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This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action. See MCI v. FCC, 515 F.2d 385 (D.C. Cir. 1974).

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March 13, 1997

## FCC RELEASES INFRASTRUCTURE REPORT

**The FCC has released a report entitled "Infrastructure of the Local Operating Companies Aggregated to the Holding Company Level."**

**This report presents data that highlights the development of switching and transmission technologies in the local telephone networks over the period 1991 through 1995. Included in the report is data on equal access, signalling system 7, Integrated Switched Digital Network (ISDN) capability, and touch tone capability, as well as fiber optic and copper facilities.**

**This report is available in the reference room maintained by the Common Carrier Bureau at 2000 M Street, N.W., Room 575. Copies may be purchased by calling International Transcription Service, Inc. (ITS) at (202) 857-3800. The report can also be downloaded [file name INFRA95.ZIP] from the FCC-State Link internet site, which can be reached through a link from the Common Carrier Bureau home page (<http://www.fcc.gov/ccb/>) on the World Wide Web. The report can also be downloaded from the FCC-State Link computer bulletin board at (202) 418-0241.**

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# INFRASTRUCTURE OF THE LOCAL OPERATING COMPANIES AGGREGATED TO THE HOLDING COMPANY LEVEL

1991 - 1995

By Jonathan M. Kraushaar

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Federal Communications Commission



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# Infrastructure of the Local Operating Companies

## Aggregated to the Holding Company Level

1991 - 1995

### Introduction

The infrastructure information contained in this report is based upon data collected by the FCC as part of the price-cap monitoring procedures set up in CC Docket No. 87-313. This summary is intended to highlight underlying changes in the use of technology in the local telephone company plant.

The raw data (ARMIS 43-07 reports<sup>1</sup>) upon which this infrastructure summary is based are filed at the end of June for the previous calendar year. The infrastructure report was first released in April 1994 and covered data from 1989 through 1993. This update extends the data series through 1995 using data that were filed in June 1996.<sup>2</sup>

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<sup>1</sup> ARMIS, an acronym for Automated Reporting Management Information System, is a repository of financial, plant, demand, and quality of service data needed to administer various provisions of the Commission's Rules. Additional infrastructure data are contained in the ARMIS 43-08 report. See *Statistics of Communications Common Carriers*, published annually by the FCC (Industry Analysis Division) for a compilation of 43-08 infrastructure data.

<sup>2</sup> See *Infrastructure of the Local Operating Companies Aggregated to the Holding Company Level*, released April 24, 1994. The current summary report and this initial report are available from our internet site (<http://www.fcc.gov/ccb/>) by selecting a link to the **FCC-State Link** web page. The files are contained in the infrastructure section under the file names INFRA95.ZIP and INFRA93.ZIP, respectively. The raw data upon which the reports are based and the actual summary reports are also available on our dial-up **FCC-State Link** bulletin board at (202) 418-0241. Raw data are contained on the BBS in a directory entitled ARMIS4307, and a spreadsheet template viewer file IVIEW2.ZIP can be downloaded to facilitate viewing the raw ascii data files. Instructions for using the viewers are contained in a readme.txt file within the "zip" archive. This "zip" file contains two infrastructure data viewers, an executable program for translating the raw data files into ascii output files with full annotations and data labels, and a second spreadsheet template for achieving the same goal by adding the annotations to the data using a spreadsheet template.

## Background

The data items presented here summarize ARMIS Report 43-07; which is filed by local exchange carriers subject to mandatory price cap regulation. The information reported here is for the years 1991 through 1995.

The ARMIS 43-07 reports are filed only by those local exchange companies originally subject to mandatory price cap regulation--the Bell Operating Companies (BOCs) and the telephone operating companies owned by GTE.<sup>3</sup> Together, these large companies provide service to more than 90% of the nation's telephone lines. The data are generally filed at the "study area" level, which typically consists of a company's operations within a state. The state-by-state data, including, in some cases, disaggregation into Metropolitan Statistical Area (MSA) and non-MSA detail, are available from the **FCC-State Link** electronic bulletin board.

The information summarized in this report is organized into two sets of tables: Tables 1(a) to 10(a) show switching system data and gross capital expenditures covering all types of plant. Tables 1(b) to 10(b) show transmission system data. Each table contains segments for each of the seven regional Bell companies, one for the companies owned by GTE, and two that summarize data for the BOCs and all reporting companies. The data summarized for each holding company reflect the aggregate of data filed for individual states or study areas and should be useful in assessing overall trends.

The data have been aggregated where region-wide or company-wide composites were not filed. Many of the company composites have been recalculated to provide greater consistency in the data aggregation or roll-up process. A number of obvious discrepancies in the calculation of totals were corrected and may account for small differences between company-filed totals and the ones presented here. Most of these discrepancies were identified as being associated with cumulative effects of rounding, typically associated with data presented in thousands. Some of the data originally filed by the companies contained errors, particularly in the earlier years. A number of the obvious errors have been corrected by subsequent refileing, but caution should be

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<sup>3</sup> See *Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket No. 87-313, 5 FCC Rcd 6786 (1990) (LEC Price Cap Order), *Erratum*, 5 FCC Rcd 7664 (1990), and 8 FCC Rcd 7474 (1993).

observed because errors may still be present. In some cases, refiled data may cause values to differ from prior summary reports. Totals associated with GTE and Contel entities have been aggregated into a single GTE composite.<sup>4</sup>

The infrastructure data items received in the ARMIS 43-07 reports are described in Appendix A. Several companies have filed one or more corrected submissions. The raw-data submission numbers of carrier filings used to compile this report are shown in Appendix B.

### Description of the Technologies and Analysis of the Data

The data in the attached tables provide a historical series for a variety of plant elements that illustrate the deployment of technology in the networks of the major local exchange carriers. The data items provide a picture of the key technologies presently in use. For example, although the issue of fiber in the local loop has gained a great deal of attention because of its potential for facilitating development of wideband video services, the progression of lower data-rate digital technologies to greater numbers of customers through an increased use of digital local access has been occurring for some time now. Both switching and transmission technology provide the building blocks that make this possible. In the switch, Signalling System 7 (SS7) provides a means for networks and interoffice switches to communicate with each other. This system uses separate digital links outside the voice channel to accomplish this. Other elements in the data relating to equal access switches and touch-tone capable switches show that most switches now support equal access and that nearly all switches are equipped for touch-tone dialing.

A useful overall measure of company activity is gross capital expenditures, which increased about 5% for the BOCs in 1995. The data reported include all capital expenditures on both switching and transmission facilities. Gross capital expenditures tends to correspond closely with the overall access line growth. Bell Atlantic, NYNEX, and US West are the only

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<sup>4</sup> The following data items were adjusted by the author based on information conveyed verbally by the companies or deduced from other information: 1991 DS-3 terminations on customer premise fiber for NYNEX and Pacific Telesis; 1994 radio links for SBC (Southwestern Bell). These adjustments are reflected in the industry composites. BellSouth reports that fluctuations in its DS-3 customer terminations on fiber data are due to errors and adjustments in its database associated with rapid growth. SBC reports that it changed its reporting procedures for its ISDN basic rate interfaces equipped and ISDN access line capacity data. Beginning in 1993, it only reported ISDN access lines associated with ISDN switches. Prior to 1993, it had reported the number of ISDN lines available in wire centers where at least one switch was ISDN equipped. Beginning in 1994, SBC only reported equipped or filled ISDN basic rate interface slots. Prior to 1994, it had reported all available slots.

companies where capital expenditure growth exceeded access line growth in 1995. Capital expenditure levels should continue to be an important overall parameter in assessing deployment of new technology in the local service business and its relationship to future service quality levels.

SBC Communications (Southwestern Bell) and GTE reported the only appreciable net gains in switching entities during 1995 with about 9% and 2% increases, respectively, and have significantly increased the number of Integrated Services Digital Network (ISDN) capable switches. Other companies experienced no net gain in switches during 1995. Except for SBC, the number of access lines per switching entity increased in 1995 over 1994. Pacific Telesis now supports more than 18,000 access lines per switching entity on average, the largest number shown. Data for other companies typically fall in the range of 9,000 to 14,000 access lines per switching entity.

Although there is considerable interest in digital switching, the term "digital switch" by itself is often misleading and does not address the important issues of switching capability and modularity. For example, while most network switches are presently classified as digital stored program controlled switches, this classification by itself does not indicate whether the switch has ISDN or SS7 capability and does not address the issue of modularity that allows lower-cost expansion. Therefore, measurement of digital switching proliferation requires one to look at more than a single statistic. While there are no across-the-board relationships between modularity and switch capability, many of the switches with ISDN capability also tend to be modular in design and can often be upgraded with software that can facilitate lower-cost expansion. Data presently being collected only cover circuit switches that provide a dedicated path through the network for the duration of a call, not routers or statistical switches that are used in internet services that are specifically designed to handle data packets.

ISDN technology provides the service protocols and channel designations for digital services to customers and can convey voice, computer data or compressed video. Basic rate ISDN services are provided as two 64-kilobit data channels and one 16-kilobit control channel associated with each basic-rate access line. The control channels allow the transfer of special information between the switch and the customer, unavailable with in-band signalling, as well as advanced network control features presently used in a number of enhanced services. Primary rate ISDN provides the capacity of twenty-three 64-kilobit data channels and one 64-kilobit control channel. Although these services can potentially provide for improved communication between computers, the lack of a critical mass of customers using ISDN was a stumbling block in the early proliferation of end-to-end digital services. Availability of the service is significant and expanding. There are, however, important regional and localized differences in investment and customer demand patterns that may require examination of data at a more localized level than presented here.<sup>5</sup>

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<sup>5</sup> Individual study-area data are also available to address more localized issues that will become increasingly important in the coming years. This information is available by dial-up



In the aggregate there was a 20% increase in the number of BOC ISDN-capable switches in 1995 following a 27% increase in 1994. All companies except US West and NYNEX reported a double-digit percentage gain in ISDN-capable switches in 1995. GTE and SBC reported the largest gains. Although switch capabilities and modularity tend to vary by vendor, these switches tend to be better able to deal with the changing characteristics of telecommunication traffic.<sup>6</sup>

The companies typically report the number of access lines that can be connected to ISDN service within each wire center or switch. Bell Atlantic and NYNEX began to report all access lines that can receive ISDN service, even those requiring a foreign exchange link to another wire center. These companies were notified that their method of counting ISDN-capable access lines was inconsistent with the Commission's reporting requirements. NYNEX subsequently refiled its 1995 data, which is reflected in the accompanying tables.<sup>7</sup>

Because ISDN is a digital service, it is equipped to handle communication between computers without the need to first convert the signal to an analog form. Early on it was primarily marketed as a medium for enhanced voice services and was primarily targeted to business users. It has become an increasingly attractive alternative for residential customers and small businesses needing a second line for a computer and therefore its pricing in relation to the cost of two analog lines can significantly affect proliferation of the service. Many of the companies had installed digital switches in response to equal access requirements of divestiture. About 99% of the Bell Company switching entities have equal access capability. Although 90% of the BOC switching entities are digital-stored-program-controlled switches, only about 29% have ISDN capability. As of the end of 1995, the companies generally had been responding to increased interest in ISDN service and internet use by replacing or upgrading existing switches for ISDN capability.<sup>8</sup>

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access described in footnote 2. A new viewer in executable format also described in footnote 2 has been created to further facilitate examination of the raw data files.

<sup>6</sup> Continuing changes in demand patterns for new access lines and in the character of telephone traffic from pure voice traffic to a changing mix of voice and data underscore the desirability of targeted improvement to the switching infrastructure. Use of easily upgradeable switching systems will be increasingly important.

<sup>7</sup> Company totals have been recalculated to minimize errors in summing raw study-area data. In calculating industry totals, some adjustments may have been made to account for missing or irregular company data and for rounding errors. In certain instances, the classification "other" was used for adjustment purposes so that the respective totals would properly reflect the sum of their components.

<sup>8</sup> Increased use of ISDN services for internet access could lead to a critical mass of residential users that would be mutually beneficial to customers and the companies by driving down ISDN per-unit costs further. While increased business use should continue to be an

A number of transmission elements are included in the tables. These illustrate the rapid development of fiber capacity in terms of terminations, sheath-kilometers, and links. The tables also highlight the relative magnitude of equipped and working channels, providing an indication of termination equipment utilization. Declines in the number of analog links can be noted, and for some time the number of interoffice fiber carrier links has significantly exceeded the number of copper carrier links for all companies shown. Although data on links and channels shows that circuits connecting local central offices could typically be provided on only two fibers, the economics of fiber deployment have resulted in deployments of typical fiber cables containing more than 35 fibers. This suggests that there is a significant amount of fiber capacity presently unused in the *interoffice* transmission plant.<sup>9</sup>

Although the overall level of growth in fiber has been high, its use in the local loop is presently relatively small. The BOCs had an installed base of about 185 million copper-pair mainframe terminations in their central offices for local loop use in 1995. About 824,000 BOC fiber terminations had been installed by end-of-year 1995, up 21% from the prior year. Since fibers are not necessarily in current use and since there is a greater potential for more than one access line to be provided on one fiber than on one copper pair, especially nearer to the central offices, the ultimate number of central office fiber terminations needed to equip all access lines for fiber is expected to be considerably lower than the present number of copper terminations. However, due to the fact that less sharing of transmission facilities is possible in the portion of plant closest to customers, the cost of providing loop capacity nearest to the customer is greatest. Based on these considerations, it is likely that significantly fewer than 824,000 fibers actually terminate on customer premises. Fiber will become increasingly important in the local loop as the number of high-quality copper pairs available to support digital services declines.

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important revenue source and a driving force leading to improved efficiencies in providing ISDN service, new marketing, pricing and regulatory factors could make ISDN more attractive for residential customers. Competitive activity and interconnection should require incumbent carriers to pay greater attention both to strategic planning and customer service. In the short term, investment, packaging and pricing strategies for ISDN services that consider local and regional issues might facilitate overall service quality improvement by encouraging migration from analog to digital access services, leading to improvement of the switching infrastructure. Next-generation wideband capabilities will become increasingly important in the longer term.

<sup>9</sup> A large portion of the cost of fiber deployment is associated with labor and installation rather than with the cable itself. Thus, the incremental cost of installing a larger fiber cable is typically relatively small. This suggests that the sheath-kilometer parameter shown in the attached tables may be a better measure of fiber coverage than fiber kilometers. In general, care should be exercised in interpreting aggregate fiber data when determining, for example, whether fiber is concentrated in certain parts of a company's service area with relatively little fiber elsewhere. See *FCC Fiber Deployment Update - End of Year 1995*, released July 19, 1996.

**Table 1 (a): Ameritech -- Switching System Data**

|   | <b>1991</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> |
|---|-------------|-------------|-------------|-------------|-------------|
| <b>Gross Plant Expenditures</b><br>(In Millions \$) | 1,877       | 1,716       | 1,719       | 1,517       | 1,578       |
| <b>Local Switches</b>                               | 1,421       | 1,430       | 1,422       | 1,413       | 1,415       |
| <b>Tandem Switches</b>                              | 49          | 46          | 47          | 47          | 46          |
| <b>Hosts</b>  | 224         | 228         | 230         | 236         | 238         |
| <b>Remotes (Stand Alone Only)</b>                   | 654         | 666         | 684         | 717         | 731         |
| <b>Total Switching Entities</b>                     | 1,438       | 1,473       | 1,469       | 1,460       | 1,461       |
| <b>Electromechanical</b>                            | 46          | 0           | 0           | 0           | 0           |
| <b>Analog Stored Pgm. Control</b>                   | 373         | 318         | 224         | 119         | 97          |
| <b>Digital Stored Pgm. Control</b>                  | 1,019       | 1,155       | 1,245       | 1,341       | 1,364       |
| <b>Total Access Lines (000)</b>                     | 16,633      | 16,886      | 17,500      | 18,123      | 19,310      |
| <b>Electromechanical Switches</b>                   | 65          | 6           | 0           | 0           | 0           |
| <b>Analog Stored Pgm Ctrl Sw.</b>                   | 9,076       | 7,892       | 5,862       | 3,845       | 3,727       |
| <b>Digital Stored Pgm Ctrl Sw.</b>                  | 7,492       | 8,988       | 11,638      | 14,278      | 15,583      |
| <b>Touch Tone Capable Switches</b>                  | 1,394       | 1,473       | 1,469       | 1,460       | 1,415       |
| <b>T. Tone Capable Access Lines</b>                 | 16,586      | 16,889      | 17,500      | 18,122      | 19,310      |
| <b>Equal Access Switches</b>                        | 1,390       | 1,470       | 1,469       | 1,450       | 1,461       |
| <b>Equal Access Lines (000)</b>                     | 16,563      | 16,855      | 17,500      | 18,122      | 19,310      |
| <b>Signal. Sys 7 Switch (SS7-394)</b>               | 213         | 646         | 1,001       | 1,254       | 1,400       |
| <b>SS7-394 Access Lines (000)</b>                   | 4,779       | 9,216       | 13,376      | 16,482      | 18,538      |
| <b>Signal. Sys 7 Switch (SS7-317)</b>               | 502         | 863         | 1,116       | 1,347       | 1,417       |
| <b>SS7-317 Access Lines (000)</b>                   | 7,662       | 10,455      | 13,961      | 17,217      | 18,653      |
| <b>ISDN Capable Switches</b>                        | 108         | 181         | 387         | 444         | 489         |
| <b>ISDN Access Line Capac. (000)</b>                | 1,738       | 3,839       | 8,056       | 10,259      | 12,860      |
| <b>ISDN Basic Rate Interf. Eq'pd</b>                | 55,890      | 56,352      | 67,415      | 87,862      | 97,550      |
| <b>ISDN Primary Rate Interf. Eq'pd</b>              | 703         | 728         | 707         | 1,505       | 5,812       |

*Please refer to text for notes and data qualifications*

**Table 1 (b): Ameritech -- Transmission System Data**

|                                      | <b>1991</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Total Sheath-Kilometers</b>       | 547,157     | 552,800     | 556,814     | 537,133     | 562,934     |
| <b>Copper Sheath-Kilometers</b>      | 522,154     | 522,374     | 521,187     | 498,238     | 519,775     |
| <b>Fiber Sheath-Kilometers</b>       | 24,559      | 29,468      | 34,655      | 37,980      | 42,370      |
| <b>Other Sheath-Kilometers</b>       | 444         | 958         | 972         | 915         | 789         |
| <b>Total Carrier Links</b>           | 291,734     | 336,055     | 452,276     | 535,085     | 715,434     |
| <b>Copper Links</b>                  | 92,021      | 84,444      | 69,609      | 55,193      | 46,806      |
| <b>Fiber Links</b>                   | 194,437     | 246,811     | 377,963     | 475,981     | 667,746     |
| <b>Radio Links</b>                   | 5,276       | 4,800       | 4,704       | 3,911       | 882         |
| <b>Total Circuit Links</b>           | 2,628,075   | 2,783,389   | 2,800,655   | 2,964,296   | 3,278,058   |
| <b>Baseband Links</b>                | 187,964     | 151,207     | 59,460      | 56,164      | 56,287      |
| <b>Analog Links</b>                  | 3,295       | 1,734       | 468         | 440         | 189         |
| <b>Digital Links</b>                 | 2,436,816   | 2,630,448   | 2,740,727   | 2,907,692   | 3,221,582   |
| <b>Equipped Channels</b>             | 29,845,700  | 29,831,652  | 30,818,288  | 31,847,802  | 31,957,238  |
| <b>Copper</b>                        | 29,005,102  | 28,551,452  | 29,549,360  | 29,482,848  | 29,124,886  |
| <b>Fiber</b>                         | 840,598     | 1,280,200   | 1,268,928   | 2,364,952   | 2,832,350   |
| <b>Other</b>                         | 0           | 0           | 0           | 2           | 2           |
| <b>Working Channels</b>              | 19,055,583  | 19,283,746  | 18,610,716  | 19,105,654  | 19,714,345  |
| <b>Copper</b>                        | 18,588,688  | 18,317,812  | 17,811,512  | 18,096,152  | 18,478,770  |
| <b>Fiber</b>                         | 466,895     | 965,933     | 799,203     | 1,009,500   | 1,235,575   |
| <b>Other</b>                         | 0           | 1           | 1           | 2           | 0           |
| <b>Copper Pair Sw. Term.-Loop</b>    | 28,038,406  | 28,244,800  | 28,687,860  | 28,645,732  | 28,217,638  |
| <b>Fiber Cent. Ofc. Loop Termin.</b> | 31,299      | 40,664      | 56,834      | 66,035      | 79,661      |
| <b>DS-1 Term.- Cust. Prem. Fiber</b> | 13,964      | 18,905      | 23,675      | 26,660      | 31,941      |
| <b>DS-3 Term.- Cust. Prem. Fiber</b> | 1,462       | 1,871       | 2,434       | 2,755       | 3,192       |

*Please refer to text for notes and data qualifications*

**Table 2 (a): Bell Atlantic -- Switching System Data**

|  | <b>1991</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> |
|--|-------------|-------------|-------------|-------------|-------------|
| <b>Gross Plant Expenditures</b><br>.(In Millions \$) | 2,353       | 2,111       | 2,133       | 2,107       | 2,390       |
| <b>Local Switches</b>                                | 1,404       | 1,416       | 1,405       | 1,408       | 1,406       |
| <b>Tandem Switches</b>                               | 43          | 42          | 42          | 42          | 42          |
| <b>Hosts</b>   | 227         | 203         | 193         | 199         | 202         |
| <b>Remotes (Stand Alone Only)</b>                    | 639         | 661         | 666         | 685         | 696         |
| <b>Total Switching Entities</b>                      | 1,414       | 1,432       | 1,421       | 1,422       | 1,420       |
| <b>Electromechanical</b>                             | 0           | 0           | 0           | 0           | 0           |
| <b>Analog Stored Pgm. Control</b>                    | 267         | 212         | 157         | 123         | 93          |
| <b>Digital Stored Pgm. Control</b>                   | 1,147       | 1,220       | 1,264       | 1,299       | 1,327       |
| <b>Total Access Lines (000)</b>                      | 17,750      | 18,180      | 18,646      | 19,167      | 19,820      |
| <b>Electromechanical Switches</b>                    | 0           | 0           | 0           | 0           | 0           |
| <b>Analog Stored Pgm Ctrl Sw.</b>                    | 7,974       | 6,624       | 5,627       | 4,753       | 3,607       |
| <b>Digital Stored Pgm Ctrl Sw.</b>                   | 9,776       | 11,556      | 13,019      | 14,414      | 16,213      |
| <b>Touch Tone Capable Switches</b>                   | 1,404       | 1,416       | 1,405       | 1,408       | 1,406       |
| <b>T. Tone Capable Access Lines</b>                  | 17,750      | 18,180      | 18,644      | 19,167      | 19,820      |
| <b>Equal Access Switches</b>                         | 1,411       | 1,432       | 1,421       | 1,422       | 1,420       |
| <b>Equal Access Lines (000)</b>                      | 17,740      | 18,180      | 18,644      | 19,167      | 19,820      |
| <b>Signal. Sys 7 Switch (SS7-394)</b>                | 0           | 444         | 720         | 1,263       | 1,374       |
| <b>SS7-394 Access Lines (000)</b>                    | 0           | 7,362       | 13,240      | 18,120      | 19,709      |
| <b>Signal. Sys 7 Switch (SS7-317)</b>                | 1,178       | 1,306       | 1,359       | 1,374       | 1,373       |
| <b>SS7-317 Access Lines (000)</b>                    | 15,953      | 17,182      | 18,220      | 19,049      | 19,780      |
| <b>ISDN Capable Switches</b>                         | 332         | 367         | 515         | 580         | 671         |
| <b>ISDN Access Line Capac. (000)</b>                 | 8,514       | 8,745       | 9,923       | 12,022      | 19,419      |
| <b>ISDN Basic Rate Interf. Eq'pd</b>                 | 16,880      | 92,654      | 95,858      | 153,378     | 201,361     |
| <b>ISDN Primary Rate Interf. Eq'pd</b>               | 7           | 50          | 113         | 5,311       | 9,185       |

*Please refer to text for notes and data qualifications*

**Table 2 (b): Bell Atlantic -- Transmission System Data**

|                                      | 1991       | 1992       | 1993       | 1994       | 1995       |
|--------------------------------------|------------|------------|------------|------------|------------|
| <b>Total Sheath-Kilometers</b>       | 495,980    | 501,229    | 507,245    | 514,377    | 518,999    |
| Copper Sheath-Kilometers             | 465,277    | 462,151    | 461,040    | 461,558    | 460,772    |
| Fiber Sheath-Kilometers              | 29,644     | 38,123     | 45,402     | 52,014     | 57,425     |
| Other Sheath-Kilometers              | 1,059      | 955        | 803        | 805        | 802        |
| <b>Total Carrier Links</b>           | 235,043    | 243,064    | 252,108    | 278,199    | 303,468    |
| Copper Links                         | 77,730     | 67,892     | 62,122     | 63,297     | 66,127     |
| Fiber Links                          | 149,457    | 167,892    | 182,816    | 207,750    | 230,335    |
| Radio Links                          | 7,856      | 7,280      | 7,170      | 7,152      | 7,006      |
| <b>Total Circuit Links</b>           | 2,441,962  | 2,513,861  | 2,550,021  | 2,604,573  | 2,766,872  |
| Baseband Links                       | 243,128    | 146,756    | 105,941    | 73,773     | 42,296     |
| Analog Links                         | 0          | 0          | 0          | 0          | 0          |
| Digital Links                        | 2,198,834  | 2,367,105  | 2,444,080  | 2,530,800  | 2,724,576  |
| <b>Equipped Channels</b>             | 32,859,604 | 33,799,192 | 44,052,466 | 45,745,024 | 56,613,564 |
| Copper                               | 30,977,904 | 31,304,768 | 32,594,232 | 32,385,128 | 34,269,368 |
| Fiber                                | 1,881,699  | 2,494,419  | 11,458,234 | 13,359,894 | 22,344,196 |
| Other                                | 1          | 5          | 0          | 2          | 0          |
| <b>Working Channels</b>              | 19,527,458 | 19,749,054 | 20,859,312 | 21,356,842 | 23,514,796 |
| Copper                               | 18,478,872 | 18,285,784 | 18,366,516 | 18,223,592 | 19,067,568 |
| Fiber                                | 1,048,584  | 1,463,270  | 2,492,795  | 3,133,250  | 4,447,227  |
| Other                                | 2          | 0          | 1          | 0          | 1          |
| <b>Copper Pair Sw. Term.-Loop</b>    | 29,920,518 | 30,272,652 | 30,504,710 | 30,479,864 | 30,444,726 |
| <b>Fiber Cent. Ofc. Loop Termin.</b> | 14,189     | 125,719    | 129,509    | 168,147    | 182,097    |
| <b>DS-1 Term.- Cust. Prem. Fiber</b> | 9,103      | 13,408     | 25,922     | 37,197     | 47,737     |
| <b>DS-3 Term.- Cust. Prem. Fiber</b> | 285        | 234        | 443        | 731        | 970        |

Please refer to text for notes and data qualifications

**Table 3 (a): BellSouth -- Switching System Data**

|   | <b>1991</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> |
|---|-------------|-------------|-------------|-------------|-------------|
| <b>Gross Plant Expenditures</b><br>(In Millions \$) | 2,841       | 2,925       | 3,012       | 3,118       | 3,160       |
| <b>Local Switches</b>                               | 1,666       | 1,664       | 1,661       | 1,658       | 1,647       |
| <b>Tandem Switches</b>                              | 62          | 66          | 70          | 70          | 71          |
| <b>Hosts</b>  | 270         | 272         | 269         | 280         | 289         |
| <b>Remotes (Stand Alone Only)</b>                   | 696         | 703         | 714         | 732         | 742         |
| <b>Total Switching Entities</b>                     | 1,680       | 1,678       | 1,680       | 1,677       | 1,668       |
| <b>Electromechanical</b>                            | 0           | 0           | 0           | 0           | 0           |
| <b>Analog Stored Pgm. Control</b>                   | 318         | 283         | 236         | 182         | 158         |
| <b>Digital Stored Pgm. Control</b>                  | 1,362       | 1,395       | 1,444       | 1,495       | 1,510       |
| <b>Total Access Lines (000)</b>                     | 17,971      | 18,607      | 19,233      | 20,141      | 21,064      |
| <b>Electromechanical Switches</b>                   | 0           | 0           | 0           | 0           | 0           |
| <b>Analog Stored Pgm Ctrl Sw.</b>                   | 7,726       | 7,173       | 5,929       | 4,837       | 4,455       |
| <b>Digital Stored Pgm Ctrl Sw.</b>                  | 10,245      | 11,434      | 13,304      | 15,304      | 16,609      |
| <b>Touch Tone Capable Switches</b>                  | 1,666       | 1,664       | 1,661       | 1,658       | 1,647       |
| <b>T. Tone Capable Access Lines</b>                 | 17,970      | 18,607      | 19,233      | 20,141      | 21,064      |
| <b>Equal Access Switches</b>                        | 1,680       | 1,678       | 1,680       | 1,677       | 1,668       |
| <b>Equal Access Lines (000)</b>                     | 17,970      | 18,607      | 19,233      | 20,141      | 21,064      |
| <b>Signal. Sys 7 Switch (SS7-394)</b>               | 590         | 966         | 1,447       | 1,627       | 1,629       |
| <b>SS7-394 Access Lines (000)</b>                   | 9,391       | 14,231      | 18,067      | 20,118      | 20,737      |
| <b>Signal. Sys 7 Switch (SS7-317)</b>               | 956         | 1,121       | 1,452       | 1,628       | 1,630       |
| <b>SS7-317 Access Lines (000)</b>                   | 14,634      | 15,959      | 18,122      | 20,136      | 20,755      |
| <b>ISDN Capable Switches</b>                        | 171         | 224         | 324         | 407         | 467         |
| <b>ISDN Access Line Capac. (000)</b>                | 3,321       | 4,934       | 7,606       | 9,708       | 10,988      |
| <b>ISDN Basic Rate Interf. Eq'pd</b>                | 34,613      | 50,774      | 65,607      | 76,348      | 80,641      |
| <b>ISDN Primary Rate Interf. Eq'pd</b>              | 282         | 559         | 1,814       | 3,534       | 4,803       |

*Please refer to text for notes and data qualifications*

**Table 3 (b): BellSouth -- Transmission System Data**

|                                      | 1991       | 1992       | 1993       | 1994       | 1995       |
|--------------------------------------|------------|------------|------------|------------|------------|
| <b>Total Sheath-Kilometers</b>       | 966,488    | 979,751    | 993,633    | 1,005,397  | 980,420    |
| Copper Sheath-Kilometers             | 916,955    | 921,509    | 927,265    | 930,812    | 899,685    |
| Fiber Sheath-Kilometers              | 47,759     | 56,692     | 65,100     | 73,370     | 79,014     |
| Other Sheath-Kilometers              | 1,774      | 1,550      | 1,268      | 1,215      | 1,721      |
| <b>Total Carrier Links</b>           | 567,759    | 792,341    | 991,365    | 1,035,404  | 1,068,631  |
| Copper Links                         | 81,426     | 89,264     | 86,390     | 52,813     | 48,503     |
| Fiber Links                          | 474,939    | 675,449    | 877,770    | 958,357    | 1,003,735  |
| Radio Links                          | 11,394     | 27,628     | 27,205     | 24,234     | 16,393     |
| <b>Total Circuit Links</b>           | 2,459,749  | 2,702,141  | 2,935,064  | 4,287,654  | 4,756,430  |
| Baseband Links                       | 59,780     | 28,095     | 17,575     | 14,713     | 9,985      |
| Analog Links                         | 630        | 122        | 99         | 50         | 0          |
| Digital Links                        | 2,399,339  | 2,673,924  | 2,917,390  | 4,272,891  | 4,746,445  |
| <b>Equipped Channels</b>             | 31,352,184 | 31,742,418 | 33,070,338 | 34,669,704 | 36,022,280 |
| Copper                               | 28,925,108 | 28,821,672 | 29,291,198 | 29,995,724 | 30,351,792 |
| Fiber                                | 2,426,385  | 2,919,937  | 3,778,341  | 4,673,140  | 5,669,647  |
| Other                                | 691        | 809        | 799        | 840        | 841        |
| <b>Working Channels</b>              | 19,915,442 | 20,196,488 | 21,275,556 | 23,284,636 | 24,682,892 |
| Copper                               | 18,002,278 | 17,874,950 | 18,288,532 | 19,283,574 | 19,871,262 |
| Fiber                                | 1,913,109  | 2,321,451  | 2,986,937  | 4,000,986  | 4,811,550  |
| Other                                | 55         | 87         | 87         | 76         | 80         |
| <b>Copper Pair Sw. Term.-Loop</b>    | 26,383,292 | 26,382,232 | 26,433,408 | 26,451,200 | 26,527,294 |
| <b>Fiber Cent. Ofc. Loop Termin.</b> | 44,363     | 52,591     | 59,663     | 73,260     | 106,710    |
| <b>DS-1 Term.- Cust. Prem. Fiber</b> | 2,726      | 4,681      | 9,078      | 13,941     | 19,132     |
| <b>DS-3 Term.- Cust. Prem. Fiber</b> | 2,918      | 5,490      | 3,294      | 4,034      | 3,632      |

*Please refer to text for notes and data qualifications*



**Table 4 (a): NYNEX -- Switching System Data**

|   | <b>1991</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> |
|---|-------------|-------------|-------------|-------------|-------------|
| <b>Gross Plant Expenditures</b><br>(In Millions \$) | 2,099       | 2,003       | 2,152       | 2,208       | 2,316       |
| <b>Local Switches</b>                               | 1,316       | 1,317       | 1,307       | 1,297       | 1,290       |
| <b>Tandem Switches</b>                              | 29          | 23          | 23          | 23          | 23          |
| <b>Hosts</b>  | 137         | 151         | 155         | 125         | 169         |
| <b>Remotes (Stand Alone Only)</b>                   | 531         | 668         | 699         | 722         | 728         |
| <b>Total Switching Entities</b>                     | 1,336       | 1,336       | 1,326       | 1,316       | 1,309       |
| <b>Electromechanical</b>                            | 128         | 0           | 0           | 0           | 0           |
| <b>Analog Stored Pgm. Control</b>                   | 274         | 251         | 192         | 123         | 101         |
| <b>Digital Stored Pgm. Control</b>                  | 934         | 1,085       | 1,134       | 1,193       | 1,208       |
| <b>Total Access Lines (000)</b>                     | 15,409      | 15,699      | 16,129      | 16,578      | 17,139      |
| <b>Electromechanical Switches</b>                   | 447         | 0           | 0           | 0           | 0           |
| <b>Analog Stored Pgm Ctrl Sw.</b>                   | 5,590       | 5,173       | 4,123       | 2,800       | 1,969       |
| <b>Digital Stored Pgm Ctrl Sw.</b>                  | 9,372       | 10,526      | 12,006      | 13,778      | 15,170      |
| <b>Touch Tone Capable Switches</b>                  | 1,229       | 1,317       | 1,307       | 1,297       | 1,286       |
| <b>T. Tone Capable Access Lines</b>                 | 15,284      | 15,699      | 16,129      | 16,578      | 17,139      |
| <b>Equal Access Switches</b>                        | 1,167       | 1,291       | 1,307       | 1,316       | 1,308       |
| <b>Equal Access Lines (000)</b>                     | 15,093      | 15,606      | 16,077      | 16,578      | 17,139      |
| <b>Signal. Sys 7 Switch (SS7-394)</b>               | 161         | 739         | 970         | 1,119       | 1,203       |
| <b>SS7-394 Access Lines (000)</b>                   | 3,147       | 8,457       | 11,300      | 13,852      | 15,168      |
| <b>Signal. Sys 7 Switch (SS7-317)</b>               | 430         | 739         | 969         | 1,119       | 1,203       |
| <b>SS7-317 Access Lines (000)</b>                   | 4,360       | 8,457       | 11,300      | 13,832      | 15,168      |
| <b>ISDN Capable Switches</b>                        | 27          | 42          | 114         | 247         | 259         |
| <b>ISDN Access Line Capac. (000)</b>                | 843         | 1,232       | 3,483       | 9,357       | 11,583      |
| <b>ISDN Basic Rate Interf. Eq'pd</b>                | 25,529      | 39,653      | 62,522      | 118,150     | 139,694     |
| <b>ISDN Primary Rate Interf. Eq'pd</b>              | 0           | 251         | 837         | 1,082       | 3,322       |

*Please refer to text for notes and data qualifications*

**Table 4 (b): NYNEX -- Transmission System Data**

|                                      | 1991       | 1992       | 1993       | 1994       | 1995       |
|--------------------------------------|------------|------------|------------|------------|------------|
| <b>Total Sheath-Kilometers</b>       | 443,967    | 448,417    | 451,030    | 452,707    | 453,951    |
| Copper Sheath-Kilometers             | 420,342    | 417,866    | 416,312    | 414,170    | 412,025    |
| Fiber Sheath-Kilometers              | 23,625     | 28,496     | 33,013     | 37,118     | 41,000     |
| Other Sheath-Kilometers              | 0          | 2,055      | 1,705      | 1,419      | 926        |
| <b>Total Carrier Links</b>           | 371,972    | 388,726    | 442,636    | 459,959    | 467,055    |
| Copper Links                         | 95,207     | 76,200     | 50,392     | 51,873     | 45,579     |
| Fiber Links                          | 271,777    | 308,053    | 389,124    | 406,135    | 420,415    |
| Radio Links                          | 4,988      | 4,473      | 3,120      | 1,951      | 1,061      |
| <b>Total Circuit Links</b>           | 2,757,499  | 2,628,803  | 2,609,151  | 2,596,631  | 2,446,502  |
| Baseband Links                       | 590,617    | 406,393    | 310,515    | 244,437    | 170,544    |
| Analog Links                         | 197        | 0          | 0          | 0          | 0          |
| Digital Links                        | 2,166,685  | 2,222,410  | 2,298,636  | 2,352,194  | 2,275,958  |
| <b>Equipped Channels</b>             | 30,981,104 | 31,948,464 | 32,786,502 | 33,221,540 | 33,494,240 |
| Copper                               | 30,012,852 | 30,800,664 | 31,399,860 | 31,706,560 | 31,393,668 |
| Fiber                                | 968,252    | 1,147,800  | 1,386,642  | 1,514,975  | 2,100,572  |
| Other                                | 0          | 0          | 0          | 5          | 0          |
| <b>Working Channels</b>              | 18,147,166 | 18,418,984 | 18,869,249 | 18,776,462 | 20,176,170 |
| Copper                               | 17,676,516 | 17,836,040 | 18,135,776 | 17,874,872 | 18,859,714 |
| Fiber                                | 470,649    | 582,943    | 733,473    | 901,589    | 1,316,456  |
| Other                                | 1          | 1          | 0          | 1          | 0          |
| <b>Copper Pair Sw. Term.-Loop</b>    | 30,116,462 | 29,386,450 | 30,053,156 | 30,097,348 | 30,190,920 |
| <b>Fiber Cent. Ofc. Loop Termin.</b> | 48,329     | 88,279     | 143,770    | 188,194    | 214,587    |
| <b>DS-1 Term.- Cust. Prem. Fiber</b> | 8,270      | 19,682     | 21,911     | 28,732     | 30,529     |
| <b>DS-3 Term.- Cust. Prem. Fiber</b> | 260        | 442        | 869        | 1,036      | 1,363      |

Please refer to text for notes and data qualifications

**Table 5 (a): Pacific Telesis -- Switching System Data**

|   | <b>1991</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> |
|---|-------------|-------------|-------------|-------------|-------------|
| <b>Gross Plant Expenditures</b><br>(In Millions \$) | 1,688       | 1,625       | 1,734       | 1,620       | 1,664       |
| <b>Local Switches</b>                               | 842         | 853         | 846         | 837         | 840         |
| <b>Tandem Switches</b>                              | 20          | 20          | 20          | 20          | 20          |
| <b>Hosts</b>  | 102         | 103         | 111         | 121         | 117         |
| <b>Remotes (Stand Alone Only)</b>                   | 238         | 253         | 302         | 320         | 316         |
| <b>Total Switching Entities</b>                     | 862         | 873         | 866         | 856         | 859         |
| <b>Electromechanical</b>                            | 4           | 3           | 3           | 2           | 1           |
| <b>Analog Stored Pgm. Control</b>                   | 242         | 218         | 176         | 109         | 87          |
| <b>Digital Stored Pgm. Control</b>                  | 616         | 652         | 687         | 745         | 771         |
| <b>Total Access Lines (000)</b>                     | 14,381      | 14,661      | 14,971      | 15,384      | 15,984      |
| <b>Electromechanical Switches</b>                   | 1           | 1           | 1           | 1           | 0           |
| <b>Analog Stored Pgm Ctrl Sw.</b>                   | 8,557       | 8,128       | 7,036       | 5,029       | 4,036       |
| <b>Digital Stored Pgm Ctrl Sw.</b>                  | 5,823       | 6,532       | 7,934       | 10,354      | 11,948      |
| <b>Touch Tone Capable Switches</b>                  | 842         | 853         | 846         | 837         | 840         |
| <b>T. Tone Capable Access Lines</b>                 | 14,381      | 14,661      | 14,971      | 15,384      | 15,984      |
| <b>Equal Access Switches</b>                        | 832         | 844         | 844         | 834         | 838         |
| <b>Equal Access Lines (000)</b>                     | 14,348      | 14,630      | 14,949      | 15,360      | 15,966      |
| <b>Signal. Sys 7 Switch (SS7-394)</b>               | 53          | 374         | 522         | 764         | 772         |
| <b>SS7-394 Access Lines (000)</b>                   | 1,161       | 9,638       | 12,490      | 14,781      | 15,512      |
| <b>Signal. Sys 7 Switch (SS7-317)</b>               | 253         | 374         | 522         | 764         | 772         |
| <b>SS7-317 Access Lines (000)</b>                   | 7,190       | 9,638       | 12,490      | 14,781      | 15,512      |
| <b>ISDN Capable Switches</b>                        | 88          | 150         | 229         | 347         | 417         |
| <b>ISDN Access Line Capac. (000)</b>                | 1,567       | 2,905       | 5,349       | 8,494       | 10,291      |
| <b>ISDN Basic Rate Interf. Eq'pd</b>                | 36,246      | 47,661      | 65,683      | 115,146     | 171,305     |
| <b>ISDN Primary Rate Interf. Eq'pd</b>              | 113         | 308         | 357         | 708         | 3,491       |

*Please refer to text for notes and data qualifications*

**Table 5 (b): Pacific Telesis -- Transmission System Data**

|                                      | 1991       | 1992       | 1993       | 1994       | 1995       |
|--------------------------------------|------------|------------|------------|------------|------------|
| <b>Total Sheath-Kilometers</b>       | 348,654    | 351,748    | 351,695    | 343,658    | 346,127    |
| Copper Sheath-Kilometers             | 335,484    | 336,461    | 334,674    | 324,942    | 325,537    |
| Fiber Sheath-Kilometers              | 11,266     | 13,412     | 15,814     | 17,598     | 19,472     |
| Other Sheath-Kilometers              | 1,904      | 1,875      | 1,207      | 1,118      | 1,118      |
| <b>Total Carrier Links</b>           | 1,013,792  | 839,818    | 890,851    | 962,858    | 1,383,705  |
| Copper Links                         | 439,687    | 344,924    | 335,250    | 153,493    | 123,014    |
| Fiber Links                          | 565,533    | 486,811    | 546,847    | 801,638    | 1,252,043  |
| Radio Links                          | 8,572      | 8,083      | 8,754      | 7,727      | 8,648      |
| <b>Total Circuit Links</b>           | 2,233,398  | 2,104,431  | 2,137,179  | 2,568,706  | 2,646,904  |
| Baseband Links                       | 118,782    | 89,606     | 66,642     | 42,095     | 35,016     |
| Analog Links                         | 1,854      | 710        | 609        | 451        | 256        |
| Digital Links                        | 2,112,762  | 2,014,115  | 2,069,928  | 2,526,160  | 2,611,632  |
| <b>Equipped Channels</b>             | 16,684,591 | 25,576,496 | 26,287,308 | 26,447,356 | 26,850,298 |
| Copper                               | 16,417,534 | 25,239,668 | 25,859,696 | 25,914,608 | 26,178,876 |
| Fiber                                | 266,970    | 336,737    | 427,522    | 532,661    | 671,162    |
| Other                                | 87         | 91         | 90         | 87         | 260        |
| <b>Working Channels</b>              | 15,393,192 | 15,624,516 | 15,840,904 | 16,110,206 | 16,877,850 |
| Copper                               | 15,222,339 | 15,400,695 | 15,556,249 | 15,758,760 | 16,448,199 |
| Fiber                                | 170,776    | 223,744    | 284,575    | 351,364    | 429,536    |
| Other                                | 77         | 77         | 80         | 82         | 115        |
| <b>Copper Pair Sw. Term.-Loop</b>    | 23,813,846 | 24,098,662 | 24,632,896 | 24,577,002 | 24,619,462 |
| <b>Fiber Cent. Ofc. Loop Termin.</b> | 31,676     | 35,565     | 39,830     | 33,538     | 34,692     |
| <b>DS-1 Term.- Cust. Prem. Fiber</b> | 570        | 628        | 701        | 756        | 655        |
| <b>DS-3 Term.- Cust. Prem. Fiber</b> | 777        | 1,710      | 2,410      | 3,108      | 4,047      |

Please refer to text for notes and data qualifications

**Table 6 (a): SBC (Southwestern Bell) -- Switching System Data**

|   | <b>1991</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> |
|---|-------------|-------------|-------------|-------------|-------------|
| <b>Gross Plant Expenditures</b><br>(In Millions \$) | 1,519       | 1,835       | 1,723       | 1,739       | 1,759       |
| <b>Local Switches</b>                               | 1,356       | 1,392       | 1,437       | 1,511       | 1,644       |
| <b>Tandem Switches</b>                              | 48          | 67          | 64          | 60          | 60          |
| <b>Hosts</b>  | 131         | 191         | 230         | 233         | 245         |
| <b>Remotes (Stand Alone Only)</b>                   | 311         | 488         | 672         | 779         | 935         |
| <b>Total Switching Entities</b>                     | 1,380       | 1,425       | 1,469       | 1,539       | 1,679       |
| <b>Electromechanical</b>                            | 398         | 222         | 83          | 73          | 58          |
| <b>Analog Stored Pgm. Control</b>                   | 366         | 348         | 308         | 264         | 252         |
| <b>Digital Stored Pgm. Control</b>                  | 616         | 855         | 1,078       | 1,202       | 1,369       |
| <b>Total Access Lines (000)</b>                     | 12,357      | 12,693      | 13,180      | 13,611      | 14,095      |
| <b>Electromechanical Switches</b>                   | 686         | 314         | 102         | 96          | 62          |
| <b>Analog Stored Pgm Ctrl Sw.</b>                   | 7,704       | 7,454       | 7,078       | 6,608       | 6,531       |
| <b>Digital Stored Pgm Ctrl Sw.</b>                  | 3,967       | 4,925       | 6,000       | 6,907       | 7,502       |
| <b>Touch Tone Capable Switches</b>                  | 1,356       | 1,392       | 1,437       | 1,511       | 1,644       |
| <b>T. Tone Capable Access Lines</b>                 | 12,357      | 12,693      | 13,180      | 13,611      | 14,095      |
| <b>Equal Access Switches</b>                        | 871         | 1,119       | 1,340       | 1,511       | 1,644       |
| <b>Equal Access Lines (000)</b>                     | 11,517      | 12,284      | 13,060      | 13,611      | 14,095      |
| <b>Signal. Sys 7 Switch (SS7-394)</b>               | 0           | 607         | 723         | 1,263       | 1,466       |
| <b>SS7-394 Access Lines (000)</b>                   | 0           | 8,116       | 8,828       | 12,787      | 13,289      |
| <b>Signal. Sys 7 Switch (SS7-317)</b>               | 105         | 563         | 649         | 1,263       | 1,466       |
| <b>SS7-317 Access Lines (000)</b>                   | 2,332       | 7,732       | 8,468       | 12,787      | 13,289      |
| <b>ISDN Capable Switches</b>                        | 79          | 92          | 92          | 123         | 303         |
| <b>ISDN Access Line Capac. (000)</b>                | 981         | 1,963       | 1,476       | 1,933       | 8,826       |
| <b>ISDN Basic Rate Interf. Eq'pd</b>                | 47,230      | 88,960      | 88,960      | 57,041      | 108,784     |
| <b>ISDN Primary Rate Interf. Eq'pd</b>              | 161         | 380         | 410         | 1,238       | 5,084       |

Please refer to text for notes and data qualifications

**Table 6 (b): SBC (Southwestern Bell) -- Transmission System Data**

|                                      | 1991       | 1992       | 1993       | 1994       | 1995       |
|--------------------------------------|------------|------------|------------|------------|------------|
| <b>Total Sheath-Kilometers</b>       | 631,229    | 637,841    | 646,283    | 652,224    | 662,108    |
| <b>Copper Sheath-Kilometers</b>      | 603,323    | 605,825    | 608,238    | 609,725    | 612,764    |
| <b>Fiber Sheath-Kilometers</b>       | 24,226     | 28,406     | 35,548     | 40,621     | 47,530     |
| <b>Other Sheath-Kilometers</b>       | 3,680      | 3,610      | 2,497      | 1,878      | 1,814      |
| <b>Total Carrier Links</b>           | 409,041    | 539,611    | 519,243    | 717,489    | 1,116,226  |
| <b>Copper Links</b>                  | 136,055    | 106,744    | 109,423    | 119,709    | 120,615    |
| <b>Fiber Links</b>                   | 254,978    | 419,710    | 394,948    | 584,519    | 982,517    |
| <b>Radio Links</b>                   | 18,008     | 13,157     | 14,872     | 13,261     | 13,094     |
| <b>Total Circuit Links</b>           | 1,812,234  | 2,028,241  | 2,132,469  | 2,271,891  | 2,583,685  |
| <b>Baseband Links</b>                | 68,676     | 50,622     | 42,930     | 32,798     | 26,474     |
| <b>Analog Links</b>                  | 14,371     | 6,676      | 2,080      | 827        | 97         |
| <b>Digital Links</b>                 | 1,729,187  | 1,970,943  | 2,087,459  | 2,238,266  | 2,557,114  |
| <b>Equipped Channels</b>             | 22,805,216 | 23,280,470 | 22,801,616 | 23,675,324 | 23,990,229 |
| <b>Copper</b>                        | 22,387,044 | 22,835,410 | 21,895,338 | 22,010,812 | 23,356,682 |
| <b>Fiber</b>                         | 414,723    | 444,970    | 906,188    | 1,664,422  | 633,547    |
| <b>Other</b>                         | 3,449      | 90         | 90         | 90         | 0          |
| <b>Working Channels</b>              | 12,924,549 | 13,400,320 | 13,431,477 | 15,446,486 | 15,917,610 |
| <b>Copper</b>                        | 12,595,246 | 13,047,301 | 12,703,861 | 14,046,786 | 15,376,311 |
| <b>Fiber</b>                         | 327,985    | 352,945    | 727,542    | 1,399,626  | 541,299    |
| <b>Other</b>                         | 1,318      | 74         | 74         | 74         | 0          |
| <b>Copper Pair Sw. Term.-Loop</b>    | 21,723,564 | 22,047,874 | 21,379,496 | 22,010,904 | 21,990,828 |
| <b>Fiber Cent. Ofc. Loop Termin.</b> | 37,827     | 41,947     | 56,560     | 66,497     | 124,026    |
| <b>DS-1 Term.- Cust. Prem. Fiber</b> | 28,216     | 33,162     | 38,568     | 44,622     | 48,552     |
| <b>DS-3 Term.- Cust. Prem. Fiber</b> | 1,338      | 1,612      | 1,916      | 2,566      | 2,733      |

*Please refer to text for notes and data qualifications*

**Table 7 (a): US West -- Switching System Data**

|   | <b>1991</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> |
|---|-------------|-------------|-------------|-------------|-------------|
| <b>Gross Plant Expenditures</b><br>(In Millions \$) | 2,126       | 2,413       | 2,210       | 2,359       | 2,570       |
| <b>Local Switches</b>                               | 1,824       | 1,833       | 1,834       | 1,737       | 1,641       |
| <b>Tandem Switches</b>                              | 53          | 51          | 52          | 52          | 51          |
| <b>Hosts</b>  | 172         | 195         | 223         | 232         | 238         |
| <b>Remotes (Stand Alone Only)</b>                   | 515         | 692         | 880         | 984         | 961         |
| <b>Total Switching Entities</b>                     | 1,847       | 1,852       | 1,852       | 1,751       | 1,654       |
| <b>Electromechanical</b>                            | 572         | 390         | 205         | 20          | 1           |
| <b>Analog Stored Pgm. Control</b>                   | 327         | 294         | 261         | 213         | 188         |
| <b>Digital Stored Pgm. Control</b>                  | 948         | 1,168       | 1,386       | 1,518       | 1,465       |
| <b>Total Access Lines (000)</b>                     | 12,886      | 13,268      | 13,710      | 14,309      | 14,817      |
| <b>Electromechanical Switches</b>                   | 677         | 396         | 161         | 18          | 1           |
| <b>Analog Stored Pgm Ctrl Sw.</b>                   | 6,823       | 6,508       | 6,257       | 5,303       | 4,706       |
| <b>Digital Stored Pgm Ctrl Sw.</b>                  | 5,386       | 6,364       | 7,292       | 8,988       | 10,110      |
| <b>Touch Tone Capable Switches</b>                  | 1,824       | 1,833       | 1,834       | 1,735       | 1,641       |
| <b>T. Tone Capable Access Lines</b>                 | 12,886      | 13,268      | 13,710      | 14,267      | 14,817      |
| <b>Equal Access Switches</b>                        | 1,250       | 1,458       | 1,636       | 1,723       | 1,638       |
| <b>Equal Access Lines (000)</b>                     | 12,182      | 12,844      | 13,529      | 14,287      | 14,816      |
| <b>Signal. Sys 7 Switch (SS7-394)</b>               | 231         | 470         | 620         | 819         | 1,116       |
| <b>SS7-394 Access Lines (000)</b>                   | 4,899       | 7,623       | 9,931       | 11,685      | 13,411      |
| <b>Signal. Sys 7 Switch (SS7-317)</b>               | 246         | 471         | 621         | 839         | 1,116       |
| <b>SS7-317 Access Lines (000)</b>                   | 5,196       | 7,679       | 9,931       | 11,783      | 13,411      |
| <b>ISDN Capable Switches</b>                        | 115         | 163         | 213         | 240         | 262         |
| <b>ISDN Access Line Capac. (000)</b>                | 3,603       | 4,757       | 3,982       | 5,045       | 6,192       |
| <b>ISDN Basic Rate Interf. Eq'pd</b>                | 72,904      | 92,613      | 108,775     | 120,058     | 126,530     |
| <b>ISDN Primary Rate Interf. Eq'pd</b>              | 387         | 396         | 674         | 742         | 2,315       |

Please refer to text for notes and data qualifications

**Table 7 (b): US West -- Transmission System Data**

|                                      | 1991       | 1992       | 1993       | 1994       | 1995       |
|--------------------------------------|------------|------------|------------|------------|------------|
| <b>Total Sheath-Kilometers</b>       | 727,799    | 743,027    | 757,869    | 750,757    | 753,942    |
| Copper Sheath-Kilometers             | 692,087    | 699,219    | 707,384    | 694,797    | 691,844    |
| Fiber Sheath-Kilometers              | 35,712     | 43,808     | 50,485     | 55,960     | 62,098     |
| Other Sheath-Kilometers              | 0          | 0          | 0          | 0          | 0          |
| <b>Total Carrier Links</b>           | 394,615    | 430,532    | 471,975    | 505,550    | 633,861    |
| Copper Links                         | 126,419    | 99,584     | 89,849     | 73,050     | 35,964     |
| Fiber Links                          | 242,922    | 305,459    | 357,269    | 409,034    | 575,849    |
| Radio Links                          | 25,274     | 25,489     | 24,857     | 23,466     | 22,048     |
| <b>Total Circuit Links</b>           | 2,050,073  | 2,175,630  | 2,315,598  | 2,569,216  | 2,802,203  |
| Baseband Links                       | 55,824     | 33,267     | 27,397     | 24,530     | 27,184     |
| Analog Links                         | 46,224     | 19,714     | 12,879     | 5,702      | 4,376      |
| Digital Links                        | 1,948,025  | 2,122,649  | 2,275,322  | 2,538,984  | 2,770,643  |
| <b>Equipped Channels</b>             | 23,249,348 | 23,531,608 | 23,876,584 | 26,559,536 | 24,246,872 |
| Copper                               | 22,812,490 | 22,956,294 | 23,170,964 | 25,859,210 | 23,561,094 |
| Fiber                                | 435,420    | 575,314    | 703,502    | 698,147    | 685,674    |
| Other                                | 1,438      | 0          | 2,118      | 2,179      | 104        |
| <b>Working Channels</b>              | 13,690,957 | 14,174,295 | 14,809,462 | 16,618,801 | 15,347,150 |
| Copper                               | 13,482,875 | 13,846,854 | 14,359,158 | 16,138,681 | 14,873,448 |
| Fiber                                | 207,186    | 327,441    | 449,121    | 478,913    | 473,650    |
| Other                                | 896        | 0          | 1,183      | 1,207      | 52         |
| <b>Copper Pair Sw. Term.-Loop</b>    | 21,773,704 | 22,015,832 | 22,128,232 | 24,473,136 | 22,168,428 |
| <b>Fiber Cent. Ofc. Loop Termin.</b> | 51,375     | 65,444     | 73,993     | 83,313     | 81,953     |
| <b>DS-1 Term.- Cust. Prem. Fiber</b> | 10,882     | 11,837     | 20,010     | 24,386     | 28,875     |
| <b>DS-3 Term.- Cust. Prem. Fiber</b> | 1,088      | 1,434      | 1,066      | 1,297      | 1,339      |

Please refer to text for notes and data qualifications



**Table 8 (a): GTE/CONTEL Companies -- Switching System Data**

|   | 1992   | 1992   | 1993   | 1994   | 1995   |
|---|--------|--------|--------|--------|--------|
| <b>Gross Plant Expenditures</b><br>(In Millions \$) | 2,784  | 2,661  | 2,618  | 2,771  | 2,620  |
| <b>Local Switches</b>                               | 6,422  | 6,597  | 6,731  | 6,153  | 6,271  |
| <b>Tandem Switches</b>                              | 159    | 162    | 158    | 143    | 157    |
| <b>Hosts</b>  | 737    | 924    | 955    | 849    | 884    |
| <b>Remotes (Stand Alone Only)</b>                   | 2,048  | 1,558  | 1,732  | 1,767  | 2,031  |
| <b>Total Switching Entities</b>                     | 6,441  | 6,631  | 6,769  | 6,171  | 6,291  |
| <b>Electromechanical</b>                            | 1,462  | 1,339  | 1,197  | 934    | 679    |
| <b>Analog Stored Pgm. Control</b>                   | 98     | 83     | 78     | 46     | 26     |
| <b>Digital Stored Pgm. Control</b>                  | 4,881  | 5,209  | 5,494  | 5,191  | 5,586  |
| <b>Total Access Lines (000)</b>                     | 15,633 | 15,781 | 16,275 | 16,064 | 16,642 |
| <b>Electromechanical Switches</b>                   | 1,434  | 1,260  | 1,084  | 797    | 533    |
| <b>Analog Stored Pgm Ctrl Sw.</b>                   | 1,388  | 1,030  | 834    | 508    | 378    |
| <b>Digital Stored Pgm Ctrl Sw.</b>                  | 12,811 | 13,491 | 14,357 | 14,759 | 15,731 |
| <b>Touch Tone Capable Switches</b>                  | 6,422  | 6,597  | 6,731  | 6,153  | 6,274  |
| <b>T. Tone Capable Access Lines</b>                 | 15,633 | 15,781 | 16,274 | 16,064 | 16,641 |
| <b>Equal Access Switches</b>                        | 3,006  | 4,930  | 5,399  | 5,121  | 5,622  |
| <b>Equal Access Lines (000)</b>                     | 13,211 | 14,186 | 15,069 | 15,190 | 16,114 |
| <b>Signal. Sys 7 Switch (SS7-394)</b>               | 0      | 1,499  | 2,034  | 2,250  | 2,930  |
| <b>SS7-394 Access Lines (000)</b>                   | 0      | 6,506  | 8,885  | 10,774 | 12,868 |
| <b>Signal. Sys 7 Switch (SS7-317)</b>               | 421    | 2,042  | 2,157  | 2,250  | 2,930  |
| <b>SS7-317 Access Lines (000)</b>                   | 4,872  | 9,073  | 9,715  | 10,774 | 12,868 |
| <b>ISDN Capable Switches</b>                        | 44     | 218    | 272    | 270    | 390    |
| <b>ISDN Access Line Capac. (000)</b>                | 730    | 1,399  | 2,095  | 5,003  | 6,249  |
| <b>ISDN Basic Rate Interf. Eq'pd</b>                | 8,884  | 22,763 | 30,741 | 63,012 | 91,326 |
| <b>ISDN Primary Rate Interf. Eq'pd</b>              | 77     | 475    | 896    | 1,406  | 2,703  |

Please refer to text for notes and data qualifications

**Table 8 (b): GTE/CONTEL Companies -- Transmission System Data**

|                                      | 1992       | 1992       | 1993       | 1994       | 1995       |
|--------------------------------------|------------|------------|------------|------------|------------|
| <b>Total Sheath-Kilometers</b>       | 944,665    | 1,582,102  | 1,495,496  | 1,318,502  | 1,234,633  |
| Copper Sheath-Kilometers             | 896,306    | 1,259,691  | 1,147,707  | 1,252,041  | 1,167,365  |
| Fiber Sheath-Kilometers              | 48,359     | 52,093     | 69,349     | 66,461     | 67,268     |
| Other Sheath-Kilometers              | 0          | 270,318    | 278,440    | 0          | 0          |
| <b>Total Carrier Links</b>           | 211,857    | 346,524    | 411,407    | 499,921    | 606,379    |
| Copper Links                         | 88,636     | 116,096    | 117,500    | 118,932    | 118,759    |
| Fiber Links                          | 115,893    | 216,679    | 282,841    | 368,310    | 475,945    |
| Radio Links                          | 7,328      | 13,749     | 11,066     | 12,679     | 11,675     |
| <b>Total Circuit Links</b>           | 2,703,433  | 2,989,915  | 3,098,419  | 3,430,454  | 4,104,644  |
| Baseband Links                       | 138,930    | 62,506     | 60,567     | 58,835     | 55,704     |
| Analog Links                         | 20,921     | 8,124      | 6,680      | 4,736      | 3,729      |
| Digital Links                        | 2,543,582  | 2,919,285  | 3,031,172  | 3,366,883  | 4,045,211  |
| <b>Equipped Channels</b>             | 27,825,252 | 28,018,836 | 28,605,286 | 28,043,406 | 30,593,768 |
| Copper                               | 26,829,116 | 26,644,992 | 26,989,260 | 26,280,274 | 28,716,902 |
| Fiber                                | 993,596    | 1,370,617  | 1,607,049  | 1,758,085  | 1,871,908  |
| Other                                | 2,540      | 3,227      | 8,977      | 5,047      | 4,958      |
| <b>Working Channels</b>              | 17,827,976 | 18,770,008 | 18,672,864 | 18,809,320 | 19,749,732 |
| Copper                               | 17,152,862 | 17,846,680 | 17,557,932 | 17,636,318 | 18,476,992 |
| Fiber                                | 673,074    | 921,388    | 1,113,803  | 1,170,276  | 1,270,132  |
| Other                                | 2,040      | 1,940      | 1,129      | 2,726      | 2,608      |
| <b>Copper Pair Sw. Term.-Loop</b>    | 26,611,408 | 26,610,870 | 58,156,304 | 26,074,368 | 28,707,804 |
| <b>Fiber Cent. Ofc. Loop Termin.</b> | 18,640     | 26,504     | 38,494     | 55,481     | 71,762     |
| <b>DS-1 Term.- Cust. Prem. Fiber</b> | 1,410      | 4,455      | 5,984      | 7,941      | 14,619     |
| <b>DS-3 Term.- Cust. Prem. Fiber</b> | 523        | 2,031      | 3,825      | 4,436      | 4,556      |

*Please refer to text for notes and data qualifications*

**Table 9 (a): Bell Companies -- Switching System Data**

|   | <b>1991</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> |
|---|-------------|-------------|-------------|-------------|-------------|
| <b>Gross Plant Expenditures</b><br>(In Millions \$) | 14,502      | 14,629      | 14,683      | 14,667      | 15,436      |
| <b>Local Switches</b>                               | 9,829       | 9,905       | 9,912       | 9,861       | 9,883       |
| <b>Tandem Switches</b>                              | 304         | 315         | 318         | 314         | 313         |
| <b>Hosts</b>  | 1,263       | 1,343       | 1,411       | 1,426       | 1,498       |
| <b>Remotes (Stand Alone Only)</b>                   | 3,584       | 4,131       | 4,617       | 4,939       | 5,109       |
| <b>Total Switching Entities</b>                     | 9,957       | 10,069      | 10,083      | 10,021      | 10,050      |
| <b>Electromechanical</b>                            | 1,148       | 615         | 291         | 95          | 60          |
| <b>Analog Stored Pgm. Control</b>                   | 2,167       | 1,924       | 1,554       | 1,133       | 976         |
| <b>Digital Stored Pgm. Control</b>                  | 6,642       | 7,530       | 8,238       | 8,793       | 9,014       |
| <b>Total Access Lines (000)</b>                     | 107,387     | 109,994     | 113,369     | 117,313     | 122,229     |
| <b>Electromechanical Switches</b>                   | 1,876       | 717         | 264         | 115         | 63          |
| <b>Analog Stored Pgm Ctrl Sw.</b>                   | 53,450      | 48,952      | 41,912      | 33,175      | 29,031      |
| <b>Digital Stored Pgm Ctrl Sw.</b>                  | 52,061      | 60,325      | 71,193      | 84,023      | 93,135      |
| <b>Touch Tone Capable Switches</b>                  | 9,715       | 9,948       | 9,959       | 9,906       | 9,879       |
| <b>T. Tone Capable Access Lines</b>                 | 107,214     | 109,997     | 113,367     | 117,270     | 122,229     |
| <b>Equal Access Switches</b>                        | 8,601       | 9,292       | 9,697       | 9,933       | 9,977       |
| <b>Equal Access Lines (000)</b>                     | 105,413     | 109,006     | 112,992     | 117,266     | 122,210     |
|   | 0           | 0           | 0           | 0           | 0           |
| <b>Signal. Sys 7 Switch (SS7-394)</b>               | 1,248       | 4,246       | 6,003       | 8,109       | 8,960       |
| <b>SS7-394 Access Lines (000)</b>                   | 23,377      | 64,643      | 87,232      | 107,825     | 116,364     |
| <b>Signal. Sys 7 Switch (SS7-317)</b>               | 3,670       | 5,437       | 6,688       | 8,334       | 8,977       |
| <b>SS7-317 Access Lines (000)</b>                   | 57,327      | 77,102      | 92,492      | 109,585     | 116,568     |
| <b>ISDN Capable Switches</b>                        | 920         | 1,219       | 1,874       | 2,388       | 2,868       |
| <b>ISDN Access Line Capac. (000)</b>                | 20,567      | 28,375      | 39,875      | 56,818      | 80,159      |
| <b>ISDN Basic Rate Interf. Eq'pd</b>                | 289,292     | 468,667     | 554,820     | 727,983     | 925,865     |
| <b>ISDN Primary Rate Interf. Eq'pd</b>              | 1,653       | 2,672       | 4,912       | 14,120      | 34,012      |

Please refer to text for notes and data qualifications

**Table 9 (b): Bell Companies -- Transmission System Data**

|                                      | 1991        | 1992        | 1993        | 1994        | 1995        |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Total Sheath-Kilometers</b>       | 4,161,274   | 4,214,813   | 4,264,569   | 4,256,253   | 4,278,481   |
| Copper Sheath-Kilometers             | 3,955,622   | 3,965,405   | 3,976,100   | 3,934,242   | 3,922,402   |
| Fiber Sheath-Kilometers              | 196,791     | 238,405     | 280,017     | 314,661     | 348,909     |
| Other Sheath-Kilometers              | 8,861       | 11,003      | 8,452       | 7,350       | 7,170       |
| <b>Total Carrier Links</b>           | 3,283,956   | 3,570,147   | 4,020,454   | 4,494,544   | 5,688,380   |
| Copper Links                         | 1,048,545   | 869,052     | 803,035     | 569,428     | 486,608     |
| Fiber Links                          | 2,154,043   | 2,610,185   | 3,126,737   | 3,843,414   | 5,132,640   |
| Radio Links                          | 81,368      | 90,910      | 90,682      | 81,702      | 69,132      |
| <b>Total Circuit Links</b>           | 16,382,990  | 16,936,496  | 17,480,137  | 19,862,967  | 21,280,654  |
| Baseband Links                       | 1,324,771   | 905,946     | 630,460     | 488,510     | 367,786     |
| Analog Links                         | 66,571      | 28,956      | 16,135      | 7,470       | 4,918       |
| Digital Links                        | 14,991,648  | 16,001,594  | 16,833,542  | 19,366,987  | 20,907,950  |
| <b>Equipped Channels</b>             | 187,777,747 | 199,710,300 | 213,693,102 | 222,166,286 | 233,174,721 |
| Copper                               | 180,538,034 | 190,509,928 | 193,760,648 | 197,354,890 | 198,236,366 |
| Fiber                                | 7,234,047   | 9,199,377   | 19,929,357  | 24,808,191  | 34,937,148  |
| Other                                | 5,666       | 995         | 3,097       | 3,205       | 1,207       |
| <b>Working Channels</b>              | 118,654,347 | 120,847,403 | 123,696,676 | 130,699,087 | 136,230,813 |
| Copper                               | 114,046,814 | 114,609,436 | 115,221,604 | 119,422,417 | 122,975,272 |
| Fiber                                | 4,605,184   | 6,237,727   | 8,473,646   | 11,275,228  | 13,255,293  |
| Other                                | 2,349       | 240         | 1,426       | 1,442       | 248         |
| <b>Copper Pair Sw. Term.-Loop</b>    | 181,769,792 | 182,448,502 | 183,819,758 | 186,735,186 | 184,159,296 |
| <b>Fiber Cent. Ofc. Loop Termin.</b> | 259,058     | 450,209     | 560,159     | 678,984     | 823,726     |
| <b>DS-1 Term.- Cust. Prem. Fiber</b> | 73,731      | 102,303     | 139,865     | 176,294     | 207,421     |
| <b>DS-3 Term.- Cust. Prem. Fiber</b> | 8,128       | 12,793      | 12,432      | 15,527      | 17,276      |

Please refer to text for notes and data qualifications

**Table 10 (a): All Companies -- Switching System Data**

|   | 1991    | 1992    | 1993    | 1994    | 1995      |
|---|---------|---------|---------|---------|-----------|
| <b>Gross Plant Expenditures</b><br>(In Millions \$) | 17,286  | 17,290  | 17,302  | 17,438  | 18,056    |
| <b>Local Switches</b>                               | 16,251  | 16,502  | 16,643  | 16,014  | 16,154    |
| <b>Tandem Switches</b>                              | 463     | 477     | 476     | 457     | 470       |
| <b>Hosts</b>  | 2,000   | 2,267   | 2,366   | 2,275   | 2,382     |
| <b>Remotes (Stand Alone Only)</b>                   | 5,632   | 5,689   | 6,349   | 6,706   | 7,140     |
| <b>Total Switching Entities</b>                     | 16,398  | 16,700  | 16,852  | 16,192  | 16,341    |
| <b>Electromechanical</b>                            | 2,610   | 1,954   | 1,488   | 1,029   | 739       |
| <b>Analog Stored Pgm. Control</b>                   | 2,265   | 2,007   | 1,632   | 1,179   | 1,002     |
| <b>Digital Stored Pgm. Control</b>                  | 11,523  | 12,739  | 13,732  | 13,984  | 14,600    |
| <b>Total Access Lines (000)</b>                     | 123,020 | 125,775 | 129,644 | 133,377 | 138,871   |
| <b>Electromechanical Switches</b>                   | 3,310   | 1,977   | 1,348   | 912     | 596       |
| <b>Analog Stored Pgm Ctrl Sw.</b>                   | 54,838  | 49,982  | 42,746  | 33,683  | 29,409    |
| <b>Digital Stored Pgm Ctrl Sw.</b>                  | 64,872  | 73,816  | 85,550  | 98,782  | 108,866   |
| <b>Touch Tone Capable Switches</b>                  | 16,137  | 16,545  | 16,690  | 16,059  | 16,153    |
| <b>T. Tone Capable Access Lines</b>                 | 122,847 | 125,778 | 129,641 | 133,334 | 138,870   |
| <b>Equal Access Switches</b>                        | 11,607  | 14,222  | 15,096  | 15,054  | 15,599    |
| <b>Equal Access Lines (000)</b>                     | 118,624 | 123,192 | 128,061 | 132,456 | 138,324   |
| <b>Signal. Sys 7 Switch (SS7-394)</b>               | 1,248   | 5,745   | 8,037   | 10,359  | 11,890    |
| <b>SS7-394 Access Lines (000)</b>                   | 23,377  | 71,149  | 96,117  | 118,599 | 129,232   |
| <b>Signal. Sys 7 Switch (SS7-317)</b>               | 4,091   | 7,479   | 8,845   | 10,584  | 11,907    |
| <b>SS7-317 Access Lines (000)</b>                   | 62,199  | 86,175  | 102,207 | 120,359 | 129,436   |
| <b>ISDN Capable Switches</b>                        | 964     | 1,437   | 2,146   | 2,658   | 3,258     |
| <b>ISDN Access Line Capac. (000)</b>                | 21,297  | 29,774  | 41,970  | 61,821  | 86,408    |
| <b>ISDN Basic Rate Interf. Eq'pd</b>                | 298,176 | 491,430 | 585,561 | 790,995 | 1,017,191 |
| <b>ISDN Primary Rate Interf. Eq'pd</b>              | 1,730   | 3,147   | 5,808   | 15,526  | 36,715    |

*Please refer to text for notes and data qualifications*

**Table 10 (b): All Companies -- Transmission System Data**

|                                      | 1991        | 1992        | 1993        | 1994        | 1995        |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Total Sheath-Kilometers</b>       | 5,105,939   | 5,796,915   | 5,760,065   | 5,574,755   | 5,513,114   |
| Copper Sheath-Kilometers             | 4,851,928   | 5,225,096   | 5,123,807   | 5,186,283   | 5,089,767   |
| Fiber Sheath-Kilometers              | 245,150     | 290,498     | 349,366     | 381,122     | 416,177     |
| Other Sheath-Kilometers              | 8,861       | 281,321     | 286,892     | 7,350       | 7,170       |
| <b>Total Carrier Links</b>           | 3,495,813   | 3,916,671   | 4,431,861   | 4,994,465   | 6,294,759   |
| Copper Links                         | 1,137,181   | 985,148     | 920,535     | 688,360     | 605,367     |
| Fiber Links                          | 2,269,936   | 2,826,864   | 3,409,578   | 4,211,724   | 5,608,585   |
| Radio Links                          | 88,696      | 104,659     | 101,748     | 94,381      | 80,807      |
| <b>Total Circuit Links</b>           | 19,086,423  | 19,926,411  | 20,578,556  | 23,293,421  | 25,385,298  |
| Baseband Links                       | 1,463,701   | 968,452     | 691,027     | 547,345     | 423,490     |
| Analog Links                         | 87,492      | 37,080      | 22,815      | 12,206      | 8,647       |
| Digital Links                        | 17,535,230  | 18,920,879  | 19,864,714  | 22,733,870  | 24,953,161  |
| <b>Equipped Channels</b>             | 215,602,999 | 227,729,136 | 242,298,388 | 250,209,692 | 263,768,489 |
| Copper                               | 207,367,150 | 217,154,920 | 220,749,908 | 223,635,164 | 226,953,268 |
| Fiber                                | 8,227,643   | 10,569,994  | 21,536,406  | 26,566,276  | 36,809,056  |
| Other                                | 8,206       | 4,222       | 12,074      | 8,252       | 6,165       |
| <b>Working Channels</b>              | 136,482,323 | 139,617,411 | 142,369,540 | 149,508,407 | 155,980,545 |
| Copper                               | 131,199,676 | 132,456,116 | 132,779,536 | 137,058,735 | 141,452,264 |
| Fiber                                | 5,278,258   | 7,159,115   | 9,587,449   | 12,445,504  | 14,525,425  |
| Other                                | 4,389       | 2,180       | 2,555       | 4,168       | 2,856       |
| <b>Copper Pair Sw. Term.-Loop</b>    | 208,381,200 | 209,059,372 | 241,976,062 | 212,809,554 | 212,867,100 |
| <b>Fiber Cent. Ofc. Loop Termin.</b> | 277,698     | 476,713     | 598,653     | 734,465     | 895,488     |
| <b>DS-1 Term.- Cust. Prem. Fiber</b> | 75,141      | 106,758     | 145,849     | 184,235     | 222,040     |
| <b>DS-3 Term.- Cust. Prem. Fiber</b> | 8,651       | 14,824      | 16,257      | 19,963      | 21,832      |

*Please refer to text for notes and data qualifications*

## Appendix A

### ARMIS 43-07 Report -- Summarized items included in the report

The following items that are extracted from the raw data are contained in Tables 1(a) through 10(a). Row numbers refer to the source data files described in this appendix.

- |  |                         |
|--|-------------------------|
| 1. Gross Plant Expenditures --               | See Row 0540.           |
| 2. Local Switches --                         | See Row 0111.           |
| 3. Tandem Switches --                        | See Row 0112.           |
| 4. Hosts --                                  | See Row 0113.           |
| 5. Remotes (Stand Alone Only) --             | See Row 0114.           |
| 6. Switching Entities --                     | See Row 0110.           |
| 7. Access Lines Served --                    | See Row 0120.           |
| 8. Touch-Tone Capable Switches --            | See Row 0210.           |
| 9. Touch-Tone Capable Access Lines--         | See Row 0220.           |
| 10. Equal Access Switches --                 | See Row 0190.           |
| 11. Equal Access Lines -                     | See Row 0200.           |
| 12. Signalling System 7 Switches --          | See Rows 0234 and 0240. |
| 13. Signalling System 7 Access Lines --      | See Rows 0232 and 0236. |
| 14. ISDN Capable Switches --                 | See Row 0270.           |
| 15. ISDN Potential Access Line Capacity --   | See Row 0300.           |
| 16. ISDN Basic Rate Interfaces Equipped --   | See Row 0311.           |
| 17. ISDN Primary Rate Interfaces Equipped -- | See Row 0312.           |

The following items are contained in Tables 1 (b) through 10 (b).

- |   |                               |
|---|-------------------------------|
| 1. Total Sheath-Kilometers --                                   | See Row 0320.                 |
| 2. Total Carrier Links --                                       | See Rows 0351, 0362 and 0363. |
| 3. Total Circuit Links --                                       | See Rows 0331, 0332 and 0333. |
| 4. Equipped Channels --   | See Row 0420.                 |
| 5. Working Channels --  | See Row 0370.                 |
| 6. Copper Pair Main Frame Terminations in the Loop Plant--      | See Row 0470.                 |
| 7. Fiber Strand Central Office Terminations in the Loop Plant-- | See Row 0480.                 |
| 8. DS-1 Terminations on Customer Premise Fiber --               | See Row 0482.                 |
| 9. DS-3 Terminations on Customer Premise Fiber --               | See Row 0484.                 |

## **ARMIS 43-07 Report -- Row Definitions Associated with Raw Filed Data**

The terms switch, switching entity, and entity are used interchangeably in the following definitions. The terms access lines, lines, and lines in service are also used interchangeably.

### **Switching Entities -**

Switching entities are assemblies of equipment designed to establish connections between lines and trunks. Switching entities include access tandems, local, class 5 switching machines and any associated remotes; e.g., a host end office and its three associated remotes will be reported as four switching entities. There may be more than one switching entity per central office or wire center. Switching entities designed exclusively for operator services are not reported here.

### **Lines in Service -**

Access lines include all classifications of local exchange telephone service including, but not limited to: individual lines, party line access, PBX access, Centrex access, Coin access, Foreign exchange access and WATS access. Access lines, as defined herein, is a more inclusive term than billable access lines, as defined in the ARMIS 43-01 and 43-04 reports. See row instructions for rows 2090 through 2140 of the ARMIS 43-01 report and for 9010 of the ARMIS 43-04 report for the definition of billable access lines. This item is rounded to the nearest thousand.

Row 0110 - Total Switching Entities - The total number of local and access tandem switching entities. Remotes to be included in the total switching entities count are those described in the general definition of remote. A remote switching entity can generally be described as a switching entity that has no connection to the facilities network except through one other (host) switching entity. A remote switching entity shares the processing capabilities of the host switching system for certain control functions under the direction of the host central processor, and can be controlled remotely by the host over a pair of dedicated data links. The total number of switching entities is equal to the sum of rows 0130, 0150 and 0170. Tandem switching entities are used to connect local switching entities with local switching entities in other central offices. This report includes those tandems that are designed exclusively to establish connections between trunks. Since some switches are used for both local and access tandem switching, the sum of rows 0111 and 0112 may be greater than the amounts entered on this row. Since we are asking only for the number of remotes with stand alone capability, the total of rows 0113 and 0114 will be less than the totals entered on this row. For example, if there are 16 total switching entities, and there are 3 hosts and 7 remotes that have stand-alone capability, the sum of rows 0113 and 0114 would be less than the amount of total switching entities.

Row 0111 - Local Switches - The total number of switches used as local switches. This amount is equal to the sum of rows 132, 152 and 172.



Row 0112 - Access Tandems - The total number of switches with access tandem capability. This amount is equal to the sum of rows 134, 154 and 174.

Row 0113 - Hosts - A host is a switch serving one or more remotes.

Row 0114 - Remotes (Stand Alone Only) - A remote switching entity is defined under the definition for row 110 above. All types of remote switches are included with the switching entity counts on row 110. However, only those remote switching entities that are equipped to operate in a stand-alone fashion (i.e., able to operate when the host fails, or the data links to the host fail) to be able to provide more limited service, are reported on row 0114. Remote entities that are not within this description are not included on this row.

Row 0120 - Total Number Access Lines In Service - The total number of access lines in service. This amount is equal to the sum of rows 0140, 0160 and 0180. This item is rounded to the nearest thousand.

Type of Switch - Types of switches include Electro-Mechanical (E/M), e.g., Step-by-Step and Crossbar; Analog Stored Program Controlled (ASPC); and Digital Stored Program Controlled (DSPC).

Row 0130 - Total E/M Switches - The total number of local and tandem Electro-Mechanical switches. Since some switches are used for both local and tandem switching, the sum of rows 132 and 134 may be greater than the amounts entered on this row (see example, row 0110).

Row 0131 - Percent Total Switches - The ratio of Electro-Mechanical switches to total switches, in percent (row 130 divided by row 110). This item is rounded to 2 decimal places.

Row 0132 - E/M Local Switches - The total number of Electro-Mechanical switches used as local switches.

Row 0133 - Percent Local Switches - The ratio of Electro-Mechanical local switches to total local switches, in percent (row 0132 divided by row 0111). This item is rounded to 2 decimal places.

Row 0134 - E/M Tandems - The total number of Electro-Mechanical switches with tandem capability.

Row 0135 - Percent Total Tandems - The ratio of Electro-Mechanical tandems to total tandems, in percent (row 0134 divided by 0112). This item is rounded to 2 decimal places.

Row 140 - E/M Lines Served - The number of lines served by Electro-Mechanical switches. This item is rounded to the nearest thousand.

Row 0141 - Percent Total Lines - The ratio of lines served by Electro-Mechanical switches to total lines in service, in percent (row 0140 divided by row 0120). This item is rounded to 2 decimal places.

Row 0150 - Total ASPC Switches - The total number of local and tandem Analog Stored Program Controlled switches. Since some switches are used for both local and tandem switching, the sum of rows 152 and 154 may be greater than the amounts entered on this row (see example, row 0110).

Row 0151 - Percent Total Switches - The ratio of Analog Stored Program Controlled switches to total switches, in percent (row 0150 divided by row 0110). This item is rounded to 2 decimal places.

Row 0152 - ASPC Local Switches - The total number of Analog Stored Program Controlled switches used as local switches.

Row 0153 - Percent Local Switches - The ratio of Analog Stored Program Controlled switches to total local switches, in percent (row 0152 divided by row 0111). This item is rounded to 2 decimal places.

Row 0154 - ASPC Tandems - The total number of Analog Stored Program Controlled switches with tandem capability.

Row 0155 - Percent Total Tandems - The ratio of Analog Stored Program Controlled tandems to total tandems, in percent (row 0154 divided by row 0112). This item is rounded to 2 decimal places.

Row 0160 - ASPC Lines Served - The number of lines served by Analog Stored Program Controlled switches. This item is rounded to the nearest thousand.

Row 0161 - Percent Total Lines - The ratio of lines served by Analog Stored Program Controlled switches to total lines in service, in percent (row 160 divided by row 0120). This item is rounded to 2 decimal places.

Row 0170 - Total DSPC Switches - The total number of local and tandem Digital Stored Program Controlled switches. Since some switches are used for both local and tandem switching, the sum of rows 172 and 174 may be greater than the amounts entered on this row (see example, row 0110).

Row 0171 - Percent Total Switches - The ratio of Digital Stored Program Controlled switches to total switches, in percent (row 0170 divided by row 0110). This item is rounded to 2 decimal places.

Row 0172 - DSPC Local Switches - The total number of Digital Stored Program Controlled switches used as local switches.

Row 0173 - Percent Local Switches - The ratio of Digital Stored Program Controlled local switches to total local switches, in percent (row 0172 divided by row 0111). This item is rounded to 2 decimal places.

Row 0174 - DSPC Tandems - The total number of Digital Stored Program Controlled switches with tandem capability.

Row 175 - Percent Total Tandems - The ratio of Digital Stored Program Controlled tandems to total tandems, in percent (row 0174 divided by row 0112). This item is rounded to 2 decimal places.

Row 0180 - DSPC Lines Served - The number of lines served by Digital Stored Program Controlled switches. This item is rounded to the nearest thousand.

Row 0181 - Percent Total Lines - The ratio of lines served by Digital Stored Program Controlled switches to total lines in service, in percent (row 0180 divided by row 0120). This item is rounded to 2 decimal places.

Row 0190 - Switches Equipped for Equal Access - The number of switching entities equipped for equal access, Feature Group D service.

Row 0191 - Percent Total Switches - The ratio of switches equipped for equal access to total switches, in percent (row 0190 divided by row 0110). This item is rounded to 2 decimal places.

Row 0200 - Access Lines with Equal Access - The number of access lines served by switches equipped for equal access. This item is rounded to the nearest thousand.

Row 0201 - Percent Total Lines - The ratio of lines served by switches equipped for equal access to total lines in service, in percent (row 0200 divided by row 0120). This item is rounded to 2 decimal places.

Row 0210 - Touch-Tone Capable Switches - The number of switching entities equipped for Touch-Tone.

Row 0211 - Percent Total Switches - The ratio of switches equipped for Touch-Tone to total switches, in percent (row 0210 divided by row 0110). This item is rounded to 2 decimal places.

Row 0220 - Access Lines with Touch-Tone Capability - The number of access lines served by switches equipped for Touch-Tone. This item is rounded to the nearest thousand.

Row 0221 - Percent Total Lines - The ratio of access lines served by switches equipped for Touch-Tone to total access lines, in percent (row 0220 divided by row 0120). This item is rounded to 2 decimal places.

Row 0230 - Total Switches Equipped with SS7-394 - The total number of local and tandem switches equipped with SS7-394.

Row 0231 - Percent Total Switches - The ratio of switches equipped with SS7-394 to total switches, in percent (row 0230 divided by row 0110). This item is rounded to 2 decimal places.

Row 0232 - Lines with Access to SS7-394 - The number of lines in service that are served by switches equipped with SS7-394. This item is rounded to the nearest thousand.

Row 0233 - Percent Total Access Lines - The ratio of lines owned by entities equipped with SS7-394 to total access lines, in percent (row 0232 divided by row 0120). This item is rounded to 2 decimal places.

Row 0234 - Total Switches Equipped with SS7-317 - The total number of switches equipped with SS7-317.

Row 0235 - Percent Total Switches - The ratio of switches equipped with SS7-317 to total switches, in percent (row 0234 divided by row 0110). This item is rounded to 2 decimal places.

Row 0236 - Lines with Access to SS7-317 - The number of lines served by switches equipped with SS7-317. This item is rounded to the nearest thousand.

Row 0237 - Percent Total Access Lines - The ratio of access lines served by switches equipped with SS7-317 to total access lines, in percent (row 0236 divided by row 0120). This item is rounded to 2 decimal places.

Row 0240 - Local Switches Equipped with SS7-394 - The number of switches used as local switches that are equipped with SS7-394.

Row 0241 - Percent Total Local Switches - The ratio of local switches equipped with SS7-394 to total local switches, in percent (row 0240 divided by row 0111). This item is rounded to 2 decimal places.

Row 0246 - Local Switches Equipped with SS7-317 - The total number of local switches equipped with SS7-317.

Row 0247 - Percent Total Local Switches - The ratio of local switches equipped with SS7-317 to total local switches, in percent (row 0246 divided by row 0111). This item is rounded to 2 decimal places.

Row 0250 - Tandems Equipped with SS7-394 - The total number of switches with tandem capability that are equipped with SS7-394.

Row 0251 - Percent Total Tandems - The ratio of tandem switches equipped with SS7-394 to total tandems, in percent (row 0250 divided by row 0112). This item is rounded to 2 decimal places.

Row 0256 - Tandems Equipped with SS7-317 - The total number of switches with tandem capability that are equipped with SS7-317.

Row 0257 - Percent Total Tandems - The ratio of tandem switches equipped with SS7-317 to total tandems, in percent (row 0256 divided by row 0112). This item is rounded to 2 decimal places.

Row 0270 - Total Switches Equipped with ISDN - The total number of local and tandem switches that are equipped with ISDN. Since some switches are used for both local and tandem switching, the sum of rows 0280 and 0290 may be greater than the amounts entered on this row (see example, row 0110).

Row 0271 - Percent Total Switches - The ratio of switches equipped with ISDN to total switches, in percent (row 0270 divided by row 0110). This item is rounded to 2 decimal places.

Row 0280 - Local Switches Equipped with ISDN - The number of switches used as local switches that are equipped with ISDN.

Row 0281 - Percent Total Local Switches - The ratio of local switches equipped with ISDN to total local switches, in percent (row 0280 divided by row 0111). This item is rounded to 2 decimal places.

Row 0290 - Tandems Equipped with ISDN - The number of switches with tandem capability that are equipped with ISDN.

Row 0291 - Percent Total Tandems - The ratio of tandems equipped with ISDN to total tandems, in percent (row 0290 divided by row 0112). This item is rounded to 2 decimal places.

Row 0300 - Lines with Access to ISDN - The number of lines served by switches equipped with ISDN. This item is rounded to the nearest thousand and does not include lines that could be connected (moved) to switches equipped with ISDN.

Row 0301 - Percent Total Lines - The ratio of lines served by switches equipped with ISDN to total lines in service, in percent (row 0300 divided by row 0120). This item is rounded to 2 decimal places and does not include lines that could be connected (moved) to switches equipped with ISDN.

Row 0311 - Basic Rate ISDN (BRI) Interfaces Equipped - Basic rate ISDN consists of two Bearer Channels at 64 Kilobits/second and one Delta Channel at 16 kilobits/second. Quantities reflected are the number of (2B+D) BRI interfaces equipped. This amount represents actual interfaces equipped with ISDN.

Row 0312 - Primary Rate ISDN (PRI) Interfaces Equipped - Equivalent primary rate ISDN interfaces are generally configured as 23 Bearer Channels and one Delta Channel all at 64 kilobits/second. Quantities reflected are the number of equivalent PRI (23B+D) interfaces equipped, excluding interoffice PRI interfaces. This amount represents actual interfaces equipped with ISDN.

Row 0320 - Total Sheath-Kilometers - Sheath-kilometers include loop, interoffice and toll sheath kilometers. A sheath-kilometer may include multiple (derived) lines and circuits. This item is rounded to 1 decimal place.

Row 0321 - Copper - The number of sheath-kilometers of twisted pair copper. This item is rounded to 1 decimal place.

Row 0322 - Fiber - The number of sheath-kilometers of fiber. This item is rounded to 1 decimal place.

Row 0323 - Other - The number of sheath-kilometers of aluminum, coaxial, and all other sheath-kilometers not included in rows 0321 or 0322. This item is rounded to 1 decimal place.

Row 0330 - Total Circuit Links - Links that exist between points A and B where voice frequency/DSO cross-connects and/or analog/digital conversion (collectively referenced here as conversion) occurs. Circuit links are counted as follows: If there is a circuit between A and B with no intermediate conversions, one circuit link represents each voice frequency equivalent channel. If there is a circuit between A and B with one intermediate conversion, two circuit links represent each voice frequency equivalent channel. Similarly, two intermediate conversions between A and B would result in three circuit links per voice equivalent channel.

Row 0331 - Baseband - The number of baseband circuit links.

Row 0332 - Analog CXR - The number of analog CXR circuit links, converted to voice frequency equivalents.

Row 0333 - Digital CXR - The number of digital CXR circuit links, converted to voice-grade equivalents.

**Carrier Links - A Carrier Technology Segment (carrier link) is defined as a segment of the interoffice network disaggregated by technology (i.e., analog, digital) and by medium (i.e., copper, fiber, or radio). Each segment between central offices or other interoffice network nodes is defined as a unique carrier technology segment. For these purposes, a central office is an interoffice network node. Other interoffice network nodes are defined as any points in the interoffice network where a cross-connect occurs or where a change in technology or medium occurs. Counts are on an analog group or DS-1 equivalent basis.**

**Row 0350 - Analog Carrier Links - The number of analog carrier links. This amount equals the sum of rows 0351 and 0352.**

**Row 0351 - Copper - The number of copper analog carrier links.**

**Row 0352 - Radio - The number of radio analog carrier links.**

**Row 0360 - Digital Carrier Links - The number of digital carrier links. This amount equals the sum of rows 0361, 0362 and 0363.**

**Row 0361 - Copper - The number of copper digital carrier links.**

**Row 0362 - Radio - The number of radio digital carrier links.**

**Row 0363 - Fiber - The number of fiber digital carrier links.**

**Loop Plant - Central Office Terminations - These facilities are from the central office to the end users. Local loop includes analog type services only. It excludes ISDN.**

**Row 0370 - Total Working Channels - Working Channels are on a 4 kHz bandwidth (single voice channel) basis. Working channels originating from a remote switch are treated the same as if the channels originated in the host central office. All reports of working channels are counted on this 4 kHz basis for purposes of this report. This amount equals the sum of rows 0380, 0390 and 0410.**

**Row 0380 - Copper - The number of copper working channels. This amount equals the sum of rows 0381, 0382 and 0383.**

**Row 0381 - Baseband - The number of baseband copper working channels, converted to voice frequency equivalents.**

**Row 0382 - Analog CXR - The number of analog carrier copper working channels, converted to voice frequency equivalents.**

**Row 0383 - Digital CXR - The number of digital carrier copper working channels, converted to voice frequency equivalents.**

Row 390 - Fiber Digital CXR - The number of fiber digital carrier working channels, converted to voice frequency equivalents.

Row 0410 - Other - The number of other working channels.

Row 0420 - Total Equipped Channels - Equipped channels are on a 4 kHz bandwidth (single voice channel) basis. Equipped channels originating from a remote switch are treated the same as if the channels originated in the host central office. This amount equals the sum of rows 0430, 0440 and 0460.

Row 0430 - Copper - The number of copper equipped channels. This amount equals the sum of rows 0431, 0432 and 0433.

Row 0431 - Baseband - The number of baseband copper equipped channels.

Row 0432 - Analog CXR - The number of analog CXR (carrier) copper equipped channels.

Row 0433 - Digital CXR - The number of digital CXR (carrier) copper equipped channels.

Row 0440 - Fiber Digital CXR - The number of fiber digital CXR (carrier) equipped channels.

Row 0460 - Other - The number of other equipped channels.

Row 0470 - Copper Pairs Terminated at the Main Frame (Loop Plant Only) - The number of copper pairs terminated at the main frame.

Row 0480 - Fiber Strands Terminated in the Central Office (Loop Plant Only) - The number of individual fiber strands terminated in central offices.

Row 0481 - Fiber Terminated at Customer's Premises at the DS-0 Rate - The number of individual customer services provided over fiber strands terminated at the customer's premises, other than trials, at the DS-0 rate.

Row 0482 - Fiber Terminated at Customer's Premises at the DS-1 Rate - The number of individual customer services provided over fiber strands terminated at the customer's premises, other than trials, at the DS-1 rate.

Row 0483 - Fiber Terminated at Customer's Premises at the DS-2 Rate - The number of individual customer services provided over fiber strands terminated at the customer's premises, other than trials, at the DS-2 rate.



Row 0484 - Fiber Terminated at the Customer's Premises at the DS-3 Rate or Higher -The number of individual customer services provided over fiber strands terminated at the customer's premises, other than trials, at the DS-3 rate or higher.

Row 0510 - Total - The data for the total number of end offices in the appropriate columns.

Row 0511 - End Offices/Electro-Mechanical Switches - The data for the total number of end offices equipped with electro-mechanical switches in the appropriate columns.

Row 0512 - End Offices/SPC Analog Switches - The data for the total number of end offices equipped with SPC analog switches in the appropriate columns.

Row 0513 - End Offices/Digital Switches - The data for the total number of end offices equipped with Digital Switches in the appropriate columns.

Row 0520 - Total Access Lines - The percent of the network represented by the total number of access lines. (Rounded to 2 decimal places.)

Row 0521 - Access Lines/Electro-Mechanical Switches - The percent of the network represented by the total number of access lines equipped with electro-mechanical switches. This item is rounded to 2 decimal places.

Row 0522 - Access Lines/SPC Analog Switches - The percent of the network represented by the total number of access lines equipped with SPC analog switches. This item is rounded to 2 decimal places.

Row 0523 - Access Lines/ Digital Switches - The percent of the network represented by the total number of access lines equipped with Digital Switches. This item is rounded to 2 decimal places.

Row 0530 - Total Access Lines in Service - The number of all access lines in service. (Rounded to the nearest thousand.)

Row 0531 - Access Line Gain - A quantity calculated by subtracting outward movement from inward movement.

Row 0540 - Total Gross Capital Expenditures - The dollar amount of gross additions to accounts 2110, 2210, 2220, 2230, 2310, 2410, 2680 and 2690 during the current reporting period. See also ARMIS Report 43-02, table B-1, row 260, column (ac). Gross capital expenditures are consistent with Form M and ARMIS. (Rounded to the nearest thousand. )

**ARMIS 43-07 Report -- Column Definitions Associated with Raw Filed Data**

Table I

Column (a) - Total Study Area - The sum of MSA and non-MSA data representing the entire study area. A study area usually consists of a telephone company's service territory in a given state, although telephone companies occasionally have more than one study area in a particular state. The facilities in the total study area are entered in this column. This amount should equal column (b) plus column (c).

Column (b) - within MSA - Data for all MSAs served within the study area. MSAs, or Metropolitan Statistical Areas, are designated by the Office of Management and Budget in a list following each decennial census. An MSA includes at least one city with a minimum population of 50,000 and its surrounding area, or a Census Bureau defined urbanized area of at least 50,000 population located in one or more counties that qualify and whose population is at least 100,000. See, 45 Fed. Reg. 956 (1980). The facilities within any MSA in the study area are entered in this column.

Column (c) - non-MSA - Data for all areas which lie outside of any MSA. The facilities in the study area which are located outside of any MSA are entered in this column.

Table II

Column (d) - Total Study Area - See description for Table I, column (a).

Table III

Call Set-Up Time - For the purposes of infrastructure reporting, call set-up time is defined as "the time between dialing the last digit and the response or acknowledgement 'winkback', or the acknowledgement of signal receipt from the interexchange carrier."

Column(e) - End Offices - The total number of end offices appropriate for each row. The access line counts in this column should be consistent with the access line data provided in Table I of the Infrastructure Report. The number of end offices used in the Bellcore studies that developed the underlying data are footnoted.

Average Call Set-Up Time - The average amount of call set-up time for all end-office types.

Direct - Direct access from the end office to the interexchange carrier point of presence (POP).

Column (f) - SS7-394 - The average call set-up time, or the percent of network represented, as appropriate, for direct access from end offices using SS7-394.

Column (g) - MF - The average call set-up time, or the percent of the network represented, as appropriate, for direct access from end offices using multifrequency signalling.

Via Access Tandem - End Offices routing calls through a switch having tandem capability.

Column (h) - SS7-394 - The average call set-up time, or the percent of the network represented, as appropriate, for end office routing calls through tandem switches using SS7-394.

Column (i) - MF - The average call set-up time, or percent of the network represented, as appropriate, for end offices routing calls through tandem switches using multifrequency signalling.

Column (j) - Mixed - The average call set-up time, or percent of the network represented, as appropriate, for end offices using multifrequency signalling, routing calls through an access tandem switch using SS7-394 signalling .

#### Table IV

Column (k) - Total Study Area - See description for Table I, column (a).

**Appendix B:**

**Raw Data Version Numbers Used in the Tables**

|                    | <b>1991</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> |
|--------------------|-------------|-------------|-------------|-------------|-------------|
| Ameritech          | 1           | 2           | 1           | 1           | 1           |
| Bell Atlantic      | 1           | 2           | 3           | 2           | 1           |
| BellSouth          | 2           | 1           | 1           | 1           | 1           |
| NYNEX              | 2           | 1           | 2           | 3           | 3           |
| Pacific Telesis    | 4           | 3           | 3           | 2           | 2           |
| Southwestern (SBC) | 2           | 3           | 2           | 1           | 1           |
| US West            | 1           | 1           | 1           | 1           | 1           |
| GTE                | 4           | 2           | 1           | 4           | 1           |