, in the downstream market the relevant geographic area for assessing MVPD competition is local and its extent can be defined by the overlap of the 'footprints' of various [cable] service providers. This area of overlap determines the potential MVPD choices available to a typical household."<sup>26</sup> That specification applies to DBS providers as well. The particular geographic markets inclusive of DBS service options are the cable footprints, where there are cable systems. For these reasons, it is not appropriate in merger analysis to use data on nationwide cable passage.

13. For those areas of the United States *not passed by cable*, the relevant geographic market is defined in a different manner. There are hundreds of local markets that contain separate groups of rural residences that are served by retailers of DBS equipment and installation services. There may be one to three such retail service providers in a rural area consisting of farms or mountains that contain hundreds, not millions, of homes. The footprints of these system sellers constitute markets. As George Stigler and Robert Sherwin explained in their seminal article on market definition, whenever the customers are fixed locationally but suppliers are not, the relevant geographic market is the area served by suppliers.<sup>27</sup> Because the two DBS providers are not confined to any particular location within the continental United States, but retailers of their equipment are so confined, and they do not compete against cable providers in areas where

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services, and characterized by relatively high entry barriers arising from exclusive licensing regimes or insufficient demand to motivate competitive entry by undersea cable operators to compete with COMSAT.

<sup>26</sup>. Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, Fourth Annual Report, CS Dkt. No. 97-141, 13 F.C.C.Rcd 1107 ¶ 124 (1998) [hereinafter *Fourth Annual Report*]

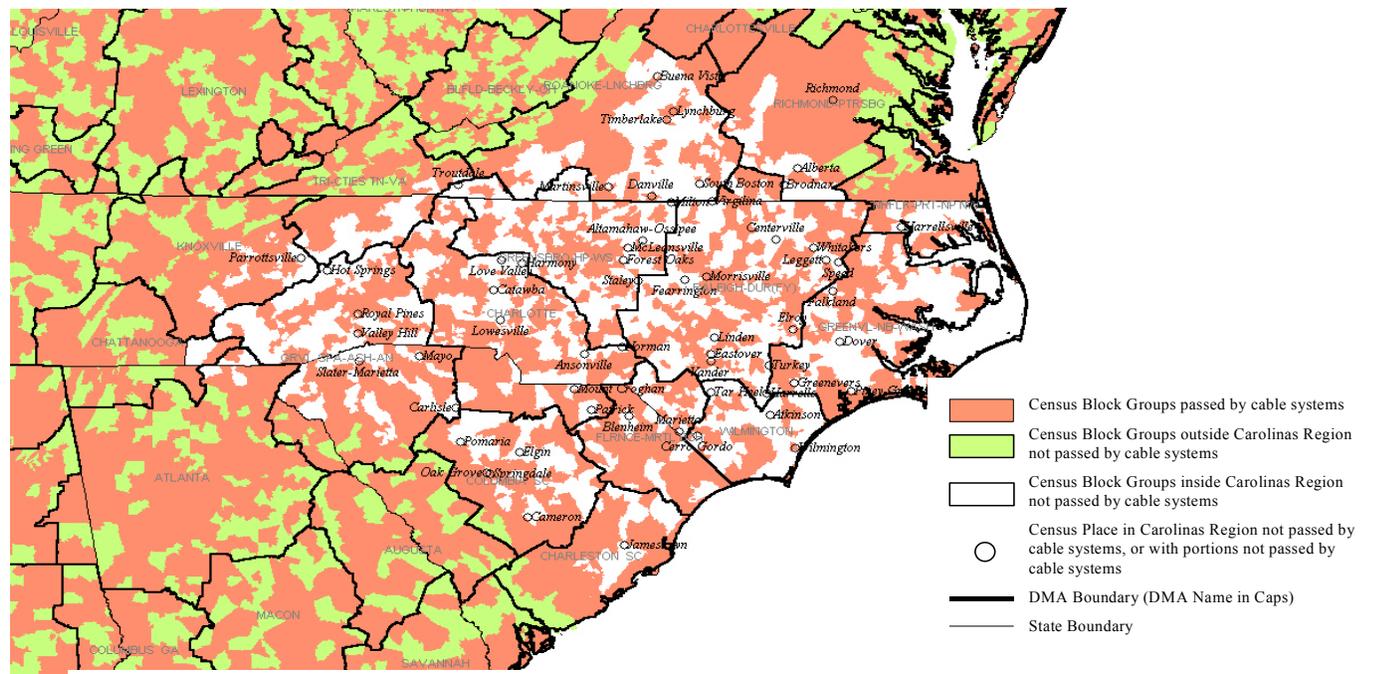
<sup>27</sup>. George J. Stigler & Robert A. Sherman, *The Extent of the Market*, Vol. 28 J.L. & ECON. 555 (1985).

households are not passed by cable, the relevant geographic market is an aggregation of areas where only DBS service is available. Where the two DBS service providers consider their retailers to be alternative sources of supply of service to similar subscribers, these markets aggregate to clusters with the same supply and demand conditions. I identified 14 examples of such geographic clusters below.

**B. Large, Geographic Markets Where Customers Have No Alternative to DBS Service**

14. Following the process described in these cases, we have identified 14 “clusters” of rural markets that because of locational proximity exhibit similar supply conditions. Each such cluster claims the common characteristic of containing no households that are passed by cable. Using the Warren Communications census-block database, I have mapped the largest, contiguous *clusters* of blocks not served by cable. In addition, the surrounding *regions* are also shown in the cluster maps. The Warren database considers *all* households in a census block to be passed by cable *even if only one household is passed*. Accordingly, my analysis is very

FIGURE ONE: THE “CAROLINA REGION”



Source: MediaPrints. Warren Communications. News and The Janus Group: Geolytics. Inc: U.S. Census Bureau. Census 2000.

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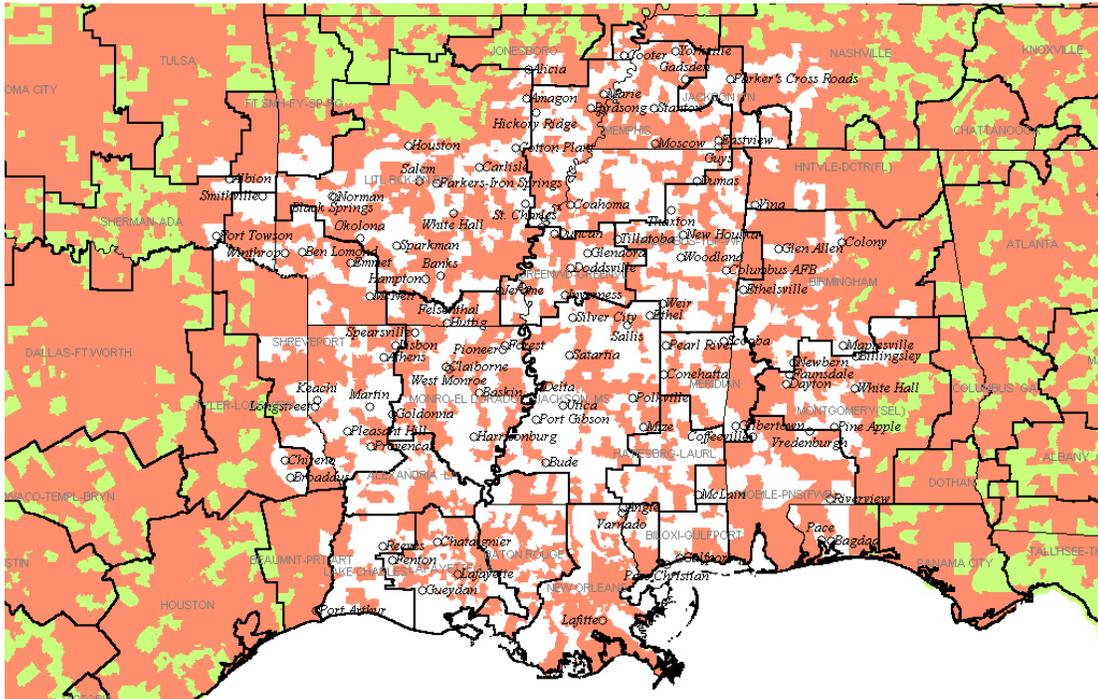
conservative – that is, it understates the number of households where cable is not available. Moreover, there are extremely numerous small areas outside of the 14 clusters where cable service is not available.<sup>28</sup> Figure One shows the map for one of those areas, which I have named the “Carolinas Region” because it includes portions of North and South Carolina. The white area consists of a collection of cluster census blocks in which there is no cable availability and only EchoStar and DirecTV are able to provide MVPD service. The cluster comprises a set of contiguous blocks where cable is not available and in which there are two providers of Direct Broadcast Services facing similar potential subscribers (i.e. with similar demand functions). Here I briefly describe the characteristics of the 14 major geographic clusters that could easily be targeted for a price increase by the proposed monopoly DBS provider because of the unavailability of cable service (analog or digital). In examining these clusters, it is important to recall the limitations of the data: First, the census blocks that comprise the shaded areas contain households that, in fact, are not passed by cable. Second, there are potentially thousands of additional and significant clusters of unpassed households that I have not identified because it merely compounds the problem. The purpose is to focus my analysis on a subset of clusters with the largest number of consumers who are vulnerable to any post-merger anticompetitive behavior.

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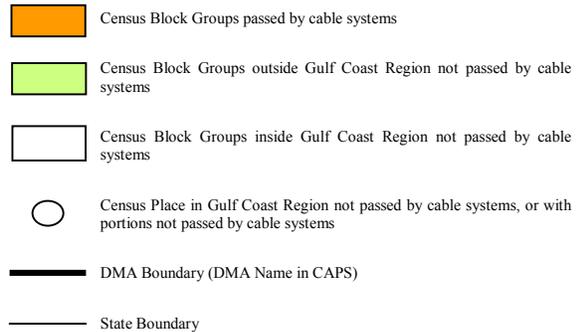
<sup>28</sup>. To map and define “clusters” belies Prof. Willig’s assertion that price discrimination by the merged DBS service provider in markets where cable is not available would be “very difficult” because those households are “geographically diverse” and “do not appear to be concentrated in any specific area.”



## Gulf Coast Region Cable Systems: 803K Households Not Passed by Cable (Excluding Wireless)



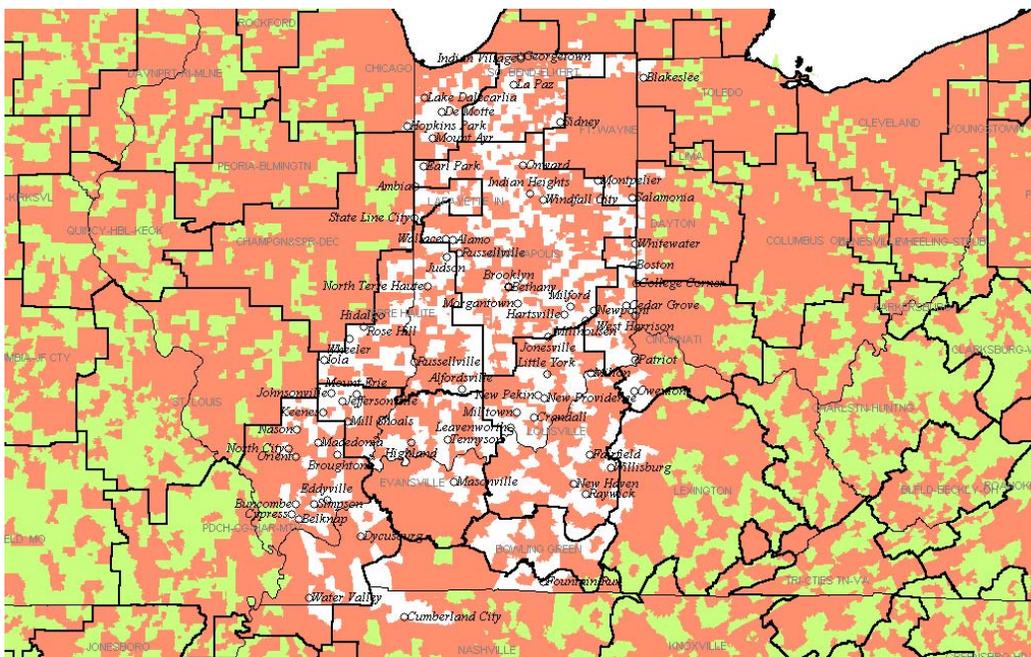
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



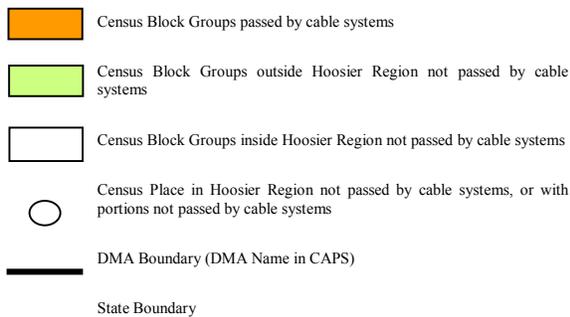
- The “Gulf Coast” Region** (population 2,210,465): The “Gulf Coast” Region stretches northward from the shorelines of Louisiana and Mississippi across those two states and up the Mississippi River into the southernmost region of Missouri. It also includes western Tennessee, western Alabama, and the southeastern two-thirds of Arkansas, as well as areas of Texas, Oklahoma, and the Florida panhandle. Over 800,000 households in this Region lack wireline cable coverage, including some residents of Lafayette, Louisiana, Port Arthur, Texas, and Gulf Port, Mississippi. In addition to the 803,980 households not passed by any cable, there are 2.31 million households within the Region that are passed by cable not yet upgraded to digital.

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## Hoosier Region Cable Systems: 465K Households Not Passed by Cable (Excluding Wireless)



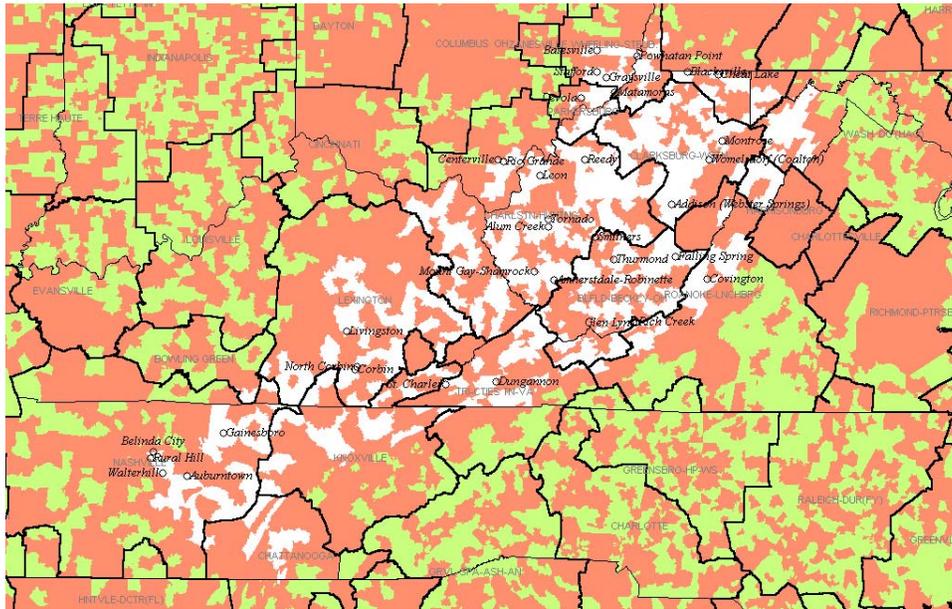
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



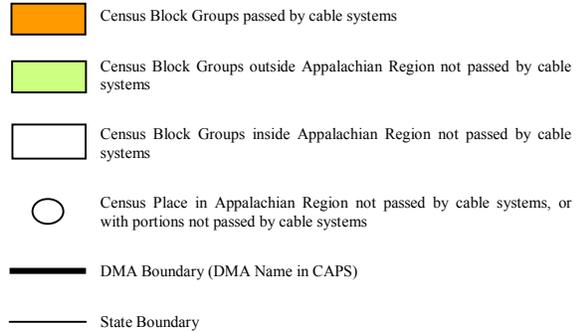
- The “Hoosier” Region** (population 1,279,195): Encompassing nearly all of the land in the State of Indiana, this Region stretches southward into both central and western Kentucky (to cover one-third of that state’s geographic mass). The Region also includes a portion of southeastern Illinois and parts of Michigan, Ohio, and Tennessee. More than 1.2 million people are without cable access comprising roughly 465,000 households in this Region. Although the three largest towns that lack complete cable coverage are all census blocks with populations under 5,000—North Terre Haute, Indiana, Georgetown, Indiana, and Indian Heights, Indiana—this Region’s no-coverage areas are actually the third most densely populated of the 14 Regions considered: 48.41 persons per square mile. In addition to the 404,502 households not passed by any cable, there are 2.26 million households within the Region that are passed by cable not yet upgraded to digital. (As in all other clusters, the digital-served areas are not in the defined cluster.)

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## Appalachian Region Cable Systems: 360K Households Not Passed by Cable (Excluding Wireless)



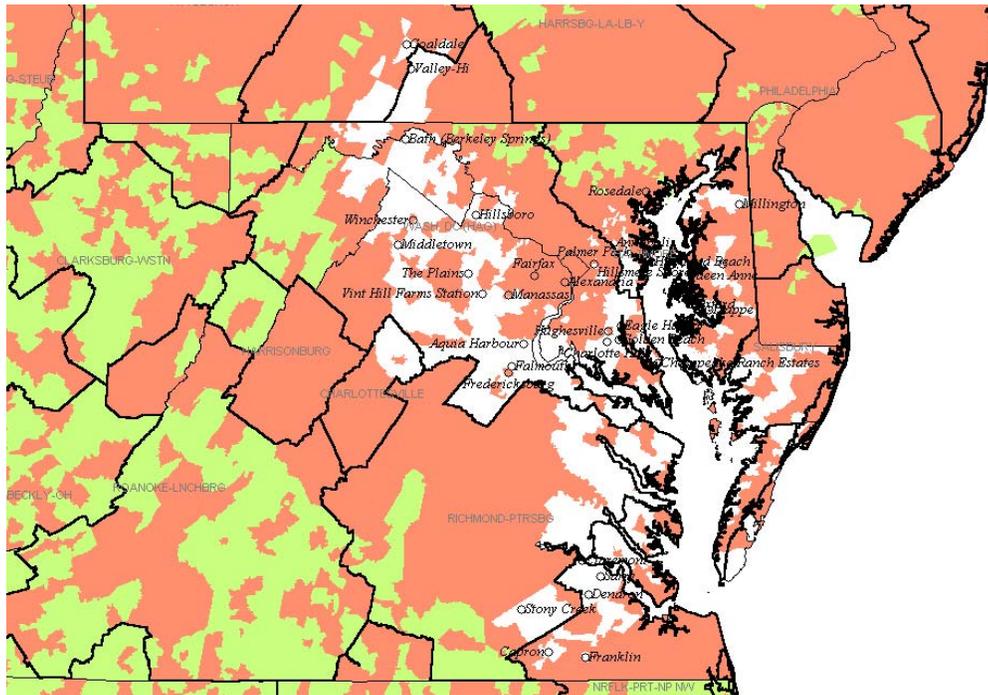
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



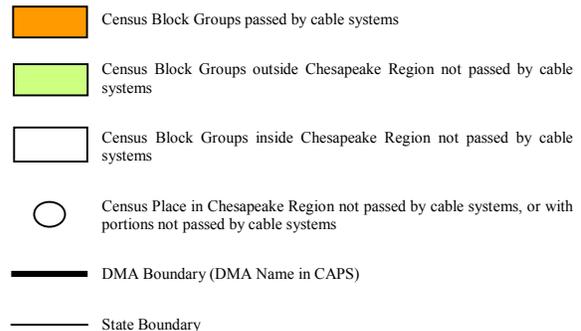
- The “Appalachian” Region** (population 932,131): This Region is comprised primarily of the Appalachian Range and areas directly west, as the mountains run south from West Virginia through Tennessee. The Region spans West Virginia and includes eastern Kentucky, the southeastern border of Ohio, and the western border of Virginia, as well as east-central Tennessee and districts in Pennsylvania and Maryland. Nearly one million Americans in this Region do not have access to wireline cable. Included in the Region are the towns of Corbin, Kentucky and Covington, Virginia, as well as portions of the metropolitan Region encompassing Nashville, Tennessee. In addition to the 360,430 households not passed by any cable, there are 1.05 million households within the Region that are passed by cable not yet upgraded to digital.

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## Chesapeake Region Cable Systems: 318K Households Not Passed by Cable (Excluding Wireless)



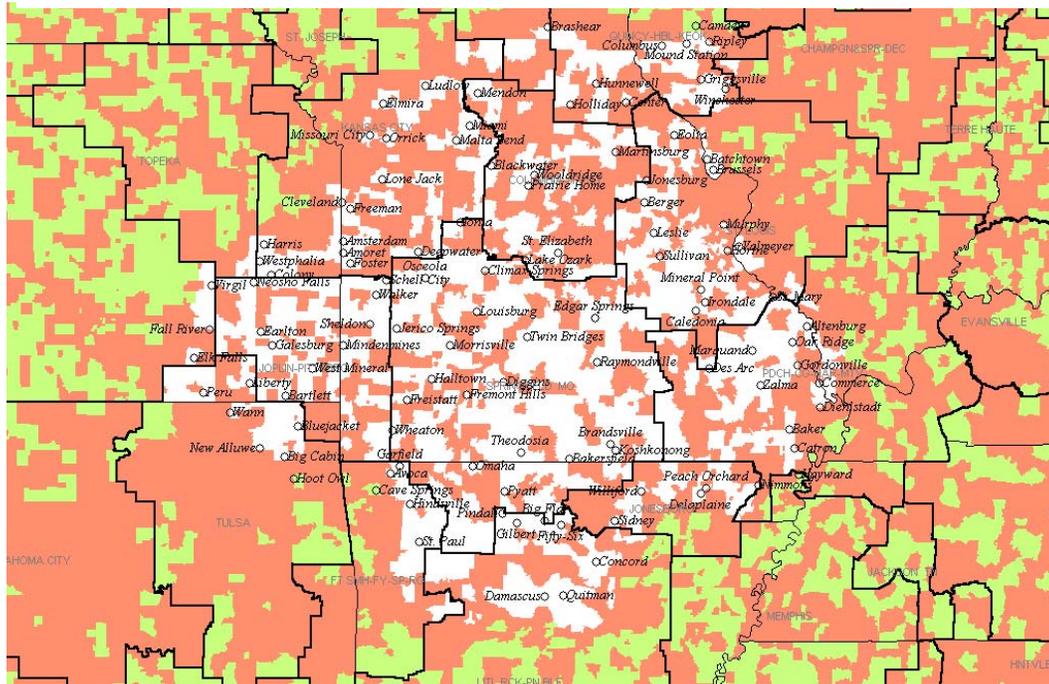
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



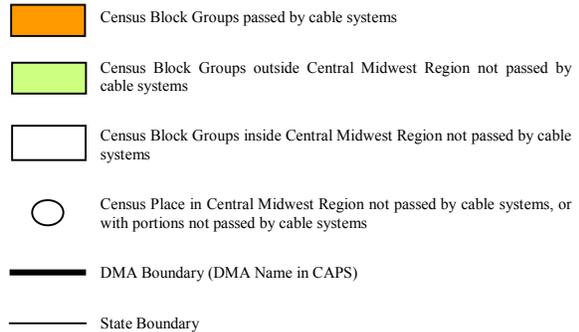
- The “Chesapeake” Region** (population 887,955): The “Chesapeake” Region consists of the areas of Virginia and Maryland surrounding the Chesapeake Bay and extends through northern Virginia into eastern West Virginia, western Maryland, and areas of southern Pennsylvania. Although geographically the smallest of the 14 Regions, this Region has the fifth highest number of households without cable coverage: 318,073. Included in the no-coverage areas are some residents in the city of Annapolis, Maryland, as well as some residents in the towns of Manassas and Winchester, Virginia. The average population density in areas of the Chesapeake Region that lack cable coverage is over 100 persons per square mile—25 percent higher than more than the national average. In addition to the 318,073 households not passed by any cable, there are 703,000 households within the Region that are passed by cable not yet upgraded to digital.

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## Central Midwest Region Cable Systems: 279K Households Not Passed by Cable (Excluding Wireless)



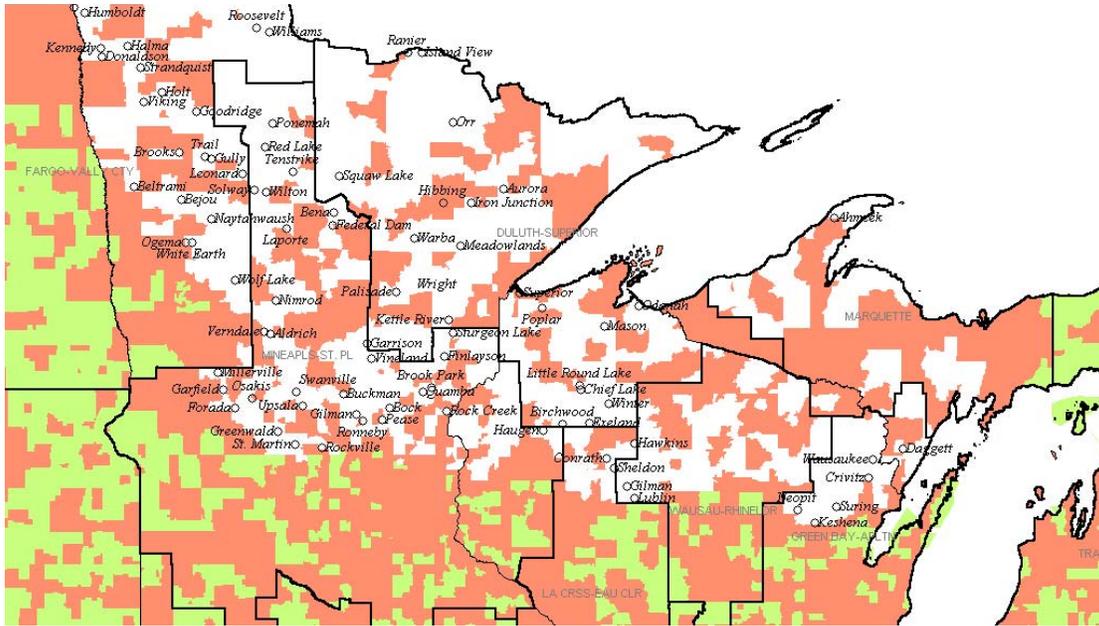
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



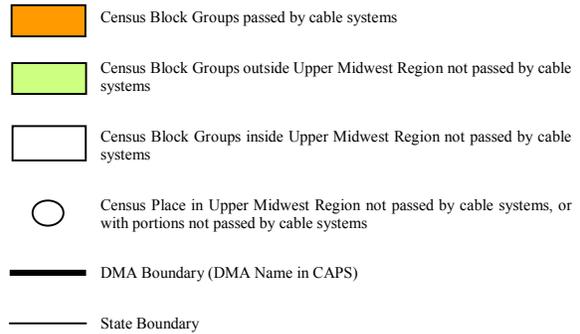
- The “Central Midwest” Region** (population 732,465): Encompassing almost 4.5 percent of the area of Missouri, this region also includes sizeable areas in southwest Kansas and northern Arkansas, as well as several census blocks in Oklahoma and Illinois along the Mississippi River. Included in the Region are the towns of Murphy and Sullivan, Missouri, and Winchester, Illinois. There are over 278,000 households in this Region without cable coverage, a number that represents roughly 732,000 Americans. In addition to the 278,560 households not passed by any cable, there are 976,000 households within the Region that are passed by cable not yet upgraded to digital.

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## Upper Midwest Region Cable Systems: 131K Households Not Passed by Cable (Excluding Wireless)



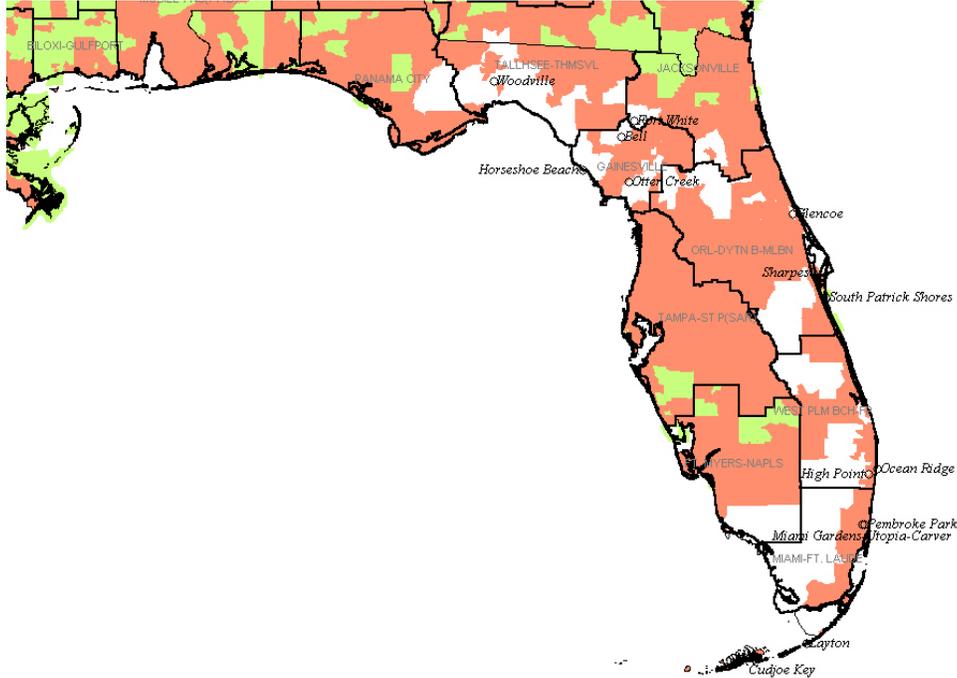
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



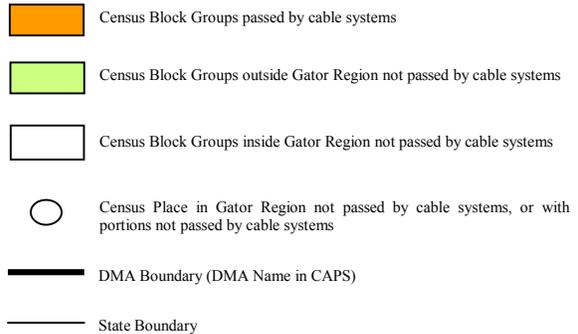
- The “Upper Midwest” Region** (population 347,265): This Region is comprised of north and east-central Minnesota, northern Wisconsin, and the western two-thirds of Michigan’s upper peninsula. There are over 347,000 people in this Region who lack access to wireline cable, including some residents of Superior, Wisconsin, Hibbing, Minnesota, and Aurora, Minnesota. In addition to the 131,379 households not passed by any cable, there are 546,000 households within the Region that are passed by cable not yet upgraded to digital.

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## Gator Region Cable Systems: 162K Households Not Passed by Cable (Excluding Wireless)



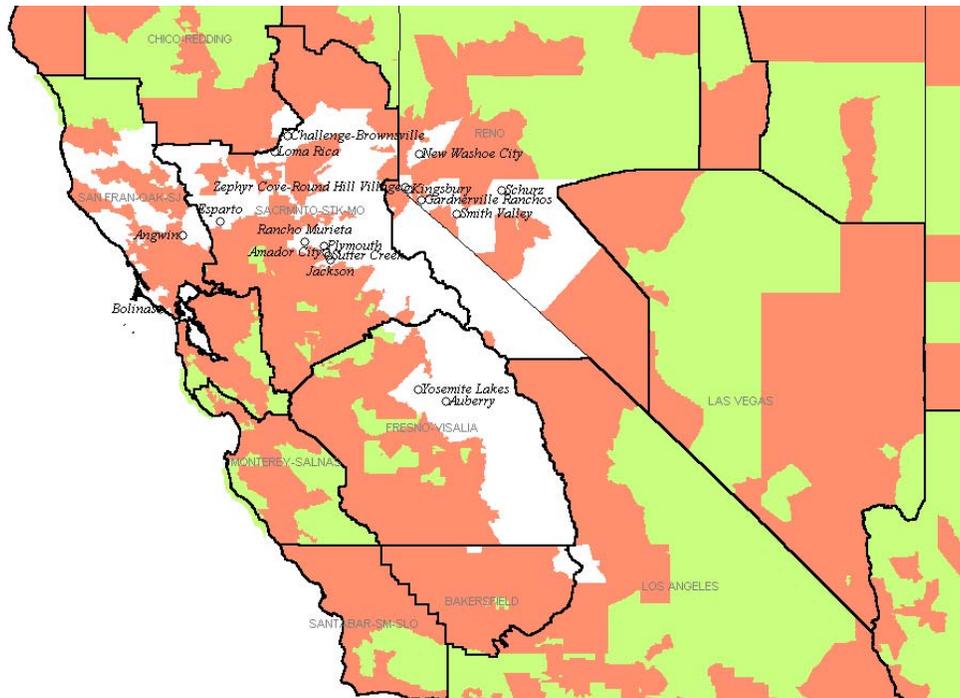
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



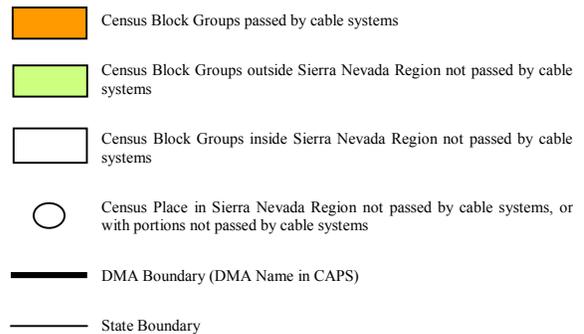
- The “Gator” Region** (population 423,474): The “Gator” Region is a band of the lesser populated areas of Florida beginning at the base of the panhandle and extending southeast to the coast of central Florida and south through the Everglades and Florida Keys. (A few census blocks in southwest Georgia also fall within the boundaries of the Region.) The largest towns lacking cable are census blocks in Sharpes, Woodville, and High Point, Florida. Despite both the relatively small size of these towns and the fact that it is the second smallest Region geographically, there are over 162,000 households in the “Gator” Region that are not passed by wireline cable. In addition to the 162,152 households not passed by any cable, there are 1.0 million households within the Region that are passed by cable not yet upgraded to digital.

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## Sierra Nevada Region Cable Systems: 101K Households Not Passed by Cable (Excluding Wireless)



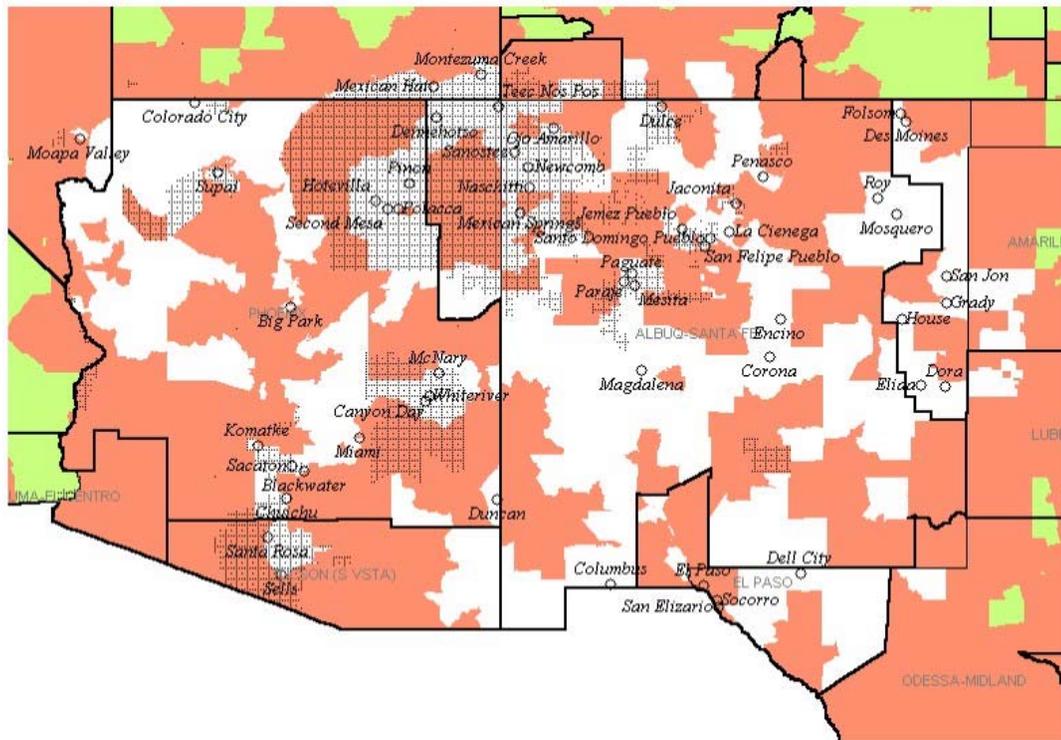
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



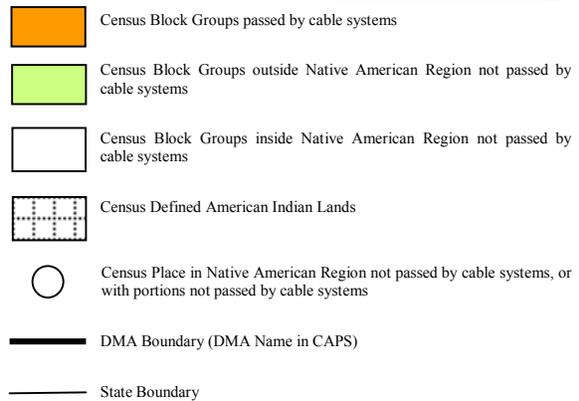
- The “Sierra Nevada” Region** (population 263,138): From the Yosemite area of California, this Region runs northward along the Sierra Nevada into portions of Nevada, and then westward to the coastline north of San Francisco. Included in this region are the towns of Gardnerville, Nevada, and Jackson, and Angwin, California. There are currently over 263,000 Americans living in this Region who do not have access to wireline cable (101,410 households). In addition to the 101,410 households not passed by any cable, there are 631,000 households within the Region that are passed by cable not yet upgraded to digital.

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## Native American Region Cable Systems: 73K Households Not Passed by Cable (Excluding Wireless)



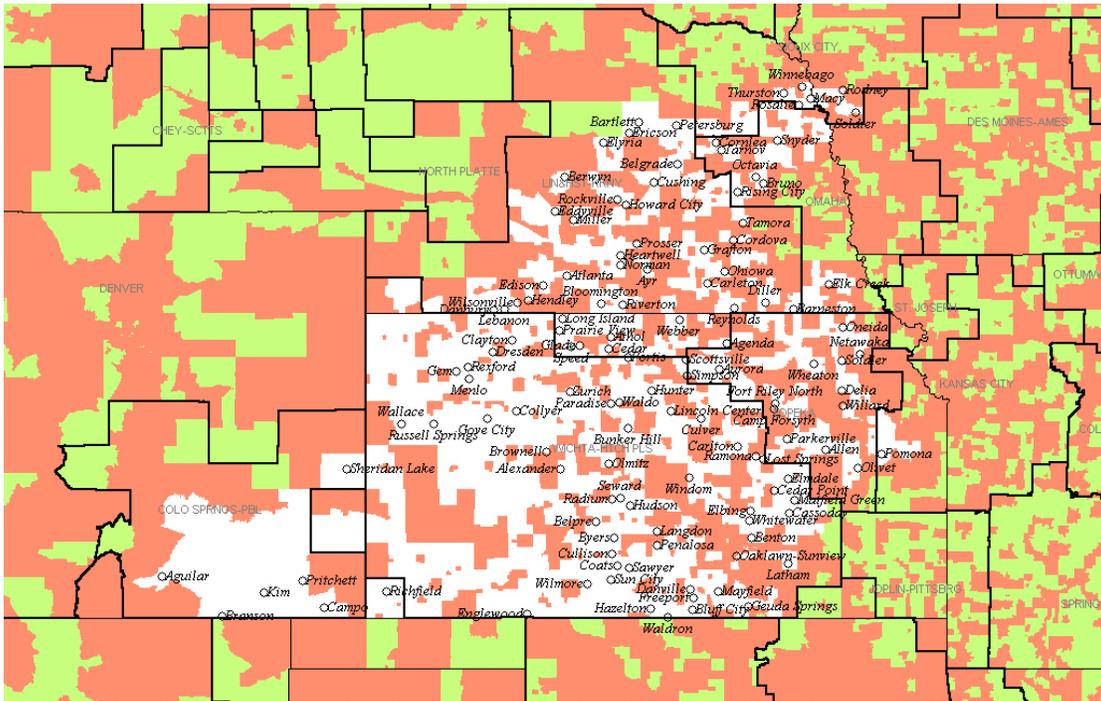
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



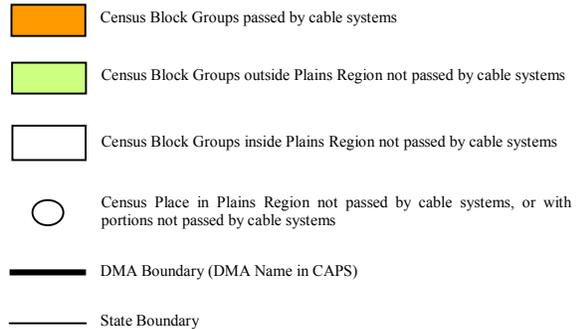
- The “Native American” Region** (population 228,972): This Region encompasses most of the central desert of New Mexico and Arizona. While substantially uninhabited, it increasingly is the location for upscale homes and ranches as well as the traditional location of Native American settlements, such as the Navajo and the Hopi. It has one of the higher DBS penetration rates, with 16.4% of households. In addition to the 72,947 households not passed by any cable, there are 1.04 million households within the Region that are passed by cable not yet upgraded to digital.

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## Plains Region Cable Systems: 44K Households Not Passed by Cable (Excluding Wireless)



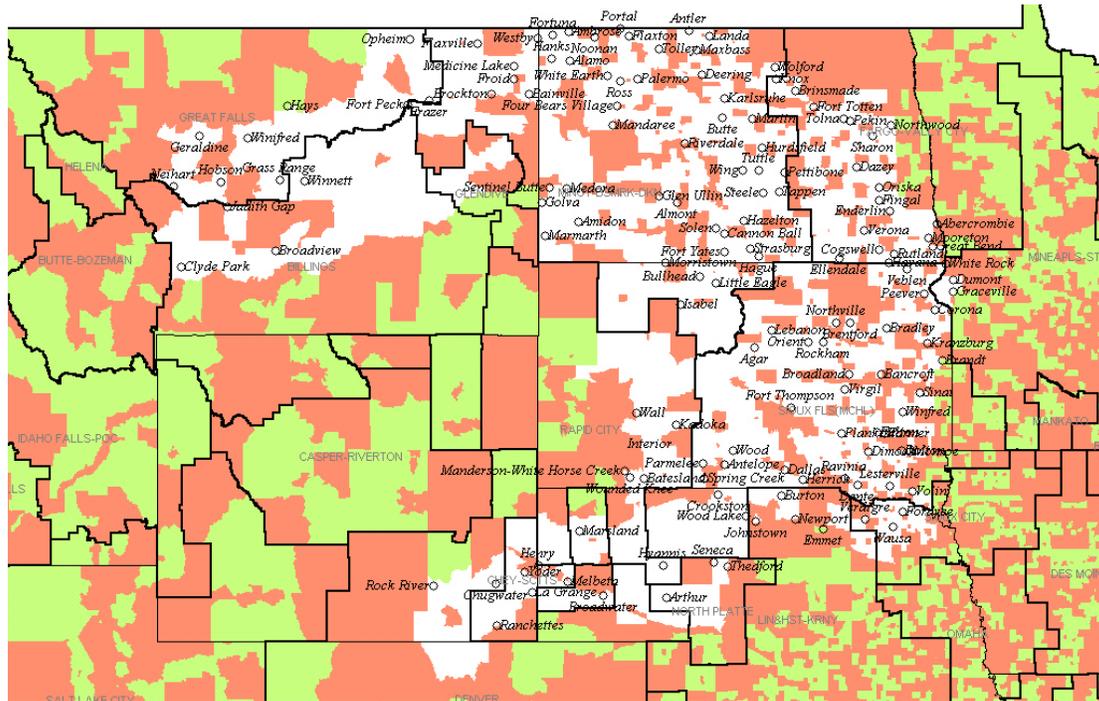
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



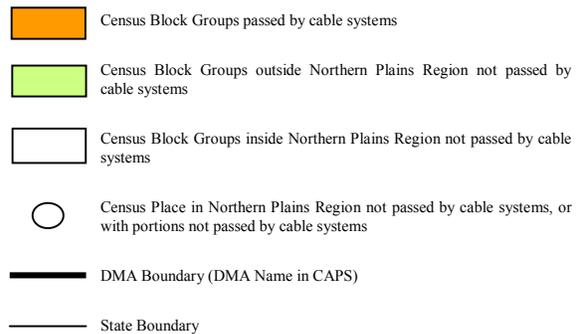
- The “Plains” Region** (population 128,045): This Region is comprised of all of Kansas except the far eastern and southeastern census blocks, and extends westward into southeast Colorado as well as northward through a large portion of Nebraska to a few census blocks in Iowa. There are over 43,000 households in this Region without access to wireline cable services—a number that includes over 128,000 Americans. The largest blocks not passed by cable in this Region include those in Fort Riley North, Kansas, Oaklawn and Sunview, Kansas. In addition to the 43,967 households not passed by any cable, there are 391,000 households within the Region that are passed by cable not yet upgraded to digital.

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## Northern Plains Region Cable Systems: 50K Households Not Passed by Cable (Excluding Wireless)



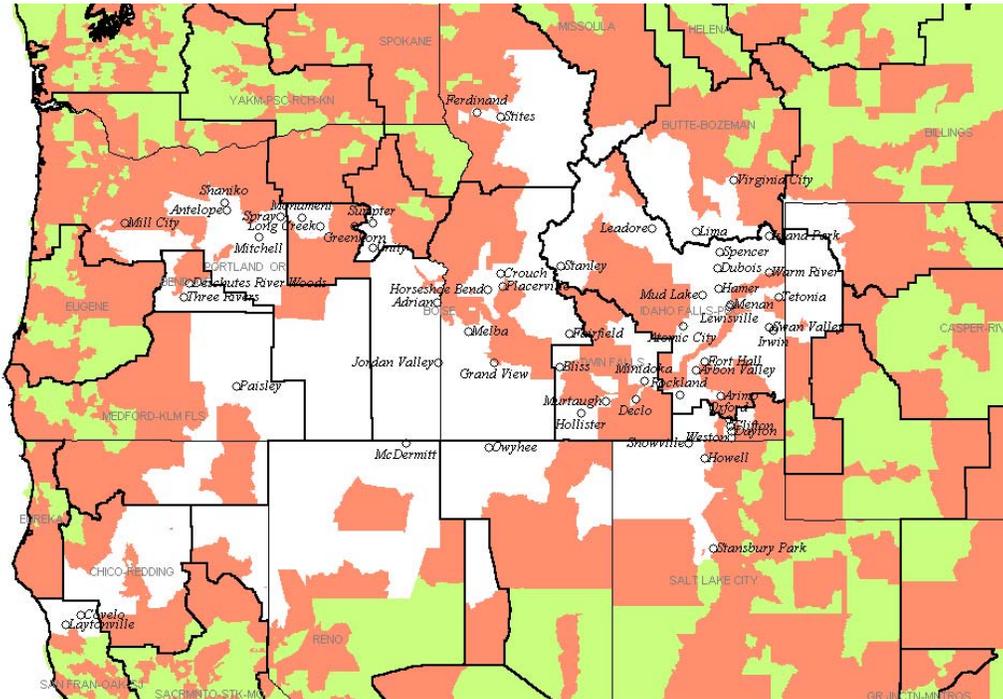
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



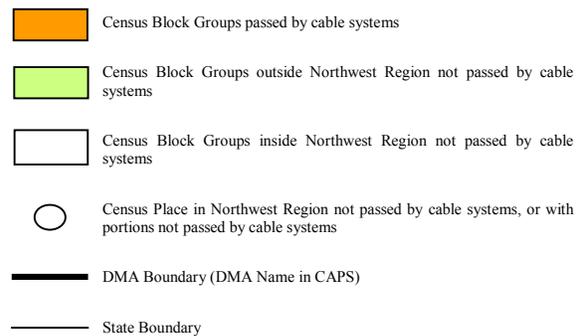
- The “Northern Plains” Region** (population 137,554): The “Northern Plains” Region is the fourth largest region geographically, and is directly north of the “Plains” Region. It consists of most of the Dakotas, northern Nebraska, and extends from the northeast corner of Montana into the center of that state. Additionally, the Region covers the southeast corner of Wyoming and small portions of northern Colorado and western Minnesota. There are 50,194 households in this Region not passed by cable. Included in the Region without complete cable coverage are blocks in Rachtettes, Wyoming, and Ellendale, North Dakota. In addition to the 50,194 households not passed by any cable, there are 320,000 households within the Region that are passed by cable not yet upgraded to digital.

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## Northwest Region Cable Systems: 76K Households Not Passed by Cable (Excluding Wireless)



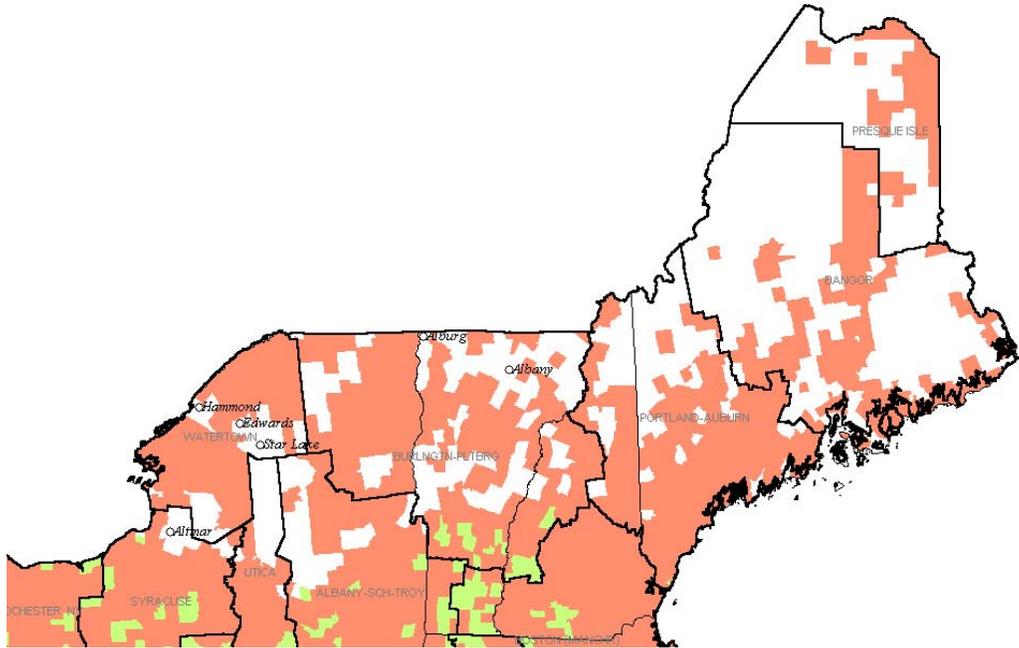
Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



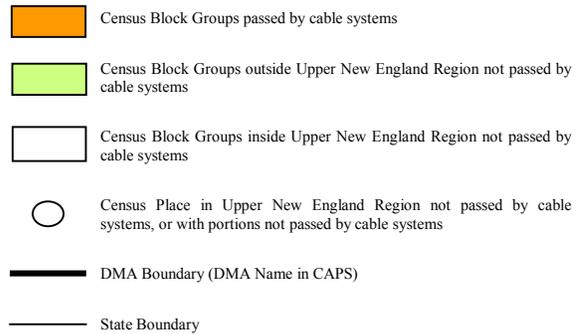
- The “Northwest” Region** (population 210,702): Centered on the border of Oregon, Nevada, and Idaho, this Region extends outward into these states and touches on the northwestern portions of Wyoming and Utah, as well as areas of southwestern Montana and northeastern California. Roughly 76,000 households cannot access wireline cable services in this Region, including some residents in Fort Hall, Idaho, Deschutes River Woods, Oregon, and Mill City, Oregon. In addition to the 76,073 households not passed by any cable, there are 422,000 households within the Region that are passed by cable not yet upgraded to digital.

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## Upper New England Region Cable Systems: 80K Households Not Passed by Cable (Excluding Wireless)



Source: MediaPrints, Warren Communications, News and The Janus Group; Geolytics, Inc; U.S. Census Bureau, Census 2000.



- The “Upper New England” Region** (population 206,481): This Region encompasses the majority of census blocks in Maine and stretches westward across the northern mountains of New Hampshire and Vermont into the Lake Champlain Region of New York State. Over 80,000 households lack wireline cable coverage in this Region, which includes portions of the towns of Star Lake, and Edwards, New York, and Alburgh, Vermont. In addition to the 80,074 households not passed by any cable, there are 602,000 households within the Region that are passed by cable not yet upgraded to digital.

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