BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition	)	
To Reduce Intrastate Switched Network	)	
Access Rates In A Revenue Neutral	)	DOCKET No.: 050693-TL
Manner Pursuant to Section 364.164,	)	FILED: Sept. 29, 2005
Florida Statutes	)	
	)	

ALLTEL FLORIDA, INC.

Exhibits to Direct Testimony

of

David C. Blessing

Volume I

DCB-0 to DCB-10

(public version)

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David C. Blessing

Volume I

DCB-0 to DCB-10

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Dkt. No ______________
D. Blessing Ex. No. ___ (DCB-0)
Composite Exhibit – Tables

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition)
To Reduce Intrastate Switched Network)
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Manner Pursuant to Section 364.164,)
Florida Statutes)
)

Exhibit DCB-0

Table 1: Comparison of ALLTEL's Rates v. Costs		
	1R Local Service	Intrastate Switched Access
Avg. Current Rate	$ 10.49	$ 0.110222
Avg. Proposed Rate	$ 16.49	$ 0.057362
BCPM 3.1 Defaults	$ 66.37[1]	
Embedded Cost	$ 41.32[2]	
HAI 5.0a Cost	$ 48.44	$ 0.03243

[1] See In re: *Determination of the cost of basic local telecommunications service, pursuant to Section 364.025,Florida Statues*, Docket No. 980696-TP, Order No. PSC-99-0068-FOF-TP p. 241. See Exhibit ___ (DCB-6).

[2] Id. p. 241. Note that embedded cost is "per Commission" which uses the small LECs' methodology and the Commission's adjustments.

Table 2: Distribution of Household Income in Florida					
Band	**Household Income**		**# of Households**	**% of Total House- holds**	**Telephone as a % of Annual Income[3]**
1	$ 1 to $ 9,999		606,995	9.6%	0.7%[4]
2	$ 10,000 to $ 14,999		427,050	6.7%	1.6%
3	$ 15,000 to $ 24,999		918,455	14.5%	1.0%
4	$ 25,000 to $ 34,999		901,454	14.2%	0.7%
5	$ 35,000 to $ 49,999		1,103,554	17.4%	0.5%
6	$ 50,000 to $ 74,999		1,170,569	18.5%	0.3%
7	$ 75,000 to $ 99,999		552,379	8.7%	0.2%
8	$ 100,000 to $ 149,999		398,860	6.3%	0.2%
9	$ 150,000 to $ 199,999		114,432	1.8%	0.1%
10	$ 200,000 and higher		147,373	2.3%	0.1%
	Total		**6,341,121**		
	Median Income	**38,819**			0.5%
	Poverty Level	**$ 12,172**			1.6%
	Household @ 100% Poverty		**792,640**	**12.5%**	

[3] The percentage is based on an annual expenditure of $197.88 divided by the average Household income in each band. For example, the average household income in Band 1 is $5,000 ($1 + $9,999 divided by 2 = $5,000). Thus, $197.88 (less $162.00 for Lifeline) divided by $5,000 equals 0.7%.

[4] 0.7% after the Lifeline discount of $13.50 per month is applied to the customer's bill.

Table 3 – Price of Basic Phone Service if it Had Increased at the Same Rate as the Annual Change in the Consumer Price Index

Table 3: Telephone Rates Adjusted for Inflation		
Year	**CPI[5]**	**Average Rate**
		$ 10.49
1984	4.3%	$ 10.94
1985	3.6%	$ 11.33
1986	1.9%	$ 11.55
1987	3.6%	$ 11.97
1988	4.1%	$ 12.46
1989	4.8%	$ 13.05
1990	5.4%	$ 13.76
1991	4.2%	$ 14.34
1992	3.0%	$ 14.77
1993	3.0%	$ 15.21
1994	2.6%	$ 15.61
1995	2.8%	$ 16.04
1996	3.0%	$ 16.52
1997	2.3%	$ 16.90
1998	1.6%	$ 17.17
1999	2.2%	$ 17.55
2000	3.4%	$ 18.15
2001	2.8%	$ 18.66
2002	1.6%	$ 18.96
2003	2.3%	$ 19.39
2004	2.7%	**$ 19.92**
Cumulative Increase	**90%**	$ 9.43

[5] CPI - All Urban Consumers - All Items - Year to Year Average Change in CPI; U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C. 20212; Consumer Price Index, All Urban Consumers – (CPI-U), U.S. City Average – All Items. See Exhibit ___ (DCB-25).

Table 4: Comparison of Price of Communications Services in Florida

Table 4: Penetration of Communication Services				
	Price	**Subscribers**	**Households**	**Penetration**
Population (2004)		17,397,161	6,749,036	
Wireline Telephones	$16.49	11,418,566	6,384,588	94.6%
Cellular Telephones	$50.64	11,916,615		68.5%
Cable TV	$38.23		5,069,700	74.1%
Internet	$39.95		1,653,537	24.5%

Table 5: A Comparison of the Price of Communications Services in Florida as a Percentage of Household Income.

Table 5: Affordability of Telecommunications Services Based on Income								
Band	**Household Income**			**% of Total**	**ALLTEL's Proposed Rate**	**Wireless Calling Plan**	**Basic Cable TV**	**Broadband Internet Service**
Monthly					$ 16.49	$ 50.64	$ 38.23	$ 39.95
Annually					$ 197	$ 608	$ 459	$ 479
1	$ 1	to	$ 9,999	9.6%	0.7%[6]	12.2%	9.2%	9.6%
2	$ 10,000	to	$ 14,999	6.7%	1.6%	4.9%	3.7%	3.8%
3	$ 15,000	to	$ 24,999	14.5%	1.0%	3.0%	2.3%	2.4%
4	$ 25,000	to	$ 34,999	14.2%	0.7%	2.0%	1.5%	1.6%
5	$ 35,000	to	$ 49,999	17.4%	0.5%	1.4%	1.1%	1.1%
6	$ 50,000	to	$ 74,999	18.5%	0.3%	1.0%	0.7%	0.8%
7	$ 75,000	to	$ 99,999	8.7%	0.2%	0.7%	0.5%	0.5%
8	$ 100,000	to	$149,999	6.3%	0.2%	0.5%	0.4%	0.4%
9	$ 150,000	to	$199,999	1.8%	0.1%	0.3%	0.3%	0.3%
10	$ 200,000	and higher		2.3%	0.1%	0.3%	0.2%	0.2%
	Median Income		$ 38,819		0.5%	1.6%	1.2%	1.2%
	Poverty Level		$ 12,172		1.6%	5.0%	3.8%	3.9%

[6] 0.7% after the Lifeline discount of $13.50 per month is applied to the customer's bill.

Table 6: Local Residential Rates Adjusted to Real (2004) Dollars

State & ILEC	Inflation Adjusted Price	Year Rate Approved	Approved Rate
Florida – ALLTEL	$ 19.92	1984	$ 10.49
Alabama - BellSouth	$ 20.80	1995	$ 16.30
California – GTE	$ 22.01	1995	$ 17.25
California – PacBell	$ 14.36	1995	$ 11.25
Florida – BellSouth	$ 15.65	2003	$ 14.90
Florida – Verizon	$ 17.64	2003	$ 16.79
Florida – Sprint	$ 19.27	2003	$ 18.34
Puerto Rico	$ 29.45	1982	$ 14.58
Kansas – SBC	$ 15.66	2000	$ 13.80
Kansas – Sprint	$ 13.62	2000	$ 12.00
Kentucky – BellSouth	$ 20.88	2000	$ 18.40
Michigan – Independents	$ 15.37	1998	$ 13.05
Montana - Qwest	$ 24.01	1998	$ 20.38
Nebraska - Qwest	$ 20.62	1998	$ 17.50
Utah – Qwest	$ 16.95	1997	$ 14.06
Wyoming - Qwest	$ 26.79	1999	$ 23.10
Average Rate	**$ 19.56**		

Table 7

COMPARISON OF REBALANCED LOCAL RATES

	Verizon	BellSouth	Sprint	ALLTEL
Former Rates				
Lowest	$ 9.72	$ 7.57	$ 7.63	$9.64
Highest	$ 12.06	$ 11.04	$ 11.48	$12.67
Average	$ 10.89	$ 9.31	$ 9.56	$10.49
Rate Increase[7]	$ 4.73	$ 3.86	$ 6.86	$6.00
New Rates				
Lowest	$ 14.45	$ 11.43	$ 14.49	$15.64
Highest	$ 16.79	$ 14.90	$ 18.34	$18.67
Average	$ 15.62	$ 13.17	$ 16.42	$16.49

[7] See Large LEC Rebalancing Order, pp. 36 – 37.

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Dkt. No ____________
D. Blessing Ex. No. ___ (DCB-1)
U.S. Telephone Subscribership-2003

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition)
To Reduce Intrastate Switched Network)
Access Rates In A Revenue Neutral)
Manner Pursuant to Section 364.164,)
Florida Statutes)
________________________________)

Exhibit DCB-1

Belinfante, Alexander; *Telephone Subscribership in the United States (Data Through March 2003)*; Industry Analysis and Technology Division, Wireline Competition Bureau, Federal Communications Commission; Table 2; Released November 2003.

NEWS

Federal Communications Commission
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FOR IMMEDIATE RELEASE
November 4, 2003

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FCC RELEASES NEW TELEPHONE SUBSCRIBERSHIP REPORT

Washington, D.C. – The Federal Communications Commission (FCC) today released its latest report on telephone subscribership levels in the United States. The report presents subscribership statistics based on the Current Population Survey (CPS) conducted by the Census Bureau in March 2003. Statistics from that survey estimated that 95.5% of all households in the United States had telephone service. The report also shows subscribership levels by state, income level, race, age, household size, and employment status.

Statistical Summary

In March 2003:

- The telephone subscribership penetration rate in the U.S. was 95.5%. It is up 0.2% from the last report, for November 2002.
- The telephone penetration rate was 80.5% for households with annual incomes below $5,000, while the rate for households with incomes over $75,000 was 99.3%.
- By state, the penetration rates ranged from a low of 90.5% in Alabama to a high of 98.5% in Maryland.
- Households headed by whites had a penetration rate of 96.2%, while those headed by blacks had a rate of 91.0% and those headed by Hispanics had a rate of 92.3%.
- By age, penetration rates ranged from 90.4% for households headed by a person under 25 to 97.3% for households headed by a person between 60 and 64.
- Households with one person had a penetration rate of 92.6%, compared to a rate of 97.0% for households with four or five persons.
- The penetration rate for unemployed adults was 92.5%, while the rate for employed adults was 96.7%.

This report is updated three times a year and is available in the FCC's Reference Information Center, Courtyard Level, 445 12th Street SW, Washington, DC 20554. Call Qualex International at (202) 863-2893 to purchase a copy. This report can also be downloaded from the FCC-State Link Internet site at < http://www.fcc.gov/wcb/iatd/stats.html >.

-FCC-

Wireline Competition Bureau contact: Alexander Belinfante at (202) 418-0944;
TTY (202) 418-0484.

TELEPHONE SUBSCRIBERSHIP IN THE UNITED STATES

(Data Through March 2003)

ALEXANDER BELINFANTE

Industry Analysis and Technology Division
Wireline Competition Bureau
Federal Communications Commission

Released: November 2003

This report is available for reference in the FCC's Reference Information Center, Courtyard Level, 445 12th Street SW, Washington, DC. 20554. Call Qualex International at (202) 863-2893 to purchase a copy. The report can also be downloaded from the **FCC-State Link** Internet site at <http://www.fcc.gov/wcb/iatd/stats.html>.

Telephone Subscribership in the United States
(Data through March 2003)

Executive Summary

This is the Federal Communications Commission's (FCC's) report on telephone subscribership in the United States, presenting subscribership statistics based on the Current Population Survey (CPS) conducted by the Census Bureau in March 2003. Statistics from that survey estimated that 95.5% of all households in the United States had telephone service. The report also shows subscribership levels by state, income level, race, age, household size, and employment status.

Statistical Findings

In March 2003:

- The telephone subscribership penetration rate in the U.S. was 95.5%. It is up 0.2% from the last report, for November 2002.[1]
- The telephone penetration rate was 80.5% for households with annual incomes below $5,000, while the rate for households with incomes over $75,000 was 99.3%.
- By state, the penetration rates ranged from a low of 90.5% in Alabama to a high of 98.5% in Maryland.
- Households headed by whites had a penetration rate of 96.2%, while those headed by blacks had a rate of 91.0% and those headed by Hispanics had a rate of 92.3%.
- By age, penetration rates ranged from 90.4% for households headed by a person under 25 to 97.3% for households headed by a person between 60 and 64.
- Households with one person had a penetration rate of 92.6%, compared to a rate of 97.0% for households with four or five persons.
- The penetration rate for unemployed adults was 92.5%, while the rate for employed adults was 96.7%.

Background

The number and percentage of households that have telephone service represent the most fundamental measures of the extent of universal service. Continuing analysis of telephone penetration statistics allows us to examine the aggregate effects of Commission actions on households' decisions to maintain, acquire or drop telephone service. This report presents comprehensive data on telephone penetration statistics collected by the Bureau of the Census under contract with the FCC. Along with telephone penetration statistics for the United States and each of the states from November 1983 to March 2003, data are provided on penetration based on various demographic characteristics.

The most widely used measure of telephone subscribership is the percentage of households with telephone service, sometimes called a measure of telephone penetration. Prior to the 1980s, precise measurements of telephone subscribership received little attention. Traditionally, telephone penetration was measured by dividing the number of residential telephone lines by the number of households. Measures of penetration based on the number of residential lines, however, became subject to a large margin of error as more and more

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1 Industry Analysis and Technology Division, Wireline Competition Bureau, Federal Communications Commission, *Telephone Subscribership in the United States* (April 10, 2003).

households added second telephone lines and more consumers acquired second homes. By 1980, the traditional measure of penetration (residential lines divided by the number of households) reached 96%, while the number of households reporting that they had telephones in the 1980 census was 92.9%.

Recognizing the need for more precise periodic measurements of subscribership, the Commission requested that the Census Bureau include questions on telephone availability as part of its CPS, which monitors demographic trends between the decennial censuses. This survey is a staggered panel survey in which the people residing at particular addresses are included in the survey for four consecutive months in one year and the same four months in the following year. Use of the CPS has several advantages: it is conducted every month by an independent and expert agency; the sample is large; and the questions are consistent. Thus, changes in the results can be compared over time with a reasonable degree of confidence.

Unfortunately, the results of the CPS cannot be directly compared with the penetration figures contained in the 1980, 1990, and 2000 decennial censuses. This is due to differences in sampling techniques and survey methodologies and because of differences in the context in which the questions were asked. For example, the 2000 decennial census reported 97.6% of all occupied housing units in the United States had telephone service available, whereas the CPS data showed a penetration rate of 94.6% of households for March 2000. This difference is statistically significant and appears to indicate that the CPS value may be on the low side and the decennial census value may be on the high side, with the most probable value lying somewhere in between.

The specific questions asked in the CPS are: "Is there a telephone in this house/apartment?"[2] And, if the answer to the first question is "no," this is followed up with, "Is there a telephone elsewhere on which people in this household can be called?" If the answer to the first question is "yes," the household is counted as having a telephone "in unit." If the answer to either the first or second question is "yes," the household is counted as having a telephone "available." The "in unit" data are reported in all of the tables and charts in this report. The "available" data are also reported in Tables 3 through 12 and Charts 1 and 8.

Although the survey is conducted every month, not all questions are asked every month. The telephone questions are asked once every four months, in the month that a household is first included in the sample and in the month that the household re-enters the sample a year later. Since the sample is staggered, the reported information for any given month actually reflects responses over the preceding four months. Aggregated summaries of the responses are reported to the Commission, based on the surveys conducted through March, July, and November of each year.

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2 The questions are intended to be neutral as to whether the household has wireline or wireless phones. For the November 2001 survey, households were also asked which type(s) of phones they had. While the response rate was not sufficient for a complete reporting of the results of this follow-up question, 1.2% of the households indicated that they had only wireless phones. 5.9% of the households failed to answer this question. The CPS no longer asks this follow-up question.

The CPS data are based on a nationwide sample of about 50 to 60 thousand households in the 50 states and the District of Columbia. (The CPS does not cover outlying areas that are not states, such as Puerto Rico, Guam, American Samoa, the Virgin Islands, and the Northern Mariana Islands.) Because a sample is used, the estimates are subject to sampling error. For the nationwide totals, changes in telephone penetration between consecutive reports of less than 0.4% may be due to sampling error and cannot be regarded as statistically significant. As explained below, when comparing the same month in two consecutive years, changes of less than or equal to 0.3% are not statistically significant. When comparing annual averages, changes of less than or equal to 0.2% are not statistically significant. The annual averages are the average of the three surveys of the year in question. For individual states or other subgroups of the U.S. population, the amount of sampling variability is much greater, because the sample sizes are smaller. This will require larger changes to yield statistical significance at the same confidence level.

The data in this report are not seasonally adjusted. After adjusting for the trend over time, there is an average increase of 0.2% between November and March, followed by an average decrease of less than 0.1% between March and July and an average decrease of more than 0.1% between July and November. The change from November to March is just above the threshold of statistical significance.

Results and Statistical Analysis

Census Bureau figures for March 2003, the most recent data available, show that the percentage of households subscribing to telephone service is 95.5%. This is unchanged from March 2002. This level matches the highest recorded penetration level for households included in the CPS.

This report includes figures showing subscribership percentages by state, by the head of the household's age and race, by household size, by income, and, for adult individuals, by labor force status. The March 2003 data show that 96.2% of adult individuals in the civilian non-institutionalized population have a telephone in their household. This figure is unchanged from March 2002. This level matches the highest recorded penetration level for individuals included in the CPS.

This report contains twelve tables and eight charts presenting penetration statistics for various geographic and demographic characteristics. The charts and the first two tables present summaries of the available information. Tables 3 through 7 present more detailed information. In these tables, only the annual averages are included for the years 1984 through 1999. March, July, and November data for those years are available in previous subscribership reports or Monitoring Reports in CC Docket Nos. 87-339 or 98-202. Tables 8 through 12 provide information necessary to determine the statistical significance of changes in the penetration rates over time.

Table 1 summarizes the telephone penetration for the United States, combining information on the number of households with the penetration rates.

Chart 1 graphically depicts the nationwide penetration rates for households over time.

Table 2 summarizes the telephone penetration rates by state, showing the rates for November 1983 and March 2003, the change between those two months, and an indication as to whether the change is statistically significant. The statistical significance of a change is determined not only by the magnitude of that change, but also by the sizes of the samples used to estimate the change.

Chart 2 depicts the states with March 2003 penetration rates (as shown in Table 2) more than 1% below the national average, within 1% of the national average, or more than 1% above the national average.

Chart 3 depicts changes in household penetration rates by state (as shown in Table 2) between the November 1983 and March 2003 rates. States with statistically significant increases or decreases are shown, along with other states with increases or decreases.

Chart 4 depicts the relationship between telephone penetration and household income, using March 2003 penetration rates for all households and for households headed by white, black, and Hispanic persons. It is based on data in Table 4.

Chart 5 depicts the relationship between telephone penetration and household size, using March 2003 penetration rates for all households and for households headed by white, black, and Hispanic persons. It is based on data in Table 5.

Chart 6 depicts the relationship between telephone penetration and the head of the household's age, using March 2003 penetration rates for all households and for households headed by white, black, and Hispanic persons. It is based on data in Table 6.

Chart 7 depicts the relationship between telephone penetration and labor force status for civilian non-institutionalized adults, using March 2003 penetration rates for all adults and for white, black, and Hispanic adults. It is based on data in Table 7.

Chart 8 graphically depicts the nationwide penetration rates for civilian non-institutionalized adults over time. It is also based on data in Table 7.

Table 3 shows the CPS responses for the United States and for each state beginning with November 1983. Because the CPS began collecting this data only in 1983, comparable values are not available prior to November 1983. For each of the surveys, the column headed "Unit" indicates the percentage of households for which there is a telephone in the housing unit. The column headed "Avail." indicates the percentage of households which have telephone service available for incoming calls, either in the housing unit or elsewhere (such as at work or at a neighbor's home).

Table 4 shows the nationwide penetration rates for households by income and the race of the head of the household. It shows a strong relationship between income and penetration. Caution should be used in comparing these figures over time, because these income levels are not adjusted for inflation. Thus, the same nominal income level at two points in time will reflect different real incomes in terms of purchasing power.[3] Also, the income categories have changed over time due to the changing value of the dollar.

Table 5 shows the nationwide penetration rates for households by the size of the household and the race of the head of the household. It shows that penetration is higher for households of 2 to 5 people than it is for single-person households or those with 6 or more people.

Table 6 shows the nationwide penetration rates for households by the age and race of the head of the household. It shows that the penetration rate is lowest for young and non-white households.

Table 7 shows the nationwide penetration rates for all persons that are at least 15 years old in the civilian non-institutionalized population by their race and employment status. Since this table is for individual adults rather than households, the total penetration rates are different from those in the previous tables. It shows that penetration is lowest among the unemployed.

Tables 8 through 12 present the critical values at the 95% confidence level for testing the statistical significance of changes in penetration rates over time in the earlier tables. These critical values are relevant because changes less than or equal to the values shown are likely to be due to sampling error and thus cannot be regarded as demonstrating that a change in telephone penetration has occurred. In some cases, these critical values are very large because the sample sizes are very small for these subcategories, rendering the changes in estimated penetration rates unreliable. Because there is an overlap of half of the sample from year to year, but no overlap in the sample between surveys that are four months apart, annual changes are less subject to variations in sampling error. Consequently, the critical values should be multiplied by 0.8 when making a comparison for the same month in two consecutive years. When comparing the annual averages, the critical values should be multiplied by 0.5774, since these averages are based on three surveys and hence have a lower standard error. When comparing annual averages of two consecutive years, the critical values should be multiplied by .46, taking into account both of the above factors.

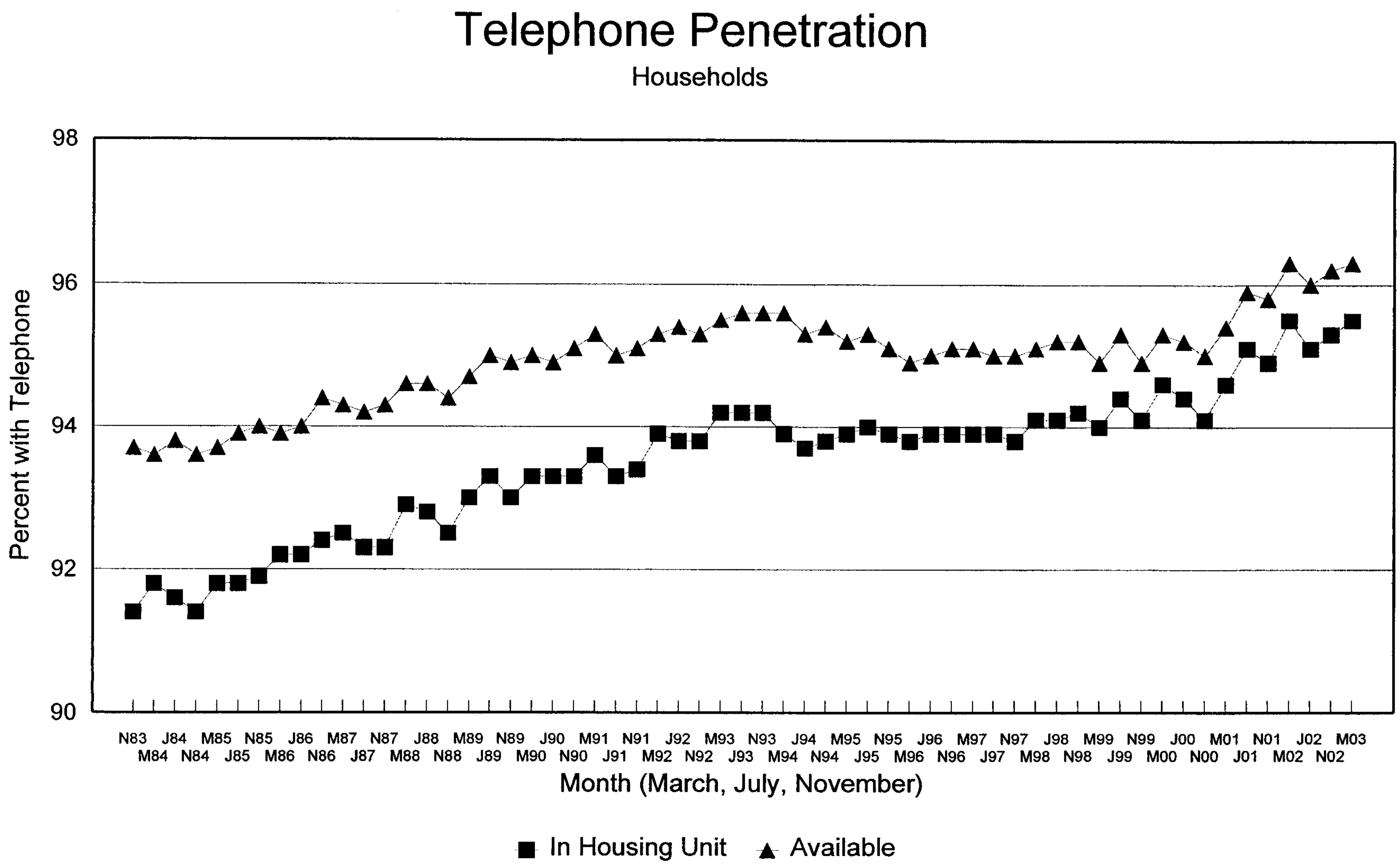
3 Our publication *Telephone Penetration by Income by State* (last published April 23, 2002) makes adjustments for inflation, making comparisons over time more appropriate.

Table 1
Household Telephone Subscribership in the United States

Date	Households (millions)	Households with Telephones (millions)	Percentage with Telephones	Households without Telephones (millions)	Percentage without Telephones
November 1983	85.8	78.4	91.4%	7.4	8.6%
March 1984	86.0	78.9	91.8%	7.1	8.2%
July 1984	86.6	79.3	91.6%	7.3	8.4%
November 1984	87.4	79.9	91.4%	7.5	8.6%
March 1985	87.4	80.2	91.8%	7.2	8.2%
July 1985	88.2	81.0	91.8%	7.2	8.2%
November 1985	88.8	81.6	91.9%	7.2	8.1%
March 1986	89.0	82.1	92.2%	6.9	7.8%
July 1986	89.5	82.5	92.2%	7.0	7.8%
November 1986	89.9	83.1	92.4%	6.8	7.6%
March 1987	90.2	83.4	92.5%	6.8	7.5%
July 1987	90.7	83.7	92.3%	7.0	7.7%
November 1987	91.3	84.3	92.3%	7.0	7.7%
March 1988	91.8	85.3	92.9%	6.5	7.1%
July 1988	92.4	85.7	92.8%	6.7	7.2%
November 1988	92.6	85.7	92.5%	6.9	7.5%
March 1989	93.6	87.0	93.0%	6.6	7.0%
July 1989	93.8	87.5	93.3%	6.3	6.7%
November 1989	93.9	87.3	93.0%	6.6	7.0%
March 1990	94.2	87.9	93.3%	6.3	6.7%
July 1990	94.8	88.4	93.3%	6.4	6.7%
November 1990	94.7	88.4	93.3%	6.3	6.7%
March 1991	95.3	89.2	93.6%	6.1	6.4%
July 1991	95.5	89.1	93.3%	6.4	6.7%
November 1991	95.7	89.4	93.4%	6.3	6.6%
March 1992	96.6	90.7	93.9%	5.9	6.1%
July 1992	96.6	90.6	93.8%	6.0	6.2%
November 1992	97.0	91.0	93.8%	6.0	6.2%
March 1993	97.3	91.6	94.2%	5.7	5.8%
July 1993	97.9	92.2	94.2%	5.7	5.8%
November 1993	98.8	93.0	94.2%	5.8	5.8%
March 1994	98.1	92.1	93.9%	6.0	6.1%
July 1994	98.6	92.4	93.7%	6.2	6.3%
November 1994	99.8	93.7	93.8%	6.2	6.2%
March 1995	99.9	93.8	93.9%	6.1	6.1%
July 1995	100.0	94.0	94.0%	6.0	6.0%
November 1995	100.4	94.2	93.9%	6.2	6.1%
March 1996	100.6	94.4	93.8%	6.2	6.2%
July 1996	101.2	95.0	93.9%	6.1	6.1%
November 1996	101.3	95.1	93.9%	6.2	6.1%
March 1997	102.0	95.8	93.9%	6.2	6.1%
July 1997	102.3	96.1	93.9%	6.2	6.1%
November 1997	102.8	96.5	93.8%	6.3	6.2%
March 1998	103.4	97.4	94.1%	6.1	5.9%
July 1998	103.4	97.3	94.1%	6.1	5.9%
November 1998	104.1	98.0	94.2%	6.1	5.8%
March 1999	104.8	98.5	94.0%	6.3	6.0%
July 1999	105.1	99.2	94.4%	5.9	5.6%
November 1999	105.4	99.1	94.1%	6.3	5.9%
March 2000	105.3	99.6	94.6%	5.7	5.4%
July 2000	105.8	99.8	94.4%	5.9	5.6%
November 2000	106.5	100.2	94.1%	6.3	5.9%
March 2001	107.0	101.1	94.6%	5.8	5.4%
July 2001	106.9	101.7	95.1%	5.2	4.9%
November 2001	107.7	102.2	94.9%	5.5	5.1%
March 2002	108.3	103.4	95.5%	4.8	4.5%
July 2002	108.5	103.2	95.1%	5.3	4.9%
November 2002	109.0	104.0	95.3%	5.1	4.7%
March 2003	112.1	107.1	95.5%	5.0	4.5%

Note: Details may not appear to add to totals due to rounding.

Chart 1



Telephone Penetration
Households
Percent with Telephone
98
96
94
92
90
N83 J84 M85 N85 J86 M87 N87 J88 M89 N89 J90 M91 N91 J92 M93 N93 J94 M95 N95 J96 M97 N97 J98 M99 N99 J00 M01 N01 J02 M03
M84 N84 J85 M86 N86 J87 M88 N88 J89 M90 N90 J91 M92 N92 J93 M94 N94 J95 M96 N96 J97 M98 N98 J99 M00 N00 J01 M02 N02
Month (March, July, November)
In Housing Unit
Available

Table 2
Telephone Penetration by State
(Percentage of Households with Telephone Service)

State	November 1983	March 2003	Change
Alabama	87.9 %	90.5 %	2.6 %
Alaska	83.8	96.8	13.0 *
Arizona	88.8	95.6	6.8 *
Arkansas	88.2	93.0	4.8 *
California	91.7	97.2	5.5 *
Colorado	94.4	97.0	2.6 *
Connecticut	95.5	97.6	2.1
Delaware	95.0	96.9	1.9
District of Columbia	94.7	95.1	0.4
Florida	85.5	95.0	9.5 *
Georgia	88.9	95.2	6.3 *
Hawaii	94.6	98.0	3.4 *
Idaho	89.5	94.8	5.3 *
Illinois	95.0	92.4	-2.6 †
Indiana	90.3	93.8	3.5 *
Iowa	95.4	97.0	1.6
Kansas	94.9	96.3	1.4
Kentucky	86.9	94.0	7.1 *
Louisiana	88.9	93.4	4.5 *
Maine	90.7	98.0	7.3 *
Maryland	96.3	98.5	2.2
Massachusetts	94.3	97.1	2.8 *
Michigan	93.8	95.2	1.4
Minnesota	96.4	96.6	0.3
Mississippi	82.4	91.3	8.9 *
Missouri	92.1	97.0	4.9 *
Montana	92.8	94.2	1.4
Nebraska	94.0	96.5	2.5 *
Nevada	89.4	94.9	5.5 *
New Hampshire	95.0	97.5	2.6
New Jersey	94.1	96.1	2.0
New Mexico	85.3	93.0	7.7 *
New York	90.8	95.3	4.5 *
North Carolina	89.3	94.4	5.1 *
North Dakota	95.1	94.4	-0.7
Ohio	92.2	96.6	4.4 *
Oklahoma	91.5	92.7	1.2
Oregon	91.2	96.7	5.5 *
Pennsylvania	95.1	97.1	2.0 *
Rhode Island	93.3	97.4	4.1 *
South Carolina	81.8	93.6	11.8 *
South Dakota	92.7	94.8	2.1
Tennessee	87.6	94.3	6.7 *
Texas	89.0	94.8	5.8 *
Utah	90.3	97.7	7.4 *
Vermont	92.7	96.4	3.7 *
Virginia	93.1	95.9	2.8
Washington	92.5	97.0	4.6 *
West Virginia	88.1	94.9	6.8 *
Wisconsin	94.8	96.3	1.5
Wyoming	89.7	93.8	4.1 *
Total United States	91.4	95.5	4.1 *

* Increase is statistically significant at the 95% confidence level.
† Decrease is statistically significant at the 95% confidence level.
Differences may not appear to equal changes due to rounding.

Chart 2

March 2003 Telephone Penetration

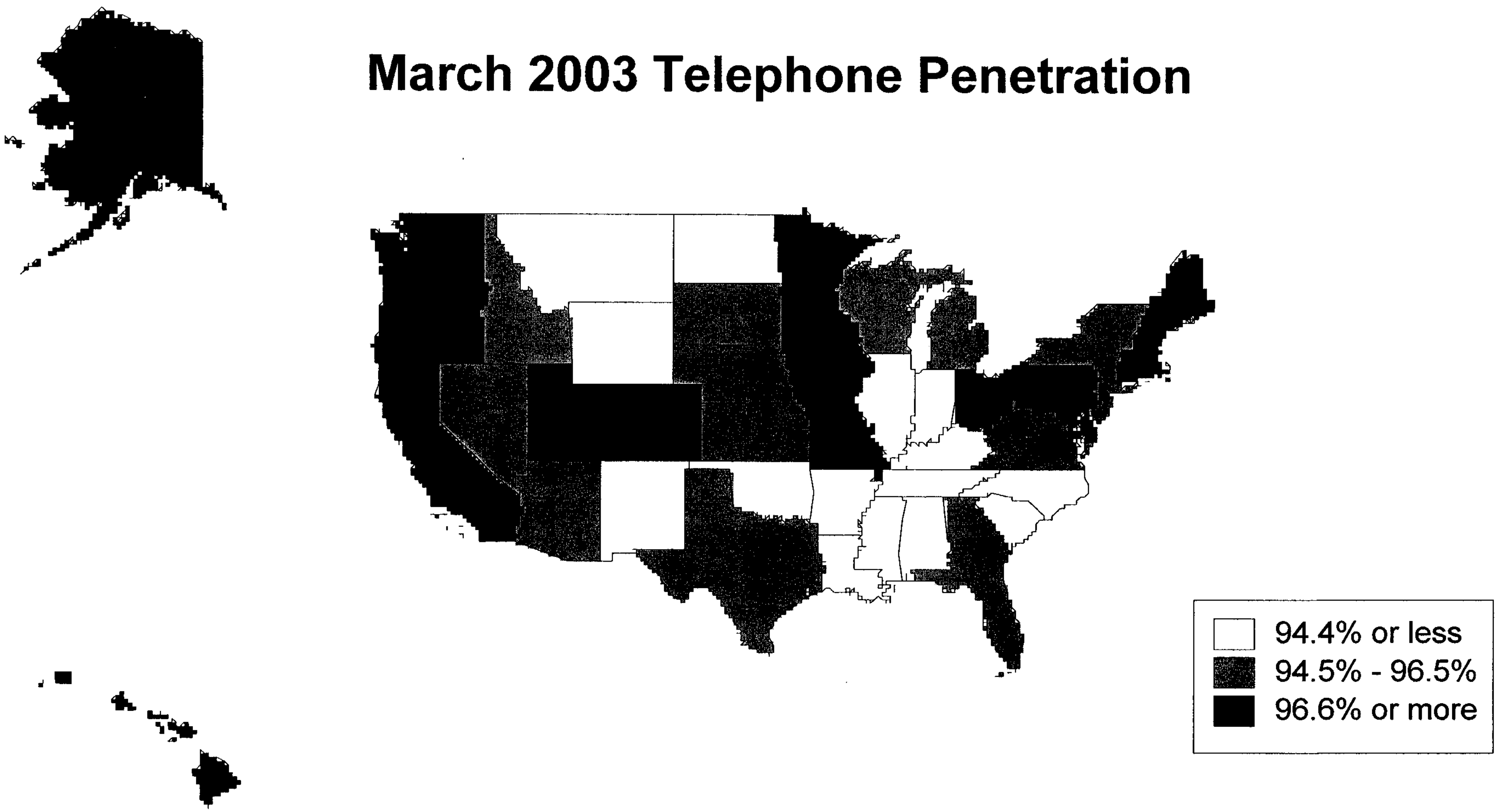


Chart 3

11/83 - 11/02 Penetration Changes

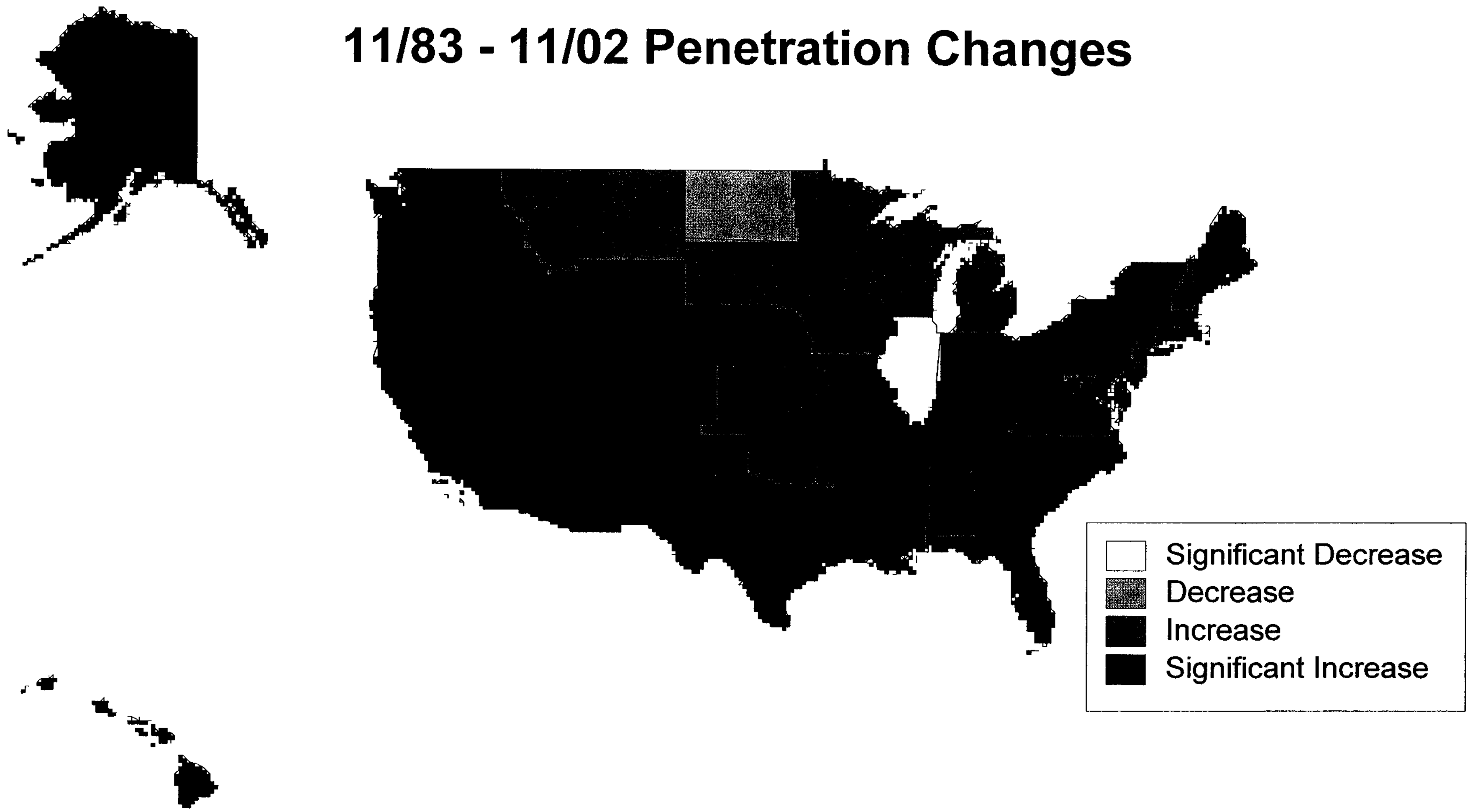
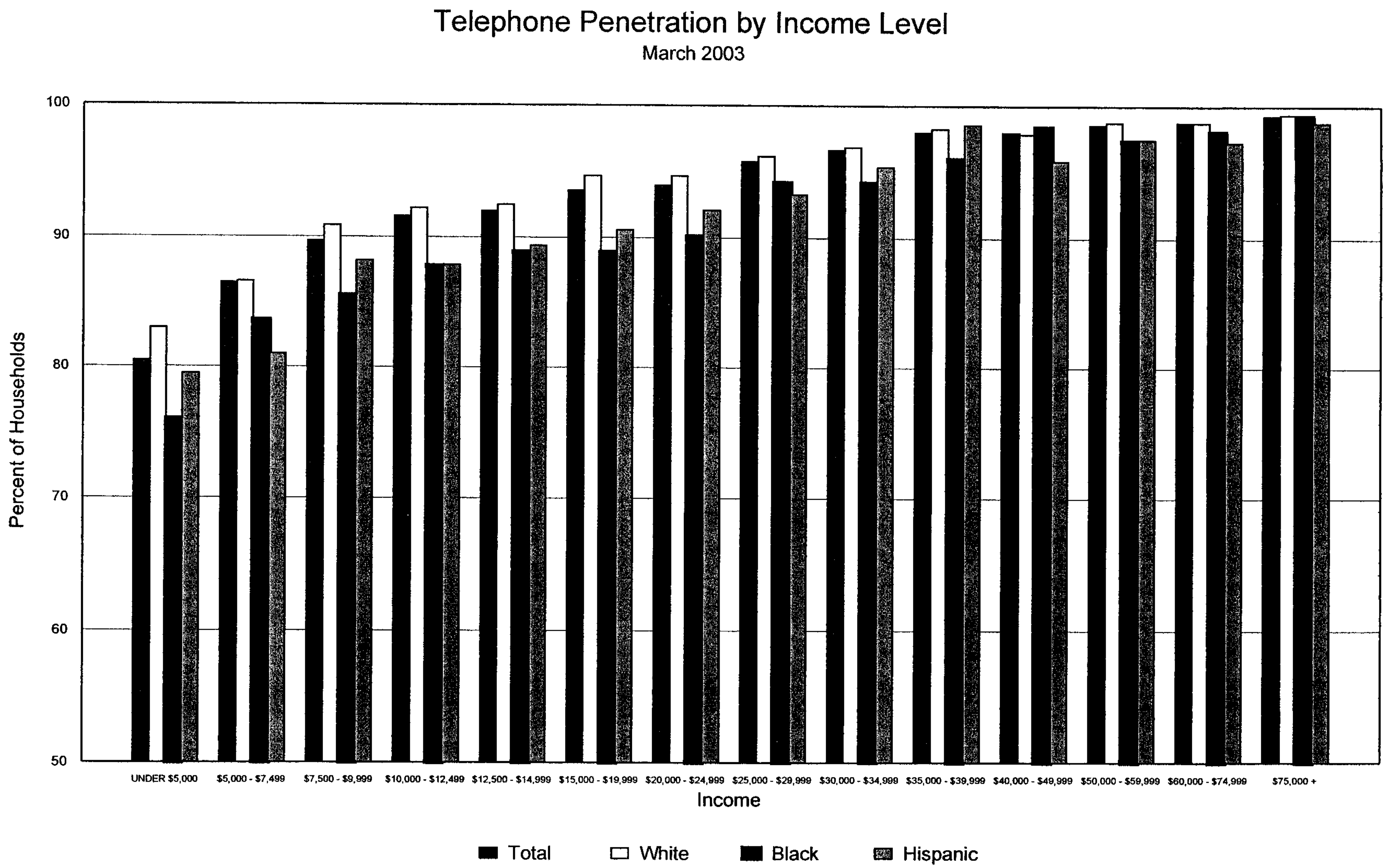


Chart 4



Telephone Penetration by Income Level
March 2003
100
90
80
70
60
50
Percent of Households
UNDER $5,000
$5,000 - $7,499
$7,500 - $9,999
$10,000 - $12,499
$12,500 - $14,999
$15,000 - $19,999
$20,000 - $24,999
$25,000 - $29,999
$30,000 - $34,999
$35,000 - $39,999
$40,000 - $49,999
$50,000 - $59,999
$60,000 - $74,999
$75,000 +
Income
Total
White
Black
Hispanic

Chart 5

Telephone Penetration by Household Size

March 2003

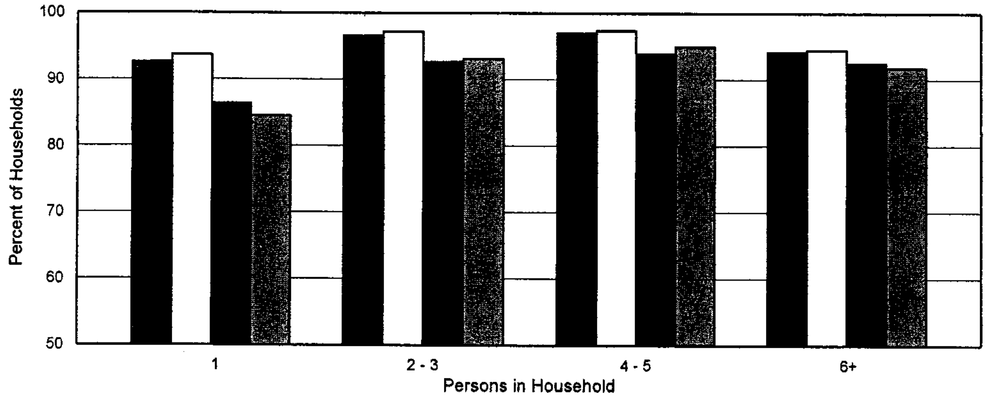


Chart 6

Telephone Penetration by Householder's Age

March 2003

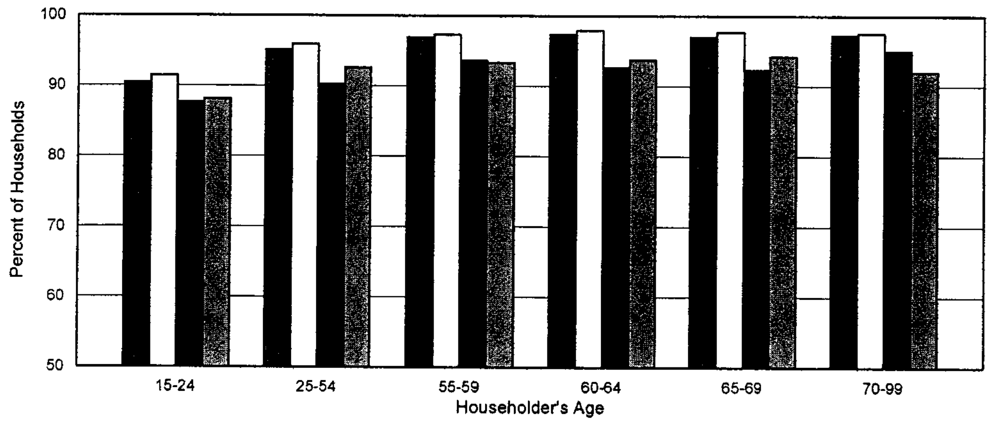


Chart 7

Telephone Penetration by Labor Force Status

March 2003

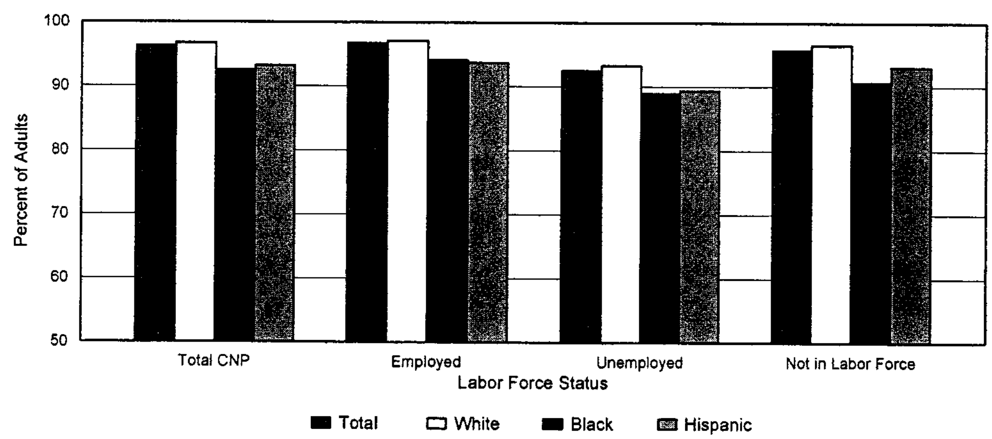


Chart 8

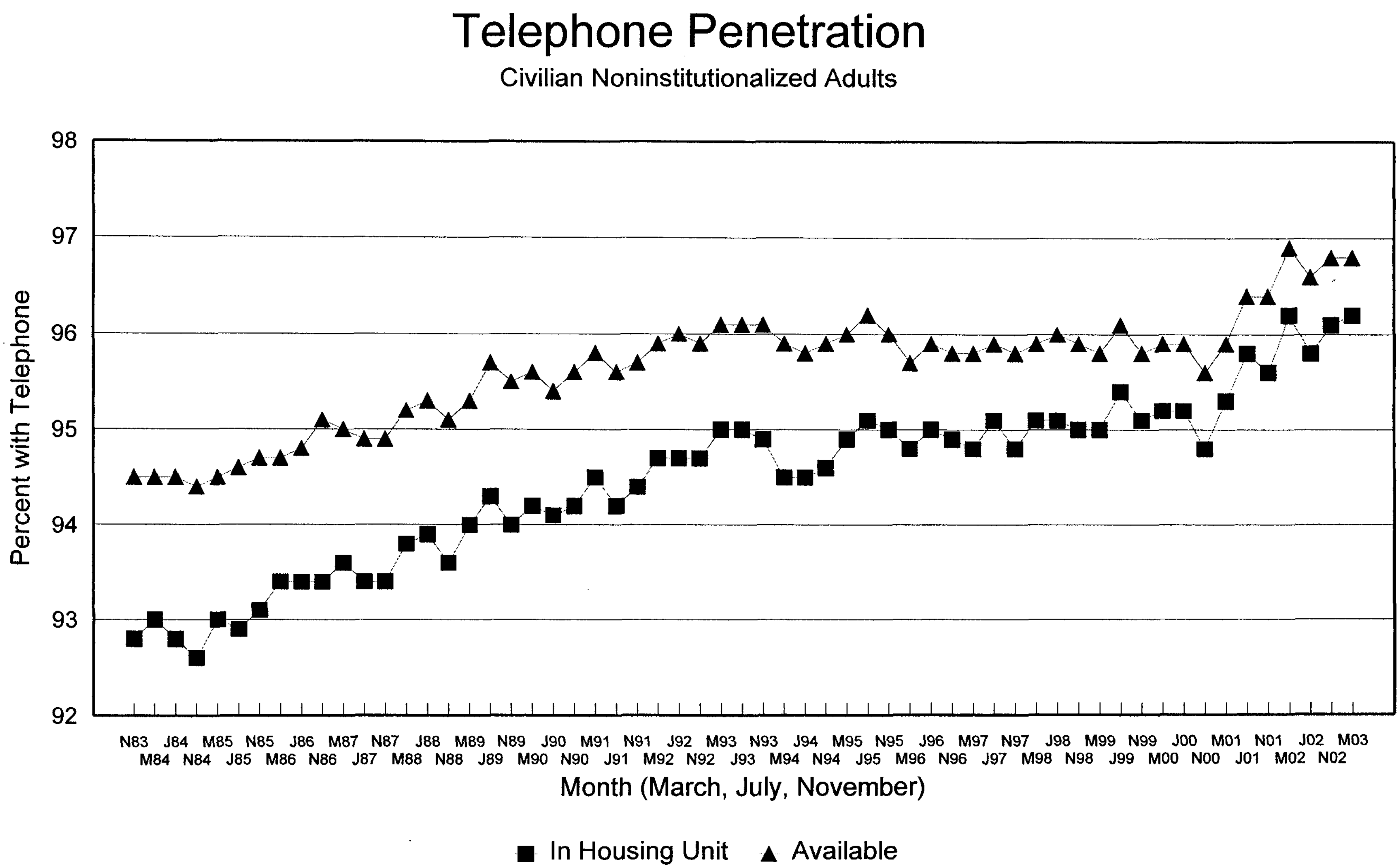

Telephone Penetration
Civilian Noninstitutionalized Adults
98
97
96
95
94
93
92
Percent with Telephone
N83 J84 M85 N85 J86 M87 N87 J88 M89 N89 J90 M91 N91 J92 M93 N93 J94 M95 N95 J96 M97 N97 J98 M99 N99 J00 M01 N01 J02 M03
M84 N84 J85 M86 N86 J87 M88 N88 J89 M90 N90 J91 M92 N92 J93 M94 N94 J95 M96 N96 J97 M98 N98 J99 M00 N00 J01 M02 N02
Month (March, July, November)
In Housing Unit
Available

Table 3
Percentage of Households with a Telephone by State

	1983 NOVEMBER		1984 ANNUAL AVERAGE		1985 ANNUAL AVERAGE		1986 ANNUAL AVERAGE	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
UNITED STATES	91.4	93.7	91.6	93.7	91.8	93.9	92.3	94.1
ALABAMA	87.9	90.2	88.4	90.5	89.1	91.0	88.7	90.4
ALASKA	83.8	88.8	86.5	89.0	87.1	89.5	86.4	88.9
ARIZONA	88.8	90.7	86.9	89.4	87.3	89.6	89.4	90.9
ARKANSAS	88.2	91.4	86.6	90.6	85.9	89.9	86.4	90.4
CALIFORNIA	91.7	93.5	92.5	93.8	92.9	94.1	93.0	94.0
COLORADO	94.4	96.5	93.2	95.4	94.3	96.2	94.1	96.0
CONNECTICUT	95.5	98.4	95.5	97.0	96.2	97.6	97.0	97.9
DELAWARE	95.0	96.6	94.3	95.7	94.8	96.2	94.7	96.3
DISTRICT OF COLUMBIA	94.7	95.6	94.9	96.3	93.6	95.2	92.2	94.0
FLORIDA	85.5	89.9	88.7	91.3	89.6	91.7	90.0	92.5
GEORGIA	88.9	92.1	86.2	89.1	87.6	89.7	88.4	91.0
HAWAII	94.6	96.4	93.5	94.9	93.0	95.0	92.2	94.4
IDAHO	89.5	92.2	90.7	91.7	91.8	93.1	91.5	93.1
ILLINOIS	95.0	95.9	94.2	95.8	93.7	95.3	93.6	95.2
INDIANA	90.3	93.5	91.6	93.6	92.3	94.7	92.2	94.3
IOWA	95.4	97.2	96.2	97.4	95.1	96.4	95.7	96.5
KANSAS	94.9	96.7	94.3	95.8	94.4	96.4	94.6	96.1
KENTUCKY	86.9	90.9	88.1	91.0	87.4	91.1	86.2	90.6
LOUISIANA	88.9	93.3	89.7	92.7	90.3	93.6	88.7	91.9
MAINE	90.7	93.1	93.4	95.3	94.0	95.6	93.4	95.4
MARYLAND	96.3	96.7	95.7	96.5	95.5	96.7	95.7	96.7
MASSACHUSETTS	94.3	95.9	95.9	96.9	95.2	96.3	96.4	97.1
MICHIGAN	93.8	94.9	92.8	94.5	92.9	94.2	93.4	94.5
MINNESOTA	96.4	97.5	95.8	97.1	96.4	97.4	96.2	97.2
MISSISSIPPI	82.4	89.1	82.4	87.5	80.9	87.6	80.1	87.3
MISSOURI	92.1	94.1	91.5	93.7	92.5	94.8	93.4	94.9
MONTANA	92.8	94.5	91.0	94.0	91.4	93.9	90.9	93.7
NEBRASKA	94.0	95.3	95.7	96.8	95.3	96.6	95.6	96.8
NEVADA	89.4	91.9	90.4	92.8	91.8	93.8	92.4	93.7
NEW HAMPSHIRE	95.0	96.9	94.3	95.8	93.2	94.6	94.0	95.0
NEW JERSEY	94.1	95.1	94.8	96.1	94.9	96.2	94.9	96.1
NEW MEXICO	85.3	90.9	82.0	87.0	84.1	88.2	85.1	89.1
NEW YORK	90.8	92.2	91.8	93.6	92.1	93.6	93.2	94.3
NORTH CAROLINA	89.3	92.9	88.3	91.9	89.4	92.4	90.2	92.5
NORTH DAKOTA	95.1	97.3	94.6	96.8	95.3	96.7	96.1	97.0
OHIO	92.2	93.9	92.4	94.4	92.2	94.5	93.1	94.4
OKLAHOMA	91.5	93.7	90.3	92.5	88.8	91.7	90.4	93.0
OREGON	91.2	93.5	90.6	92.3	90.3	92.1	92.7	94.3
PENNSYLVANIA	95.1	97.1	94.9	96.5	95.3	96.6	96.3	97.4
RHODE ISLAND	93.3	94.6	93.6	94.6	94.0	95.1	95.9	96.8
SOUTH CAROLINA	81.8	84.9	83.7	87.7	86.8	90.5	86.3	90.6
SOUTH DAKOTA	92.7	95.0	93.2	94.9	92.6	94.5	92.6	94.2
TENNESSEE	87.6	92.6	88.5	92.0	89.3	92.6	89.6	93.6
TEXAS	89.0	92.6	88.4	91.6	88.1	91.6	88.9	91.9
UTAH	90.3	92.2	92.5	94.2	93.9	95.1	93.0	93.9
VERMONT	92.7	94.3	92.3	94.0	92.9	94.1	93.8	95.6
VIRGINIA	93.1	94.7	93.1	95.1	91.7	93.8	92.1	94.1
WASHINGTON	92.5	93.7	93.0	94.4	94.7	96.2	94.6	96.3
WEST VIRGINIA	88.1	91.1	87.7	91.8	87.6	91.7	88.2	91.9
WISCONSIN	94.8	96.1	95.2	96.6	94.1	95.4	95.1	95.9
WYOMING	89.7	93.3	89.9	92.8	93.4	94.9	92.1	95.1

Table 3
Percentage of Households with a Telephone by State

	1987 ANNUAL AVERAGE		1988 ANNUAL AVERAGE		1989 ANNUAL AVERAGE		1990 ANNUAL AVERAGE	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
UNITED STATES	92.4	94.2	92.7	94.5	93.1	94.9	93.3	95.0
ALABAMA	87.5	89.6	87.3	89.6	89.0	91.3	89.5	91.1
ALASKA	87.8	90.2	87.6	89.9	86.8	89.9	89.3	92.6
ARIZONA	88.6	90.7	90.6	92.3	91.6	93.2	93.0	95.1
ARKANSAS	86.3	90.7	86.1	90.2	87.5	91.0	88.7	91.9
CALIFORNIA	93.8	95.0	94.4	95.5	94.9	96.0	94.6	95.5
COLORADO	92.9	95.5	93.8	95.4	94.6	96.0	94.7	96.3
CONNECTICUT	97.0	98.0	96.3	98.9	98.1	98.5	97.1	97.7
DELAWARE	96.5	97.3	97.0	97.9	96.6	97.5	96.0	97.1
DISTRICT OF COLUMBIA	92.4	94.2	94.6	95.9	92.7	94.8	91.4	93.2
FLORIDA	91.7	93.8	92.7	94.5	92.9	94.5	93.0	94.9
GEORGIA	88.7	91.3	90.1	92.4	90.2	92.9	90.9	93.4
HAWAII	94.2	96.6	94.5	96.3	95.1	96.9	95.3	96.8
IDAHO	91.1	92.5	92.2	93.3	92.5	93.6	92.8	94.1
ILLINOIS	93.7	95.2	94.2	95.6	93.9	95.4	94.3	95.7
INDIANA	91.2	93.2	92.3	94.9	93.2	95.9	92.8	95.9
IOWA	95.1	96.3	95.4	96.9	96.3	97.5	96.1	96.9
KANSAS	95.2	96.6	94.4	95.7	94.4	95.8	95.4	96.5
KENTUCKY	86.5	90.6	87.5	90.9	88.9	92.7	89.1	93.3
LOUISIANA	87.5	90.8	87.3	91.1	88.6	91.3	89.4	92.0
MAINE	93.5	95.2	94.2	95.9	95.3	96.4	95.7	97.6
MARYLAND	95.4	96.6	95.9	97.2	95.0	96.6	95.4	96.7
MASSACHUSETTS	96.4	97.0	96.9	97.3	97.1	97.8	96.6	97.4
MICHIGAN	93.7	94.8	93.9	95.0	93.7	94.9	94.1	95.5
MINNESOTA	96.0	97.4	97.2	98.4	96.8	97.8	96.9	98.1
MISSISSIPPI	81.5	86.3	83.3	88.6	85.5	90.3	87.0	90.9
MISSOURI	93.0	95.3	93.5	95.6	91.0	93.4	92.0	95.3
MONTANA	90.9	93.9	91.7	94.2	91.7	94.3	92.0	94.2
NEBRASKA	94.6	96.1	95.4	96.1	95.2	96.3	96.2	97.1
NEVADA	92.4	93.7	92.4	93.4	92.7	93.3	92.6	93.6
NEW HAMPSHIRE	94.1	96.2	95.2	96.1	95.4	97.1	95.0	96.5
NEW JERSEY	95.0	96.3	94.4	95.9	94.8	96.1	94.7	95.9
NEW MEXICO	86.0	89.3	85.7	89.1	85.8	89.6	85.8	89.5
NEW YORK	92.7	94.2	92.4	94.0	92.3	94.0	91.1	92.8
NORTH CAROLINA	89.2	91.7	90.4	92.8	91.9	94.1	91.9	94.2
NORTH DAKOTA	96.8	97.4	96.8	97.5	97.0	98.0	97.0	97.9
OHIO	93.4	94.7	94.4	95.2	94.6	95.5	95.2	96.3
OKLAHOMA	88.7	91.8	88.9	91.6	88.2	91.2	89.5	92.7
OREGON	93.3	94.8	92.0	93.5	92.3	93.9	94.5	95.9
PENNSYLVANIA	96.4	97.3	96.2	97.1	97.0	97.5	96.9	97.6
RHODE ISLAND	95.2	96.3	95.4	96.5	95.4	96.3	95.6	96.5
SOUTH CAROLINA	87.7	90.6	88.5	91.4	87.8	90.8	90.2	93.2
SOUTH DAKOTA	92.8	95.0	92.9	95.4	93.3	95.0	93.4	95.3
TENNESSEE	89.2	92.6	90.3	93.5	91.9	95.1	91.6	94.1
TEXAS	89.5	92.2	88.5	91.3	88.8	91.6	89.4	92.0
UTAH	92.3	94.6	92.5	94.5	95.9	96.5	95.6	96.3
VERMONT	95.3	96.9	95.6	96.8	93.9	95.7	94.9	96.9
VIRGINIA	92.5	94.6	92.9	95.5	93.2	95.7	93.0	94.9
WASHINGTON	94.3	96.4	94.3	95.7	96.4	97.3	97.1	97.7
WEST VIRGINIA	87.8	91.5	87.3	91.4	86.8	90.3	87.6	91.7
WISCONSIN	96.4	97.1	97.0	98.0	97.3	98.4	96.9	97.7
WYOMING	92.3	94.1	93.0	94.4	93.6	95.5	94.1	95.9

Table 3
Percentage of Households with a Telephone by State

	1991 ANNUAL AVERAGE		1992 ANNUAL AVERAGE		1993 ANNUAL AVERAGE		1994 ANNUAL AVERAGE	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
UNITED STATES	93.4	95.1	93.8	95.3	94.2	95.6	93.8	95.4
ALABAMA	91.4	93.3	90.8	93.2	91.9	94.3	91.3	94.3
ALASKA	90.8	93.5	91.7	94.4	89.9	93.8	91.8	94.6
ARIZONA	93.4	94.9	93.3	94.7	93.3	94.4	93.9	95.3
ARKANSAS	87.6	91.4	87.3	91.0	87.8	91.0	90.2	93.5
CALIFORNIA	95.0	95.9	95.6	96.5	95.8	96.7	94.8	95.7
COLORADO	95.4	97.0	95.5	96.3	96.1	96.5	96.7	97.7
CONNECTICUT	96.2	97.3	96.6	97.3	96.7	97.5	96.5	97.5
DELAWARE	96.4	97.5	96.5	97.8	96.5	96.8	95.5	97.1
DISTRICT OF COLUMBIA	90.9	92.6	88.7	90.5	90.2	91.7	90.0	91.2
FLORIDA	93.3	95.0	93.5	95.1	93.8	95.1	93.5	94.9
GEORGIA	89.9	91.7	90.2	91.9	93.2	94.2	91.1	93.2
HAWAII	95.1	96.4	95.3	96.8	94.4	96.3	94.3	96.1
IDAHO	92.0	93.6	93.0	94.7	94.4	95.7	94.7	96.2
ILLINOIS	93.8	95.6	93.8	95.5	93.6	95.3	93.6	95.2
INDIANA	92.2	94.6	91.9	93.2	93.7	95.1	93.6	94.8
IOWA	95.6	97.4	95.4	97.4	96.4	97.4	96.8	98.0
KANSAS	94.5	95.7	95.2	96.6	95.6	96.3	94.7	96.2
KENTUCKY	88.1	92.9	89.6	92.6	89.8	93.1	91.2	93.8
LOUISIANA	91.1	93.9	91.7	93.9	90.4	92.2	91.4	93.9
MAINE	94.4	96.6	93.2	95.3	96.0	98.1	96.0	97.8
MARYLAND	96.3	97.2	96.0	97.4	96.7	97.9	95.6	96.6
MASSACHUSETTS	96.4	97.4	96.8	97.5	96.9	97.9	96.5	97.1
MICHIGAN	94.1	95.5	94.4	95.5	95.6	96.5	95.0	96.6
MINNESOTA	97.1	97.9	96.7	98.1	96.1	97.3	95.6	97.2
MISSISSIPPI	86.0	90.9	86.3	90.4	87.2	90.6	88.6	92.5
MISSOURI	93.6	95.2	94.0	96.0	93.1	95.3	93.8	96.0
MONTANA	92.5	94.4	93.2	95.7	94.6	96.3	93.9	95.5
NEBRASKA	95.9	96.4	96.4	97.1	96.6	97.2	96.7	98.0
NEVADA	93.3	94.5	93.7	94.6	95.4	95.9	93.0	93.5
NEW HAMPSHIRE	96.2	97.5	95.4	96.4	96.0	96.9	96.4	97.3
NEW JERSEY	93.6	95.2	94.4	95.3	94.3	95.1	92.9	94.1
NEW MEXICO	87.1	89.9	88.4	90.9	90.2	93.3	88.3	91.2
NEW YORK	91.9	93.4	93.4	94.5	93.5	94.8	93.1	94.4
NORTH CAROLINA	91.8	94.2	92.5	94.5	92.7	94.6	92.6	95.2
NORTH DAKOTA	96.3	97.6	95.8	97.1	97.1	98.0	96.5	97.7
OHIO	94.5	95.8	94.6	95.6	94.9	96.0	94.8	96.0
OKLAHOMA	89.3	91.9	90.9	93.1	92.1	94.0	91.8	93.6
OREGON	94.7	95.4	93.9	94.7	94.8	95.7	96.1	97.0
PENNSYLVANIA	96.8	97.8	96.9	97.7	97.3	98.0	97.0	98.0
RHODE ISLAND	94.7	96.3	94.8	96.0	95.5	96.7	95.9	97.3
SOUTH CAROLINA	90.0	93.3	89.2	92.9	89.8	91.9	89.4	92.3
SOUTH DAKOTA	93.7	95.7	94.1	95.6	93.7	95.4	94.7	96.1
TENNESSEE	92.2	94.6	93.1	95.2	92.0	93.9	93.1	95.6
TEXAS	91.1	93.6	91.5	94.2	91.6	94.3	90.8	93.2
UTAH	96.2	97.0	95.9	96.5	96.0	96.8	95.7	97.1
VERMONT	94.4	96.5	94.2	95.6	94.6	95.9	94.6	96.3
VIRGINIA	92.6	94.7	94.8	96.4	94.3	95.9	94.8	96.7
WASHINGTON	96.8	97.3	96.0	96.9	96.8	98.0	96.0	97.2
WEST VIRGINIA	89.0	93.0	89.3	92.6	90.6	93.6	90.8	94.2
WISCONSIN	96.5	97.5	97.0	97.7	96.9	97.6	96.1	97.6
WYOMING	94.6	96.3	92.7	94.9	93.9	95.7	93.5	95.5

Table 3
Percentage of Households with a Telephone by State

	1995 ANNUAL AVERAGE		1996 ANNUAL AVERAGE		1997 ANNUAL AVERAGE		1998 ANNUAL AVERAGE	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
UNITED STATES	93.9	95.2	93.9	95.0	93.9	95.0	94.1	95.2
ALABAMA	92.2	94.0	92.2	93.9	92.3	93.6	93.3	94.4
ALASKA	93.6	95.6	94.4	95.4	94.5	96.4	94.0	96.0
ARIZONA	93.8	95.1	93.1	94.1	91.6	93.2	91.9	93.0
ARKANSAS	89.4	92.5	86.9	89.7	89.8	91.8	88.0	89.8
CALIFORNIA	94.5	95.3	95.0	95.6	94.3	94.9	95.2	95.9
COLORADO	96.6	97.2	95.5	96.4	95.9	97.3	95.0	96.0
CONNECTICUT	96.9	98.0	97.5	98.2	94.2	94.8	95.5	96.2
DELAWARE	96.2	96.8	96.1	97.1	95.7	96.7	96.7	97.0
DISTRICT OF COLUMBIA	90.9	92.3	93.0	94.2	90.8	92.3	91.0	92.3
FLORIDA	93.9	94.8	93.1	94.2	92.8	94.0	92.6	93.5
GEORGIA	90.0	91.8	89.7	91.1	92.0	93.0	91.4	92.5
HAWAII	94.7	96.0	94.8	95.9	94.5	95.6	95.4	96.3
IDAHO	95.1	96.1	92.9	94.3	94.0	94.7	93.3	94.2
ILLINOIS	93.6	95.0	93.0	94.2	92.2	93.7	92.8	93.9
INDIANA	94.4	95.9	93.7	95.1	93.8	95.1	94.4	95.7
IOWA	96.4	97.6	96.6	96.9	96.7	97.5	96.7	97.5
KANSAS	93.9	95.0	93.9	95.2	94.0	95.2	94.3	95.3
KENTUCKY	92.1	94.2	92.3	93.3	93.2	94.3	93.3	95.1
LOUISIANA	92.6	95.3	91.1	93.3	91.0	93.5	92.3	93.3
MAINE	95.7	96.9	96.5	97.8	96.1	97.3	96.9	97.9
MARYLAND	96.4	96.8	96.7	97.2	95.7	96.3	96.5	97.0
MASSACHUSETTS	95.9	96.7	95.7	96.7	95.4	96.3	94.5	95.4
MICHIGAN	95.2	96.0	95.0	95.6	94.3	95.2	95.0	96.0
MINNESOTA	97.3	98.1	97.1	98.0	96.9	98.0	97.8	98.3
MISSISSIPPI	86.5	91.1	87.5	91.6	89.2	93.2	89.5	92.0
MISSOURI	94.4	95.7	95.3	96.7	95.0	96.2	94.6	95.9
MONTANA	94.2	95.3	94.3	95.5	93.7	94.8	94.1	95.0
NEBRASKA	97.1	97.8	96.0	96.9	97.1	97.8	96.2	97.0
NEVADA	92.6	93.6	93.5	94.1	94.1	94.4	92.3	93.3
NEW HAMPSHIRE	96.2	97.2	96.1	96.9	96.5	97.4	95.5	96.6
NEW JERSEY	92.3	93.2	93.6	94.8	94.9	96.0	94.5	95.3
NEW MEXICO	86.4	88.8	86.2	88.6	88.1	90.8	88.2	91.3
NEW YORK	92.9	93.9	93.4	94.3	94.2	95.1	94.8	95.7
NORTH CAROLINA	93.4	95.1	93.5	95.1	93.1	94.2	93.1	94.0
NORTH DAKOTA	97.2	97.9	96.3	96.7	95.8	97.0	96.8	97.5
OHIO	94.0	95.0	94.5	95.6	94.6	95.3	95.6	96.3
OKLAHOMA	91.5	92.9	91.3	92.6	91.4	93.1	90.6	91.7
OREGON	96.4	96.9	96.0	96.8	95.6	96.3	96.0	97.2
PENNSYLVANIA	96.8	97.5	96.9	97.5	97.1	97.6	96.8	97.4
RHODE ISLAND	96.0	97.4	95.7	96.3	94.5	95.6	95.6	96.5
SOUTH CAROLINA	90.5	92.3	91.3	93.6	92.5	93.8	92.9	94.1
SOUTH DAKOTA	94.3	95.9	93.3	94.5	93.9	95.0	90.6	91.7
TENNESSEE	93.0	95.5	94.0	96.2	94.5	96.4	94.6	96.3
TEXAS	91.3	93.3	91.0	92.6	91.3	93.0	92.2	93.7
UTAH	97.6	97.9	96.7	97.0	96.9	97.7	97.1	97.7
VERMONT	96.5	98.0	95.9	97.7	95.1	96.7	95.2	96.1
VIRGINIA	95.9	97.3	94.9	96.1	94.5	95.7	93.9	94.6
WASHINGTON	95.7	96.6	94.5	95.5	95.9	96.9	95.2	95.9
WEST VIRGINIA	92.7	94.9	92.9	95.0	93.2	94.9	93.8	95.5
WISCONSIN	97.3	97.7	97.0	97.7	96.3	97.2	95.9	96.8
WYOMING	94.1	95.5	95.0	95.7	93.4	95.0	93.7	94.6

Table 3
Percentage of Households with a Telephone by State

	1999		2000					
	ANNUAL AVERAGE		MARCH		JULY		NOVEMBER	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
UNITED STATES	94.2	95.0	94.6	95.3	94.4	95.2	94.1	95.0
ALABAMA	91.5	93.0	91.2	92.5	92.3	94.2	92.1	93.1
ALASKA	94.6	96.5	95.4	97.4	91.9	96.4	95.6	96.9
ARIZONA	93.2	93.8	94.8	95.6	93.8	94.5	93.2	94.3
ARKANSAS	88.9	90.5	90.1	91.2	89.1	90.6	86.6	87.9
CALIFORNIA	95.7	96.2	95.6	96.1	95.8	96.4	96.1	96.6
COLORADO	96.7	97.2	95.7	96.3	96.4	97.0	96.7	96.8
CONNECTICUT	96.5	96.8	95.8	96.2	97.6	97.6	95.9	96.5
DELAWARE	95.7	96.9	97.2	97.8	96.2	96.8	95.4	96.6
DISTRICT OF COLUMBIA	92.4	93.5	90.8	91.8	95.3	95.8	93.6	94.8
FLORIDA	92.6	93.6	92.2	92.9	92.1	92.8	92.0	92.9
GEORGIA	92.1	93.2	91.8	92.9	90.6	91.7	90.9	92.8
HAWAII	96.3	97.1	93.6	94.5	93.5	94.0	97.1	97.3
IDAHO	93.8	94.6	93.6	94.2	93.3	94.9	94.9	95.3
ILLINOIS	91.8	93.0	93.0	93.4	92.1	92.6	89.5	91.0
INDIANA	93.8	95.2	95.7	96.3	93.3	94.0	94.4	95.5
IOWA	95.8	96.5	96.7	97.2	95.3	96.4	96.6	97.6
KANSAS	93.8	94.8	94.6	94.9	96.6	96.9	93.2	95.3
KENTUCKY	92.8	94.1	93.9	94.7	93.7	94.9	92.4	93.2
LOUISIANA	91.5	93.1	90.8	92.0	92.7	94.3	94.3	95.1
MAINE	97.2	97.9	98.5	99.2	97.9	98.1	97.2	97.6
MARYLAND	95.3	95.8	96.3	97.0	94.7	95.6	94.1	95.4
MASSACHUSETTS	95.4	96.0	94.1	95.5	95.7	96.3	94.0	94.7
MICHIGAN	94.2	94.9	95.9	96.1	94.8	95.7	94.2	95.1
MINNESOTA	96.9	97.3	97.8	98.0	96.6	97.4	97.9	98.1
MISSISSIPPI	88.0	91.2	88.8	91.5	87.7	90.1	91.1	94.4
MISSOURI	95.6	96.6	95.7	96.8	95.5	96.8	96.1	97.1
MONTANA	95.3	96.2	95.1	95.7	95.0	95.7	93.7	93.9
NEBRASKA	95.9	96.6	97.8	98.4	97.0	97.9	97.2	97.8
NEVADA	93.1	93.5	95.5	95.9	94.0	94.8	92.4	92.7
NEW HAMPSHIRE	97.0	97.6	98.1	98.5	97.7	98.4	97.2	98.0
NEW JERSEY	93.9	94.3	94.6	95.1	94.1	94.5	95.1	95.4
NEW MEXICO	89.8	91.4	92.2	93.0	92.0	93.7	89.4	91.3
NEW YORK	95.3	96.1	96.3	96.7	94.7	95.6	94.2	94.7
NORTH CAROLINA	93.9	94.8	93.3	94.5	95.1	95.9	93.3	94.6
NORTH DAKOTA	97.3	97.9	94.8	95.7	96.0	96.6	96.6	96.9
OHIO	94.7	95.6	94.7	95.6	95.4	96.2	94.4	95.6
OKLAHOMA	91.2	92.5	90.5	91.7	92.2	93.4	90.8	91.7
OREGON	95.2	96.1	94.0	94.7	94.7	95.6	95.7	96.4
PENNSYLVANIA	97.1	97.4	97.4	97.9	96.6	97.1	95.8	96.4
RHODE ISLAND	94.3	94.7	95.1	95.9	95.6	96.0	94.0	95.9
SOUTH CAROLINA	92.9	94.0	94.2	94.9	92.1	93.4	93.2	94.3
SOUTH DAKOTA	92.7	93.4	95.5	96.0	93.7	94.6	93.8	94.5
TENNESSEE	94.5	96.0	96.3	97.3	94.8	96.2	95.4	96.3
TEXAS	92.4	93.5	94.0	95.0	93.3	94.1	93.3	94.1
UTAH	95.6	96.5	96.0	96.7	95.4	96.0	96.4	96.9
VERMONT	95.3	96.7	95.6	96.4	94.2	94.8	96.9	97.5
VIRGINIA	93.2	94.1	95.0	95.8	96.0	96.3	95.1	95.9
WASHINGTON	95.9	96.4	93.4	94.7	95.9	96.7	95.4	96.6
WEST VIRGINIA	92.7	94.6	93.3	94.9	95.1	96.3	93.6	94.7
WISCONSIN	95.7	96.6	94.1	95.1	95.6	96.9	94.7	96.1
WYOMING	95.0	95.6	94.9	96.0	94.8	96.1	94.5	95.9

Table 3
Percentage of Households with a Telephone by State

	2000		2001					
	ANNUAL AVERAGE		MARCH		JULY		NOVEMBER	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
UNITED STATES	94.4	95.2	94.6	95.4	95.1	95.9	94.9	95.8
ALABAMA	91.9	93.3	91.9	93.5	93.0	93.9	93.4	94.7
ALASKA	94.3	96.9	96.4	97.3	94.7	95.8	96.9	98.1
ARIZONA	93.9	94.8	94.5	95.1	93.5	94.1	95.4	96.1
ARKANSAS	88.6	89.9	91.6	92.5	91.4	93.1	90.9	93.2
CALIFORNIA	95.8	96.4	96.1	96.4	97.0	97.5	96.6	97.1
COLORADO	96.3	96.7	96.2	96.9	97.4	97.9	96.6	97.2
CONNECTICUT	96.4	96.8	95.9	96.5	96.8	97.3	95.5	96.7
DELAWARE	96.3	97.1	97.5	98.4	94.4	95.0	96.8	97.2
DISTRICT OF COLUMBIA	93.2	94.1	95.5	96.1	93.8	95.0	94.3	95.5
FLORIDA	92.1	92.9	92.0	92.8	93.2	94.1	94.5	95.0
GEORGIA	91.1	92.5	92.2	93.3	93.2	94.2	91.9	92.8
HAWAII	94.7	95.3	94.3	95.5	96.9	97.5	96.0	96.7
IDAHO	93.9	94.8	93.5	94.5	94.1	95.2	96.0	97.2
ILLINOIS	91.5	92.3	92.0	93.0	93.7	94.4	91.7	92.7
INDIANA	94.5	95.3	93.7	94.9	95.0	95.7	93.1	94.5
IOWA	96.2	97.1	97.1	97.7	97.2	97.6	97.0	98.0
KANSAS	94.8	95.7	92.6	94.9	95.4	96.6	94.6	96.3
KENTUCKY	93.3	94.3	93.4	94.6	93.7	94.9	93.5	94.1
LOUISIANA	92.6	93.8	93.4	94.7	94.5	95.2	92.8	94.0
MAINE	97.9	98.3	97.9	98.8	97.7	98.3	97.9	98.5
MARYLAND	95.0	96.0	96.2	96.5	95.5	95.9	96.4	96.6
MASSACHUSETTS	94.6	95.5	96.1	96.2	95.7	96.4	95.1	95.7
MICHIGAN	95.0	95.6	94.9	95.9	94.7	95.5	94.4	95.3
MINNESOTA	97.4	97.8	97.0	97.3	97.7	98.2	97.7	98.0
MISSISSIPPI	89.2	92.0	87.8	91.0	88.1	91.4	93.7	95.5
MISSOURI	95.8	96.9	97.1	97.6	96.6	97.0	94.6	95.8
MONTANA	94.6	95.1	95.0	96.1	94.8	95.4	95.2	95.7
NEBRASKA	97.3	98.0	97.3	97.6	96.5	97.6	96.0	96.9
NEVADA	94.0	94.5	95.4	95.9	95.2	95.9	94.8	95.7
NEW HAMPSHIRE	97.7	98.3	98.2	98.7	97.8	98.1	98.8	99.1
NEW JERSEY	94.6	95.0	95.2	95.8	95.9	96.7	96.2	96.7
NEW MEXICO	91.2	92.7	91.3	93.5	93.6	94.3	91.6	92.9
NEW YORK	95.1	95.7	95.1	95.9	94.9	95.5	95.2	96.2
NORTH CAROLINA	93.9	95.0	93.3	94.4	93.9	94.5	93.7	95.1
NORTH DAKOTA	95.8	96.4	95.0	96.0	94.6	95.4	93.5	94.4
OHIO	94.8	95.8	95.4	95.8	96.7	97.3	95.8	97.0
OKLAHOMA	91.2	92.3	92.9	93.9	93.0	93.8	93.7	95.1
OREGON	94.8	95.6	94.6	95.6	96.2	96.8	95.9	97.0
PENNSYLVANIA	96.6	97.1	97.1	97.5	97.0	97.3	97.0	97.7
RHODE ISLAND	94.9	95.9	95.8	96.4	95.7	96.2	97.4	97.5
SOUTH CAROLINA	93.2	94.2	93.1	94.3	94.9	96.3	95.5	96.3
SOUTH DAKOTA	94.3	95.0	95.7	96.3	94.9	95.5	94.6	95.7
TENNESSEE	95.5	96.6	91.8	93.4	93.2	94.9	94.5	95.9
TEXAS	93.5	94.4	93.6	94.7	94.3	95.1	93.6	94.9
UTAH	95.9	96.5	96.2	96.2	96.5	96.9	97.0	97.6
VERMONT	95.6	96.2	97.1	98.0	97.2	97.6	97.2	97.9
VIRGINIA	95.4	96.0	94.3	94.7	95.8	96.3	93.9	95.0
WASHINGTON	94.9	96.0	95.9	96.8	96.9	97.7	95.2	96.2
WEST VIRGINIA	94.0	95.3	92.8	95.6	94.5	95.6	93.1	94.7
WISCONSIN	94.8	96.0	96.2	97.8	95.6	95.8	95.5	96.7
WYOMING	94.7	96.0	94.2	95.1	93.7	94.5	93.4	94.9

Table 3
Percentage of Households with a Telephone by State

	2001 Annual Average Unit	2001 Annual Average Avail	2002 March Unit	2002 March Avail	2002 July Unit	2002 July Avail	2002 November Unit	2002 November Avail
UNITED STATES	94.9	95.7	95.5	96.3	95.1	96.0	95.3	96.2
ALABAMA	92.8	94.0	92.0	92.6	92.6	93.8	92.0	93.1
ALASKA	96.0	97.1	96.4	98.5	96.6	96.9	96.3	98.2
ARIZONA	94.5	95.1	95.9	96.9	93.1	94.7	95.5	96.4
ARKANSAS	91.3	92.9	93.4	94.4	90.4	92.5	92.5	93.4
CALIFORNIA	96.6	97.0	97.2	97.6	97.1	97.5	96.8	97.2
COLORADO	96.7	97.3	96.3	97.1	97.5	98.0	97.8	98.0
CONNECTICUT	96.1	96.8	97.6	98.0	97.5	98.0	97.0	97.8
DELAWARE	96.2	96.9	97.4	97.5	96.1	97.0	96.8	97.4
DISTRICT OF COLUMBIA	94.5	95.5	94.0	94.8	93.1	95.1	95.0	96.8
FLORIDA	93.2	94.0	94.6	95.6	93.6	94.7	94.8	95.2
GEORGIA	92.4	93.4	95.1	95.3	94.6	95.6	92.4	93.6
HAWAII	95.7	96.6	97.0	97.7	96.4	97.3	96.9	98.1
IDAHO	94.5	95.6	95.3	97.1	94.0	94.9	95.6	96.4
ILLINOIS	92.5	93.4	94.1	94.7	91.2	92.6	93.0	93.9
INDIANA	93.9	95.0	94.6	94.8	92.5	94.2	93.2	94.5
IOWA	97.1	97.8	97.1	98.3	96.5	97.2	97.1	98.0
KANSAS	94.2	95.9	95.7	96.6	95.6	96.8	95.1	96.5
KENTUCKY	93.5	94.5	95.7	96.7	94.6	95.6	94.7	95.8
LOUISIANA	93.6	94.6	91.5	93.1	92.7	93.8	93.0	93.8
MAINE	97.8	98.5	98.0	98.9	97.4	98.2	98.3	98.9
MARYLAND	96.0	96.3	96.6	96.9	96.1	96.6	96.6	97.4
MASSACHUSETTS	95.6	96.1	96.5	97.0	97.4	98.1	96.7	97.3
MICHIGAN	94.7	95.6	94.6	95.1	95.1	95.8	93.2	93.9
MINNESOTA	97.5	97.8	97.8	98.5	98.0	98.4	97.4	98.1
MISSISSIPPI	89.9	92.6	90.7	93.0	91.8	93.8	91.7	93.2
MISSOURI	96.1	96.8	95.9	96.4	95.8	96.7	96.8	97.8
MONTANA	95.0	95.7	96.2	97.2	94.9	95.8	93.2	95.0
NEBRASKA	96.6	97.4	96.2	97.1	95.3	96.5	95.8	96.4
NEVADA	95.1	95.8	96.4	97.3	94.9	95.3	95.2	95.8
NEW HAMPSHIRE	98.3	98.6	97.6	98.0	96.9	97.3	97.2	97.7
NEW JERSEY	95.8	96.4	95.6	96.5	94.9	96.0	97.3	98.1
NEW MEXICO	92.2	93.6	92.7	94.3	92.3	94.7	90.3	92.8
NEW YORK	95.1	95.9	95.6	96.1	95.7	96.2	96.0	96.7
NORTH CAROLINA	93.6	94.7	94.3	95.0	94.4	95.1	94.3	95.5
NORTH DAKOTA	94.4	95.3	96.4	96.4	93.3	93.6	94.9	95.1
OHIO	96.0	96.7	96.3	97.3	95.2	96.0	96.3	97.5
OKLAHOMA	93.2	94.3	92.8	94.5	93.1	94.8	93.5	94.6
OREGON	95.6	96.5	97.3	98.0	97.4	97.9	96.8	97.1
PENNSYLVANIA	97.0	97.5	97.7	97.8	98.2	98.6	98.1	98.3
RHODE ISLAND	96.3	96.7	96.1	96.3	96.6	96.9	95.5	97.0
SOUTH CAROLINA	94.5	95.6	93.4	94.2	95.9	96.3	93.5	94.9
SOUTH DAKOTA	95.1	95.8	95.1	95.5	95.3	95.8	94.9	95.4
TENNESSEE	93.2	94.7	93.6	94.9	93.1	94.2	94.0	95.7
TEXAS	93.8	94.9	94.7	96.1	93.3	94.9	94.5	95.5
UTAH	96.6	96.9	96.6	98.0	96.7	97.4	96.7	97.3
VERMONT	97.2	97.8	98.0	98.6	97.3	97.8	97.6	98.0
VIRGINIA	94.7	95.3	96.6	97.3	96.6	97.2	95.3	96.0
WASHINGTON	96.0	96.9	96.6	97.7	96.8	97.5	95.9	96.4
WEST VIRGINIA	93.5	95.3	94.5	95.7	94.3	95.5	94.6	95.9
WISCONSIN	95.8	96.8	96.2	97.0	95.3	96.3	96.8	97.7
WYOMING	93.8	94.8	93.4	94.4	95.2	95.8	93.5	94.2

Table 3
Percentage of Households with a Telephone by State

	2002		2003	
	ANNUAL AVERAGE		MARCH	
	Unit	Avail	Unit	Avail
UNITED STATES	95.3	96.2	95.5	96.3
ALABAMA	92.2	93.2	90.5	91.8
ALASKA	96.4	97.9	96.8	98.3
ARIZONA	94.8	96.0	95.6	96.1
ARKANSAS	92.1	93.4	93.0	93.7
CALIFORNIA	97.0	97.4	97.2	97.6
COLORADO	97.2	97.7	97.0	97.5
CONNECTICUT	97.4	97.9	97.6	98.3
DELAWARE	96.8	97.3	96.9	97.4
DISTRICT OF COLUMBIA	94.0	95.6	95.1	96.3
FLORIDA	94.3	95.2	95.0	95.6
GEORGIA	94.0	94.8	95.2	95.6
HAWAII	96.8	97.7	98.0	98.5
IDAHO	95.0	96.1	94.8	96.2
ILLINOIS	92.8	93.7	92.4	93.0
INDIANA	93.4	94.5	93.8	94.6
IOWA	96.9	97.8	97.0	97.5
KANSAS	95.5	96.6	96.3	97.6
KENTUCKY	95.0	96.0	94.0	95.6
LOUISIANA	92.4	93.6	93.4	94.4
MAINE	97.9	98.7	98.0	98.8
MARYLAND	96.4	97.0	98.5	98.8
MASSACHUSETTS	96.9	97.5	97.1	97.9
MICHIGAN	94.3	94.9	95.2	96.0
MINNESOTA	97.7	98.3	96.6	97.5
MISSISSIPPI	91.4	93.3	91.3	93.0
MISSOURI	96.2	97.0	97.0	97.5
MONTANA	94.8	96.0	94.2	95.0
NEBRASKA	95.8	96.7	96.5	96.8
NEVADA	95.5	96.1	94.9	96.0
NEW HAMPSHIRE	97.2	97.7	97.5	97.6
NEW JERSEY	95.9	96.9	96.1	96.9
NEW MEXICO	91.8	93.9	93.0	94.5
NEW YORK	95.8	96.3	95.3	96.0
NORTH CAROLINA	94.3	95.2	94.4	95.2
NORTH DAKOTA	94.9	95.0	94.4	95.7
OHIO	95.9	96.9	96.6	97.4
OKLAHOMA	93.1	94.6	92.7	93.7
OREGON	97.2	97.7	96.7	96.9
PENNSYLVANIA	98.0	98.2	97.1	97.7
RHODE ISLAND	96.1	96.7	97.4	97.8
SOUTH CAROLINA	94.3	95.1	93.6	94.5
SOUTH DAKOTA	95.1	95.6	94.8	95.5
TENNESSEE	93.6	94.9	94.3	95.6
TEXAS	94.2	95.5	94.8	95.9
UTAH	96.7	97.6	97.7	97.7
VERMONT	97.6	98.1	96.4	97.6
VIRGINIA	96.2	96.8	95.9	96.7
WASHINGTON	96.4	97.2	97.0	97.6
WEST VIRGINIA	94.5	95.7	94.9	96.2
WISCONSIN	96.1	97.0	96.3	96.7
WYOMING	94.0	94.8	93.8	95.2

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
NOVEMBER 1983								
TOTAL	91.4	93.7	93.1	95.0	78.8	83.9	80.7	84.6
UNDER $5,000	71.7	78.4	75.7	81.9	62.7	70.4	58.3	64.6
$5,000 - $7,499	82.7	87.2	84.5	88.5	74.7	82.0	71.1	76.5
$7,500 - $9,999	88.2	90.9	89.6	92.2	80.5	83.9	72.6	77.9
$10,000 - $12,499	89.7	92.7	91.2	93.9	82.0	86.2	76.8	82.1
$12,500 - $14,999	92.1	94.6	93.4	95.2	82.5	90.7	89.8	91.7
$15,000 - $17,499	94.6	96.2	94.9	96.4	91.7	95.1	86.9	90.8
$17,500 - $19,999	95.7	97.4	96.1	97.7	91.4	95.0	88.4	91.5
$20,000 - $24,999	96.9	97.8	97.4	98.2	91.2	93.2	93.1	94.3
$25,000 - $29,999	98.0	98.9	98.2	99.0	96.1	97.2	98.3	99.0
$30,000 - $34,999	98.8	99.1	99.0	99.2	95.1	97.7	97.7	98.9
$35,000 - $39,999	99.0	99.5	99.1	99.5	98.4	98.4	92.1	98.2
$40,000 - $49,999	99.2	99.5	99.4	99.7	97.3	97.3	100.0	100.0
$50,000 - $74,999	99.4	99.7	99.5	99.7	98.5	100.0	99.6	100.0
$75,000 +	99.4	99.6	99.4	99.6	100.0	100.0	100.0	100.0
1984 ANNUAL AVERAGE								
TOTAL	91.6	93.7	93.2	94.9	79.8	84.5	80.9	84.3
UNDER $5,000	71.2	77.5	74.5	80.4	63.2	70.5	55.1	62.3
$5,000 - $7,499	83.3	86.9	85.5	88.7	74.8	80.2	69.8	73.6
$7,500 - $9,999	86.5	89.6	88.3	91.0	77.2	82.7	75.0	79.7
$10,000 - $12,499	89.7	92.6	91.1	93.6	81.1	86.3	79.7	84.6
$12,500 - $14,999	92.1	94.4	93.0	95.0	85.4	89.5	87.3	90.5
$15,000 - $17,499	93.7	95.7	94.2	96.0	88.5	92.2	88.4	90.0
$17,500 - $19,999	95.1	96.4	95.6	96.7	91.7	94.4	91.0	92.8
$20,000 - $24,999	96.8	97.8	97.1	98.0	93.3	95.8	92.5	94.5
$25,000 - $29,999	98.1	98.8	98.4	98.9	95.1	97.2	96.4	97.2
$30,000 - $34,999	98.7	99.1	98.8	99.3	96.8	97.2	98.8	99.1
$35,000 - $39,999	99.2	99.5	99.3	99.6	97.7	98.3	98.2	98.5
$40,000 - $49,999	99.3	99.6	99.4	99.7	96.6	96.9	98.9	99.3
$50,000 - $74,999	99.4	99.8	99.5	99.8	98.0	98.4	100.0	100.0
$75,000 +	98.9	99.6	98.9	99.6	96.5	100.0	98.0	100.0
1985 ANNUAL AVERAGE								
TOTAL	91.8	93.9	93.3	95.0	81.1	85.2	81.3	84.4
UNDER $5,000	71.9	78.1	75.3	81.3	63.9	70.6	61.6	67.0
$5,000 - $7,499	82.7	86.5	84.8	88.1	74.0	79.8	66.6	71.3
$7,500 - $9,999	86.8	90.0	88.1	90.9	80.3	85.0	75.0	79.4
$10,000 - $12,499	89.6	92.2	90.8	93.2	82.3	86.0	80.4	82.8
$12,500 - $14,999	91.0	93.7	92.2	94.5	82.7	87.8	82.8	85.8
$15,000 - $17,499	93.4	95.6	94.2	96.2	88.2	91.8	85.7	88.6
$17,500 - $19,999	94.7	96.2	95.1	96.6	91.5	93.4	90.4	92.8
$20,000 - $24,999	96.3	97.5	96.5	97.6	94.4	96.3	91.3	93.7
$25,000 - $29,999	97.6	98.5	97.8	98.6	95.8	97.3	93.0	95.9
$30,000 - $34,999	98.6	99.0	98.7	99.1	97.3	98.4	97.3	97.3
$35,000 - $39,999	98.8	99.2	98.9	99.4	96.9	97.8	98.2	99.4
$40,000 - $49,999	99.1	99.4	99.1	99.4	97.8	98.2	97.5	98.2
$50,000 - $74,999	99.3	99.7	99.4	99.7	97.9	98.8	99.5	99.5
$75,000 +	99.2	99.5	99.2	99.5	97.6	97.6	98.5	98.5

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1986 ANNUAL AVERAGE								
TOTAL	92.3	94.1	93.7	95.2	81.6	85.9	81.4	84.1
UNDER $5,000	71.6	77.4	74.9	80.1	63.9	71.0	57.5	62.9
$5,000 - $7,499	83.1	86.5	85.2	88.2	74.3	79.6	68.1	72.1
$7,500 - $9,999	86.9	90.2	88.4	91.1	78.6	85.2	72.9	75.8
$10,000 - $12,499	89.6	92.1	90.7	93.0	82.6	86.4	80.3	82.6
$12,500 - $14,999	91.2	93.8	91.9	94.4	86.4	90.3	83.9	87.8
$15,000 - $17,499	93.1	95.1	94.3	95.7	85.3	91.6	86.3	88.9
$17,500 - $19,999	94.9	96.3	95.3	96.7	92.2	94.2	87.2	90.1
$20,000 - $24,999	96.5	97.5	96.9	97.9	92.8	94.6	93.0	94.1
$25,000 - $29,999	97.7	98.4	98.0	98.7	94.5	95.9	93.9	95.2
$30,000 - $34,999	98.4	98.9	98.6	99.0	96.7	97.5	97.5	98.4
$35,000 - $39,999	98.9	99.3	99.0	99.4	97.6	97.9	98.1	99.3
$40,000 - $49,999	99.1	99.4	99.1	99.4	98.2	98.2	98.5	98.8
$50,000 - $74,999	99.5	99.8	99.6	99.8	99.4	99.4	99.4	99.7
$75,000 +	99.4	99.6	99.4	99.6	98.0	99.5	97.5	100.0
1987 ANNUAL AVERAGE								
TOTAL	92.4	94.2	93.8	95.4	81.8	85.9	83.0	85.4
UNDER $5,000	71.5	77.4	75.0	80.3	63.7	71.0	60.7	65.7
$5,000 - $7,499	83.4	86.7	85.5	88.4	74.8	80.2	69.9	72.4
$7,500 - $9,999	86.7	89.6	88.1	90.6	79.3	84.0	75.8	78.9
$10,000 - $12,499	89.5	92.3	90.4	93.1	83.2	87.5	81.0	84.1
$12,500 - $14,999	90.8	93.2	91.9	94.1	83.8	87.7	85.2	86.9
$15,000 - $17,499	92.6	94.9	93.5	95.5	86.9	90.8	85.6	88.7
$17,500 - $19,999	94.4	96.0	95.1	96.4	89.0	92.7	89.3	90.6
$20,000 - $24,999	96.4	97.6	96.8	97.9	93.5	95.1	93.1	94.9
$25,000 - $29,999	97.5	98.4	98.0	98.7	93.4	95.3	96.4	97.1
$30,000 - $34,999	98.1	98.9	98.3	99.0	96.1	97.2	96.9	97.7
$35,000 - $39,999	98.8	99.2	98.9	99.3	96.5	98.6	97.4	97.7
$40,000 - $49,999	99.4	99.7	99.5	99.7	98.7	98.7	99.7	99.8
$50,000 - $74,999	99.5	99.8	99.5	99.8	99.1	99.4	98.7	99.6
$75,000 +	99.5	99.8	99.5	99.8	98.5	99.6	98.6	100.0
1988 ANNUAL AVERAGE								
TOTAL	92.7	94.5	94.1	95.6	83.0	86.8	82.1	85.1
UNDER $5,000	72.0	78.4	74.9	80.8	65.8	73.2	58.5	64.5
$5,000 - $7,499	83.3	87.1	85.1	88.4	76.9	82.3	66.4	71.7
$7,500 - $9,999	85.6	88.7	87.2	90.3	77.7	81.4	67.3	72.8
$10,000 - $12,499	88.8	91.5	90.1	92.4	81.7	86.5	77.5	80.9
$12,500 - $14,999	91.3	93.7	92.2	94.4	85.1	88.8	81.5	84.5
$15,000 - $19,999	93.6	95.3	94.3	95.9	88.5	91.1	88.6	90.6
$20,000 - $24,999	96.2	97.4	96.5	97.6	93.5	95.7	91.1	93.1
$25,000 - $29,999	97.6	98.4	97.9	98.5	94.4	96.7	95.0	96.4
$30,000 - $34,999	98.4	99.0	98.7	99.2	95.4	96.7	98.6	99.0
$35,000 - $39,999	98.8	99.2	98.9	99.3	97.8	98.4	97.2	97.7
$40,000 - $49,999	99.3	99.6	99.4	99.7	97.3	98.5	98.7	99.7
$50,000 - $74,999	99.5	99.8	99.6	99.8	99.2	99.3	99.4	99.8
$75,000 +	99.5	99.9	99.4	99.9	100.0	100.0	97.8	100.0

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1989 ANNUAL AVERAGE								
TOTAL	93.1	94.9	94.5	95.9	83.2	87.1	83.0	86.0
UNDER $5,000	74.4	80.4	78.1	83.2	65.6	73.5	62.1	67.3
$5,000 - $7,499	83.7	87.4	85.7	89.1	77.4	82.0	68.8	73.8
$7,500 - $9,999	86.6	89.8	88.5	91.3	78.4	83.6	75.9	80.2
$10,000 - $12,499	88.4	91.3	90.0	92.6	79.3	84.9	73.2	76.8
$12,500 - $14,999	91.3	93.7	92.4	94.5	84.5	88.8	79.2	83.7
$15,000 - $19,999	93.2	95.0	94.2	95.8	85.9	89.2	86.3	88.8
$20,000 - $24,999	95.9	97.2	96.4	97.5	91.6	94.3	92.0	94.4
$25,000 - $29,999	97.5	98.4	97.9	98.6	94.0	96.0	93.3	96.3
$30,000 - $34,999	98.3	98.8	98.5	98.9	96.1	97.0	95.6	96.2
$35,000 - $39,999	98.7	99.3	98.9	99.4	96.7	98.0	95.8	97.5
$40,000 - $49,999	99.1	99.5	99.2	99.6	97.2	97.7	97.0	98.2
$50,000 - $59,999	99.5	99.7	99.5	99.8	98.7	99.0	98.7	99.2
$60,000 - $74,999	99.5	99.7	99.5	99.7	99.3	99.3	95.7	96.8
$75,000 +	99.5	99.8	99.5	99.8	99.5	99.5	99.7	99.7
1990 ANNUAL AVERAGE								
TOTAL	93.3	95.0	94.6	96.1	83.5	87.0	82.7	85.3
UNDER $5,000	75.4	81.0	79.1	84.2	66.1	72.8	61.1	66.1
$5,000 - $7,499	82.6	86.8	84.9	88.8	74.9	80.1	66.7	70.6
$7,500 - $9,999	86.9	89.9	89.0	91.6	77.3	82.4	74.8	77.8
$10,000 - $12,499	88.9	91.7	90.2	92.8	81.9	85.5	74.1	77.1
$12,500 - $14,999	91.7	93.9	92.7	94.7	85.9	88.7	82.0	84.3
$15,000 - $19,999	93.3	95.3	94.2	96.0	87.7	91.0	85.1	88.6
$20,000 - $24,999	95.6	97.0	96.1	97.4	91.9	93.7	89.4	91.3
$25,000 - $29,999	97.0	98.0	97.7	98.5	90.9	93.2	94.2	95.5
$30,000 - $34,999	97.9	98.6	98.4	98.9	93.3	95.4	96.0	97.0
$35,000 - $39,999	98.7	99.3	98.8	99.4	97.0	98.0	94.1	96.3
$40,000 - $49,999	99.1	99.4	99.2	99.5	98.5	98.8	97.8	97.8
$50,000 - $59,999	99.4	99.6	99.5	99.7	98.7	98.7	97.5	98.2
$60,000 - $74,999	99.5	99.7	99.6	99.8	98.3	98.8	98.8	99.1
$75,000 +	99.5	99.8	99.5	99.8	98.6	98.6	97.7	99.6
1991 ANNUAL AVERAGE								
TOTAL	93.4	95.1	94.8	96.2	83.5	87.2	84.1	86.7
UNDER $5,000	73.9	80.1	78.3	83.7	63.3	71.2	65.2	71.3
$5,000 - $7,499	82.9	86.8	85.2	88.8	75.0	80.3	69.6	74.7
$7,500 - $9,999	86.5	89.7	88.1	91.0	79.1	83.7	73.1	76.9
$10,000 - $12,499	88.9	91.6	90.0	92.5	82.4	86.2	76.0	79.2
$12,500 - $14,999	91.1	93.4	92.1	94.3	85.5	88.4	82.4	84.6
$15,000 - $19,999	93.4	95.2	94.3	95.9	87.1	90.7	87.0	89.8
$20,000 - $24,999	95.5	97.0	96.0	97.5	91.2	93.3	91.6	93.5
$25,000 - $29,999	96.8	97.9	97.3	98.2	93.6	96.0	90.9	92.4
$30,000 - $34,999	98.3	98.9	98.6	99.2	95.4	97.1	95.8	97.1
$35,000 - $39,999	98.7	99.1	98.8	99.3	97.0	97.7	96.2	97.3
$40,000 - $49,999	99.1	99.5	99.2	99.6	98.1	98.6	98.2	98.8
$50,000 - $59,999	99.5	99.7	99.5	99.7	98.6	99.0	97.9	98.6
$60,000 - $74,999	99.7	99.9	99.7	99.9	99.3	99.5	98.8	99.2
$75,000 +	99.7	99.9	99.7	99.9	99.6	100.0	98.5	99.6

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1992 ANNUAL AVERAGE								
TOTAL	93.8	95.3	95.2	96.4	84.2	87.9	85.8	88.2
UNDER $5,000	72.0	78.1	75.5	81.1	64.1	71.3	65.0	70.7
$5,000 - $7,499	83.2	86.8	85.4	88.3	76.3	82.3	72.0	75.5
$7,500 - $9,999	87.5	90.2	89.2	91.4	79.9	84.9	76.2	79.9
$10,000 - $12,499	90.5	92.9	91.6	93.9	84.6	87.9	82.1	85.3
$12,500 - $14,999	91.5	93.7	92.7	94.7	85.1	88.4	85.7	88.8
$15,000 - $19,999	93.3	95.0	94.3	95.7	86.6	90.6	86.7	89.5
$20,000 - $24,999	95.9	97.1	96.5	97.5	91.2	93.7	93.2	94.5
$25,000 - $29,999	97.1	98.0	97.6	98.5	92.6	94.6	94.8	95.6
$30,000 - $34,999	98.2	98.9	98.4	99.0	96.3	97.4	96.1	97.1
$35,000 - $39,999	98.6	99.0	98.9	99.3	96.4	97.4	96.6	97.5
$40,000 - $49,999	99.2	99.5	99.4	99.6	97.6	98.5	98.2	98.7
$50,000 - $59,999	99.4	99.7	99.4	99.7	98.9	99.6	98.3	98.5
$60,000 - $74,999	99.5	99.8	99.5	99.8	99.3	99.6	98.9	99.7
$75,000 +	99.4	99.7	99.5	99.8	97.7	97.9	99.1	99.1
1993 ANNUAL AVERAGE								
TOTAL	94.2	95.6	95.5	96.6	85.2	88.3	86.7	88.8
UNDER $5,000	72.9	78.9	76.4	82.0	65.5	72.7	66.3	70.7
$5,000 - $7,499	84.0	87.2	85.7	88.8	78.7	82.4	75.7	78.6
$7,500 - $9,999	87.4	90.1	89.1	91.4	80.1	84.6	79.7	82.8
$10,000 - $12,499	90.6	92.7	91.9	93.8	82.9	86.7	85.7	88.3
$12,500 - $14,999	92.0	94.1	93.2	95.1	84.8	88.7	84.0	86.2
$15,000 - $19,999	93.6	95.2	94.5	96.0	88.0	90.4	85.3	88.3
$20,000 - $24,999	96.3	97.5	96.8	97.8	92.6	94.6	91.9	94.6
$25,000 - $29,999	97.7	98.5	98.1	98.8	94.5	96.1	95.5	96.9
$30,000 - $34,999	98.3	98.9	98.6	99.1	96.3	96.9	96.2	97.3
$35,000 - $39,999	98.6	99.0	98.8	99.2	96.3	97.1	95.7	96.3
$40,000 - $49,999	99.2	99.5	99.3	99.5	98.2	98.6	96.9	97.4
$50,000 - $59,999	99.5	99.7	99.5	99.7	99.0	99.3	98.4	99.1
$60,000 - $74,999	99.6	99.8	99.6	99.8	99.3	99.3	100.0	100.0
$75,000 +	99.5	99.8	99.5	99.8	99.4	100.0	100.0	100.0
1994 ANNUAL AVERAGE								
TOTAL	93.8	95.4	95.1	96.4	85.7	89.4	86.0	88.3
UNDER $5,000	76.1	82.1	79.8	84.6	68.7	77.4	66.3	71.8
$5,000 - $7,499	82.7	87.0	84.9	88.9	77.2	82.4	73.1	77.3
$7,500 - $9,999	87.3	90.5	89.1	92.1	81.4	84.9	81.1	83.8
$10,000 - $12,499	89.6	92.2	90.9	93.1	81.5	88.6	83.3	86.2
$12,500 - $14,999	91.5	94.0	92.9	95.0	85.5	89.2	84.6	87.8
$15,000 - $19,999	93.6	95.3	94.4	95.8	86.6	92.2	87.6	89.7
$20,000 - $24,999	95.2	96.7	95.8	97.2	90.3	93.5	91.4	93.5
$25,000 - $29,999	96.6	97.6	97.0	97.9	93.9	95.8	92.1	93.3
$30,000 - $34,999	97.3	98.2	97.7	98.5	93.8	95.7	91.7	93.9
$35,000 - $39,999	97.8	98.5	98.1	98.6	94.4	97.3	95.2	96.0
$40,000 - $49,999	98.6	99.1	98.8	99.3	97.2	97.8	96.4	96.6
$50,000 - $59,999	99.0	99.3	99.2	99.4	96.3	98.1	99.5	99.7
$60,000 - $74,999	99.4	99.5	99.4	99.5	99.5	99.7	98.3	98.5
$75,000 +	99.1	99.4	99.2	99.4	98.6	99.3	98.7	98.7

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1995 ANNUAL AVERAGE								
TOTAL	93.9	95.2	95.2	96.2	86.2	89.2	85.9	87.8
UNDER $5,000	75.3	80.5	79.1	83.0	67.4	75.1	68.8	72.2
$5,000 - $7,499	82.8	86.3	84.8	87.7	77.9	83.0	72.6	75.5
$7,500 - $9,999	87.3	89.6	89.5	91.5	79.0	83.3	78.0	80.4
$10,000 - $12,499	89.8	92.1	91.2	93.2	83.5	87.6	84.2	86.4
$12,500 - $14,999	91.7	93.5	92.8	94.4	86.4	89.3	84.9	86.8
$15,000 - $19,999	93.1	95.0	94.1	95.6	88.5	92.4	84.9	87.6
$20,000 - $24,999	95.4	96.4	96.0	96.9	92.4	94.1	90.2	92.1
$25,000 - $29,999	96.6	97.6	97.0	97.9	93.7	95.6	92.2	94.3
$30,000 - $34,999	97.6	98.0	97.9	98.3	94.3	95.2	94.2	95.1
$35,000 - $39,999	98.3	98.7	98.5	98.8	96.9	97.5	97.3	98.4
$40,000 - $49,999	98.6	98.9	98.8	99.0	97.1	97.8	96.6	96.6
$50,000 - $59,999	98.8	99.1	99.0	99.3	97.7	98.2	95.7	97.0
$60,000 - $74,999	99.2	99.3	99.2	99.4	98.8	99.0	98.6	99.4
$75,000 +	99.0	99.2	99.0	99.2	99.1	99.5	99.0	99.0
1996 ANNUAL AVERAGE								
TOTAL	93.9	95.0	94.9	95.8	87.3	89.8	86.4	88.0
UNDER $5,000	75.6	80.3	78.0	81.7	70.1	76.9	68.0	71.4
$5,000 - $7,499	83.1	85.8	84.5	86.6	79.9	84.3	76.9	78.8
$7,500 - $9,999	87.2	89.8	88.6	90.7	81.9	86.7	79.7	82.3
$10,000 - $12,499	88.8	91.4	90.2	92.3	83.5	88.1	82.0	84.3
$12,500 - $14,999	91.7	93.5	92.8	94.4	86.1	89.5	85.1	87.0
$15,000 - $19,999	93.0	94.6	93.7	95.1	88.7	91.3	86.5	88.7
$20,000 - $24,999	94.5	95.6	95.1	96.0	91.3	92.6	86.5	88.6
$25,000 - $29,999	96.2	97.1	96.5	97.3	93.3	95.0	94.5	95.4
$30,000 - $34,999	97.5	98.1	97.7	98.3	96.4	97.4	95.7	96.3
$35,000 - $39,999	97.9	98.3	97.8	98.2	97.5	98.0	95.2	95.7
$40,000 - $49,999	98.5	98.9	98.7	99.0	96.7	97.0	96.1	97.5
$50,000 - $59,999	98.8	99.0	99.0	99.1	97.3	97.6	97.5	98.2
$60,000 - $74,999	98.8	99.1	99.0	99.3	97.3	97.3	97.9	99.4
$75,000 +	98.9	99.2	99.0	99.2	98.7	99.2	98.4	98.7
1997 ANNUAL AVERAGE								
TOTAL	93.9	95.0	95.0	95.9	86.9	89.5	86.7	88.6
UNDER $5,000	75.7	80.8	79.1	83.5	68.4	75.1	68.5	73.5
$5,000 - $7,499	82.8	85.9	84.5	87.1	78.1	82.4	74.6	77.0
$7,500 - $9,999	86.7	89.5	89.0	91.2	78.6	83.3	79.3	81.4
$10,000 - $12,499	89.9	91.9	90.9	92.7	85.3	88.1	82.4	86.0
$12,500 - $14,999	91.0	93.1	92.4	94.0	83.9	88.1	84.5	86.4
$15,000 - $19,999	93.1	94.6	94.1	95.3	88.8	91.8	86.7	88.4
$20,000 - $24,999	95.0	95.9	95.4	96.2	92.1	93.9	89.6	90.9
$25,000 - $29,999	95.8	96.8	96.2	97.1	92.6	94.7	91.8	93.7
$30,000 - $34,999	97.2	97.9	97.5	98.1	95.1	95.9	93.6	94.9
$35,000 - $39,999	97.4	97.9	97.9	98.1	94.8	96.2	94.9	96.4
$40,000 - $49,999	98.2	98.6	98.4	98.7	97.0	97.8	96.6	97.4
$50,000 - $59,999	98.4	98.8	98.5	98.9	96.9	97.3	97.7	98.6
$60,000 - $74,999	99.0	99.2	99.0	99.2	99.5	99.8	98.4	98.4
$75,000 +	99.0	99.2	99.1	99.3	98.5	98.8	98.1	98.3

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1998 ANNUAL AVERAGE								
TOTAL	94.1	95.2	95.1	96.0	87.9	89.7	88.4	90.0
UNDER $5,000	77.2	81.3	80.1	83.8	70.3	75.2	72.0	75.3
$5,000 - $7,499	83.0	85.9	84.9	87.6	77.6	81.0	77.0	80.6
$7,500 - $9,999	87.4	89.3	88.8	90.6	83.3	85.0	79.7	81.6
$10,000 - $12,499	89.8	91.7	90.7	92.5	85.7	88.5	84.6	86.2
$12,500 - $14,999	91.0	92.8	92.0	93.7	85.8	88.2	85.3	86.4
$15,000 - $19,999	93.0	94.2	94.0	95.2	88.3	89.6	89.6	91.0
$20,000 - $24,999	93.9	95.2	94.6	95.8	90.2	92.2	88.4	90.2
$25,000 - $29,999	95.6	96.6	95.8	96.7	94.0	95.9	91.3	93.5
$30,000 - $34,999	97.1	97.8	97.5	98.2	94.3	95.6	95.3	96.7
$35,000 - $39,999	97.5	98.0	97.8	98.3	95.4	96.4	95.9	96.8
$40,000 - $49,999	98.1	98.5	98.3	98.7	96.2	96.7	96.9	97.4
$50,000 - $59,999	98.1	98.5	98.2	98.6	96.8	97.5	95.7	96.7
$60,000 - $74,999	98.6	98.8	98.8	99.0	96.9	97.4	97.5	97.5
$75,000 +	99.0	99.2	99.0	99.2	99.1	99.1	98.6	98.8
1999 ANNUAL AVERAGE								
TOTAL	94.2	95.0	95.2	95.9	87.7	89.6	89.9	90.9
UNDER $5,000	76.0	79.8	79.0	82.6	69.5	74.2	72.8	75.6
$5,000 - $7,499	82.9	85.3	84.6	87.0	78.3	81.2	79.8	83.3
$7,500 - $9,999	88.3	90.3	89.9	91.5	81.8	85.5	85.0	85.8
$10,000 - $12,499	88.9	90.5	90.4	91.8	82.1	84.9	85.2	86.5
$12,500 - $14,999	90.3	92.0	91.0	92.4	87.1	89.8	84.8	85.9
$15,000 - $19,999	92.5	94.0	93.5	94.7	87.0	90.2	88.3	89.5
$20,000 - $24,999	94.1	95.1	94.8	95.7	90.5	92.1	91.5	92.8
$25,000 - $29,999	95.3	96.2	95.9	96.6	91.8	93.5	95.2	95.7
$30,000 - $34,999	96.7	97.4	97.2	97.7	93.9	95.5	94.7	95.2
$35,000 - $39,999	97.3	97.8	97.8	98.2	94.3	95.1	96.1	96.6
$40,000 - $49,999	98.2	98.5	98.3	98.6	97.2	97.6	95.8	96.5
$50,000 - $59,999	98.2	98.5	98.3	98.7	97.2	97.4	98.1	98.5
$60,000 - $74,999	98.6	98.8	98.6	98.9	97.6	98.4	98.2	98.4
$75,000 +	98.8	99.0	98.9	99.1	97.8	98.2	97.7	98.2
MARCH 2000								
TOTAL	94.6	95.3	95.4	96.0	89.7	91.2	90.6	91.5
UNDER $5,000	80.3	83.3	84.4	87.2	71.4	74.5	81.1	83.8
$5,000 - $7,499	83.5	85.8	83.6	85.8	82.8	85.6	80.6	84.4
$7,500 - $9,999	88.1	90.5	89.7	91.7	82.9	86.1	89.2	90.9
$10,000 - $12,499	89.5	91.2	90.5	92.1	85.8	87.9	81.4	83.8
$12,500 - $14,999	92.0	93.1	92.9	94.0	87.6	88.6	87.7	88.3
$15,000 - $19,999	92.3	93.7	93.3	94.5	87.7	89.7	84.9	86.5
$20,000 - $24,999	94.8	95.3	95.0	95.5	93.5	94.3	91.0	91.0
$25,000 - $29,999	96.0	96.5	96.4	96.8	93.1	94.6	94.1	94.5
$30,000 - $34,999	95.9	96.6	96.0	96.8	94.9	95.4	93.3	94.4
$35,000 - $39,999	97.4	97.8	97.8	98.3	94.6	95.6	95.4	95.4
$40,000 - $49,999	97.4	97.8	97.8	98.1	94.4	94.7	96.8	97.2
$50,000 - $59,999	98.3	98.5	98.3	98.5	97.7	98.1	97.6	97.6
$60,000 - $74,999	98.4	98.5	98.5	98.7	96.3	96.6	96.8	97.4
$75,000 +	98.5	98.7	98.5	98.7	96.8	97.2	95.6	96.1

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
JULY 2000								
TOTAL	94.4	95.2	95.2	95.9	89.2	90.6	90.5	91.7
UNDER $5,000	79.2	82.5	81.5	84.7	72.9	76.3	75.2	78.5
$5,000 - $7,499	85.3	87.0	86.3	88.1	82.4	83.9	83.5	85.5
$7,500 - $9,999	86.5	88.9	88.0	89.7	81.1	85.8	86.1	87.4
$10,000 - $12,499	90.3	91.7	91.1	92.4	86.3	88.9	85.4	87.5
$12,500 - $14,999	92.1	93.7	93.6	95.1	85.6	87.4	88.1	90.4
$15,000 - $19,999	90.8	92.5	91.5	93.2	87.1	89.2	88.4	89.8
$20,000 - $24,999	93.3	94.6	93.8	95.1	91.0	92.8	90.4	91.6
$25,000 - $29,999	95.7	96.5	96.5	97.3	92.2	93.3	92.9	94.4
$30,000 - $34,999	96.5	97.1	96.5	97.1	95.6	96.6	95.3	95.6
$35,000 - $39,999	97.1	97.5	97.5	97.8	94.9	94.9	94.9	95.6
$40,000 - $49,999	98.0	98.6	98.0	98.6	97.2	98.3	98.2	99.3
$50,000 - $59,999	98.0	98.4	98.3	98.6	96.0	97.0	98.0	98.0
$60,000 - $74,999	98.6	98.8	98.8	99.0	96.7	97.1	95.9	96.4
$75,000 +	98.5	98.8	98.5	98.8	98.3	98.3	96.9	97.4
NOVEMBER 2000								
TOTAL	94.1	95.0	94.9	95.7	88.9	90.3	90.4	91.5
UNDER $5,000	80.4	83.6	83.3	86.7	74.7	78.2	80.6	83.7
$5,000 - $7,499	83.7	86.1	85.2	87.0	79.9	84.3	83.0	84.1
$7,500 - $9,999	86.3	88.4	87.5	89.6	82.7	85.2	82.1	82.8
$10,000 - $12,499	90.1	91.7	91.1	92.9	85.6	85.8	85.3	86.7
$12,500 - $14,999	90.5	91.9	91.5	92.8	86.4	87.7	88.3	90.9
$15,000 - $19,999	91.9	93.4	93.0	94.5	85.9	88.3	88.3	89.2
$20,000 - $24,999	93.1	94.3	94.2	95.1	86.9	89.5	91.0	91.3
$25,000 - $29,999	94.7	95.8	95.1	96.2	92.2	93.5	92.0	93.9
$30,000 - $34,999	96.9	97.3	97.2	97.6	95.7	96.4	92.4	92.8
$35,000 - $39,999	97.0	97.7	97.3	98.0	95.7	96.5	96.0	96.4
$40,000 - $49,999	97.7	98.2	97.8	98.4	96.3	96.3	95.0	96.8
$50,000 - $59,999	97.8	98.1	97.8	98.2	97.4	97.4	97.2	97.7
$60,000 - $74,999	98.3	98.8	98.3	98.7	98.0	98.7	95.0	95.8
$75,000 +	98.3	98.6	98.4	98.7	97.5	97.6	98.1	98.7
2000 ANNUAL AVERAGE								
TOTAL	94.4	95.2	95.2	95.9	89.3	90.7	90.5	91.6
UNDER $5,000	80.0	83.1	83.1	86.2	73.0	76.3	79.0	82.0
$5,000 - $7,499	84.2	86.3	85.0	87.0	81.7	84.6	82.4	84.7
$7,500 - $9,999	87.0	89.3	88.4	90.3	82.2	85.7	85.8	87.0
$10,000 - $12,499	90.0	91.5	90.9	92.5	85.9	87.5	84.0	86.0
$12,500 - $14,999	91.5	92.9	92.7	94.0	86.5	87.9	88.0	89.9
$15,000 - $19,999	91.7	93.2	92.6	94.1	86.9	89.1	87.2	88.5
$20,000 - $24,999	93.7	94.7	94.3	95.2	90.5	92.2	90.8	91.3
$25,000 - $29,999	95.5	96.3	96.0	96.8	92.5	93.8	93.0	94.3
$30,000 - $34,999	96.4	97.0	96.6	97.2	95.4	96.1	93.7	94.3
$35,000 - $39,999	97.2	97.7	97.5	98.0	95.1	95.7	95.4	95.8
$40,000 - $49,999	97.7	98.2	97.9	98.4	96.0	96.4	96.7	97.8
$50,000 - $59,999	98.0	98.3	98.1	98.4	97.0	97.5	97.6	97.8
$60,000 - $74,999	98.4	98.7	98.5	98.8	97.0	97.5	95.9	96.5
$75,000 +	98.4	98.7	98.5	98.7	97.5	97.7	96.9	97.4

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
MARCH 2001								
TOTAL	94.6	95.4	95.3	96.1	89.5	91.0	91.7	92.5
UNDER $5,000	79.0	81.7	82.9	84.6	69.8	74.5	78.6	80.2
$5,000 - $7,499	83.7	86.2	85.1	87.3	80.4	84.0	84.9	85.4
$7,500 - $9,999	87.5	90.0	88.5	90.6	84.6	89.1	87.6	89.3
$10,000 - $12,499	91.1	92.6	92.2	93.8	86.2	87.7	88.5	89.7
$12,500 - $14,999	91.0	91.7	91.0	91.9	88.4	88.7	86.7	87.3
$15,000 - $19,999	92.7	94.2	93.2	94.4	89.8	92.7	89.8	90.8
$20,000 - $24,999	94.3	95.4	95.1	96.1	89.1	91.5	91.7	93.1
$25,000 - $29,999	95.9	97.0	96.1	97.1	94.2	95.5	91.6	92.2
$30,000 - $34,999	96.8	97.3	97.0	97.4	95.8	96.6	96.2	96.2
$35,000 - $39,999	97.5	97.7	97.5	97.7	96.9	97.2	97.6	98.3
$40,000 - $49,999	97.6	98.2	98.0	98.5	95.9	96.3	96.4	96.4
$50,000 - $59,999	98.0	98.3	98.1	98.5	96.8	97.2	98.1	98.7
$60,000 - $74,999	98.2	98.5	98.4	98.6	97.8	98.6	97.3	98.4
$75,000 +	98.5	98.9	98.6	99.0	98.2	98.2	97.7	98.3
JULY 2001								
TOTAL	95.1	95.9	95.8	96.5	90.3	91.8	91.3	92.5
UNDER $5,000	81.7	85.1	85.6	87.7	73.3	79.8	81.0	84.9
$5,000 - $7,499	83.7	86.0	85.9	87.7	78.4	82.2	83.1	85.5
$7,500 - $9,999	90.7	92.3	92.1	93.5	86.1	87.9	86.7	90.5
$10,000 - $12,499	90.5	92.4	91.2	92.9	87.6	90.8	85.0	86.9
$12,500 - $14,999	91.5	92.9	93.0	94.0	82.5	86.3	89.0	89.0
$15,000 - $19,999	93.5	94.5	94.1	95.3	91.0	91.9	88.5	89.5
$20,000 - $24,999	94.3	95.6	94.7	96.0	91.6	93.3	89.8	93.0
$25,000 - $29,999	96.4	97.1	96.8	97.5	94.0	95.3	93.6	94.5
$30,000 - $34,999	96.8	97.3	96.8	97.2	97.0	97.7	94.3	94.6
$35,000 - $39,999	97.6	97.9	97.6	97.9	97.4	97.5	94.2	94.7
$40,000 - $49,999	98.0	98.4	97.9	98.4	97.4	97.8	96.8	97.0
$50,000 - $59,999	98.4	98.9	98.4	98.9	98.1	98.2	95.5	97.3
$60,000 - $74,999	98.9	99.1	99.0	99.2	98.4	98.5	97.1	97.1
$75,000 +	98.9	99.1	98.9	99.1	97.7	98.3	99.0	99.0
NOVEMBER 2001								
TOTAL	94.9	95.8	95.6	96.5	90.3	91.5	90.8	92.2
UNDER $5,000	79.1	83.0	80.8	84.7	75.1	79.7	76.8	81.9
$5,000 - $7,499	84.5	86.8	85.1	87.5	83.0	85.3	85.1	86.1
$7,500 - $9,999	88.1	89.6	89.4	90.7	83.0	84.8	85.3	85.9
$10,000 - $12,499	89.1	91.0	89.9	91.7	84.3	86.7	84.0	85.9
$12,500 - $14,999	91.7	93.1	92.6	94.0	88.7	89.8	89.6	90.2
$15,000 - $19,999	92.5	94.4	93.2	95.0	89.3	91.3	88.2	91.6
$20,000 - $24,999	94.2	95.2	95.0	95.9	90.7	91.6	92.3	93.1
$25,000 - $29,999	95.7	96.6	95.6	96.5	96.5	97.2	92.7	93.9
$30,000 - $34,999	96.6	97.3	97.2	97.9	93.0	93.8	94.2	94.7
$35,000 - $39,999	96.6	97.8	96.9	98.0	94.0	95.6	96.1	97.0
$40,000 - $49,999	97.9	98.3	97.9	98.4	97.7	97.7	94.9	94.9
$50,000 - $59,999	98.8	99.1	98.9	99.3	97.0	97.0	98.3	99.3
$60,000 - $74,999	98.7	99.2	98.8	99.3	97.5	97.8	95.0	97.1
$75,000 +	98.9	99.2	98.9	99.2	98.9	99.2	98.0	98.8

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
2001 ANNUAL AVERAGE								
TOTAL	94.9	95.7	95.6	96.4	90.0	91.4	91.3	92.4
UNDER $5,000	79.9	83.3	83.1	85.7	72.7	78.0	78.8	82.3
$5,000 - $7,499	84.0	86.3	85.4	87.5	80.6	83.8	84.4	85.7
$7,500 - $9,999	88.8	90.6	90.0	91.6	84.6	87.3	86.5	88.6
$10,000 - $12,499	90.2	92.0	91.1	92.8	86.0	88.4	85.8	87.5
$12,500 - $14,999	91.4	92.6	92.2	93.3	86.5	88.3	88.4	88.8
$15,000 - $19,999	92.9	94.4	93.5	94.9	90.0	92.0	88.8	90.6
$20,000 - $24,999	94.3	95.4	94.9	96.0	90.5	92.1	91.3	93.1
$25,000 - $29,999	96.0	96.9	96.2	97.0	94.9	96.0	92.6	93.5
$30,000 - $34,999	96.7	97.3	97.0	97.5	95.3	96.0	94.9	95.2
$35,000 - $39,999	97.2	97.8	97.3	97.9	96.1	96.8	96.0	96.7
$40,000 - $49,999	97.8	98.3	97.9	98.4	97.0	97.3	96.0	96.1
$50,000 - $59,999	98.4	98.8	98.5	98.9	97.3	97.5	97.3	98.4
$60,000 - $74,999	98.6	98.9	98.7	99.0	97.9	98.3	96.5	97.5
$75,000 +	98.8	99.1	98.8	99.1	98.3	98.6	98.2	98.7
MARCH 2002								
TOTAL	95.5	96.3	96.3	97.0	90.8	92.1	91.8	92.9
UNDER $5,000	81.0	83.9	84.2	86.6	73.7	77.7	79.9	82.1
$5,000 - $7,499	84.0	86.8	85.6	88.5	78.8	81.7	84.1	86.0
$7,500 - $9,999	90.9	92.3	92.2	93.3	88.2	89.4	90.0	91.1
$10,000 - $12,499	90.2	91.5	91.6	92.6	84.4	86.1	89.6	91.1
$12,500 - $14,999	92.9	94.0	93.8	95.1	89.6	90.1	87.1	89.0
$15,000 - $19,999	93.1	94.6	93.3	94.5	91.8	94.6	86.9	88.7
$20,000 - $24,999	94.8	95.6	95.5	96.3	92.1	92.7	93.9	94.8
$25,000 - $29,999	95.5	96.8	96.3	97.4	91.2	93.0	93.1	95.0
$30,000 - $34,999	97.1	97.5	97.2	97.7	96.5	96.5	93.4	94.2
$35,000 - $39,999	97.9	98.4	98.0	98.5	97.2	97.8	97.0	97.7
$40,000 - $49,999	98.2	98.6	98.4	98.8	96.6	97.2	97.4	97.5
$50,000 - $59,999	99.0	99.6	99.0	99.5	99.6	99.6	98.2	99.3
$60,000 - $74,999	99.4	99.6	99.6	99.7	98.8	98.8	98.8	99.3
$75,000 +	99.3	99.5	99.3	99.6	98.8	98.8	99.5	99.5
JULY 2002								
TOTAL	95.1	96.0	96.0	96.7	89.9	91.6	90.7	92.0
UNDER $5,000	78.9	82.2	80.5	83.8	74.5	78.7	75.4	79.3
$5,000 - $7,499	82.6	86.0	86.2	88.9	73.3	78.3	84.1	84.5
$7,500 - $9,999	89.7	91.6	90.2	92.1	87.0	89.2	86.5	89.1
$10,000 - $12,499	90.4	92.3	91.7	93.2	85.2	89.0	88.1	90.7
$12,500 - $14,999	92.5	93.4	93.2	94.0	89.5	90.8	87.9	89.7
$15,000 - $19,999	92.9	94.1	93.7	94.7	90.9	92.6	86.7	87.8
$20,000 - $24,999	93.6	95.0	94.6	96.0	88.6	90.5	89.7	91.8
$25,000 - $29,999	95.4	96.3	95.6	96.5	94.2	94.9	92.6	94.3
$30,000 - $34,999	96.3	97.3	97.1	97.9	92.2	93.7	94.5	96.1
$35,000 - $39,999	98.1	98.5	98.2	98.6	97.9	98.0	97.2	97.2
$40,000 - $49,999	97.8	98.3	98.0	98.4	96.6	97.3	94.9	96.1
$50,000 - $59,999	98.5	98.9	98.7	99.0	98.4	98.4	97.0	97.0
$60,000 - $74,999	98.9	99.2	98.9	99.3	98.1	99.0	96.7	97.6
$75,000 +	99.3	99.6	99.4	99.6	98.2	98.5	99.2	99.4
	RACE						HISPANIC	

Table 4
Percentage of Households with a Telephone by Income

	TOTAL		WHITE		BLACK		ORIGIN	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
NOVEMBER 2002								
TOTAL	95.3	96.2	96.2	96.9	89.7	91.2	92.7	93.7
UNDER $5,000	79.8	83.1	82.8	85.3	73.1	77.8	78.2	80.8
$5,000 - $7,499	83.2	85.6	85.8	88.4	77.0	79.1	85.2	86.6
$7,500 - $9,999	88.6	90.8	91.0	92.7	80.8	84.6	88.8	91.6
$10,000 - $12,499	91.1	93.0	92.4	94.0	86.4	88.6	86.6	87.4
$12,500 - $14,999	92.8	94.2	93.2	94.6	90.5	92.0	90.8	91.9
$15,000 - $19,999	93.6	94.8	94.3	95.3	90.5	93.2	89.4	90.7
$20,000 - $24,999	94.4	95.6	95.2	96.2	91.2	93.2	93.4	94.4
$25,000 - $29,999	95.8	96.7	96.0	97.0	94.5	95.2	94.5	96.5
$30,000 - $34,999	97.3	97.8	97.8	98.2	95.5	96.3	97.6	97.6
$35,000 - $39,999	97.7	98.3	97.9	98.6	96.2	96.7	98.1	98.9
$40,000 - $49,999	98.5	98.9	98.7	99.1	96.5	96.8	97.7	98.8
$50,000 - $59,999	98.6	99.0	98.9	99.2	96.1	96.7	98.6	98.6
$60,000 - $74,999	98.9	99.3	99.0	99.4	98.1	98.6	99.4	99.9
$75,000 +	99.3	99.5	99.3	99.5	98.7	98.7	98.8	98.8
2002 ANNUAL AVERAGE								
TOTAL	95.3	96.2	96.2	96.9	90.1	91.6	91.7	92.9
UNDER $5,000	79.9	83.1	82.5	85.2	73.8	78.1	77.8	80.7
$5,000 - $7,499	83.3	86.1	85.9	88.6	76.4	79.7	84.5	85.7
$7,500 - $9,999	89.7	91.6	91.1	92.7	85.3	87.7	88.4	90.6
$10,000 - $12,499	90.6	92.3	91.9	93.3	85.3	87.9	88.1	89.7
$12,500 - $14,999	92.7	93.9	93.4	94.6	89.9	91.0	88.6	90.2
$15,000 - $19,999	93.2	94.5	93.8	94.8	91.1	93.5	87.7	89.1
$20,000 - $24,999	94.3	95.4	95.1	96.2	90.6	92.1	92.3	93.7
$25,000 - $29,999	95.6	96.6	96.0	97.0	93.3	94.4	93.4	95.3
$30,000 - $34,999	96.9	97.5	97.4	97.9	94.7	95.5	95.2	96.0
$35,000 - $39,999	97.9	98.4	98.0	98.6	97.1	97.5	97.4	97.9
$40,000 - $49,999	98.2	98.6	98.4	98.8	96.6	97.1	96.7	97.5
$50,000 - $59,999	98.7	99.2	98.9	99.2	98.0	98.2	97.9	98.3
$60,000 - $74,999	99.1	99.4	99.2	99.5	98.3	98.8	98.3	98.9
$75,000 +	99.3	99.5	99.3	99.6	98.6	98.7	99.2	99.2
MARCH 2003								
TOTAL	95.5	96.3	96.2	96.9	91.0	92.1	92.3	93.2
UNDER $5,000	80.5	84.6	83.0	87.3	76.0	80.3	79.5	83.9
$5,000 - $7,499	86.5	88.2	86.6	88.6	83.6	85.0	81.0	82.1
$7,500 - $9,999	89.7	91.2	90.9	92.3	85.5	86.9	88.2	90.5
$10,000 - $12,499	91.6	92.6	92.2	93.2	87.8	89.4	87.9	89.3
$12,500 - $14,999	92.0	93.0	92.5	93.7	88.9	89.7	89.4	90.3
$15,000 - $19,999	93.6	94.8	94.7	95.6	88.9	90.8	90.6	91.4
$20,000 - $24,999	94.0	94.9	94.7	95.5	90.1	91.2	92.1	93.2
$25,000 - $29,999	95.8	96.5	96.2	96.8	94.2	94.8	93.3	93.5
$30,000 - $34,999	96.7	97.4	96.9	97.7	94.2	94.6	95.4	96.3
$35,000 - $39,999	98.0	98.5	98.3	98.8	96.0	96.3	98.6	98.6
$40,000 - $49,999	98.0	98.5	97.9	98.4	98.4	99.2	95.9	96.4
$50,000 - $59,999	98.6	99.1	98.8	99.2	97.4	98.2	97.5	98.3
$60,000 - $74,999	98.8	99.2	98.8	99.3	98.1	98.1	97.3	97.9
$75,000 +	99.3	99.6	99.4	99.6	99.3	99.6	98.8	99.1

Table 5
Percentage of Households with a Telephone by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
NOVEMBER 1983								
TOTAL	91.4	93.7	93.1	95.0	78.8	83.9	80.7	84.6
1 PERSON	87.5	91.3	90.2	93.7	71.2	77.1	73.8	82.0
2 - 3	93.3	95.0	94.5	95.9	82.5	87.8	80.7	84.3
4 - 5	92.4	94.2	93.6	95.0	83.1	87.3	83.4	86.2
6 +	86.6	88.9	90.5	92.2	74.5	78.5	81.0	84.0
1984 ANNUAL AVERAGE								
TOTAL	91.6	93.7	93.2	94.9	79.8	84.5	80.9	84.3
1 PERSON	88.3	91.8	90.3	93.4	74.9	80.7	72.9	79.4
2 - 3	93.2	94.9	94.5	95.9	82.3	86.8	82.0	85.2
4 - 5	92.5	94.0	93.9	95.1	81.8	85.7	83.9	86.2
6 +	86.9	88.8	89.8	91.1	76.3	80.1	79.2	81.8
1985 ANNUAL AVERAGE								
TOTAL	91.8	93.9	93.3	95.0	81.1	85.2	81.3	84.4
1 PERSON	87.6	91.2	89.9	93.1	73.6	79.8	71.9	78.5
2 - 3	93.5	95.0	94.5	95.8	84.9	87.9	83.6	86.0
4 - 5	94.2	95.3	95.2	96.1	87.6	90.4	85.6	87.0
6 +	90.3	91.8	92.8	93.6	81.3	84.9	85.6	86.1
1986 ANNUAL AVERAGE								
TOTAL	92.3	94.1	93.7	95.2	81.6	85.9	81.4	84.1
1 PERSON	88.1	91.4	90.4	93.2	75.4	81.0	73.9	79.3
2 - 3	94.0	95.3	95.0	96.1	85.3	88.9	83.1	85.4
4 - 5	94.4	95.3	95.4	96.1	87.9	90.4	85.5	86.7
6 +	90.1	91.5	92.9	93.5	77.8	82.8	83.3	84.1
1987 ANNUAL AVERAGE								
TOTAL	92.4	94.2	93.8	95.4	81.8	85.9	83.0	85.4
1 PERSON	89.5	92.7	91.3	94.1	77.8	83.1	79.5	83.5
2 - 3	93.9	95.3	95.1	96.3	83.9	87.3	83.8	86.3
4 - 5	93.0	94.5	94.3	95.4	83.6	87.4	84.4	86.4
6 +	87.4	89.1	89.8	91.0	77.4	81.5	80.6	81.6
1988 ANNUAL AVERAGE								
TOTAL	92.7	94.5	94.1	95.6	83.0	86.8	82.1	85.1
1 PERSON	88.4	91.7	90.6	93.5	76.4	82.0	74.4	79.5
2 - 3	94.5	95.7	95.4	96.4	86.8	89.7	84.2	86.9
4 - 5	94.9	95.8	95.8	96.5	89.0	90.7	84.4	85.6
6 +	92.8	94.3	93.7	94.9	87.2	90.6	86.1	88.0
1989 ANNUAL AVERAGE								
TOTAL	93.1	94.9	94.5	95.9	83.2	87.1	83.0	86.0
1 PERSON	90.0	93.0	91.9	94.6	79.1	83.8	75.5	81.3
2 - 3	94.5	95.8	95.6	96.7	85.8	89.3	84.3	87.3
4 - 5	94.5	95.5	95.7	96.4	85.7	88.8	86.9	88.5
6 +	90.5	92.0	92.7	93.8	82.4	85.8	84.9	86.5

Table 5
Percentage of Households with a Telephone by Household Size

	TOTAL		RACE WHITE		RACE BLACK		HISPANIC ORIGIN	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1990 ANNUAL AVERAGE								
TOTAL	93.3	95.0	94.6	96.1	83.5	87.0	82.7	85.3
1 PERSON	90.9	93.7	92.5	95.1	80.2	84.8	76.2	80.5
2 - 3	94.7	96.0	95.8	96.9	86.0	89.0	84.2	86.7
4 - 5	93.6	95.0	95.0	96.1	84.0	87.1	84.6	86.8
6 +	87.8	89.6	90.2	91.5	78.5	81.8	80.6	81.8
1991 ANNUAL AVERAGE								
TOTAL	93.4	95.1	94.8	96.2	83.5	87.2	84.1	87.7
1 PERSON	91.1	93.9	92.8	95.3	79.8	84.9	77.7	83.3
2 - 3	94.9	96.2	96.0	97.1	85.8	88.9	86.2	88.4
4 - 5	93.7	95.0	95.1	96.1	84.3	87.4	85.1	87.5
6 +	88.8	90.4	90.5	91.8	81.0	83.9	82.0	83.3
1992 ANNUAL AVERAGE								
TOTAL	93.8	95.3	95.2	96.4	84.2	87.9	85.8	88.2
1 PERSON	91.8	94.1	93.4	95.4	81.4	86.1	81.3	85.4
2 - 3	95.1	96.3	96.2	97.2	86.1	89.2	86.3	88.9
4 - 5	93.9	95.2	95.3	96.2	84.4	88.0	87.4	89.2
6 +	89.9	91.4	91.7	92.7	82.8	85.4	85.7	86.6
1993 ANNUAL AVERAGE								
TOTAL	94.2	95.6	95.5	96.6	85.2	88.3	86.7	88.8
1 PERSON	92.3	94.6	93.9	95.8	82.5	86.8	81.9	86.4
2 - 3	95.3	96.4	96.3	97.2	87.1	89.6	87.3	89.1
4 - 5	94.5	95.6	95.9	96.7	85.7	88.3	88.4	90.2
6 +	89.9	91.5	92.0	93.0	81.2	84.9	85.7	87.1
1994 ANNUAL AVERAGE								
TOTAL	93.8	95.4	95.1	96.4	85.7	89.4	86.0	88.3
1 PERSON	91.8	94.2	93.4	95.4	82.2	86.7	82.1	85.9
2 - 3	95.0	96.2	96.0	97.0	87.9	91.1	86.6	88.9
4 - 5	94.2	95.6	95.5	96.6	86.6	89.9	88.1	89.5
6 +	89.4	91.7	91.3	93.1	82.3	86.9	83.4	85.9
1995 ANNUAL AVERAGE								
TOTAL	93.9	95.2	95.2	96.2	86.2	89.2	85.9	87.8
1 PERSON	91.6	93.4	93.2	94.6	82.1	85.9	80.6	82.7
2 - 3	95.2	96.1	96.2	96.9	88.2	90.7	86.4	88.2
4 - 5	94.5	95.6	95.6	96.5	87.9	90.5	88.0	89.8
6 +	90.4	92.3	92.0	93.6	84.4	87.8	85.2	87.1
1996 ANNUAL AVERAGE								
TOTAL	93.9	95.0	94.9	95.8	87.3	89.8	86.4	88.0
1 PERSON	91.5	93.1	92.7	94.2	83.8	86.5	80.5	83.4
2 - 3	95.2	96.1	96.1	96.7	88.9	91.5	87.5	88.9
4 - 5	94.5	95.5	95.3	96.1	88.9	91.3	87.8	89.5
6 +	89.8	91.1	91.1	92.1	84.6	87.5	85.4	86.5

Table 5
Percentage of Households with a Telephone by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1997 ANNUAL AVERAGE								
TOTAL	93.9	95.0	95.0	95.9	86.9	89.5	86.7	88.6
1 PERSON	91.4	93.1	92.8	94.3	83.3	86.3	80.1	83.7
2 - 3	95.0	96.0	95.9	96.6	89.2	91.4	87.6	89.4
4 - 5	94.8	95.8	95.9	96.6	87.9	90.5	89.1	90.3
6 +	90.3	91.7	91.9	92.9	83.0	86.2	85.7	87.6
1998 ANNUAL AVERAGE								
TOTAL	94.1	95.2	95.1	96.0	87.9	89.7	88.4	90.0
1 PERSON	91.4	92.9	92.9	94.3	82.8	85.2	81.9	84.5
2 - 3	95.4	96.2	96.1	96.8	90.5	92.1	89.5	91.0
4 - 5	94.9	95.7	95.7	96.4	89.5	90.9	89.9	91.3
6 +	91.8	92.9	92.7	93.6	87.9	89.9	88.4	89.4
1999 ANNUAL AVERAGE								
TOTAL	94.2	95.0	95.2	95.9	87.7	89.6	89.9	90.9
1 PERSON	90.9	92.4	92.6	93.8	82.1	84.9	82.7	84.4
2 - 3	95.4	96.1	96.1	96.7	90.3	91.8	90.1	91.3
4 - 5	95.6	96.2	96.4	96.9	90.6	92.0	92.5	93.4
6 +	92.2	93.4	93.4	94.4	85.9	88.5	90.3	90.8
MARCH 2000								
TOTAL	94.6	95.3	95.4	96.0	89.7	91.2	90.6	91.5
1 PERSON	92.2	93.5	93.4	94.5	85.6	88.0	86.7	88.4
2 - 3	95.5	96.1	96.1	96.6	91.3	92.6	90.2	91.4
4 - 5	95.6	96.1	96.4	96.8	91.6	92.5	92.3	92.8
6 +	93.0	93.7	93.8	94.6	90.0	90.4	91.6	92.3
JULY 2000								
TOTAL	94.4	95.2	95.2	95.9	89.2	90.6	90.5	91.7
1 PERSON	91.3	92.5	92.6	93.7	83.7	85.6	81.5	83.1
2 - 3	95.5	96.2	96.1	96.7	91.2	92.3	90.9	92.2
4 - 5	95.6	96.4	96.2	96.8	91.7	93.1	93.1	94.1
6 +	94.0	95.1	94.0	95.2	93.5	94.4	92.1	93.6
NOVEMBER 2000								
TOTAL	94.1	95.0	94.9	95.7	88.9	90.3	90.4	91.5
1 PERSON	91.0	92.5	92.3	93.7	83.9	86.0	83.8	87.2
2 - 3	95.2	95.9	95.9	96.5	90.5	91.5	90.4	91.1
4 - 5	95.5	96.1	96.1	96.6	91.8	93.2	92.5	93.2
6 +	93.3	94.3	93.5	94.3	91.1	93.4	92.6	93.0
2000 ANNUAL AVERAGE								
TOTAL	94.4	95.2	95.2	95.9	89.3	90.7	90.5	91.6
1 PERSON	91.5	92.8	92.8	94.0	84.4	86.5	84.0	86.2
2 - 3	95.4	96.1	96.0	96.6	91.0	92.1	90.5	91.6
4 - 5	95.6	96.2	96.2	96.7	91.7	92.9	92.6	93.4
6 +	93.4	94.4	93.8	94.7	91.5	92.7	92.1	93.0

Table 5
Percentage of Households with a Telephone by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
MARCH 2001								
TOTAL	94.6	95.4	95.3	96.1	89.5	91.0	91.7	92.5
1 PERSON	91.6	93.0	92.7	94.0	85.5	87.2	87.2	88.9
2 - 3	95.5	96.1	96.2	96.7	90.4	92.1	92.6	93.2
4 - 5	96.2	96.7	96.7	97.2	93.0	94.0	92.8	93.4
6 +	94.0	94.6	94.7	95.3	90.4	90.9	91.0	91.6
JULY 2001								
TOTAL	95.1	95.9	95.8	96.5	90.3	91.8	91.3	92.5
1 PERSON	92.5	93.8	93.7	94.9	85.6	87.8	84.4	86.7
2 - 3	96.0	96.5	96.5	96.9	92.7	93.7	90.2	91.5
4 - 5	96.4	97.1	97.1	97.7	91.2	92.7	95.1	96.0
6 +	94.3	95.1	94.7	95.2	92.6	95.0	92.9	93.3
NOVEMBER 2001								
TOTAL	94.9	95.8	95.6	96.5	90.3	91.5	90.8	92.2
1 PERSON	92.0	93.5	93.0	94.4	86.3	88.3	83.0	85.6
2 - 3	95.9	96.6	96.5	97.1	92.0	93.1	90.9	92.0
4 - 5	96.2	97.0	96.7	97.6	92.4	92.9	93.4	94.7
6 +	94.4	95.2	95.0	95.8	90.9	92.0	92.6	93.3
2001 ANNUAL AVERAGE								
TOTAL	94.9	95.7	95.6	96.4	90.0	91.4	91.3	92.4
1 PERSON	92.0	93.4	93.1	94.4	85.8	87.8	84.9	87.1
2 - 3	95.8	96.4	96.4	96.9	91.7	93.0	91.2	92.2
4 - 5	96.3	96.9	96.8	97.5	92.2	93.2	93.8	94.7
6 +	94.2	95.0	94.8	95.4	91.3	92.6	92.2	92.7
MARCH 2002								
TOTAL	95.5	96.3	96.3	97.0	90.8	92.1	91.8	92.9
1 PERSON	93.0	94.2	94.3	95.3	86.3	88.2	87.2	88.5
2 - 3	96.4	97.1	97.1	97.6	92.5	93.3	91.7	92.8
4 - 5	96.7	97.3	97.1	97.7	93.3	94.4	93.6	94.6
6 +	95.3	96.1	95.6	96.2	93.8	95.0	93.1	93.9
JULY 2002								
TOTAL	95.1	96.0	96.0	96.7	89.9	91.6	90.7	92.0
1 PERSON	92.5	93.8	93.7	95.0	85.7	87.6	84.9	86.3
2 - 3	96.1	96.7	96.8	97.3	91.4	93.0	90.6	92.1
4 - 5	96.4	97.2	97.0	97.6	92.9	94.6	93.3	94.2
6 +	94.3	95.3	94.7	95.6	90.2	92.3	91.3	93.1
NOVEMBER 2002								
TOTAL	95.3	96.2	96.2	96.9	89.7	91.2	92.7	93.7
1 PERSON	92.7	93.9	94.0	95.2	85.2	86.7	87.9	89.7
2 - 3	96.2	96.9	96.9	97.5	91.4	93.1	92.3	93.2
4 - 5	96.7	97.3	97.3	97.8	92.2	93.2	94.6	95.6
6 +	95.2	95.8	96.0	96.4	92.3	92.9	94.8	95.4

Table 5
Percentage of Households with a Telephone by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
2002 ANNUAL AVERAGE								
TOTAL	95.3	96.2	96.2	96.9	90.1	91.6	91.7	92.9
1 PERSON	92.7	94.0	94.0	95.2	85.7	87.5	86.7	88.2
2 - 3	96.2	96.9	96.9	97.5	91.8	93.1	91.5	92.7
4 - 5	96.6	97.3	97.1	97.7	92.8	94.1	93.8	94.8
6 +	94.9	95.7	95.4	96.1	92.1	93.4	93.1	94.1
MARCH 2003								
TOTAL	95.5	96.3	96.2	96.9	91.0	92.1	92.3	93.2
1 PERSON	92.6	93.8	93.7	94.9	86.4	87.7	84.5	87.0
2 - 3	96.6	97.2	97.2	97.7	92.7	93.7	93.1	93.7
4 - 5	97.0	97.4	97.4	97.8	93.9	94.6	95.0	95.3
6 +	94.2	95.2	94.5	95.4	92.5	94.1	91.8	93.7

Table 6
Percentage of Households with a Telephone by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
NOVEMBER 1983								
TOTAL HOUSEHOLDS	91.4	93.7	93.1	95.0	78.8	83.9	80.7	84.6
16-24 YRS OLD	76.6	84.1	80.2	86.2	49.9	68.2	64.9	71.9
25-54 YRS OLD	91.5	93.7	93.4	95.2	78.7	83.3	81.8	85.6
55-59 YRS OLD	95.0	96.1	96.1	97.0	86.3	88.5	89.3	89.3
60-64 YRS OLD	95.5	96.4	96.4	97.2	89.5	90.7	87.3	90.2
65-69 YRS OLD	95.5	96.2	96.5	97.0	87.2	89.0	90.7	90.7
70-99 YRS OLD	95.4	96.5	96.0	97.0	90.1	92.3	85.5	89.1
1984 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	91.6	93.7	93.2	94.9	79.8	84.5	80.9	84.3
16-24 YRS OLD	77.0	83.6	79.6	85.4	58.2	70.8	60.9	69.2
25-54 YRS OLD	91.7	93.7	93.4	95.1	79.6	84.1	83.1	85.7
55-59 YRS OLD	94.9	96.1	96.1	97.1	86.6	89.2	87.1	90.1
60-64 YRS OLD	94.9	96.0	96.0	97.0	86.6	88.8	87.1	89.1
65-69 YRS OLD	96.2	96.8	97.1	97.6	87.9	89.9	90.2	91.5
70-99 YRS OLD	95.3	96.5	96.0	97.1	88.2	90.9	84.4	87.6
1985 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	91.8	93.9	93.3	95.0	81.1	85.2	81.3	84.4
16-24 YRS OLD	77.9	83.8	80.3	85.8	60.0	69.4	64.8	70.8
25-54 YRS OLD	91.9	93.9	93.5	95.2	80.7	85.0	82.5	85.2
55-59 YRS OLD	94.9	96.0	95.8	96.8	87.8	90.0	87.4	89.2
60-64 YRS OLD	94.9	95.9	95.8	96.5	88.4	90.2	89.7	91.3
65-69 YRS OLD	95.9	96.8	96.8	97.5	88.2	90.9	89.1	91.7
70-99 YRS OLD	95.5	96.6	96.2	97.3	89.1	90.7	87.6	90.9
1986 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	92.3	94.1	93.7	95.2	81.6	85.9	81.4	84.1
16-24 YRS OLD	79.0	84.4	81.5	85.9	59.8	72.2	63.4	67.4
25-54 YRS OLD	92.2	94.0	93.8	95.3	81.1	85.2	82.9	85.5
55-59 YRS OLD	95.2	96.3	96.1	97.0	88.0	91.3	87.6	90.4
60-64 YRS OLD	95.4	96.2	96.2	97.0	88.9	90.4	89.1	90.3
65-69 YRS OLD	95.8	96.7	96.7	97.4	88.4	90.6	90.4	91.9
70-99 YRS OLD	96.0	97.0	96.5	97.4	91.3	92.9	87.5	89.8
1987 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	92.4	94.2	93.8	95.4	81.8	85.9	83.0	85.4
16-24 YRS OLD	78.9	84.4	81.4	86.1	61.8	72.3	65.2	70.8
25-54 YRS OLD	92.3	94.2	93.9	95.4	81.4	85.5	84.4	86.5
55-59 YRS OLD	95.2	96.2	96.4	97.2	87.0	89.6	89.1	90.7
60-64 YRS OLD	95.7	96.4	96.6	97.3	88.0	90.2	90.9	92.0
65-69 YRS OLD	95.9	96.7	97.0	97.5	87.1	89.3	88.8	88.8
70-99 YRS OLD	96.0	97.0	96.5	97.5	91.9	93.0	91.6	93.1
1988 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	92.7	94.5	94.1	95.6	83.0	86.8	82.1	85.1
16-24 YRS OLD	80.2	85.1	82.3	86.8	65.6	73.5	64.0	70.9
25-54 YRS OLD	92.6	94.4	94.1	95.6	82.2	86.3	83.5	86.1
55-59 YRS OLD	95.1	96.4	96.1	97.2	88.3	91.0	88.5	89.9
60-64 YRS OLD	95.3	96.2	96.3	97.0	87.6	89.9	87.3	90.0
65-69 YRS OLD	96.4	97.1	97.2	97.7	89.6	92.0	89.6	91.2
70-99 YRS OLD	96.2	97.5	96.7	97.9	92.3	93.9	92.2	94.3

Table 6
Percentage of Households with a Telephone by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1989 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.1	94.9	94.5	95.9	83.2	87.1	83.0	86.0
16-24 YRS OLD	80.5	85.9	82.9	87.7	65.3	75.2	64.8	72.3
25-54 YRS OLD	92.7	94.6	94.3	95.8	82.2	86.4	83.6	86.5
55-59 YRS OLD	95.4	96.5	96.4	97.4	88.7	90.7	90.1	91.2
60-64 YRS OLD	95.7	96.7	96.6	97.3	89.2	91.6	89.8	90.0
65-69 YRS OLD	96.3	97.0	97.1	97.7	90.3	91.9	88.8	91.0
70-99 YRS OLD	96.4	97.4	97.1	97.9	91.1	92.6	89.8	92.0
1990 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.3	95.0	94.6	96.1	83.5	87.0	82.7	85.3
16-24 YRS OLD	81.2	86.5	83.6	88.2	66.4	75.3	67.8	73.5
25-54 YRS OLD	92.6	94.5	94.1	95.7	82.4	86.1	82.0	84.6
55-59 YRS OLD	95.4	96.4	96.5	97.4	87.3	89.6	89.9	90.7
60-64 YRS OLD	96.2	96.9	97.1	97.6	89.7	91.6	90.6	91.1
65-69 YRS OLD	96.3	97.1	97.0	97.8	90.7	91.7	90.7	92.5
70-99 YRS OLD	96.9	97.8	97.4	98.3	91.9	93.3	93.2	94.1
1991 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.4	95.1	94.8	96.2	83.5	87.2	84.1	86.7
16-24 YRS OLD	81.0	86.1	83.4	88.0	65.7	74.5	68.5	73.9
25-54 YRS OLD	92.7	94.6	94.3	95.8	82.3	86.3	84.1	86.7
55-59 YRS OLD	95.5	96.7	96.5	97.5	88.0	90.9	89.8	90.5
60-64 YRS OLD	95.9	96.9	96.9	97.6	88.5	90.8	88.3	90.4
65-69 YRS OLD	96.7	97.5	97.5	98.2	89.8	91.8	92.9	94.0
70-99 YRS OLD	97.3	98.1	97.8	98.6	92.8	93.5	92.1	94.0
1992 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.8	95.3	95.2	96.4	84.2	87.9	85.8	88.2
15-24 YRS OLD	82.0	87.4	85.0	89.6	64.2	74.1	72.8	80.4
25-54 YRS OLD	93.1	94.8	94.6	95.9	82.9	87.0	85.5	87.7
55-59 YRS OLD	96.0	96.8	97.0	97.5	89.6	91.9	91.5	92.3
60-64 YRS OLD	96.3	97.1	97.0	97.7	91.2	92.6	89.3	91.2
65-69 YRS OLD	96.6	97.3	97.5	98.0	89.8	92.0	92.0	92.4
70-99 YRS OLD	97.5	98.0	98.0	98.5	93.1	94.0	94.2	95.0
1993 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	94.2	95.6	95.5	96.6	85.2	88.3	86.7	88.8
15-24 YRS OLD	83.3	87.3	85.7	89.2	70.1	77.3	71.8	76.3
25-54 YRS OLD	93.5	95.1	95.0	96.3	83.5	87.0	86.4	88.7
55-59 YRS OLD	95.9	96.8	96.7	97.5	90.0	92.2	91.3	92.1
60-64 YRS OLD	97.0	97.6	97.7	98.3	91.9	93.3	92.5	93.7
65-69 YRS OLD	97.0	97.6	97.5	98.1	92.8	93.5	92.9	93.9
70-99 YRS OLD	97.6	98.2	98.0	98.6	93.2	94.1	94.7	95.4
1994 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.8	95.4	95.1	96.4	85.7	89.4	86.0	88.3
15-24 YRS OLD	84.3	89.2	86.1	90.4	74.0	83.0	71.8	77.1
25-54 YRS OLD	93.3	95.0	94.7	96.0	84.8	88.7	86.1	88.4
55-59 YRS OLD	95.6	96.6	96.3	97.2	90.7	92.9	89.4	91.1
60-64 YRS OLD	96.3	97.2	97.1	97.9	90.1	91.9	91.8	92.4
65-69 YRS OLD	96.7	97.3	97.3	97.8	91.8	93.2	93.3	93.5
70-99 YRS OLD	96.7	97.6	97.2	98.1	91.7	93.1	92.3	93.7

Table 6
Percentage of Households with a Telephone by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1995 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.9	95.2	95.2	96.2	86.2	89.2	85.9	87.8
15-24 YRS OLD	84.6	88.5	87.0	90.2	73.2	80.6	74.8	78.0
25-54 YRS OLD	93.6	94.9	95.0	96.0	85.4	88.5	86.1	88.0
55-59 YRS OLD	95.7	96.4	96.2	96.8	92.5	93.9	88.6	90.0
60-64 YRS OLD	95.8	96.5	96.3	96.9	91.7	93.4	90.0	90.9
65-69 YRS OLD	96.4	96.8	96.9	97.4	92.2	93.1	91.2	92.6
70-99 YRS OLD	96.4	97.1	97.0	97.5	91.4	92.8	90.4	92.1
1996 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.9	95.0	94.9	95.8	87.3	89.8	86.4	88.0
15-24 YRS OLD	84.9	88.4	86.8	89.6	74.5	81.2	72.9	76.4
25-54 YRS OLD	93.5	94.8	94.6	95.6	86.6	89.4	87.1	88.8
55-59 YRS OLD	95.7	96.3	96.3	96.8	91.0	92.5	90.3	90.7
60-64 YRS OLD	95.7	96.2	96.3	96.8	92.0	93.0	88.2	88.8
65-69 YRS OLD	95.8	96.3	96.4	96.8	92.5	93.3	89.5	90.4
70-99 YRS OLD	96.5	97.0	96.8	97.3	93.5	94.3	90.9	92.3
1997 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.9	95.0	95.0	95.9	86.9	89.5	86.7	88.6
15-24 YRS OLD	84.9	88.8	86.7	90.1	74.9	81.6	75.0	79.4
25-54 YRS OLD	93.6	94.8	94.7	95.7	86.3	89.0	87.1	88.9
55-59 YRS OLD	95.4	96.1	96.4	96.9	89.2	90.8	90.1	92.2
60-64 YRS OLD	96.0	96.5	96.6	97.0	92.1	92.7	90.6	91.2
65-69 YRS OLD	96.2	96.7	96.7	97.1	92.6	93.8	90.9	92.4
70-99 YRS OLD	96.2	96.7	96.6	97.1	93.0	93.7	90.3	91.3
1998 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	94.1	95.2	95.1	96.0	87.9	89.7	88.4	90.0
15-24 YRS OLD	87.0	89.8	88.4	91.0	79.9	83.8	80.0	83.5
25-54 YRS OLD	93.8	94.9	94.8	95.8	87.2	89.2	88.5	89.9
55-59 YRS OLD	95.6	96.2	96.2	96.8	91.5	92.5	91.4	92.8
60-64 YRS OLD	95.8	96.3	96.5	97.0	91.8	92.8	91.2	92.6
65-69 YRS OLD	95.7	96.3	96.5	97.0	90.2	90.7	95.1	95.8
70-99 YRS OLD	96.3	96.8	96.7	97.1	93.1	93.8	91.0	91.9
1999 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	94.2	95.0	95.2	95.9	87.7	89.6	89.9	90.9
15-24 YRS OLD	86.4	88.9	88.2	90.2	77.5	82.3	81.0	83.1
25-54 YRS OLD	94.0	94.9	95.1	95.9	87.5	89.5	90.2	91.3
55-59 YRS OLD	95.7	96.3	96.4	96.9	90.5	91.5	93.1	94.3
60-64 YRS OLD	95.7	96.2	96.4	96.8	90.9	92.0	92.2	92.8
65-69 YRS OLD	95.9	96.3	96.6	97.0	90.0	91.1	94.1	94.8
70-99 YRS OLD	95.8	96.3	96.2	96.7	92.2	92.8	92.4	93.1
MARCH 2000								
TOTAL HOUSEHOLDS	94.6	95.3	95.4	96.0	89.7	91.2	90.6	91.5
15-24 YRS OLD	88.3	90.2	89.1	91.1	84.4	86.2	82.6	84.4
25-54 YRS OLD	94.3	95.2	95.2	95.9	89.2	90.9	90.9	91.8
55-59 YRS OLD	96.1	96.6	96.5	97.0	92.7	93.1	88.1	89.2
60-64 YRS OLD	96.2	96.5	96.9	97.1	92.1	92.9	93.6	94.5
65-69 YRS OLD	96.2	96.4	96.7	96.9	92.7	93.7	97.4	97.4
70-99 YRS OLD	96.1	96.6	96.5	96.9	92.4	93.2	93.9	95.2

Table 6
Percentage of Households with a Telephone by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
JULY 2000								
TOTAL HOUSEHOLDS	94.4	95.2	95.2	95.9	89.2	90.6	90.5	91.7
15-24 YRS OLD	87.7	89.9	88.8	91.0	81.4	84.1	84.2	87.5
25-54 YRS OLD	94.3	95.2	95.1	96.0	88.9	90.5	91.2	92.4
55-59 YRS OLD	95.7	96.1	96.1	96.5	92.1	92.7	91.1	91.1
60-64 YRS OLD	96.0	96.5	96.7	97.1	91.2	91.7	91.7	93.0
65-69 YRS OLD	96.0	96.2	96.3	96.4	94.6	94.6	93.1	93.6
70-99 YRS OLD	95.7	96.0	96.1	96.4	91.4	92.0	89.3	89.5
NOVEMBER 2000								
TOTAL HOUSEHOLDS	94.1	95.0	94.9	95.7	88.9	90.3	90.4	91.5
15-24 YRS OLD	87.4	90.1	89.2	91.8	77.7	82.0	78.9	81.4
25-54 YRS OLD	94.1	95.0	94.9	95.7	89.5	90.8	91.1	92.2
55-59 YRS OLD	95.5	96.1	96.1	96.7	90.5	91.7	94.0	95.6
60-64 YRS OLD	95.2	95.6	95.8	96.0	90.2	91.5	91.6	92.1
65-69 YRS OLD	95.3	95.6	95.9	96.2	91.0	91.4	93.1	93.1
70-99 YRS OLD	95.4	95.8	95.8	96.3	91.0	92.1	93.0	93.5
2000 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	94.4	95.2	95.2	95.9	89.3	90.7	90.5	91.6
15-24 YRS OLD	87.8	90.1	89.0	91.3	81.2	84.1	81.9	84.4
25-54 YRS OLD	94.2	95.1	95.1	95.9	89.2	90.7	91.1	92.1
55-59 YRS OLD	95.8	96.3	96.2	96.7	91.8	92.5	91.1	92.0
60-64 YRS OLD	95.8	96.2	96.5	96.7	91.2	92.0	92.3	93.2
65-69 YRS OLD	95.8	96.1	96.3	96.5	92.8	93.2	94.5	94.7
70-99 YRS OLD	95.7	96.1	96.1	96.5	91.6	92.4	92.1	92.7
MARCH 2001								
TOTAL HOUSEHOLDS	94.6	95.4	95.3	96.1	89.5	91.0	91.7	92.5
15-24 YRS OLD	88.6	90.9	89.3	91.4	84.7	88.0	84.1	85.6
25-54 YRS OLD	94.4	95.2	95.3	96.0	88.9	90.5	92.0	92.7
55-59 YRS OLD	96.4	96.9	96.7	97.2	93.5	94.3	96.6	98.1
60-64 YRS OLD	95.9	96.4	96.6	96.9	91.1	92.8	96.4	96.4
65-69 YRS OLD	96.1	96.5	96.6	96.9	92.8	93.4	93.3	94.0
70-99 YRS OLD	95.7	96.2	96.2	96.7	92.4	93.2	91.6	91.7
JULY 2001								
TOTAL HOUSEHOLDS	95.1	95.9	95.8	96.5	90.3	91.8	91.3	92.5
15-24 YRS OLD	90.1	91.8	90.2	91.8	89.4	91.5	86.1	87.9
25-54 YRS OLD	94.8	95.7	95.7	96.4	89.1	90.9	91.5	92.8
55-59 YRS OLD	96.4	96.9	96.9	97.4	92.5	93.4	93.3	94.4
60-64 YRS OLD	96.7	96.9	97.0	97.1	95.0	95.7	94.0	94.8
65-69 YRS OLD	97.1	97.5	97.7	98.0	94.1	94.9	96.1	96.1
70-99 YRS OLD	96.5	96.9	96.9	97.3	92.8	93.4	90.3	91.0
NOVEMBER 2001								
TOTAL HOUSEHOLDS	94.9	95.8	95.6	96.5	90.3	91.5	90.8	92.2
15-24 YRS OLD	87.8	90.2	88.7	91.2	82.8	84.8	80.2	83.2
25-54 YRS OLD	94.8	95.8	95.5	96.5	90.3	91.5	91.8	93.1
55-59 YRS OLD	96.3	96.8	96.7	97.1	93.4	95.2	89.9	90.4
60-64 YRS OLD	96.0	96.5	96.5	96.9	92.9	93.7	92.8	93.7
65-69 YRS OLD	95.9	96.4	96.9	97.3	89.0	89.8	92.9	92.9
70-99 YRS OLD	96.7	97.2	97.0	97.6	94.3	94.6	93.8	95.2

Table 6
Percentage of Households with a Telephone by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
2001 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	94.9	95.7	95.6	96.4	90.0	91.4	91.3	92.4
15-24 YRS OLD	88.8	91.0	89.4	91.5	85.6	88.1	83.5	85.6
25-54 YRS OLD	94.7	95.6	95.5	96.3	89.4	91.0	91.8	92.9
55-59 YRS OLD	96.4	96.9	96.8	97.2	93.1	94.3	93.3	94.3
60-64 YRS OLD	96.2	96.6	96.7	97.0	93.0	94.1	94.4	95.0
65-69 YRS OLD	96.4	96.8	97.1	97.4	92.0	92.7	94.1	94.3
70-99 YRS OLD	96.3	96.8	96.7	97.2	93.2	93.7	91.9	92.6
MARCH 2002								
TOTAL HOUSEHOLDS	95.5	96.3	96.3	97.0	90.8	92.1	91.8	92.9
15-24 YRS OLD	89.8	92.0	91.4	93.7	82.3	84.7	88.8	91.1
25-54 YRS OLD	95.2	96.0	96.0	96.7	90.3	91.6	91.7	92.8
55-59 YRS OLD	97.0	97.7	97.4	98.1	94.5	95.4	94.4	95.5
60-64 YRS OLD	96.8	97.2	97.1	97.6	95.0	95.3	92.3	93.0
65-69 YRS OLD	97.8	97.9	97.9	98.0	96.6	96.8	91.6	91.6
70-99 YRS OLD	97.1	97.5	97.6	97.9	94.3	95.2	95.0	95.6
JULY 2002								
TOTAL HOUSEHOLDS	95.1	96.0	96.0	96.7	89.9	91.6	90.7	92.0
15-24 YRS OLD	87.2	89.8	88.0	90.4	83.1	87.0	80.0	82.5
25-54 YRS OLD	94.8	95.8	95.8	96.6	89.6	91.4	91.6	92.9
55-59 YRS OLD	96.6	97.0	97.3	97.6	90.8	91.6	91.2	92.2
60-64 YRS OLD	96.8	97.4	97.2	97.7	94.5	95.8	89.2	90.2
65-69 YRS OLD	97.5	97.9	98.1	98.3	93.9	94.7	96.9	96.9
70-99 YRS OLD	97.0	97.4	97.5	97.8	92.9	93.8	93.5	93.8
NOVEMBER 2002								
TOTAL HOUSEHOLDS	95.3	96.2	96.2	96.9	89.7	91.2	92.7	93.7
15-24 YRS OLD	88.4	91.1	89.0	91.5	84.8	88.5	83.9	86.5
25-54 YRS OLD	95.1	95.9	96.0	96.7	89.0	90.4	92.8	93.9
55-59 YRS OLD	96.8	97.4	97.5	98.0	91.2	92.6	96.0	96.0
60-64 YRS OLD	97.0	97.5	97.4	97.9	94.8	95.2	97.4	97.4
65-69 YRS OLD	97.2	97.5	98.0	98.1	92.3	94.3	96.7	96.7
70-99 YRS OLD	97.4	97.8	97.9	98.3	93.8	94.1	96.2	96.6
2002 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	95.3	96.2	96.2	96.9	90.1	91.6	91.7	92.9
15-24 YRS OLD	88.5	91.0	89.5	91.9	83.4	86.7	84.2	86.7
25-54 YRS OLD	95.0	95.9	95.9	96.7	89.6	91.1	92.0	93.2
55-59 YRS OLD	96.8	97.4	97.4	97.9	92.2	93.2	93.9	94.6
60-64 YRS OLD	96.9	97.4	97.2	97.7	94.8	95.4	93.0	93.5
65-69 YRS OLD	97.5	97.8	98.0	98.1	94.3	95.3	95.1	95.1
70-99 YRS OLD	97.2	97.6	97.7	98.0	93.7	94.4	94.9	95.3
MARCH 2003								
TOTAL HOUSEHOLDS	95.5	96.3	96.2	96.9	91.0	92.1	92.3	93.2
15-24 YRS OLD	90.4	92.4	91.4	93.2	87.6	90.1	88.1	89.8
25-54 YRS OLD	95.1	95.9	95.9	96.6	90.2	91.4	92.6	93.5
55-59 YRS OLD	96.9	97.4	97.3	97.7	93.6	94.6	93.3	93.7
60-64 YRS OLD	97.3	97.6	97.9	98.2	92.7	93.1	93.7	94.1
65-69 YRS OLD	97.0	97.4	97.7	98.0	92.3	92.3	94.2	94.2
70-99 YRS OLD	97.2	97.6	97.5	97.8	95.0	95.2	92.0	93.8

Table 7
Percentage of Adults with a Telephone by Labor Force Status

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
NOVEMBER 1983								
TOTAL CNP	92.8	94.5	94.1	95.6	82.7	86.6	83.4	86.5
EMPLOYED	94.1	95.9	95.0	96.6	85.7	89.8	86.3	89.6
UNEMPLOYED	82.5	86.5	84.8	88.1	74.6	81.2	76.6	79.9
NOT IN LABOR FORCE	92.1	93.4	93.8	94.9	80.8	83.7	80.4	83.0
1984 ANNUAL AVERAGE								
TOTAL CNP	92.8	94.5	94.1	95.5	82.9	86.7	83.0	85.6
EMPLOYED	94.0	95.7	95.0	96.4	85.9	89.8	85.7	88.3
UNEMPLOYED	81.7	85.3	84.0	87.0	74.7	80.2	74.0	77.4
NOT IN LABOR FORCE	92.1	93.5	93.8	95.0	80.7	83.9	80.3	82.8
1985 ANNUAL AVERAGE								
TOTAL CNP	93.0	94.6	94.2	95.6	84.1	87.4	83.5	85.8
EMPLOYED	94.2	95.8	95.0	96.5	87.3	90.4	85.1	87.5
UNEMPLOYED	82.3	85.8	84.2	87.3	76.3	81.1	73.8	76.9
NOT IN LABOR FORCE	92.2	93.6	93.8	94.9	81.5	84.5	82.6	84.6
1986 ANNUAL AVERAGE								
TOTAL CNP	93.4	94.8	94.6	95.8	84.6	88.1	83.3	85.4
EMPLOYED	94.7	96.1	95.5	96.6	87.7	91.1	85.3	87.4
UNEMPLOYED	82.3	86.0	84.5	87.6	74.8	80.7	75.3	78.2
NOT IN LABOR FORCE	92.6	93.9	94.1	95.1	82.3	85.4	81.4	83.4
1987 ANNUAL AVERAGE								
TOTAL CNP	93.5	94.9	94.7	95.9	84.7	88.1	84.5	86.4
EMPLOYED	94.6	96.1	95.4	96.7	87.9	91.0	86.3	88.3
UNEMPLOYED	82.7	86.1	85.3	88.2	74.0	79.3	77.0	79.6
NOT IN LABOR FORCE	92.7	93.9	94.2	95.2	82.2	85.5	82.5	84.1
1988 ANNUAL AVERAGE								
TOTAL CNP	93.8	95.2	94.9	96.1	85.6	88.7	83.6	86.1
EMPLOYED	94.9	96.2	95.6	96.8	88.5	91.5	85.4	87.7
UNEMPLOYED	83.3	86.8	85.9	88.9	75.4	80.5	76.7	80.3
NOT IN LABOR FORCE	92.8	94.2	94.3	95.5	83.1	86.0	81.5	84.0
1989 ANNUAL AVERAGE								
TOTAL CNP	94.1	95.5	95.3	96.4	85.8	89.0	84.7	87.0
EMPLOYED	95.2	96.5	96.0	97.1	88.8	91.7	86.6	89.0
UNEMPLOYED	83.9	87.1	86.2	88.8	77.0	82.5	75.1	78.6
NOT IN LABOR FORCE	93.1	94.4	94.7	95.7	82.8	85.9	82.6	84.6
1990 ANNUAL AVERAGE								
TOTAL CNP	94.2	95.5	95.3	96.5	86.1	88.8	84.5	86.6
EMPLOYED	95.3	96.6	96.0	97.2	89.4	91.8	86.3	88.4
UNEMPLOYED	85.0	88.0	87.9	90.4	75.3	80.0	77.0	80.4
NOT IN LABOR FORCE	93.0	94.3	94.6	95.6	83.2	85.8	82.4	84.1

Table 7
Percentage of Adults with a Telephone by Labor Force Status

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1991 ANNUAL AVERAGE								
TOTAL CNP	94.3	95.7	95.5	96.6	86.3	89.1	85.5	87.7
EMPLOYED	95.6	96.8	96.3	97.3	89.8	92.4	87.5	89.6
UNEMPLOYED	86.4	89.5	88.3	91.0	78.9	84.1	78.2	81.6
NOT IN LABOR FORCE	93.1	94.4	94.7	95.8	82.6	85.3	83.5	85.4
1992 ANNUAL AVERAGE								
TOTAL CNP	94.7	95.9	95.8	96.8	86.9	89.8	87.8	89.7
EMPLOYED	95.8	97.0	96.5	97.5	90.1	92.8	89.5	91.6
UNEMPLOYED	88.1	90.3	90.0	91.8	81.2	85.0	83.4	85.8
NOT IN LABOR FORCE	93.6	94.8	95.2	96.1	83.6	86.5	85.8	87.4
1993 ANNUAL AVERAGE								
TOTAL CNP	95.0	96.1	96.0	97.0	87.5	90.0	88.2	89.9
EMPLOYED	96.1	97.1	96.8	97.6	90.6	92.8	89.7	91.5
UNEMPLOYED	88.6	90.6	90.7	92.3	80.9	84.7	85.0	87.1
NOT IN LABOR FORCE	93.8	94.9	95.3	96.2	84.5	87.0	86.1	87.6
1994 ANNUAL AVERAGE								
TOTAL CNP	94.5	95.9	95.6	96.7	87.9	91.0	87.3	89.2
EMPLOYED	95.6	96.8	96.3	97.3	90.4	93.2	88.5	90.4
UNEMPLOYED	87.8	90.8	89.8	92.2	81.1	86.7	84.1	86.5
NOT IN LABOR FORCE	93.4	94.8	94.8	95.9	85.4	88.5	85.7	87.6
1995 ANNUAL AVERAGE								
TOTAL CNP	95.0	96.1	95.9	96.8	89.1	91.4	88.0	89.6
EMPLOYED	95.8	96.7	96.5	97.2	91.2	93.2	88.9	90.4
UNEMPLOYED	88.8	91.7	90.8	93.1	82.3	87.4	84.4	87.2
NOT IN LABOR FORCE	93.4	94.4	94.8	95.7	84.9	87.3	86.0	87.7
1996 ANNUAL AVERAGE								
TOTAL CNP	94.9	95.8	95.6	96.4	89.7	91.8	88.4	89.7
EMPLOYED	95.6	96.4	96.2	96.9	91.4	93.0	89.6	90.8
UNEMPLOYED	88.8	91.1	90.1	91.9	85.0	89.5	84.6	86.5
NOT IN LABOR FORCE	93.4	94.4	94.5	95.3	86.4	88.8	85.6	87.0
1997 ANNUAL AVERAGE								
TOTAL CNP	94.9	95.8	95.7	96.5	89.3	91.5	88.6	90.2
EMPLOYED	95.6	96.5	96.2	96.9	91.1	92.9	89.5	91.1
UNEMPLOYED	87.8	90.4	89.7	91.4	81.5	87.1	82.4	84.3
NOT IN LABOR FORCE	93.5	94.4	94.8	95.5	86.4	88.4	86.9	88.4
1998 ANNUAL AVERAGE								
TOTAL CNP	95.1	95.9	95.7	96.5	90.4	91.9	89.9	91.3
EMPLOYED	95.6	96.4	96.1	96.8	91.9	93.3	90.4	91.8
UNEMPLOYED	89.3	91.4	91.5	93.2	82.9	85.6	85.4	88.6
NOT IN LABOR FORCE	93.9	94.7	94.9	95.6	87.8	89.1	89.0	90.2

Table 7
Percentage of Adults with a Telephone by Labor Force Status

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1999 ANNUAL AVERAGE								
TOTAL CNP	95.2	95.9	95.9	96.5	90.3	91.8	91.2	92.1
EMPLOYED	95.8	96.4	96.3	96.9	91.8	93.2	91.5	92.4
UNEMPLOYED	89.6	91.2	91.6	93.0	83.2	85.4	89.1	90.2
NOT IN LABOR FORCE	94.1	94.7	95.1	95.7	87.7	89.1	90.7	91.6
MARCH 2000								
TOTAL CNP	95.2	95.9	95.9	96.4	91.2	92.3	91.8	92.5
EMPLOYED	95.8	96.4	96.2	96.8	92.8	94.0	91.8	92.5
UNEMPLOYED	89.9	91.3	91.2	92.4	85.6	88.2	89.6	91.8
NOT IN LABOR FORCE	94.6	95.2	95.5	96.0	88.9	89.9	92.1	92.6
JULY 2000								
TOTAL CNP	95.2	95.9	95.8	96.4	91.1	92.2	92.0	93.2
EMPLOYED	95.8	96.6	96.2	96.9	92.6	93.6	92.5	93.7
UNEMPLOYED	91.6	93.1	93.3	94.5	86.5	88.9	90.8	92.7
NOT IN LABOR FORCE	94.4	94.9	95.1	95.6	89.3	90.1	91.3	92.3
NOVEMBER 2000								
TOTAL CNP	94.8	95.6	95.4	96.1	90.8	91.9	91.3	92.0
EMPLOYED	95.5	96.2	95.9	96.6	92.3	93.2	91.4	92.1
UNEMPLOYED	90.1	92.1	92.1	93.5	84.6	87.9	87.4	88.0
NOT IN LABOR FORCE	94.0	94.7	94.7	95.3	89.0	90.1	91.5	92.4
2000 ANNUAL AVERAGE								
TOTAL CNP	95.1	95.8	95.7	96.3	91.0	92.1	91.7	92.6
EMPLOYED	95.7	96.4	96.1	96.8	92.6	93.6	91.9	92.8
UNEMPLOYED	90.5	92.2	92.2	93.5	85.6	88.3	89.3	90.8
NOT IN LABOR FORCE	94.3	94.9	95.1	95.6	89.1	90.0	91.6	92.4
MARCH 2001								
TOTAL CNP	95.3	95.9	95.9	96.5	90.8	92.0	92.3	92.9
EMPLOYED	95.9	96.5	96.3	96.9	92.4	93.4	92.4	92.9
UNEMPLOYED	91.9	93.3	93.7	94.5	86.0	89.3	92.3	92.6
NOT IN LABOR FORCE	94.5	95.1	95.4	95.9	88.7	89.9	92.3	92.8
JULY 2001								
TOTAL CNP	95.8	96.4	96.4	96.9	91.9	93.1	92.7	93.6
EMPLOYED	96.3	96.9	96.7	97.2	93.4	94.5	92.6	93.5
UNEMPLOYED	92.3	93.6	93.0	94.2	89.4	91.4	93.1	93.9
NOT IN LABOR FORCE	95.2	95.8	96.0	96.5	89.4	90.8	92.9	93.8
NOVEMBER 2001								
TOTAL CNP	95.6	96.4	96.2	96.9	92.0	92.9	92.1	93.3
EMPLOYED	96.2	97.0	96.6	97.4	93.4	94.1	92.4	93.6
UNEMPLOYED	92.0	93.4	92.7	94.0	90.2	91.9	89.9	91.0
NOT IN LABOR FORCE	94.9	95.7	95.6	96.4	90.0	91.1	91.7	93.0

Table 7
Percentage of Adults with a Telephone by Labor Force Status

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
2001 ANNUAL AVERAGE								
TOTAL CNP	95.6	96.2	96.2	96.8	91.6	92.7	92.4	93.3
EMPLOYED	96.1	96.8	96.5	97.2	93.1	94.0	92.5	93.3
UNEMPLOYED	92.1	93.4	93.1	94.2	88.5	90.9	91.8	92.5
NOT IN LABOR FORCE	94.9	95.5	95.7	96.3	89.4	90.6	92.3	93.2
MARCH 2002								
TOTAL CNP	96.2	96.9	96.7	97.3	92.8	93.7	92.9	93.8
EMPLOYED	96.8	97.4	97.2	97.7	94.4	95.3	93.3	94.1
UNEMPLOYED	92.2	93.3	92.8	93.8	89.4	90.7	89.7	91.2
NOT IN LABOR FORCE	95.6	96.3	96.4	97.0	90.8	91.8	92.6	93.6
JULY 2002								
TOTAL CNP	95.8	96.6	96.5	97.1	91.5	92.9	92.0	93.0
EMPLOYED	96.4	97.1	96.9	97.5	93.2	94.4	92.2	93.2
UNEMPLOYED	92.3	94.0	92.6	94.2	90.9	93.2	89.9	91.3
NOT IN LABOR FORCE	95.2	95.8	96.2	96.7	88.6	90.2	91.9	92.8
NOVEMBER 2002								
TOTAL CNP	96.1	96.8	96.8	97.4	91.7	92.9	93.9	94.6
EMPLOYED	96.8	97.4	97.2	97.8	93.7	94.7	94.2	95.0
UNEMPLOYED	91.7	93.1	93.7	94.8	84.7	87.7	89.8	90.6
NOT IN LABOR FORCE	95.4	96.1	96.4	96.9	89.7	90.9	93.9	94.5
2002 ANNUAL AVERAGE								
TOTAL CNP	96.0	96.8	96.7	97.3	92.0	93.2	92.9	93.8
EMPLOYED	96.7	97.3	97.1	97.7	93.8	94.8	93.2	94.1
UNEMPLOYED	92.1	93.5	93.0	94.3	88.3	90.5	89.8	91.0
NOT IN LABOR FORCE	95.4	96.1	96.3	96.9	89.7	91.0	92.8	93.6
MARCH 2003								
TOTAL CNP	96.2	96.8	96.7	97.3	92.5	93.4	93.2	94.0
EMPLOYED	96.7	97.3	97.1	97.7	94.1	94.9	93.7	94.3
UNEMPLOYED	92.5	93.9	93.3	94.6	89.0	90.6	89.4	91.5
NOT IN LABOR FORCE	95.7	96.3	96.5	97.0	90.7	91.7	93.1	93.8

Table 8
Critical Values for Determining Significant Differences by State

	In Unit	Available
UNITED STATES	0.4%	0.3%
ALABAMA	4.2%	4.0%
ALASKA	3.4%	2.7%
ARIZONA	2.7%	2.5%
ARKANSAS	3.6%	3.5%
CALIFORNIA	1.1%	1.0%
COLORADO	2.1%	1.9%
CONNECTICUT	2.6%	2.6%
DELAWARE	2.8%	2.4%
DISTRICT OF COLUMBIA	4.7%	4.2%
FLORIDA	1.7%	1.7%
GEORGIA	3.3%	3.1%
HAWAII	3.1%	2.6%
IDAHO	2.6%	2.5%
ILLINOIS	2.4%	2.0%
INDIANA	3.1%	2.9%
IOWA	2.8%	2.6%
KANSAS	3.0%	2.8%
KENTUCKY	3.5%	3.2%
LOUISIANA	3.5%	3.1%
MAINE	2.0%	1.7%
MARYLAND	2.9%	2.8%
MASSACHUSETTS	2.1%	1.9%
MICHIGAN	1.7%	1.6%
MINNESOTA	2.3%	2.2%
MISSISSIPPI	4.0%	3.3%
MISSOURI	3.2%	2.9%
MONTANA	2.5%	2.3%
NEBRASKA	2.2%	2.0%
NEVADA	3.6%	3.6%
NEW HAMPSHIRE	2.7%	2.4%
NEW JERSEY	2.3%	2.3%
NEW MEXICO	3.6%	3.5%
NEW YORK	1.4%	1.3%
NORTH CAROLINA	2.0%	1.8%
NORTH DAKOTA	1.9%	1.7%
OHIO	1.9%	1.7%
OKLAHOMA	3.6%	3.2%
OREGON	3.1%	2.7%
PENNSYLVANIA	1.4%	1.3%
RHODE ISLAND	3.3%	3.2%
SOUTH CAROLINA	3.6%	3.4%
SOUTH DAKOTA	4.0%	3.8%
TENNESSEE	2.9%	2.6%
TEXAS	1.8%	1.6%
UTAH	2.7%	2.5%
VERMONT	3.5%	3.0%
VIRGINIA	3.5%	3.3%
WASHINGTON	2.3%	2.1%
WEST VIRGINIA	3.3%	2.8%
WISCONSIN	2.7%	2.5%
WYOMING	2.7%	2.5%

Table 9
Critical Values for Determining Significant Differences by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	In Unit	Available	In Unit	Available	In Unit	Available	In Unit	Available
TOTAL	0.4%	0.3%	0.4%	0.3%	1.6%	1.5%	1.7%	1.6%
UNDER $5,000	3.9%	3.7%	4.4%	4.1%	7.8%	7.4%	10.2%	9.8%
$5,000 - $7,499	3.0%	2.9%	3.3%	3.1%	7.3%	7.2%	9.2%	8.5%
$7,500 - $9,999	2.4%	2.2%	2.6%	2.5%	7.3%	6.4%	8.4%	8.4%
$10,000 - $12,499	2.1%	2.0%	2.3%	2.2%	7.3%	6.7%	7.0%	6.7%
$12,500 - $14,999	2.1%	1.9%	2.2%	2.0%	6.8%	6.3%	7.4%	7.3%
$15,000 - $19,999	1.5%	1.3%	1.4%	1.2%	5.8%	5.1%	5.3%	4.9%
$20,000 - $24,999	1.2%	1.1%	1.2%	1.1%	3.7%	3.4%	5.0%	4.8%
$25,000 - $29,999	1.1%	1.0%	1.1%	1.0%	4.7%	4.3%	3.9%	3.7%
$30,000 - $34,999	1.0%	0.9%	1.0%	0.9%	5.2%	4.6%	4.6%	4.1%
$35,000 - $39,999	0.9%	0.9%	0.9%	0.9%	4.8%	4.6%	3.7%	3.6%
$40,000 - $49,999	0.7%	0.6%	0.7%	0.6%	3.0%	2.8%	4.2%	3.7%
$50,000 - $59,999	0.6%	0.6%	0.6%	0.6%	3.2%	3.2%	3.0%	2.7%
$60,000 - $74,999	0.6%	0.5%	0.6%	0.5%	4.0%	3.8%	2.1%	2.0%
$75,000 +	0.4%	0.4%	0.4%	0.4%	2.6%	2.4%	3.0%	2.8%

Table 10
Critical Values for Determining Significant Differences by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	In Unit	Available	In Unit	Available	In Unit	Available	In Unit	Available
TOTAL	0.4%	0.3%	0.4%	0.3%	1.6%	1.5%	1.7%	1.6%
1 PERSON	0.9%	0.8%	0.9%	0.8%	3.5%	3.2%	5.4%	5.2%
2 - 3	0.5%	0.4%	0.4%	0.4%	2.0%	1.9%	2.3%	2.2%
4 - 5	0.6%	0.6%	0.6%	0.5%	2.9%	2.7%	2.3%	2.1%
6 +	1.9%	1.8%	2.0%	1.9%	6.6%	6.2%	4.6%	4.5%

Table 11
Critical Values for Determining Significant Differences by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	In Unit	Available	In Unit	Available	In Unit	Available	In Unit	Available
TOTAL	0.4%	0.3%	0.4%	0.3%	1.6%	1.5%	1.7%	1.6%
15-24 YRS OLD	2.3%	2.1%	2.4%	2.2%	7.6%	6.8%	6.0%	5.9%
25-54 YRS OLD	0.5%	0.4%	0.4%	0.4%	2.0%	1.8%	1.9%	1.8%
55-59 YRS OLD	1.1%	1.0%	1.0%	1.0%	4.9%	4.5%	5.8%	5.3%
60-64 YRS OLD	1.1%	1.0%	1.1%	1.0%	4.9%	4.6%	6.3%	6.2%
65-69 YRS OLD	1.1%	1.1%	1.1%	1.1%	5.5%	5.1%	7.2%	7.2%
70-99 YRS OLD	0.7%	0.7%	0.7%	0.7%	3.6%	3.3%	5.8%	5.4%

Table 12
Critical Values for Determining Significant Differences by Labor Force Status

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	In Unit	Available	In Unit	Available	In Unit	Available	In Unit	Available
TOTAL CNP	0.3%	0.3%	0.3%	0.3%	1.4%	1.4%	1.4%	1.3%
EMPLOYED	0.3%	0.3%	0.3%	0.3%	1.5%	1.4%	1.6%	1.5%
UNEMPLOYED	2.1%	1.8%	2.1%	1.9%	5.7%	5.0%	5.8%	5.3%
NOT IN LABOR FORCE	0.5%	0.5%	0.5%	0.5%	2.2%	2.1%	2.0%	1.9%

Customer Response

Publication: Telephone Subscribership in the United States (Data Through March 2003)

You can help us provide the best possible information to the public by completing this form and returning it to the Industry Analysis and Technology Division of the FCC's Wireline Competition Bureau.

1. Please check the category that best describes you:
   - ____ press
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2. Please rate the report:

	Excellent	Good	Satisfactory	Poor	No opinion
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3. Overall, how do you rate this report?

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4. How can this report be improved?

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To discuss this report contact Alex Belinfante at 202-418-0944		
Fax this response to	or	Mail this response to
202-418-0520		FCC/WCB/IATD Washington, DC 20554

Dkt. No ____________
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U.S. Telephone Subscribership-2005

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition)
To Reduce Intrastate Switched Network)
Access Rates In A Revenue Neutral)
Manner Pursuant to Section 364.164,)
Florida Statutes)
________________________________)

Exhibit DCB-2

Belinfante, Alexander; *Telephone Subscribership in the United States (Data Through March 2005)*; Industry Analysis and Technology Division, Wireline Competition Bureau, Federal Communications Commission; Table 2; Released May 2005.

NEWS

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FCC RELEASES NEW TELEPHONE SUBSCRIBERSHIP REPORT

Washington, D.C. – The Federal Communications Commission (FCC) today released its latest report on telephone subscribership levels in the United States. The report presents subscribership statistics based on the Current Population Survey (CPS) conducted by the Census Bureau in March 2005. The report also shows subscribership levels by state, income level, race, age, household size, and employment status.

Statistical Summary

In March 2005:

- The telephone subscribership penetration rate in the U.S. was 92.4%.
- The telephone penetration rate was 80.4% for households with annual incomes below $5,000, while the rate for households with incomes over $75,000 was 96.9%.
- By state, the penetration rates ranged from a low of 86.7% in Mississippi to a high of 96.9% in Utah and Washington.
- Households headed by whites had a penetration rate of 93.2%, while those headed by blacks had a rate of 87.7% and those headed by Hispanics had a rate of 88.2%.
- By age, penetration rates ranged from 85.5% for households headed by a person under 25 to 94.8% for households headed by a person between 65 and 69.
- Households with one person had a penetration rate of 89.0%, compared to a rate of 94.5% for households with four or five persons.
- The penetration rate for unemployed adults was 90.1%, while the rate for employed adults was 93.7%.

This report is updated three times a year and is available in the FCC's Reference Information Center, Courtyard Level, 445 12th Street SW, Washington, DC 20554. Call Best Copy and Printing, Inc. at (202) 488-5300 to purchase a copy. This report can also be downloaded from the FCC-State Link Internet site at http://www.fcc.gov/wcb/iatd/stats.html.

-FCC-

Wireline Competition Bureau contact: Alexander Belinfante at (202) 418-0944; TTY (202) 418-0484.

TELEPHONE SUBSCRIBERSHIP IN THE UNITED STATES

(Data through March 2005)

Alexander Belinfante

Industry Analysis and Technology Division
Wireline Competition Bureau
Federal Communications Commission

Released: May 2005

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Telephone Subscribership in the United States
(Data through March 2005)

Executive Summary

This is the Federal Communications Commission's (FCC's) report on telephone subscribership in the United States, presenting subscribership statistics based on the Current Population Survey (CPS) conducted by the Census Bureau in March 2005.[1] Statistics from that survey estimated that 92.4% of all households in the United States had telephone service. The report also shows subscribership levels by state, income level, race, age, household size, and employment status.

Statistical Findings

In March 2005:

- The telephone subscribership penetration rate in the U.S. was 92.4%.
- The telephone penetration rate was 80.4% for households with annual incomes below $5,000, while the rate for households with incomes over $75,000 was 96.9%.
- By state, the penetration rates ranged from a low of 86.7% in Mississippi to a high of 96.9% in Utah and Washington.
- Households headed by whites had a penetration rate of 93.2%, while those headed by blacks had a rate of 87.7% and those headed by Hispanics had a rate of 88.2%.
- By age, penetration rates ranged from 85.5% for households headed by a person under 25 to 94.8% for households headed by a person between 65 and 69.
- Households with one person had a penetration rate of 89.0%, compared to a rate of 94.5% for households with four or five persons.
- The penetration rate for unemployed adults was 90.1%, while the rate for employed adults was 93.7%.

Background

The number and percentage of households that have telephone service represent the most fundamental measures of the extent of universal service. Continuing analysis of telephone penetration statistics allows us to examine the aggregate effects of Commission actions on households' decisions to maintain, acquire or drop telephone service. This report presents comprehensive data on telephone penetration statistics collected by the Bureau of the Census under contract with the FCC. Along with telephone penetration statistics for the United States and each of the states from November 1983 to March 2005, data are provided on penetration based on various demographic characteristics.

The most widely used measure of telephone subscribership is the percentage of households with telephone service, sometimes called a measure of telephone penetration. Prior to the 1980s, precise measurements of telephone subscribership received little attention. Traditionally, telephone penetration was measured by dividing the number of residential telephone lines by the number of households. Measures of penetration based on the number of residential lines, however, became subject to a large margin of error as more and more households added second telephone lines and more consumers acquired second homes. By 1980,

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1 The last published report was Industry Analysis and Technology Division, Wireline Competition Bureau, Federal Communications Commission, *Telephone Subscribership in the United States* (March 8, 2005).

the traditional measure of penetration (residential lines divided by the number of households) reached 96%, while the number of households reporting that they had telephones in the 1980 census was 92.9%.

Recognizing the need for more precise periodic measurements of subscribership, the Commission requested that the Census Bureau include questions on telephone availability as part of its CPS, which monitors demographic trends between the decennial censuses. This survey is a staggered panel survey in which the people residing at particular addresses are included in the survey for four consecutive months in one year and the same four months in the following year. Use of the CPS has several advantages: it is conducted every month by an independent and expert agency; the sample is large; and the questions are consistent. Thus, changes in the results can be compared over time with a reasonable degree of confidence.

Unfortunately, the results of the CPS cannot be directly compared with the penetration figures contained in the 1980, 1990, and 2000 decennial censuses. This is due to differences in sampling techniques and survey methodologies and because of differences in the context in which the questions were asked. For example, the 2000 decennial census reported 97.6% of all occupied housing units in the United States had telephone service available, whereas the CPS data showed a penetration rate of 94.6% of households for March 2000. This difference is statistically significant and appears to indicate that the CPS value may be on the low side and the decennial census value may be on the high side, with the most probable value lying somewhere in between.

The specific questions asked in the CPS are: "Does this house, apartment, or mobile home have telephone service from which you can both make and receive calls? Please include cell phones, regular phones, and any other type of telephone."[2] And, if the answer to the first question is "no," this is followed up with, "Is there a telephone elsewhere on which people in this household can be called?" If the answer to the first question is "yes," the household is counted

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2 The questions are intended to be neutral as to whether the household has wireline or wireless phones. Through November 2004, this question had been worded: "Is there a telephone in this house/apartment?" For the November 2001 survey, households were also asked which type(s) of phones they had. While the response rate was not sufficient for a complete reporting of the results of this follow-up question, 1.2% of the households indicated that they had only wireless phones. 5.9% of the households failed to answer this question. The CPS no longer asks this follow-up question on a regular basis. However, a similar question was again asked in February 2004 for a special supplement given to a portion of the sample. In that month, 4.9% of those completing the supplement indicated that they had only wireless phones. 12.5% of the households failed to complete the supplement, and when imputed responses of those households are included, the estimate of households with only wireless goes up to 6.0%. Because of the increasing number of households that have wireless only, there was some concern that some of these households may not think of their cell phones when asked if they have a telephone. Consequently, beginning in December 2004, CPS changed its telephone question to the wording given above. It is possible that some of the drop in the penetration rate between November 2004 and March 2005 is for households who had a phone, but did not have service.

as having a telephone "in unit." If the answer to either the first or second question is "yes," the household is counted as having a telephone "available." The "in unit" data are reported in all of the tables and charts in this report. The "available" data are also reported in Tables 3 through 12 and Charts 1 and 8.

Although the survey is conducted every month, not all questions are asked every month. The telephone questions are asked once every four months, in the month that a household is first included in the sample and in the month that the household re-enters the sample a year later. Since the sample is staggered, the reported information for any given month actually reflects responses over the preceding four months. Aggregated summaries of the responses are reported to the Commission, based on the surveys conducted through March, July, and November of each year.

The CPS data are based on a nationwide sample of about 50 to 60 thousand households in the 50 states and the District of Columbia. (The CPS does not cover outlying areas that are not states, such as Puerto Rico, Guam, American Samoa, the Virgin Islands, and the Northern Mariana Islands.) Because a sample is used, the estimates are subject to sampling error. For the nationwide totals, changes in telephone penetration between consecutive reports of less than 0.4% may be due to sampling error and cannot be regarded as statistically significant. As explained below, when comparing the same month in two consecutive years, changes of less than or equal to 0.3% are not statistically significant at the 95% confidence level. When comparing annual averages, changes of less than or equal to 0.2% are not statistically significant. The annual averages are the average of the three surveys of the year in question. For individual states or other subgroups of the U.S. population, the amount of sampling variability is much greater, because the sample sizes are smaller. This will require larger changes to yield statistical significance at the same confidence level.

The data in this report are not seasonally adjusted. After adjusting for the trend over time, there is an average seasonal variation of less than 0.2% among the reported months. All of the changes are below the threshold of statistical significance.

Results and Statistical Analysis

Census Bureau figures for March 2005, the most recent data available, show that the percentage of households subscribing to telephone service is 92.4%. This figure is down 1.1% from November 2004. This decrease is statistically significant.

This report includes figures showing subscribership percentages by state, by the head of the household's age and race, by household size, by income, and, for adult individuals, by labor force status. The March 2005 data show that 93.2% of adult individuals in the civilian non-institutionalized population have a telephone in their household. This figure is down 1.2% from November 2004. This decrease is statistically significant.

This report contains twelve tables and eight charts presenting penetration statistics for various geographic and demographic characteristics. The charts and the first two tables present summaries of the information. Tables 3 through 7 present more detailed information. In these tables, only the annual averages are included for the years 1984 through 2002. March, July, and November data for those years are available in previous subscribership reports or Monitoring

Reports in CC Docket Nos. 87-339 or 98-202. Tables 8 through 12 provide information necessary to determine the statistical significance of changes in the penetration rates over time.

Table 1 summarizes the telephone penetration for the United States, combining information on the number of households with the penetration rates.

Chart 1 graphically depicts the nationwide penetration rates for households over time.

Table 2 summarizes the telephone penetration rates by state, showing the rates for November 1983 and March 2005, the change between those two months, and an indication as to whether the change is statistically significant. The statistical significance of a change is determined not only by the magnitude of that change, but also by the sizes of the samples used to estimate the change.

Chart 2 depicts the states with March 2005 penetration rates (as shown in Table 2) more than 1% below the national average, within 1% of the national average, or more than 1% above the national average.

Chart 3 depicts changes in household penetration rates by state (as shown in Table 2) between the November 1983 and March 2005 rates. States with statistically significant increases or decreases are shown, along with other states with increases or decreases.

Chart 4 depicts the relationship between telephone penetration and household income, using March 2005 penetration rates for all households and for households headed by white, black, and Hispanic persons. It is based on data in Table 4.

Chart 5 depicts the relationship between telephone penetration and household size, using March 2005 penetration rates for all households and for households headed by white, black, and Hispanic persons. It is based on data in Table 5.

Chart 6 depicts the relationship between telephone penetration and the head of the household's age, using March 2005 penetration rates for all households and for households headed by white, black, and Hispanic persons. It is based on data in Table 6.

Chart 7 depicts the relationship between telephone penetration and labor force status for civilian non-institutionalized adults, using March 2005 penetration rates for all adults and for white, black, and Hispanic adults. It is based on data in Table 7.

Chart 8 graphically depicts the nationwide penetration rates for civilian non-institutionalized adults over time. It is also based on data in Table 7.

Table 3 shows the CPS responses for the United States and for each state beginning with November 1983. Because the CPS began collecting this data only in 1983, comparable values are not available prior to November 1983. For each of the surveys, the column headed "Unit" indicates the percentage of households for which there is telephone service in the housing unit. The column headed "Avail." indicates the percentage of households which have telephone service available for incoming and outgoing calls, either in the housing unit or elsewhere (such as at work or at a neighbor's home).

Table 4 shows the nationwide penetration rates for households by income and the race of the head of the household. It shows a strong relationship between income and penetration. Caution should be used in comparing these figures over time, because these income levels are not adjusted for inflation. Thus, the same nominal income level at two points in time will reflect different real incomes in terms of purchasing power.[3] Also, the income categories have changed over time due to the changing value of the dollar.

Table 5 shows the nationwide penetration rates for households by the size of the household and the race of the head of the household. It shows that penetration is higher for households of 2 to 5 people than it is for single-person households or those with 6 or more people.

Table 6 shows the nationwide penetration rates for households by the age and race of the head of the household. It shows that the penetration rate is lowest for young and non-white households.

Table 7 shows the nationwide penetration rates for all persons that are at least 15 years old in the civilian non-institutionalized population by their race and employment status. Since this table is for individual adults rather than households, the total penetration rates are different from those in the previous tables. It shows that penetration is lowest among the unemployed.

Tables 8 through 12 present the critical values at the 95% confidence level for testing the statistical significance of changes in penetration rates over time in the earlier tables. These critical values are relevant because changes less than or equal to the values shown are likely to be due to sampling error and thus cannot be regarded as demonstrating that a change in telephone penetration has occurred. In some cases, these critical values are very large because the sample sizes are very small for these subcategories, rendering the changes in estimated penetration rates unreliable. Because there is an overlap of half of the sample from year to year, but no overlap in the sample between surveys that are four months apart, annual changes are less subject to variations in sampling error. Consequently, the critical values should be multiplied by 0.8 when making a comparison for the same month in two consecutive years. When comparing the annual averages, the critical values should be multiplied by 0.5774, since these averages are based on three surveys and hence have a lower standard error. When comparing annual averages of two consecutive years, the critical values should be multiplied by .46, taking into account both of the above factors.

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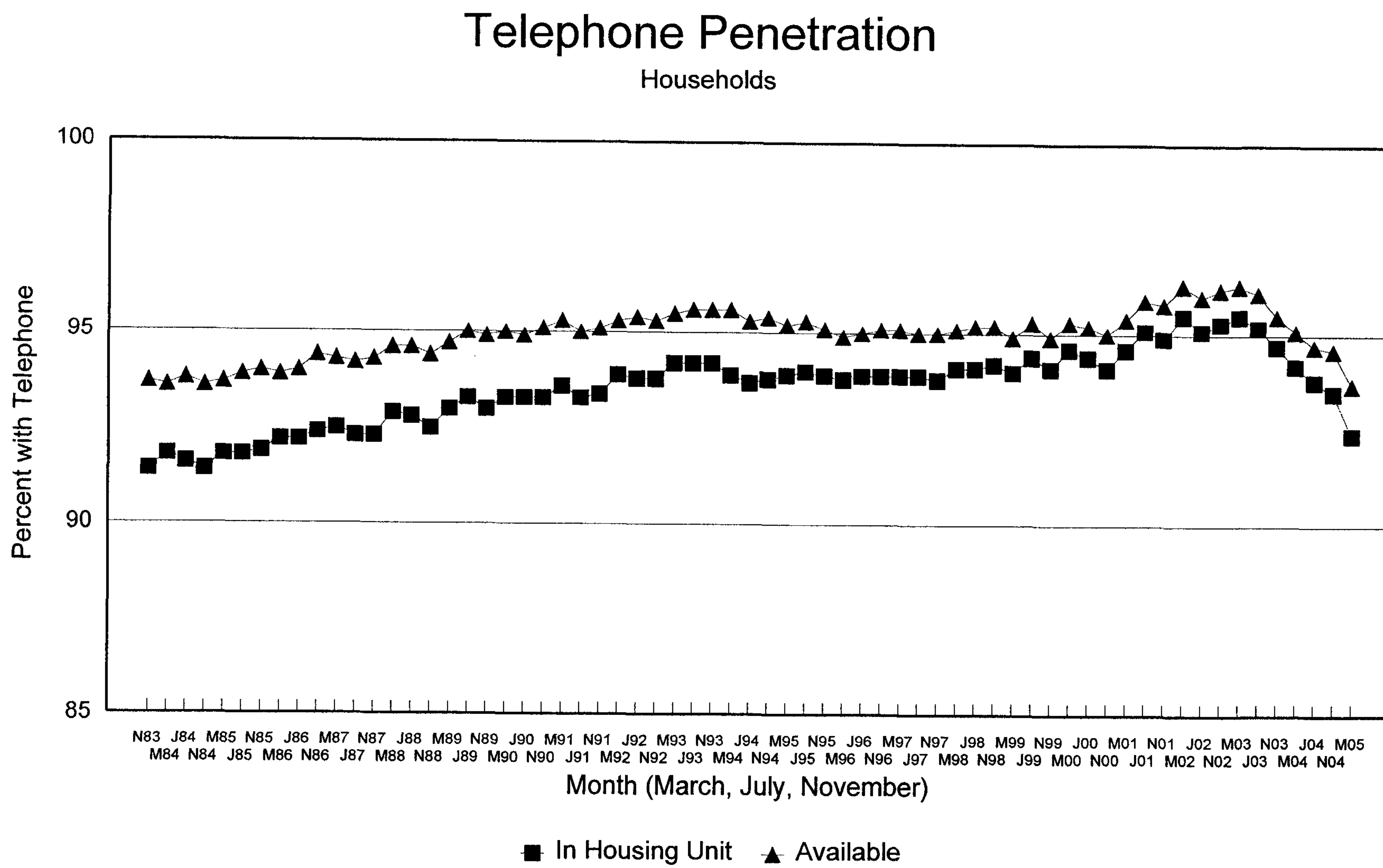
3 Our publication *Telephone Penetration by Income by State* (last published March 10, 2005) makes adjustments for inflation, making comparisons over time more appropriate.

Table 1
Household Telephone Subscribership in the United States

Date	Households (millions)	Households with Telephones (millions)	Percentage with Telephones	Households without Telephones (millions)	Percentage without Telephones
November 1983	85.8	78.4	91.4%	7.4	8.6%
March 1984	86.0	78.9	91.8%	7.1	8.2%
July 1984	86.6	79.3	91.6%	7.3	8.4%
November 1984	87.4	79.9	91.4%	7.5	8.6%
March 1985	87.4	80.2	91.8%	7.2	8.2%
July 1985	88.2	81.0	91.8%	7.2	8.2%
November 1985	88.8	81.6	91.9%	7.2	8.1%
March 1986	89.0	82.1	92.2%	6.9	7.8%
July 1986	89.5	82.5	92.2%	7.0	7.8%
November 1986	89.9	83.1	92.4%	6.8	7.6%
March 1987	90.2	83.4	92.5%	6.8	7.5%
July 1987	90.7	83.7	92.3%	7.0	7.7%
November 1987	91.3	84.3	92.3%	7.0	7.7%
March 1988	91.8	85.3	92.9%	6.5	7.1%
July 1988	92.4	85.7	92.8%	6.7	7.2%
November 1988	92.6	85.7	92.5%	6.9	7.5%
March 1989	93.6	87.0	93.0%	6.6	7.0%
July 1989	93.8	87.5	93.3%	6.3	6.7%
November 1989	93.9	87.3	93.0%	6.6	7.0%
March 1990	94.2	87.9	93.3%	6.3	6.7%
July 1990	94.8	88.4	93.3%	6.4	6.7%
November 1990	94.7	88.4	93.3%	6.3	6.7%
March 1991	95.3	89.2	93.6%	6.1	6.4%
July 1991	95.5	89.1	93.3%	6.4	6.7%
November 1991	95.7	89.4	93.4%	6.3	6.6%
March 1992	96.6	90.7	93.9%	5.9	6.1%
July 1992	96.6	90.6	93.8%	6.0	6.2%
November 1992	97.0	91.0	93.8%	6.0	6.2%
March 1993	97.3	91.6	94.2%	5.7	5.8%
July 1993	97.9	92.2	94.2%	5.7	5.8%
November 1993	98.8	93.0	94.2%	5.8	5.8%
March 1994	98.1	92.1	93.9%	6.0	6.1%
July 1994	98.6	92.4	93.7%	6.2	6.3%
November 1994	99.8	93.7	93.8%	6.2	6.2%
March 1995	99.9	93.8	93.9%	6.1	6.1%
July 1995	100.0	94.0	94.0%	6.0	6.0%
November 1995	100.4	94.2	93.9%	6.2	6.1%
March 1996	100.6	94.4	93.8%	6.2	6.2%
July 1996	101.2	95.0	93.9%	6.1	6.1%
November 1996	101.3	95.1	93.9%	6.2	6.1%
March 1997	102.0	95.8	93.9%	6.2	6.1%
July 1997	102.3	96.1	93.9%	6.2	6.1%
November 1997	102.8	96.5	93.8%	6.3	6.2%
March 1998	103.4	97.4	94.1%	6.1	5.9%
July 1998	103.4	97.3	94.1%	6.1	5.9%
November 1998	104.1	98.0	94.2%	6.1	5.8%
March 1999	104.8	98.5	94.0%	6.3	6.0%
July 1999	105.1	99.2	94.4%	5.9	5.6%
November 1999	105.4	99.1	94.1%	6.3	5.9%
March 2000	105.3	99.6	94.6%	5.7	5.4%
July 2000	105.8	99.8	94.4%	5.9	5.6%
November 2000	106.5	100.2	94.1%	6.3	5.9%
March 2001	107.0	101.1	94.6%	5.8	5.4%
July 2001	106.9	101.7	95.1%	5.2	4.9%
November 2001	107.7	102.2	94.9%	5.5	5.1%
March 2002	108.3	103.4	95.5%	4.8	4.5%
July 2002	108.5	103.2	95.1%	5.3	4.9%
November 2002	109.0	104.0	95.3%	5.1	4.7%
March 2003	112.1	107.1	95.5%	5.0	4.5%
July 2003	112.1	106.8	95.2%	5.3	4.8%
November 2003	113.1	107.1	94.7%	6.0	5.3%
March 2004	112.9	106.4	94.2%	6.5	5.8%
July 2004	113.5	106.5	93.8%	7.1	6.2%
November 2004	113.8	106.4	93.5%	7.4	6.5%
March 2005	114.5	105.8	92.4%	8.7	7.6%

Note: Details may not appear to add to totals due to rounding.

Chart 1



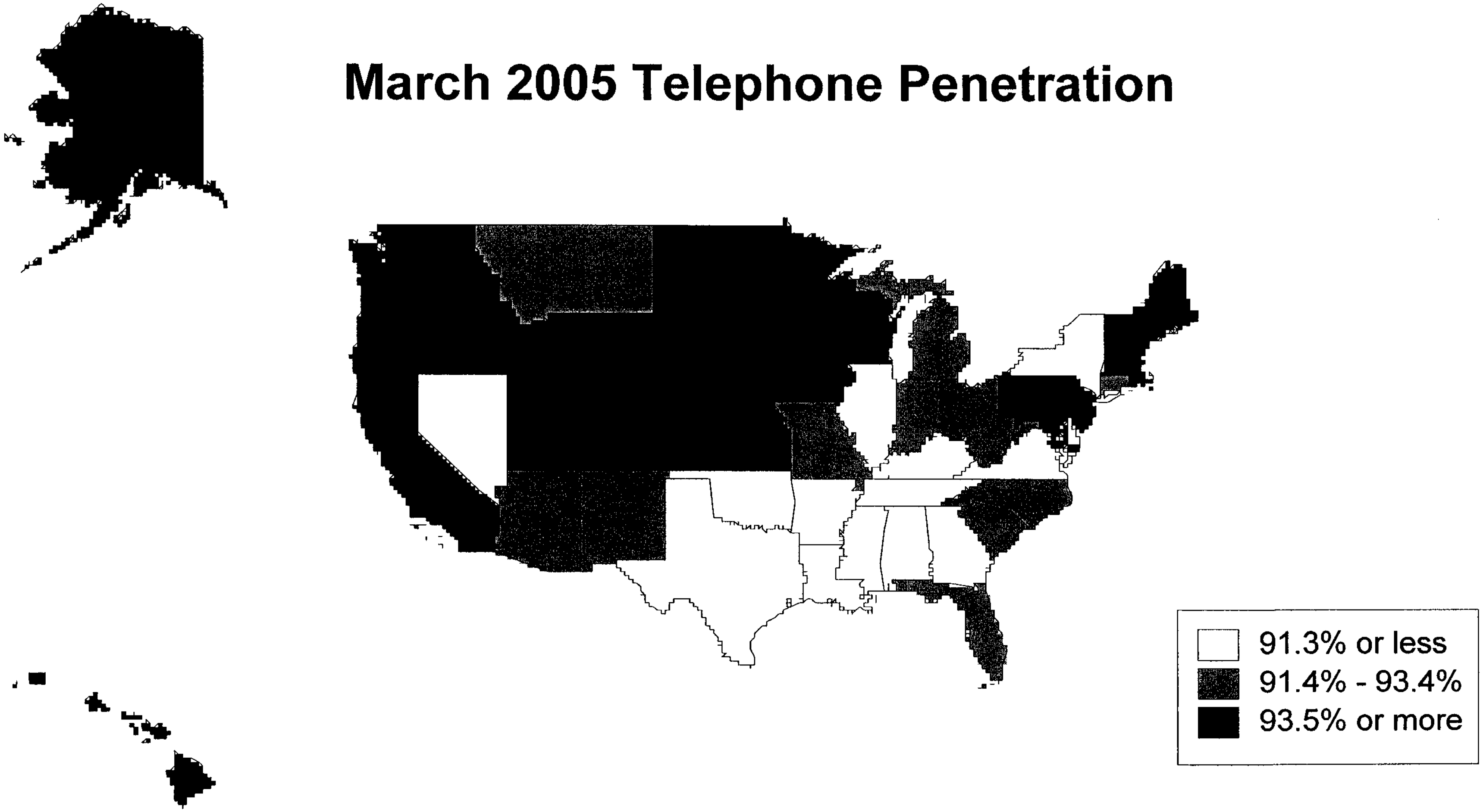
Telephone Penetration
Households
100
95
90
85
Percent with Telephone
N83 J84 M85 N85 J86 M87 N87 J88 M89 N89 J90 M91 N91 J92 M93 N93 J94 M95 N95 J96 M97 N97 J98 M99 N99 J00 M01 N01 J02 M03 N03 J04 M05
M84 N84 J85 M86 N86 J87 M88 N88 J89 M90 N90 J91 M92 N92 J93 M94 N94 J95 M96 N96 J97 M98 N98 J99 M00 N00 J01 M02 N02 J03 M04 N04
Month (March, July, November)
In Housing Unit
Available

Table 2
Telephone Penetration by State
(Percentage of Households with Telephone Service)

State	November 1983	March 2005	Change	
Alabama	87.9 %	90.6 %	2.7 %	
Alaska	83.8	95.2	11.4	*
Arizona	88.8	93.0	4.3	*
Arkansas	88.2	87.7	-0.5	
California	91.7	94.5	2.8	*
Colorado	94.4	95.0	0.6	
Connecticut	95.5	92.7	-2.8	†
Delaware	95.0	90.7	-4.3	†
District of Columbia	94.7	91.2	-3.5	
Florida	85.5	91.6	6.1	*
Georgia	88.9	90.4	1.5	
Hawaii	94.6	95.2	0.6	
Idaho	89.5	94.8	5.3	*
Illinois	95.0	89.1	-5.9	†
Indiana	90.3	91.4	1.1	
Iowa	95.4	96.3	0.9	
Kansas	94.9	93.5	-1.4	
Kentucky	86.9	90.1	3.2	
Louisiana	88.9	89.8	0.9	
Maine	90.7	95.4	4.7	*
Maryland	96.3	93.5	-2.8	
Massachusetts	94.3	93.9	-0.4	
Michigan	93.8	91.5	-2.3	†
Minnesota	96.4	95.6	-0.8	
Mississippi	82.4	86.7	4.3	*
Missouri	92.1	92.1	0.0	
Montana	92.8	93.3	0.5	
Nebraska	94.0	94.5	0.5	
Nevada	89.4	90.0	0.6	
New Hampshire	95.0	94.4	-0.5	
New Jersey	94.1	93.9	-0.2	
New Mexico	85.3	92.2	6.9	*
New York	90.8	91.3	0.5	
North Carolina	89.3	91.4	2.1	*
North Dakota	95.1	95.2	0.1	
Ohio	92.2	93.3	1.1	
Oklahoma	91.5	90.3	-1.2	
Oregon	91.2	94.5	3.3	*
Pennsylvania	95.1	94.3	-0.8	
Rhode Island	93.3	93.9	0.6	
South Carolina	81.8	93.2	11.4	*
South Dakota	92.7	94.7	2.0	
Tennessee	87.6	90.5	2.9	
Texas	89.0	90.2	1.2	
Utah	90.3	96.9	6.6	*
Vermont	92.7	96.7	4.0	*
Virginia	93.1	91.2	-1.9	
Washington	92.5	96.9	4.5	*
West Virginia	88.1	91.5	3.4	*
Wisconsin	94.8	94.2	-0.6	
Wyoming	89.7	94.0	4.3	*
Total United States	91.4	92.4	1.0	*

* Increase is statistically significant at the 95% confidence level.
† Decrease is statistically significant at the 95% confidence level.
Differences may not appear to equal changes due to rounding.

Chart 2



March 2005 Telephone Penetration
91.3% or less
91.4% - 93.4%
93.5% or more

Chart 3

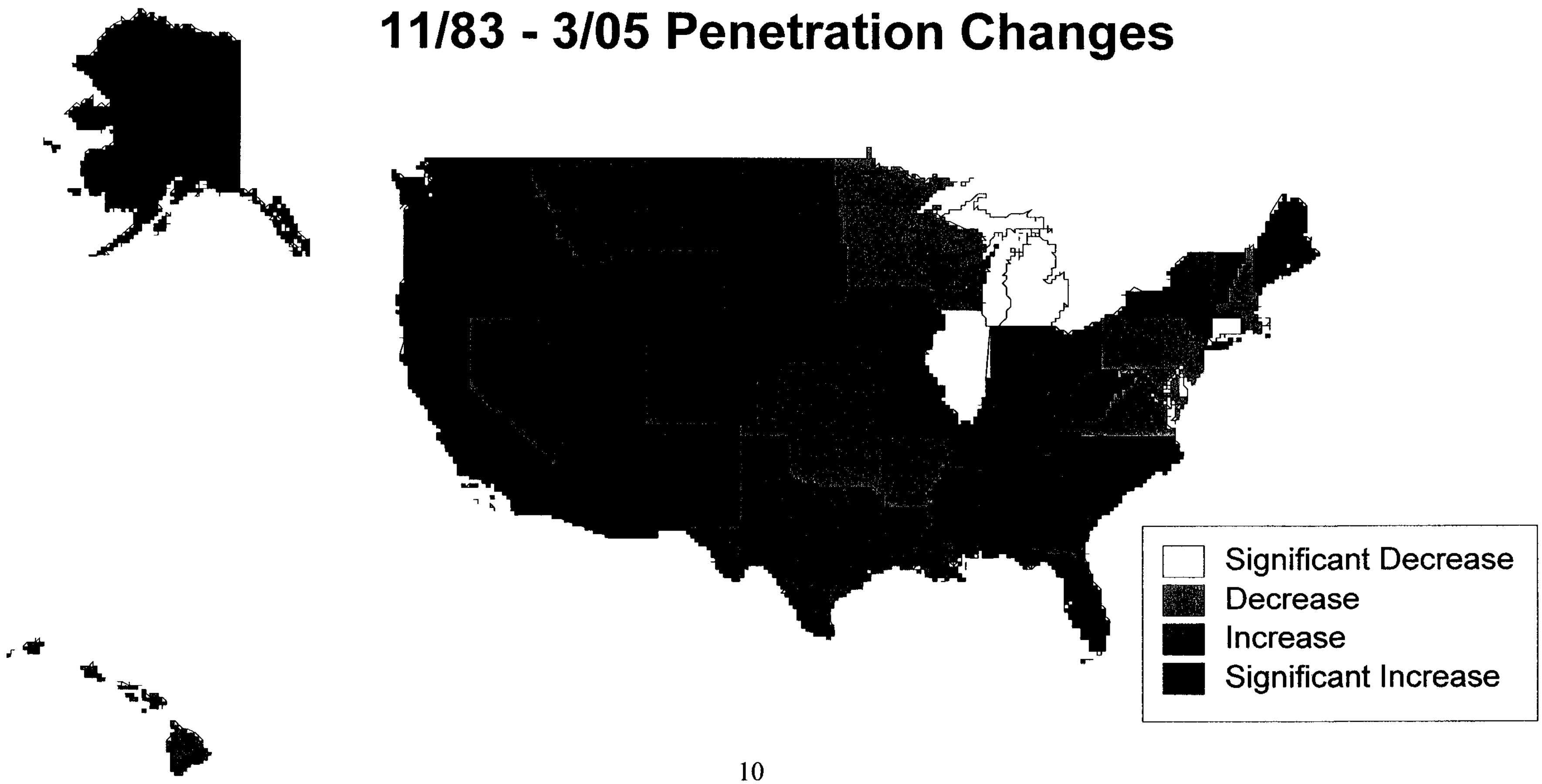

11/83 - 3/05 Penetration Changes
Significant Decrease
Decrease
Increase
Significant Increase

Chart 4

Telephone Penetration by Income Level

March 2005

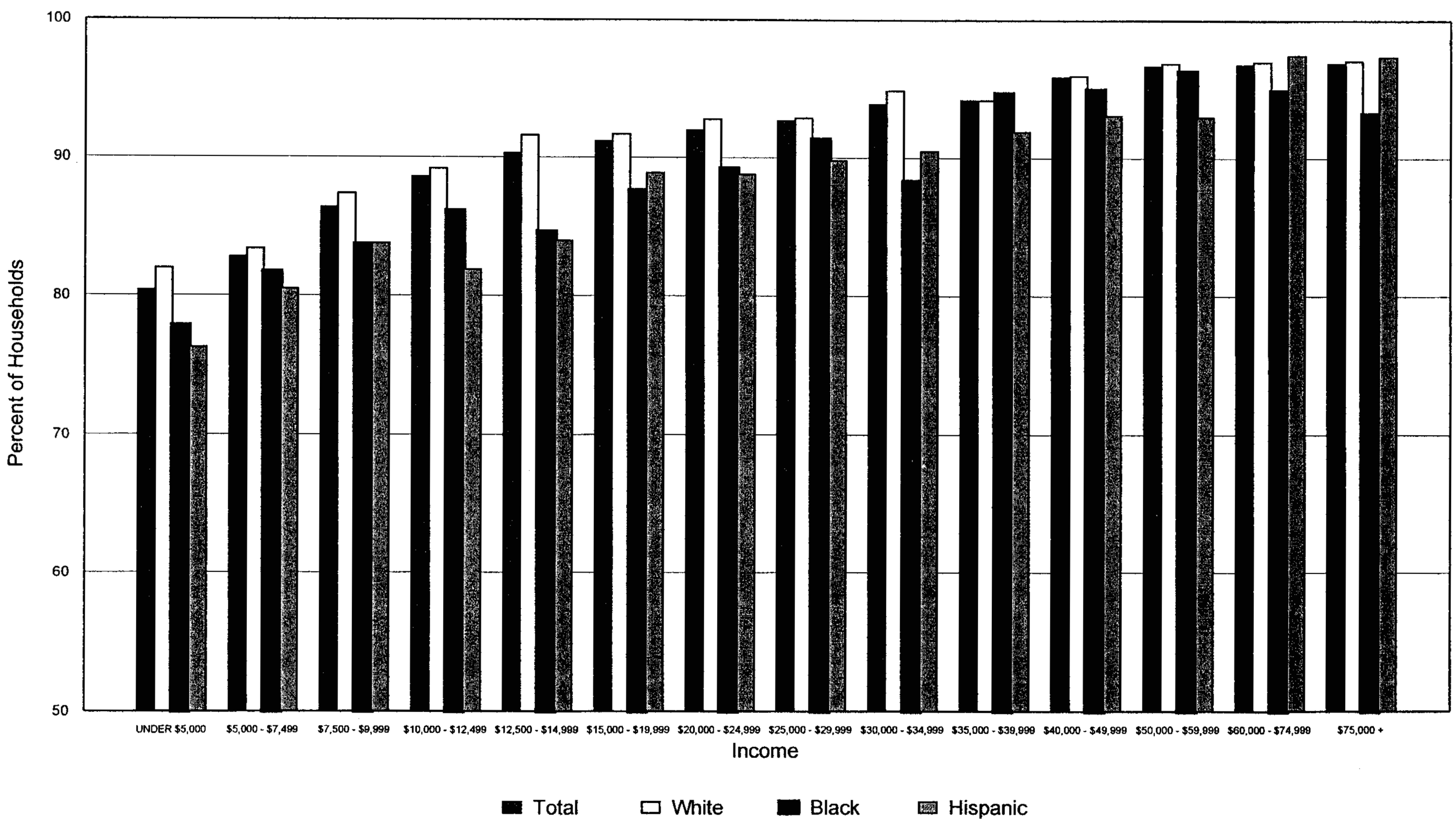


Chart 5

Telephone Penetration by Household Size

March 2005

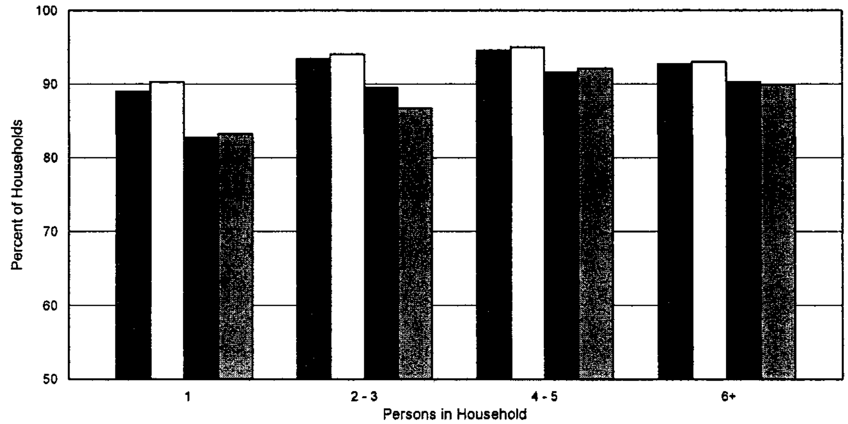


Chart 6

Telephone Penetration by Householder's Age

March 2005

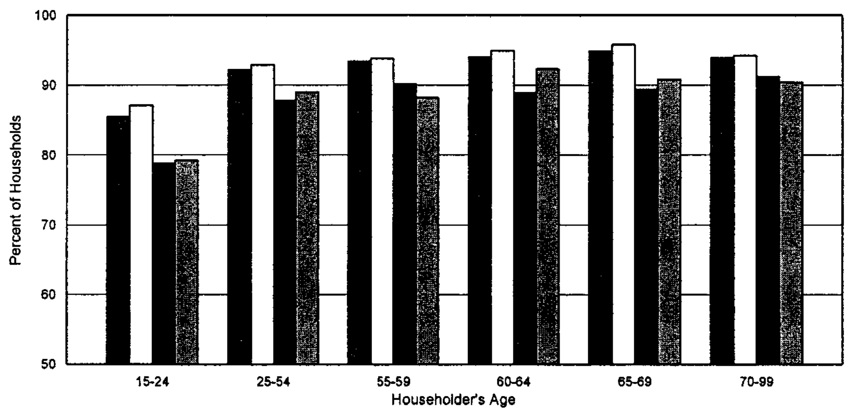


Chart 7

Telephone Penetration by Labor Force Status

March 2005

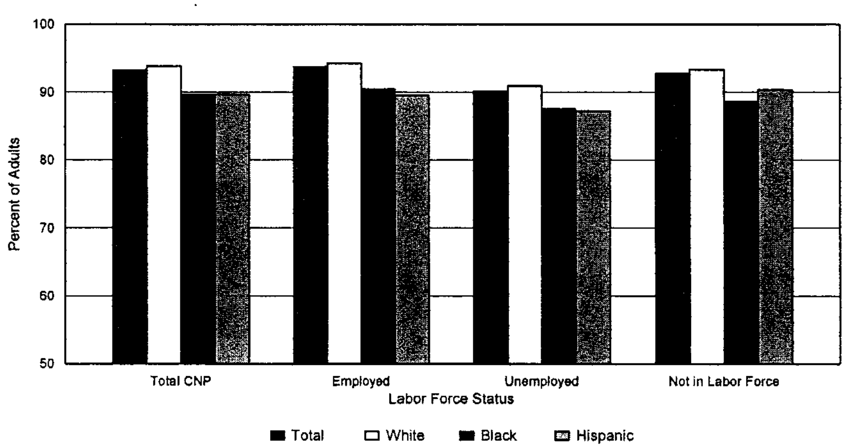
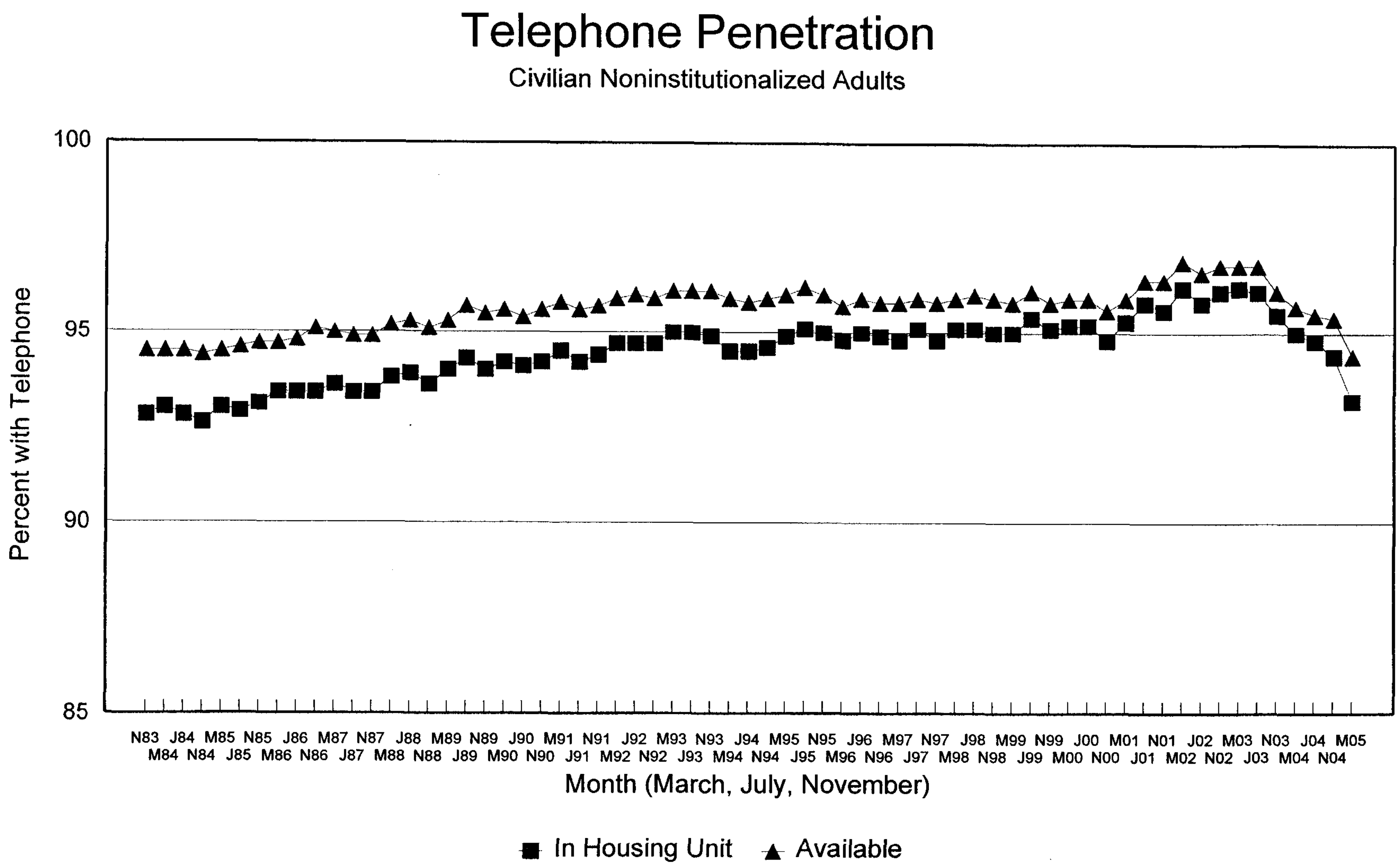


Chart 8



Telephone Penetration
Civilian Noninstitutionalized Adults
Percent with Telephone
100
95
90
85
N83 J84 M85 N85 J86 M87 N87 J88 M89 N89 J90 M91 N91 J92 M93 N93 J94 M95 N95 J96 M97 N97 J98 M99 N99 J00 M01 N01 J02 M03 N03 J04 M05
M84 N84 J85 M86 N86 J87 M88 N88 J89 M90 N90 J91 M92 N92 J93 M94 N94 J95 M96 N96 J97 M98 N98 J99 M00 N00 J01 M02 N02 J03 M04 N04
Month (March, July, November)
In Housing Unit
Available

Table 3
Percentage of Households with a Telephone by State

	1983		1984		1985		1986	
	NOVEMBER		ANNUAL AVERAGE		ANNUAL AVERAGE		ANNUAL AVERAGE	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
UNITED STATES	91.4	93.7	91.6	93.7	91.8	93.9	92.3	94.1
ALABAMA	87.9	90.2	88.4	90.5	89.1	91.0	88.7	90.4
ALASKA	83.8	88.8	86.5	89.0	87.1	89.5	86.4	88.9
ARIZONA	88.8	90.7	86.9	89.4	87.3	89.6	89.4	90.9
ARKANSAS	88.2	91.4	86.6	90.6	85.9	89.9	86.4	90.4
CALIFORNIA	91.7	93.5	92.5	93.8	92.9	94.1	93.0	94.0
COLORADO	94.4	96.5	93.2	95.4	94.3	96.2	94.1	96.0
CONNECTICUT	95.5	98.4	95.5	97.0	96.2	97.6	97.0	97.9
DELAWARE	95.0	96.6	94.3	95.7	94.8	96.2	94.7	96.3
DISTRICT OF COLUMBIA	94.7	95.6	94.9	96.3	93.6	95.2	92.2	94.0
FLORIDA	85.5	89.9	88.7	91.3	89.6	91.7	90.0	92.5
GEORGIA	88.9	92.1	86.2	89.1	87.6	89.7	88.4	91.0
HAWAII	94.6	96.4	93.5	94.9	93.0	95.0	92.2	94.4
IDAHO	89.5	92.2	90.7	91.7	91.8	93.1	91.5	93.1
ILLINOIS	95.0	95.9	94.2	95.8	93.7	95.3	93.6	95.2
INDIANA	90.3	93.5	91.6	93.6	92.3	94.7	92.2	94.3
IOWA	95.4	97.2	96.2	97.4	95.1	96.4	95.7	96.5
KANSAS	94.9	96.7	94.3	95.8	94.4	96.4	94.6	96.1
KENTUCKY	86.9	90.9	88.1	91.0	87.4	91.1	86.2	90.6
LOUISIANA	88.9	93.3	89.7	92.7	90.3	93.6	88.7	91.9
MAINE	90.7	93.1	93.4	95.3	94.0	95.6	93.4	95.4
MARYLAND	96.3	96.7	95.7	96.5	95.5	96.7	95.7	96.7
MASSACHUSETTS	94.3	95.9	95.9	96.9	95.2	96.3	96.4	97.1
MICHIGAN	93.8	94.9	92.8	94.5	92.9	94.2	93.4	94.5
MINNESOTA	96.4	97.5	95.8	97.1	96.4	97.4	96.2	97.2
MISSISSIPPI	82.4	89.1	82.4	87.5	80.9	87.6	80.1	87.3
MISSOURI	92.1	94.1	91.5	93.7	92.5	94.8	93.4	94.9
MONTANA	92.8	94.5	91.0	94.0	91.4	93.9	90.9	93.7
NEBRASKA	94.0	95.3	95.7	96.8	95.3	96.6	95.6	96.8
NEVADA	89.4	91.9	90.4	92.8	91.8	93.8	92.4	93.7
NEW HAMPSHIRE	95.0	96.9	94.3	95.8	93.2	94.6	94.0	95.0
NEW JERSEY	94.1	95.1	94.8	96.1	94.9	96.2	94.9	96.1
NEW MEXICO	85.3	90.9	82.0	87.0	84.1	88.2	85.1	89.1
NEW YORK	90.8	92.2	91.8	93.6	92.1	93.6	93.2	94.3
NORTH CAROLINA	89.3	92.9	88.3	91.9	89.4	92.4	90.2	92.5
NORTH DAKOTA	95.1	97.3	94.6	96.8	95.3	96.7	96.1	97.0
OHIO	92.2	93.9	92.4	94.4	92.2	94.5	93.1	94.4
OKLAHOMA	91.5	93.7	90.3	92.5	88.8	91.7	90.4	93.0
OREGON	91.2	93.5	90.6	92.3	90.3	92.1	92.7	94.3
PENNSYLVANIA	95.1	97.1	94.9	96.5	95.3	96.6	96.3	97.4
RHODE ISLAND	93.3	94.6	93.6	94.6	94.0	95.1	95.9	96.8
SOUTH CAROLINA	81.8	84.9	83.7	87.7	86.8	90.5	86.3	90.6
SOUTH DAKOTA	92.7	95.0	93.2	94.9	92.6	94.5	92.6	94.2
TENNESSEE	87.6	92.6	88.5	92.0	89.3	92.6	89.6	93.6
TEXAS	89.0	92.6	88.4	91.6	88.1	91.6	88.9	91.9
UTAH	90.3	92.2	92.5	94.2	93.9	95.1	93.0	93.9
VERMONT	92.7	94.3	92.3	94.0	92.9	94.1	93.8	95.6
VIRGINIA	93.1	94.7	93.1	95.1	91.7	93.8	92.1	94.1
WASHINGTON	92.5	93.7	93.0	94.4	94.7	96.2	94.6	96.3
WEST VIRGINIA	88.1	91.1	87.7	91.8	87.6	91.7	88.2	91.9
WISCONSIN	94.8	96.1	95.2	96.6	94.1	95.4	95.1	95.9
WYOMING	89.7	93.3	89.9	92.8	93.4	94.9	92.1	95.1

Table 3
Percentage of Households with a Telephone by State

	1987 ANNUAL AVERAGE Unit	1987 ANNUAL AVERAGE Avail	1988 ANNUAL AVERAGE Unit	1988 ANNUAL AVERAGE Avail	1989 ANNUAL AVERAGE Unit	1989 ANNUAL AVERAGE Avail	1990 ANNUAL AVERAGE Unit	1990 ANNUAL AVERAGE Avail
UNITED STATES	92.4	94.2	92.7	94.5	93.1	94.9	93.3	95.0
ALABAMA	87.5	89.6	87.3	89.6	89.0	91.3	89.5	91.1
ALASKA	87.8	90.2	87.6	89.9	86.8	89.9	89.3	92.6
ARIZONA	88.6	90.7	90.6	92.3	91.6	93.2	93.0	95.1
ARKANSAS	86.3	90.7	86.1	90.2	87.5	91.0	88.7	91.9
CALIFORNIA	93.8	95.0	94.4	95.5	94.9	96.0	94.6	95.5
COLORADO	92.9	95.5	93.8	95.4	94.6	96.0	94.7	96.3
CONNECTICUT	97.0	98.0	96.3	98.9	98.1	98.5	97.1	97.7
DELAWARE	96.5	97.3	97.0	97.9	96.6	97.5	96.0	97.1
DISTRICT OF COLUMBIA	92.4	94.2	94.6	95.9	92.7	94.8	91.4	93.2
FLORIDA	91.7	93.8	92.7	94.5	92.9	94.5	93.0	94.9
GEORGIA	88.7	91.3	90.1	92.4	90.2	92.9	90.9	93.4
HAWAII	94.2	96.6	94.5	96.3	95.1	96.9	95.3	96.8
IDAHO	91.1	92.5	92.2	93.3	92.5	93.6	92.8	94.1
ILLINOIS	93.7	95.2	94.2	95.6	93.9	95.4	94.3	95.7
INDIANA	91.2	93.2	92.3	94.9	93.2	95.9	92.8	95.9
IOWA	95.1	96.3	95.4	96.9	96.3	97.5	96.1	96.9
KANSAS	95.2	96.6	94.4	95.7	94.4	95.8	95.4	96.5
KENTUCKY	86.5	90.6	87.5	90.9	88.9	92.7	89.1	93.3
LOUISIANA	87.5	90.8	87.3	91.1	88.6	91.3	89.4	92.0
MAINE	93.5	95.2	94.2	95.9	95.3	96.4	95.7	97.6
MARYLAND	95.4	96.6	95.9	97.2	95.0	96.6	95.4	96.7
MASSACHUSETTS	96.4	97.0	96.9	97.3	97.1	97.8	96.6	97.4
MICHIGAN	93.7	94.8	93.9	95.0	93.7	94.9	94.1	95.5
MINNESOTA	96.0	97.4	97.2	98.4	96.8	97.8	96.9	98.1
MISSISSIPPI	81.5	86.3	83.3	88.6	85.5	90.3	87.0	90.9
MISSOURI	93.0	95.3	93.5	95.6	91.0	93.4	92.0	95.3
MONTANA	90.9	93.9	91.7	94.2	91.7	94.3	92.0	94.2
NEBRASKA	94.6	96.1	95.4	96.1	95.2	96.3	96.2	97.1
NEVADA	92.4	93.7	92.4	93.4	92.7	93.3	92.6	93.6
NEW HAMPSHIRE	94.1	96.2	95.2	96.1	95.4	97.1	95.0	96.5
NEW JERSEY	95.0	96.3	94.4	95.9	94.8	96.1	94.7	95.9
NEW MEXICO	86.0	89.3	85.7	89.1	85.8	89.6	85.8	89.5
NEW YORK	92.7	94.2	92.4	94.0	92.3	94.0	91.1	92.8
NORTH CAROLINA	89.2	91.7	90.4	92.8	91.9	94.1	91.9	94.2
NORTH DAKOTA	96.8	97.4	96.8	97.5	97.0	98.0	97.0	97.9
OHIO	93.4	94.7	94.4	95.2	94.6	95.5	95.2	96.3
OKLAHOMA	88.7	91.8	88.9	91.6	88.2	91.2	89.5	92.7
OREGON	93.3	94.8	92.0	93.5	92.3	93.9	94.5	95.9
PENNSYLVANIA	96.4	97.3	96.2	97.1	97.0	97.5	96.9	97.6
RHODE ISLAND	95.2	96.3	95.4	96.5	95.4	96.3	95.6	96.5
SOUTH CAROLINA	87.7	90.6	88.5	91.4	87.8	90.8	90.2	93.2
SOUTH DAKOTA	92.8	95.0	92.9	95.4	93.3	95.0	93.4	95.3
TENNESSEE	89.2	92.6	90.3	93.5	91.9	95.1	91.6	94.1
TEXAS	89.5	92.2	88.5	91.3	88.8	91.6	89.4	92.0
UTAH	92.3	94.6	92.5	94.5	95.9	96.5	95.6	96.3
VERMONT	95.3	96.9	95.6	96.8	93.9	95.7	94.9	96.9
VIRGINIA	92.5	94.6	92.9	95.5	93.2	95.7	93.0	94.9
WASHINGTON	94.3	96.4	94.3	95.7	96.4	97.3	97.1	97.7
WEST VIRGINIA	87.8	91.5	87.3	91.4	86.8	90.3	87.6	91.7
WISCONSIN	96.4	97.1	97.0	98.0	97.3	98.4	96.9	97.7
WYOMING	92.3	94.1	93.0	94.4	93.6	95.5	94.1	95.9

Table 3
Percentage of Households with a Telephone by State

	1991 ANNUAL AVERAGE Unit	1991 ANNUAL AVERAGE Avail	1992 ANNUAL AVERAGE Unit	1992 ANNUAL AVERAGE Avail	1993 ANNUAL AVERAGE Unit	1993 ANNUAL AVERAGE Avail	1994 ANNUAL AVERAGE Unit	1994 ANNUAL AVERAGE Avail
UNITED STATES	93.4	95.1	93.8	95.3	94.2	95.6	93.8	95.4
ALABAMA	91.4	93.3	90.8	93.2	91.9	94.3	91.3	94.3
ALASKA	90.8	93.5	91.7	94.4	89.9	93.8	91.8	94.6
ARIZONA	93.4	94.9	93.3	94.7	93.3	94.4	93.9	95.3
ARKANSAS	87.6	91.4	87.3	91.0	87.8	91.0	90.2	93.5
CALIFORNIA	95.0	95.9	95.6	96.5	95.8	96.7	94.8	95.7
COLORADO	95.4	97.0	95.5	96.3	96.1	96.5	96.7	97.7
CONNECTICUT	96.2	97.3	96.6	97.3	96.7	97.5	96.5	97.5
DELAWARE	96.4	97.5	96.5	97.8	96.5	96.8	95.5	97.1
DISTRICT OF COLUMBIA	90.9	92.6	88.7	90.5	90.2	91.7	90.0	91.2
FLORIDA	93.3	95.0	93.5	95.1	93.8	95.1	93.5	94.9
GEORGIA	89.9	91.7	90.2	91.9	93.2	94.2	91.1	93.2
HAWAII	95.1	96.4	95.3	96.8	94.4	96.3	94.3	96.1
IDAHO	92.0	93.6	93.0	94.7	94.4	95.7	94.7	96.2
ILLINOIS	93.8	95.6	93.8	95.5	93.6	95.3	93.6	95.2
INDIANA	92.2	94.6	91.9	93.2	93.7	95.1	93.6	94.8
IOWA	95.6	97.4	95.4	97.4	96.4	97.4	96.8	98.0
KANSAS	94.5	95.7	95.2	96.6	95.6	96.3	94.7	96.2
KENTUCKY	88.1	92.9	89.6	92.6	89.8	93.1	91.2	93.8
LOUISIANA	91.1	93.9	91.7	93.9	90.4	92.2	91.4	93.9
MAINE	94.4	96.6	93.2	95.3	96.0	98.1	96.0	97.8
MARYLAND	96.3	97.2	96.0	97.4	96.7	97.9	95.6	96.6
MASSACHUSETTS	96.4	97.4	96.8	97.5	96.9	97.9	96.5	97.1
MICHIGAN	94.1	95.5	94.4	95.5	95.6	96.5	95.0	96.6
MINNESOTA	97.1	97.9	96.7	98.1	96.1	97.3	95.6	97.2
MISSISSIPPI	86.0	90.9	86.3	90.4	87.2	90.6	88.6	92.5
MISSOURI	93.6	95.2	94.0	96.0	93.1	95.3	93.8	96.0
MONTANA	92.5	94.4	93.2	95.7	94.6	96.3	93.9	95.5
NEBRASKA	95.9	96.4	96.4	97.1	96.6	97.2	96.7	98.0
NEVADA	93.3	94.5	93.7	94.6	95.4	95.9	93.0	93.5
NEW HAMPSHIRE	96.2	97.5	95.4	96.4	96.0	96.9	96.4	97.3
NEW JERSEY	93.6	95.2	94.4	95.3	94.3	95.1	92.9	94.1
NEW MEXICO	87.1	89.9	88.4	90.9	90.2	93.3	88.3	91.2
NEW YORK	91.9	93.4	93.4	94.5	93.5	94.8	93.1	94.4
NORTH CAROLINA	91.8	94.2	92.5	94.5	92.7	94.6	92.6	95.2
NORTH DAKOTA	96.3	97.6	95.8	97.1	97.1	98.0	96.5	97.7
OHIO	94.5	95.8	94.6	95.6	94.9	96.0	94.8	96.0
OKLAHOMA	89.3	91.9	90.9	93.1	92.1	94.0	91.8	93.6
OREGON	94.7	95.4	93.9	94.7	94.8	95.7	96.1	97.0
PENNSYLVANIA	96.8	97.8	96.9	97.7	97.3	98.0	97.0	98.0
RHODE ISLAND	94.7	96.3	94.8	96.0	95.5	96.7	95.9	97.3
SOUTH CAROLINA	90.0	93.3	89.2	92.9	89.8	91.9	89.4	92.3
SOUTH DAKOTA	93.7	95.7	94.1	95.6	93.7	95.4	94.7	96.1
TENNESSEE	92.2	94.6	93.1	95.2	92.0	93.9	93.1	95.6
TEXAS	91.1	93.6	91.5	94.2	91.6	94.3	90.8	93.2
UTAH	96.2	97.0	95.9	96.5	96.0	96.8	95.7	97.1
VERMONT	94.4	96.5	94.2	95.6	94.6	95.9	94.6	96.3
VIRGINIA	92.6	94.7	94.8	96.4	94.3	95.9	94.8	96.7
WASHINGTON	96.8	97.3	96.0	96.9	96.8	98.0	96.0	97.2
WEST VIRGINIA	89.0	93.0	89.3	92.6	90.6	93.6	90.8	94.2
WISCONSIN	96.5	97.5	97.0	97.7	96.9	97.6	96.1	97.6
WYOMING	94.6	96.3	92.7	94.9	93.9	95.7	93.5	95.5

Table 3
Percentage of Households with a Telephone by State

	1995 ANNUAL AVERAGE Unit	1995 ANNUAL AVERAGE Avail	1996 ANNUAL AVERAGE Unit	1996 ANNUAL AVERAGE Avail	1997 ANNUAL AVERAGE Unit	1997 ANNUAL AVERAGE Avail	1998 ANNUAL AVERAGE Unit	1998 ANNUAL AVERAGE Avail
UNITED STATES	93.9	95.2	93.9	95.0	93.9	95.0	94.1	95.2
ALABAMA	92.2	94.0	92.2	93.9	92.3	93.6	93.3	94.4
ALASKA	93.6	95.6	94.4	95.4	94.5	96.4	94.0	96.0
ARIZONA	93.8	95.1	93.1	94.1	91.6	93.2	91.9	93.0
ARKANSAS	89.4	92.5	86.9	89.7	89.8	91.8	88.0	89.8
CALIFORNIA	94.5	95.3	95.0	95.6	94.3	94.9	95.2	95.9
COLORADO	96.6	97.2	95.5	96.4	95.9	97.3	95.0	96.0
CONNECTICUT	96.9	98.0	97.5	98.2	94.2	94.8	95.5	96.2
DELAWARE	96.2	96.8	96.1	97.1	95.7	96.7	96.7	97.0
DISTRICT OF COLUMBIA	90.9	92.3	93.0	94.2	90.8	92.3	91.0	92.3
FLORIDA	93.9	94.8	93.1	94.2	92.8	94.0	92.6	93.5
GEORGIA	90.0	91.8	89.7	91.1	92.0	93.0	91.4	92.5
HAWAII	94.7	96.0	94.8	95.9	94.5	95.6	95.4	96.3
IDAHO	95.1	96.1	92.9	94.3	94.0	94.7	93.3	94.2
ILLINOIS	93.6	95.0	93.0	94.2	92.2	93.7	92.8	93.9
INDIANA	94.4	95.9	93.7	95.1	93.8	95.1	94.4	95.7
IOWA	96.4	97.6	96.6	96.9	96.7	97.5	96.7	97.5
KANSAS	93.9	95.0	93.9	95.2	94.0	95.2	94.3	95.3
KENTUCKY	92.1	94.2	92.3	93.3	93.2	94.3	93.3	95.1
LOUISIANA	92.6	95.3	91.1	93.3	91.0	93.5	92.3	93.3
MAINE	95.7	96.9	96.5	97.8	96.1	97.3	96.9	97.9
MARYLAND	96.4	96.8	96.7	97.2	95.7	96.3	96.5	97.0
MASSACHUSETTS	95.9	96.7	95.7	96.7	95.4	96.3	94.5	95.4
MICHIGAN	95.2	96.0	95.0	95.6	94.3	95.2	95.0	96.0
MINNESOTA	97.3	98.1	97.1	98.0	96.9	98.0	97.8	98.3
MISSISSIPPI	86.5	91.1	87.5	91.6	89.2	93.2	89.5	92.0
MISSOURI	94.4	95.7	95.3	96.7	95.0	96.2	94.6	95.9
MONTANA	94.2	95.3	94.3	95.5	93.7	94.8	94.1	95.0
NEBRASKA	97.1	97.8	96.0	96.9	97.1	97.8	96.2	97.0
NEVADA	92.6	93.6	93.5	94.1	94.1	94.4	92.3	93.3
NEW HAMPSHIRE	96.2	97.2	96.1	96.9	96.5	97.4	95.5	96.6
NEW JERSEY	92.3	93.2	93.6	94.8	94.9	96.0	94.5	95.3
NEW MEXICO	86.4	88.8	86.2	88.6	88.1	90.8	88.2	91.3
NEW YORK	92.9	93.9	93.4	94.3	94.2	95.1	94.8	95.7
NORTH CAROLINA	93.4	95.1	93.5	95.1	93.1	94.2	93.1	94.0
NORTH DAKOTA	97.2	97.9	96.3	96.7	95.8	97.0	96.8	97.5
OHIO	94.0	95.0	94.5	95.6	94.6	95.3	95.6	96.3
OKLAHOMA	91.5	92.9	91.3	92.6	91.4	93.1	90.6	91.7
OREGON	96.4	96.9	96.0	96.8	95.6	96.3	96.0	97.2
PENNSYLVANIA	96.8	97.5	96.9	97.5	97.1	97.6	96.8	97.4
RHODE ISLAND	96.0	97.4	95.7	96.3	94.5	95.6	95.6	96.5
SOUTH CAROLINA	90.5	92.3	91.3	93.6	92.5	93.8	92.9	94.1
SOUTH DAKOTA	94.3	95.9	93.3	94.5	93.9	95.0	90.6	91.7
TENNESSEE	93.0	95.5	94.0	96.2	94.5	96.4	94.6	96.3
TEXAS	91.3	93.3	91.0	92.6	91.3	93.0	92.2	93.7
UTAH	97.6	97.9	96.7	97.0	96.9	97.7	97.1	97.7
VERMONT	96.5	98.0	95.9	97.7	95.1	96.7	95.2	96.1
VIRGINIA	95.9	97.3	94.9	96.1	94.5	95.7	93.9	94.6
WASHINGTON	95.7	96.6	94.5	95.5	95.9	96.9	95.2	95.9
WEST VIRGINIA	92.7	94.9	92.9	95.0	93.2	94.9	93.8	95.5
WISCONSIN	97.3	97.7	97.0	97.7	96.3	97.2	95.9	96.8
WYOMING	94.1	95.5	95.0	95.7	93.4	95.0	93.7	94.6

Table 3
Percentage of Households with a Telephone by State

	1999 ANNUAL AVERAGE		2000 ANNUAL AVERAGE		2001 ANNUAL AVERAGE		2002 ANNUAL AVERAGE	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
UNITED STATES	94.2	95.0	94.4	95.2	94.9	95.7	95.3	96.2
ALABAMA	91.5	93.0	91.9	93.3	92.8	94.0	92.2	93.2
ALASKA	94.6	96.5	94.3	96.9	96.0	97.1	96.4	97.9
ARIZONA	93.2	93.8	93.9	94.8	94.5	95.1	94.8	96.0
ARKANSAS	88.9	90.5	88.6	89.9	91.3	92.9	92.1	93.4
CALIFORNIA	95.7	96.2	95.8	96.4	96.6	97.0	97.0	97.4
COLORADO	96.7	97.2	96.3	96.7	96.7	97.3	97.2	97.7
CONNECTICUT	96.5	96.8	96.4	96.8	96.1	96.8	97.4	97.9
DELAWARE	95.7	96.9	96.3	97.1	96.2	96.9	96.8	97.3
DISTRICT OF COLUMBIA	92.4	93.5	93.2	94.1	94.5	95.5	94.0	95.6
FLORIDA	92.6	93.6	92.1	92.9	93.2	94.0	94.3	95.2
GEORGIA	92.1	93.2	91.1	92.5	92.4	93.4	94.0	94.8
HAWAII	96.3	97.1	94.7	95.3	95.7	96.6	96.8	97.7
IDAHO	93.8	94.6	93.9	94.8	94.5	95.6	95.0	96.1
ILLINOIS	91.8	93.0	91.5	92.3	92.5	93.4	92.8	93.7
INDIANA	93.8	95.2	94.5	95.3	93.9	95.0	93.4	94.5
IOWA	95.8	96.5	96.2	97.1	97.1	97.8	96.9	97.8
KANSAS	93.8	94.8	94.8	95.7	94.2	95.9	95.5	96.6
KENTUCKY	92.8	94.1	93.3	94.3	93.5	94.5	95.0	96.0
LOUISIANA	91.5	93.1	92.6	93.8	93.6	94.6	92.4	93.6
MAINE	97.2	97.9	97.9	98.3	97.8	98.5	97.9	98.7
MARYLAND	95.3	95.8	95.0	96.0	96.0	96.3	96.4	97.0
MASSACHUSETTS	95.4	96.0	94.6	95.5	95.6	96.1	96.9	97.5
MICHIGAN	94.2	94.9	95.0	95.6	94.7	95.6	94.3	94.9
MINNESOTA	96.9	97.3	97.4	97.8	97.5	97.8	97.7	98.3
MISSISSIPPI	88.0	91.2	89.2	92.0	89.9	92.6	91.4	93.3
MISSOURI	95.6	96.6	95.8	96.9	96.1	96.8	96.2	97.0
MONTANA	95.3	96.2	94.6	95.1	95.0	95.7	94.8	96.0
NEBRASKA	95.9	96.6	97.3	98.0	96.6	97.4	95.8	96.7
NEVADA	93.1	93.5	94.0	94.5	95.1	95.8	95.5	96.1
NEW HAMPSHIRE	97.0	97.6	97.7	98.3	98.3	98.6	97.2	97.7
NEW JERSEY	93.9	94.3	94.6	95.0	95.8	96.4	95.9	96.9
NEW MEXICO	89.8	91.4	91.2	92.7	92.2	93.6	91.8	93.9
NEW YORK	95.3	96.1	95.1	95.7	95.1	95.9	95.8	96.3
NORTH CAROLINA	93.9	94.8	93.9	95.0	93.6	94.7	94.3	95.2
NORTH DAKOTA	97.3	97.9	95.8	96.4	94.4	95.3	94.9	95.0
OHIO	94.7	95.6	94.8	95.8	96.0	96.7	95.9	96.9
OKLAHOMA	91.2	92.5	91.2	92.3	93.2	94.3	93.1	94.6
OREGON	95.2	96.1	94.8	95.6	95.6	96.5	97.2	97.7
PENNSYLVANIA	97.1	97.4	96.6	97.1	97.0	97.5	98.0	98.2
RHODE ISLAND	94.3	94.7	94.9	95.9	96.3	96.7	96.1	96.7
SOUTH CAROLINA	92.9	94.0	93.2	94.2	94.5	95.6	94.3	95.1
SOUTH DAKOTA	92.7	93.4	94.3	95.0	95.1	95.8	95.1	95.6
TENNESSEE	94.5	96.0	95.5	96.6	93.2	94.7	93.6	94.9
TEXAS	92.4	93.5	93.5	94.4	93.8	94.9	94.2	95.5
UTAH	95.6	96.5	95.9	96.5	96.6	96.9	96.7	97.6
VERMONT	95.3	96.7	95.6	96.2	97.2	97.8	97.6	98.1
VIRGINIA	93.2	94.1	95.4	96.0	94.7	95.3	96.2	96.8
WASHINGTON	95.9	96.4	94.9	96.0	96.0	96.9	96.4	97.2
WEST VIRGINIA	92.7	94.6	94.0	95.3	93.5	95.3	94.5	95.7
WISCONSIN	95.7	96.6	94.8	96.0	95.8	96.8	96.1	97.0
WYOMING	95.0	95.6	94.7	96.0	93.8	94.8	94.0	94.8

Table 3
Percentage of Households with a Telephone by State

	2003							
	MARCH		JULY		NOVEMBER		ANNUAL AVERAGE	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
UNITED STATES	95.5	96.3	95.2	96.1	94.7	95.5	95.1	96.0
ALABAMA	90.5	91.8	92.3	94.0	92.4	93.1	91.7	93.0
ALASKA	96.8	98.3	96.6	97.8	97.1	98.4	96.8	98.2
ARIZONA	95.6	96.1	95.0	95.7	94.9	96.4	95.2	96.1
ARKANSAS	93.0	93.7	90.4	91.8	89.7	91.4	91.0	92.3
CALIFORNIA	97.2	97.6	97.6	97.9	96.5	97.0	97.1	97.5
COLORADO	97.0	97.5	97.3	98.1	96.2	96.7	96.8	97.4
CONNECTICUT	97.6	98.3	95.1	97.0	97.6	98.4	96.8	97.9
DELAWARE	96.9	97.4	96.3	97.2	96.6	97.1	96.6	97.2
DISTRICT OF COLUMBIA	95.1	96.3	95.3	96.6	95.5	96.0	95.3	96.3
FLORIDA	95.0	95.6	95.2	96.0	93.7	94.4	94.6	95.3
GEORGIA	95.2	95.6	94.7	95.9	91.3	91.8	93.7	94.4
HAWAII	98.0	98.5	97.5	98.3	96.5	97.7	97.3	98.2
IDAHO	94.8	96.2	95.8	96.5	92.8	95.1	94.5	95.9
ILLINOIS	92.4	93.0	91.3	92.5	91.5	92.3	91.7	92.6
INDIANA	93.8	94.6	92.8	93.9	93.8	95.1	93.5	94.5
IOWA	97.0	97.5	96.5	97.3	96.8	97.6	96.8	97.5
KANSAS	96.3	97.6	95.3	96.4	96.0	97.0	95.9	97.0
KENTUCKY	94.0	95.6	96.0	96.2	93.7	94.6	94.6	95.5
LOUISIANA	93.4	94.4	93.7	94.4	92.5	94.1	93.2	94.3
MAINE	98.0	98.8	97.3	97.9	98.0	98.3	97.8	98.3
MARYLAND	98.5	98.8	97.2	97.7	97.4	97.7	97.7	98.1
MASSACHUSETTS	97.1	97.9	97.9	98.5	97.8	98.3	97.6	98.2
MICHIGAN	95.2	96.0	94.2	95.7	93.5	94.8	94.3	95.5
MINNESOTA	96.6	97.5	97.7	97.8	96.3	97.3	96.9	97.5
MISSISSIPPI	91.3	93.0	92.5	94.6	91.3	92.9	91.7	93.5
MISSOURI	97.0	97.5	95.2	95.7	95.4	96.2	95.9	96.5
MONTANA	94.2	95.0	92.7	93.9	92.8	93.9	93.2	94.3
NEBRASKA	96.5	96.8	95.9	96.6	95.5	96.2	96.0	96.5
NEVADA	94.9	96.0	94.3	94.7	94.2	94.5	94.5	95.1
NEW HAMPSHIRE	97.5	97.6	98.0	98.3	97.4	97.8	97.6	97.9
NEW JERSEY	96.1	96.9	96.6	97.5	96.2	97.2	96.3	97.2
NEW MEXICO	93.0	94.5	90.4	93.4	91.6	93.2	91.7	93.7
NEW YORK	95.3	96.0	95.4	95.9	94.9	95.4	95.2	95.8
NORTH CAROLINA	94.4	95.2	92.9	94.3	95.1	96.1	94.1	95.2
NORTH DAKOTA	94.4	95.7	93.7	94.3	94.2	94.8	94.1	94.9
OHIO	96.6	97.4	96.4	96.9	95.8	96.3	96.3	96.9
OKLAHOMA	92.7	93.7	90.8	92.0	91.2	92.5	91.6	92.7
OREGON	96.7	96.9	96.9	97.5	96.0	96.5	96.5	97.0
PENNSYLVANIA	97.1	97.7	97.2	97.6	96.8	97.3	97.0	97.5
RHODE ISLAND	97.4	97.8	96.3	97.1	97.1	97.3	96.9	97.4
SOUTH CAROLINA	93.6	94.5	94.4	96.4	91.7	93.9	93.2	94.9
SOUTH DAKOTA	94.8	95.5	92.9	93.5	94.7	95.9	94.1	95.0
TENNESSEE	94.3	95.6	94.2	95.2	94.2	95.4	94.2	95.4
TEXAS	94.8	95.9	93.1	94.6	92.8	93.9	93.6	94.8
UTAH	97.7	97.7	96.9	98.2	96.6	97.5	97.1	97.8
VERMONT	96.4	97.6	97.7	98.2	97.0	97.8	97.0	97.9
VIRGINIA	95.9	96.7	96.0	96.9	94.5	95.2	95.5	96.3
WASHINGTON	97.0	97.6	96.8	97.9	95.9	96.7	96.6	97.4
WEST VIRGINIA	94.9	96.2	94.7	96.1	93.2	95.0	94.3	95.8
WISCONSIN	96.3	96.7	96.3	97.1	95.7	96.5	96.1	96.8
WYOMING	93.8	95.2	93.8	94.7	93.9	95.0	93.8	95.0

Table 3
Percentage of Households with a Telephone by State

	2004							
	MARCH		JULY		NOVEMBER		ANNUAL AVERAGE	
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
UNITED STATES	94.2	95.1	93.8	94.7	93.5	94.6	93.8	94.8
ALABAMA	91.7	93.4	91.4	92.2	93.5	94.7	92.2	93.4
ALASKA	96.2	97.5	94.5	95.9	96.1	97.0	95.6	96.8
ARIZONA	93.4	93.7	92.8	94.4	89.3	90.0	91.8	92.7
ARKANSAS	88.8	91.0	87.1	89.8	89.9	91.7	88.6	90.8
CALIFORNIA	95.9	96.5	95.8	96.4	96.2	96.6	96.0	96.5
COLORADO	97.0	97.3	95.0	95.9	95.4	96.1	95.8	96.4
CONNECTICUT	98.1	98.4	94.3	95.6	94.0	94.8	95.5	96.3
DELAWARE	96.1	97.3	96.3	97.1	95.7	96.6	96.0	97.0
DISTRICT OF COLUMBIA	93.2	93.4	91.9	92.8	90.6	92.9	91.9	93.0
FLORIDA	93.7	94.7	93.3	94.6	93.2	94.5	93.4	94.6
GEORGIA	92.1	92.7	90.8	91.5	90.7	91.9	91.2	92.0
HAWAII	95.3	96.6	96.9	97.6	93.9	95.0	95.4	96.4
IDAHO	96.8	97.1	95.2	96.2	92.5	93.8	94.8	95.7
ILLINOIS	90.4	91.1	89.7	90.6	90.1	91.3	90.1	91.0
INDIANA	91.3	92.5	91.8	93.0	92.4	93.7	91.8	93.1
IOWA	95.2	96.9	95.0	95.9	96.1	97.0	95.4	96.6
KANSAS	94.0	95.3	95.2	96.3	95.1	96.4	94.8	96.0
KENTUCKY	90.8	92.4	91.9	92.9	91.5	93.3	91.4	92.9
LOUISIANA	90.5	91.6	90.7	92.3	91.6	93.0	90.9	92.3
MAINE	96.6	98.1	96.9	98.1	96.3	97.2	96.6	97.8
MARYLAND	94.3	95.1	92.2	93.3	93.7	94.2	93.4	94.2
MASSACHUSETTS	96.8	97.1	96.3	96.7	96.1	96.9	96.4	96.9
MICHIGAN	94.2	95.5	93.8	94.5	93.2	93.8	93.7	94.6
MINNESOTA	97.7	97.8	96.6	97.5	97.1	98.4	97.1	97.9
MISSISSIPPI	91.6	92.9	89.2	89.7	87.9	90.2	89.6	90.9
MISSOURI	93.9	94.5	92.0	93.8	95.1	96.0	93.7	94.8
MONTANA	93.6	94.7	92.8	93.6	94.0	95.0	93.5	94.4
NEBRASKA	94.8	96.2	96.5	97.2	95.7	97.0	95.7	96.8
NEVADA	93.8	94.3	90.9	91.4	91.9	92.9	92.2	92.9
NEW HAMPSHIRE	95.0	95.6	97.5	97.8	96.8	97.3	96.4	96.9
NEW JERSEY	96.1	96.7	94.3	95.3	94.8	95.6	95.1	95.9
NEW MEXICO	91.6	93.7	91.5	94.1	91.1	92.7	91.4	93.5
NEW YORK	95.0	95.7	94.3	95.0	94.2	94.9	94.5	95.2
NORTH CAROLINA	93.6	94.3	93.5	94.3	92.9	94.6	93.3	94.4
NORTH DAKOTA	94.5	94.7	94.4	95.4	96.0	97.0	95.0	95.7
OHIO	94.0	95.5	96.1	97.0	94.7	95.5	94.9	96.0
OKLAHOMA	93.8	94.2	88.7	92.2	90.4	93.0	91.0	93.1
OREGON	95.5	96.0	96.1	97.0	94.8	95.5	95.5	96.2
PENNSYLVANIA	96.2	96.5	95.6	96.1	94.9	95.7	95.6	96.1
RHODE ISLAND	95.5	96.0	96.0	96.5	94.4	94.8	95.3	95.8
SOUTH CAROLINA	94.2	95.1	93.3	95.4	92.8	95.9	93.4	95.5
SOUTH DAKOTA	92.9	93.8	92.1	92.9	95.8	96.5	93.6	94.4
TENNESSEE	93.6	94.5	94.0	94.4	90.9	93.2	92.8	94.0
TEXAS	92.5	93.9	92.8	94.0	90.2	92.3	91.8	93.4
UTAH	97.0	97.2	95.7	96.7	96.1	97.4	96.3	97.1
VERMONT	96.9	97.5	96.0	96.8	94.8	95.6	95.9	96.6
VIRGINIA	94.5	95.0	94.5	95.1	93.1	94.5	94.0	94.9
WASHINGTON	95.1	95.8	95.3	96.0	96.1	97.4	95.5	96.4
WEST VIRGINIA	94.7	95.9	92.6	94.5	92.2	93.2	93.2	94.5
WISCONSIN	96.2	96.9	95.9	96.3	94.3	95.7	95.5	96.3
WYOMING	95.8	96.5	94.6	95.3	95.1	96.4	94.6	95.3

Table 3
Percentage of Households with a Telephone by State

	2005 MARCH Unit	2005 MARCH Avail
UNITED STATES	92.4	93.7
ALABAMA	90.6	92.6
ALASKA	95.2	96.1
ARIZONA	93.0	93.8
ARKANSAS	87.7	90.4
CALIFORNIA	94.5	95.3
COLORADO	95.0	96.1
CONNECTICUT	92.7	94.5
DELAWARE	90.7	91.9
DISTRICT OF COLUMBIA	91.2	93.3
FLORIDA	91.6	93.6
GEORGIA	90.4	92.4
HAWAII	95.2	96.7
IDAHO	94.8	95.6
ILLINOIS	89.1	89.8
INDIANA	91.4	92.9
IOWA	96.3	97.0
KANSAS	93.5	94.5
KENTUCKY	90.1	91.6
LOUISIANA	89.8	91.3
MAINE	95.4	96.6
MARYLAND	93.5	94.1
MASSACHUSETTS	93.9	94.7
MICHIGAN	91.5	93.4
MINNESOTA	95.6	97.2
MISSISSIPPI	86.7	90.2
MISSOURI	92.1	94.4
MONTANA	93.3	95.1
NEBRASKA	94.5	96.0
NEVADA	90.0	91.5
NEW HAMPSHIRE	94.4	95.4
NEW JERSEY	93.9	95.0
NEW MEXICO	92.2	93.8
NEW YORK	91.3	92.5
NORTH CAROLINA	91.4	92.5
NORTH DAKOTA	95.2	95.6
OHIO	93.3	93.9
OKLAHOMA	90.3	92.2
OREGON	94.5	95.4
PENNSYLVANIA	94.3	94.9
RHODE ISLAND	93.9	94.8
SOUTH CAROLINA	93.2	94.8
SOUTH DAKOTA	94.7	95.8
TENNESSEE	90.5	92.2
TEXAS	90.2	91.8
UTAH	96.9	97.4
VERMONT	96.7	97.9
VIRGINIA	91.2	92.4
WASHINGTON	96.9	97.8
WEST VIRGINIA	91.5	92.5
WISCONSIN	94.2	94.8
WYOMING	94.0	95.4

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
NOVEMBER 1983								
TOTAL	91.4	93.7	93.1	95.0	78.8	83.9	80.7	84.6
UNDER $5,000	71.7	78.4	75.7	81.9	62.7	70.4	58.3	64.6
$5,000 - $7,499	82.7	87.2	84.5	88.5	74.7	82.0	71.1	76.5
$7,500 - $9,999	88.2	90.9	89.6	92.2	80.5	83.9	72.6	77.9
$10,000 - $12,499	89.7	92.7	91.2	93.9	82.0	86.2	76.8	82.1
$12,500 - $14,999	92.1	94.6	93.4	95.2	82.5	90.7	89.8	91.7
$15,000 - $17,499	94.6	96.2	94.9	96.4	91.7	95.1	86.9	90.8
$17,500 - $19,999	95.7	97.4	96.1	97.7	91.4	95.0	88.4	91.5
$20,000 - $24,999	96.9	97.8	97.4	98.2	91.2	93.2	93.1	94.3
$25,000 - $29,999	98.0	98.9	98.2	99.0	96.1	97.2	98.3	99.0
$30,000 - $34,999	98.8	99.1	99.0	99.2	95.1	97.7	97.7	98.9
$35,000 - $39,999	99.0	99.5	99.1	99.5	98.4	98.4	92.1	98.2
$40,000 - $49,999	99.2	99.5	99.4	99.7	97.3	97.3	100.0	100.0
$50,000 - $74,999	99.4	99.7	99.5	99.7	98.5	100.0	99.6	100.0
$75,000 +	99.4	99.6	99.4	99.6	100.0	100.0	100.0	100.0
1984 ANNUAL AVERAGE								
TOTAL	91.6	93.7	93.2	94.9	79.8	84.5	80.9	84.3
UNDER $5,000	71.2	77.5	74.5	80.4	63.2	70.5	55.1	62.3
$5,000 - $7,499	83.3	86.9	85.5	88.7	74.8	80.2	69.8	73.6
$7,500 - $9,999	86.5	89.6	88.3	91.0	77.2	82.7	75.0	79.7
$10,000 - $12,499	89.7	92.6	91.1	93.6	81.1	86.3	79.7	84.6
$12,500 - $14,999	92.1	94.4	93.0	95.0	85.4	89.5	87.3	90.5
$15,000 - $17,499	93.7	95.7	94.2	96.0	88.5	92.2	88.4	90.0
$17,500 - $19,999	95.1	96.4	95.6	96.7	91.7	94.4	91.0	92.8
$20,000 - $24,999	96.8	97.8	97.1	98.0	93.3	95.8	92.5	94.5
$25,000 - $29,999	98.1	98.8	98.4	98.9	95.1	97.2	96.4	97.2
$30,000 - $34,999	98.7	99.1	98.8	99.3	96.8	97.2	98.8	99.1
$35,000 - $39,999	99.2	99.5	99.3	99.6	97.7	98.3	98.2	98.5
$40,000 - $49,999	99.3	99.6	99.4	99.7	96.6	96.9	98.9	99.3
$50,000 - $74,999	99.4	99.8	99.5	99.8	98.0	98.4	100.0	100.0
$75,000 +	98.9	99.6	98.9	99.6	96.5	100.0	98.0	100.0
1985 ANNUAL AVERAGE								
TOTAL	91.8	93.9	93.3	95.0	81.1	85.2	81.3	84.4
UNDER $5,000	71.9	78.1	75.3	81.3	63.9	70.6	61.6	67.0
$5,000 - $7,499	82.7	86.5	84.8	88.1	74.0	79.8	66.6	71.3
$7,500 - $9,999	86.8	90.0	88.1	90.9	80.3	85.0	75.0	79.4
$10,000 - $12,499	89.6	92.2	90.8	93.2	82.3	86.0	80.4	82.8
$12,500 - $14,999	91.0	93.7	92.2	94.5	82.7	87.8	82.8	85.8
$15,000 - $17,499	93.4	95.6	94.2	96.2	88.2	91.8	85.7	88.6
$17,500 - $19,999	94.7	96.2	95.1	96.6	91.5	93.4	90.4	92.8
$20,000 - $24,999	96.3	97.5	96.5	97.6	94.4	96.3	91.3	93.7
$25,000 - $29,999	97.6	98.5	97.8	98.6	95.8	97.3	93.0	95.9
$30,000 - $34,999	98.6	99.0	98.7	99.1	97.3	98.4	97.3	97.3
$35,000 - $39,999	98.8	99.2	98.9	99.4	96.9	97.8	98.2	99.4
$40,000 - $49,999	99.1	99.4	99.1	99.4	97.8	98.2	97.5	98.2
$50,000 - $74,999	99.3	99.7	99.4	99.7	97.9	98.8	99.5	99.5
$75,000 +	99.2	99.5	99.2	99.5	97.6	97.6	98.5	98.5

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1986 ANNUAL AVERAGE								
TOTAL	92.3	94.1	93.7	95.2	81.6	85.9	81.4	84.1
UNDER $5,000	71.6	77.4	74.9	80.1	63.9	71.0	57.5	62.9
$5,000 - $7,499	83.1	86.5	85.2	88.2	74.3	79.6	68.1	72.1
$7,500 - $9,999	86.9	90.2	88.4	91.1	78.6	85.2	72.9	75.8
$10,000 - $12,499	89.6	92.1	90.7	93.0	82.6	86.4	80.3	82.6
$12,500 - $14,999	91.2	93.8	91.9	94.4	86.4	90.3	83.9	87.8
$15,000 - $17,499	93.1	95.1	94.3	95.7	85.3	91.6	86.3	88.9
$17,500 - $19,999	94.9	96.3	95.3	96.7	92.2	94.2	87.2	90.1
$20,000 - $24,999	96.5	97.5	96.9	97.9	92.8	94.6	93.0	94.1
$25,000 - $29,999	97.7	98.4	98.0	98.7	94.5	95.9	93.9	95.2
$30,000 - $34,999	98.4	98.9	98.6	99.0	96.7	97.5	97.5	98.4
$35,000 - $39,999	98.9	99.3	99.0	99.4	97.6	97.9	98.1	99.3
$40,000 - $49,999	99.1	99.4	99.1	99.4	98.2	98.2	98.5	98.8
$50,000 - $74,999	99.5	99.8	99.6	99.8	99.4	99.4	99.4	99.7
$75,000 +	99.4	99.6	99.4	99.6	98.0	99.5	97.5	100.0
1987 ANNUAL AVERAGE								
TOTAL	92.4	94.2	93.8	95.4	81.8	85.9	83.0	85.4
UNDER $5,000	71.5	77.4	75.0	80.3	63.7	71.0	60.7	65.7
$5,000 - $7,499	83.4	86.7	85.5	88.4	74.8	80.2	69.9	72.4
$7,500 - $9,999	86.7	89.6	88.1	90.6	79.3	84.0	75.8	78.9
$10,000 - $12,499	89.5	92.3	90.4	93.1	83.2	87.5	81.0	84.1
$12,500 - $14,999	90.8	93.2	91.9	94.1	83.8	87.7	85.2	86.9
$15,000 - $17,499	92.6	94.9	93.5	95.5	86.9	90.8	85.6	88.7
$17,500 - $19,999	94.4	96.0	95.1	96.4	89.0	92.7	89.3	90.6
$20,000 - $24,999	96.4	97.6	96.8	97.9	93.5	95.1	93.1	94.9
$25,000 - $29,999	97.5	98.4	98.0	98.7	93.4	95.3	96.4	97.1
$30,000 - $34,999	98.1	98.9	98.3	99.0	96.1	97.2	96.9	97.7
$35,000 - $39,999	98.8	99.2	98.9	99.3	96.5	98.6	97.4	97.7
$40,000 - $49,999	99.4	99.7	99.5	99.7	98.7	98.7	99.7	99.8
$50,000 - $74,999	99.5	99.8	99.5	99.8	99.1	99.4	98.7	99.6
$75,000 +	99.5	99.8	99.5	99.8	98.5	99.6	98.6	100.0
1988 ANNUAL AVERAGE								
TOTAL	92.7	94.5	94.1	95.6	83.0	86.8	82.1	85.1
UNDER $5,000	72.0	78.4	74.9	80.8	65.8	73.2	58.5	64.5
$5,000 - $7,499	83.3	87.1	85.1	88.4	76.9	82.3	66.4	71.7
$7,500 - $9,999	85.6	88.7	87.2	90.3	77.7	81.4	67.3	72.8
$10,000 - $12,499	88.8	91.5	90.1	92.4	81.7	86.5	77.5	80.9
$12,500 - $14,999	91.3	93.7	92.2	94.4	85.1	88.8	81.5	84.5
$15,000 - $19,999	93.6	95.3	94.3	95.9	88.5	91.1	88.6	90.6
$20,000 - $24,999	96.2	97.4	96.5	97.6	93.5	95.7	91.1	93.1
$25,000 - $29,999	97.6	98.4	97.9	98.5	94.4	96.7	95.0	96.4
$30,000 - $34,999	98.4	99.0	98.7	99.2	95.4	96.7	98.6	99.0
$35,000 - $39,999	98.8	99.2	98.9	99.3	97.8	98.4	97.2	97.7
$40,000 - $49,999	99.3	99.6	99.4	99.7	97.3	98.5	98.7	99.7
$50,000 - $74,999	99.5	99.8	99.6	99.8	99.2	99.3	99.4	99.8
$75,000 +	99.5	99.9	99.4	99.9	100.0	100.0	97.8	100.0

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1989 ANNUAL AVERAGE								
TOTAL	93.1	94.9	94.5	95.9	83.2	87.1	83.0	86.0
UNDER $5,000	74.4	80.4	78.1	83.2	65.6	73.5	62.1	67.3
$5,000 - $7,499	83.7	87.4	85.7	89.1	77.4	82.0	68.8	73.8
$7,500 - $9,999	86.6	89.8	88.5	91.3	78.4	83.6	75.9	80.2
$10,000 - $12,499	88.4	91.3	90.0	92.6	79.3	84.9	73.2	76.8
$12,500 - $14,999	91.3	93.7	92.4	94.5	84.5	88.8	79.2	83.7
$15,000 - $19,999	93.2	95.0	94.2	95.8	85.9	89.2	86.3	88.8
$20,000 - $24,999	95.9	97.2	96.4	97.5	91.6	94.3	92.0	94.4
$25,000 - $29,999	97.5	98.4	97.9	98.6	94.0	96.0	93.3	96.3
$30,000 - $34,999	98.3	98.8	98.5	98.9	96.1	97.0	95.6	96.2
$35,000 - $39,999	98.7	99.3	98.9	99.4	96.7	98.0	95.8	97.5
$40,000 - $49,999	99.1	99.5	99.2	99.6	97.2	97.7	97.0	98.2
$50,000 - $59,999	99.5	99.7	99.5	99.8	98.7	99.0	98.7	99.2
$60,000 - $74,999	99.5	99.7	99.5	99.7	99.3	99.3	95.7	96.8
$75,000 +	99.5	99.8	99.5	99.8	99.5	99.5	99.7	99.7
1990 ANNUAL AVERAGE								
TOTAL	93.3	95.0	94.6	96.1	83.5	87.0	82.7	85.3
UNDER $5,000	75.4	81.0	79.1	84.2	66.1	72.8	61.1	66.1
$5,000 - $7,499	82.6	86.8	84.9	88.8	74.9	80.1	66.7	70.6
$7,500 - $9,999	86.9	89.9	89.0	91.6	77.3	82.4	74.8	77.8
$10,000 - $12,499	88.9	91.7	90.2	92.8	81.9	85.5	74.1	77.1
$12,500 - $14,999	91.7	93.9	92.7	94.7	85.9	88.7	82.0	84.3
$15,000 - $19,999	93.3	95.3	94.2	96.0	87.7	91.0	85.1	88.6
$20,000 - $24,999	95.6	97.0	96.1	97.4	91.9	93.7	89.4	91.3
$25,000 - $29,999	97.0	98.0	97.7	98.5	90.9	93.2	94.2	95.5
$30,000 - $34,999	97.9	98.6	98.4	98.9	93.3	95.4	96.0	97.0
$35,000 - $39,999	98.7	99.3	98.8	99.4	97.0	98.0	94.1	96.3
$40,000 - $49,999	99.1	99.4	99.2	99.5	98.5	98.8	97.8	97.8
$50,000 - $59,999	99.4	99.6	99.5	99.7	98.7	98.7	97.5	98.2
$60,000 - $74,999	99.5	99.7	99.6	99.8	98.3	98.8	98.8	99.1
$75,000 +	99.5	99.8	99.5	99.8	98.6	98.6	97.7	99.6
1991 ANNUAL AVERAGE								
TOTAL	93.4	95.1	94.8	96.2	83.5	87.2	84.1	86.7
UNDER $5,000	73.9	80.1	78.3	83.7	63.3	71.2	65.2	71.3
$5,000 - $7,499	82.9	86.8	85.2	88.8	75.0	80.3	69.6	74.7
$7,500 - $9,999	86.5	89.7	88.1	91.0	79.1	83.7	73.1	76.9
$10,000 - $12,499	88.9	91.6	90.0	92.5	82.4	86.2	76.0	79.2
$12,500 - $14,999	91.1	93.4	92.1	94.3	85.5	88.4	82.4	84.6
$15,000 - $19,999	93.4	95.2	94.3	95.9	87.1	90.7	87.0	89.8
$20,000 - $24,999	95.5	97.0	96.0	97.5	91.2	93.3	91.6	93.5
$25,000 - $29,999	96.8	97.9	97.3	98.2	93.6	96.0	90.9	92.4
$30,000 - $34,999	98.3	98.9	98.6	99.2	95.4	97.1	95.8	97.1
$35,000 - $39,999	98.7	99.1	98.8	99.3	97.0	97.7	96.2	97.3
$40,000 - $49,999	99.1	99.5	99.2	99.6	98.1	98.6	98.2	98.8
$50,000 - $59,999	99.5	99.7	99.5	99.7	98.6	99.0	97.9	98.6
$60,000 - $74,999	99.7	99.9	99.7	99.9	99.3	99.5	98.8	99.2
$75,000 +	99.7	99.9	99.7	99.9	99.6	100.0	98.5	99.6

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1992 ANNUAL AVERAGE								
TOTAL	93.8	95.3	95.2	96.4	84.2	87.9	85.8	88.2
UNDER $5,000	72.0	78.1	75.5	81.1	64.1	71.3	65.0	70.7
$5,000 - $7,499	83.2	86.8	85.4	88.3	76.3	82.3	72.0	75.5
$7,500 - $9,999	87.5	90.2	89.2	91.4	79.9	84.9	76.2	79.9
$10,000 - $12,499	90.5	92.9	91.6	93.9	84.6	87.9	82.1	85.3
$12,500 - $14,999	91.5	93.7	92.7	94.7	85.1	88.4	85.7	88.8
$15,000 - $19,999	93.3	95.0	94.3	95.7	86.6	90.6	86.7	89.5
$20,000 - $24,999	95.9	97.1	96.5	97.5	91.2	93.7	93.2	94.5
$25,000 - $29,999	97.1	98.0	97.6	98.5	92.6	94.6	94.8	95.6
$30,000 - $34,999	98.2	98.9	98.4	99.0	96.3	97.4	96.1	97.1
$35,000 - $39,999	98.6	99.0	98.9	99.3	96.4	97.4	96.6	97.5
$40,000 - $49,999	99.2	99.5	99.4	99.6	97.6	98.5	98.2	98.7
$50,000 - $59,999	99.4	99.7	99.4	99.7	98.9	99.6	98.3	98.5
$60,000 - $74,999	99.5	99.8	99.5	99.8	99.3	99.6	98.9	99.7
$75,000 +	99.4	99.7	99.5	99.8	97.7	97.9	99.1	99.1
1993 ANNUAL AVERAGE								
TOTAL	94.2	95.6	95.5	96.6	85.2	88.3	86.7	88.8
UNDER $5,000	72.9	78.9	76.4	82.0	65.5	72.7	66.3	70.7
$5,000 - $7,499	84.0	87.2	85.7	88.8	78.7	82.4	75.7	78.6
$7,500 - $9,999	87.4	90.1	89.1	91.4	80.1	84.6	79.7	82.8
$10,000 - $12,499	90.6	92.7	91.9	93.8	82.9	86.7	85.7	88.3
$12,500 - $14,999	92.0	94.1	93.2	95.1	84.8	88.7	84.0	86.2
$15,000 - $19,999	93.6	95.2	94.5	96.0	88.0	90.4	85.3	88.3
$20,000 - $24,999	96.3	97.5	96.8	97.8	92.6	94.6	91.9	94.6
$25,000 - $29,999	97.7	98.5	98.1	98.8	94.5	96.1	95.5	96.9
$30,000 - $34,999	98.3	98.9	98.6	99.1	96.3	96.9	96.2	97.3
$35,000 - $39,999	98.6	99.0	98.8	99.2	96.3	97.1	95.7	96.3
$40,000 - $49,999	99.2	99.5	99.3	99.5	98.2	98.6	96.9	97.4
$50,000 - $59,999	99.5	99.7	99.5	99.7	99.0	99.3	98.4	99.1
$60,000 - $74,999	99.6	99.8	99.6	99.8	99.3	99.3	100.0	100.0
$75,000 +	99.5	99.8	99.5	99.8	99.4	100.0	100.0	100.0
1994 ANNUAL AVERAGE								
TOTAL	93.8	95.4	95.1	96.4	85.7	89.4	86.0	88.3
UNDER $5,000	76.1	82.1	79.8	84.6	68.7	77.4	66.3	71.8
$5,000 - $7,499	82.7	87.0	84.9	88.9	77.2	82.4	73.1	77.3
$7,500 - $9,999	87.3	90.5	89.1	92.1	81.4	84.9	81.1	83.8
$10,000 - $12,499	89.6	92.2	90.9	93.1	81.5	88.6	83.3	86.2
$12,500 - $14,999	91.5	94.0	92.9	95.0	85.5	89.2	84.6	87.8
$15,000 - $19,999	93.6	95.3	94.4	95.8	86.6	92.2	87.6	89.7
$20,000 - $24,999	95.2	96.7	95.8	97.2	90.3	93.5	91.4	93.5
$25,000 - $29,999	96.6	97.6	97.0	97.9	93.9	95.8	92.1	93.3
$30,000 - $34,999	97.3	98.2	97.7	98.5	93.8	95.7	91.7	93.9
$35,000 - $39,999	97.8	98.5	98.1	98.6	94.4	97.3	95.2	96.0
$40,000 - $49,999	98.6	99.1	98.8	99.3	97.2	97.8	96.4	96.6
$50,000 - $59,999	99.0	99.3	99.2	99.4	96.3	98.1	99.5	99.7
$60,000 - $74,999	99.4	99.5	99.4	99.5	99.5	99.7	98.3	98.5
$75,000 +	99.1	99.4	99.2	99.4	98.6	99.3	98.7	98.7

Table 4
Percentage of Households with a Telephone by Income

	TOTAL Unit	TOTAL Avail	WHITE Unit	WHITE Avail	BLACK Unit	BLACK Avail	HISPANIC ORIGIN Unit	HISPANIC ORIGIN Avail
1995 ANNUAL AVERAGE								
TOTAL	93.9	95.2	95.2	96.2	86.2	89.2	85.9	87.8
UNDER $5,000	75.3	80.5	79.1	83.0	67.4	75.1	68.8	72.2
$5,000 - $7,499	82.8	86.3	84.8	87.7	77.9	83.0	72.6	75.5
$7,500 - $9,999	87.3	89.6	89.5	91.5	79.0	83.3	78.0	80.4
$10,000 - $12,499	89.8	92.1	91.2	93.2	83.5	87.6	84.2	86.4
$12,500 - $14,999	91.7	93.5	92.8	94.4	86.4	89.3	84.9	86.8
$15,000 - $19,999	93.1	95.0	94.1	95.6	88.5	92.4	84.9	87.6
$20,000 - $24,999	95.4	96.4	96.0	96.9	92.4	94.1	90.2	92.1
$25,000 - $29,999	96.6	97.6	97.0	97.9	93.7	95.6	92.2	94.3
$30,000 - $34,999	97.6	98.0	97.9	98.3	94.3	95.2	94.2	95.1
$35,000 - $39,999	98.3	98.7	98.5	98.8	96.9	97.5	97.3	98.4
$40,000 - $49,999	98.6	98.9	98.8	99.0	97.1	97.8	96.6	96.6
$50,000 - $59,999	98.8	99.1	99.0	99.3	97.7	98.2	95.7	97.0
$60,000 - $74,999	99.2	99.3	99.2	99.4	98.8	99.0	98.6	99.4
$75,000 +	99.0	99.2	99.0	99.2	99.1	99.5	99.0	99.0
1996 ANNUAL AVERAGE								
TOTAL	93.9	95.0	94.9	95.8	87.3	89.8	86.4	88.0
UNDER $5,000	75.6	80.3	78.0	81.7	70.1	76.9	68.0	71.4
$5,000 - $7,499	83.1	85.8	84.5	86.6	79.9	84.3	76.9	78.8
$7,500 - $9,999	87.2	89.8	88.6	90.7	81.9	86.7	79.7	82.3
$10,000 - $12,499	88.8	91.4	90.2	92.3	83.5	88.1	82.0	84.3
$12,500 - $14,999	91.7	93.5	92.8	94.4	86.1	89.5	85.1	87.0
$15,000 - $19,999	93.0	94.6	93.7	95.1	88.7	91.3	86.5	88.7
$20,000 - $24,999	94.5	95.6	95.1	96.0	91.3	92.6	86.5	88.6
$25,000 - $29,999	96.2	97.1	96.5	97.3	93.3	95.0	94.5	95.4
$30,000 - $34,999	97.5	98.1	97.7	98.3	96.4	97.4	95.7	96.3
$35,000 - $39,999	97.9	98.3	97.8	98.2	97.5	98.0	95.2	95.7
$40,000 - $49,999	98.5	98.9	98.7	99.0	96.7	97.0	96.1	97.5
$50,000 - $59,999	98.8	99.0	99.0	99.1	97.3	97.6	97.5	98.2
$60,000 - $74,999	98.8	99.1	99.0	99.3	97.3	97.3	97.9	99.4
$75,000 +	98.9	99.2	99.0	99.2	98.7	99.2	98.4	98.7
1997 ANNUAL AVERAGE								
TOTAL	93.9	95.0	95.0	95.9	86.9	89.5	86.7	88.6
UNDER $5,000	75.7	80.8	79.1	83.5	68.4	75.1	68.5	73.5
$5,000 - $7,499	82.8	85.9	84.5	87.1	78.1	82.4	74.6	77.0
$7,500 - $9,999	86.7	89.5	89.0	91.2	78.6	83.3	79.3	81.4
$10,000 - $12,499	89.9	91.9	90.9	92.7	85.3	88.1	82.4	86.0
$12,500 - $14,999	91.0	93.1	92.4	94.0	83.9	88.1	84.5	86.4
$15,000 - $19,999	93.1	94.6	94.1	95.3	88.8	91.8	86.7	88.4
$20,000 - $24,999	95.0	95.9	95.4	96.2	92.1	93.9	89.6	90.9
$25,000 - $29,999	95.8	96.8	96.2	97.1	92.6	94.7	91.8	93.7
$30,000 - $34,999	97.2	97.9	97.5	98.1	95.1	95.9	93.6	94.9
$35,000 - $39,999	97.4	97.9	97.9	98.1	94.8	96.2	94.9	96.4
$40,000 - $49,999	98.2	98.6	98.4	98.7	97.0	97.8	96.6	97.4
$50,000 - $59,999	98.4	98.8	98.5	98.9	96.9	97.3	97.7	98.6
$60,000 - $74,999	99.0	99.2	99.0	99.2	99.5	99.8	98.4	98.4
$75,000 +	99.0	99.2	99.1	99.3	98.5	98.8	98.1	98.3

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1998 ANNUAL AVERAGE								
TOTAL	94.1	95.2	95.1	96.0	87.9	89.7	88.4	90.0
UNDER $5,000	77.2	81.3	80.1	83.8	70.3	75.2	72.0	75.3
$5,000 - $7,499	83.0	85.9	84.9	87.6	77.6	81.0	77.0	80.6
$7,500 - $9,999	87.4	89.3	88.8	90.6	83.3	85.0	79.7	81.6
$10,000 - $12,499	89.8	91.7	90.7	92.5	85.7	88.5	84.6	86.2
$12,500 - $14,999	91.0	92.8	92.0	93.7	85.8	88.2	85.3	86.4
$15,000 - $19,999	93.0	94.2	94.0	95.2	88.3	89.6	89.6	91.0
$20,000 - $24,999	93.9	95.2	94.6	95.8	90.2	92.2	88.4	90.2
$25,000 - $29,999	95.6	96.6	95.8	96.7	94.0	95.9	91.3	93.5
$30,000 - $34,999	97.1	97.8	97.5	98.2	94.3	95.6	95.3	96.7
$35,000 - $39,999	97.5	98.0	97.8	98.3	95.4	96.4	95.9	96.8
$40,000 - $49,999	98.1	98.5	98.3	98.7	96.2	96.7	96.9	97.4
$50,000 - $59,999	98.1	98.5	98.2	98.6	96.8	97.5	95.7	96.7
$60,000 - $74,999	98.6	98.8	98.8	99.0	96.9	97.4	97.5	97.5
$75,000 +	99.0	99.2	99.0	99.2	99.1	99.1	98.6	98.8
1999 ANNUAL AVERAGE								
TOTAL	94.2	95.0	95.2	95.9	87.7	89.6	89.9	90.9
UNDER $5,000	76.0	79.8	79.0	82.6	69.5	74.2	72.8	75.6
$5,000 - $7,499	82.9	85.3	84.6	87.0	78.3	81.2	79.8	83.3
$7,500 - $9,999	88.3	90.3	89.9	91.5	81.8	85.5	85.0	85.8
$10,000 - $12,499	88.9	90.5	90.4	91.8	82.1	84.9	85.2	86.5
$12,500 - $14,999	90.3	92.0	91.0	92.4	87.1	89.8	84.8	85.9
$15,000 - $19,999	92.5	94.0	93.5	94.7	87.0	90.2	88.3	89.5
$20,000 - $24,999	94.1	95.1	94.8	95.7	90.5	92.1	91.5	92.8
$25,000 - $29,999	95.3	96.2	95.9	96.6	91.8	93.5	95.2	95.7
$30,000 - $34,999	96.7	97.4	97.2	97.7	93.9	95.5	94.7	95.2
$35,000 - $39,999	97.3	97.8	97.8	98.2	94.3	95.1	96.1	96.6
$40,000 - $49,999	98.2	98.5	98.3	98.6	97.2	97.6	95.8	96.5
$50,000 - $59,999	98.2	98.5	98.3	98.7	97.2	97.4	98.1	98.5
$60,000 - $74,999	98.6	98.8	98.6	98.9	97.6	98.4	98.2	98.4
$75,000 +	98.8	99.0	98.9	99.1	97.8	98.2	97.7	98.2
2000 ANNUAL AVERAGE								
TOTAL	94.4	95.2	95.2	95.9	89.3	90.7	90.5	91.6
UNDER $5,000	80.0	83.1	83.1	86.2	73.0	76.3	79.0	82.0
$5,000 - $7,499	84.2	86.3	85.0	87.0	81.7	84.6	82.4	84.7
$7,500 - $9,999	87.0	89.3	88.4	90.3	82.2	85.7	85.8	87.0
$10,000 - $12,499	90.0	91.5	90.9	92.5	85.9	87.5	84.0	86.0
$12,500 - $14,999	91.5	92.9	92.7	94.0	86.5	87.9	88.0	89.9
$15,000 - $19,999	91.7	93.2	92.6	94.1	86.9	89.1	87.2	88.5
$20,000 - $24,999	93.7	94.7	94.3	95.2	90.5	92.2	90.8	91.3
$25,000 - $29,999	95.5	96.3	96.0	96.8	92.5	93.8	93.0	94.3
$30,000 - $34,999	96.4	97.0	96.6	97.2	95.4	96.1	93.7	94.3
$35,000 - $39,999	97.2	97.7	97.5	98.0	95.1	95.7	95.4	95.8
$40,000 - $49,999	97.7	98.2	97.9	98.4	96.0	96.4	96.7	97.8
$50,000 - $59,999	98.0	98.3	98.1	98.4	97.0	97.5	97.6	97.8
$60,000 - $74,999	98.4	98.7	98.5	98.8	97.0	97.5	95.9	96.5
$75,000 +	98.4	98.7	98.5	98.7	97.5	97.7	96.9	97.4

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
2001 ANNUAL AVERAGE								
TOTAL	94.9	95.7	95.6	96.4	90.0	91.4	91.3	92.4
UNDER $5,000	79.9	83.3	83.1	85.7	72.7	78.0	78.8	82.3
$5,000 - $7,499	84.0	86.3	85.4	87.5	80.6	83.8	84.4	85.7
$7,500 - $9,999	88.8	90.6	90.0	91.6	84.6	87.3	86.5	88.6
$10,000 - $12,499	90.2	92.0	91.1	92.8	86.0	88.4	85.8	87.5
$12,500 - $14,999	91.4	92.6	92.2	93.3	86.5	88.3	88.4	88.8
$15,000 - $19,999	92.9	94.4	93.5	94.9	90.0	92.0	88.8	90.6
$20,000 - $24,999	94.3	95.4	94.9	96.0	90.5	92.1	91.3	93.1
$25,000 - $29,999	96.0	96.9	96.2	97.0	94.9	96.0	92.6	93.5
$30,000 - $34,999	96.7	97.3	97.0	97.5	95.3	96.0	94.9	95.2
$35,000 - $39,999	97.2	97.8	97.3	97.9	96.1	96.8	96.0	96.7
$40,000 - $49,999	97.8	98.3	97.9	98.4	97.0	97.3	96.0	96.1
$50,000 - $59,999	98.4	98.8	98.5	98.9	97.3	97.5	97.3	98.4
$60,000 - $74,999	98.6	98.9	98.7	99.0	97.9	98.3	96.5	97.5
$75,000 +	98.8	99.1	98.8	99.1	98.3	98.6	98.2	98.7
2002 ANNUAL AVERAGE								
TOTAL	95.3	96.2	96.2	96.9	90.1	91.6	91.7	92.9
UNDER $5,000	79.9	83.1	82.5	85.2	73.8	78.1	77.8	80.7
$5,000 - $7,499	83.3	86.1	85.9	88.6	76.4	79.7	84.5	85.7
$7,500 - $9,999	89.7	91.6	91.1	92.7	85.3	87.7	88.4	90.6
$10,000 - $12,499	90.6	92.3	91.9	93.3	85.3	87.9	88.1	89.7
$12,500 - $14,999	92.7	93.9	93.4	94.6	89.9	91.0	88.6	90.2
$15,000 - $19,999	93.2	94.5	93.8	94.8	91.1	93.5	87.7	89.1
$20,000 - $24,999	94.3	95.4	95.1	96.2	90.6	92.1	92.3	93.7
$25,000 - $29,999	95.6	96.6	96.0	97.0	93.3	94.4	93.4	95.3
$30,000 - $34,999	96.9	97.5	97.4	97.9	94.7	95.5	95.2	96.0
$35,000 - $39,999	97.9	98.4	98.0	98.6	97.1	97.5	97.4	97.9
$40,000 - $49,999	98.2	98.6	98.4	98.8	96.6	97.1	96.7	97.5
$50,000 - $59,999	98.7	99.2	98.9	99.2	98.0	98.2	97.9	98.3
$60,000 - $74,999	99.1	99.4	99.2	99.5	98.3	98.8	98.3	98.9
$75,000 +	99.3	99.5	99.3	99.6	98.6	98.7	99.2	99.2
MARCH 2003								
TOTAL	95.5	96.3	96.2	96.9	91.0	92.1	92.3	93.2
UNDER $5,000	80.5	84.6	83.0	87.3	76.0	80.3	79.5	83.9
$5,000 - $7,499	86.5	88.2	86.6	88.6	83.6	85.0	81.0	82.1
$7,500 - $9,999	89.7	91.2	90.9	92.3	85.5	86.9	88.2	90.5
$10,000 - $12,499	91.6	92.6	92.2	93.2	87.8	89.4	87.9	89.3
$12,500 - $14,999	92.0	93.0	92.5	93.7	88.9	89.7	89.4	90.3
$15,000 - $19,999	93.6	94.8	94.7	95.6	88.9	90.8	90.6	91.4
$20,000 - $24,999	94.0	94.9	94.7	95.5	90.1	91.2	92.1	93.2
$25,000 - $29,999	95.8	96.5	96.2	96.8	94.2	94.8	93.3	93.5
$30,000 - $34,999	96.7	97.4	96.9	97.7	94.2	94.6	95.4	96.3
$35,000 - $39,999	98.0	98.5	98.3	98.8	96.0	96.3	98.6	98.6
$40,000 - $49,999	98.0	98.5	97.9	98.4	98.4	99.2	95.9	96.4
$50,000 - $59,999	98.6	99.1	98.8	99.2	97.4	98.2	97.5	98.3
$60,000 - $74,999	98.8	99.2	98.8	99.3	98.1	98.1	97.3	97.9
$75,000 +	99.3	99.6	99.4	99.6	99.3	99.6	98.8	99.1

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
JULY 2003								
TOTAL	95.2	96.1	96.0	96.8	90.5	91.8	91.4	92.7
UNDER $5,000	80.4	84.3	83.3	86.7	73.5	78.6	74.3	76.9
$5,000 - $7,499	85.8	87.6	86.4	87.8	83.2	85.9	81.7	83.6
$7,500 - $9,999	89.9	92.0	90.8	92.5	87.1	90.6	87.9	89.4
$10,000 - $12,499	89.5	91.6	90.5	92.7	84.3	86.9	89.0	89.8
$12,500 - $14,999	91.8	93.0	92.8	93.7	85.9	88.1	89.5	91.5
$15,000 - $19,999	93.1	95.0	93.8	95.7	89.8	91.0	88.1	91.3
$20,000 - $24,999	94.2	95.2	94.9	95.8	90.2	91.1	90.5	93.1
$25,000 - $29,999	96.0	97.0	96.2	97.2	95.6	96.6	94.0	94.8
$30,000 - $34,999	96.7	97.6	97.0	98.0	93.9	94.4	95.0	95.6
$35,000 - $39,999	97.7	98.4	97.7	98.4	97.5	98.0	97.5	98.4
$40,000 - $49,999	97.9	98.4	98.2	98.7	95.8	96.6	96.6	97.5
$50,000 - $59,999	98.5	99.0	98.5	99.0	98.9	98.9	96.6	97.8
$60,000 - $74,999	98.9	99.2	99.1	99.3	97.9	98.3	100.0	100.0
$75,000 +	99.3	99.5	99.3	99.6	98.4	98.7	98.9	99.3
NOVEMBER 2003								
TOTAL	94.7	95.5	95.5	96.2	89.7	90.9	90.5	91.5
UNDER $5,000	79.4	82.6	80.5	83.7	74.8	78.1	71.2	76.0
$5,000 - $7,499	83.6	85.8	84.7	86.3	81.0	84.0	77.8	80.7
$7,500 - $9,999	89.1	91.1	89.8	91.0	85.9	90.2	84.1	84.1
$10,000 - $12,499	89.8	91.4	90.4	92.1	87.6	88.8	82.0	83.8
$12,500 - $14,999	91.4	93.0	92.2	93.9	87.4	88.8	85.5	87.0
$15,000 - $19,999	91.9	93.0	92.7	93.6	87.7	89.2	89.8	90.7
$20,000 - $24,999	94.0	94.7	94.1	94.9	92.5	93.4	92.9	93.9
$25,000 - $29,999	95.1	96.2	95.4	96.3	93.5	94.8	93.1	93.6
$30,000 - $34,999	96.1	96.7	96.3	97.0	93.7	94.1	94.5	94.8
$35,000 - $39,999	97.4	98.2	97.5	98.3	98.1	98.3	95.2	95.9
$40,000 - $49,999	97.8	98.4	98.1	98.7	95.7	96.4	96.2	97.3
$50,000 - $59,999	98.3	98.8	98.4	99.0	97.1	97.4	96.2	97.7
$60,000 - $74,999	98.5	98.9	98.6	99.0	97.8	98.2	97.6	98.7
$75,000 +	98.4	98.9	98.6	99.2	95.2	95.2	100.0	100.0
2003 ANNUAL AVERAGE								
TOTAL	95.1	96.0	95.9	96.6	90.4	91.6	91.4	92.5
UNDER $5,000	80.1	83.8	82.3	85.9	74.8	79.0	75.0	78.9
$5,000 - $7,499	85.3	87.2	85.9	87.6	82.6	85.0	80.2	82.1
$7,500 - $9,999	89.6	91.4	90.5	91.9	86.2	89.2	86.7	88.0
$10,000 - $12,499	90.3	91.9	91.0	92.7	86.6	88.4	86.3	87.6
$12,500 - $14,999	91.7	93.0	92.5	93.8	87.4	88.9	88.1	89.6
$15,000 - $19,999	92.9	94.3	93.7	95.0	88.8	90.3	89.5	91.1
$20,000 - $24,999	94.1	94.9	94.6	95.4	90.9	91.9	91.8	93.4
$25,000 - $29,999	95.6	96.6	95.9	96.8	94.4	95.4	93.5	94.0
$30,000 - $34,999	96.5	97.2	96.7	97.6	93.9	94.4	95.0	95.6
$35,000 - $39,999	97.7	98.4	97.8	98.5	97.2	97.5	97.1	97.6
$40,000 - $49,999	97.9	98.4	98.1	98.6	96.6	97.4	96.2	97.1
$50,000 - $59,999	98.5	99.0	98.6	99.1	97.8	98.2	96.8	97.9
$60,000 - $74,999	98.7	99.1	98.8	99.2	97.9	98.2	98.3	98.9
$75,000 +	99.0	99.3	99.1	99.5	97.6	97.8	99.2	99.5

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
MARCH 2004								
TOTAL	94.2	95.1	94.9	95.7	90.1	91.1	90.5	91.6
UNDER $5,000	80.1	83.4	82.1	85.1	76.9	79.8	74.9	76.7
$5,000 - $7,499	85.1	86.8	84.4	85.9	86.7	88.8	83.9	85.1
$7,500 - $9,999	88.1	89.4	89.2	90.5	82.8	84.2	85.5	87.7
$10,000 - $12,499	90.2	91.7	90.8	91.8	88.5	91.3	85.3	85.9
$12,500 - $14,999	90.8	92.8	91.9	93.8	87.9	89.8	88.0	90.1
$15,000 - $19,999	91.2	92.6	92.1	93.4	88.8	90.4	88.1	89.7
$20,000 - $24,999	94.2	95.1	94.7	95.5	90.9	91.7	89.8	90.5
$25,000 - $29,999	94.5	95.6	94.7	95.8	94.0	94.5	93.9	95.1
$30,000 - $34,999	95.8	96.6	96.3	97.0	93.7	94.6	94.5	95.5
$35,000 - $39,999	96.1	96.9	96.3	97.2	95.7	95.7	94.4	96.5
$40,000 - $49,999	96.7	97.4	96.8	97.6	95.2	95.2	93.6	95.2
$50,000 - $59,999	97.9	98.2	98.3	98.6	95.7	95.7	96.8	97.8
$60,000 - $74,999	97.4	97.8	97.7	98.1	96.5	96.5	98.4	98.4
$75,000 +	98.2	98.7	98.2	98.8	97.9	97.9	97.3	98.5
JULY 2004								
TOTAL	93.8	94.7	94.7	95.6	87.4	88.9	90.2	91.6
UNDER $5,000	79.9	82.9	82.5	85.5	71.9	75.0	80.4	82.7
$5,000 - $7,499	84.8	86.5	86.0	87.4	81.7	84.3	79.1	81.0
$7,500 - $9,999	87.8	89.9	88.0	90.1	85.9	88.7	82.4	84.5
$10,000 - $12,499	89.3	91.0	91.2	93.0	80.9	82.2	85.4	87.8
$12,500 - $14,999	92.0	93.5	92.6	94.1	89.7	90.9	86.2	90.4
$15,000 - $19,999	91.7	93.4	92.9	94.4	85.6	87.7	87.9	90.5
$20,000 - $24,999	93.1	94.5	93.5	94.8	90.4	91.3	89.2	92.2
$25,000 - $29,999	94.5	95.9	95.4	96.4	90.7	92.9	93.8	95.2
$30,000 - $34,999	94.7	95.8	95.8	96.6	90.6	92.2	90.5	92.1
$35,000 - $39,999	96.0	96.5	96.5	96.7	92.1	94.0	96.4	96.5
$40,000 - $49,999	97.1	97.7	97.3	97.9	95.5	96.5	95.9	95.9
$50,000 - $59,999	97.1	97.7	97.2	97.9	95.8	95.9	94.0	94.2
$60,000 - $74,999	97.9	98.4	98.0	98.5	98.0	98.0	96.9	98.0
$75,000 +	98.1	98.6	98.3	98.7	98.1	98.0	97.9	98.4
NOVEMBER 2004								
TOTAL	93.5	94.6	94.3	95.3	88.2	90.0	90.3	91.5
UNDER $5,000	77.3	81.6	81.7	85.5	67.3	72.3	75.5	79.6
$5,000 - $7,499	83.0	85.5	82.9	85.6	83.7	85.8	79.5	80.7
$7,500 - $9,999	87.6	89.9	88.4	90.5	83.6	86.4	85.7	88.4
$10,000 - $12,499	89.6	90.8	90.3	91.5	87.4	88.2	86.5	88.5
$12,500 - $14,999	91.6	93.5	91.9	93.4	91.1	94.2	87.5	89.2
$15,000 - $19,999	91.7	93.3	93.1	94.4	86.3	89.2	89.4	90.2
$20,000 - $24,999	93.7	95.0	94.5	95.7	90.6	93.0	90.9	92.2
$25,000 - $29,999	94.4	96.1	94.9	96.1	90.9	95.3	94.7	96.5
$30,000 - $34,999	94.9	95.9	95.2	96.2	92.2	93.6	92.2	92.4
$35,000 - $39,999	95.3	96.5	95.8	96.8	92.4	94.0	95.0	95.7
$40,000 - $49,999	96.4	97.5	96.5	97.5	95.2	96.9	93.0	94.9
$50,000 - $59,999	97.0	97.6	96.9	97.5	98.5	99.1	96.4	96.5
$60,000 - $74,999	97.6	98.4	97.7	98.4	95.4	97.4	96.7	98.2
$75,000 +	98.0	98.5	98.0	98.6	98.3	98.3	98.5	98.5

Table 4
Percentage of Households with a Telephone by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
2004 ANNUAL AVERAGE								
TOTAL	93.8	94.8	94.6	95.5	88.6	90.0	90.3	91.6
UNDER $5,000	79.1	82.6	82.1	85.4	72.0	75.7	76.9	79.7
$5,000 - $7,499	84.3	86.3	84.4	86.3	84.0	86.3	80.8	82.3
$7,500 - $9,999	87.8	89.7	88.5	90.4	84.1	86.4	84.5	86.9
$10,000 - $12,499	89.7	91.2	90.8	92.1	85.6	87.2	85.7	87.4
$12,500 - $14,999	91.5	93.3	92.1	93.8	89.6	91.6	87.2	89.9
$15,000 - $19,999	91.5	93.1	92.7	94.1	86.9	89.1	88.5	90.1
$20,000 - $24,999	93.7	94.9	94.2	95.3	90.6	92.0	90.0	91.6
$25,000 - $29,999	94.5	95.9	95.0	96.1	91.9	94.2	94.1	95.6
$30,000 - $34,999	95.1	96.1	95.8	96.6	92.2	93.5	92.4	93.3
$35,000 - $39,999	95.8	96.6	96.2	96.9	93.4	94.6	95.3	96.2
$40,000 - $49,999	96.7	97.5	96.9	97.7	95.3	96.2	94.2	95.3
$50,000 - $59,999	97.3	97.8	97.5	98.0	96.7	96.9	95.7	96.2
$60,000 - $74,999	97.6	98.2	97.8	98.3	96.6	97.3	97.3	98.2
$75,000 +	98.1	98.6	98.2	98.7	98.1	98.1	97.9	98.5
MARCH 2005								
TOTAL	92.4	93.7	93.2	94.4	87.7	89.5	88.2	89.8
UNDER $5,000	80.4	84.7	82.0	86.2	77.8	82.0	76.3	79.8
$5,000 - $7,499	82.8	86.0	83.4	86.8	81.7	84.3	80.5	85.1
$7,500 - $9,999	86.4	88.9	87.4	89.2	83.7	87.9	83.8	84.6
$10,000 - $12,499	88.6	90.1	89.2	90.5	86.1	88.8	81.9	82.6
$12,500 - $14,999	90.3	91.9	91.6	93.2	84.6	86.4	84.0	85.9
$15,000 - $19,999	91.2	92.5	91.7	93.3	87.6	87.9	88.9	89.6
$20,000 - $24,999	92.0	93.4	92.8	93.9	89.2	91.9	88.8	89.9
$25,000 - $29,999	92.7	94.5	92.9	94.6	91.3	94.0	89.8	91.4
$30,000 - $34,999	93.9	95.3	94.9	96.2	88.3	90.2	90.5	92.2
$35,000 - $39,999	94.2	95.3	94.2	95.4	94.7	95.5	91.9	94.0
$40,000 - $49,999	95.9	96.7	96.0	96.9	95.0	96.2	93.1	94.7
$50,000 - $59,999	96.7	97.1	96.9	97.2	96.3	96.8	93.0	93.0
$60,000 - $74,999	96.8	97.8	97.0	97.9	94.9	96.0	97.5	99.9
$75,000 +	96.9	97.5	97.1	97.7	93.2	93.6	97.4	98.2

Table 5
Percentage of Households with a Telephone by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
NOVEMBER 1983								
TOTAL	91.4	93.7	93.1	95.0	78.8	83.9	80.7	84.6
1 PERSON	87.5	91.3	90.2	93.7	71.2	77.1	73.8	82.0
2 - 3	93.3	95.0	94.5	95.9	82.5	87.8	80.7	84.3
4 - 5	92.4	94.2	93.6	95.0	83.1	87.3	83.4	86.2
6 +	86.6	88.9	90.5	92.2	74.5	78.5	81.0	84.0
1984 ANNUAL AVERAGE								
TOTAL	91.6	93.7	93.2	94.9	79.8	84.5	80.9	84.3
1 PERSON	88.3	91.8	90.3	93.4	74.9	80.7	72.9	79.4
2 - 3	93.2	94.9	94.5	95.9	82.3	86.8	82.0	85.2
4 - 5	92.5	94.0	93.9	95.1	81.8	85.7	83.9	86.2
6 +	86.9	88.8	89.8	91.1	76.3	80.1	79.2	81.8
1985 ANNUAL AVERAGE								
TOTAL	91.8	93.9	93.3	95.0	81.1	85.2	81.3	84.4
1 PERSON	87.6	91.2	89.9	93.1	73.6	79.8	71.9	78.5
2 - 3	93.5	95.0	94.5	95.8	84.9	87.9	83.6	86.0
4 - 5	94.2	95.3	95.2	96.1	87.6	90.4	85.6	87.0
6 +	90.3	91.8	92.8	93.6	81.3	84.9	85.6	86.1
1986 ANNUAL AVERAGE								
TOTAL	92.3	94.1	93.7	95.2	81.6	85.9	81.4	84.1
1 PERSON	88.1	91.4	90.4	93.2	75.4	81.0	73.9	79.3
2 - 3	94.0	95.3	95.0	96.1	85.3	88.9	83.1	85.4
4 - 5	94.4	95.3	95.4	96.1	87.9	90.4	85.5	86.7
6 +	90.1	91.5	92.9	93.5	77.8	82.8	83.3	84.1
1987 ANNUAL AVERAGE								
TOTAL	92.4	94.2	93.8	95.4	81.8	85.9	83.0	85.4
1 PERSON	89.5	92.7	91.3	94.1	77.8	83.1	79.5	83.5
2 - 3	93.9	95.3	95.1	96.3	83.9	87.3	83.8	86.3
4 - 5	93.0	94.5	94.3	95.4	83.6	87.4	84.4	86.4
6 +	87.4	89.1	89.8	91.0	77.4	81.5	80.6	81.6
1988 ANNUAL AVERAGE								
TOTAL	92.7	94.5	94.1	95.6	83.0	86.8	82.1	85.1
1 PERSON	88.4	91.7	90.6	93.5	76.4	82.0	74.4	79.5
2 - 3	94.5	95.7	95.4	96.4	86.8	89.7	84.2	86.9
4 - 5	94.9	95.8	95.8	96.5	89.0	90.7	84.4	85.6
6 +	92.8	94.3	93.7	94.9	87.2	90.6	86.1	88.0
1989 ANNUAL AVERAGE								
TOTAL	93.1	94.9	94.5	95.9	83.2	87.1	83.0	86.0
1 PERSON	90.0	93.0	91.9	94.6	79.1	83.8	75.5	81.3
2 - 3	94.5	95.8	95.6	96.7	85.8	89.3	84.3	87.3
4 - 5	94.5	95.5	95.7	96.4	85.7	88.8	86.9	88.5
6 +	90.5	92.0	92.7	93.8	82.4	85.8	84.9	86.5

Table 5
Percentage of Households with a Telephone by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1990 ANNUAL AVERAGE								
TOTAL	93.3	95.0	94.6	96.1	83.5	87.0	82.7	85.3
1 PERSON	90.9	93.7	92.5	95.1	80.2	84.8	76.2	80.5
2 - 3	94.7	96.0	95.8	96.9	86.0	89.0	84.2	86.7
4 - 5	93.6	95.0	95.0	96.1	84.0	87.1	84.6	86.8
6 +	87.8	89.6	90.2	91.5	78.5	81.8	80.6	81.8
1991 ANNUAL AVERAGE								
TOTAL	93.4	95.1	94.8	96.2	83.5	87.2	84.1	87.7
1 PERSON	91.1	93.9	92.8	95.3	79.8	84.9	77.7	83.3
2 - 3	94.9	96.2	96.0	97.1	85.8	88.9	86.2	88.4
4 - 5	93.7	95.0	95.1	96.1	84.3	87.4	85.1	87.5
6 +	88.8	90.4	90.5	91.8	81.0	83.9	82.0	83.3
1992 ANNUAL AVERAGE								
TOTAL	93.8	95.3	95.2	96.4	84.2	87.9	85.8	88.2
1 PERSON	91.8	94.1	93.4	95.4	81.4	86.1	81.3	85.4
2 - 3	95.1	96.3	96.2	97.2	86.1	89.2	86.3	88.9
4 - 5	93.9	95.2	95.3	96.2	84.4	88.0	87.4	89.2
6 +	89.9	91.4	91.7	92.7	82.8	85.4	85.7	86.6
1993 ANNUAL AVERAGE								
TOTAL	94.2	95.6	95.5	96.6	85.2	88.3	86.7	88.8
1 PERSON	92.3	94.6	93.9	95.8	82.5	86.8	81.9	86.4
2 - 3	95.3	96.4	96.3	97.2	87.1	89.6	87.3	89.1
4 - 5	94.5	95.6	95.9	96.7	85.7	88.3	88.4	90.2
6 +	89.9	91.5	92.0	93.0	81.2	84.9	85.7	87.1
1994 ANNUAL AVERAGE								
TOTAL	93.8	95.4	95.1	96.4	85.7	89.4	86.0	88.3
1 PERSON	91.8	94.2	93.4	95.4	82.2	86.7	82.1	85.9
2 - 3	95.0	96.2	96.0	97.0	87.9	91.1	86.6	88.9
4 - 5	94.2	95.6	95.5	96.6	86.6	89.9	88.1	89.5
6 +	89.4	91.7	91.3	93.1	82.3	86.9	83.4	85.9
1995 ANNUAL AVERAGE								
TOTAL	93.9	95.2	95.2	96.2	86.2	89.2	85.9	87.8
1 PERSON	91.6	93.4	93.2	94.6	82.1	85.9	80.6	82.7
2 - 3	95.2	96.1	96.2	96.9	88.2	90.7	86.4	88.2
4 - 5	94.5	95.6	95.6	96.5	87.9	90.5	88.0	89.8
6 +	90.4	92.3	92.0	93.6	84.4	87.8	85.2	87.1
1996 ANNUAL AVERAGE								
TOTAL	93.9	95.0	94.9	95.8	87.3	89.8	86.4	88.0
1 PERSON	91.5	93.1	92.7	94.2	83.8	86.5	80.5	83.4
2 - 3	95.2	96.1	96.1	96.7	88.9	91.5	87.5	88.9
4 - 5	94.5	95.5	95.3	96.1	88.9	91.3	87.8	89.5
6 +	89.8	91.1	91.1	92.1	84.6	87.5	85.4	86.5

Table 5
Percentage of Households with a Telephone by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1997 ANNUAL AVERAGE								
TOTAL	93.9	95.0	95.0	95.9	86.9	89.5	86.7	88.6
1 PERSON	91.4	93.1	92.8	94.3	83.3	86.3	80.1	83.7
2 - 3	95.0	96.0	95.9	96.6	89.2	91.4	87.6	89.4
4 - 5	94.8	95.8	95.9	96.6	87.9	90.5	89.1	90.3
6 +	90.3	91.7	91.9	92.9	83.0	86.2	85.7	87.6
1998 ANNUAL AVERAGE								
TOTAL	94.1	95.2	95.1	96.0	87.9	89.7	88.4	90.0
1 PERSON	91.4	92.9	92.9	94.3	82.8	85.2	81.9	84.5
2 - 3	95.4	96.2	96.1	96.8	90.5	92.1	89.5	91.0
4 - 5	94.9	95.7	95.7	96.4	89.5	90.9	89.9	91.3
6 +	91.8	92.9	92.7	93.6	87.9	89.9	88.4	89.4
1999 ANNUAL AVERAGE								
TOTAL	94.2	95.0	95.2	95.9	87.7	89.6	89.9	90.9
1 PERSON	90.9	92.4	92.6	93.8	82.1	84.9	82.7	84.4
2 - 3	95.4	96.1	96.1	96.7	90.3	91.8	90.1	91.3
4 - 5	95.6	96.2	96.4	96.9	90.6	92.0	92.5	93.4
6 +	92.2	93.4	93.4	94.4	85.9	88.5	90.3	90.8
2000 ANNUAL AVERAGE								
TOTAL	94.4	95.2	95.2	95.9	89.3	90.7	90.5	91.6
1 PERSON	91.5	92.8	92.8	94.0	84.4	86.5	84.0	86.2
2 - 3	95.4	96.1	96.0	96.6	91.0	92.1	90.5	91.6
4 - 5	95.6	96.2	96.2	96.7	91.7	92.9	92.6	93.4
6 +	93.4	94.4	93.8	94.7	91.5	92.7	92.1	93.0
2001 ANNUAL AVERAGE								
TOTAL	94.9	95.7	95.6	96.4	90.0	91.4	91.3	92.4
1 PERSON	92.0	93.4	93.1	94.4	85.8	87.8	84.9	87.1
2 - 3	95.8	96.4	96.4	96.9	91.7	93.0	91.2	92.2
4 - 5	96.3	96.9	96.8	97.5	92.2	93.2	93.8	94.7
6 +	94.2	95.0	94.8	95.4	91.3	92.6	92.2	92.7
2002 ANNUAL AVERAGE								
TOTAL	95.3	96.2	96.2	96.9	90.1	91.6	91.7	92.9
1 PERSON	92.7	94.0	94.0	95.2	85.7	87.5	86.7	88.2
2 - 3	96.2	96.9	96.9	97.5	91.8	93.1	91.5	92.7
4 - 5	96.6	97.3	97.1	97.7	92.8	94.1	93.8	94.8
6 +	94.9	95.7	95.4	96.1	92.1	93.4	93.1	94.1
MARCH 2003								
TOTAL	95.5	96.3	96.2	96.9	91.0	92.1	92.3	93.2
1 PERSON	92.6	93.8	93.7	94.9	86.4	87.7	84.5	87.0
2 - 3	96.6	97.2	97.2	97.7	92.7	93.7	93.1	93.7
4 - 5	97.0	97.4	97.4	97.8	93.9	94.6	95.0	95.3
6 +	94.2	95.2	94.5	95.4	92.5	94.1	91.8	93.7

Table 5
Percentage of Households with a Telephone by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
JULY 2003								
TOTAL	95.2	96.1	96.0	96.8	90.5	91.8	91.4	92.7
1 PERSON	92.1	93.4	93.3	94.6	85.1	86.7	84.1	86.1
2 - 3	96.3	97.1	96.9	97.6	92.4	93.6	91.5	93.2
4 - 5	96.9	97.5	97.3	97.9	94.0	95.1	94.1	95.0
6 +	95.3	95.7	95.8	96.0	92.1	93.6	93.7	93.7
NOVEMBER 2003								
TOTAL	94.7	95.5	95.5	96.2	89.7	90.9	90.5	91.5
1 PERSON	91.7	93.1	93.0	94.3	84.4	85.9	82.3	84.4
2 - 3	95.7	96.4	96.4	96.9	91.6	92.7	91.3	92.3
4 - 5	96.2	96.8	96.6	97.1	93.4	94.4	92.8	93.4
6 +	93.7	94.4	94.6	95.3	89.8	90.8	92.0	92.8
2003 ANNUAL AVERAGE								
TOTAL	95.1	96.0	95.9	96.6	90.4	91.6	91.4	92.5
1 PERSON	92.1	93.4	93.3	94.6	85.3	86.8	83.6	85.8
2 - 3	96.2	96.9	96.8	97.4	92.2	93.3	92.0	93.1
4 - 5	96.7	97.2	97.1	97.6	93.8	94.7	94.0	94.6
6 +	94.4	95.1	95.0	95.6	91.5	92.8	92.5	93.4
MARCH 2004								
TOTAL	94.2	95.1	94.9	95.7	90.1	91.1	90.5	91.6
1 PERSON	90.8	92.1	92.1	93.4	84.2	85.6	82.8	85.0
2 - 3	95.4	96.1	95.9	96.6	92.4	92.9	91.6	92.9
4 - 5	95.8	96.2	96.0	96.4	93.5	94.5	92.4	93.1
6+	94.7	95.3	94.7	95.2	93.2	94.8	91.5	92.5
JULY 2004								
TOTAL	93.8	94.7	94.7	95.6	87.4	88.9	90.2	91.6
1 PERSON	90.1	91.6	91.7	93.1	82.0	83.8	82.4	85.2
2 - 3	94.9	95.7	95.7	96.3	89.5	91.1	89.8	91.1
4 - 5	95.7	96.3	96.6	97.1	90.1	91.4	94.0	94.9
6+	94.5	95.3	94.4	95.3	93.8	93.8	92.7	93.7
NOVEMBER 2004								
TOTAL	93.5	94.6	94.3	95.3	88.2	90.0	90.3	91.5
1 PERSON	89.8	91.6	91.1	92.8	83.0	84.9	83.7	85.9
2 - 3	94.6	95.6	95.4	96.2	89.4	91.3	90.7	92.0
4 - 5	95.6	96.3	96.0	96.5	92.5	94.4	92.4	93.0
6 +	93.8	94.5	94.5	95.0	92.2	92.7	92.9	93.5
2004 ANNUAL AVERAGE								
TOTAL	93.8	94.8	94.6	95.5	88.6	90.0	90.3	91.6
1 PERSON	90.2	91.8	91.6	93.1	83.1	84.8	83.0	85.4
2 - 3	95.0	95.8	95.7	96.4	90.4	91.8	90.7	92.0
4 - 5	95.7	96.3	96.2	96.7	92.0	93.4	92.9	93.7
6 +	94.3	95.0	94.5	95.2	93.1	93.8	92.4	93.2

Table 5
Percentage of Households with a Telephone by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
MARCH 2005								
TOTAL	92.4	93.7	93.2	94.4	87.7	89.5	88.2	89.8
1 PERSON	89.0	90.8	90.3	91.9	82.7	85.1	83.2	85.4
2 - 3	93.4	94.5	94.0	95.1	89.5	91.0	86.7	88.4
4 - 5	94.5	95.5	95.0	95.9	91.6	92.5	92.1	93.3
6+	92.7	93.7	93.0	93.8	90.3	92.2	89.9	90.9

Table 6
Percentage of Households with a Telephone by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
NOVEMBER 1983								
TOTAL HOUSEHOLDS	91.4	93.7	93.1	95.0	78.8	83.9	80.7	84.6
16-24 YRS OLD	76.6	84.1	80.2	86.2	49.9	68.2	64.9	71.9
25-54 YRS OLD	91.5	93.7	93.4	95.2	78.7	83.3	81.8	85.6
55-59 YRS OLD	95.0	96.1	96.1	97.0	86.3	88.5	89.3	89.3
60-64 YRS OLD	95.5	96.4	96.4	97.2	89.5	90.7	87.3	90.2
65-69 YRS OLD	95.5	96.2	96.5	97.0	87.2	89.0	90.7	90.7
70-99 YRS OLD	95.4	96.5	96.0	97.0	90.1	92.3	85.5	89.1
1984 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	91.6	93.7	93.2	94.9	79.8	84.5	80.9	84.3
16-24 YRS OLD	77.0	83.6	79.6	85.4	58.2	70.8	60.9	69.2
25-54 YRS OLD	91.7	93.7	93.4	95.1	79.6	84.1	83.1	85.7
55-59 YRS OLD	94.9	96.1	96.1	97.1	86.6	89.2	87.1	90.1
60-64 YRS OLD	94.9	96.0	96.0	97.0	86.6	88.8	87.1	89.1
65-69 YRS OLD	96.2	96.8	97.1	97.6	87.9	89.9	90.2	91.5
70-99 YRS OLD	95.3	96.5	96.0	97.1	88.2	90.9	84.4	87.6
1985 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	91.8	93.9	93.3	95.0	81.1	85.2	81.3	84.4
16-24 YRS OLD	77.9	83.8	80.3	85.8	60.0	69.4	64.8	70.8
25-54 YRS OLD	91.9	93.9	93.5	95.2	80.7	85.0	82.5	85.2
55-59 YRS OLD	94.9	96.0	95.8	96.8	87.8	90.0	87.4	89.2
60-64 YRS OLD	94.9	95.9	95.8	96.5	88.4	90.2	89.7	91.3
65-69 YRS OLD	95.9	96.8	96.8	97.5	88.2	90.9	89.1	91.7
70-99 YRS OLD	95.5	96.6	96.2	97.3	89.1	90.7	87.6	90.9
1986 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	92.3	94.1	93.7	95.2	81.6	85.9	81.4	84.1
16-24 YRS OLD	79.0	84.4	81.5	85.9	59.8	72.2	63.4	67.4
25-54 YRS OLD	92.2	94.0	93.8	95.3	81.1	85.2	82.9	85.5
55-59 YRS OLD	95.2	96.3	96.1	97.0	88.0	91.3	87.6	90.4
60-64 YRS OLD	95.4	96.2	96.2	97.0	88.9	90.4	89.1	90.3
65-69 YRS OLD	95.8	96.7	96.7	97.4	88.4	90.6	90.4	91.9
70-99 YRS OLD	96.0	97.0	96.5	97.4	91.3	92.9	87.5	89.8
1987 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	92.4	94.2	93.8	95.4	81.8	85.9	83.0	85.4
16-24 YRS OLD	78.9	84.4	81.4	86.1	61.8	72.3	65.2	70.8
25-54 YRS OLD	92.3	94.2	93.9	95.4	81.4	85.5	84.4	86.5
55-59 YRS OLD	95.2	96.2	96.4	97.2	87.0	89.6	89.1	90.7
60-64 YRS OLD	95.7	96.4	96.6	97.3	88.0	90.2	90.9	92.0
65-69 YRS OLD	95.9	96.7	97.0	97.5	87.1	89.3	88.8	88.8
70-99 YRS OLD	96.0	97.0	96.5	97.5	91.9	93.0	91.6	93.1
1988 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	92.7	94.5	94.1	95.6	83.0	86.8	82.1	85.1
16-24 YRS OLD	80.2	85.1	82.3	86.8	65.6	73.5	64.0	70.9
25-54 YRS OLD	92.6	94.4	94.1	95.6	82.2	86.3	83.5	86.1
55-59 YRS OLD	95.1	96.4	96.1	97.2	88.3	91.0	88.5	89.9
60-64 YRS OLD	95.3	96.2	96.3	97.0	87.6	89.9	87.3	90.0
65-69 YRS OLD	96.4	97.1	97.2	97.7	89.6	92.0	89.6	91.2
70-99 YRS OLD	96.2	97.5	96.7	97.9	92.3	93.9	92.2	94.3

Table 6
Percentage of Households with a Telephone by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1989 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.1	94.9	94.5	95.9	83.2	87.1	83.0	86.0
16-24 YRS OLD	80.5	85.9	82.9	87.7	65.3	75.2	64.8	72.3
25-54 YRS OLD	92.7	94.6	94.3	95.8	82.2	86.4	83.6	86.5
55-59 YRS OLD	95.4	96.5	96.4	97.4	88.7	90.7	90.1	91.2
60-64 YRS OLD	95.7	96.7	96.6	97.3	89.2	91.6	89.8	90.0
65-69 YRS OLD	96.3	97.0	97.1	97.7	90.3	91.9	88.8	91.0
70-99 YRS OLD	96.4	97.4	97.1	97.9	91.1	92.6	89.8	92.0
1990 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.3	95.0	94.6	96.1	83.5	87.0	82.7	85.3
16-24 YRS OLD	81.2	86.5	83.6	88.2	66.4	75.3	67.8	73.5
25-54 YRS OLD	92.6	94.5	94.1	95.7	82.4	86.1	82.0	84.6
55-59 YRS OLD	95.4	96.4	96.5	97.4	87.3	89.6	89.9	90.7
60-64 YRS OLD	96.2	96.9	97.1	97.6	89.7	91.6	90.6	91.1
65-69 YRS OLD	96.3	97.1	97.0	97.8	90.7	91.7	90.7	92.5
70-99 YRS OLD	96.9	97.8	97.4	98.3	91.9	93.3	93.2	94.1
1991 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.4	95.1	94.8	96.2	83.5	87.2	84.1	86.7
16-24 YRS OLD	81.0	86.1	83.4	88.0	65.7	74.5	68.5	73.9
25-54 YRS OLD	92.7	94.6	94.3	95.8	82.3	86.3	84.1	86.7
55-59 YRS OLD	95.5	96.7	96.5	97.5	88.0	90.9	89.8	90.5
60-64 YRS OLD	95.9	96.9	96.9	97.6	88.5	90.8	88.3	90.4
65-69 YRS OLD	96.7	97.5	97.5	98.2	89.8	91.8	92.9	94.0
70-99 YRS OLD	97.3	98.1	97.8	98.6	92.8	93.5	92.1	94.0
1992 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.8	95.3	95.2	96.4	84.2	87.9	85.8	88.2
15-24 YRS OLD	82.0	87.4	85.0	89.6	64.2	74.1	72.8	80.4
25-54 YRS OLD	93.1	94.8	94.6	95.9	82.9	87.0	85.5	87.7
55-59 YRS OLD	96.0	96.8	97.0	97.5	89.6	91.9	91.5	92.3
60-64 YRS OLD	96.3	97.1	97.0	97.7	91.2	92.6	89.3	91.2
65-69 YRS OLD	96.6	97.3	97.5	98.0	89.8	92.0	92.0	92.4
70-99 YRS OLD	97.5	98.0	98.0	98.5	93.1	94.0	94.2	95.0
1993 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	94.2	95.6	95.5	96.6	85.2	88.3	86.7	88.8
15-24 YRS OLD	83.3	87.3	85.7	89.2	70.1	77.3	71.8	76.3
25-54 YRS OLD	93.5	95.1	95.0	96.3	83.5	87.0	86.4	88.7
55-59 YRS OLD	95.9	96.8	96.7	97.5	90.0	92.2	91.3	92.1
60-64 YRS OLD	97.0	97.6	97.7	98.3	91.9	93.3	92.5	93.7
65-69 YRS OLD	97.0	97.6	97.5	98.1	92.8	93.5	92.9	93.9
70-99 YRS OLD	97.6	98.2	98.0	98.6	93.2	94.1	94.7	95.4
1994 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.8	95.4	95.1	96.4	85.7	89.4	86.0	88.3
15-24 YRS OLD	84.3	89.2	86.1	90.4	74.0	83.0	71.8	77.1
25-54 YRS OLD	93.3	95.0	94.7	96.0	84.8	88.7	86.1	88.4
55-59 YRS OLD	95.6	96.6	96.3	97.2	90.7	92.9	89.4	91.1
60-64 YRS OLD	96.3	97.2	97.1	97.9	90.1	91.9	91.8	92.4
65-69 YRS OLD	96.7	97.3	97.3	97.8	91.8	93.2	93.3	93.5
70-99 YRS OLD	96.7	97.6	97.2	98.1	91.7	93.1	92.3	93.7

Table 6
Percentage of Households with a Telephone by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1995 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.9	95.2	95.2	96.2	86.2	89.2	85.9	87.8
15-24 YRS OLD	84.6	88.5	87.0	90.2	73.2	80.6	74.8	78.0
25-54 YRS OLD	93.6	94.9	95.0	96.0	85.4	88.5	86.1	88.0
55-59 YRS OLD	95.7	96.4	96.2	96.8	92.5	93.9	88.6	90.0
60-64 YRS OLD	95.8	96.5	96.3	96.9	91.7	93.4	90.0	90.9
65-69 YRS OLD	96.4	96.8	96.9	97.4	92.2	93.1	91.2	92.6
70-99 YRS OLD	96.4	97.1	97.0	97.5	91.4	92.8	90.4	92.1
1996 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.9	95.0	94.9	95.8	87.3	89.8	86.4	88.0
15-24 YRS OLD	84.9	88.4	86.8	89.6	74.5	81.2	72.9	76.4
25-54 YRS OLD	93.5	94.8	94.6	95.6	86.6	89.4	87.1	88.8
55-59 YRS OLD	95.7	96.3	96.3	96.8	91.0	92.5	90.3	90.7
60-64 YRS OLD	95.7	96.2	96.3	96.8	92.0	93.0	88.2	88.8
65-69 YRS OLD	95.8	96.3	96.4	96.8	92.5	93.3	89.5	90.4
70-99 YRS OLD	96.5	97.0	96.8	97.3	93.5	94.3	90.9	92.3
1997 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.9	95.0	95.0	95.9	86.9	89.5	86.7	88.6
15-24 YRS OLD	84.9	88.8	86.7	90.1	74.9	81.6	75.0	79.4
25-54 YRS OLD	93.6	94.8	94.7	95.7	86.3	89.0	87.1	88.9
55-59 YRS OLD	95.4	96.1	96.4	96.9	89.2	90.8	90.1	92.2
60-64 YRS OLD	96.0	96.5	96.6	97.0	92.1	92.7	90.6	91.2
65-69 YRS OLD	96.2	96.7	96.7	97.1	92.6	93.8	90.9	92.4
70-99 YRS OLD	96.2	96.7	96.6	97.1	93.0	93.7	90.3	91.3
1998 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	94.1	95.2	95.1	96.0	87.9	89.7	88.4	90.0
15-24 YRS OLD	87.0	89.8	88.4	91.0	79.9	83.8	80.0	83.5
25-54 YRS OLD	93.8	94.9	94.8	95.8	87.2	89.2	88.5	89.9
55-59 YRS OLD	95.6	96.2	96.2	96.8	91.5	92.5	91.4	92.8
60-64 YRS OLD	95.8	96.3	96.5	97.0	91.8	92.8	91.2	92.6
65-69 YRS OLD	95.7	96.3	96.5	97.0	90.2	90.7	95.1	95.8
70-99 YRS OLD	96.3	96.8	96.7	97.1	93.1	93.8	91.0	91.9
1999 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	94.2	95.0	95.2	95.9	87.7	89.6	89.9	90.9
15-24 YRS OLD	86.4	88.9	88.2	90.2	77.5	82.3	81.0	83.1
25-54 YRS OLD	94.0	94.9	95.1	95.9	87.5	89.5	90.2	91.3
55-59 YRS OLD	95.7	96.3	96.4	96.9	90.5	91.5	93.1	94.3
60-64 YRS OLD	95.7	96.2	96.4	96.8	90.9	92.0	92.2	92.8
65-69 YRS OLD	95.9	96.3	96.6	97.0	90.0	91.1	94.1	94.8
70-99 YRS OLD	95.8	96.3	96.2	96.7	92.2	92.8	92.4	93.1
2000 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	94.4	95.2	95.2	95.9	89.3	90.7	90.5	91.6
15-24 YRS OLD	87.8	90.1	89.0	91.3	81.2	84.1	81.9	84.4
25-54 YRS OLD	94.2	95.1	95.1	95.9	89.2	90.7	91.1	92.1
55-59 YRS OLD	95.8	96.3	96.2	96.7	91.8	92.5	91.1	92.0
60-64 YRS OLD	95.8	96.2	96.5	96.7	91.2	92.0	92.3	93.2
65-69 YRS OLD	95.8	96.1	96.3	96.5	92.8	93.2	94.5	94.7
70-99 YRS OLD	95.7	96.1	96.1	96.5	91.6	92.4	92.1	92.7

Table 6
Percentage of Households with a Telephone by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
2001 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	94.9	95.7	95.6	96.4	90.0	91.4	91.3	92.4
15-24 YRS OLD	88.8	91.0	89.4	91.5	85.6	88.1	83.5	85.6
25-54 YRS OLD	94.7	95.6	95.5	96.3	89.4	91.0	91.8	92.9
55-59 YRS OLD	96.4	96.9	96.8	97.2	93.1	94.3	93.3	94.3
60-64 YRS OLD	96.2	96.6	96.7	97.0	93.0	94.1	94.4	95.0
65-69 YRS OLD	96.4	96.8	97.1	97.4	92.0	92.7	94.1	94.3
70-99 YRS OLD	96.3	96.8	96.7	97.2	93.2	93.7	91.9	92.6
2002 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	95.3	96.2	96.2	96.9	90.1	91.6	91.7	92.9
15-24 YRS OLD	88.5	91.0	89.5	91.9	83.4	86.7	84.2	86.7
25-54 YRS OLD	95.0	95.9	95.9	96.7	89.6	91.1	92.0	93.2
55-59 YRS OLD	96.8	97.4	97.4	97.9	92.2	93.2	93.9	94.6
60-64 YRS OLD	96.9	97.4	97.2	97.7	94.8	95.4	93.0	93.5
65-69 YRS OLD	97.5	97.8	98.0	98.1	94.3	95.3	95.1	95.1
70-99 YRS OLD	97.2	97.6	97.7	98.0	93.7	94.4	94.9	95.3
MARCH 2003								
TOTAL HOUSEHOLDS	95.5	96.3	96.2	96.9	91.0	92.1	92.3	93.2
15-24 YRS OLD	90.4	92.4	91.4	93.2	87.6	90.1	88.1	89.8
25-54 YRS OLD	95.1	95.9	95.9	96.6	90.2	91.4	92.6	93.5
55-59 YRS OLD	96.9	97.4	97.3	97.7	93.6	94.6	93.3	93.7
60-64 YRS OLD	97.3	97.6	97.9	98.2	92.7	93.1	93.7	94.1
65-69 YRS OLD	97.0	97.4	97.7	98.0	92.3	92.3	94.2	94.2
70-99 YRS OLD	97.2	97.6	97.5	97.8	95.0	95.2	92.0	93.8
JULY 2003								
TOTAL HOUSEHOLDS	95.2	96.1	96.0	96.8	90.5	91.8	91.4	92.7
15-24 YRS OLD	86.9	89.8	87.6	90.0	83.0	87.2	83.7	86.6
25-54 YRS OLD	95.1	96.0	95.8	96.7	90.4	91.5	91.8	93.1
55-59 YRS OLD	96.7	97.2	97.1	97.6	94.4	94.9	92.5	94.5
60-64 YRS OLD	96.6	97.3	97.4	98.0	90.3	92.0	96.5	96.7
65-69 YRS OLD	97.4	97.7	97.8	98.0	95.9	95.9	93.8	93.8
70-99 YRS OLD	97.1	97.5	97.7	98.0	91.7	93.0	92.9	93.3
NOVEMBER 2003								
TOTAL HOUSEHOLDS	94.7	95.5	95.5	96.2	89.7	90.9	90.5	91.5
15-24 YRS OLD	86.5	89.0	87.7	89.9	80.1	83.6	83.2	85.4
25-54 YRS OLD	94.3	95.2	95.0	95.9	89.5	90.7	91.1	91.9
55-59 YRS OLD	96.9	97.4	97.5	98.0	93.3	93.3	92.1	93.3
60-64 YRS OLD	96.5	97.0	97.2	97.6	93.3	93.9	93.5	94.0
65-69 YRS OLD	96.7	97.0	97.4	97.6	91.4	91.7	94.8	95.9
70-99 YRS OLD	97.0	97.4	97.4	97.8	93.5	94.0	90.7	91.8
2003 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	95.1	96.0	95.9	96.6	90.4	91.6	91.4	92.5
15-24 YRS OLD	87.9	90.4	88.9	91.0	83.6	87.0	85.0	87.3
25-54 YRS OLD	94.8	95.7	95.6	96.4	90.0	91.2	91.8	92.8
55-59 YRS OLD	96.8	97.3	97.3	97.8	93.8	94.3	92.6	93.8
60-64 YRS OLD	96.8	97.3	97.5	97.9	92.1	93.0	94.6	94.9
65-69 YRS OLD	97.0	97.4	97.6	97.9	93.2	93.3	94.3	94.6
70-99 YRS OLD	97.1	97.5	97.5	97.9	93.4	94.1	91.9	93.0

Table 6
Percentage of Households with a Telephone by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
MARCH 2004								
TOTAL HOUSEHOLDS	94.2	95.1	94.9	95.7	90.1	91.1	90.5	91.6
15-24 YRS OLD	87.0	89.6	87.4	89.5	85.9	88.1	85.1	87.2
25-54 YRS OLD	93.9	94.8	94.6	95.5	90.1	91.1	90.5	91.7
55-59 YRS OLD	95.0	95.5	95.7	96.1	90.1	90.5	91.5	92.0
60-64 YRS OLD	96.0	96.4	96.7	97.0	90.6	90.9	94.7	95.7
65-69 YRS OLD	95.5	96.2	96.0	96.7	91.4	91.7	92.4	93.4
70-99 YRS OLD	96.6	97.0	96.9	97.3	92.8	93.9	93.4	93.9
JULY 2004								
TOTAL HOUSEHOLDS	93.8	94.7	94.7	95.6	87.4	88.9	90.2	91.6
15-24 YRS OLD	87.6	90.5	88.8	91.3	81.5	85.8	82.0	84.6
25-54 YRS OLD	93.3	94.4	94.4	95.3	86.7	88.3	90.8	92.2
55-59 YRS OLD	95.1	95.7	95.8	96.5	89.9	90.6	91.4	92.5
60-64 YRS OLD	94.9	95.5	95.7	96.3	88.3	89.0	92.2	93.2
65-69 YRS OLD	96.8	97.0	97.2	97.2	94.6	94.6	94.6	95.5
70-99 YRS OLD	95.7	96.1	96.3	96.7	91.2	91.7	92.2	92.2
NOVEMBER 2004								
TOTAL HOUSEHOLDS	93.5	94.6	94.3	95.3	88.2	90.0	90.3	91.5
15-24 YRS OLD	84.6	88.2	85.9	89.3	77.6	82.2	82.7	85.8
25-54 YRS OLD	93.3	94.6	94.2	95.3	88.0	90.1	91.0	92.1
55-59 YRS OLD	95.4	96.0	96.1	96.8	90.0	90.5	92.9	93.4
60-64 YRS OLD	94.9	95.3	95.6	96.0	88.9	89.2	92.1	92.5
65-69 YRS OLD	95.9	96.2	95.9	96.3	96.9	96.9	94.0	94.0
70-99 YRS OLD	95.4	95.9	95.8	96.2	91.5	92.4	89.8	90.5
2004 ANNUAL AVERAGE								
TOTAL HOUSEHOLDS	93.8	94.8	94.6	95.5	88.6	90.0	90.3	91.6
15-24 YRS OLD	86.4	89.4	87.4	90.0	81.7	85.4	83.3	85.9
25-54 YRS OLD	93.5	94.6	94.4	95.4	88.3	89.8	90.8	92.0
55-59 YRS OLD	95.2	95.7	95.9	96.5	90.0	90.5	91.9	92.6
60-64 YRS OLD	95.3	95.7	96.0	96.4	89.3	89.7	93.0	93.8
65-69 YRS OLD	96.1	96.5	96.4	96.7	94.3	94.4	93.7	94.3
70-99 YRS OLD	95.9	96.3	96.3	96.7	91.8	92.7	91.8	92.2
MARCH 2005								
TOTAL HOUSEHOLDS	92.4	93.7	93.2	94.4	87.7	89.5	88.2	89.8
15-24 YRS OLD	85.5	88.1	87.1	89.2	78.8	83.4	79.2	80.4
25-54 YRS OLD	92.2	93.6	92.9	94.2	87.8	89.4	89.0	90.7
55-59 YRS OLD	93.4	94.4	93.8	94.7	90.2	92.2	88.2	91.3
60-64 YRS OLD	94.0	94.9	94.9	95.7	88.9	90.1	92.3	92.6
65-69 YRS OLD	94.8	95.6	95.8	96.4	89.4	90.5	90.8	91.0
70-99 YRS OLD	93.9	94.7	94.2	95.1	91.2	92.0	90.4	91.0

Table 7
Percentage of Adults with a Telephone by Labor Force Status

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
NOVEMBER 1983								
TOTAL CNP	92.8	94.5	94.1	95.6	82.7	86.6	83.4	86.5
EMPLOYED	94.1	95.9	95.0	96.6	85.7	89.8	86.3	89.6
UNEMPLOYED	82.5	86.5	84.8	88.1	74.6	81.2	76.6	79.9
NOT IN LABOR FORCE	92.1	93.4	93.8	94.9	80.8	83.7	80.4	83.0
1984 ANNUAL AVERAGE								
TOTAL CNP	92.8	94.5	94.1	95.5	82.9	86.7	83.0	85.6
EMPLOYED	94.0	95.7	95.0	96.4	85.9	89.8	85.7	88.3
UNEMPLOYED	81.7	85.3	84.0	87.0	74.7	80.2	74.0	77.4
NOT IN LABOR FORCE	92.1	93.5	93.8	95.0	80.7	83.9	80.3	82.8
1985 ANNUAL AVERAGE								
TOTAL CNP	93.0	94.6	94.2	95.6	84.1	87.4	83.5	85.8
EMPLOYED	94.2	95.8	95.0	96.5	87.3	90.4	85.1	87.5
UNEMPLOYED	82.3	85.8	84.2	87.3	76.3	81.1	73.8	76.9
NOT IN LABOR FORCE	92.2	93.6	93.8	94.9	81.5	84.5	82.6	84.6
1986 ANNUAL AVERAGE								
TOTAL CNP	93.4	94.8	94.6	95.8	84.6	88.1	83.3	85.4
EMPLOYED	94.7	96.1	95.5	96.6	87.7	91.1	85.3	87.4
UNEMPLOYED	82.3	86.0	84.5	87.6	74.8	80.7	75.3	78.2
NOT IN LABOR FORCE	92.6	93.9	94.1	95.1	82.3	85.4	81.4	83.4
1987 ANNUAL AVERAGE								
TOTAL CNP	93.5	94.9	94.7	95.9	84.7	88.1	84.5	86.4
EMPLOYED	94.6	96.1	95.4	96.7	87.9	91.0	86.3	88.3
UNEMPLOYED	82.7	86.1	85.3	88.2	74.0	79.3	77.0	79.6
NOT IN LABOR FORCE	92.7	93.9	94.2	95.2	82.2	85.5	82.5	84.1
1988 ANNUAL AVERAGE								
TOTAL CNP	93.8	95.2	94.9	96.1	85.6	88.7	83.6	86.1
EMPLOYED	94.9	96.2	95.6	96.8	88.5	91.5	85.4	87.7
UNEMPLOYED	83.3	86.8	85.9	88.9	75.4	80.5	76.7	80.3
NOT IN LABOR FORCE	92.8	94.2	94.3	95.5	83.1	86.0	81.5	84.0
1989 ANNUAL AVERAGE								
TOTAL CNP	94.1	95.5	95.3	96.4	85.8	89.0	84.7	87.0
EMPLOYED	95.2	96.5	96.0	97.1	88.8	91.7	86.6	89.0
UNEMPLOYED	83.9	87.1	86.2	88.8	77.0	82.5	75.1	78.6
NOT IN LABOR FORCE	93.1	94.4	94.7	95.7	82.8	85.9	82.6	84.6
1990 ANNUAL AVERAGE								
TOTAL CNP	94.2	95.5	95.3	96.5	86.1	88.8	84.5	86.6
EMPLOYED	95.3	96.6	96.0	97.2	89.4	91.8	86.3	88.4
UNEMPLOYED	85.0	88.0	87.9	90.4	75.3	80.0	77.0	80.4
NOT IN LABOR FORCE	93.0	94.3	94.6	95.6	83.2	85.8	82.4	84.1

Table 7
Percentage of Adults with a Telephone by Labor Force Status

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1991 ANNUAL AVERAGE								
TOTAL CNP	94.3	95.7	95.5	96.6	86.3	89.1	85.5	87.7
EMPLOYED	95.6	96.8	96.3	97.3	89.8	92.4	87.5	89.6
UNEMPLOYED	86.4	89.5	88.3	91.0	78.9	84.1	78.2	81.6
NOT IN LABOR FORCE	93.1	94.4	94.7	95.8	82.6	85.3	83.5	85.4
1992 ANNUAL AVERAGE								
TOTAL CNP	94.7	95.9	95.8	96.8	86.9	89.8	87.8	89.7
EMPLOYED	95.8	97.0	96.5	97.5	90.1	92.8	89.5	91.6
UNEMPLOYED	88.1	90.3	90.0	91.8	81.2	85.0	83.4	85.8
NOT IN LABOR FORCE	93.6	94.8	95.2	96.1	83.6	86.5	85.8	87.4
1993 ANNUAL AVERAGE								
TOTAL CNP	95.0	96.1	96.0	97.0	87.5	90.0	88.2	89.9
EMPLOYED	96.1	97.1	96.8	97.6	90.6	92.8	89.7	91.5
UNEMPLOYED	88.6	90.6	90.7	92.3	80.9	84.7	85.0	87.1
NOT IN LABOR FORCE	93.8	94.9	95.3	96.2	84.5	87.0	86.1	87.6
1994 ANNUAL AVERAGE								
TOTAL CNP	94.5	95.9	95.6	96.7	87.9	91.0	87.3	89.2
EMPLOYED	95.6	96.8	96.3	97.3	90.4	93.2	88.5	90.4
UNEMPLOYED	87.8	90.8	89.8	92.2	81.1	86.7	84.1	86.5
NOT IN LABOR FORCE	93.4	94.8	94.8	95.9	85.4	88.5	85.7	87.6
1995 ANNUAL AVERAGE								
TOTAL CNP	95.0	96.1	95.9	96.8	89.1	91.4	88.0	89.6
EMPLOYED	95.8	96.7	96.5	97.2	91.2	93.2	88.9	90.4
UNEMPLOYED	88.8	91.7	90.8	93.1	82.3	87.4	84.4	87.2
NOT IN LABOR FORCE	93.4	94.4	94.8	95.7	84.9	87.3	86.0	87.7
1996 ANNUAL AVERAGE								
TOTAL CNP	94.9	95.8	95.6	96.4	89.7	91.8	88.4	89.7
EMPLOYED	95.6	96.4	96.2	96.9	91.4	93.0	89.6	90.8
UNEMPLOYED	88.8	91.1	90.1	91.9	85.0	89.5	84.6	86.5
NOT IN LABOR FORCE	93.4	94.4	94.5	95.3	86.4	88.8	85.6	87.0
1997 ANNUAL AVERAGE								
TOTAL CNP	94.9	95.8	95.7	96.5	89.3	91.5	88.6	90.2
EMPLOYED	95.6	96.5	96.2	96.9	91.1	92.9	89.5	91.1
UNEMPLOYED	87.8	90.4	89.7	91.4	81.5	87.1	82.4	84.3
NOT IN LABOR FORCE	93.5	94.4	94.8	95.5	86.4	88.4	86.9	88.4
1998 ANNUAL AVERAGE								
TOTAL CNP	95.1	95.9	95.7	96.5	90.4	91.9	89.9	91.3
EMPLOYED	95.6	96.4	96.1	96.8	91.9	93.3	90.4	91.8
UNEMPLOYED	89.3	91.4	91.5	93.2	82.9	85.6	85.4	88.6
NOT IN LABOR FORCE	93.9	94.7	94.9	95.6	87.8	89.1	89.0	90.2

Table 7
Percentage of Adults with a Telephone by Labor Force Status

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
1999 ANNUAL AVERAGE								
TOTAL CNP	95.2	95.9	95.9	96.5	90.3	91.8	91.2	92.1
EMPLOYED	95.8	96.4	96.3	96.9	91.8	93.2	91.5	92.4
UNEMPLOYED	89.6	91.2	91.6	93.0	83.2	85.4	89.1	90.2
NOT IN LABOR FORCE	94.1	94.7	95.1	95.7	87.7	89.1	90.7	91.6
2000 ANNUAL AVERAGE								
TOTAL CNP	95.1	95.8	95.7	96.3	91.0	92.1	91.7	92.6
EMPLOYED	95.7	96.4	96.1	96.8	92.6	93.6	91.9	92.8
UNEMPLOYED	90.5	92.2	92.2	93.5	85.6	88.3	89.3	90.8
NOT IN LABOR FORCE	94.3	94.9	95.1	95.6	89.1	90.0	91.6	92.4
2001 ANNUAL AVERAGE								
TOTAL CNP	95.6	96.2	96.2	96.8	91.6	92.7	92.4	93.3
EMPLOYED	96.1	96.8	96.5	97.2	93.1	94.0	92.5	93.3
UNEMPLOYED	92.1	93.4	93.1	94.2	88.5	90.9	91.8	92.5
NOT IN LABOR FORCE	94.9	95.5	95.7	96.3	89.4	90.6	92.3	93.2
2002 ANNUAL AVERAGE								
TOTAL CNP	96.0	96.8	96.7	97.3	92.0	93.2	92.9	93.8
EMPLOYED	96.7	97.3	97.1	97.7	93.8	94.8	93.2	94.1
UNEMPLOYED	92.1	93.5	93.0	94.3	88.3	90.5	89.8	91.0
NOT IN LABOR FORCE	95.4	96.1	96.3	96.9	89.7	91.0	92.8	93.6
MARCH 2003								
TOTAL CNP	96.2	96.8	96.7	97.3	92.5	93.4	93.2	94.0
EMPLOYED	96.7	97.3	97.1	97.7	94.1	94.9	93.7	94.3
UNEMPLOYED	92.5	93.9	93.3	94.6	89.0	90.6	89.4	91.5
NOT IN LABOR FORCE	95.7	96.3	96.5	97.0	90.7	91.7	93.1	93.8
JULY 2003								
TOTAL CNP	96.1	96.8	96.6	97.3	92.4	93.5	92.9	94.0
EMPLOYED	96.6	97.3	96.9	97.6	94.2	95.2	93.4	94.6
UNEMPLOYED	93.4	94.5	94.5	95.5	88.6	90.2	90.6	92.4
NOT IN LABOR FORCE	95.4	96.0	96.2	96.8	90.4	91.5	92.2	93.2
NOVEMBER 2003								
TOTAL CNP	95.5	96.1	96.1	96.7	91.4	92.4	91.8	92.6
EMPLOYED	95.9	96.6	96.4	97.1	92.4	93.3	92.7	93.4
UNEMPLOYED	92.2	93.5	92.9	93.9	88.7	91.0	88.3	89.0
NOT IN LABOR FORCE	95.0	95.5	95.8	96.2	90.2	91.1	90.7	91.6
2003 ANNUAL AVERAGE								
TOTAL CNP	95.9	96.6	96.5	97.1	92.1	93.1	92.6	93.5
EMPLOYED	96.4	97.1	96.8	97.5	93.6	94.5	93.3	94.1
UNEMPLOYED	92.7	94.0	93.6	94.7	88.8	90.6	89.4	91.0
NOT IN LABOR FORCE	95.4	95.9	96.2	96.7	90.4	91.4	92.0	92.9

Table 7
Percentage of Adults with a Telephone by Labor Force Status

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	Unit	Avail	Unit	Avail	Unit	Avail	Unit	Avail
MARCH 2004								
TOTAL CNP	95.0	95.7	95.4	96.1	92.0	92.8	91.7	92.7
EMPLOYED	95.5	96.3	95.8	96.5	93.5	94.1	92.0	93.0
UNEMPLOYED	91.2	92.7	92.0	93.5	87.9	89.4	89.4	90.7
NOT IN LABOR FORCE	94.5	95.1	95.1	95.6	90.5	91.3	91.7	92.4
JULY 2004								
TOTAL CNP	94.8	95.5	95.5	96.2	89.6	90.8	92.0	93.1
EMPLOYED	95.3	96.1	95.8	96.6	91.2	92.7	92.4	93.6
UNEMPLOYED	92.1	93.5	94.5	95.4	84.8	87.6	91.3	92.5
NOT IN LABOR FORCE	94.0	94.6	94.9	95.5	87.8	88.4	91.3	92.1
NOVEMBER 2004								
TOTAL CNP	94.4	95.4	95.0	95.9	90.1	91.8	91.7	92.6
EMPLOYED	94.9	96.0	95.4	96.3	91.5	93.1	92.1	93.1
UNEMPLOYED	91.3	93.2	93.4	94.7	85.3	88.5	92.0	93.6
NOT IN LABOR FORCE	93.7	94.5	94.5	95.1	88.8	90.2	90.7	91.3
2004 ANNUAL AVERAGE								
TOTAL CNP	94.7	95.5	95.3	96.1	90.6	91.8	91.8	92.8
EMPLOYED	95.2	96.1	95.7	96.5	92.1	93.3	92.2	93.2
UNEMPLOYED	91.5	93.1	93.3	94.5	86.0	88.5	90.9	92.3
NOT IN LABOR FORCE	94.1	94.7	94.8	95.4	89.0	90.0	91.2	91.9
MARCH 2005								
TOTAL CNP	93.2	94.4	93.8	94.9	89.6	91.0	89.6	91.0
EMPLOYED	93.7	94.9	94.2	95.3	90.4	91.8	89.5	90.9
UNEMPLOYED	90.1	91.9	90.9	92.8	87.5	89.2	87.2	88.6
NOT IN LABOR FORCE	92.7	93.7	93.3	94.3	88.6	90.0	90.3	91.5

Table 8
Critical Values for Determining Significant Differences by State

	In Unit	Available
UNITED STATES	0.4%	0.3%
ALABAMA	4.2%	4.0%
ALASKA	3.4%	2.7%
ARIZONA	2.7%	2.5%
ARKANSAS	3.6%	3.5%
CALIFORNIA	1.1%	1.0%
COLORADO	2.1%	1.9%
CONNECTICUT	2.6%	2.6%
DELAWARE	2.8%	2.4%
DISTRICT OF COLUMBIA	4.7%	4.2%
FLORIDA	1.7%	1.7%
GEORGIA	3.3%	3.1%
HAWAII	3.1%	2.6%
IDAHO	2.6%	2.5%
ILLINOIS	2.4%	2.0%
INDIANA	3.1%	2.9%
IOWA	2.8%	2.6%
KANSAS	3.0%	2.8%
KENTUCKY	3.5%	3.1%
LOUISIANA	3.5%	3.1%
MAINE	2.0%	1.7%
MARYLAND	2.9%	2.8%
MASSACHUSETTS	2.1%	2.0%
MICHIGAN	1.7%	1.6%
MINNESOTA	2.3%	2.2%
MISSISSIPPI	4.0%	3.3%
MISSOURI	3.2%	2.9%
MONTANA	2.5%	2.3%
NEBRASKA	2.2%	2.0%
NEVADA	3.6%	3.5%
NEW HAMPSHIRE	2.7%	2.4%
NEW JERSEY	2.3%	2.3%
NEW MEXICO	3.6%	3.5%
NEW YORK	1.4%	1.2%
NORTH CAROLINA	2.0%	1.8%
NORTH DAKOTA	1.9%	1.7%
OHIO	1.9%	1.7%
OKLAHOMA	3.5%	3.2%
OREGON	3.1%	2.7%
PENNSYLVANIA	1.4%	1.3%
RHODE ISLAND	3.3%	3.3%
SOUTH CAROLINA	3.6%	3.4%
SOUTH DAKOTA	4.0%	3.8%
TENNESSEE	2.9%	2.6%
TEXAS	1.8%	1.6%
UTAH	2.7%	2.5%
VERMONT	3.5%	3.0%
VIRGINIA	3.5%	3.3%
WASHINGTON	2.3%	2.1%
WEST VIRGINIA	3.3%	2.8%
WISCONSIN	2.7%	2.5%
WYOMING	2.7%	2.5%

Table 9
Critical Values for Determining Significant Differences by Income

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	In Unit	Available	In Unit	Available	In Unit	Available	In Unit	Available
TOTAL	0.4%	0.3%	0.4%	0.3%	1.6%	1.5%	1.7%	1.6%
UNDER $5,000	3.9%	3.7%	4.4%	4.1%	7.9%	7.4%	10.1%	9.8%
$5,000 - $7,499	3.0%	2.9%	3.3%	3.1%	7.5%	7.3%	9.1%	8.4%
$7,500 - $9,999	2.4%	2.2%	2.6%	2.5%	7.4%	6.4%	8.4%	8.3%
$10,000 - $12,499	2.1%	2.0%	2.3%	2.2%	7.4%	6.7%	7.0%	6.7%
$12,500 - $14,999	2.1%	1.9%	2.2%	2.0%	6.8%	6.3%	7.4%	7.3%
$15,000 - $19,999	1.5%	1.3%	1.4%	1.2%	5.8%	5.0%	5.3%	4.9%
$20,000 - $24,999	1.2%	1.1%	1.2%	1.1%	3.7%	3.4%	5.0%	4.8%
$25,000 - $29,999	1.1%	1.0%	1.1%	1.0%	4.7%	4.3%	3.9%	3.7%
$30,000 - $34,999	1.0%	0.9%	1.0%	0.9%	5.1%	4.5%	4.6%	4.1%
$35,000 - $39,999	0.9%	0.9%	0.9%	0.9%	4.8%	4.6%	3.7%	3.6%
$40,000 - $49,999	0.7%	0.6%	0.7%	0.6%	3.0%	2.8%	4.1%	3.7%
$50,000 - $59,999	0.6%	0.6%	0.6%	0.6%	3.2%	3.2%	3.0%	2.7%
$60,000 - $74,999	0.6%	0.5%	0.6%	0.5%	4.0%	3.8%	2.1%	2.0%
$75,000 +	0.4%	0.4%	0.4%	0.4%	2.6%	2.4%	3.0%	2.8%

Table 10
Critical Values for Determining Significant Differences by Household Size

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	In Unit	Available	In Unit	Available	In Unit	Available	In Unit	Available
TOTAL	0.4%	0.3%	0.4%	0.3%	1.6%	1.5%	1.7%	1.6%
1 PERSON	0.9%	0.8%	0.9%	0.8%	3.5%	3.2%	5.4%	5.1%
2 - 3	0.5%	0.4%	0.4%	0.4%	2.0%	1.9%	2.3%	2.2%
4 - 5	0.6%	0.6%	0.6%	0.5%	2.9%	2.7%	2.3%	2.1%
6 +	1.9%	1.8%	2.0%	1.9%	6.7%	6.3%	4.6%	4.5%

Table 11
Critical Values for Determining Significant Differences by Householder's Age

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	In Unit	Available	In Unit	Available	In Unit	Available	In Unit	Available
TOTAL	0.4%	0.3%	0.4%	0.3%	1.6%	1.5%	1.7%	1.6%
15-24 YRS OLD	2.3%	2.1%	2.4%	2.2%	7.6%	6.8%	6.1%	5.9%
25-54 YRS OLD	0.5%	0.4%	0.4%	0.4%	2.0%	1.8%	1.9%	1.8%
55-59 YRS OLD	1.1%	1.0%	1.0%	1.0%	4.9%	4.5%	5.8%	5.3%
60-64 YRS OLD	1.1%	1.0%	1.1%	1.0%	4.9%	4.5%	6.3%	6.2%
65-69 YRS OLD	1.1%	1.1%	1.1%	1.1%	5.5%	5.1%	7.2%	7.2%
70-99 YRS OLD	0.7%	0.7%	0.7%	0.7%	3.6%	3.3%	5.8%	5.4%

Table 12
Critical Values for Determining Significant Differences by Labor Force Status

	RACE						HISPANIC ORIGIN	
	TOTAL		WHITE		BLACK			
	In Unit	Available	In Unit	Available	In Unit	Available	In Unit	Available
TOTAL CNP	0.3%	0.3%	0.3%	0.3%	1.4%	1.4%	1.4%	1.3%
EMPLOYED	0.3%	0.3%	0.3%	0.3%	1.5%	1.4%	1.6%	1.5%
UNEMPLOYED	2.1%	1.9%	2.1%	1.9%	5.7%	5.1%	5.8%	5.3%
NOT IN LABOR FORCE	0.5%	0.5%	0.5%	0.5%	2.3%	2.1%	2.0%	1.9%

Customer Response

Publication: Telephone Subscribership in the United States (Data through March 2005)

You can help us provide the best possible information to the public by completing this form and returning it to the Industry Analysis and Technology Division of the FCC's Wireline Competition Bureau.

1. Please check the category that best describes you:
   - ____ press
   - ____ current telecommunications carrier
   - ____ potential telecommunications carrier
   - ____ business customer evaluating vendors/service options
   - ____ consultant, law firm, lobbyist
   - ____ other business customer
   - ____ academic/student
   - ____ residential customer
   - ____ FCC employee
   - ____ other federal government employee
   - ____ state or local government employee
   - ____ Other (please specify)

2. Please rate the report:

	Excellent	Good	Satisfactory	Poor	No opinion
Data accuracy	( )	( )	( )	( )	( )
Data presentation	( )	( )	( )	( )	( )
Timeliness of data	( )	( )	( )	( )	( )
Completeness of data	( )	( )	( )	( )	( )
Text clarity	( )	( )	( )	( )	( )
Completeness of text	( )	( )	( )	( )	( )

3. Overall, how do you rate this report?

	Excellent	Good	Satisfactory	Poor	No opinion
	( )	( )	( )	( )	( )

4. How can this report be improved?

5. May we contact you to discuss possible improvements?

   Name:
   Telephone #:

To discuss this report contact Alex Belinfante at 202-418-0944		
Fax this response to	or	Mail this response to
202-418-0520		FCC/WCB/IATD Washington, DC 20554

Dkt. No ______________
D. Blessing Ex. No. ___ (DCB-3)
§ 364.064, Fla. Stat.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition	)
To Reduce Intrastate Switched Network	)
Access Rates In A Revenue Neutral	)
Manner Pursuant to Section 364.164,	)
Florida Statutes	)
	)

Exhibit DCB-3

Florida Statute § 364.164.

***43992 West's F.S.A. § 364.164**

WEST'S FLORIDA STATUTES ANNOTATED TITLE XXVII. RAILROADS AND OTHER REGULATED UTILITIES (CHAPTERS 350-368) CHAPTER 364. TELECOMMUNICATIONS COMPANIES PART I. GENERAL PROVISIONS

Current through Chapter 484 and H.J.R. No. 1and S.J.R. No. 2394 (End) of 2004 Special "A" Session of the Nineteenth Legislature

364.164. Competitive market enhancement

(1) Each local exchange telecommunications company may, after July 1, 2003, petition the commission to reduce its intrastate switched network access rate in a revenue-neutral manner. The commission shall issue its final order granting or denying any petition filed pursuant to this section within 90 days. In reaching its decision, the commission shall consider whether granting the petition will:

(a) Remove current support for basic local telecommunications services that prevents the creation of a more attractive competitive local exchange market for the benefit of residential consumers.

(b) Induce enhanced market entry.

(c) Require intrastate switched network access rate reductions to parity over a period of not less than 2 years or more than 4 years.

(d) Be revenue neutral as defined in subsection (7) within the revenue category defined in subsection (2).

(2) If the commission grants the local exchange telecommunications company's petition, the local exchange telecommunications company is authorized, the requirements of s. 364.051(3) notwithstanding, to immediately implement a revenue category mechanism consisting of basic local telecommunications service revenues and intrastate switched network access revenues to achieve revenue neutrality. The local exchange telecommunications company shall thereafter, on 45 days' notice, adjust the various prices and rates of the services within its revenue category authorized by this section once in any 12-month period in a revenue-neutral manner. An adjustment in rates may not be offset entirely by the company's basic monthly recurring rate. All annual rate adjustments within the revenue category established pursuant to this section must be implemented simultaneously and must be revenue neutral. The commission shall, within 45 days after the rate adjustment filing, issue a final order confirming compliance with this section, and such an order shall be final for all purposes.

***43993** (3) Any filing under this section must be based on the company's most recent 12 months' pricing units in accordance with subsection (7) for any service included in the revenue category established under this section. The commission shall have the authority only to verify the pricing units for the purpose of ensuring that the company's specific adjustments, as authorized by this section, make the revenue category revenue neutral for each filing. Any discovery or information requests under this section must be limited to a verification of historical pricing units necessary to fulfill the commission's specific responsibilities under this section of ensuring that the company's rate adjustments make the revenue category revenue neutral for each annual filing.

(4) This section does not affect the local exchange telecommunications company's exemptions pursuant to s. 364.051(1)(c) or authorize any local exchange telecommunications company to increase the cost of local exchange services to any person providing services under s. 364.3375.

(5) As used in this section, the term "parity" means that the local exchange telecommunications company's intrastate switched network access rate

is equal to its interstate switched network access rate in effect on January 1, 2003, if the company has more than 1 million access lines in service. If the company has 1 million or fewer access lines in service, the term "parity" means that the company's intrastate switched network access rate is equal to 8 cents per minute. This section does not prevent the company from making further reductions in its intrastate switched network access rate, within the revenue category established in this section, below parity on a revenue-neutral basis, or from making other revenue-neutral rate adjustments within this category.

(6) As used in this section, the term "intrastate switched network access rate" means the composite of the originating and terminating network access rate for carrier common line, local channel/entrance facility, switched common transport, access tandem switching, interconnection charge, signaling, information surcharge, and local switching.

(7) As used in this section, the term "revenue neutral" means that the total revenue within the revenue category established pursuant to this section remains the same before and after the local exchange telecommunications company implements any rate adjustments under this section. Calculation of revenue received from each service before the implementation of any rate adjustment must be made by multiplying the then-current rate for each service by the most recent 12 months' actual pricing units for each service within the category, without any adjustments to the number of pricing units. Calculation of revenue for each service to be received after implementation of rate adjustments must be made by multiplying the rate to be applicable for each service by the most recent 12 months' actual pricing units for each service within the category, without any adjustments to the number of pricing units. Billing units associated with pay telephone access lines and Lifeline service may not be included in any calculation under this subsection.

***43994** (8) If either the Federal Communications Commission or the commission issues a final order determining that voice-over-Internet protocol service or a functionally equivalent service shall not be subject to the payment of switched network access rates pursuant to a local exchange telecommunications company tariff or interconnection agreement or other law, the provisions of subsection (2) shall immediately become operative as if the commission had granted a petition pursuant to subsection (1). Any local exchange telecommunications company subject to this section shall be authorized to reduce its switched network access rates to the company's authorized local reciprocal compensation rates in a revenue-neutral manner, pursuant to subsections (2)-(7), in the shortest remaining timeframe allowable under this section.

CREDIT(S)

Added by Laws 2003, c. 2003-32, § 15, eff. May 23, 2003.

<General Materials (GM) - References, Annotations, or Tables>

REFERENCES

RESEARCH REFERENCES

Encyclopedias

FL Jur. 2d Telecommunications § 26, Generally; Local Exchange Telecommunications Companies.

FL Jur. 2d Telecommunications § 37, Rates, Tolls, and Charges, Generally.

FL Jur. 2d Telecommunications § 42, Fixing of Rates, Generally.

Current through Chapter 484 and H.J.R. No. 1and S.J.R. No. 2394 (End) of 2004 Special "A" Session of the Nineteenth Legislature

Dkt. No ____________
D. Blessing Ex. No. ___ (DCB-4)
Hatfield Cost Study
(Non-Confidential)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition)
To Reduce Intrastate Switched Network)
Access Rates In A Revenue Neutral)
Manner Pursuant to Section 364.164,)
Florida Statutes)
____________________________________)

Exhibit DCB-4

(Non-Confidential) Hatfield HAI 5.0a – Default and ALLTEL-specific model runs plus input changes.

Alltel

ALLTEL Florida, Inc.

HAI Cost Model Results

ALLTEL Company Specific Scenario

Using ALLTEL Florida Inputs at September 12, 2005

Wirecenter	Lines	UNE Loop	Monthly Line Cost	Residential Line	Business Line
ALCHFLXA	[redacted]				
BORAFLXA	[redacted]				
BRFRFLXA	[redacted]				
BRKRFLXA	[redacted]				
CITRFLXA	[redacted]				
CLHNFLXA	[redacted]				
CRCYFLXA	[redacted]				
DWPKFLXA	[redacted]				
FLRHFLXA	[redacted]				
FTWHFLXA	[redacted]				
HGSPFLXA	[redacted]				
HLRDFLXA	[redacted]				
HSNGFLXA	[redacted]				
INTRFLXA	[redacted]				
JNGSFLXA	[redacted]				
JSPRFLXA	[redacted]				
LKBTFLXA	[redacted]				
LRVLFLXA	[redacted]				
LVOKFLXA	[redacted]				
MAYOFLXA	[redacted]				
MCINFLXA	[redacted]				
MLRSFLXA	[redacted]				
ORSPFLXA	[redacted]				
RAFRFLXA	[redacted]				
WALDFLXA	[redacted]				
WHSPFLXA	[redacted]				
WLBRFLXA	[redacted]				
FL Average	[redacted]				

Notes: UNE Loop is loop only
Monthly Cost is Loop + Port + Transport + Usage
Monthly residential and business line costs come from Worksheet "USF".

HAI Model Release 5.0a - Expense Module
Wire Center Level Calculations

Florida **Alltel Florida Inc**

clli	total lines	business lines	residential lines	special access lines	public lines	single line business lines	households	copper feeder cable u/g	copper feeder cable buried	copper feeder cable aerial
ALCHFLXA	[redacted]									
BORAFLXA	[redacted]									
BRFRFLXA	[redacted]									
BRKRFLXA	[redacted]									
CITRFLXA	[redacted]									
CLHNFLXA	[redacted]									
CRCYFLXA	[redacted]									
DWPKFLXA	[redacted]									
FLRHFLXA	[redacted]									
FTWHFLXA	[redacted]									
HGSPFLXA	[redacted]									
HLRDFLXA	[redacted]									
HSNGFLXA	[redacted]									
INTRFLXA	[redacted]									
JNGSFLXA	[redacted]									
JSPRFLXA	[redacted]									
LKBTFLXA	[redacted]									
LRVLFLXA	[redacted]									
LVOKFLXA	[redacted]									
MAYOFLXA	[redacted]									
MCINFLXA	[redacted]									
MLRSFLXA	[redacted]									
ORSPFLXA	[redacted]									
RAFRFLXA	[redacted]									
WALDFLXA	[redacted]									
WHSPFLXA	[redacted]									
WLBRFLXA	[redacted]									

clli	fiber feeder cable u/g	fiber feeder cable buried	fiber feeder cable aerial	feeder conduit	feeder manholes	copper feeder u/g placement	fiber feeder u/g placement	copper feeder buried placement	fiber feeder buried placement
ALCHFLXA	[redacted]								
BORAFLXA									
BRFRFLXA									
BRKRFLXA									
CITRFLXA									
CLHNFLXA									
CRCYFLXA									
DWPKFLXA									
FLRHFLXA									
FTWHFLXA									
HGSPFLXA									
HLRDFLXA									
HSNGFLXA									
INTRFLXA									
JNGSFLXA									
JSPRFLXA									
LKBTFLXA									
LRVLFLXA									
LVOKFLXA									
MAYOFLXA									
MCINFLXA									
MLRSFLXA									
ORSPFLXA									
RAFRFLXA									
WALDFLXA									
WHSPFLXA									
WLBRFLXA									

clli	feeder pole inv	distribution cable underground	distribution cable buried	distribution cable aerial	distribution conduit	distribution conduit placement	distribution buried placement	distribution poles	calc copper feeder fill
ALCHFLXA	[redacted]								
BORAFLXA	[redacted]								
BRFRFLXA	[redacted]								
BRKRFLXA	[redacted]								
CITRFLXA	[redacted]								
CLHNFLXA	[redacted]								
CRCYFLXA	[redacted]								
DWPKFLXA	[redacted]								
FLRHFLXA	[redacted]								
FTWHFLXA	[redacted]								
HGSPFLXA	[redacted]								
HLRDFLXA	[redacted]								
HSNGFLXA	[redacted]								
INTRFLXA	[redacted]								
JNGSFLXA	[redacted]								
JSPRFLXA	[redacted]								
LKBTFLXA	[redacted]								
LRVLFLXA	[redacted]								
LVOKFLXA	[redacted]								
MAYOFLXA	[redacted]								
MCINFLXA	[redacted]								
MLRSFLXA	[redacted]								
ORSPFLXA	[redacted]								
RAFRFLXA	[redacted]								
WALDFLXA	[redacted]								
WHSPFLXA	[redacted]								
WLBRFLXA	[redacted]								

[redacted]

clli	calc distribution fill	calc "mainframe fill"	DLC inv w/site	SAI inv	terminal inv	drop inv	NID inv	feeder distance	total distribution distance	DLC lines
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

clli	end office switching	MDF/protector inv	end office wire center	land	local tandem switching	local tandem wire center	OS tandem switching	OS tandem wire center	OS trunks	operator position
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

clli	common transport, u/g	common transport, buried	common transport, aerial	common transport, poles	common transport, conduit	common transport, manholes	common transmission terminal inv	direct transport, u/g	direct transport, buried	direct transport, aerial
ALCHFLXA	[redacted]									
BORAFLXA	[redacted]									
BRFRFLXA	[redacted]									
BRKRFLXA	[redacted]									
CITRFLXA	[redacted]									
CLHNFLXA	[redacted]									
CRCYFLXA	[redacted]									
DWPKFLXA	[redacted]									
FLRHFLXA	[redacted]									
FTWHFLXA	[redacted]									
HGSPFLXA	[redacted]									
HLRDFLXA	[redacted]									
HSNGFLXA	[redacted]									
INTRFLXA	[redacted]									
JNGSFLXA	[redacted]									
JSPRFLXA	[redacted]									
LKBTFLXA	[redacted]									
LRVLFLXA	[redacted]									
LVOKFLXA	[redacted]									
MAYOFLXA	[redacted]									
MCINFLXA	[redacted]									
MLRSFLXA	[redacted]									
ORSPFLXA	[redacted]									
RAFRFLXA	[redacted]									
WALDFLXA	[redacted]									
WHSPFLXA	[redacted]									
WLBRFLXA	[redacted]									

clli	direct transport, poles	direct transport, conduit	direct transport, manholes	direct transmission terminal inv	dedicated transport, u/g	dedicated transport, buried	dedicated transport, aerial	dedicated transport, poles	dedicated transport, conduit	dedicated transport, manholes
ALCHFLXA	[redacted]									
BORAFLXA	[redacted]									
BRFRFLXA	[redacted]									
BRKRFLXA	[redacted]									
CITRFLXA	[redacted]									
CLHNFLXA	[redacted]									
CRCYFLXA	[redacted]									
DWPKFLXA	[redacted]									
FLRHFLXA	[redacted]									
FTWHFLXA	[redacted]									
HGSPFLXA	[redacted]									
HLRDFLXA	[redacted]									
HSNGFLXA	[redacted]									
INTRFLXA	[redacted]									
JNGSFLXA	[redacted]									
JSPRFLXA	[redacted]									
LKBTFLXA	[redacted]									
LRVLFLXA	[redacted]									
LVOKFLXA	[redacted]									
MAYOFLXA	[redacted]									
MCINFLXA	[redacted]									
MLRSFLXA	[redacted]									
ORSPFLXA	[redacted]									
RAFRFLXA	[redacted]									
WALDFLXA	[redacted]									
WHSPFLXA	[redacted]									
WLBRFLXA	[redacted]									

clli	dedicated transmission terminal inv	prop local direct trunks	prop local tandem trunks	prop intraLATA direct trunks	prop intraLATA tandem trunks	prop access direct trunks	prop access tandem trunks	prop operator trunks	SCP inv	SCP wire center inv
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

clli	STP inv	signaling link inv	total public telephone inv	total residential annual DEMs	total business annual DEMs	Total Investment	Total DEMs	total trunks	Distribution Cable u/g Direct Cost
ALCHFLXA	[redacted]								
BORAFLXA	[redacted]								
BRFRFLXA	[redacted]								
BRKRFLXA	[redacted]								
CITRFLXA	[redacted]								
CLHNFLXA	[redacted]								
CRCYFLXA	[redacted]								
DWPKFLXA	[redacted]								
FLRHFLXA	[redacted]								
FTWHFLXA	[redacted]								
HGSPFLXA	[redacted]								
HLRDFLXA	[redacted]								
HSNGFLXA	[redacted]								
INTRFLXA	[redacted]								
JNGSFLXA	[redacted]								
JSPRFLXA	[redacted]								
LKBTFLXA	[redacted]								
LRVLFLXA	[redacted]								
LVOKFLXA	[redacted]								
MAYOFLXA	[redacted]								
MCINFLXA	[redacted]								
MLRSFLXA	[redacted]								
ORSPFLXA	[redacted]								
RAFRFLXA	[redacted]								
WALDFLXA	[redacted]								
WHSPFLXA	[redacted]								
WLBRFLXA	[redacted]								

	Distribution Direct Cost								
clli	Distribution Cable Buried Direct Cost	Distribution Cable Aerial Direct Cost	Distribution Conduit Direct Cost	Distribution Conduit Trenching Direct Cost	Distribution Poles Direct Cost	Drop Direct Cost	NID Direct Cost	Terminal Direct Cost	Distribution Buried Trenching Direct Cost
ALCHFLXA	[redacted]								
BORAFLXA									
BRFRFLXA									
BRKRFLXA									
CITRFLXA									
CLHNFLXA									
CRCYFLXA									
DWPKFLXA									
FLRHFLXA									
FTWHFLXA									
HGSPFLXA									
HLRDFLXA									
HSNGFLXA									
INTRFLXA									
JNGSFLXA									
JSPRFLXA									
LKBTFLXA									
LRVLFLXA									
LVOKFLXA									
MAYOFLXA									
MCINFLXA									
MLRSFLXA									
ORSPFLXA									
RAFRFLXA									
WALDFLXA									
WHSPFLXA									
WLBRFLXA									

clli	Distribution Direct Cost	Concentrator Direct Cost								
		Digital Terminal Direct Cost	Passive SAI Direct Cost	Concentrator Direct Cost	Feeder Poles Direct Cost	Feeder Aerial Cable Net Exp	Feeder Cu Aerial Cable Cap Cost	Feeder Fiber Aerial Cable Cap Cost	Feeder Buried Cable Net Exp	Feeder Cu Buried Cable Cap Cost
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

	eeder Direct Cost							EO Switching Direct Cost		
clli	Feeder Fiber Cable Buried Cap Cost	Feeder U/G Cable Net Exp	Feeder Cu U/G Cable Cap Cost	Feeder Fiber U/G Cable Cap Cost	Feeder Conduit Direct Cost	Feeder Manhole Direct Cost	Feeder Direct Cost	EO Wire Center Direct Cost	EO Switching Direct Cost	EO MDF/Prot Direct Cost
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

		Signaling Direct Cost					Dedicated Tran			
clli	EO Switching Direct Cost	STP Direct Cost	Links Direct Cost	SCP Direct Cost	SCP Wire Center Direct Cost	Signaling Direct Cost	Ded Xport U/G Direct Cost	Ded Xport Buried Direct Cost	Ded Xport Aerial Direct Cost	Ded Xport Poles Direct Cost
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

	port Direct Cost				Direct Transport Direct Cost					
clli	Ded Xport Conduit Direct Cost	Ded Xport Manholes Direct Cost	Ded Xport Xmission Direct Cost	Ded Xport Direct Cost	Direct Xport U/G Direct Cost	Direct Xport Buried Direct Cost	Direct Xport Aerial Direct Cost	Direct Xport Poles Direct Cost	Direct Xport Conduit Direct Cost	Direct Xport Manholes Direct Cost
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

clli			Common Xport Direct Cost							
	Direct Xport Xmission Direct Cost	Direct Transport Direct Cost	Common Xport U/G Direct Cost	Common Xport Buried Direct Cost	Comm Xport Aerial Direct Cost	Comm Xport Poles Direct Cost	Comm Xport Conduit Direct Cost	Comm Xport Manholes Direct Cost	Comm Xport Xmission Direct Cost	Common Xport Direct Cost
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

clli	Tandem Switching Direct Cost			Operator Direct Cost						
	Tandem Wire Center Direct Cost	Tandem Switching Direct Cost	Tandem Switching Direct Cost	OS Tandem Switching Direct Cost	OS Tandem Wire Center Direct Cost	OS Trunks Direct Cost	OS Position Direct Cost	Operator Wages	Operator Direct Cost	Public Telephone Direct Cost
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

	Allocation Factors					General Supp		
clli	Total Investment (after sharing)	% Investment	% Total Lines	Total Direct Expense	% Direct Expense	Furniture Investment	Office Equipment Investment	Gen Purpose Computers Investment
ALCHFLXA	[redacted]							
BORAFLXA	[redacted]							
BRFRFLXA	[redacted]							
BRKRFLXA	[redacted]							
CITRFLXA	[redacted]							
CLHNFLXA	[redacted]							
CRCYFLXA	[redacted]							
DWPKFLXA	[redacted]							
FLRHFLXA	[redacted]							
FTWHFLXA	[redacted]							
HGSPFLXA	[redacted]							
HLRDFLXA	[redacted]							
HSNGFLXA	[redacted]							
INTRFLXA	[redacted]							
JNGSFLXA	[redacted]							
JSPRFLXA	[redacted]							
LKBTFLXA	[redacted]							
LRVLFLXA	[redacted]							
LVOKFLXA	[redacted]							
MAYOFLXA	[redacted]							
MCINFLXA	[redacted]							
MLRSFLXA	[redacted]							
ORSPFLXA	[redacted]							
RAFRFLXA	[redacted]							
WALDFLXA	[redacted]							
WHSPFLXA	[redacted]							
WLBRFLXA	[redacted]							

clli	rt Assigned Investment				Capital Cost General Suppo				
	Motor Vehicles Investment	Buildings Investment	Garage Work Eqpt Investment	Other Work Eqpt Investment	Furniture Cap Cost	Office Eqpt Cap Cost	Gen Purpose Computers Cap Cost	Motor Vehicles Cap Cost	Buildings Cap Cost
ALCHFLXA	[redacted]								
BORAFLXA									
BRFRFLXA									
BRKRFLXA									
CITRFLXA									
CLHNFLXA									
CRCYFLXA									
DWPKFLXA									
FLRHFLXA									
FTWHFLXA									
HGSPFLXA									
HLRDFLXA									
HSNGFLXA									
INTRFLXA									
JNGSFLXA									
JSPRFLXA									
LKBTFLXA									
LRVLFLXA									
LVOKFLXA									
MAYOFLXA									
MCINFLXA									
MLRSFLXA									
ORSPFLXA									
RAFRFLXA									
WALDFLXA									
WHSPFLXA									
WLBRFLXA									

	rt							Other Expenses	
clli	Garage Work Eqpt Cap Cost	Other Work Eqpt Cap Cost	General Support Cap Cost	Network Operations Expense	Network Support Expense	Misc Expense	Operating Taxes	Total Support & Other Expense	Interoffice/ Switching NetOps
ALCHFLXA	[redacted]								
BORAFLXA	[redacted]								
BRFRFLXA	[redacted]								
BRKRFLXA	[redacted]								
CITRFLXA	[redacted]								
CLHNFLXA	[redacted]								
CRCYFLXA	[redacted]								
DWPKFLXA	[redacted]								
FLRHFLXA	[redacted]								
FTWHFLXA	[redacted]								
HGSPFLXA	[redacted]								
HLRDFLXA	[redacted]								
HSNGFLXA	[redacted]								
INTRFLXA	[redacted]								
JNGSFLXA	[redacted]								
JSPRFLXA	[redacted]								
LKBTFLXA	[redacted]								
LRVLFLXA	[redacted]								
LVOKFLXA	[redacted]								
MAYOFLXA	[redacted]								
MCINFLXA	[redacted]								
MLRSFLXA	[redacted]								
ORSPFLXA	[redacted]								
RAFRFLXA	[redacted]								
WALDFLXA	[redacted]								
WHSPFLXA	[redacted]								
WLBRFLXA	[redacted]								

clli	Interoffice/ Switching Direct Expense	Carrier-to-Carrier Customer Service	Inverse Carrier to-Carrier Expense Factor	Distribution Total Cost	NID Total Cost	Concentrator Total Cost	Feeder Total Cost	EO Switching Total Cost	Signaling Total Cost
ALCHFLXA	[redacted]								
BORAFLXA	[redacted]								
BRFRFLXA	[redacted]								
BRKRFLXA	[redacted]								
CITRFLXA	[redacted]								
CLHNFLXA	[redacted]								
CRCYFLXA	[redacted]								
DWPKFLXA	[redacted]								
FLRHFLXA	[redacted]								
FTWHFLXA	[redacted]								
HGSPFLXA	[redacted]								
HLRDFLXA	[redacted]								
HSNGFLXA	[redacted]								
INTRFLXA	[redacted]								
JNGSFLXA	[redacted]								
JSPRFLXA	[redacted]								
LKBTFLXA	[redacted]								
LRVLFLXA	[redacted]								
LVOKFLXA	[redacted]								
MAYOFLXA	[redacted]								
MCINFLXA	[redacted]								
MLRSFLXA	[redacted]								
ORSPFLXA	[redacted]								
RAFRFLXA	[redacted]								
WALDFLXA	[redacted]								
WHSPFLXA	[redacted]								
WLBRFLXA	[redacted]								

clli	Cost Totals Dedicated Transport Total Cost	Dedicated Transmission Total Cost	Direct Transport Total Cost	Direct Transmission Total Cost	Common Transport Total Cost	Common Transmission Total Cost	Tandem Total Cost	Operator Total Cost	Public Total Cost	Distribution Unit Cost
ALCHFLXA	[redacted]									
BORAFLXA	[redacted]									
BRFRFLXA	[redacted]									
BRKRFLXA	[redacted]									
CITRFLXA	[redacted]									
CLHNFLXA	[redacted]									
CRCYFLXA	[redacted]									
DWPKFLXA	[redacted]									
FLRHFLXA	[redacted]									
FTWHFLXA	[redacted]									
HGSPFLXA	[redacted]									
HLRDFLXA	[redacted]									
HSNGFLXA	[redacted]									
INTRFLXA	[redacted]									
JNGSFLXA	[redacted]									
JSPRFLXA	[redacted]									
LKBTFLXA	[redacted]									
LRVLFLXA	[redacted]									
LVOKFLXA	[redacted]									
MAYOFLXA	[redacted]									
MCINFLXA	[redacted]									
MLRSFLXA	[redacted]									
ORSPFLXA	[redacted]									
RAFRFLXA	[redacted]									
WALDFLXA	[redacted]									
WHSPFLXA	[redacted]									
WLBRFLXA	[redacted]									

										UNE Unit Costs
clli	NID Unit Cost	Concentrator Unit Cost	Feeder Unit Cost	EO Switching Line Port Unit Cost	EO Switching Usage Unit Cost	Signaling STP Unit Cost	Signaling SCP Unit Cost	Signaling Links Unit Cost	Dedicated Transport Unit Cost per DS0/mo	Dedicated Transport Unit Cost per min
ALCHFLXA	[redacted]									
BORAFLXA	[redacted]									
BRFRFLXA	[redacted]									
BRKRFLXA	[redacted]									
CITRFLXA	[redacted]									
CLHNFLXA	[redacted]									
CRCYFLXA	[redacted]									
DWPKFLXA	[redacted]									
FLRHFLXA	[redacted]									
FTWHFLXA	[redacted]									
HGSPFLXA	[redacted]									
HLRDFLXA	[redacted]									
HSNGFLXA	[redacted]									
INTRFLXA	[redacted]									
JNGSFLXA	[redacted]									
JSPRFLXA	[redacted]									
LKBTFLXA	[redacted]									
LRVLFLXA	[redacted]									
LVOKFLXA	[redacted]									
MAYOFLXA	[redacted]									
MCINFLXA	[redacted]									
MLRSFLXA	[redacted]									
ORSPFLXA	[redacted]									
RAFRFLXA	[redacted]									
WALDFLXA	[redacted]									
WHSPFLXA	[redacted]									
WLBRFLXA	[redacted]									

clli	Dedicated Transmission Unit Cost per DS0/mo	Dedicated Transmission Unit Cost per min	Direct Transport Unit Cost per minute	Direct Transmisssion Unit Cost	Common Transport Unit Cost per minute per leg	Common Transmission Unit Cost per minute	Tandem Switching Unit Cost	Operator Total Cost/Line/Mo	Public Telephone Unit Cost	Loop
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

	USF Unit Costs									
clli	Line Port	EO Usage	Signaling	Transport	Billing/Bill Inquiries	Directory Listing	LNP (when available)	Total Monthly Cost per Line	Total Switched Lines	Total Households
ALCHFLXA	[redacted]									
BORAFLXA										
BRFRFLXA										
BRKRFLXA										
CITRFLXA										
CLHNFLXA										
CRCYFLXA										
DWPKFLXA										
FLRHFLXA										
FTWHFLXA										
HGSPFLXA										
HLRDFLXA										
HSNGFLXA										
INTRFLXA										
JNGSFLXA										
JSPRFLXA										
LKBTFLXA										
LRVLFLXA										
LVOKFLXA										
MAYOFLXA										
MCINFLXA										
MLRSFLXA										
ORSPFLXA										
RAFRFLXA										
WALDFLXA										
WHSPFLXA										
WLBRFLXA										

% of Loop Assigned for USF: 100%
% of Port Assigned for USF: 100%
Bus/Res local DEM usage ratio: 110%

clli	Avg monthly cost per line	@ Residence usage per line	@ Business usage per line	Annual support for primary residence lines	Annual support for secondary residence lines	Annual support for single line business lines	Annual support for multiline business lines	Annual support for public lines	**Total annual support for specified line types**
			Monthly Support Benchmark:	**$31.00**	**$0.00**	**$51.00**	**$0.00**	**$0.00**	
				Entry of $0.00 Indicates that Line Type is Not to be Supported					
ALCHFLXA	[redacted]								
BORAFLXA									
BRFRFLXA									
BRKRFLXA									
CITRFLXA									
CLHNFLXA									
CRCYFLXA									
DWPKFLXA									
FLRHFLXA									
FTWHFLXA									
HGSPFLXA									
HLRDFLXA									
HSNGFLXA									
INTRFLXA									
JNGSFLXA									
JSPRFLXA									
LKBTFLXA									
LRVLFLXA									
LVOKFLXA									
MAYOFLXA									
MCINFLXA									
MLRSFLXA									
ORSPFLXA									
RAFRFLXA									
WALDFLXA									
WHSPFLXA									
WLBRFLXA									

Florida
Alltel Florida Inc
Bu

clli	@25% Federal allocation	@75% State allocation
ALCHFLXA	[redacted]	[redacted]
BORAFLXA	[redacted]	[redacted]
BRFRFLXA	[redacted]	[redacted]
BRKRFLXA	[redacted]	[redacted]
CITRFLXA	[redacted]	[redacted]
CLHNFLXA	[redacted]	[redacted]
CRCYFLXA	[redacted]	[redacted]
DWPKFLXA	[redacted]	[redacted]
FLRHFLXA	[redacted]	[redacted]
FTWHFLXA	[redacted]	[redacted]
HGSPFLXA	[redacted]	[redacted]
HLRDFLXA	[redacted]	[redacted]
HSNGFLXA	[redacted]	[redacted]
INTRFLXA	[redacted]	[redacted]
JNGSFLXA	[redacted]	[redacted]
JSPRFLXA	[redacted]	[redacted]
LKBTFLXA	[redacted]	[redacted]
LRVLFLXA	[redacted]	[redacted]
LVOKFLXA	[redacted]	[redacted]
MAYOFLXA	[redacted]	[redacted]
MCINFLXA	[redacted]	[redacted]
MLRSFLXA	[redacted]	[redacted]
ORSPFLXA	[redacted]	[redacted]
RAFRFLXA	[redacted]	[redacted]
WALDFLXA	[redacted]	[redacted]
WHSPFLXA	[redacted]	[redacted]
WLBRFLXA	[redacted]	[redacted]

Line Type	Support Grand Totals
Primary residence lines	$14,202,006
Secondary residence lines	$0
Single line business lines	$23,987
Multline business lines	$0
Public lines	$0
All switched lines	$14,225,993

HAI Model Release 5.0a - Expense Module
Wire Center Level Summary

Florida | Alltel Florida Inc

clli	total lines	business lines	residential lines	special access lines	public lines	households	copper feeder cable u/g	copper feeder cable buried	copper feeder cable aerial	fiber feeder cable u/g	fiber feeder cable buried	fiber feeder cable aerial	total feeder conduit

total feeder manholes	copper feeder u/g placement	fiber feeder u/g placement	copper feeder buried placement	fiber feeder buried placement	feeder pole inv	distribution cable underground	distribution cable buried	distribution cable aerial	distribution conduit	distribution conduit placement	distribution buried placement

[redacted]

distribution poles	calc copper feeder fill	calc distribution fill	calc "mainframe fill"	DLC inv w/site	SAI inv	terminal inv	drop inv	NID inv	feeder distance	total distribution distributionanc e	DLC lines	end office switching

MDF/protect or inv	end office wire center	land	local tandem switching	local tandem wire center	OS tandem switching	OS tandem wire center	OS trunks	operator position	common transport, u/g	common transport, buried	common transport, aerial	common transport, poles	common transport, conduit

[redacted]

common transport, manholes	common transmission terminal inv	direct transport, u/g	direct transport, buried	direct transport, aerial	direct transport, poles	direct transport, conduit	direct transport, manholes	direct transmission terminal inv	dedicated transport, u/g	dedicated transport, buried	dedicated transport, aerial	dedicated transport, poles	dedicated transport, conduit

[redacted]

dedicated transport, manholes	dedicated transmission terminal inv	prop local direct trunks	prop local tandem trunks	prop intraLATA direct trunks	prop intraLATA tandem trunks	prop access direct trunks	prop access tandem trunks	prop operator trunks	SCP inv	SCP wire center inv	STP inv	signaling link inv	total public telephone inv	total residential annual DEMs
[redacted]														

total business annual DEMs	Total Investment	Total DEMs	total trunks	Distribution Direct Cost							
				Distribution Cable U/G Direct Cost	Distribution Cable Buried Direct Cost	Distribution Cable Aerial Direct Cost	Distribution Conduit Direct Cost	Distribution Conduit Trenching Direct Cost	Distribution Poles Direct Cost	Drop Direct Cost	NID Direct Cost

[redacted]

			Concentrator Direct Cost			Feeder Direct						
Terminal Direct Cost	Distribution Buried Trenching Direct Cost	Distribution Direct Cost	Digital Terminal Direct Cost	Passive SAI Direct Cost	Concentrator Direct Cost	Feeder Poles Direct Cost	Feeder Aerial Cable Net Exp	Feeder Cu Aerial Cable Cap Cost	Feeder Fiber Aerial Cable Cap Cost	Feeder Buried Cable Net Exp	Feeder Cu Buried Cable Cap Cost	Feeder Fiber Cable Buried Cap Cost

[redacted]

Cost						EO Switching Direct Cost				Signalling Direct		
Feeder U/G Cable Net Exp	Feeder Cu U/G Cable Cap Cost	Feeder Fiber U/G Cable Cap Cost	Feeder Conduit Direct Cost	Feeder Manhole Direct Cost	Feeder Direct Cost	EO Wire Center Direct Cost	EO Switching Direct Cost	EO MDF/Prot. Direct Cost	EO Switching Direct Cost	STP Direct Cost	Links Direct Cost	SCP Direct Cost

[redacted]

Cost		Dedicated Transport Direct Cost								Direct Transport Direct C				
SCP Wire Center Direct Cost	Signaling Direct Cost	Ded Xport U/G Direct Cost	Ded Xport Buried Direct Cost	Ded Xport Aerial Direct Cost	Ded Xport Poles Direct Cost	Ded Xport Conduit Direct Cost	Ded Xport Manholes Direct Cost	Ded Xport Xmission Direct Cost	Ded Xport Direct Cost	Direct Xport U/G Direct Cost	Direct Xport Buried Direct Cost	Direct Xport Aerial Direct Cost	Direct Xport Poles Direct Cost	Direct Xport Conduit Direct Cost

[redacted]

ost			Common Xport Direct Cost								Tandem Switching Direct Cost			
Direct Xport Manholes Direct Cost	Direct Xport Xmission Direct Cost	Direct Transport Direct Cost	Common Xport U/G Direct Cost	Common Xport Buried Direct Cost	Comm Xport Aerial Direct Cost	Comm Xport Poles Direct Cost	Comm Xport Conduit Direct Cost	Comm Xport Manhole s Direct Cost	Comm Xport Xmission Direct Cost	Common Xport Direct Cost	Tandem Wire Center Direct Cost	Tandem Switching Direct Cost	Tandem Switching Direct Cost	OS Tandem Switching Direct Cost

Operator Direct Cost						Allocation Factors				General Su		
OS Tandem Wire Center Direct Cost	OS Trunks Direct Cost	OS Position Direct Cost	Operator Wages	Operator Direct Cost	Public Telephone Direct Cost	Total Investment (after sharing)	% Investment	Total Direct Expense	% Direct Expense	Furniture Investment	Office Equipment Investment	Gen Purpose Computers Investment

[redacted]

pport Assigned Investment				Capital Cost General Support								
Motor Vehicles Investment	Buildings Investment	Garage Work Eqpt Investment	Other Work Eqpt Investment	Furniture Cap Cost	Office Eqpt Cap Cost	Gen Purpose Computers Cap Cost	Motor Vehicles Cap Cost	Buildings Cap Cost	Garage Work Eqpt Cap Cost	Other Work Eqpt Cap Cost	General Support Cap Cost	Network Operations Expense

Other Expenses											
Network Support Expense	Misc Expense	Operating Taxes	Total Support & Other Expense	Interoffice/ Switching NetOps	Interoffice/ Switching Direct Expense	Carrier-to-Carrier Customer Service	Distribution Total Cost	NID Total Cost	Concentrator Total Cost	Feeder Total Cost	EO Switching Total Cost

Cost Totals									
Signaling Total Cost	Dedicated Transport Total Cost	Dedicated Transmission Total Cost	Direct Transport Total Cost	Direct Transmission Total Cost	Common Transport Total Cost	Common Transmission Total Cost	Tandem Total Cost	Operator Total Cost	Public Total Cost
[redacted]									

Use this sheet to vary the proportion of expenses assigned to loop-related network elements on the basis of lines and on the basis of direct expenses, respectively. Change only the % assigned "per line" -- the "per direct cost" will be calculated.

	Total Annual Amount assigned to loops	% to be assigned per line	% to be assigned per direct cost	Annual Amount to be assigned per line	Annual Amount to be assigned per direct cost
General Support - Loops					
Furniture - Capital Costs	[redacted]	**0%**	100%	$ -	[redacted]
Furniture - Expenses	[redacted]	**0%**	100%	$ -	[redacted]
Office Equipment - Capital Costs	[redacted]	**0%**	100%	$ -	[redacted]
Office Equipment - Expenses	[redacted]	**0%**	100%	$ -	[redacted]
General Purpose Computer - Capital Costs	[redacted]	**0%**	100%	$ -	[redacted]
General Purpose Computer - Expenses	[redacted]	**0%**	100%	$ -	[redacted]
Motor Vehicles - Capital Costs	[redacted]	**0%**	100%	$ -	[redacted]
Motor Vehicles - Expenses	[redacted]	**0%**	100%	$ -	[redacted]
Buildings - Capital Costs	[redacted]	**0%**	100%	$ -	[redacted]
Buildings - Expenses	[redacted]	**0%**	100%	$ -	[redacted]
Garage Work Eqpt. - Capital Costs	[redacted]	**0%**	100%	$ -	[redacted]
Garage Work Eqpt. - Expenses	[redacted]	**0%**	100%	$ -	[redacted]
Other Work Eqpt. - Capital Costs	[redacted]	**0%**	100%	$ -	[redacted]
Other Work Eqpt. - Expenses	[redacted]	**0%**	100%	$ -	[redacted]
Total General Support	[redacted]			$ -	[redacted]
Network Operations	[redacted]	**0%**	100%	$ -	[redacted]
Other Taxes	[redacted]	**0%**	100%	$ -	[redacted]
Variable Overhead	[redacted]	**0%**	100%	$ -	[redacted]
Totals	[redacted]			$ -	[redacted]

[redacted]

	Totals
Direct Costs	
Loop-related direct costs	[redacted]
Non-Loop-related direct costs	
Total	
Loop Fraction	
Network Operations	[redacted]

	Total Annual Amount	Amount Assigned to Loops	Amount Assigned to Other UNEs
General Support - Totals			
Furniture - Capital Costs	[redacted]		
Furniture - Expenses			
Office Equipment - Capital Costs			
Office Equipment - Expenses			
General Purpose Computer - Capital Costs			
General Purpose Computer - Expenses			
Motor Vehicles - Capital Costs			
Motor Vehicles - Expenses			
Buildings - Capital Costs			
Buildings - Expenses			
Garage Work Eqpt. - Capital Costs			
Garage Work Eqpt. - Expenses			
Other Work Eqpt. - Capital Costs			
Other Work Eqpt. - Expenses			
Total General Support			
Network Operations			
Other Taxes Calculation			
Total Direct Costs			
Total Network Operations			
Total General Support			
Total			
Other Taxes			
Total Expenses and Other Taxes			
Variable Overhead Calculation			
Variable Overhead			
Total Cost with Variable Overhead			

UNE Expense Asssignment

		Totals
NID		
	per line cost	[redacted]
	per direct cost	
	total	
Distribution		
	per line cost	
	per direct cost	
	total	
Concentrator		
	per line cost	
	per direct cost	
	total	
Feeder		
	per line cost	
	per direct cost	
	total	

DeprecLife	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CCCFact	1.08590	0.58672	0.42127	0.33925	0.29060	0.25862	0.23618	0.21968	0.20714	0.19737	0.18962	0.18336	0.17825	0.17405	0.17056	0.16765	0.16520	0.16315	0.16142	0.15997
DeprecFact	1.00000	0.50000	0.33333	0.25000	0.20000	0.16667	0.14286	0.12500	0.11111	0.10000	0.09091	0.08333	0.07692	0.07143	0.06667	0.06250	0.05882	0.05556	0.05263	0.05000
RORFact	0.05578	0.05632	0.05711	0.05796	0.05883	0.05971	0.06060	0.06148	0.06236	0.06323	0.06410	0.06496	0.06580	0.06664	0.06747	0.06828	0.06908	0.06987	0.07065	0.07141
TaxGUFact	0.03012	0.03041	0.03083	0.03129	0.03177	0.03224	0.03272	0.03320	0.03367	0.03414	0.03461	0.03507	0.03553	0.03598	0.03643	0.03687	0.03730	0.03773	0.03814	0.03856

COE	[redacted]		EquityF	[redacted]		WACC	[redacted]	Tax	39.25%
COD	[redacted]		EquityP	[redacted]		GrUpROR	[redacted]	Disct	[redacted]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NPV-EoP	0.97760	1.00498	1.03058	1.05453	1.07696	1.09796	1.11766	1.13613	1.15346	1.16974	1.18505	1.19943	1.21297	1.22572	1.23774	1.24907	1.25975	1.26984	1.27938	1.28839
NPV-EoP	1.08306	1.11339	1.14175	1.16829	1.19313	1.21641	1.23822	1.25869	1.27789	1.29593	1.31288	1.32882	1.34382	1.35795	1.37126	1.38381	1.39565	1.40683	1.41739	1.42737
Pmt-EoP	1.14148	0.61675	0.44283	0.35661	0.30547	0.27186	0.24826	0.23092	0.21774	0.20748	0.19932	0.19274	0.18738	0.18296	0.17929	0.17623	0.17366	0.17150	0.16968	0.16815
Pmt-BoP	1.03033	0.55670	0.39971	0.32189	0.27573	0.24539	0.22409	0.20844	0.19654	0.18727	0.17991	0.17398	0.16913	0.16514	0.16183	0.15907	0.15675	0.15480	0.15316	0.15178
Year																				
1	1.08306	0.62459	0.47177	0.39536	0.34951	0.31894	0.29711	0.28074	0.26800	0.25781	0.24948	0.24253	0.23665	0.23162	0.22725	0.22343	0.22006	0.21706	0.21438	0.21197
2		0.54153	0.41639	0.35383	0.31628	0.29126	0.27338	0.25997	0.24954	0.24120	0.23438	0.22869	0.22388	0.21975	0.21617	0.21305	0.21029	0.20783	0.20564	0.20366
3			0.36102	0.31230	0.28306	0.26357	0.24965	0.23921	0.23109	0.22459	0.21927	0.21485	0.21110	0.20788	0.20510	0.20266	0.20051	0.19860	0.19689	0.19536
4				0.27077	0.24984	0.23588	0.22592	0.21844	0.21263	0.20798	0.20417	0.20100	0.19832	0.19602	0.19403	0.19228	0.19074	0.18937	0.18815	0.18705
5					0.21661	0.20820	0.20219	0.19768	0.19417	0.19137	0.18907	0.18716	0.18554	0.18415	0.18295	0.18190	0.18097	0.18015	0.17941	0.17874
6						0.18051	0.17845	0.17691	0.17571	0.17475	0.17397	0.17332	0.17276	0.17229	0.17188	0.17152	0.17120	0.17092	0.17066	0.17044
7							0.15472	0.15615	0.15726	0.15814	0.15887	0.15947	0.15998	0.16042	0.16080	0.16113	0.16143	0.16169	0.16192	0.16213
8								0.13538	0.13880	0.14153	0.14377	0.14563	0.14720	0.14856	0.14973	0.15075	0.15166	0.15246	0.15318	0.15383
9									0.12034	0.12492	0.12866	0.13179	0.13443	0.13669	0.13865	0.14037	0.14188	0.14323	0.14443	0.14552
10										0.10831	0.11356	0.11794	0.12165	0.12482	0.12758	0.12999	0.13211	0.13400	0.13569	0.13721
11											0.09846	0.10410	0.10887	0.11296	0.11650	0.11960	0.12234	0.12477	0.12695	0.12891
12												0.09026	0.09609	0.10109	0.10543	0.10922	0.11257	0.11554	0.11821	0.12060
13													0.08331	0.08923	0.09435	0.09884	0.10280	0.10631	0.10946	0.11230
14														0.07736	0.08328	0.08846	0.09302	0.09709	0.10072	0.10399
15															0.07220	0.07807	0.08325	0.08786	0.09198	0.09568
16																0.06769	0.07348	0.07863	0.08323	0.08738
17																	0.06371	0.06940	0.07449	0.07907
18																		0.06017	0.06575	0.07077
19																			0.05700	0.06246
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DeprecLife	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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DeprecLife	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CCCFact	0.15874	0.15770	0.15684	0.15611	0.15551	0.15501	0.15460	0.15428	0.15402	0.15382	0.15367	0.15356	0.15349	0.15346	0.15346	0.15348	0.15352	0.15358	0.15366	0.15375
DeprecFact	0.04762	0.04545	0.04348	0.04167	0.04000	0.03846	0.03704	0.03571	0.03448	0.03333	0.03226	0.03125	0.03030	0.02941	0.02857	0.02778	0.02703	0.02632	0.02564	0.02500
RORFact	0.07216	0.07289	0.07361	0.07432	0.07501	0.07568	0.07635	0.07699	0.07762	0.07824	0.07884	0.07943	0.08000	0.08056	0.08110	0.08163	0.08214	0.08265	0.08313	0.08361
TaxGUFact	0.03896	0.03936	0.03975	0.04013	0.04050	0.04086	0.04122	0.04157	0.04191	0.04224	0.04257	0.04288	0.04319	0.04349	0.04379	0.04407	0.04435	0.04462	0.04489	0.04514
COE																				
COD																				
NPV-EoP	1.29692	1.30499	1.31264	1.31989	1.32676	1.33329	1.33949	1.34539	1.35100	1.35633	1.36142	1.36626	1.37088	1.37529	1.37950	1.38353	1.38737	1.39105	1.39458	1.39795
NPV-EoP	1.43682	1.44577	1.45424	1.46227	1.46989	1.47712	1.48399	1.49052	1.49674	1.50265	1.50828	1.51365	1.51877	1.52365	1.52832	1.53277	1.53703	1.54111	1.54502	1.54876
Pmt-EoP	0.16686	0.16578	0.16486	0.16410	0.16347	0.16294	0.16252	0.16217	0.16190	0.16169	0.16153	0.16142	0.16135	0.16132	0.16131	0.16133	0.16138	0.16145	0.16153	0.16162
Pmt-BoP	0.15061	0.14963	0.14881	0.14812	0.14755	0.14708	0.14669	0.14638	0.14613	0.14594	0.14580	0.14570	0.14564	0.14561	0.14561	0.14563	0.14567	0.14572	0.14580	0.14589
Year																				
1	0.20978	0.20780	0.20599	0.20433	0.20280	0.20139	0.20008	0.19887	0.19774	0.19668	0.19570	0.19477	0.19391	0.19309	0.19232	0.19159	0.19090	0.19025	0.18963	0.18904
2	0.20187	0.20025	0.19876	0.19740	0.19615	0.19500	0.19393	0.19294	0.19201	0.19115	0.19034	0.18958	0.18887	0.18820	0.18757	0.18698	0.18641	0.18588	0.18537	0.18489
3	0.19396	0.19270	0.19154	0.19048	0.18951	0.18861	0.18778	0.18700	0.18628	0.18561	0.18498	0.18439	0.18384	0.18332	0.18283	0.18236	0.18192	0.18151	0.18111	0.18074
4	0.18605	0.18515	0.18432	0.18356	0.18286	0.18222	0.18162	0.18107	0.18055	0.18007	0.17962	0.17920	0.17880	0.17843	0.17808	0.17775	0.17743	0.17714	0.17685	0.17658
5	0.17814	0.17760	0.17710	0.17664	0.17622	0.17583	0.17547	0.17514	0.17483	0.17454	0.17426	0.17401	0.17377	0.17355	0.17333	0.17313	0.17294	0.17276	0.17259	0.17243
6	0.17023	0.17004	0.16987	0.16972	0.16957	0.16944	0.16932	0.16920	0.16910	0.16900	0.16891	0.16882	0.16874	0.16866	0.16859	0.16852	0.16845	0.16839	0.16833	0.16828
7	0.16232	0.16249	0.16265	0.16280	0.16293	0.16305	0.16317	0.16327	0.16337	0.16346	0.16355	0.16363	0.16370	0.16377	0.16384	0.16390	0.16396	0.16402	0.16407	0.16413
8	0.15441	0.15494	0.15543	0.15587	0.15628	0.15666	0.15701	0.15734	0.15764	0.15792	0.15819	0.15844	0.15867	0.15889	0.15909	0.15929	0.15947	0.15965	0.15981	0.15997
9	0.14650	0.14739	0.14821	0.14895	0.14964	0.15027	0.15086	0.15141	0.15191	0.15239	0.15283	0.15324	0.15363	0.15400	0.15435	0.15468	0.15498	0.15528	0.15556	0.15582
10	0.13859	0.13984	0.14098	0.14203	0.14299	0.14388	0.14471	0.14547	0.14618	0.14685	0.14747	0.14805	0.14860	0.14912	0.14960	0.15006	0.15049	0.15091	0.15130	0.15167
11	0.13068	0.13229	0.13376	0.13511	0.13635	0.13749	0.13855	0.13954	0.14046	0.14131	0.14211	0.14286	0.14357	0.14423	0.14486	0.14545	0.14600	0.14653	0.14704	0.14751
12	0.12277	0.12474	0.12654	0.12819	0.12970	0.13111	0.13240	0.13361	0.13473	0.13577	0.13675	0.13767	0.13853	0.13934	0.14011	0.14083	0.14152	0.14216	0.14278	0.14336
13	0.11486	0.11719	0.11932	0.12127	0.12306	0.12472	0.12625	0.12767	0.12900	0.13024	0.13139	0.13248	0.13350	0.13446	0.13536	0.13622	0.13703	0.13779	0.13852	0.13921
14	0.10695	0.10964	0.11209	0.11434	0.11642	0.11833	0.12010	0.12174	0.12327	0.12470	0.12604	0.12729	0.12846	0.12957	0.13062	0.13160	0.13254	0.13342	0.13426	0.13505
15	0.09904	0.10209	0.10487	0.10742	0.10977	0.11194	0.11394	0.11581	0.11754	0.11916	0.12068	0.12210	0.12343	0.12469	0.12587	0.12699	0.12805	0.12905	0.13000	0.13090
16	0.09113	0.09454	0.09765	0.10050	0.10313	0.10555	0.10779	0.10988	0.11181	0.11362	0.11532	0.11691	0.11840	0.11980	0.12112	0.12237	0.12356	0.12468	0.12574	0.12675
17	0.08322	0.08698	0.09043	0.09358	0.09648	0.09916	0.10164	0.10394	0.10609	0.10809	0.10996	0.11171	0.11336	0.11491	0.11638	0.11776	0.11907	0.12030	0.12148	0.12260
18	0.07531	0.07943	0.08320	0.08666	0.08984	0.09277	0.09549	0.09801	0.10036	0.10255	0.10460	0.10652	0.10833	0.11003	0.11163	0.11315	0.11458	0.11593	0.11722	0.11844
19	0.06740	0.07188	0.07598	0.07974	0.08319	0.08638	0.08933	0.09208	0.09463	0.09701	0.09924	0.10133	0.10330	0.10514	0.10689	0.10853	0.11009	0.11156	0.11296	0.11429
20	0.05948	0.06433	0.06876	0.07281	0.07655	0.07999	0.08318	0.08614	0.08890	0.09148	0.09388	0.09614	0.09826	0.10026	0.10214	0.10392	0.10560	0.10719	0.10870	0.11014
21	0.05157	0.05678	0.06153	0.06589	0.06990	0.07360	0.07703	0.08021	0.08317	0.08594	0.08852	0.09095	0.09323	0.09537	0.09739	0.09930	0.10111	0.10282	0.10444	0.10598
22		0.04923	0.05431	0.05897	0.06326	0.06721	0.07088	0.07428	0.07744	0.08040	0.08317	0.08576	0.08819	0.09049	0.09265	0.09469	0.09662	0.09845	0.10018	0.10183
23			0.04700	0.05205	0.05661	0.06082	0.06472	0.06835	0.07172	0.07486	0.07781	0.08057	0.08316	0.08560	0.08790	0.09007	0.09213	0.09408	0.09592	0.09768
24				0.04513	0.04997	0.05443	0.05857	0.06241	0.06599	0.06933	0.07245	0.07538	0.07813	0.08071	0.08315	0.08546	0.08764	0.08970	0.09166	0.09352
25					0.04332	0.04805	0.05242	0.05648	0.06026	0.06379	0.06709	0.07018	0.07309	0.07583	0.07841	0.08084	0.08315	0.08533	0.08740	0.08937
26						0.04166	0.04627	0.05055	0.05453	0.05825	0.06173	0.06499	0.06806	0.07094	0.07366	0.07623	0.07866	0.08096	0.08314	0.08522
27							0.04011	0.04461	0.04880	0.05271	0.05637	0.05980	0.06302	0.06606	0.06891	0.07162	0.07417	0.07659	0.07888	0.08107
28								0.03868	0.04308	0.04718	0.05101	0.05461	0.05799	0.06117	0.06417	0.06700	0.06968	0.07222	0.07463	0.07691
29									0.03735	0.04164	0.04565	0.04942	0.05296	0.05628	0.05942	0.06239	0.06519	0.06785	0.07037	0.07276
30										0.03610	0.04030	0.04423	0.04792	0.05140	0.05468	0.05777	0.06070	0.06347	0.06611	0.06861
31											0.03494	0.03904	0.04289	0.04651	0.04993	0.05316	0.05621	0.05910	0.06185	0.06445
32												0.03385	0.03785	0.04163	0.04518	0.04854	0.05172	0.05473	0.05759	0.06030
33													0.03282	0.03674	0.04044	0.04393	0.04723	0.05036	0.05333	0.05615
34														0.03185	0.03569	0.03931	0.04274	0.04599	0.04907	0.05199
35															0.03094	0.03470	0.03825	0.04162	0.04481	0.04784
36																0.03009	0.03376	0.03724	0.04055	0.04369
37																	0.02927	0.03287	0.03629	0.03954
38																		0.02850	0.03203	0.03538
39																			0.02777	0.03123
40																				0.02708

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DeprecLife	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
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DeprecLife	41	42	43	44	45	46	47	48	49	50
CCCFact	0.15386	0.15397	0.15409	0.15422	0.15435	0.15449	0.15463	0.15477	0.15492	0.15506
DeprecFact	0.02439	0.02381	0.02326	0.02273	0.02222	0.02174	0.02128	0.02083	0.02041	0.02000
RORFact	0.08407	0.08452	0.08496	0.08539	0.08580	0.08620	0.08660	0.08698	0.08735	0.08771
TaxGUFact	0.04539	0.04564	0.04587	0.04610	0.04633	0.04654	0.04676	0.04696	0.04716	0.04736
COE										
COD										
NPV-EoP	1.40119	1.40429	1.40727	1.41013	1.41287	1.41551	1.41805	1.42050	1.42285	1.42512
NPV-EoP	1.55234	1.55578	1.55908	1.56224	1.56529	1.56821	1.57102	1.57373	1.57634	1.57885
Pmt-EoP	0.16173	0.16185	0.16198	0.16211	0.16225	0.16239	0.16254	0.16269	0.16284	0.16300
Pmt-BoP	0.14598	0.14609	0.14620	0.14632	0.14645	0.14658	0.14671	0.14685	0.14699	0.14713
Year										
1	0.18848	0.18795	0.18744	0.18696	0.18650	0.18605	0.18563	0.18522	0.18483	0.18446
2	0.18443	0.18400	0.18358	0.18318	0.18280	0.18244	0.18209	0.18176	0.18144	0.18114
3	0.18038	0.18004	0.17972	0.17941	0.17911	0.17883	0.17856	0.17830	0.17805	0.17781
4	0.17633	0.17609	0.17585	0.17563	0.17542	0.17522	0.17503	0.17484	0.17466	0.17449
5	0.17228	0.17213	0.17199	0.17186	0.17173	0.17161	0.17149	0.17138	0.17127	0.17117
6	0.16823	0.16818	0.16813	0.16808	0.16804	0.16800	0.16796	0.16792	0.16788	0.16785
7	0.16417	0.16422	0.16426	0.16431	0.16435	0.16439	0.16442	0.16446	0.16449	0.16452
8	0.16012	0.16027	0.16040	0.16053	0.16066	0.16077	0.16089	0.16100	0.16110	0.16120
9	0.15607	0.15631	0.15654	0.15676	0.15696	0.15716	0.15735	0.15754	0.15771	0.15788
10	0.15202	0.15235	0.15267	0.15298	0.15327	0.15355	0.15382	0.15408	0.15432	0.15456
11	0.14797	0.14840	0.14881	0.14921	0.14958	0.14994	0.15028	0.15061	0.15093	0.15123
12	0.14392	0.14444	0.14495	0.14543	0.14589	0.14633	0.14675	0.14715	0.14754	0.14791
13	0.13986	0.14049	0.14109	0.14165	0.14220	0.14272	0.14322	0.14369	0.14415	0.14459
14	0.13581	0.13653	0.13722	0.13788	0.13851	0.13911	0.13968	0.14023	0.14076	0.14127
15	0.13176	0.13258	0.13336	0.13410	0.13481	0.13550	0.13615	0.13677	0.13737	0.13795
16	0.12771	0.12862	0.12950	0.13033	0.13112	0.13188	0.13261	0.13331	0.13398	0.13462
17	0.12366	0.12467	0.12563	0.12655	0.12743	0.12827	0.12908	0.12985	0.13059	0.13130
18	0.11961	0.12071	0.12177	0.12278	0.12374	0.12466	0.12554	0.12639	0.12720	0.12798
19	0.11555	0.11676	0.11791	0.11900	0.12005	0.12105	0.12201	0.12293	0.12381	0.12466
20	0.11150	0.11280	0.11404	0.11523	0.11636	0.11744	0.11847	0.11947	0.12042	0.12133
21	0.10745	0.10885	0.11018	0.11145	0.11267	0.11383	0.11494	0.11601	0.11703	0.11801
22	0.10340	0.10489	0.10632	0.10768	0.10897	0.11022	0.11141	0.11255	0.11364	0.11469
23	0.09935	0.10094	0.10245	0.10390	0.10528	0.10660	0.10787	0.10908	0.11025	0.11137
24	0.09530	0.09698	0.09859	0.10012	0.10159	0.10299	0.10434	0.10562	0.10686	0.10804
25	0.09124	0.09303	0.09473	0.09635	0.09790	0.09938	0.10080	0.10216	0.10347	0.10472
26	0.08719	0.08907	0.09086	0.09257	0.09421	0.09577	0.09727	0.09870	0.10008	0.10140
27	0.08314	0.08512	0.08700	0.08880	0.09052	0.09216	0.09373	0.09524	0.09669	0.09808
28	0.07909	0.08116	0.08314	0.08502	0.08682	0.08855	0.09020	0.09178	0.09330	0.09475
29	0.07504	0.07721	0.07927	0.08125	0.08313	0.08494	0.08666	0.08832	0.08991	0.09143
30	0.07098	0.07325	0.07541	0.07747	0.07944	0.08133	0.08313	0.08486	0.08652	0.08811
31	0.06693	0.06929	0.07155	0.07370	0.07575	0.07771	0.07960	0.08140	0.08313	0.08479
32	0.06288	0.06534	0.06768	0.06992	0.07206	0.07410	0.07606	0.07794	0.07974	0.08146
33	0.05883	0.06138	0.06382	0.06615	0.06837	0.07049	0.07253	0.07448	0.07635	0.07814
34	0.05478	0.05743	0.05996	0.06237	0.06468	0.06688	0.06899	0.07102	0.07296	0.07482
35	0.05073	0.05347	0.05609	0.05859	0.06098	0.06327	0.06546	0.06755	0.06957	0.07150
36	0.04667	0.04952	0.05223	0.05482	0.05729	0.05966	0.06192	0.06409	0.06618	0.06817
37	0.04262	0.04556	0.04837	0.05104	0.05360	0.05605	0.05839	0.06063	0.06279	0.06485
38	0.03857	0.04161	0.04450	0.04727	0.04991	0.05244	0.05485	0.05717	0.05940	0.06153
39	0.03452	0.03765	0.04064	0.04349	0.04622	0.04882	0.05132	0.05371	0.05601	0.05821
40	0.03047	0.03370	0.03678	0.03972	0.04253	0.04521	0.04779	0.05025	0.05262	0.05489

DeprecLife	51	52	53	54	55	56	57	58	59	60
CCCFact	0.15521	0.15536	0.15550	0.15565	0.15580	0.15594	0.15608	0.15623	0.15637	0.15650
DeprecFact	0.01961	0.01923	0.01887	0.01852	0.01818	0.01786	0.01754	0.01724	0.01695	0.01667
RORFact	0.08806	0.08840	0.08873	0.08905	0.08936	0.08967	0.08997	0.09025	0.09053	0.09081
TaxGUFact	0.04754	0.04773	0.04791	0.04808	0.04825	0.04842	0.04858	0.04873	0.04888	0.04903
COE										
COD										
NPV-EoP	1.42730	1.42941	1.43144	1.43341	1.43530	1.43714	1.43891	1.44062	1.44228	1.44389
NPV-EoP	1.58127	1.58361	1.58586	1.58804	1.59014	1.59217	1.59413	1.59603	1.59787	1.59964
Pmt-EoP	0.16315	0.16331	0.16346	0.16362	0.16377	0.16392	0.16407	0.16422	0.16437	0.16451
Pmt-BoP	0.14727	0.14741	0.14755	0.14769	0.14782	0.14796	0.14810	0.14823	0.14836	0.14849
Year										
1	0.18410	0.18375	0.18342	0.18310	0.18279	0.18249	0.18221	0.18193	0.18166	0.18140
2	0.18084	0.18056	0.18029	0.18002	0.17977	0.17953	0.17929	0.17907	0.17885	0.17863
3	0.17758	0.17736	0.17715	0.17695	0.17675	0.17656	0.17638	0.17620	0.17603	0.17587
4	0.17433	0.17417	0.17402	0.17387	0.17373	0.17359	0.17346	0.17334	0.17321	0.17310
5	0.17107	0.17098	0.17088	0.17080	0.17071	0.17063	0.17055	0.17047	0.17040	0.17033
6	0.16781	0.16778	0.16775	0.16772	0.16769	0.16766	0.16763	0.16761	0.16758	0.16756
7	0.16456	0.16459	0.16461	0.16464	0.16467	0.16470	0.16472	0.16474	0.16477	0.16479
8	0.16130	0.16139	0.16148	0.16157	0.16165	0.16173	0.16181	0.16188	0.16195	0.16202
9	0.15804	0.15820	0.15835	0.15849	0.15863	0.15876	0.15889	0.15902	0.15914	0.15925
10	0.15478	0.15500	0.15521	0.15541	0.15561	0.15580	0.15598	0.15615	0.15632	0.15648
11	0.15153	0.15181	0.15208	0.15234	0.15259	0.15283	0.15306	0.15329	0.15351	0.15372
12	0.14827	0.14861	0.14894	0.14926	0.14957	0.14986	0.15015	0.15042	0.15069	0.15095
13	0.14501	0.14542	0.14581	0.14618	0.14655	0.14690	0.14723	0.14756	0.14787	0.14818
14	0.14175	0.14222	0.14267	0.14311	0.14353	0.14393	0.14432	0.14470	0.14506	0.14541
15	0.13850	0.13903	0.13954	0.14003	0.14051	0.14096	0.14141	0.14183	0.14224	0.14264
16	0.13524	0.13583	0.13641	0.13696	0.13749	0.13800	0.13849	0.13897	0.13943	0.13987
17	0.13198	0.13264	0.13327	0.13388	0.13447	0.13503	0.13558	0.13610	0.13661	0.13710
18	0.12873	0.12945	0.13014	0.13080	0.13145	0.13206	0.13266	0.13324	0.13380	0.13434
19	0.12547	0.12625	0.12700	0.12773	0.12843	0.12910	0.12975	0.13037	0.13098	0.13157
20	0.12221	0.12306	0.12387	0.12465	0.12540	0.12613	0.12683	0.12751	0.12817	0.12880
21	0.11895	0.11986	0.12073	0.12157	0.12238	0.12317	0.12392	0.12465	0.12535	0.12603
22	0.11570	0.11667	0.11760	0.11850	0.11936	0.12020	0.12100	0.12178	0.12253	0.12326
23	0.11244	0.11347	0.11447	0.11542	0.11634	0.11723	0.11809	0.11892	0.11972	0.12049
24	0.10918	0.11028	0.11133	0.11235	0.11332	0.11427	0.11518	0.11605	0.11690	0.11772
25	0.10593	0.10708	0.10820	0.10927	0.11030	0.11130	0.11226	0.11319	0.11409	0.11495
26	0.10267	0.10389	0.10506	0.10619	0.10728	0.10833	0.10935	0.11033	0.11127	0.11219
27	0.09941	0.10069	0.10193	0.10312	0.10426	0.10537	0.10643	0.10746	0.10846	0.10942
28	0.09615	0.09750	0.09879	0.10004	0.10124	0.10240	0.10352	0.10460	0.10564	0.10665
29	0.09290	0.09430	0.09566	0.09696	0.09822	0.09943	0.10060	0.10173	0.10282	0.10388
30	0.08964	0.09111	0.09252	0.09389	0.09520	0.09647	0.09769	0.09887	0.10001	0.10111
31	0.08638	0.08792	0.08939	0.09081	0.09218	0.09350	0.09478	0.09601	0.09719	0.09834
32	0.08312	0.08472	0.08626	0.08774	0.08916	0.09053	0.09186	0.09314	0.09438	0.09557
33	0.07987	0.08153	0.08312	0.08466	0.08614	0.08757	0.08895	0.09028	0.09156	0.09281
34	0.07661	0.07833	0.07999	0.08158	0.08312	0.08460	0.08603	0.08741	0.08875	0.09004
35	0.07335	0.07514	0.07685	0.07851	0.08010	0.08164	0.08312	0.08455	0.08593	0.08727
36	0.07010	0.07194	0.07372	0.07543	0.07708	0.07867	0.08020	0.08168	0.08312	0.08450
37	0.06684	0.06875	0.07058	0.07235	0.07406	0.07570	0.07729	0.07882	0.08030	0.08173
38	0.06358	0.06555	0.06745	0.06928	0.07104	0.07274	0.07437	0.07596	0.07748	0.07896
39	0.06032	0.06236	0.06432	0.06620	0.06802	0.06977	0.07146	0.07309	0.07467	0.07619
40	0.05707	0.05916	0.06118	0.06312	0.06500	0.06680	0.06855	0.07023	0.07185	0.07342

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DeprecLife	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
41	0.02642	0.02974	0.03291	0.03594	0.03883	0.04160	0.04425	0.04679	0.04922	0.05156	0.05381	0.05597	0.05805	0.06005	0.06198	0.06384	0.06563	0.06736	0.06904	0.07066
42		0.02579	0.02905	0.03217	0.03514	0.03799	0.04072	0.04333	0.04583	0.04824	0.05055	0.05277	0.05491	0.05697	0.05896	0.06087	0.06272	0.06450	0.06622	0.06789
43			0.02519	0.02839	0.03145	0.03438	0.03718	0.03987	0.04244	0.04492	0.04729	0.04958	0.05178	0.05390	0.05594	0.05790	0.05980	0.06164	0.06341	0.06512
44				0.02462	0.02776	0.03077	0.03365	0.03641	0.03905	0.04160	0.04404	0.04639	0.04864	0.05082	0.05292	0.05494	0.05689	0.05877	0.06059	0.06235
45					0.02407	0.02716	0.03011	0.03295	0.03566	0.03827	0.04078	0.04319	0.04551	0.04774	0.04990	0.05197	0.05397	0.05591	0.05778	0.05958
46						0.02354	0.02658	0.02949	0.03227	0.03495	0.03752	0.04000	0.04238	0.04467	0.04688	0.04900	0.05106	0.05304	0.05496	0.05681
47							0.02304	0.02602	0.02888	0.03163	0.03427	0.03680	0.03924	0.04159	0.04385	0.04604	0.04814	0.05018	0.05214	0.05404
48								0.02256	0.02549	0.02831	0.03101	0.03361	0.03611	0.03851	0.04083	0.04307	0.04523	0.04731	0.04933	0.05128
49									0.02210	0.02498	0.02775	0.03041	0.03297	0.03544	0.03781	0.04011	0.04232	0.04445	0.04651	0.04851
50										0.02166	0.02449	0.02722	0.02984	0.03236	0.03479	0.03714	0.03940	0.04159	0.04370	0.04574
51											0.02124	0.02402	0.02670	0.02929	0.03177	0.03417	0.03649	0.03872	0.04088	0.04297
52												0.02083	0.02357	0.02621	0.02875	0.03121	0.03357	0.03586	0.03807	0.04020
53													0.02044	0.02313	0.02573	0.02824	0.03066	0.03299	0.03525	0.03743
54														0.02006	0.02271	0.02527	0.02774	0.03013	0.03243	0.03466
55															0.01969	0.02231	0.02483	0.02727	0.02962	0.03189
56																0.01934	0.02192	0.02440	0.02680	0.02913
57																	0.01900	0.02154	0.02399	0.02636
58																		0.01867	0.02117	0.02359
59																			0.01836	0.02082
60																				0.01805
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DeprecLife	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
CCCFact	0.15664	0.15677	0.15690	0.15703	0.15716	0.15729	0.15741	0.15753	0.15765	0.15776	0.15787	0.15799	0.15809	0.15820	0.15830	0.15841	0.15851	0.15860	0.15870	0.15879	0.15889
DeprecFact	0.01639	0.01613	0.01587	0.01563	0.01538	0.01515	0.01493	0.01471	0.01449	0.01429	0.01408	0.01389	0.01370	0.01351	0.01333	0.01316	0.01299	0.01282	0.01266	0.01250	0.01235
RORFact	0.09107	0.09133	0.09158	0.09183	0.09207	0.09230	0.09253	0.09275	0.09296	0.09317	0.09337	0.09357	0.09377	0.09396	0.09414	0.09432	0.09450	0.09467	0.09484	0.09500	0.09516
TaxGUFact	0.04917	0.04931	0.04945	0.04958	0.04971	0.04983	0.04996	0.05008	0.05019	0.05031	0.05042	0.05052	0.05063	0.05073	0.05083	0.05093	0.05102	0.05111	0.05121	0.05129	0.05138
COE																					
COD																					
NPV-EoP	1.44544	1.44695	1.44841	1.44982	1.45120	1.45253	1.45383	1.45508	1.45630	1.45749	1.45865	1.45977	1.46086	1.46193	1.46296	1.46397	1.46496	1.46592	1.46685	1.46776	1.46865
NPV-EoP	1.60137	1.60304	1.60465	1.60622	1.60774	1.60922	1.61066	1.61205	1.61340	1.61472	1.61600	1.61724	1.61846	1.61963	1.62078	1.62190	1.62299	1.62405	1.62509	1.62610	1.62708
Pmt-EoP	0.16466	0.16480	0.16493	0.16507	0.16520	0.16533	0.16546	0.16559	0.16571	0.16583	0.16595	0.16607	0.16618	0.16630	0.16641	0.16651	0.16662	0.16672	0.16682	0.16692	0.16702
Pmt-BoP	0.14862	0.14875	0.14887	0.14900	0.14912	0.14924	0.14935	0.14947	0.14958	0.14969	0.14979	0.14990	0.15000	0.15010	0.15020	0.15030	0.15039	0.15049	0.15058	0.15067	0.15075
Year																					
1	0.18115	0.18091	0.18067	0.18045	0.18023	0.18001	0.17981	0.17960	0.17941	0.17922	0.17903	0.17886	0.17868	0.17851	0.17835	0.17819	0.17803	0.17788	0.17773	0.17758	0.17744
2	0.17843	0.17823	0.17804	0.17785	0.17767	0.17750	0.17733	0.17716	0.17700	0.17685	0.17669	0.17655	0.17641	0.17627	0.17613	0.17600	0.17587	0.17575	0.17562	0.17551	0.17539
3	0.17571	0.17555	0.17540	0.17526	0.17512	0.17498	0.17485	0.17472	0.17459	0.17447	0.17436	0.17424	0.17413	0.17402	0.17392	0.17381	0.17371	0.17362	0.17352	0.17343	0.17334
4	0.17298	0.17287	0.17276	0.17266	0.17256	0.17246	0.17237	0.17228	0.17219	0.17210	0.17202	0.17193	0.17185	0.17178	0.17170	0.17163	0.17156	0.17149	0.17142	0.17135	0.17129
5	0.17026	0.17019	0.17013	0.17006	0.17000	0.16995	0.16989	0.16983	0.16978	0.16973	0.16968	0.16963	0.16958	0.16953	0.16949	0.16944	0.16940	0.16936	0.16932	0.16928	0.16924
6	0.16754	0.16751	0.16749	0.16747	0.16745	0.16743	0.16741	0.16739	0.16737	0.16735	0.16734	0.16732	0.16730	0.16729	0.16727	0.16726	0.16724	0.16723	0.16721	0.16720	0.16719
7	0.16481	0.16483	0.16485	0.16487	0.16489	0.16491	0.16493	0.16495	0.16496	0.16498	0.16500	0.16501	0.16503	0.16504	0.16506	0.16507	0.16508	0.16510	0.16511	0.16512	0.16514
8	0.16209	0.16215	0.16222	0.16228	0.16234	0.16239	0.16245	0.16250	0.16256	0.16261	0.16266	0.16270	0.16275	0.16280	0.16284	0.16288	0.16293	0.16297	0.16301	0.16305	0.16308
9	0.15937	0.15947	0.15958	0.15968	0.15978	0.15988	0.15997	0.16006	0.16015	0.16023	0.16032	0.16040	0.16048	0.16055	0.16063	0.16070	0.16077	0.16084	0.16090	0.16097	0.16103
10	0.15664	0.15680	0.15694	0.15709	0.15723	0.15736	0.15749	0.15762	0.15774	0.15786	0.15798	0.15809	0.15820	0.15831	0.15841	0.15851	0.15861	0.15871	0.15880	0.15889	0.15898
11	0.15392	0.15412	0.15431	0.15449	0.15467	0.15484	0.15501	0.15518	0.15533	0.15549	0.15564	0.15578	0.15592	0.15606	0.15620	0.15633	0.15645	0.15658	0.15670	0.15682	0.15693
12	0.15120	0.15144	0.15167	0.15190	0.15211	0.15233	0.15253	0.15273	0.15293	0.15311	0.15330	0.15348	0.15365	0.15382	0.15398	0.15414	0.15430	0.15445	0.15460	0.15474	0.15488
13	0.14847	0.14876	0.14903	0.14930	0.14956	0.14981	0.15005	0.15029	0.15052	0.15074	0.15096	0.15117	0.15137	0.15157	0.15177	0.15196	0.15214	0.15232	0.15249	0.15266	0.15283
14	0.14575	0.14608	0.14640	0.14670	0.14700	0.14729	0.14757	0.14785	0.14811	0.14837	0.14862	0.14886	0.14910	0.14933	0.14955	0.14977	0.14998	0.15019	0.15039	0.15059	0.15078
15	0.14303	0.14340	0.14376	0.14411	0.14445	0.14478	0.14509	0.14540	0.14570	0.14600	0.14628	0.14655	0.14682	0.14708	0.14734	0.14758	0.14782	0.14806	0.14829	0.14851	0.14873
16	0.14030	0.14072	0.14112	0.14151	0.14189	0.14226	0.14261	0.14296	0.14330	0.14362	0.14394	0.14425	0.14455	0.14484	0.14512	0.14540	0.14567	0.14593	0.14619	0.14643	0.14668
17	0.13758	0.13804	0.13849	0.13892	0.13934	0.13974	0.14014	0.14052	0.14089	0.14125	0.14160	0.14194	0.14227	0.14259	0.14291	0.14321	0.14351	0.14380	0.14408	0.14436	0.14463
18	0.13486	0.13536	0.13585	0.13632	0.13678	0.13722	0.13766	0.13807	0.13848	0.13888	0.13926	0.13963	0.14000	0.14035	0.14069	0.14103	0.14135	0.14167	0.14198	0.14228	0.14258
19	0.13213	0.13268	0.13321	0.13373	0.13422	0.13471	0.13518	0.13563	0.13607	0.13650	0.13692	0.13733	0.13772	0.13810	0.13848	0.13884	0.13920	0.13954	0.13988	0.14020	0.14052
20	0.12941	0.13000	0.13057	0.13113	0.13167	0.13219	0.13270	0.13319	0.13367	0.13413	0.13458	0.13502	0.13544	0.13586	0.13626	0.13666	0.13704	0.13741	0.13777	0.13813	0.13847
21	0.12669	0.12732	0.12794	0.12853	0.12911	0.12967	0.13022	0.13075	0.13126	0.13176	0.13224	0.13271	0.13317	0.13361	0.13405	0.13447	0.13488	0.13528	0.13567	0.13605	0.13642
22	0.12396	0.12464	0.12530	0.12594	0.12656	0.12716	0.12774	0.12830	0.12885	0.12938	0.12990	0.13040	0.13089	0.13137	0.13183	0.13228	0.13272	0.13315	0.13357	0.13398	0.13437
23	0.12124	0.12196	0.12266	0.12334	0.12400	0.12464	0.12526	0.12586	0.12644	0.12701	0.12756	0.12810	0.12862	0.12912	0.12962	0.13010	0.13057	0.13102	0.13147	0.13190	0.13232
24	0.11852	0.11928	0.12003	0.12075	0.12145	0.12212	0.12278	0.12342	0.12404	0.12464	0.12522	0.12579	0.12634	0.12688	0.12740	0.12791	0.12841	0.12889	0.12936	0.12982	0.13027
25	0.11579	0.11660	0.11739	0.11815	0.11889	0.11961	0.12030	0.12097	0.12163	0.12226	0.12288	0.12348	0.12407	0.12463	0.12519	0.12573	0.12625	0.12676	0.12726	0.12775	0.12822
26	0.11307	0.11393	0.11475	0.11556	0.11633	0.11709	0.11782	0.11853	0.11922	0.11989	0.12054	0.12117	0.12179	0.12239	0.12297	0.12354	0.12409	0.12463	0.12516	0.12567	0.12617
27	0.11035	0.11125	0.11212	0.11296	0.11378	0.11457	0.11534	0.11609	0.11681	0.11752	0.11820	0.11887	0.11951	0.12014	0.12076	0.12135	0.12194	0.12250	0.12305	0.12359	0.12412
28	0.10762	0.10857	0.10948	0.11037	0.11122	0.11205	0.11286	0.11365	0.11441	0.11514	0.11586	0.11656	0.11724	0.11790	0.11854	0.11917	0.11978	0.12037	0.12095	0.12152	0.12207
29	0.10490	0.10589	0.10684	0.10777	0.10867	0.10954	0.11038	0.11120	0.11200	0.11277	0.11352	0.11425	0.11496	0.11565	0.11633	0.11698	0.11762	0.11824	0.11885	0.11944	0.12002
30	0.10218	0.10321	0.10421	0.10517	0.10611	0.10702	0.10790	0.10876	0.10959	0.11040	0.11118	0.11195	0.11269	0.11341	0.11411	0.11480	0.11546	0.11611	0.11675	0.11736	0.11797
31	0.09945	0.10053	0.10157	0.10258	0.10356	0.10450	0.10542	0.10632	0.10718	0.10802	0.10884	0.10964	0.11041	0.11117	0.11190	0.11261	0.11331	0.11398	0.11464	0.11529	0.11591
32	0.09673	0.09785	0.09893	0.09998	0.10100	0.10199	0.10294	0.10387	0.10478	0.10565	0.10650	0.10733	0.10814	0.10892	0.10968	0.11043	0.11115	0.11185	0.11254	0.11321	0.11386
33	0.09401	0.09517	0.09630	0.09739	0.09844	0.09947	0.10046	0.10143	0.10237	0.10328	0.10416	0.10502	0.10586	0.10668	0.10747	0.10824	0.10899	0.10972	0.11044	0.11113	0.11181
34	0.09128	0.09249	0.09366	0.09479	0.09589	0.09695	0.09799	0.09899	0.09996	0.10091	0.10182	0.10272	0.10359	0.10443	0.10525	0.10605	0.10683	0.10759	0.10833	0.10906	0.10976
35	0.08856	0.08981	0.09102	0.09220	0.09333	0.09444	0.09551	0.09654	0.09755	0.09853	0.09948	0.10041	0.10131	0.10219	0.10304	0.10387	0.10468	0.10546	0.10623	0.10698	0.10771
36	0.08584	0.08713	0.08839	0.08960	0.09078	0.09192	0.09303	0.09410	0.09515	0.09616	0.09714	0.09810	0.09903	0.09994	0.10082	0.10168	0.10252	0.10333	0.10413	0.10490	0.10566
37	0.08311	0.08445	0.08575	0.08700	0.08822	0.08940	0.09055	0.09166	0.09274	0.09379	0.09480	0.09580	0.09676	0.09770	0.09861	0.09950	0.10036	0.10120	0.10203	0.10283	0.10361
38	0.08039	0.08177	0.08311	0.08441	0.08567	0.08689	0.08807	0.08922	0.09033	0.09141	0.09247	0.09349	0.09448	0.09545	0.09639	0.09731	0.09820	0.09908	0.09992	0.10075	0.10156
39	0.07767	0.07909	0.08048	0.08181	0.08311	0.08437	0.08559	0.08677	0.08792	0.08904	0.09013	0.09118	0.09221	0.09321	0.09418	0.09513	0.09605	0.09695	0.09782	0.09867	0.09951
40	0.07494	0.07641	0.07784	0.07922	0.08055	0.08185	0.08311	0.08433	0.08552	0.08667	0.08779	0.08887	0.08993	0.09096	0.09196	0.09294	0.09389	0.09482	0.09572	0.09660	0.09746

DeprecLife	61	62	63	64	65	66	67	68	69	70	71
41	0.07222	0.07374	0.07520	0.07662	0.07800	0.07933	0.08063	0.08189	0.08311	0.08429	0.08545
42	0.06950	0.07106	0.07256	0.07403	0.07544	0.07682	0.07815	0.07944	0.08070	0.08192	0.08311
43	0.06677	0.06838	0.06993	0.07143	0.07289	0.07430	0.07567	0.07700	0.07829	0.07955	0.08077
44	0.06405	0.06570	0.06729	0.06884	0.07033	0.07178	0.07319	0.07456	0.07588	0.07717	0.07843
45	0.06133	0.06302	0.06465	0.06624	0.06778	0.06927	0.07071	0.07212	0.07348	0.07480	0.07609
46	0.05860	0.06034	0.06202	0.06364	0.06522	0.06675	0.06823	0.06967	0.07107	0.07243	0.07375
47	0.05588	0.05766	0.05938	0.06105	0.06266	0.06423	0.06575	0.06723	0.06866	0.07005	0.07141
48	0.05316	0.05498	0.05674	0.05845	0.06011	0.06172	0.06327	0.06479	0.06625	0.06768	0.06907
49	0.05043	0.05230	0.05411	0.05586	0.05755	0.05920	0.06079	0.06234	0.06385	0.06531	0.06673
50	0.04771	0.04962	0.05147	0.05326	0.05500	0.05668	0.05831	0.05990	0.06144	0.06294	0.06439
51	0.04499	0.04694	0.04883	0.05067	0.05244	0.05416	0.05584	0.05746	0.05903	0.06056	0.06205
52	0.04226	0.04426	0.04620	0.04807	0.04989	0.05165	0.05336	0.05501	0.05662	0.05819	0.05971
53	0.03954	0.04158	0.04356	0.04547	0.04733	0.04913	0.05088	0.05257	0.05422	0.05582	0.05737
54	0.03682	0.03890	0.04092	0.04288	0.04478	0.04661	0.04840	0.05013	0.05181	0.05344	0.05503
55	0.03409	0.03622	0.03829	0.04028	0.04222	0.04410	0.04592	0.04769	0.04940	0.05107	0.05269
56	0.03137	0.03354	0.03565	0.03769	0.03966	0.04158	0.04344	0.04524	0.04699	0.04870	0.05035
57	0.02865	0.03087	0.03301	0.03509	0.03711	0.03906	0.04096	0.04280	0.04459	0.04632	0.04801
58	0.02592	0.02819	0.03038	0.03250	0.03455	0.03655	0.03848	0.04036	0.04218	0.04395	0.04567
59	0.02320	0.02551	0.02774	0.02990	0.03200	0.03403	0.03600	0.03791	0.03977	0.04158	0.04333
60	0.02048	0.02283	0.02510	0.02731	0.02944	0.03151	0.03352	0.03547	0.03736	0.03920	0.04099
61	0.01776	0.02015	0.02247	0.02471	0.02689	0.02899	0.03104	0.03303	0.03496	0.03683	0.03865
62		0.01747	0.01983	0.02211	0.02433	0.02648	0.02856	0.03059	0.03255	0.03446	0.03631
63			0.01719	0.01952	0.02177	0.02396	0.02608	0.02814	0.03014	0.03208	0.03397
64				0.01692	0.01922	0.02144	0.02360	0.02570	0.02773	0.02971	0.03163
65					0.01666	0.01893	0.02112	0.02326	0.02533	0.02734	0.02929
66						0.01641	0.01864	0.02081	0.02292	0.02496	0.02695
67							0.01617	0.01837	0.02051	0.02259	0.02461
68								0.01593	0.01810	0.02022	0.02227
69									0.01570	0.01785	0.01993
70										0.01547	0.01759
71											0.01525
72											
73											
74											
75											
76											
77											
78											
79											
80											
81											

DeprecLife	72	73	74	75	76	77	78	79	80	81
41	0.08657	0.08766	0.08872	0.08975	0.09075	0.09173	0.09269	0.09362	0.09452	0.09541
42	0.08426	0.08538	0.08647	0.08753	0.08857	0.08957	0.09056	0.09151	0.09245	0.09335
43	0.08195	0.08310	0.08423	0.08532	0.08638	0.08742	0.08843	0.08941	0.09037	0.09130
44	0.07964	0.08083	0.08198	0.08310	0.08420	0.08526	0.08630	0.08731	0.08829	0.08925
45	0.07734	0.07855	0.07974	0.08089	0.08201	0.08310	0.08417	0.08520	0.08622	0.08720
46	0.07503	0.07628	0.07749	0.07867	0.07982	0.08095	0.08204	0.08310	0.08414	0.08515
47	0.07272	0.07400	0.07525	0.07646	0.07764	0.07879	0.07991	0.08100	0.08206	0.08310
48	0.07042	0.07173	0.07300	0.07424	0.07545	0.07663	0.07778	0.07890	0.07999	0.08105
49	0.06811	0.06945	0.07076	0.07203	0.07327	0.07447	0.07565	0.07679	0.07791	0.07900
50	0.06580	0.06718	0.06851	0.06981	0.07108	0.07232	0.07352	0.07469	0.07583	0.07695
51	0.06349	0.06490	0.06627	0.06760	0.06890	0.07016	0.07139	0.07259	0.07376	0.07490
52	0.06119	0.06262	0.06402	0.06538	0.06671	0.06800	0.06926	0.07048	0.07168	0.07285
53	0.05888	0.06035	0.06178	0.06317	0.06452	0.06584	0.06713	0.06838	0.06960	0.07080
54	0.05657	0.05807	0.05953	0.06095	0.06234	0.06369	0.06500	0.06628	0.06753	0.06874
55	0.05427	0.05580	0.05729	0.05874	0.06015	0.06153	0.06287	0.06418	0.06545	0.06669
56	0.05196	0.05352	0.05504	0.05652	0.05797	0.05937	0.06074	0.06207	0.06337	0.06464
57	0.04965	0.05125	0.05280	0.05431	0.05578	0.05721	0.05861	0.05997	0.06130	0.06259
58	0.04734	0.04897	0.05055	0.05209	0.05360	0.05506	0.05648	0.05787	0.05922	0.06054
59	0.04504	0.04670	0.04831	0.04988	0.05141	0.05290	0.05435	0.05577	0.05714	0.05849
60	0.04273	0.04442	0.04606	0.04766	0.04922	0.05074	0.05222	0.05366	0.05507	0.05644
61	0.04042	0.04214	0.04382	0.04545	0.04704	0.04858	0.05009	0.05156	0.05299	0.05439
62	0.03811	0.03987	0.04157	0.04323	0.04485	0.04643	0.04796	0.04946	0.05092	0.05234
63	0.03581	0.03759	0.03933	0.04102	0.04267	0.04427	0.04583	0.04735	0.04884	0.05029
64	0.03350	0.03532	0.03708	0.03881	0.04048	0.04211	0.04370	0.04525	0.04676	0.04824
65	0.03119	0.03304	0.03484	0.03659	0.03829	0.03995	0.04157	0.04315	0.04469	0.04618
66	0.02889	0.03077	0.03259	0.03438	0.03611	0.03780	0.03944	0.04105	0.04261	0.04413
67	0.02658	0.02849	0.03035	0.03216	0.03392	0.03564	0.03731	0.03894	0.04053	0.04208
68	0.02427	0.02621	0.02811	0.02995	0.03174	0.03348	0.03518	0.03684	0.03846	0.04003
69	0.02196	0.02394	0.02586	0.02773	0.02955	0.03132	0.03305	0.03474	0.03638	0.03798
70	0.01966	0.02166	0.02362	0.02552	0.02737	0.02917	0.03092	0.03263	0.03430	0.03593
71	0.01735	0.01939	0.02137	0.02330	0.02518	0.02701	0.02879	0.03053	0.03223	0.03388
72	0.01504	0.01711	0.01913	0.02109	0.02299	0.02485	0.02666	0.02843	0.03015	0.03183
73		0.01484	0.01688	0.01887	0.02081	0.02270	0.02453	0.02633	0.02807	0.02978
74			0.01464	0.01666	0.01862	0.02054	0.02240	0.02422	0.02600	0.02773
75				0.01444	0.01644	0.01838	0.02027	0.02212	0.02392	0.02568
76					0.01425	0.01622	0.01814	0.02002	0.02184	0.02363
77						0.01407	0.01602	0.01792	0.01977	0.02157
78							0.01389	0.01581	0.01769	0.01952
79								0.01371	0.01561	0.01747
80									0.01354	0.01542
81										0.01337

		User Inputs	Calculations		
State		Florida			
Company		Alltel Florida Inc			
Cost of Capital Inputs					
Cost of Debt		[redacted]			
Debt fraction		[redacted]			
Cost of Equity		[redacted]			
Equity fraction			[redacted]		
Weighted equity fraction			[redacted]		
Overall Cost of Capital			[redacted]		
Traffic Inputs					
local DEMs, thousands		873,192			
intrastate DEMs, thousands		186,443			
interstate DEMs, thousands		184,077	1,243,712	total DEMs, thousands	
Local call completion fraction		70.00%			
Total local calls attempted		197,857	138,500	Total local calls completed	
Total intraLATA calls completed		11,845			
Total interLATA calls completed - intrastate		11,920			
Total interLATA calls completed - interstate		25,344			
local DEM fraction		68.21%			
local interoffice traffic fraction		48.69%			
D link investment, per link	$	4,623			
Bus/Res DEMs ratio (local, state, interstate)		110%	200%		300%
per-line entrance facility investment		4.0			
local direct-routed fraction		98.00%			
tandem-routed intraLATA fraction		20.00%			
tandem-routed access fraction		20.00%			
maximum trunk usage, CCS		27.5			
ISUP msgs per i/o call attempt		6			
avg ISUP msg length, octets		25			
TCAP msgs per transaction		2			
TCAP msg length, octets		100			
fraction of calls requiring TCAP		10.00%			
trunk port investment, per port	$	100			
Switch line circuit offset per DLC line	$	5.00			
Total signaling links		53			
Average trunk utilization		30.00%			

Cost Parameters

tax rate	[redacted]	
corporate overhead factor		
other taxes factor		
billing/bill inquiry per line per month	$	1.22
directory listing per line per month	$	-
forward-looking network operations factor		50.00%
alternative CO switching factor		2.69%
alternative circuit equipment factor		1.53%
EO non-port fraction		70.00%
per-line monthly LNP cost	$	0.25
Carrier-carrier customer service, per line per year	$	1.69
NID expense per line per year	$	1.00
DS-0/DS-1 crossover		12.4
DS-1/DS-3 crossover		9.9
Average lines per business location		4.00

Structure fraction assigned to telephone

density range	dist aerial	dist buried	dist underground	fdr aerial
0-5	50%	33%	100%	50%
5-100	33%	33%	50%	33%
100-200	25%	33%	50%	25%
200-650	25%	33%	50%	25%
650-850	25%	33%	40%	25%
850-2550	25%	33%	33%	25%
2550-5000	25%	33%	33%	25%
5000-10000	25%	33%	33%	25%
>10000	25%	33%	33%	25%

Usage Calculations

Intrastate Toll DEMs	186,443,000	
Interstate Toll DEMs	184,077,000	
trunk port usage	1,347,222,169	
trk-min/mo	10,044	
interLATA ded. trunks	2,457	
Common Transport MOU		
Local	8,260,371	w/o OS usage
Intrastate Toll	37,288,600	

Interstate Toll	36,815,400		
	82,364,371		
Intrastate IntraLATA Calls	11,845	49.84%	SOCCC message counts
Intrastate InterLATA Calls	11,920	50.16%	
	23,765		

Calculation of EO Usage

Local DEMs, incl OS	873,192,000	70.2%	of total DEMs
Intraoffice Local DEMs	448,062,975		

Intraoffice Local Actual Min	224,031,487		**Dedicated Transport MOU**	
Interoffice Local Actual Min	425,129,025	per end	Local, w/o OS	202,379,094
Intrastate Toll Actual Min	186,443,000		IntraLATA Toll	37,170,921
Interstate Toll Actual Min	184,077,000		InterLATA Toll	296,178,158
	1,019,680,513			535,728,174

Tandem Switch MOU		Dedicated Trunk-SW	4,445
Local	4,130,186		
IntraLATA Toll	9,292,730		
InterLATA Toll	55,518,540		
	68,941,455		

September 12, 2005
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Account	USOA Category	Economic Lives	Net Salvage Percent	Adjusted Projection Lives (years)	Investment	
2112	Motor Vehicles	[redacted]				
2115	Garage Work Equipment	[redacted]				
2116	Other Work Equipment	[redacted]				
2121	Buildings	[redacted]				
2122	Furniture	[redacted]				
2123.1	Office Support Equipment	[redacted]				
2123.2	Company Comm Equipment	[redacted]				
2124	Computers	[redacted]				
2212	Digital Switching	[redacted]				
2220	Operator Systems	[redacted]				
2232.2	Digital Circuit Equipment	[redacted]				
2351	Public Telephone	[redacted]				
	NID, SAI	[redacted]			*Calculated*	
2411	Poles	[redacted]				
2421-m	Aerial Cable - Metallic	[redacted]			$ 12,117,831	$ 739,239
2421-nm	Aerial Cable - Non-Metallic	[redacted]			$ 12,300,538	$ 811,711
2422-m	Underground - Metallic	[redacted]			$ 211,736	$ 12,704
2422-nm	Underground - Non-Metallic	[redacted]			$ 5,905,768	$ 348,423
2423-m	Buried - Metallic	[redacted]			$ 36,822,082	$ 2,125,115
2423-nm	Buried - Non-Metallic	[redacted]			$ 25,854,839	$ 1,344,251
2426-m	Intrabuilding - Metallic	[redacted]				
2426-nm	Intrabuilding - Non-Metallic	[redacted]				
2441	Conduit Systems	[redacted]				
Average Metallic Cable (calculated)				17.08	$ 49,151,648	$ 2,877,058
Average Metallic Cable (calculated)				17.59	$ 44,061,146	$ 2,504,384

fdr underground	fdr buried
50%	40%
50%	40%
40%	40%
33%	40%
33%	40%
33%	40%
33%	40%
33%	40%
33%	40%

[redacted]

TRANSFORMED REGULATED			1995 COMPANY NAME:	ICO		
			OTHER TAXES & UNCOLLECTIBLES CALCULATION	EXPENSES		NET REVENUES
		7230	OPERATING STATE & LOCAL INCOME TAX-NET	482		
		7240	OPERATING OTHER TAXES	2,038		
		5300	UNCOLLECTIBLE REVENUES			772
		530	NET REVENUES			48,919
			GROSS REVENUES (5300 + 530)			49,691
			UNCLL/GROSS REV			0.015532
		(5300-4040(p..r))/(5081+52	UNCLL RETAIL RATE			2.27%
		(4040(p))/(5082..5084)	UNCLL WHOLESALE RATE			0.43%
EXP	INV		PLANT SPECIFIC OPERATIONS EXPENSES	A. EXPENSES	B. INVESTMENTS	C. EXP/INV (A/B)
			TPIS GENERAL SUPPORT			
	2111	2111	LAND		667	0.000000
	2121	2121	BUILDINGS		9,708	0
6121			TOTAL LAND & BUILDINGS	1,071	10,375	0.103180
6112	2112	2112	MOTOR VEHICLES	58	1,680	0.03475
6113	2113	2113	AIRCRAFT	23	74	0.31246
6114	2114	2114	SPECIAL PURPOSE VEHICLES	0	1	0.01425
6115	2115	2115	GARAGE WORK EQUIPMENT	2	48	0.03533
6116	2116	2116	OTHER WORK EQUIPMENT	15	1,309	0.01131
6122	2122	2122	FURNITURE	78	639	0.12243
6123	2123	2123	OFFICE EQUIPMENT	166	1,633	0.10150
6124	2124	2124	GENERAL PRUPOSE COMPUTERS	1,603	2,512	0.63809
6120	2110	2110	TOTAL LAND & SUPPORT ASSETS	2,917	18,272	0.15965
			TPIS - CENTRAL OFFICE SWITCHING			
		-	-			
6211	2211	2211	ANALOG ELECT SWITCH	48	1,066	0.045322
6212	2212	2212	DIGITAL ELECTRONIC SWITCHING	1,818	31,953	0.056899
6220	2220	2220	OPERATOR SYSTEMS	33	485	0.067518
6210	2210	2210221022102210 2210	CENTRAL OFFICE SWITCH	1,908	33,516	0.056941
			TPIS - CENTRAL OFFICE TRANSMISSION			
		-	-			
6232	2232	2232	CIRCUIT EQUIPMENT	358	22,014	0.016263483
6230	2230	2230	TRANSMISSION	383	23,025	0.01663194
			TPIS - INFORMATION ORIG/TERM			
		-	-			
6311	2311	2311	STATION APPARATUS	6	15	0.382353
	2321	2321	CUSTOMER PREMISES WIRING	0	0	#DIV/0!
6341	2341	2341	LARGE PRIVATE BRANCH EXCHANGE	0	0	4.500000
6351	2351	2351	PUBLIC TEL TERMINAL EQUIPMENT	131	699	0.188118
6362	2362	2362	OTHER TERMINAL EQUIPMENT	212	1,200	0.176350
6310	2310	2310	TOTAL INFORMATION ORIG/TERM	349	1,914	0.182378

[redacted]

			TPIS - CABLE & WIRE FACILITIES			
		-	-			
6411	2411	2411	POLES	157	3,796	0.041273
6421	2421	2421	AERIAL CABLE	1,125	17,890	0.062887
6422	2422	2422	UNDERGROUND CABLE	223	11,393	0.019603
6423	2423	2423	BURIED CABLE	1,231	31,657	0.038878
6441	2441	2441	CONDUIT SYSTEMS	24	6,461	0.003679
6410	2410	2410	TOTAL CABLE & WIRE FACILITIES	2,795	71,952	0.038842
	240	240	TOTAL TPIS(BEFORE AMORTIZABLE ASSETS) (2110+2210+2220+2230+2310+2410)	5,554	149,783	0.037083
			PLANT NON-SPECIFIC OPERATIONS EXPENSES	A. EXPENSES	B. TPIS INVESTMENT	C. EXP/INV (A/B)
		=	=	=	=	=
6512	240	6512	PROVISIONING EXPENSES	45	149,783	0.000300
6531	240	6531	POWER EXPENSES	243	149,783	0.001623
6532	240	6532	NETWORK ADMINISTRATION	614	149,783	0.004102
6533	240	6533	TESTING	637	149,783	0.004252
6534	240	6534	PLANT OPERATIONS ADMINISTRATION	957	149,783	0.006391
6535	240	6535	ENGINEERING	505	149,783	0.003373
6540	240	6540	ACCESS EXPENSE	835	149,783	0.005573799
6530	240	6530	TOTAL NETWORK OPERATIONS EXPENSES	2,957	149,783	0.019740601
6561	240	65616561656165616561	DEPRECIATION -TPISDEPRECIATION -TPIS	10,436 10,436	149,783 149,783 149,783	0.0696775250.069677525
			NETWORK SUPPORT FACTOR CALCULATION	A. EXPENSES	B. CABLE & WIRE INV	C. EXP/INV (A/B)
		=	=	=	=	=
6112		2112	MOTOR VEHICLES	58		
6113		2113	AIRCRAFT	23		
6114		2114	SPECIAL PURPOSE VEHICLES	0		
6115		2115	GARAGE WORK EQUIPMENT	2		
6116		2116	OTHER WORK EQUIPMENT	15		
	2410		TOTAL NETWORK SUPPORT (EXCL 2113)	75	71,952	0.001041087
			CUSTOMER OPERATIONS EXPENSES	A. EXPENSES	B. NET REVENUES	C. EXP/NET REV (A/B)
		=	=	=	=	=
6611		6611	PRODUCT MANAGEMENT	427		CALC
6612		6612	SALES	785		CALC
6613		6613	PRODUCT ADVERTISING	283		CALC
6610		6610	TOTAL MARKETING EXPENSES	1,495		CALC
6621		6621	CALL COMPLETION SERVICE	336		CALC
6622		6622	NUMBER SERVICES	816		CALC
6623		6623	CUSTOMER SERVICES	2,686		CALC
6620		6620	TOTAL SERVICES EXPENSES	3,839		CALC
*		700	TOTAL CUSTOMER OPERATIONS EXPENSE (6610 + 6620)	5,334		CALC
			CORPORATE OPERATIONS EXPENSES	A. EXPENSES	B. REVENUES	C. EXP/REV (A/B)

	=		=	= =		=
6711		6711	EXECUTIVE	202		CALC
6712		6712	PLANNING	99		CALC
6710		6710	TOTAL EXECUTIVE & PLANNING	301		CALC
6721		6721	ACCOUNTING & FINANCE	608		CALC
6722		6722	EXTERNAL RELATIONS	368		CALC
6723		6723	HUMAN RESOURCES	438		CALC
6724		6724	INFORMATION MANAGEMENT	1,676		CALC
6725		6725	LEGAL	140		CALC
6726		6726	PROCUREMENT	77		CALC
6727		6727	RESEARCH & DEVELOPMENT	98		CALC
6728		6728	OTHER GENERAL & ADMINISTRATIVE	1,421		CALC
6720		6720	TOTAL GENERAL & ADMINISTRATIVE	4,827		CALC
		710	TOTAL CORPORATE OPERATIONS EXPENSE (6710 + 6720 + 6790)	6,347		CALC
		720	TOTAL OPERATING EXPENSES			CALC
			DEM - LOCAL	873,193		
			DEM - INTRASTATE	186,444		
			DEM - INTERSTATE	184,077		
			MESSAGES - INTRALATA	11,846		
			MESSAGES - INTERLATA - interstate	25,345		
			MESSAGES - INTERLATA - intrastate	11920.95193		
	4308 (EC)		LOCAL CALL ATTEMPTS	197,857		
			LINES - BUSINESS	19,212		
			RESIDENTIAL	52,068		
			PUBLIC	602		
			SPECIAL	4,764		
			TOTAL	76,744		
		5081	END USER		3,256	
		5082	SWITCHED ACCESS		7,290	
		5083	SPECIAL ACCESS		1,342	
			TOTAL INTER ACCESS		11,888	
		5084	END USER			
		5084	SWITCHED ACCESS			
		5084	SPECIAL ACCESS			
			STATE ACCESS		6,124	
			TOTAL ACCESS REVENUES		18,012	
			LD MESSAGE REVENUE			
		5100	INTERSTATE MESSAGE			
		5100	INTRASTATE MESSAGE			

5100	INTERSTATE CALLING PLAN	
5100	INTRASTATE CALLING PLAN	
	LD MSG REV (CLASS A)	5,155
	UNIDIRECTIONAL LD	
5110	INTERSTATE	
	INTRASTATE	
	TOTAL	188
5120	LD PRIVATE NETWORK	427
	OTHER LD	
5160	INTERSTATE	
	INTRASTATE	
	TOTAL	67
	TOTAL LD NETWORK REVENUE	
	INTERSTATE	
	INTRASTATE	
	TOTAL	5,838
	BASIC LOCAL SERVICE	
5001	BASIC AREA	15,852
5002	OPTIONAL EXTEND AREA	486
5003	CELLAR MOBIL	374
5004	OTHER MOBIL SVC	30
	TOTAL BASIC SVC	16,743
	PUBLIC TELEPHONE REVENUE	
5010	LOCAL PUBLIC MSG	
	UNIVERSAL	
	PB EXCHANGE IX CARRIER	
	CC COINLESS	
	PUBLIC EXH	
	SEMI-PUBLIC	
	OTHER PUBLIC PHONE REV	
	TOTAL PUBLIC PHONE REVENUE	465
5040	LOCAL PRIVATE LINE	552
	CUSTOMER PREMISE	
5050	STATION APP	
	CUSTOMER PREMISE WIRING	

[redacted]

	TOTAL CUSTOMER PREMISES			40	
	OTHER LOCAL EXCHANGE				
5060	CO FEATURES				
	INFO TRANSPORT				
	DIRECTORY ASSIST				
	INTERCEPT SRVC				
	OTHER LOC EXCH				
	TOTAL OTHER			3,899	
	TOTAL LOCAL NETWORK SRVC REVENUE				
	INTERSTATE				
	INTRASTATE			21699.08624	
	TOTAL REVENUE		45549.3964		

CAPITAL STRUCTURE PARAMETERS

DEBT/EQUITY RATIODEBT/EQUITY RATIODEBT/EQUITY RATIODEBT/EQUITY RATIODEBT/EQUITY RATIO
COST OF DEBT
COST OF EQUITY

		BALANCE SHEET 43-02,B-1 AVG=(ab+af)/2 A	ACCRUEL 43-02,B-5 (col 2C) B	DEPR LIFE (ASSUMING STRAIGHT LIFE) C = (A/C)
	-	-	-	-
	ECONOMIC LIFE			
(2422,21,22,23,41)	FEEDER			
(2422,21,22,23,41)	DISTRIBUTION			
2121	BUILDINGS			
2232	DLC ELECTRONIC EQUIPMENT			
2212	EO SWITCHING			
2212	TANDEM SWITCHING			
2220	OS POSITIONS			
2220	OS TANDEM			
2232	TRANSMISSION SYSTEMS			
2351	PUBLIC TELEPHONE EQUIPMENT			
2122,2124	FURNITURE + GP COMPUTERS			

DATA SOURCEDATA SOURCEDATA SOURCEDATA SOURCE		sum checksum checksum checksum checksum checksum checksum check			
ARMIS 4303	Jan 1996 to Dec 1996		28215	495	
ARMIS 4304	GEORGIA		9007	9010	
ARMIS 4308		0 (EJ)	(EJ)		
DEM			0		
=	=	=	=	=	
UNCOLL RATE:	BA Lcl Svc	4303,Ln 520			21699.61457
	LD Ntwk Svs Rev	4303,Ln 525			5884.242756
	End User	4303,Ln 5081			3256.256704

	Sw Acc	4303,Ln 5082	7290.465656
	Spcl Acc	4303,Ln 5083	1341.628906
	St Acc	4303,Ln 5084	6123.865637
	Uncoll Rev	4303,Ln 5300	771.7728115
	Tot Acc	4304,Ln4040 (P)	63.97185331
	B&C	4304,Ln4040 (Q)	6.283126222
	IX	4304,Ln4040 (R)	0.227130693
	Ln4040 (P+Q+R)	Calc (P+Q+R)	70.48211022
Uncoll -Acc	5300-(4040p..r)	1a	701.2907012
End User+ Revs	5081+520+525	1b	30840.11403
Uncoll Retail Rate		1c=(a/b)	0.022739563
Uncoll Wholesale rate	4040p/(5082..5084)	2a	0.004335323

Actuals for 1996 ($000s)

	Investments		Expenses	Calculated Factor	
Plant-Specific Operations Expenses					
TPIS - General Support					
2111 Land	$	667	$	-	-	
2112 Motor Vehicles	$	1,680	$	58	0.0348	
2113 Aircraft	$	74	$	23	0.3125	
2114 Special Purpose Vehicles	$	1	$	0	0.0142	
2115 Garage Work Equipment	$	48	$	2	0.0353	
2116 Other Work Equipment	$	1,309	$	15	0.0113	
2121 Buildings	$	9,708	$	1,071	0.1103	Land & Bldg Exp Applied to Bldgs
2122 Furniture	$	639	$	78	0.1224	
2123 Office Equipment	$	1,633	$	166	0.1015	
2124 General Purpose Computers	$	2,512	$	1,603	0.6381	
2110 Total Land & Support Assets	$	18,272	$	3,015	0.1650	
TPIS - Central Office Switching						
2211 Analog Electronic Switching	$	1,066	$	48	0.0453	
2212 Digital Electronic Switching	$	31,953	$	1,818	0.0569	2.69% NET CO Switch Factor
2210 Total Central Office Switching	$	33,020	$	1,866	0.0565	
2220 Operator Systems	$	485	$	33	0.0675	
TPIS - Central Office Transmission						
2231 Satellite & Earth Station Facilities						
2231 Other Radio Facilities						
2231 Radio Systems						
2232 Circuit Equipment	$	22,014	$	358	0.0163	1.53% alternative factor
2230 Total Central Office Transmission	$	22,014	$	358	0.0163	
TPIS - Information Orig/Term						
2311 Station Apparatus	$	15	$	6	0.3824	
2321 Customer Premises Wiring	$	-	$	-	0.0000	
2341 Large Private Branch Exchange	$	0	$	0	4.5000	
2351 Public Telephone Terminal Equipment	$	699	$	131	0.1881	
2362 Other Terminal Equipment	$	1,200	$	212	0.1763	
2310 Total Information Orig/Term	$	1,914	$	349	0.1824	
TPIS - Cable & Wire Facilities						
2411 Poles	$	3,796	$	157	0.0413	
2421 Aerial Cable	$	17,890	$	1,125	0.0629	
2422 Underground Cable	$	11,393	$	223	0.0196	
2423 Buried Cable	$	31,657	$	1,231	0.0389	
2424 Submarine Cable					0.0000	
2425 Deep Sea Cable					0.0000	
2426 Intrabuilding Network Cable					0.0000	
2431 Aerial Wire					0.0000	
2441 Conduit Systems	$	6,461	$	24	0.0037	
2410 Total Cable & Wire Facilities	$	71,198	$	2,760	0.0388	

240	Total TPIS (before amortizable assets)	$	128,631			$	8,381	0.0652

Plant Non-Specific Operations Expenses

			Expenses		Investment	Factor		
6512	Provisioning Expenses	$	45	$	128,631	0.0003		
6531	Power Expenses	$	243	$	128,631	0.0019	8.10%	all
6532	Network Administration	$	614	$	128,631	0.0048	20.47%	switching, interoffice
6533	Testing	$	637	$	128,631	0.0050	21.22%	all
6534	Plant Operations Administration	$	957	$	128,631	0.0074	31.89%	all
6535	Engineering	$	505	$	128,631	0.0039	16.83%	all
6540	Access Expense							
6530	Total Network Operations Expenses (Including Provisioning Expenses)	$	3,002	$	128,631	0.0233		

per line network operations	(=total ARMIS 6530/total lines)	
total lines (from net. invest. inputs)		76,744
annual net ops per line	$	39.11

Network Support Factor Calculation

			Expenses		Cable & Wire Inv	Factor
2112	Motor Vehicles	$	58			
2113	Aircraft	$	23			
2114	Special Purpose Vehicles	$	0			
2115	Garage Work Equipment	$	2			
2116	Other Work Equipment	$	15			
	Aircraft & Special Purpose Vehicles	$	75	$	71,198	0.0011

Customer Operations Expenses

			Expenses				Net Revenues	Factor	
6611	Product Management *	$	427	$	0.4638	$	25,671	0.01664	
6612	Sales *	$	785	$	0.8522	$	25,671	0.03057	
6613	Product Advertising	$	283			$	25,671	0.01104	
6610	Total Marketing Expenses	$	1,495					0.05824	
6621	Call Completion Service	$	336			$	25,671	0.01310	
6622	Number Services	$	816	$	0.8863	$	25,671	0.03179	
6623	Customer Services	$	2,686	$	2.9168	$	25,671	0.10464	
6620	Total Services Expenses	$	3,839	$	4.23			0.14954	
	Billing/bill inquiry (per line/month)	$	1.22						
	Service order processing fraction of 6623		-						
	Directory listing (per line/month)	$	-						
700	Total Customer Operations Expenses	$	5,334			$	25,671	0.20778	24.42%

Corporate Operations Expenses

			Expenses		Revenues	Factor
6711	Executive	$	202	$	25,671	0.007873
6712	Planning	$	99	$	25,671	0.003852
6710	Total Executive & Planning	$	301	$	25,671	0.011725
6721	Accounting & Finance	$	608	$	25,671	0.023687

6722 External Relations	$	368	$	25,671	0.014352
6723 Human Resources	$	438	$	25,671	0.017052
6724 Information Management	$	1,676	$	25,671	0.065281
6725 Legal	$	140	$	25,671	0.005470
6726 Procurement	$	77	$	25,671	0.003018
6727 Research & Development	$	98	$	25,671	0.003803
6728 Other General & Administrative	$	1,421	$	25,671	0.055362
6720 Total General & Administrative	$	4,827	$	25,671	0.188024
710 Total Corporate Operations Expense	$	5,128	$	25,671	[redacted]
720 Total Operating Expenses	$	21,845			
note: does not include dep/amort					

23.47%

47.89% Total Operations General Support Allocator
0.455545869 "Office Worker" General Support Alllocator

Misc Expenses Calculation

	2122 Furniture	2123 Ofc Equpt	2124 GP Comptr	2112 Motor Vehicles	2121 Buildings	2115 Grg Wk Eq	2116 Other Wk Eq
Investment	$ 639	$ 1,633	$ 2,512	$ 1,680	$ 4,854	$ 48	$ 1,309
Investment/TPIS	0.00497	0.01270	0.01953	0.01306	0.03774	0.00037	0.01018
Expense	$ 78	$ 166	$ 1,603	$ 58	$ 535	$ 2	$ 15
Expense Factor	0.12243	0.10150	0.63809	0.03475	0.11027	0.03533	0.01131
Model TPIS	$ 227,791	$ 227,791	$ 227,791	$ 227,791	# $ 227,791	$ 227,791	$ 227,791
Calculated Investment	$ 1,132	$ 2,892	$ 4,448	$ 2,975	$ 8,596	$ 85	$ 2,318
Calculated Expense	$ 139	$ 294	$ 2,838	$ 103	$ 948	$ 3	$ 26
Subtotal ($s)	$ 1,921,518						
Total Misc Expense	$ 1,921,518						

Other Taxes & Uncollectibles Calculation

	Expenses	Net Revenues	Factor
7230 Operating State & Local Income Tax	$ 482	$ (2,481)	0.0000
7240 Operating Other Taxes	$ 2,038	$ (2,481)	[redacted]
5300 Uncollectible Revenues	$ 772	$ 25,671	0.0301
retail			0.0227
wholesale			0.0043

Ratio of Net Plant to TPIS

TPIS	$ 128,631
Net Plant	$ 128,631
Ratio	100.00%
Model Investment	$ 184,627
Model % of Net Plant	144%
Model % of TPIS	144%

Actual 1996 Revenue

			% of total
Interstate Access			
5081 End User	$	3,256	8.26%
5082 Switched Access	$	7,290	18.49%
5083 Special Access	$	1,342	3.40%
Total Inter Access	$	11,888	30.15%
State Access Revenue			
5084 End User	$	-	0.00%
5084 Switched Access	$	-	0.00%
5084 Special Access	$	-	0.00%
Total State Access	$	-	0.00%
Total Access Revenue	$	11,888	30.15%
Long Distance Network Revenue			
5100 Interstate Message	$	-	0.00%
5100 Intrastate Message	$	-	0.00%
5100 Interstate Calling Plan	$	-	0.00%
5100 Intrastate Calling Plan	$	-	0.00%
Total LD Msg Revenue	$	5,155	13.08%
Unidirectional LD Revenue			
5110 Interstate	$	-	0.00%
Intrastate	$	-	0.00%
Total	$	188	0.48%
LD Private Network Revenue			
5120 Interstate	$	-	0.00%
Intrastate	$	-	0.00%
Total	$	427	1.08%
Other Long Distance Revenue			
5160 Interstate	$	-	0.00%
Intrastate	$	-	0.00%
Total	$	67	0.17%
Total Long Distance Network Rev			
Interstate	$	-	0.00%
Intrastate	$	-	0.00%
Total	$	5,838	14.81%

[redacted]

Actual Revenue

Basic Local Service			
5001 Basic Area	$	15,852	40.21%
5002 Optional Extended Area	$	486	1.23%
5003 Cellular Mobile	$	374	0.95%
5004 Other Mobile Svcs	$	30	0.08%
Total Basic Local Service	$	16,743	42.47%
Public Telephone Revenue			
5010 Local Public Msgs	$	-	0.00%
Universal Public Phone	$	-	0.00%
Public Exchange - IX Carrier	$	-	0.00%
Credit Card Coinless	$	-	0.00%
Public Exchange - CPE	$	-	0.00%
Semi-Public Msgs	$	-	0.00%
Other Public Phone Revenue	$	-	0.00%
Total Public Phone Revenue	$	465	1.18%
Local Private Line Revenue			
5040 Interstate	$	-	0.00%
Intrastate	$	-	0.00%
Total Private Line	$	552	1.40%
Customer Premises Revenue			
5050 Station Apparatus	$	-	0.00%
Customer Premises Wiring	$	-	0.00%
Total Customer Premises	$	40	0.10%
Other Local Exchange Revenue			
5060 Central Office Features	$	-	0.00%
Information Transport	$	-	0.00%
Directory Assistance	$	-	0.00%
Intercept Services	$	-	0.00%
Other Loc Exchg	$	-	0.00%
Total Other	$	3,899	9.89%
Total Local Network Service Revenue			
Interstate	$	-	0.00%
Intrastate	$	21,699	55.04%
Total Revenue	$	39,426	100.00%

NOTE: This sheet diplays all user adjustable inputs which vary from HM 5.0a default settings

Workfile Name: **C:\HM50a\WORKFILES\HMWKFL2103363.XLS**
Distribution Module Name: **C:\HM50a\MODULES\R50a_distribution.xls**
Feeder Module Name: **C:\HM50a\MODULES\R50a_feeder.xls**
Switching Module Name: **C:\HM50a\MODULES\R50a_switching_io.xls**
Expense Module Name: **C:\HM50a\MODULES\R50a_expense_wirecenter.xls**

Module/Table	Scenario Input	Scenario Value	Default Value
Distribution	Aerial Drop Placement (total) - 0	37.5	23.33
Distribution	Aerial Drop Placement (total) - 5	37.5	23.33
Distribution	Aerial Drop Placement (total) - 100	25	17.5
Distribution	Aerial Drop Placement (total) - 200	25	17.5
Distribution	Aerial Drop Placement (total) - 650	12.5	11.67
Distribution	Aerial Drop Placement (total) - 850	12.5	11.67
Distribution	Aerial Drop Placement (total) - 2550	12.5	11.67
Distribution	Aerial Drop Placement (total) - 5000	12.5	11.67
Distribution	Aerial Drop Placement (total) - 10000	12.5	11.67
Distribution	Buried Drop Placement (total) - 0	0.8	0.6
Distribution	Buried Drop Placement (total) - 5	0.8	0.6
Distribution	Buried Drop Placement (total) - 100	0.8	0.6
Distribution	Buried Drop Placement (total) - 200	0.8	0.6
Distribution	Buried Drop Placement (total) - 650	0.8	0.6
Distribution	Buried Drop Placement (total) - 850	0.8	0.6
Distribution	Buried Drop Placement (total) - 2550	0.8	0.75
Distribution	Buried Drop Placement (total) - 5000	0.8	1.5
Distribution	Buried Drop Placement (total) - 10000	0.8	5
Distribution	Pole Investment	207.3	201
Distribution	Pole Labor	381.5	216
Distribution	Conduit Investment per foot	3.4	0.6
Distribution	Residential NID case, no protector	17.5	10
Distribution	Residential NID basic labor	22.5	15
Distribution	Residential Protection Block, per pair	4.5	4
Distribution	Business NID case, no protector	28.2	25
Distribution	Business NID basic labor	22.5	15
Distribution	Business Protection Block, per pair	4.5	4
Distribution	Drop cable investment per foot buried	0.2	0.14
Distribution	Drop cable investment per foot aerial	0.12	0.095
Distribution	Low Density DLC Basic Common Eqpt Invest + initial lines	18020	16000
Distribution	Distribution Cable Investment per foot 1	24.5	20
Distribution	Distribution Cable Investment per foot 2	19.05	16
Distribution	Distribution Cable Investment per foot 3	13.15	12

NOTE: This sheet diplays all user adjustable inputs which vary from HM 5.0a default settings

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Feeder Module Name:	**C:\HM50a\MODULES\R50a_feeder.xls**
Switching Module Name:	**C:\HM50a\MODULES\R50a_switching_io.xls**
Expense Module Name:	**C:\HM50a\MODULES\R50a_expense_wirecenter.xls**

Module/Table	Scenario Input	Scenario Value	Default Value
Distribution	Distribution Cable Investment per foot 4	9.95	10
Distribution	Distribution Cable Investment per foot 5	7.1	7.75
Distribution	Distribution Cable Investment per foot 6	5.45	6
Distribution	Distribution Cable Investment per foot 7	3.85	4.25
Distribution	Distribution Cable Investment per foot 8	2.45	2.5
Distribution	Distribution Cable Investment per foot 9	1.76	1.63
Distribution	Distribution Cable Investment per foot 10	1.43	1.19
Distribution	Distribution Cable Investment per foot 11	1.27	0.76
Distribution	Distribution Cable Investment per foot 12	1.19	0.63
Feeder	Fiber Feeder Investment per foot - 216	11.6	13.1
Feeder	Fiber Feeder Investment per foot - 144	10	9.5
Feeder	Fiber Feeder Investment per foot - 96	7.95	7.1
Feeder	Fiber Feeder Investment per foot - 72	6.65	5.9
Feeder	Fiber Feeder Investment per foot - 60	6.05	5.3
Feeder	Fiber Feeder Investment per foot - 48	5.6	4.7
Feeder	Fiber Feeder Investment per foot - 36	4.9	4.1
Feeder	Fiber Feeder Investment per foot - 24	4.2	3.5
Feeder	Fiber Feeder Investment per foot - 18	3.95	3.2
Feeder	Fiber Feeder Investment per foot - 12	3.55	2.9
Feeder	Copper Feeder Investment per foot - 4200	34.25	29
Feeder	Copper Feeder Investment per foot - 3600	31.25	26
Feeder	Copper Feeder Investment per foot - 3000	31.4	23
Feeder	Copper Feeder Investment per foot - 2400	24.5	20
Feeder	Copper Feeder Investment per foot - 1800	19.05	16
Feeder	Copper Feeder Investment per foot - 1200	13.15	12
Feeder	Copper Feeder Investment per foot - 900	9.95	10
Feeder	Copper Feeder Investment per foot - 600	7.1	7.75
Feeder	Copper Feeder Investment per foot - 400	5.45	6
Feeder	Copper Feeder Investment per foot - 200	3.85	4.25
Feeder	Copper Feeder Investment per foot - 100	2.45	2.5
Feeder	Pole Materials	207.3	201
Feeder	Pole Labor	381.5	216
Feeder	Conduit Material Investment per foot	3.4	0.6

NOTE: This sheet diplays all user adjustable inputs which vary from HM 5.0a default settings

Workfile Name:	**C:\HM50a\WORKFILES\HMWKFL2103363.XLS**
Distribution Module Name:	**C:\HM50a\MODULES\R50a_distribution.xls**
Feeder Module Name:	**C:\HM50a\MODULES\R50a_feeder.xls**
Switching Module Name:	**C:\HM50a\MODULES\R50a_switching_io.xls**
Expense Module Name:	**C:\HM50a\MODULES\R50a_expense_wirecenter.xls**

Module/Table	Scenario Input	Scenario Value	Default Value
Switching	Constant EO Switching Investment Term, BOC and large ICO	254.87	242.73
Expense	Cost of Debt	[redacted]	0.077
Expense	Debt Fraction		0.45
Expense	Cost of Equity		0.119
Expense	Corporate Overhead Factor		0.104
Expense	Other Taxes Factor		0.05
Expense	Motor Vehicles - Economic Life		8.24
Expense	Buildings - Economic Life		46.93
Expense	Digital Electronic Switching - Economic Life		16.17
Expense	Digital Circuit Equipment - Economic Life		10.24
Expense	Poles - Economic Life		30.25
Expense	Aerial Cable - metallic - Economic Life		20.61
Expense	Aerial Cable - non metallic - Economic Life		26.14
Expense	Underground Cable - metallic - Economic Life		25
Expense	Underground Cable - non metallic - Economic Life		26.45
Expense	Buried - metallic - Economic Life		21.57
Expense	Buried - non metallic - Economic Life		25.91
Expense	Conduit Systems - Economic Life		56.19
Expense	Motor Vehicles - Net Salvage %		0.1121
Expense	Buildings - Net Salvage %		0.0187
Expense	Digital Electronic Switching - Net Salvage %		0.0297
Expense	Digital Circuit Equipment - Net Salvage %		-0.0169
Expense	Poles - Net Salvage %		-0.8998
Expense	Aerial Cable - metallic - Net Salvage %		-0.2303
Expense	Aerial Cable - non metallic - Net Salvage %		-0.1753
Expense	Underground Cable - metallic - Net Salvage %		-0.1826
Expense	Underground Cable - non metallic - Net Salvage %		-0.1458
Expense	Buried - metallic - Net Salvage %		-0.0839
Expense	Buried - non metallic - Net Salvage %		-0.0858
Expense	Conduit Systems - Net Salvage %		-0.1034

Distribution Input	Current Scenario Value	Default Scenario Value	Feeder Input	Current Scenario Value	Default Scenario Value
Distribution Cable Fill - 0	0.50	**0.50**	Copper Feeder Fill - 0	0.65	**0.65**
Distribution Cable Fill - 5	0.55	**0.55**	Copper Feeder Fill - 5	0.75	**0.75**
Distribution Cable Fill - 100	0.55	**0.55**	Copper Feeder Fill - 100	0.80	**0.80**
Distribution Cable Fill - 200	0.60	**0.60**	Copper Feeder Fill - 200	0.80	**0.80**
Distribution Cable Fill - 650	0.65	**0.65**	Copper Feeder Fill - 650	0.80	**0.80**
Distribution Cable Fill - 850	0.70	**0.70**	Copper Feeder Fill - 850	0.80	**0.80**
Distribution Cable Fill - 2550	0.75	**0.75**	Copper Feeder Fill - 2550	0.80	**0.80**
Distribution Cable Fill - 5000	0.75	**0.75**	Copper Feeder Fill - 5000	0.80	**0.80**
Distribution Cable Fill - 10000	0.75	**0.75**	Copper Feeder Fill - 10000	0.80	**0.80**
Buried Fraction - 0	0.75	**0.75**	Fiber Feeder Strand Fill - 0	1.00	**1.00**
Buried Fraction - 5	0.75	**0.75**	Fiber Feeder Strand Fill - 5	1.00	**1.00**
Buried Fraction - 100	0.75	**0.75**	Fiber Feeder Strand Fill - 100	1.00	**1.00**
Buried Fraction - 200	0.70	**0.70**	Fiber Feeder Strand Fill - 200	1.00	**1.00**
Buried Fraction - 650	0.70	**0.70**	Fiber Feeder Strand Fill - 650	1.00	**1.00**
Buried Fraction - 850	0.70	**0.70**	Fiber Feeder Strand Fill - 850	1.00	**1.00**
Buried Fraction - 2550	0.65	**0.65**	Fiber Feeder Strand Fill - 2550	1.00	**1.00**
Buried Fraction - 5000	0.35	**0.35**	Fiber Feeder Strand Fill - 5000	1.00	**1.00**
Buried Fraction - 10000	0.05	**0.05**	Fiber Feeder Strand Fill - 10000	1.00	**1.00**
Aerial Cable Fraction - 0	0.25	**0.25**	Copper Aerial Fraction - 0	0.50	**0.50**
Aerial Cable Fraction - 5	0.25	**0.25**	Copper Aerial Fraction - 5	0.50	**0.50**
Aerial Cable Fraction - 100	0.25	**0.25**	Copper Aerial Fraction - 100	0.50	**0.50**
Aerial Cable Fraction - 200	0.30	**0.30**	Copper Aerial Fraction - 200	0.40	**0.40**
Aerial Cable Fraction - 650	0.30	**0.30**	Copper Aerial Fraction - 650	0.30	**0.30**
Aerial Cable Fraction - 850	0.30	**0.30**	Copper Aerial Fraction - 850	0.20	**0.20**
Aerial Cable Fraction - 2550	0.30	**0.30**	Copper Aerial Fraction - 2550	0.15	**0.15**
Aerial Cable Fraction - 5000	0.60	**0.60**	Copper Aerial Fraction - 5000	0.10	**0.10**
Aerial Cable Fraction - 10000	0.85	**0.85**	Copper Aerial Fraction - 10000	0.05	**0.05**
Pole Spacing, feet - 0	250	**250**	Copper Buried Fraction - 0	0.45	**0.45**
Pole Spacing, feet - 5	250	**250**	Copper Buried Fraction - 5	0.45	**0.45**
Pole Spacing, feet - 100	200	**200**	Copper Buried Fraction - 100	0.45	**0.45**
Pole Spacing, feet - 200	200	**200**	Copper Buried Fraction - 200	0.40	**0.40**
Pole Spacing, feet - 650	175	**175**	Copper Buried Fraction - 650	0.30	**0.30**
Pole Spacing, feet - 850	175	**175**	Copper Buried Fraction - 850	0.20	**0.20**
Pole Spacing, feet - 2550	150	**150**	Copper Buried Fraction - 2550	0.10	**0.10**
Pole Spacing, feet - 5000	150	**150**	Copper Buried Fraction - 5000	0.05	**0.05**
Pole Spacing, feet - 10000	150	**150**	Copper Buried Fraction - 10000	0.05	**0.05**
Drop Distance, feet - 0	150	**150**	Copper Manhole Spacing, feet - 0	800	**800**
Drop Distance, feet - 5	150	**150**	Copper Manhole Spacing, feet - 5	800	**800**
Drop Distance, feet - 100	100	**100**	Copper Manhole Spacing, feet - 100	800	**800**
Drop Distance, feet - 200	100	**100**	Copper Manhole Spacing, feet - 200	800	**800**
Drop Distance, feet - 650	50	**50**	Copper Manhole Spacing, feet - 650	600	**600**
Drop Distance, feet - 850	50	**50**	Copper Manhole Spacing, feet - 850	600	**600**
Drop Distance, feet - 2550	50	**50**	Copper Manhole Spacing, feet - 2550	600	**600**
Drop Distance, feet - 5000	50	**50**	Copper Manhole Spacing, feet - 5000	400	**400**
Drop Distance, feet - 10000	50	**50**	Copper Manhole Spacing, feet - 10000	400	**400**
Aerial Drop Placement (total) - 0	37.50	**23.33**	Fiber Aerial Fraction - 0	0.35	**0.35**
Aerial Drop Placement (total) - 5	37.50	**23.33**	Fiber Aerial Fraction - 5	0.35	**0.35**
Aerial Drop Placement (total) - 100	25.00	**17.50**	Fiber Aerial Fraction - 100	0.35	**0.35**
Aerial Drop Placement (total) - 200	25.00	**17.50**	Fiber Aerial Fraction - 200	0.30	**0.30**
Aerial Drop Placement (total) - 650	12.50	**11.67**	Fiber Aerial Fraction - 650	0.30	**0.30**
Aerial Drop Placement (total) - 850	12.50	**11.67**	Fiber Aerial Fraction - 850	0.20	**0.20**
Aerial Drop Placement (total) - 2550	12.50	**11.67**	Fiber Aerial Fraction - 2550	0.15	**0.15**
Aerial Drop Placement (total) - 5000	12.50	**11.67**	Fiber Aerial Fraction - 5000	0.10	**0.10**

Distribution Input	Current Scenario Value	Default Scenario Value
Aerial Drop Placement (total) - 10000	12.50	**11.67**
Buried Drop Placement (total) - 0	0.80	**0.60**
Buried Drop Placement (total) - 5	0.80	**0.60**
Buried Drop Placement (total) - 100	0.80	**0.60**
Buried Drop Placement (total) - 200	0.80	**0.60**
Buried Drop Placement (total) - 650	0.80	**0.60**
Buried Drop Placement (total) - 850	0.80	**0.60**
Buried Drop Placement (total) - 2550	0.80	**0.75**
Buried Drop Placement (total) - 5000	0.80	**1.50**
Buried Drop Placement (total) - 10000	0.80	**5.00**
Buried Drop Sharing Fraction - 0	0.50	**0.50**
Buried Drop Sharing Fraction - 5	0.50	**0.50**
Buried Drop Sharing Fraction - 100	0.50	**0.50**
Buried Drop Sharing Fraction - 200	0.50	**0.50**
Buried Drop Sharing Fraction - 650	0.50	**0.50**
Buried Drop Sharing Fraction - 850	0.50	**0.50**
Buried Drop Sharing Fraction - 2550	0.50	**0.50**
Buried Drop Sharing Fraction - 5000	0.50	**0.50**
Buried Drop Sharing Fraction - 10000	0.50	**0.50**
Buried Drop Fraction - 0	0.75	**0.75**
Buried Drop Fraction - 5	0.75	**0.75**
Buried Drop Fraction - 100	0.75	**0.75**
Buried Drop Fraction - 200	0.70	**0.70**
Buried Drop Fraction - 650	0.70	**0.70**
Buried Drop Fraction - 850	0.70	**0.70**
Buried Drop Fraction - 2550	0.70	**0.70**
Buried Drop Fraction - 5000	0.40	**0.40**
Buried Drop Fraction - 10000	0.15	**0.15**
Pole Investment	207.30	**201.00**
Pole Labor	381.50	**216.00**
Buried Cable Jacketing Multiplier	1.04	**1.04**
Conduit Investment per foot	3.40	**0.60**
Spare Tubes per route	1.00	**1.00**
Regional Labor Adjustment Factor (see Labor Inputs)	1.00	**1.00**
Residential NID case, no protector	17.50	**10.00**
Residential NID basic labor	22.50	**15.00**
spare	-	**-**
Residential Protection Block, per pair	4.50	**4.00**
Business NID case, no protector	28.20	**25.00**
Business NID basic labor	22.50	**15.00**
Business Protection Block, per pair	4.50	**4.00**
Average Lines per business location	4.00	**4.00**
Terminal and Splice per line, buried	42.50	**42.50**
Terminal and Splice per line, aerial	32.00	**32.00**
Drop cable investment per foot buried	0.20	**0.14**
Drop cable buried pairs	3.00	**3.00**
Drop cable investment per foot aerial	0.120	**0.095**
Drop cable aerial pairs	2.00	**2.00**
DS-0 fraction	1.00	**1.00**
DS-1 fraction	-	**-**
DS-0 pair equivalent	1.00	**1.00**
DS-1 pair equivalent	2.00	**2.00**

Feeder Input	Current Scenario Value	Default Scenario Value
Fiber Aerial Fraction - 10000	0.05	**0.05**
Fiber Buried Fraction - 0	0.60	**0.60**
Fiber Buried Fraction - 5	0.60	**0.60**
Fiber Buried Fraction - 100	0.60	**0.60**
Fiber Buried Fraction - 200	0.60	**0.60**
Fiber Buried Fraction - 650	0.30	**0.30**
Fiber Buried Fraction - 850	0.20	**0.20**
Fiber Buried Fraction - 2550	0.10	**0.10**
Fiber Buried Fraction - 5000	0.05	**0.05**
Fiber Buried Fraction - 10000	0.05	**0.05**
Fiber Pullbox Spacing, feet - 0	2,000.00	**2,000.00**
Fiber Pullbox Spacing, feet - 5	2,000.00	**2,000.00**
Fiber Pullbox Spacing, feet - 100	2,000.00	**2,000.00**
Fiber Pullbox Spacing, feet - 200	2,000.00	**2,000.00**
Fiber Pullbox Spacing, feet - 650	2,000.00	**2,000.00**
Fiber Pullbox Spacing, feet - 850	2,000.00	**2,000.00**
Fiber Pullbox Spacing, feet - 2550	2,000.00	**2,000.00**
Fiber Pullbox Spacing, feet - 5000	2,000.00	**2,000.00**
Fiber Pullbox Spacing, feet - 10000	2,000.00	**2,000.00**
Fiber Feeder Investment per foot - 216	11.60	**13.10**
Fiber Feeder Investment per foot - 144	10.00	**9.50**
Fiber Feeder Investment per foot - 96	7.95	**7.10**
Fiber Feeder Investment per foot - 72	6.65	**5.90**
Fiber Feeder Investment per foot - 60	6.05	**5.30**
Fiber Feeder Investment per foot - 48	5.60	**4.70**
Fiber Feeder Investment per foot - 36	4.90	**4.10**
Fiber Feeder Investment per foot - 24	4.20	**3.50**
Fiber Feeder Investment per foot - 18	3.95	**3.20**
Fiber Feeder Investment per foot - 12	3.55	**2.90**
Copper Feeder Investment per foot - 4200	34.25	**29.00**
Copper Feeder Investment per foot - 3600	31.25	**26.00**
Copper Feeder Investment per foot - 3000	31.40	**23.00**
Copper Feeder Investment per foot - 2400	24.50	**20.00**
Copper Feeder Investment per foot - 1800	19.05	**16.00**
Copper Feeder Investment per foot - 1200	13.15	**12.00**
Copper Feeder Investment per foot - 900	9.95	**10.00**
Copper Feeder Investment per foot - 600	7.10	**7.75**
Copper Feeder Investment per foot - 400	5.45	**6.00**
Copper Feeder Investment per foot - 200	3.85	**4.25**
Copper Feeder Investment per foot - 100	2.45	**2.50**
Buried Copper Cable Sheath Multiplier	1.04	**1.04**
Buried Fiber Sheath Addition per foot	0.20	**0.20**
Pole Materials	207.30	**201.00**
Pole Labor	381.50	**216.00**
Conduit Material Investment per foot	3.40	**0.60**
Inner Duct Investment per foot	0.30	**0.30**
Spare Tubes per section	1.00	**1.00**
Regional Labor Adjustment Factor (see Labor	1.00	**1.00**
Pole Spacing, feet - 0	250.00	**250.00**
Pole Spacing, feet - 5	250.00	**250.00**
Pole Spacing, feet - 100	200.00	**200.00**
Pole Spacing, feet - 200	200.00	**200.00**

Distribution Input	Current Scenario Value	Default Scenario Value
DS-3 pair equivalent	56.00	**56.00**
Indoor NID case	5.00	**5.00**
Buried fraction available for shift - 0	0.75	**0.75**
Buried fraction available for shift - 5	0.75	**0.75**
Buried fraction available for shift - 100	0.75	**0.75**
Buried fraction available for shift - 200	0.75	**0.75**
Buried fraction available for shift - 650	0.75	**0.75**
Buried fraction available for shift - 850	0.75	**0.75**
Buried fraction available for shift - 2550	0.75	**0.75**
Buried fraction available for shift - 5000	-	**-**
Buried fraction available for shift - 10000	-	**-**
Wireless Investment Cap Enabled	FALSE	**FALSE**
Wireless Point to Point Inv cap - distribution, per line	7,500.00	**7,500.00**
Wireless Common inv, broadcast	112,500.00	**112,500.00**
Wireless per line inv, broadcast	500.00	**500.00**
Maximum broadcast lines for common inv	30.00	**30.00**
High Density DLC Site and Power	3,000.00	**3,000.00**
High Density DLC Maximum Lines/Increment	672.00	**672.00**
High Density DLC RT Fill Factor	0.90	**0.90**
High Density DLC Basic Common Eqpt Invest + initial lines	66,000.00	**66,000.00**
High Density DLC POTS Channel Unit Investment	310.00	**310.00**
High Density DLC POTS Lines per CU	4.00	**4.00**
High Density DLC Coin Channel Unit Investment	250.00	**250.00**
High Density DLC Coin Lines per CU	2.00	**2.00**
High Density DLC 303/LD crossover, lines	480.00	**480.00**
High Density DLC Fibers per RT	4.00	**4.00**
High Density DLC Optical Patch Panel	1,000.00	**1,000.00**
High Density DLC Copper Feeder Max Distance, ft	9,000.00	**9,000.00**
High Density DLC Common Eqpt Invest per additional 672 lines	18,500.00	**18,500.00**
High Density DLC Maximum Number of additional line modules/R	2.00	**2.00**
Low Density DLC Site and Power	1,300	**1,300**
Low Density DLC Maximum Lines/Increment	120.00	**120.00**
Low Density DLC RT Fill Factor	0.90	**0.90**
Low Density DLC Basic Common Eqpt Invest + initial lines	18,020.00	**16,000.00**
Low Density DLC POTS Channel Unit Investment	600.00	**600.00**
Low Density DLC POTS Lines per CU	6.00	**6.00**
Low Density DLC Coin Channel Unit Investment	600.00	**600.00**
Low Density DLC Coin Lines per CU	6.00	**6.00**
Low Density DLC Fibers per RT	4.00	**4.00**
Low Density DLC Optical Patch Panel	1,000.00	**1,000.00**
Low Density DLC Common Eqpt Invest per additional 96 lines	9,400.00	**9,400.00**
Low Density DLC Maximum Number of additional line modules/R	1.00	**1.00**
Distribution Cable Size 1	2,400.00	**2,400.00**
Distribution Cable Size 2	1,800.00	**1,800.00**
Distribution Cable Size 3	1,200.00	**1,200.00**
Distribution Cable Size 4	900.00	**900.00**
Distribution Cable Size 5	600.00	**600.00**
Distribution Cable Size 6	400.00	**400.00**
Distribution Cable Size 7	200.00	**200.00**
Distribution Cable Size 8	100.00	**100.00**
Distribution Cable Size 9	50.00	**50.00**
Distribution Cable Size 10	25.00	**25.00**

Feeder Input	Current Scenario Value	Default Scenario Value
Pole Spacing, feet - 650	175.00	**175.00**
Pole Spacing, feet - 850	175.00	**175.00**
Pole Spacing, feet - 2550	150.00	**150.00**
Pole Spacing, feet - 5000	150.00	**150.00**
Pole Spacing, feet - 10000	150.00	**150.00**
Buried fraction available for shift - 0	0.75	**0.75**
Buried fraction available for shift - 5	0.75	**0.75**
Buried fraction available for shift - 100	0.75	**0.75**
Buried fraction available for shift - 200	0.75	**0.75**
Buried fraction available for shift - 650	0.75	**0.75**
Buried fraction available for shift - 850	0.75	**0.75**
Buried fraction available for shift - 2550	0.75	**0.75**
Buried fraction available for shift - 5000	0.75	**0.75**
Buried fraction available for shift - 10000	0.75	**0.75**
Fiber investment/strand - foot	0.1000	**0.10**
Copper investment/pair - foot	0.0075	**0.01**
Copper Manhole Materials - 0	1865	**1,865.00**
Copper Manhole Materials - 5	1865	**1,865.00**
Copper Manhole Materials - 100	1865	**1,865.00**
Copper Manhole Materials - 200	1865	**1,865.00**
Copper Manhole Materials - 650	1865	**1,865.00**
Copper Manhole Materials - 850	1865	**1,865.00**
Copper Manhole Materials - 2550	1865	**1,865.00**
Copper Manhole Materials - 5000	1865	**1,865.00**
Copper Manhole Materials - 10000	1865	**1,865.00**
Copper Manhole Frame and Cover - 0	350.00	**350.00**
Copper Manhole Frame and Cover - 5	350.00	**350.00**
Copper Manhole Frame and Cover - 100	350.00	**350.00**
Copper Manhole Frame and Cover - 200	350.00	**350.00**
Copper Manhole Frame and Cover - 650	350.00	**350.00**
Copper Manhole Frame and Cover - 850	350.00	**350.00**
Copper Manhole Frame and Cover - 2550	350.00	**350.00**
Copper Manhole Frame and Cover - 5000	350.00	**350.00**
Copper Manhole Frame and Cover - 10000	350.00	**350.00**
Copper Manhole Site Delivery - 0	125.00	**125.00**
Copper Manhole Site Delivery - 5	125.00	**125.00**
Copper Manhole Site Delivery - 100	125.00	**125.00**
Copper Manhole Site Delivery - 200	125.00	**125.00**
Copper Manhole Site Delivery - 650	125.00	**125.00**
Copper Manhole Site Delivery - 850	125.00	**125.00**
Copper Manhole Site Delivery - 2550	125.00	**125.00**
Copper Manhole Site Delivery - 5000	125.00	**125.00**
Copper Manhole Site Delivery - 10000	125.00	**125.00**
Copper Manhole Excavate and Backfill - 0	2,800	**2,800**
Copper Manhole Excavate and Backfill - 5	2,800	**2,800**
Copper Manhole Excavate and Backfill - 100	2,800	**2,800**
Copper Manhole Excavate and Backfill - 200	2,800	**2,800**
Copper Manhole Excavate and Backfill - 650	3,200	**3,200**
Copper Manhole Excavate and Backfill - 850	3,500	**3,500**
Copper Manhole Excavate and Backfill - 255C	3,500	**3,500**
Copper Manhole Excavate and Backfill - 500C	5,000	**5,000**
Copper Manhole Excavate and Backfill - 100C	5,000	**5,000**

Distribution Input	Current Scenario Value	Default Scenario Value
Distribution Cable Size 11	12.00	**12.00**
Distribution Cable Size 12	6.00	**6.00**
Distribution Cable Investment per foot 1	24.50	**20.00**
Distribution Cable Investment per foot 2	19.05	**16.00**
Distribution Cable Investment per foot 3	13.15	**12.00**
Distribution Cable Investment per foot 4	9.95	**10.00**
Distribution Cable Investment per foot 5	7.10	**7.75**
Distribution Cable Investment per foot 6	5.45	**6.00**
Distribution Cable Investment per foot 7	3.85	**4.25**
Distribution Cable Investment per foot 8	2.45	**2.50**
Distribution Cable Investment per foot 9	1.76	**1.63**
Distribution Cable Investment per foot 10	1.43	**1.19**
Distribution Cable Investment per foot 11	1.27	**0.76**
Distribution Cable Investment per foot 12	1.19	**0.63**
Distribution Riser Cable Size 1	2,400.00	**2,400.00**
Distribution Riser Cable Size 2	1,800.00	**1,800.00**
Distribution Riser Cable Size 3	1,200.00	**1,200.00**
Distribution Riser Cable Size 4	900.00	**900.00**
Distribution Riser Cable Size 5	600.00	**600.00**
Distribution Riser Cable Size 6	400.00	**400.00**
Distribution Riser Cable Size 7	200.00	**200.00**
Distribution Riser Cable Size 8	100.00	**100.00**
Distribution Riser Cable Size 9	50.00	**50.00**
Distribution Riser Cable Size 10	25.00	**25.00**
Distribution Riser Cable Size 11	12.00	**12.00**
Distribution Riser Cable Size 12	6.00	**6.00**
Distribution Riser Cable Investment per foot 1	25.00	**25.00**
Distribution Riser Cable Investment per foot 2	20.00	**20.00**
Distribution Riser Cable Investment per foot 3	15.00	**15.00**
Distribution Riser Cable Investment per foot 4	12.50	**12.50**
Distribution Riser Cable Investment per foot 5	10.00	**10.00**
Distribution Riser Cable Investment per foot 6	7.50	**7.50**
Distribution Riser Cable Investment per foot 7	5.30	**5.30**
Distribution Riser Cable Investment per foot 8	3.15	**3.15**
Distribution Riser Cable Investment per foot 9	2.05	**2.05**
Distribution Riser Cable Investment per foot 10	1.50	**1.50**
Distribution Riser Cable Investment per foot 11	0.95	**0.95**
Distribution Riser Cable Investment per foot 12	0.80	**0.80**
Distance Multiplier for difficult terrain	1.00	**1.00**
Rock Depth Threshold, inches	24.00	**24.00**
Hard Rock Placement Multiplier	3.50	**3.50**
Soft Rock Placement Multiplier	2.00	**2.00**
Sidewalk/Street Fraction	0.20	**0.20**
Local RT - Maximum Total Distance	18,000.00	**18,000.00**
SAI Cable Size 1	7,200.00	**7,200.00**
SAI Cable Size 2	5,400.00	**5,400.00**
SAI Cable Size 3	3,600.00	**3,600.00**
SAI Cable Size 4	2,400.00	**2,400.00**
SAI Cable Size 5	1,800	**1,800**
SAI Cable Size 6	1,200	**1,200**
SAI Cable Size 7	900	**900**
SAI Cable Size 8	600	**600**

Feeder Input	Current Scenario Value	Default Scenario Value
Fiber Pullbox Materials - 0	280.00	**280.00**
Fiber Pullbox Materials - 5	280.00	**280.00**
Fiber Pullbox Materials - 100	280.00	**280.00**
Fiber Pullbox Materials - 200	280.00	**280.00**
Fiber Pullbox Materials - 650	280.00	**280.00**
Fiber Pullbox Materials - 850	280.00	**280.00**
Fiber Pullbox Materials - 2550	280.00	**280.00**
Fiber Pullbox Materials - 5000	280.00	**280.00**
Fiber Pullbox Materials - 10000	280.00	**280.00**
Fiber Pullbox Installation - 0	220.00	**220.00**
Fiber Pullbox Installation - 5	220.00	**220.00**
Fiber Pullbox Installation - 100	220.00	**220.00**
Fiber Pullbox Installation - 200	220.00	**220.00**
Fiber Pullbox Installation - 650	220.00	**220.00**
Fiber Pullbox Installation - 850	220.00	**220.00**
Fiber Pullbox Installation - 2550	220.00	**220.00**
Fiber Pullbox Installation - 5000	220.00	**220.00**
Fiber Pullbox Installation - 10000	220.00	**220.00**
Dewatering factor manhole excavation (additi	0.20	**0.20**
Water table depth for dewatering, ft	5.00	**5.00**

Distribution Input	Current Scenario Value	Default Scenario Value
SAI Cable Size 9	400	**400**
SAI Cable Size 10	200	**200**
SAI Cable Size 11	100	**100**
SAI Cable Size 12	50	**50**
SAI Indoor Investment 1	9,656	**9,656**
SAI Indoor Investment 2	7,392	**7,392**
SAI Indoor Investment 3	4,928	**4,928**
SAI Indoor Investment 4	3,352	**3,352**
SAI Indoor Investment 5	2,464.00	**2,464.00**
SAI Indoor Investment 6	1,776.00	**1,776.00**
SAI Indoor Investment 7	1,232.00	**1,232.00**
SAI Indoor Investment 8	888.00	**888.00**
SAI Indoor Investment 9	592.00	**592.00**
SAI Indoor Investment 10	296.00	**296.00**
SAI Indoor Investment 11	148.00	**148.00**
SAI Indoor Investment 12	98.00	**98.00**
SAI Outdoor Investment 1	10,000.00	**10,000.00**
SAI Outdoor Investment 2	8,200.00	**8,200.00**
SAI Outdoor Investment 3	6,000.00	**6,000.00**
SAI Outdoor Investment 4	4,300.00	**4,300.00**
SAI Outdoor Investment 5	3,400.00	**3,400.00**
SAI Outdoor Investment 6	2,400.00	**2,400.00**
SAI Outdoor Investment 7	1,900.00	**1,900.00**
SAI Outdoor Investment 8	1,400.00	**1,400.00**
SAI Outdoor Investment 9	1,000.00	**1,000.00**
SAI Outdoor Investment 10	600.00	**600.00**
SAI Outdoor Investment 11	350.00	**350.00**
SAI Outdoor Investment 12	250.00	**250.00**
Repeater Investment, installed	527.00	**527.00**
Integrated COT, installed	420.00	**420.00**
Remote Multiplexer Common Equip Inv, installed	8,200.00	**8,200.00**
Channel Unit Investment, per subscriber	125.00	**125.00**
COT investment per RT, installed	1,170.00	**1,170.00**
Remote Terminal fill factor	0.90	**0.90**
Maximum T1s per cable	8.00	**8.00**
T1 repeater spacing, dB	32.00	**32.00**
Aerial T1 attenuation, dB/kft	6.30	**6.30**
Buried T1 attenuation, dB/kft	5.00	**5.00**
Feeder steering enable	FALSE	**FALSE**
Main feeder route/air multiplier	1	**1**
Rectangular cluster switch	FALSE	**FALSE**

Feeder Input	Current Scenario Value	Default Scenario Value

Switching Input	Current Scenario Value	Default Scenario Value
Constant EO Switching Investment Term, small ICO	416.11	**416.11**
Constant EO Switching Investment Term, BOC and large ICO	254.87	**242.73**
Switch Capacity Real-Time (BHCA) - 1	10,000	**10,000**
Switch Capacity Real-Time (BHCA) - 2	50,000	**50,000**
Switch Capacity Real-Time (BHCA) - 3	200,000	**200,000**
Switch Capacity Real-Time (BHCA) - 4	600,000	**600,000**
Switch Capacity Traffic (BHCCS) - 1	30,000	**30,000**
Switch Capacity Traffic (BHCCS) - 2	150,000	**150,000**
Switch Capacity Traffic (BHCCS) - 3	600,000	**600,000**
Switch Capacity Traffic (BHCCS) - 4	1,800,000	**1,800,000**
Initial Switch Maximum Equipped Line Size	80,000	**80,000**
Switch Port Administrative Fill	0.98	**0.98**
Switch Maximim Processor Occupancy	0.90	**0.90**
Processor Feature Loading Multiplier - normal	1.20	**1.20**
Processor Feature Loading Multiplier - heavy business	2.00	**2.00**
Processor Feature Loading Multiplier - business penetration threshold	0.30	**0.30**
MDF/Protector Investment per line	12.00	**12.00**
Analog Line Circuit Offset for DLC lines, per line	5.00	**5.00**
Switch Installation Multiplier	1.10	**1.10**
Operator Traffic Fraction	0.02	**0.02**
Total Interoffice Traffic Fraction	0.65	**0.65**
Maximum Trunk Occupancy, CCS	27.50	**27.50**
Trunk Port, per end	100.00	**100.00**
Entrance Facility Distance, miles	0.50	**0.50**
Direct-routed Fraction of Local Interoffice	0.98	**0.98**
POPs per Tandem Location	5.00	**5.00**
Tandem-routed Fraction of Total IntraLATA Traffic	0.20	**0.20**
Tandem-routed Fraction of Total InterLATA Traffic	0.20	**0.20**
Local Call Attempts	197,857	**197,857**
Call Completion Factor	0.70	**0.70**
IntraLATA Calls Completed	11,845	**11,845**
InterLATA intrastate Calls Completed	11,920	**11,920**
InterLATA interstate Calls Completed	25,344	**25,344**
Local DEMs, thousands	873,192	**873,192**
Intrastate DEMs, thousands	186,443	**186,443**
Interstate DEMs, thousands	184,077	**184,077**
Local Business/Residence DEMs	1.10	**1.10**
Intrastate Business/Residence DEMs	2.00	**2.00**
Interstate Business/Residence DEMs	3.00	**3.00**
BH Fraction of Daily Usage	0.10	**0.10**
Annual to Daily Usage Reduction Factor	270.00	**270.00**
Residential Holding Time Multiplier	1.00	**1.00**
Business Holding Time Multiplier	1.00	**1.00**
Residential Call Attempts per BH	1.30	**1.30**
Business Call Attempts per BH	3.50	**3.50**
ICO STP Investment, per line (equipment)	5.50	**5.50**
ICO Local Tandem Investment, per line	1.90	**1.90**
ICO OS Tandem Investment, per line	0.80	**0.80**
ICO SCP Investment per line (equipment)	2.50	**2.50**
ICO SCP - STP per line (wirecenter)	0.40	**0.40**
ICO Local Tandem Investment, per line (wirecenter)	2.50	**2.50**
ICO OS Tandem Investment, per line (wirecenter)	1.00	**1.00**
ICO Tandem A Links and C Links per line (wirecenter)	0.30	**0.30**

Expense Input	Current Scenario Value	Default Scenario Value
Cost of Debt	[redacted]	**0.077**
Debt Fraction	[redacted]	**0.450**
Cost of Equity	[redacted]	**0.119**
Average Trunk Utilization	0.300	**0.300**
Tax Rate	0.393	**0.393**
Corporate Overhead Factor	[redacted]	**0.104**
Other Taxes Factor	[redacted]	**0.050**
Billing/Bill Inquiry per line per month	1.220	**1.220**
Directory Listing per line per month	-	**-**
Forward-looking Network Operations Factor	0.500	**0.500**
Alternative CO Switching Factor	0.027	**0.027**
Alternative Circuit Equipment Factor	0.015	**0.015**
EO Traffic Sensitive Fraction	0.700	**0.700**
Monthly LNP cost, per line	0.250	**0.250**
Carrier to Carrier Customer Service, per line per ye	1.69	**1.69**
NID Expense per line per year	1.00	**1.00**
DS-0/DS-1 Terminal Factor	12.4	**12.4**
DS-1/DS-3 Terminal Factor	9.9	**9.9**
Average Lines per Business Location	4	**4**
Distribution Aerial Shring Fraction - 0	0.50	**0.50**
Distribution Aerial Shring Fraction - 5	0.33	**0.33**
Distribution Aerial Shring Fraction - 100	0.25	**0.25**
Distribution Aerial Shring Fraction - 200	0.25	**0.25**
Distribution Aerial Shring Fraction - 650	0.25	**0.25**
Distribution Aerial Shring Fraction - 850	0.25	**0.25**
Distribution Aerial Shring Fraction - 2550	0.25	**0.25**
Distribution Aerial Shring Fraction - 5000	0.25	**0.25**
Distribution Aerial Shring Fraction - 10000	0.25	**0.25**
Distribution Buried Shring Fraction - 0	0.33	**0.33**
Distribution Buried Shring Fraction - 5	0.33	**0.33**
Distribution Buried Shring Fraction - 100	0.33	**0.33**
Distribution Buried Shring Fraction - 200	0.33	**0.33**
Distribution Buried Shring Fraction - 650	0.33	**0.33**
Distribution Buried Shring Fraction - 850	0.33	**0.33**
Distribution Buried Shring Fraction - 2550	0.33	**0.33**
Distribution Buried Shring Fraction - 5000	0.33	**0.33**
Distribution Buried Shring Fraction - 10000	0.33	**0.33**
Distribution Underground Shring Fraction - 0	1.00	**1.00**
Distribution Underground Shring Fraction - 5	0.50	**0.50**
Distribution Underground Shring Fraction - 100	0.50	**0.50**
Distribution Underground Shring Fraction - 200	0.50	**0.50**
Distribution Underground Shring Fraction - 650	0.40	**0.40**
Distribution Underground Shring Fraction - 850	0.33	**0.33**
Distribution Underground Shring Fraction - 2550	0.33	**0.33**
Distribution Underground Shring Fraction - 5000	0.33	**0.33**
Distribution Underground Shring Fraction - 10000	0.33	**0.33**
Feeder Aerial Shring Fraction - 0	0.50	**0.50**
Feeder Aerial Shring Fraction - 5	0.33	**0.33**
Feeder Aerial Shring Fraction - 100	0.25	**0.25**
Feeder Aerial Shring Fraction - 200	0.25	**0.25**
Feeder Aerial Shring Fraction - 650	0.25	**0.25**
Feeder Aerial Shring Fraction - 850	0.25	**0.25**
Feeder Aerial Shring Fraction - 2550	0.25	**0.25**

Switching Input	Current Scenario Value	Default Scenario Value
Real-time Limit, BHCA	750,000	**750,000**
Port Limit, trunks	100,000	**100,000**
Common Equipment Investment	1,000,000	**1,000,000**
Maximum Port Fill	0.90	**0.90**
Maximum Real-time Occupancy	0.90	**0.90**
Common Equipment Intercept Factor	0.50	**0.50**
STP Link Capacity	720	**720**
STP Maximum Link Fill	0.80	**0.80**
Maximum STP Investment, per pair	5,000,000	**5,000,000**
Minimum STP Investment, per pair	1,000,000	**1,000,000**
Link Termination, both ends	900	**900**
Signaling Link Bit Rate	56,000	**56,000**
Link Occupancy	0.40	**0.40**
C Link Cross Section	24.00	**24.00**
ISUP Messages per Interoffice BHCA	6.00	**6.00**
ISUP Message Length, bytes	25.00	**25.00**
TCAP Messages per transaction	2.00	**2.00**
TCAP Message length, bytes	100.00	**100.00**
Fraction of BHCA requiring TCAP	0.10	**0.10**
SCP Investment/Transaction/Second	20,000	**20,000**
Operator Investment per position	6,400	**6,400**
Operator Maximum Utilization, per position, CCS	32	**32**
Operator Intervention Factor	10	**10**
Public Telephone Investment, per station	760	**760**
Lot Size, Multiplier of Switch Room Size	2	**2**
Tandem/EO Wire Center Common Factor	0.40	**0.40**
Power Investment 1	5,000	**5,000**
Power Investment 2	10,000	**10,000**
Power Investment 3	20,000	**20,000**
Power Investment 4	50,000	**50,000**
Power Investment 5	250,000	**250,000**
Switch Room Size, sq ft 1	500	**500**
Switch Room Size, sq ft 2	1,000	**1,000**
Switch Room Size, sq ft 3	2,000	**2,000**
Switch Room Size, sq ft 4	5,000	**5,000**
Switch Room Size, sq ft 5	10,000	**10,000**
Construction Investment, sq ft 1	75.00	**75.00**
Construction Investment, sq ft 2	85.00	**85.00**
Construction Investment, sq ft 3	100.00	**100.00**
Construction Investment, sq ft 4	125.00	**125.00**
Construction Investment, sq ft 5	150.00	**150.00**
Land Investment, sq ft 1	5	**5**
Land Investment, sq ft 2	8	**8**
Land Investment, sq ft 3	10	**10**
Land Investment, sq ft 4	15	**15**
Land Investment, sq ft 5	20	**20**
OC-48 ADM, installed, 48 DS-3s	50,000	**50,000**
OC-48 ADM, installed, 12 DS-3s	40,000	**40,000**
OC-3/DS-1 Terminal Multiplexer, installed, 84 DS-1s	26,000	**26,000**
Investment per 7 DS-1s	500	**500**
Number of Fibers	24	**24**
Pigtails, per strand	60	**60**

Expense Input	Current Scenario Value	Default Scenario Value
Feeder Aerial Shring Fraction - 5000	0.25	**0.25**
Feeder Aerial Shring Fraction - 10000	0.25	**0.25**
Feeder Underground Shring Fraction - 0	0.50	**0.50**
Feeder Underground Shring Fraction - 5	0.50	**0.50**
Feeder Underground Shring Fraction - 100	0.40	**0.40**
Feeder Underground Shring Fraction - 200	0.33	**0.33**
Feeder Underground Shring Fraction - 650	0.33	**0.33**
Feeder Underground Shring Fraction - 850	0.33	**0.33**
Feeder Underground Shring Fraction - 2550	0.33	**0.33**
Feeder Underground Shring Fraction - 5000	0.33	**0.33**
Feeder Underground Shring Fraction - 10000	0.33	**0.33**
Feeder Buried Shring Fraction - 0	0.40	**0.40**
Feeder Buried Shring Fraction - 5	0.40	**0.40**
Feeder Buried Shring Fraction - 100	0.40	**0.40**
Feeder Buried Shring Fraction - 200	0.40	**0.40**
Feeder Buried Shring Fraction - 650	0.40	**0.40**
Feeder Buried Shring Fraction - 850	0.40	**0.40**
Feeder Buried Shring Fraction - 2550	0.40	**0.40**
Feeder Buried Shring Fraction - 5000	0.40	**0.40**
Feeder Buried Shring Fraction - 10000	0.40	**0.40**
Motor Vehicles - Economic Life	[redacted]	**8.24**
Garage Work Equipment - Economic Life	[redacted]	**12.22**
Other Work Equipment - Economic Life	[redacted]	**13.04**
Buildings - Economic Life	[redacted]	**46.93**
Furniture - Economic Life	[redacted]	**15.92**
Office Support Equipment - Economic Life	[redacted]	**10.78**
Company Comm. Equipment - Economic Life	[redacted]	**7.40**
General Purpose Computer - Economic Life	[redacted]	**6.12**
Digital Electronic Switching - Economic Life	[redacted]	**16.17**
Operator Systems - Economic Life	[redacted]	**9.41**
Digital Circuit Equipment - Economic Life	[redacted]	**10.24**
Public Telephone Terminal Equipment - Economic	[redacted]	**7.60**
Poles - Economic Life	[redacted]	**30.25**
Aerial Cable - metallic - Economic Life	[redacted]	**20.61**
Aerial Cable - non metallic - Economic Life	[redacted]	**26.14**
Underground Cable - metallic - Economic Life	[redacted]	**25.00**
Underground Cable - non metallic - Economic Life	[redacted]	**26.45**
Buried - metallic - Economic Life	[redacted]	**21.57**
Buried - non metallic - Economic Life	[redacted]	**25.91**
Intrabuilding Cable - metallic - Economic Life	[redacted]	**18.18**
Intrabuilding Cable - non metallic - Economic Life	[redacted]	**26.11**
Conduit Systems - Economic Life	[redacted]	**56.19**
Motor Vehicles - Net Salvage %	[redacted]	**0.1121**
Garage Work Equipment - Net Salvage %	[redacted]	**-0.1071**
Other Work Equipment - Net Salvage %	[redacted]	**0.0321**
Buildings - Net Salvage %	[redacted]	**0.0187**
Furniture - Net Salvage %	[redacted]	**0.0688**
Office Support Equipment - Net Salvage %	[redacted]	**0.0691**
Company Comm. Equipment - Net Salvage %	[redacted]	**0.0376**
General Purpose Computer - Net Salvage %	[redacted]	**0.0373**
Digital Electronic Switching - Net Salvage %	[redacted]	**0.0297**
Operator Systems - Net Salvage %	[redacted]	**-0.0082**

Switching Input	Current Scenario Value	Default Scenario Value
Optical Distribution Panel	1,000	**1,000**
EF&I, per hour	55	**55**
EF&I hours	32	**32**
Regional Labor Adjustment Factor (see Labor Inputs)	1	**1**
Channel Bank Investment, per 24 lines	5,000	**5,000**
Fraction of SA Lines Requiring Multiplexing	-	**-**
Regenerator, installed	15,000	**15,000**
Regenerator spacing, miles	40	**40**
DCS installed, per DS-3	30,000	**30,000**
Transmission Terminal Fill (DS-0 level)	0.90	**0.90**
Fiber Investment, fiber cable	3.50	**3.50**
Fiber, number of strands per ADM	4.00	**4.00**
Fiber Investment, buried fraction	0.60	**0.60**
Fiber Investment, buried placement	1.77	**1.77**
Fiber Investment, buried sheath addition	0.20	**0.20**
Fiber Investment, conduit	0.60	**0.60**
Fiber, spare tubes per route	1.00	**1.00**
Fiber Investment, conduit placement	16.40	**16.40**
Fiber, pullbox spacing	2,000.00	**2,000.00**
Fiber Investment, pullbox investsment	500.00	**500.00**
Fiber, aerial fraction	0.20	**0.20**
Fiber, pole spacing, feet	150.00	**150.00**
Fiber Investment, pole material	201.00	**201.00**
Fiber Investment, pole labor (basic)	216.00	**216.00**
Fraction Poles and Buried/Underground Placement Common with Feer	0.75	**0.75**
Fraction of Aerial Structure Assigned to Telephone	0.33	**0.33**
Fraction of Buried Structure Assigned to Telephone	0.33	**0.33**
Fraction of Underground Structure Assigned to Telephone	0.33	**0.33**
Multiplicative EO Switching Investment Term	-14.922	**(14.92)**
Threshold value for off-ring wire centers, total lines	1	**1.00**
Remote-host fraction of interoffice traffic -- remote	0.1	**0.10**
Host-remote fraction of interoffice traffice -- host	0.05	**0.05**
Maximum nodes per ring	16	**16.00**
Use host - remote assignments	FALSE	**FALSE**
Ring transiting traffic factor	0.4	**0.40**
Intertandem fraction of tandem trunks (additive)	0.1	**0.10**
Equivalent facility investment, per DS-0	138.08	**138.08**
Equivalent terminal investment, per DS-0	111.62	**111.62**
Switch line size - 1	0	**-**
Switch line size - 2	640	**640.00**
Switch line size - 3	5000	**5,000.00**
Switch line size - 4	10000	**10,000.00**
BOC standalone fixed inv - 1	175000	**175,000.00**
BOC standalone fixed inv - 2	175000	**175,000.00**
BOC standalone fixed inv - 3	175000	**175,000.00**
BOC standalone fixed inv - 4	475000	**475,000.00**
BOC host fixed inv - 1	183750	**183,750.00**
BOC host fixed inv - 2	183750	**183,750.00**
BOC host fixed inv - 3	183750	**183,750.00**
BOC host fixed inv - 4	498750	**498,750.00**
BOC remote fixed inv - 1	10000	**10,000.00**
BOC remote fixed inv - 2	55000	**55,000.00**

Expense Input	Current Scenario Value	Default Scenario Value
Digital Circuit Equipment - Net Salvage %	[redacted]	**-0.0169**
Public Telephone Terminal Equipment - Net Salva		**0.0797**
Poles - Net Salvage %		**-0.8998**
Aerial Cable - metallic - Net Salvage %		**-0.2303**
Aerial Cable - non metallic - Net Salvage %		**-0.1753**
Underground Cable - metallic - Net Salvage %		**-0.1826**
Underground Cable - non metallic - Net Salvage %		**-0.1458**
Buried - metallic - Net Salvage %		**-0.0839**
Buried - non metallic - Net Salvage %		**-0.0858**
Intrabuilding Cable - metallic - Net Salvage %		**-0.1574**
Intrabuilding Cable - non metallic - Net Salvage %		**-0.1052**
Conduit Systems - Net Salvage %		**-0.1034**
Furniture - Capital Costs - % assigned per line	0.0000	**0.0000**
Furniture - Expenses - % assigned per line	0.0000	**0.0000**
Office Equipment - Capital Costs - % assigned per l	0.0000	**0.0000**
Office Equipment - Expenses - % assigned per line	0.0000	**0.0000**
General Purpose Computer - Capital Costs - % ass	0.0000	**0.0000**
General Purpose Computer - Expenses - % assigne	0.0000	**0.0000**
Motor Vehicles - Capital Costs - % assigned per lin	0.0000	**0.0000**
Motor Vehicles - Expenses - % assigned per line	0.0000	**0.0000**
Buildings - Capital Costs - % assigned per line	0.0000	**0.0000**
Buildings - Expenses - % assigned per line	0.0000	**0.0000**
Garage Work Eqpt. - Capital Costs - % assigned pe	0.0000	**0.0000**
Garage Work Eqpt. - Expenses - % assigned per lir	0.0000	**0.0000**
Other Work Eqpt. - Capital Costs - % assigned per	0.0000	**0.0000**
Other Work Eqpt. - Expenses - % assigned per line	0.0000	**0.0000**
Network Operations - % assigned per line	0.0000	**0.0000**
Other Taxes - % assigned per line	0.0000	**0.0000**
Variable Overhead - % assigned per line	0.0000	**0.0000**

Switching Input	Current Scenario Value	Default Scenario Value	Expense Input	Current Scenario Value	Default Scenario Value
BOC remote fixed inv - 3	70000	70,000.00			
BOC remote fixed inv - 4	225000	225,000.00			
BOC standalone per line inv - 1	75	75.00			
BOC standalone per line inv - 2	75	75.00			
BOC standalone per line inv - 3	75	75.00			
BOC standalone per line inv - 4	73	73.00			
BOC host per line inv - 1	75	75.00			
BOC host per line inv - 2	75	75.00			
BOC host per line inv - 3	75	75.00			
BOC host per line inv - 4	73	73.00			
BOC remote per line inv - 1	85	85.00			
BOC remote per line inv - 2	83	83.00			
BOC remote per line inv - 3	85	85.00			
BOC remote per line inv - 4	70	70.00			
ICO standalone fixed inv - 1	300001	300,001.00			
ICO standalone fixed inv - 2	300001	300,001.00			
ICO standalone fixed inv - 3	300001	300,001.00			
ICO standalone fixed inv - 4	814289	814,289.00			
ICO host fixed inv - 1	315001	315,001.00			
ICO host fixed inv - 2	315001	315,001.00			
ICO host fixed inv - 3	315001	315,001.00			
ICO host fixed inv - 4	855003	855,003.00			
ICO remote fixed inv - 1	17143	17,143.00			
ICO remote fixed inv - 2	94286	94,286.00			
ICO remote fixed inv - 3	120000	120,000.00			
ICO remote fixed inv - 4	385716	385,716.00			
ICO standalone per line inv - 1	129	129.00			
ICO standalone per line inv - 2	129	129.00			
ICO standalone per line inv - 3	129	129.00			
ICO standalone per line inv - 4	124	124.00			
ICO host per line inv - 1	129	129.00			
ICO host per line inv - 2	129	129.00			
ICO host per line inv - 3	129	129.00			
ICO host per line inv - 4	124	124.00			
ICO remote per line inv - 1	146	146.00			
ICO remote per line inv - 2	141	141.00			
ICO remote per line inv - 3	146	146.00			
ICO remote per line inv - 4	120	120.00			

Switching Input	Current Scenario Value	Default Scenario Value	Expense Input	Current Scenario Value	Default Scenario Value

Underground Excavation/Restoration	Current Scenario Value	Default Scenario Value
Trench Per Ft - 0	1.90	**1.90**
Trench Per Ft - 5	1.90	**1.90**
Trench Per Ft - 100	1.90	**1.90**
Trench Per Ft - 200	1.90	**1.90**
Trench Per Ft - 650	1.95	**1.95**
Trench Per Ft - 850	2.15	**2.15**
Trench Per Ft - 2550	2.15	**2.15**
Trench Per Ft - 5000	6.00	**6.00**
Trench Per Ft -10000	6.00	**6.00**
Backhoe Trench Fraction - 0	0.45	**0.45**
Backhoe Trench Fraction - 5	0.45	**0.45**
Backhoe Trench Fraction - 100	0.45	**0.45**
Backhoe Trench Fraction - 200	0.45	**0.45**
Backhoe Trench Fraction - 650	0.45	**0.45**
Backhoe Trench Fraction - 850	0.45	**0.45**
Backhoe Trench Fraction - 2550	0.55	**0.55**
Backhoe Trench Fraction - 5000	0.67	**0.67**
Backhoe Trench Fraction -10000	0.72	**0.72**
Backhoe Trench Per Ft - 0	3.00	**3.00**
Backhoe Trench Per Ft - 5	3.00	**3.00**
Backhoe Trench Per Ft - 100	3.00	**3.00**
Backhoe Trench Per Ft - 200	3.00	**3.00**
Backhoe Trench Per Ft - 650	3.00	**3.00**
Backhoe Trench Per Ft - 850	3.00	**3.00**
Backhoe Trench Per Ft - 2550	3.00	**3.00**
Backhoe Trench Per Ft - 5000	20.00	**20.00**
Backhoe Trench Per Ft -10000	30.00	**30.00**
Hand Trench Fraction - 0	0.01	**0.01**
Hand Trench Fraction - 5	0.01	**0.01**
Hand Trench Fraction - 100	0.01	**0.01**
Hand Trench Fraction - 200	0.03	**0.03**
Hand Trench Fraction - 650	0.03	**0.03**
Hand Trench Fraction - 850	0.05	**0.05**
Hand Trench Fraction - 2550	0.10	**0.10**
Hand Trench Fraction - 5000	0.10	**0.10**
Hand Trench Fraction -10000	0.12	**0.12**
Hand Trench Per Ft - 0	5.00	**5.00**
Hand Trench Per Ft - 5	5.00	**5.00**
Hand Trench Per Ft - 100	5.00	**5.00**
Hand Trench Per Ft - 200	5.00	**5.00**
Hand Trench Per Ft - 650	5.00	**5.00**
Hand Trench Per Ft - 850	5.00	**5.00**
Hand Trench Per Ft - 2550	5.00	**5.00**
Hand Trench Per Ft - 5000	10.00	**10.00**
Hand Trench Per Ft -10000	18.00	**18.00**
Cut/Restore Asphalt Fraction - 0	0.55	**0.55**
Cut/Restore Asphalt Fraction - 5	0.55	**0.55**
Cut/Restore Asphalt Fraction - 100	0.55	**0.55**
Cut/Restore Asphalt Fraction - 200	0.65	**0.65**
Cut/Restore Asphalt Fraction - 650	0.70	**0.70**
Cut/Restore Asphalt Fraction - 850	0.75	**0.75**
Cut/Restore Asphalt Fraction - 2550	0.75	**0.75**
Cut/Restore Asphalt Fraction - 5000	0.80	**0.80**

Buried Excavation/Restoration	Current Scenario Value	Default Scenario Value
Plow Fraction - 0	0.60	**0.60**
Plow Fraction - 5	0.60	**0.60**
Plow Fraction - 100	0.60	**0.60**
Plow Fraction - 200	0.50	**0.50**
Plow Fraction - 650	0.35	**0.35**
Plow Fraction - 850	0.20	**0.20**
Plow Fraction - 2550	0.00	**0.00**
Plow Fraction - 5000	0.00	**0.00**
Plow Fraction -10000	0.00	**0.00**
Plow Per Ft - 0	0.80	**0.80**
Plow Per Ft - 5	0.80	**0.80**
Plow Per Ft - 100	0.80	**0.80**
Plow Per Ft - 200	0.80	**0.80**
Plow Per Ft - 650	0.80	**0.80**
Plow Per Ft - 850	1.20	**1.20**
Plow Per Ft - 2550	1.20	**1.20**
Plow Per Ft - 5000	1.20	**1.20**
Plow Per Ft -10000	1.20	**1.20**
Trench Per Ft - 0	1.90	**1.90**
Trench Per Ft - 5	1.90	**1.90**
Trench Per Ft - 100	1.90	**1.90**
Trench Per Ft - 200	1.90	**1.90**
Trench Per Ft - 650	1.95	**1.95**
Trench Per Ft - 850	2.15	**2.15**
Trench Per Ft - 2550	2.15	**2.15**
Trench Per Ft - 5000	6.00	**6.00**
Trench Per Ft -10000	15.00	**15.00**
Backhoe Trench Fraction - 0	0.10	**0.10**
Backhoe Trench Fraction - 5	0.10	**0.10**
Backhoe Trench Fraction - 100	0.10	**0.10**
Backhoe Trench Fraction - 200	0.10	**0.10**
Backhoe Trench Fraction - 650	0.10	**0.10**
Backhoe Trench Fraction - 850	0.10	**0.10**
Backhoe Trench Fraction - 2550	0.10	**0.10**
Backhoe Trench Fraction - 5000	0.10	**0.10**
Backhoe Trench Fraction -10000	0.25	**0.25**
Backhoe Trench Per Ft - 0	3.00	**3.00**
Backhoe Trench Per Ft - 5	3.00	**3.00**
Backhoe Trench Per Ft - 100	3.00	**3.00**
Backhoe Trench Per Ft - 200	3.00	**3.00**
Backhoe Trench Per Ft - 650	3.00	**3.00**
Backhoe Trench Per Ft - 850	3.00	**3.00**
Backhoe Trench Per Ft - 2550	3.00	**3.00**
Backhoe Trench Per Ft - 5000	20.00	**20.00**
Backhoe Trench Per Ft -10000	30.00	**30.00**
Hand Trench Fraction - 0	0.00	**0.00**
Hand Trench Fraction - 5	0.00	**0.00**
Hand Trench Fraction - 100	0.00	**0.00**
Hand Trench Fraction - 200	0.01	**0.01**
Hand Trench Fraction - 650	0.02	**0.02**
Hand Trench Fraction - 850	0.04	**0.04**
Hand Trench Fraction - 2550	0.05	**0.05**
Hand Trench Fraction - 5000	0.06	**0.06**

Underground Excavation/Restoration	Current Scenario Value	Default Scenario Value	Buried Excavation/Restoration	Current Scenario Value	Default Scenario Value
Cut/Restore Asphalt Fraction -10000	0.82	**0.82**	Hand Trench Fraction -10000	0.10	**0.10**
Cut/Restore Asphalt Per Ft - 0	6.00	**6.00**	Hand Trench Per Ft - 0	5.00	**5.00**
Cut/Restore Asphalt Per Ft - 5	6.00	**6.00**	Hand Trench Per Ft - 5	5.00	**5.00**
Cut/Restore Asphalt Per Ft - 100	6.00	**6.00**	Hand Trench Per Ft - 100	5.00	**5.00**
Cut/Restore Asphalt Per Ft - 200	6.00	**6.00**	Hand Trench Per Ft - 200	5.00	**5.00**
Cut/Restore Asphalt Per Ft - 650	6.00	**6.00**	Hand Trench Per Ft - 650	5.00	**5.00**
Cut/Restore Asphalt Per Ft - 850	6.00	**6.00**	Hand Trench Per Ft - 850	5.00	**5.00**
Cut/Restore Asphalt Per Ft - 2550	6.00	**6.00**	Hand Trench Per Ft - 2550	5.00	**5.00**
Cut/Restore Asphalt Per Ft - 5000	18.00	**18.00**	Hand Trench Per Ft - 5000	10.00	**10.00**
Cut/Restore Asphalt Per Ft -10000	30.00	**30.00**	Hand Trench Per Ft -10000	18.00	**18.00**
Cut/Restore Concrete Fraction - 0	0.10	**0.10**	Bore Cable Fraction - 0	0.00	**0.00**
Cut/Restore Concrete Fraction - 5	0.10	**0.10**	Bore Cable Fraction - 5	0.00	**0.00**
Cut/Restore Concrete Fraction - 100	0.10	**0.10**	Bore Cable Fraction - 100	0.00	**0.00**
Cut/Restore Concrete Fraction - 200	0.10	**0.10**	Bore Cable Fraction - 200	0.00	**0.00**
Cut/Restore Concrete Fraction - 650	0.10	**0.10**	Bore Cable Fraction - 650	0.00	**0.00**
Cut/Restore Concrete Fraction - 850	0.10	**0.10**	Bore Cable Fraction - 850	0.03	**0.03**
Cut/Restore Concrete Fraction - 2550	0.15	**0.15**	Bore Cable Fraction - 2550	0.04	**0.04**
Cut/Restore Concrete Fraction - 5000	0.15	**0.15**	Bore Cable Fraction - 5000	0.05	**0.05**
Cut/Restore Concrete Fraction -10000	0.16	**0.16**	Bore Cable Fraction -10000	0.05	**0.05**
Cut/Restore Concrete Per Ft - 0	9.00	**9.00**	Bore Cable Per Ft - 0	11.00	**11.00**
Cut/Restore Concrete Per Ft - 5	9.00	**9.00**	Bore Cable Per Ft - 5	11.00	**11.00**
Cut/Restore Concrete Per Ft - 100	9.00	**9.00**	Bore Cable Per Ft - 100	11.00	**11.00**
Cut/Restore Concrete Per Ft - 200	9.00	**9.00**	Bore Cable Per Ft - 200	11.00	**11.00**
Cut/Restore Concrete Per Ft - 650	9.00	**9.00**	Bore Cable Per Ft - 650	11.00	**11.00**
Cut/Restore Concrete Per Ft - 850	9.00	**9.00**	Bore Cable Per Ft - 850	11.00	**11.00**
Cut/Restore Concrete Per Ft - 2550	9.00	**9.00**	Bore Cable Per Ft - 2550	11.00	**11.00**
Cut/Restore Concrete Per Ft - 5000	21.00	**21.00**	Bore Cable Per Ft - 5000	11.00	**11.00**
Cut/Restore Concrete Per Ft -10000	36.00	**36.00**	Bore Cable Per Ft -10000	18.00	**18.00**
Cut/Restore Sod Fraction - 0	0.01	**0.01**	Push Pipe/Pull Cable Fraction - 0	0.02	**0.02**
Cut/Restore Sod Fraction - 5	0.01	**0.01**	Push Pipe/Pull Cable Fraction - 5	0.02	**0.02**
Cut/Restore Sod Fraction - 100	0.01	**0.01**	Push Pipe/Pull Cable Fraction - 100	0.02	**0.02**
Cut/Restore Sod Fraction - 200	0.03	**0.03**	Push Pipe/Pull Cable Fraction - 200	0.02	**0.02**
Cut/Restore Sod Fraction - 650	0.04	**0.04**	Push Pipe/Pull Cable Fraction - 650	0.02	**0.02**
Cut/Restore Sod Fraction - 850	0.06	**0.06**	Push Pipe/Pull Cable Fraction - 850	0.04	**0.04**
Cut/Restore Sod Fraction - 2550	0.04	**0.04**	Push Pipe/Pull Cable Fraction - 2550	0.05	**0.05**
Cut/Restore Sod Fraction - 5000	0.02	**0.02**	Push Pipe/Pull Cable Fraction - 5000	0.06	**0.06**
Cut/Restore Sod Fraction -10000	0.00	**0.00**	Push Pipe/Pull Cable Fraction -10000	0.06	**0.06**
Cut/Restore Sod Per Ft - 0	1.00	**1.00**	Push Pipe/Pull Cable Per Ft - 0	6.00	**6.00**
Cut/Restore Sod Per Ft - 5	1.00	**1.00**	Push Pipe/Pull Cable Per Ft - 5	6.00	**6.00**
Cut/Restore Sod Per Ft - 100	1.00	**1.00**	Push Pipe/Pull Cable Per Ft - 100	6.00	**6.00**
Cut/Restore Sod Per Ft - 200	1.00	**1.00**	Push Pipe/Pull Cable Per Ft - 200	6.00	**6.00**
Cut/Restore Sod Per Ft - 650	1.00	**1.00**	Push Pipe/Pull Cable Per Ft - 650	6.00	**6.00**
Cut/Restore Sod Per Ft - 850	1.00	**1.00**	Push Pipe/Pull Cable Per Ft - 850	6.00	**6.00**
Cut/Restore Sod Per Ft - 2550	1.00	**1.00**	Push Pipe/Pull Cable Per Ft - 2550	6.00	**6.00**
Cut/Restore Sod Per Ft - 5000	1.00	**1.00**	Push Pipe/Pull Cable Per Ft - 5000	6.00	**6.00**
Cut/Restore Sod Per Ft -10000	1.00	**1.00**	Push Pipe/Pull Cable Per Ft -10000	24.00	**24.00**
Pavement Stabilization Per Ft - 0	5.00	**5.00**	Cut/Restore Asphalt Fraction - 0	0.03	**0.03**
Pavement Stabilization Per Ft - 5	5.00	**5.00**	Cut/Restore Asphalt Fraction - 5	0.03	**0.03**
Pavement Stabilization Per Ft - 100	5.00	**5.00**	Cut/Restore Asphalt Fraction - 100	0.03	**0.03**
Pavement Stabilization Per Ft - 200	5.00	**5.00**	Cut/Restore Asphalt Fraction - 200	0.03	**0.03**
Pavement Stabilization Per Ft - 650	5.00	**5.00**	Cut/Restore Asphalt Fraction - 650	0.03	**0.03**
Pavement Stabilization Per Ft - 850	9.00	**9.00**	Cut/Restore Asphalt Fraction - 850	0.05	**0.05**

Underground Excavation/Restoration	Current Scenario Value	Default Scenario Value
Pavement Stabilization Per Ft - 2550	13.00	**13.00**
Pavement Stabilization Per Ft - 5000	17.00	**17.00**
Pavement Stabilization Per Ft -10000	20.00	**20.00**
Dirt Stabilization Per Ft - 0	1.00	**1.00**
Dirt Stabilization Per Ft - 5	1.00	**1.00**
Dirt Stabilization Per Ft - 100	1.00	**1.00**
Dirt Stabilization Per Ft - 200	1.00	**1.00**
Dirt Stabilization Per Ft - 650	1.00	**1.00**
Dirt Stabilization Per Ft - 850	4.00	**4.00**
Dirt Stabilization Per Ft - 2550	11.00	**11.00**
Dirt Stabilization Per Ft - 5000	12.00	**12.00**
Dirt Stabilization Per Ft -10000	16.00	**16.00**
Simple Backfill - 0	0.15	**0.15**
Simple Backfill - 5	0.15	**0.15**
Simple Backfill - 100	0.15	**0.15**
Simple Backfill - 200	0.15	**0.15**
Simple Backfill - 650	0.15	**0.15**
Simple Backfill - 850	0.15	**0.15**
Simple Backfill - 2550	0.15	**0.15**
Simple Backfill - 5000	0.15	**0.15**
Simple Backfill -10000	0.15	**0.15**

Buried Excavation/Restoration	Current Scenario Value	Default Scenario Value
Cut/Restore Asphalt Fraction - 2550	0.08	**0.08**
Cut/Restore Asphalt Fraction - 5000	0.18	**0.18**
Cut/Restore Asphalt Fraction -10000	0.60	**0.60**
Cut/Restore Asphalt Per Ft - 0	6.00	**6.00**
Cut/Restore Asphalt Per Ft - 5	6.00	**6.00**
Cut/Restore Asphalt Per Ft - 100	6.00	**6.00**
Cut/Restore Asphalt Per Ft - 200	6.00	**6.00**
Cut/Restore Asphalt Per Ft - 650	6.00	**6.00**
Cut/Restore Asphalt Per Ft - 850	6.00	**6.00**
Cut/Restore Asphalt Per Ft - 2550	6.00	**6.00**
Cut/Restore Asphalt Per Ft - 5000	18.00	**18.00**
Cut/Restore Asphalt Per Ft -10000	30.00	**30.00**
Cut/Restore Concrete Fraction - 0	0.01	**0.01**
Cut/Restore Concrete Fraction - 5	0.01	**0.01**
Cut/Restore Concrete Fraction - 100	0.01	**0.01**
Cut/Restore Concrete Fraction - 200	0.01	**0.01**
Cut/Restore Concrete Fraction - 650	0.01	**0.01**
Cut/Restore Concrete Fraction - 850	0.03	**0.03**
Cut/Restore Concrete Fraction - 2550	0.05	**0.05**
Cut/Restore Concrete Fraction - 5000	0.08	**0.08**
Cut/Restore Concrete Fraction -10000	0.20	**0.20**
Cut/Restore Concrete Per Ft - 0	9.00	**9.00**
Cut/Restore Concrete Per Ft - 5	9.00	**9.00**
Cut/Restore Concrete Per Ft - 100	9.00	**9.00**
Cut/Restore Concrete Per Ft - 200	9.00	**9.00**
Cut/Restore Concrete Per Ft - 650	9.00	**9.00**
Cut/Restore Concrete Per Ft - 850	9.00	**9.00**
Cut/Restore Concrete Per Ft - 2550	9.00	**9.00**
Cut/Restore Concrete Per Ft - 5000	21.00	**21.00**
Cut/Restore Concrete Per Ft -10000	36.00	**36.00**
Cut/Restore Sod Fraction - 0	0.02	**0.02**
Cut/Restore Sod Fraction - 5	0.02	**0.02**
Cut/Restore Sod Fraction - 100	0.02	**0.02**
Cut/Restore Sod Fraction - 200	0.02	**0.02**
Cut/Restore Sod Fraction - 650	0.02	**0.02**
Cut/Restore Sod Fraction - 850	0.35	**0.35**
Cut/Restore Sod Fraction - 2550	0.35	**0.35**
Cut/Restore Sod Fraction - 5000	0.11	**0.11**
Cut/Restore Sod Fraction -10000	0.05	**0.05**
Cut/Restore Sod Per Ft - 0	1.00	**1.00**
Cut/Restore Sod Per Ft - 5	1.00	**1.00**
Cut/Restore Sod Per Ft - 100	1.00	**1.00**
Cut/Restore Sod Per Ft - 200	1.00	**1.00**
Cut/Restore Sod Per Ft - 650	1.00	**1.00**
Cut/Restore Sod Per Ft - 850	1.00	**1.00**
Cut/Restore Sod Per Ft - 2550	1.00	**1.00**
Cut/Restore Sod Per Ft - 5000	1.00	**1.00**
Cut/Restore Sod Per Ft -10000	1.00	**1.00**
Restoration Not Required - 0	0.62	**0.62**
Restoration Not Required - 5	0.62	**0.62**
Restoration Not Required - 100	0.62	**0.62**
Restoration Not Required - 200	0.52	**0.52**

Underground Excavation/Restoration	Current Scenario Value	Default Scenario Value

Buried Excavation/Restoration	Current Scenario Value	Default Scenario Value
Restoration Not Required - 650	0.37	**0.37**
Restoration Not Required - 850	0.27	**0.27**
Restoration Not Required - 2550	0.09	**0.09**
Restoration Not Required - 5000	0.11	**0.11**
Restoration Not Required -10000	0.11	**0.11**
Simple Backfill - 0	0.15	**0.15**
Simple Backfill - 5	0.15	**0.15**
Simple Backfill - 100	0.15	**0.15**
Simple Backfill - 200	0.15	**0.15**
Simple Backfill - 650	0.15	**0.15**
Simple Backfill - 850	0.15	**0.15**
Simple Backfill - 2550	0.15	**0.15**
Simple Backfill - 5000	0.15	**0.15**
Simple Backfill -10000	0.15	**0.15**

Underground Excavation/Restoration	Current Scenario Value	Default Scenario Value	Buried Excavation/Restoration	Current Scenario Value	Default Scenario Value

[redacted]

Surface Texture Table		Effect	fraction of CBG	Effect	fraction of CBG
BY	Bouldery	1	1	1	1
BY-COS	Bouldery Coarse Sand	1	1	1	1
BY-FSL	Bouldery & Fine Sandy Loam	1	1	1	1
BY-L	Bouldery & Loam	1	1	1	1
BY-LS	Bouldery & Sandy Loam	1	1	1	1
BY-SICL	Bouldery & Silty Clay Loam	1	1	1	1
BY-SL	Bouldery & Sandy Loam	1	1	1	1
BYV	Very Bouldery	1.1	1	1.1	1
BYV-FSL	Very Bouldery & Fine Sandy Loam	1.1	1	1.1	1
BYV-L	Very bouldery & Loamy	1.1	1	1.1	1
BYV-LS	Very Bouldery & Loamy Sand	1.1	1	1.1	1
BYV-SIL	Very Bouldery & Silt	1.1	1	1.1	1
BYV-SL	Very Bouldery & Sandy Loam	1.1	1	1.1	1
BYX	Extremely Bouldery	1.3	1	1.3	1
BYX-FSL	Extremely Bouldery & Fine Sandy Loam	1.3	1	1.3	1
BYX-L	Extremely Bouldery & Loamy	1.3	1	1.3	1
BYX-SIL	Extremely Bouldery & Silt Loam	1.3	1	1.3	1
BYX-SL	Extremely Bouldery & Sandy Loam	1.3	1	1.3	1
C	Clay	1	1	1	1
CB	Cobbly	1	1	1	1
CB-C	Cobbly & Clay	1	1	1	1
CB-CL	Cobbly & Clay Loam	1	1	1	1
CB-COSL	Cobbly & Coarse Sandy Loam	1	1	1	1
CB-FS	Cobbly & Fine Sand	1.1	1	1.1	1
CB-FSL	Cobbly & Fine Sandy Loam	1.1	1	1.1	1
CB-L	Cobbly & Loamy	1	1	1	1
CB-LCOS	Cobbly & Loamy coarseSand	1	1	1	1
CB-LS	Cobbly & Loamy Sand	1	1	1	1
CB-S	Cobbly & Sand	1.1	1	1.1	1
CB-SCL	Cobbly & Sandy Clay Loam	1	1	1	1
CB-SICL	Cobbly & Silty Clay Loam	1	1	1	1
CB-SIL	Cobbly & Silt Loam	1	1	1	1
CB-SL	Cobbly & Sandy Loam	1.1	1	1.1	1
CBA	Angular Cobbly	1	1	1	1
CBA-FSL	Angular Cobbly & Fine Sandy Loam	1.1	1	1.1	1
CBV	Very Cobbly	1.2	1	1.2	1
CBV-C	Very Cobbly & Clay	1.2	1	1.2	1
CBV-CL	Very Cobbly & Clay Loam	1.2	1	1.2	1
CBV-FSL	Very Cobbly & Fine Sandy Loam	1.2	1	1.2	1
CBV-L	Very Cobbly & Loamy	1.2	1	1.2	1
CBV-LFS	Very Cobbly & Fine Loamy Sand	1.2	1	1.2	1
CBV-LS	Very Cobbly & Loamy Sand	1.2	1	1.2	1
CBV-MUCK	Very Cobbly & Muck	1.2	1	1.2	1
CBV-SCL	Very Cobbly & Sandy Clay Loam	1.2	1	1.2	1
CBV-SIL	Very Cobbly & Silt	1.2	1	1.2	1
CBV-SL	Very Cobbly & Sandy Loam	1.2	1	1.2	1
CBV-VFS	Very Cobbly & Very Fine Sand	1.2	1	1.2	1
CBX	Extremely Cobbly	1.2	1	1.2	1
CBX-CL	Extremely Cobbly & Clay	1.2	1	1.2	1
CBX-L	Extremely Cobbly Loam	1.2	1	1.2	1
CBX-SIL	Extremely Cobbly & Silt	1.2	1	1.2	1
CBX-SL	Extremely Cobbly &Sandy Loam	1.2	1	1.2	1
CBX-VFSL	Extremely Cobbly Very Fine Sandy Loam	1.3	1	1.3	1

Labor Adjustment Factors	Current Scenario Value	Default Scenario Value
Regional Labor Adjustment Factor	1	**1**
Contractor excavation and restoration	0.125	**0.125**
Telco construction -- copper	0.164	**0.164**
Telco construction -- fiber	0.364	**0.364**
Telco drop/NID installation and maintenance	0.571	**0.571**
Contractor pole setting	0.518	**0.518**

Surface Texture Table		Effect	fraction of CBG	Effect	fraction of CBG	Labor Adjustment Factors	Current Scenario Value	Default Scenario Value
CE	Coprogenous Earth	1	1	1	1			
CIND	Cinders	1	1	1	1			
CL	Clay Loam	1	1	1	1			
CM	Cemented	1.3	1	1.3	1			
CN	Channery	1	1	1	1			
CN-CL	Channery & Clay Loam	1	1	1	1			
CN-FSL	Channery & Fine Sandy Loam	1.1	1	1.1	1			
CN-L	Channery & Loam	1	1	1	1			
CN-SICL	Channery & Silty Clay Loam	1	1	1	1			
CN-SIL	Channery & Silty Loam	1	1	1	1			
CN-SL	Channery & Sandy Loam	1	1	1	1			
CNV	Very Channery	1	1	1	1			
CNV-CL	Very Channery & Clay	1	1	1	1			
CNV-L	Very Channery & Loam	1	1	1	1			
CNV-SCL	Channery & Sandy Clay Loam	1	1	1	1			
CNV-SIL	Very Channery & Silty Loam	1	1	1	1			
CNV-SL	Very Channery & Sandy Loam	1	1	1	1			
CNX	Extremely Channery	1	1	1	1			
CNX-SL	Extremely Channery & Sandy Loam	1	1	1	1			
COS	Coarse Sand	1	1	1	1			
COSL	Coarse Sandy Loam	1	1	1	1			
CR	Cherty	1.2	1	1.2	1			
CR-L	Cherty & Loam	1.2	1	1.2	1			
CR-SICL	Cherty & Silty Clay Loam	1.2	1	1.2	1			
CR-SIL	Cherty & Silty Loam	1.2	1	1.2	1			
CR-SL	Cherty & Sandy Loam	1.2	1	1.2	1			
CRC	Coarse Cherty	1.2	1	1.2	1			
CRV	Very Cherty	1.2	1	1.2	1			
CRV-L	Very Cherty & Loam	1.2	1	1.2	1			
CRV-SIL	Very Cherty & Silty Loam	1.2	1	1.2	1			
CRX	Extremely Cherty	1.3	1	1.3	1			
CRX-SIL	Extremely Cherty & Silty Loam	1.3	1	1.3	1			
DE	Diatomaceous Earth	1	1	1	1			
FB	Fibric Material	1	1	1	1			
FINE	Fine	1	1	1	1			
FL	Flaggy	1	1	1	1			
FL-FSL	Flaggy & Fine Sandy Loam	1.1	1	1.1	1			
FL-L	Flaggy & Loam	1	1	1	1			
FL-SIC	Flaggy & Silty Clay	1	1	1	1			
FL-SICL	Flaggy & Silty Clay Loam	1	1	1	1			
FL-SIL	Flaggy & Silty Loam	1	1	1	1			
FL-SL	Flaggy & Sandy Loam	1	1	1	1			
FLV	Very Flaggy	1.1	1	1.1	1			
FLV-COSL	Very Flaggy & Coarse Sandy Loam	1.1	1	1.1	1			
FLV-L	Very Flaggy & Loam	1.1	1	1.1	1			
FLV-SICL	Very Flaggy & Silty Clay Loam	1.1	1	1.1	1			
FLV-SL	Very Flaggy & Sandy Loam	1.1	1	1.1	1			
FLX	Extremely Flaggy	1.1	1	1.1	1			
FLX-L	Extremely Flaggy & Loamy	1.1	1	1.1	1			
FRAG	Fragmental Material	1	1	1	1			
FS	Fine Sand	1.1	1	1.1	1			
FSL	Fine Sandy Loam	1.1	1	1.1	1			

Surface Texture Table		Effect	fraction of CBG	Effect	fraction of CBG	Labor Adjustment Factors	Current Scenario Value	Default Scenario Value
G	Gravel	1	1	1	1			
GR	Gravelly	1	1	1	1			
GR-C	Gravel & Clay	1	1	1	1			
GR-CL	Gravel & Clay Loam	1	1	1	1			
GR-COS	Gravel & Coarse Sand	1	1	1	1			
GR-COSL	Gravel & Coarse Sandy Loam	1	1	1	1			
GR-FS	Gravel & Fine Sand	1	1	1	1			
GR-FSL	Gravel & Fine Sandy Loam	1	1	1	1			
GR-L	Gravel & Loam	1	1	1	1			
GR-LCOS	Gravel & Loamy Coarse Sand	1	1	1	1			
GR-LFS	Gravel & Loamy Fine Sand	1.1	1	1.1	1			
GR-LS	Gravel & Loamy Sand	1	1	1	1			
GR-MUCK	Gravel & Muck	1	1	1	1			
GR-S	Gravel & Sand	1	1	1	1			
GR-SCL	Gravel & Sandy Clay Loam	1	1	1	1			
GR-SIC	Gravel & Silty Clay	1	1	1	1			
GR-SICL	Gravel & Silty Clay Loam	1	1	1	1			
GR-SIL	Gravel & Silty Loam	1	1	1	1			
GR-SL	Gravel & Sandy Loam	1	1	1	1			
GR-VFSL	Gravel & Very Fine Sandy Loam	1.1	1	1.1	1			
GRC	Coarse Gravelly	1	1	1	1			
GRF	Fine Gravel	1	1	1	1			
GRF-SIL	Fine Gravel Silty Loam	1	1	1	1			
GRV	Very Gravelly	1	1	1	1			
GRV-CL	Very gravelly & Clay Loam	1	1	1	1			
GRV-COS	Very Gravelly & coarse Sand	1	1	1	1			
GRV-COSL	Very Gravelly & coarse Sandy Loam	1	1	1	1			
GRV-FSL	Very Gravelly & Fine Sandy Loam	1	1	1	1			
GRV-L	Very Gravelly & Loam	1	1	1	1			
GRV-LCOS	Very Gravelly & Loamy Coarse Sand	1	1	1	1			
GRV-LS	Very Gravelly & Loamy Sand	1	1	1	1			
GRV-S	Very Gravelly & Sand	1	1	1	1			
GRV-SCL	Very Gravelly & Sandy Clay Loam	1	1	1	1			
GRV-SICL	Very Gravelly & Silty Clay Loam	1	1	1	1			
GRV-SIL	Very Gravelly & Silt	1	1	1	1			
GRV-SL	Very Gravelly & Sandy Loam	1	1	1	1			
GRV-VFS	Very Gravelly & Very Fine Sand	1	1	1	1			
GRV-VFSL	Very Gravelly & Very Fine Sandy Loam	1	1	1	1			
GRX	Extremely Gravelly	1.1	1	1.1	1			
GRX-CL	Extremely Gravelly & Coarse Loam	1.1	1	1.1	1			
GRX-COS	Extremely Gravelly & Coarse Sand	1.1	1	1.1	1			
GRX-COSL	Extremely Gravelly & Coarse Sandy Loam	1.1	1	1.1	1			
GRX-FSL	Extremely Gravelly & Fine Sand Loam	1.1	1	1.1	1			
GRX-L	Extremely Gravelly & Loam	1.1	1	1.1	1			
GRX-LCOS	Extremely Gravelly & Loamy Coarse	1.1	1	1.1	1			
GRX-LS	Extremely Gravelly & Loamy Sand	1.1	1	1.1	1			
GRX-S	Extremely Gravelly & Sand	1.1	1	1.1	1			
GRX-SIL	Extremely Gravelly & Silty Loam	1.1	1	1.1	1			
GRX-SL	Extremely Gravelly & Sandy Loam	1.1	1	1.1	1			
GYP	Gypsiferous Material	1.2	1	1.2	1			
HM	Hemic Material	1	1	1	1			
ICE	Ice or Frozen Soil	1.5	1	1.5	1			

Surface Texture Table		Effect	fraction of CBG	Effect	fraction of CBG	Labor Adjustment Factors	Current Scenario Value	Default Scenario Value
IND	Indurated	1.2	1	1.2	1			
L	Loam	1	1	1	1			
LCOS	Loamy Coarse Sand	1	1	1	1			
LFS	Loamy Fine Sand	1.1	1	1.1	1			
LS	Loamy Sand	1	1	1	1			
LVFS	Loamy Very Fine Sand	1	1	1	1			
MARL	Marl	1	1	1	1			
MEDIUM	Medium Coarse	1	1	1	1			
MK	Mucky	1	1	1	1			
MK-C	Mucky Clay	1	1	1	1			
MK-CL	Mucky Clay Loam	1	1	1	1			
MK-FS	Muck & Fine Sand	1	1	1	1			
MK-FSL	Muck & Fine Sandy Loam	1	1	1	1			
MK-L	Mucky Loam	1	1	1	1			
MK-LFS	Mucky Loamy Fine Sand	1	1	1	1			
MK-LS	Mucky Loamy Sand	1	1	1	1			
MK-S	Muck & Sand	1	1	1	1			
MK-SI	Mucky & Silty	1	1	1	1			
MK-SICL	Mucky & Silty Clay Loam	1	1	1	1			
MK-SIL	Mucky Silt	1	1	1	1			
MK-SL	Mucky & Sandy Loam	1	1	1	1			
MK-VFSL	Mucky & Very Fine Sandy Loam	1	1	1	1			
MPT	Mucky Peat	1	1	1	1			
MUCK	Muck	1	1	1	1			
PEAT	Peat	1	1	1	1			
PT	Peaty	1	1	1	1			
RB	Rubbly	1.5	1	1.5	1			
RB-FSL	Rubbly Fine Sandy Loam	1.5	1	1.5	1			
S	Sand	1	1	1	1			
SC	Sandy Clay	1	1	1	1			
SCL	Sandy Clay Loam	1	1	1	1			
SG	Sand & Gravel	1	1	1	1			
SH	Shaly	1	1	1	1			
SH-CL	Shaly & Clay	1	1	1	1			
SH-L	Shale & Loam	1	1	1	1			
SH-SICL	Shaly & Silty Clay Loam	1	1	1	1			
SH-SIL	Shaly & Silt Loam	1	1	1	1			
SHV	Very Shaly	1.5	1	1.5	1			
SHV-CL	Very Shaly & Clay Loam	1.5	1	1.5	1			
SHX	Extremely Shaly	2	1	2	1			
SI	Silt	1	1	1	1			
SIC	Silty Clay	1	1	1	1			
SICL	Silty Clay Loam	1	1	1	1			
SIL	Silt Loam	1	1	1	1			
SL	Sandy Loam	1	1	1	1			
SP	Sapric Material	1	1	1	1			
SR	Stratified	1	1	1	1			
ST	Stony	1	1	1	1			
ST-C	Stony & Clay	1	1	1	1			
ST-CL	Stony & Clay Loam	1	1	1	1			
ST-COSL	Stony & Coarse Sandy Loam	1	1	1	1			
ST-FSL	Stony & Fine Sandy Loam	1.1	1	1.1	1			

Surface Texture Table		Effect	fraction of CBG	Effect	fraction of CBG	Labor Adjustment Factors	Current Scenario Value	Default Scenario Value
ST-L	Stony & Loamy	1	1	1	1			
ST-LCOS	Stony & Loamy Coarse Sand	1	1	1	1			
ST-LFS	Stony & Loamy Fine Sand	1.1	1	1.1	1			
ST-LS	Stony & Loamy Sand	1	1	1	1			
ST-SIC	Stony & Silty Clay	1	1	1	1			
ST-SICL	Stony & Silty Clay Loam	1	1	1	1			
ST-SIL	Stony & Silt Loam	1	1	1	1			
ST-SL	Stony & Sandy Loam	1	1	1	1			
ST-VFSL	Stony & Sandy Very Fine Silty Loam	1.1	1	1.1	1			
STV	Very Stony	1.2	1	1.2	1			
STV-C	Very Stony & Clay	1.2	1	1.2	1			
STV-CL	Very Stony & Clay Loam	1.2	1	1.2	1			
STV-FSL	Very Stony & Fine Sandy Loam	1.2	1	1.2	1			
STV-L	Very Stony & Loamy	1.2	1	1.2	1			
STV-LFS	Very Stony & Loamy Fine Sand	1.2	1	1.2	1			
STV-LS	Very Stony & Loamy Sand	1.2	1	1.2	1			
STV-MPT	Very Stony & Mucky Peat	1.2	1	1.2	1			
STV-MUCK	Very Stony & Muck	1.2	1	1.2	1			
STV-SICL	Very Stony & Silty Clay Loam	1.2	1	1.2	1			
STV-SIL	Very Stony & Silty Loam	1.2	1	1.2	1			
STV-SL	Very Stony & Sandy Loam	1.2	1	1.2	1			
STV-VFSL	Very Stony & Very Fine Sandy Loam	1.2	1	1.2	1			
STX	Extremely Stony	1.3	1	1.3	1			
STX-C	Extremely Stony & Clay	1.3	1	1.3	1			
STX-CL	Extremely Stony & Clay Loam	1.3	1	1.3	1			
STX-COS	Extremely Stony & Coarse Sand	1.3	1	1.3	1			
STX-COSL	Extremely Stony & Coarse Sand Loam	1.3	1	1.3	1			
STX-FSL	Extremely Stony & Fine Sandy Loam	1.3	1	1.3	1			
STX-L	Extremely Stony & Loamy	1.3	1	1.3	1			
STX-LCOS	Extremely Stony & Loamy Coarse Sand	1.3	1	1.3	1			
STX-LS	Extremely Stony & Loamy Sand	1.3	1	1.3	1			
STX-MUCK	Extremely Stony & Muck	1.3	1	1.3	1			
STX-SIC	Extremely Stony & Silty Clay	1.3	1	1.3	1			
STX-SICL	Extremely Stony & Silty Clay Loam	1.3	1	1.3	1			
STX-SIL	Extremely Stony & Silty Loam	1.3	1	1.3	1			
STX-SL	Extremely Stony & Sandy Loam	1.3	1	1.3	1			
STX-VFSL	Extremely Stony & Very Fine Sandy Loam	1.3	1	1.3	1			
SY	Slaty	3	1	3	1			
SY-L	Slaty & Loam	3	1	3	1			
SY-SIL	Slaty & Silty Loam	3	1	3	1			
SYV	Very Slaty	3.5	1	3.5	1			
SYX	Extremely Slaty	4	1	4	1			
UNK	Unknown	1	1	1	1			
UWB	Unweathered Bedrock	2	1	2	1			
VAR	Variable	1	1	1	1			
VFS	Very Fine Sand	1	1	1	1			
VFSL	Very Fine Sandy loam	1	1	1	1			
WB	Weathered Bedrock	3	1	3	1			

Dkt. No ______________
D. Blessing Ex. No. ___ (DCB-5)
Embedded Cost Study

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition	)
To Reduce Intrastate Switched Network	)
Access Rates In A Revenue Neutral	)
Manner Pursuant to Section 364.164,	)
Florida Statutes	)
	)

Exhibit DCB-5

ALLTEL Florida 2004 embedded cost study.

Rural LEC Summary by Wire Center

	Embedded Study	Staff's Primary	Difference	Wire Center	Staff's Alternative	Difference	Number of Residential and Single Business Lines
ALLTEL	$ 41.97	$ 41.32	$ 0.65	ALCHFLXA	$ 43.16	$ (1.19)	5,493
				BORAFLXA	$ 131.42	$ (89.45)	404
				BRFRFLXA	$ 54.57	$ (12.60)	3,846
				BRKRFLXA	$ 84.31	$ (42.34)	1,220
				CITRFLXA	$ 43.52	$ (1.55)	2,038
				CLHNFLXA	$ 50.37	$ (8.40)	5,447
				CRCYFLXA	$ 44.05	$ (2.08)	2,049
				DWPKFLXA	$ 80.85	$ (38.88)	1,063
				FLRHFLXA	$ 66.72	$ (24.75)	1,183
				FTWHFLXA	$ 79.01	$ (37.04)	1,627
				HGSPFLXA	$ 50.61	$ (8.64)	4,741
				HLRDFLXA	$ 70.49	$ (28.52)	2,580
				HSNGFLXA	$ 60.50	$ (18.53)	1,765
				INTRFLXA	$ 65.35	$ (23.38)	4,171
				JNGSFLXA	$ 96.46	$ (54.49)	1,415
				JSPRFLXA	$ 43.75	$ (1.78)	1,871
				LKBTFLXA	$ 50.12	$ (8.15)	2,609
				LRVLFLXA	$ 108.02	$ (66.05)	1,238
				LVOKFLXA	$ 35.47	$ 6.50	7,308
				MAYOFLXA	$ 97.38	$ (55.41)	1,663
				MCINFLXA	$ 57.49	$ (15.52)	3,264
				MLRSFLXA	$ 34.29	$ 7.68	3,134
				ORSPFLXA	$ 79.35	$ (37.38)	1,959
				RAFRFLXA	$ 58.46	$ (16.49)	537
				WALDFLXA	$ 60.51	$ (18.54)	1,838
				WHSPFLXA	$ 77.60	$ (35.63)	1,052
				WLBRFLXA	$ 108.37	$ (66.40)	1,493
Frontier	$ 56.13	$ 44.30	$ 11.83	WLHLFXA	$ 47.20	$ 8.93	1,642
				MOLNFLXA	$ 94.61	$ (38.48)	2,442
GTC - Florala	$ 49.81	$ 42.18	$ 7.63	PXTNFLXA	$ 118.24	$ (68.43)	1,462
				LRHLFLXA	$ 96.04	$ (46.23)	826
GTC - Gulf	$ 38.07	$ 33.43	$ 4.64	PRRYFLXA	$ 53.94	$ (15.87)	8,086
GTC - St. Joe	$ 44.16	$ 38.99	$ 5.17	PTSJFLXA	$ 77.76	$ (33.60)	3,921
				TAFBFLXA	$ 35.45	$ 8.71	1,358
				ARPNFLXA	$ 72.60	$ (28.44)	547
				HSFRFLXA	$ 62.09	$ (17.93)	762
				WWHTFLXA	$ 78.22	$ (34.06)	2,356
				BRSTFLXA	$ 31.56	$ 12.60	1,893
				THBHFLXA	$ 48.30	$ (4.14)	2,598
				APLCFLXA	$ 52.66	$ (8.50)	2,182
				CHTHFLXA	$ 87.72	$ (43.56)	1,823
				ESPNFLXA	$ 44.67	$ (0.51)	2,733
				BLTWFLXA	$ 37.92	$ 6.24	3,769
				CRBLFLXA	$ 24.81	$ 19.35	2,190
				ALTHFLXA	$ 62.43	$ (18.27)	1,532
ITS	$ 71.00	$ 65.50	$ 5.50	INTWFLXA	$ 44.98	$ 26.02	3,144
Northeast	$ 65.39	$ 55.43	$ 9.96	MCLNFLXA	$ 40.32	$ 25.07	5,720
				SNSNFLXA	$ 116.52	$ (51.13)	975
TDS - Quincy	$ 44.40	$ 42.81	$ 1.59	GNBOFLXA	$ 77.11	$ (32.71)	1,349
				GRETFLXA	$ 88.25	$ (43.85)	1,310
				QNCYFLXA	$ 34.90	$ 9.50	9,058
Vista-United	$ 66.54	$ 63.34	$ 3.20	LKBNFLXB	$ 15.22	$ 51.32	8,116

Benchmark Cost Proxy Model Results

Area Wide Summary Report

TOTAL SUMMARY
LLTEL SERVICE CORP.
LORIDA
WIRE CENTERS [27]

		Uncapped Annual Amount		Capped[1] Annual Amount	Embd.
Investment Per Line Data					
Loop Investment	$	3,690	$	2,438	
Switch Investment	$	252	$	252	
IOF Investment	$	37	$	37	
Other Investment	$	237	$	177	
Total Investment	$	4,218	$	2,904	
Expense Per Month Data					
Total Capital Cost per Line	$	55.13	$	38.46	
Total Operating Expense per Line	$	17.63	$	15.05	
Total Cost per Line	$ 61.52	72.76	$ 56.94	53.51	41.32
Gross Receipts Tax[2]	$	1.08	$	0.83	

Line Data

Average Loop Length in Feet	30,685
Lines Above $4K Loop Investment	2,857
Number of Households	53,054
Number of Residential Lines	64,372
Number of Single Business Lines	2,636
Multiple Business Lines	14,265
Non Switched Lines	0
Total GRID Lines Served	81,273

GRIDs with Average Loop Investment per line over $4,350 are capped at $4,350.
Application varies so much on a state by state basis, it is not included in the Monthly Cost.

umptions:
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ROCESSING - STAFFGTE : CAPCOST - STAFFGTE

Benchmark Cost Proxy Model Results

Aggregate Support Summary

TOTAL SUMMARY
ALLTEL SERVICE CORP.
FLORIDA
WIRE CENTERS [27]

Residental Aggregate Support Data		Uncapped Annual Amount		Capped[1] Annual Amount
Support Over $15.00 Benchmark	$	38,706,409	$	25,447,510
Support Over $18.00 Benchmark	$	36,835,921	$	23,577,022
Support Over $20.00 Benchmark	$	35,588,929	$	22,330,030
Support Over $31.00 Benchmark	$	28,730,473	$	15,471,574
Support Over $60.00 Benchmark	$	13,235,096	$	2,251,758
Support Over $70.00 Benchmark	$	9,697,385	$	852,182
Support Over $80.00 Benchmark	$	7,340,973	$	144,550

Business Aggregate Support Data				
Support Over $15.00 Benchmark	$	1,660,349	$	1,113,069
Support Over $18.00 Benchmark	$	1,565,453	$	1,018,173
Support Over $20.00 Benchmark	$	1,502,189	$	954,909
Support Over $51.00 Benchmark	$	628,426	$	161,837
Support Over $60.00 Benchmark	$	458,880	$	67,919
Support Over $70.00 Benchmark	$	346,385	$	25,970
Support Over $80.00 Benchmark	$	264,541	$	4,294

Total Aggregate Support Data				
Support at Res $15.00 and Bus $15.00	$	40,366,759	$	26,560,579
Support at Res $18.00 and Bus $18.00	$	38,401,375	$	24,595,195
Support at Res $20.00 and Bus $20.00	$	37,091,119	$	23,284,939
Support at Res $31.00 and Bus $51.00	$	29,358,899	$	15,633,411
Support at Res $60.00 and Bus $60.00	$	13,693,977	$	2,319,677
Support at Res $70.00 and Bus $70.00	$	10,043,769	$	878,152
Support at Res $80.00 and Bus $80.00	$	7,605,514	$	148,844

Assumptions:

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PROCESSING - STAFFGTE : CAPCOST - STAFFGTE

Benchmark Cost Proxy Model Results

Area Wide Summary Report

TOTAL SUMMARY
LLTEL SERVICE CORP.
FLORIDA
WIRE CENTERS [27]

Investment Per Line Data	Uncapped Annual Amount		Capped[1] Annual Amount	
Loop Investment	$	3,690	$	3,174
Switch Investment	$	252	$	252
IOF Investment	$	37	$	37
Other Investment	$	237	$	212
Total Investment	$	4,218	$	3,676
Expense Per Month Data				
Total Capital Cost per Line	$	55.13	$	48.35
Total Operating Expense per Line	$	17.63	$	16.72
Total Cost per Line	$	72.76	$	65.07
Gross Receipts Tax[2]	$	1.08	$	0.98
Line Data				
Average Loop Length in Feet		30,685		
Lines Above $10K Loop Investment		2,857		
Number of Households		53,054		
Number of Residential Lines		64,372		
Number of Single Business Lines		2,636		
Multiple Business Lines		14,265		
Non Switched Lines		0		
Total GRID Lines Served		81,273		

GRIDs with Average Loop Investment per line over $10,000 are capped at $10,000.
2 Application varies so much on a state by state basis, it is not included in the Monthly Cost.

umptions:
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OCESSING - DAVE ; CAPCOST - DAVE

Benchmark Cost Proxy Model Results

Aggregate Support Summary

TOTAL SUMMARY
ALLTEL SERVICE CORP.
FLORIDA
WIRE CENTERS [27]

Residental Aggregate Support Data		Uncapped Annual Amount		Capped[1] Annual Amount
Support Over $15.00 Benchmark	$	38,706,409	$	33,563,884
Support Over $18.00 Benchmark	$	36,835,921	$	31,693,396
Support Over $20.00 Benchmark	$	35,588,929	$	30,446,404
Support Over $31.00 Benchmark	$	28,730,473	$	23,587,948
Support Over $60.00 Benchmark	$	13,235,096	$	8,554,149
Support Over $70.00 Benchmark	$	9,697,385	$	5,720,830
Support Over $80.00 Benchmark	$	7,340,973	$	3,897,094

Business Aggregate Support Data				
Support Over $15.00 Benchmark	$	1,660,349	$	1,437,053
Support Over $18.00 Benchmark	$	1,565,453	$	1,342,157
Support Over $20.00 Benchmark	$	1,502,189	$	1,278,893
Support Over $51.00 Benchmark	$	628,426	$	420,929
Support Over $60.00 Benchmark	$	458,880	$	285,539
Support Over $70.00 Benchmark	$	346,385	$	184,263
Support Over $80.00 Benchmark	$	264,541	$	126,551

Total Aggregate Support Data				
Support at Res $15.00 and Bus $15.00	$	40,366,759	$	35,000,937
Support at Res $18.00 and Bus $18.00	$	38,401,375	$	33,035,553
Support at Res $20.00 and Bus $20.00	$	37,091,119	$	31,725,297
Support at Res $31.00 and Bus $51.00	$	29,358,899	$	24,008,877
Support at Res $60.00 and Bus $60.00	$	13,693,977	$	8,839,687
Support at Res $70.00 and Bus $70.00	$	10,043,769	$	5,905,092
Support at Res $80.00 and Bus $80.00	$	7,605,514	$	4,023,645

Assumptions:

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CESSING - DAVE : CAPCOST - DAVE

Docket No. 980696-TP
REVISED 12/17/98

ALLTEL FLORIDA INC
Florida
View: Processing - FPSCG : Capcost - FPSCG

	Monthly Cost per Line per Month			
Wire Center	Capital Cost	Operating Expense	White Pages Directory Listings Expense	Total Cost
ALCHFLXARS1	$ 29.97	$ 12.79	$ 0.40	$ 43.16
BORAFLXARS1	$ 105.25	$ 25.77	$ 0.40	$ 131.42
BRFRFLXARS1	$ 39.70	$ 14.47	$ 0.40	$ 54.57
BRKRFLXADS0	$ 64.48	$ 19.43	$ 0.40	$ 84.31
CITRFLXADS0	$ 29.31	$ 13.81	$ 0.40	$ 43.52
CLHNFLXADS0	$ 36.36	$ 13.61	$ 0.40	$ 50.37
CRCYFLXADS0	$ 29.84	$ 13.81	$ 0.40	$ 44.05
DWPKFLXARS0	$ 61.64	$ 18.81	$ 0.40	$ 80.85
FLRHFLXADS1	$ 48.79	$ 17.52	$ 0.40	$ 66.72
FTWHFLXADS0	$ 59.57	$ 19.04	$ 0.40	$ 79.01
HGSPFLXADS0	$ 36.16	$ 14.05	$ 0.40	$ 50.61
HLRDFLXADS0	$ 53.41	$ 16.68	$ 0.40	$ 70.49
HSNGFLXADS0	$ 44.41	$ 15.69	$ 0.40	$ 60.50
INTRFLXADS0	$ 48.11	$ 16.84	$ 0.40	$ 65.35
JNGSFLXARS1	$ 75.64	$ 20.41	$ 0.40	$ 96.46
JSPRFLXARS1	$ 30.43	$ 12.92	$ 0.40	$ 43.75
LKBTFLXADS0	$ 35.95	$ 13.77	$ 0.40	$ 50.12
LRVLFLXARS1	$ 84.79	$ 22.84	$ 0.40	$ 108.03
LVOKFLXADS0	$ 23.47	$ 11.60	$ 0.40	$ 35.47
MAYOFLXARS1	$ 76.88	$ 20.10	$ 0.40	$ 97.38
MCINFLXADS0	$ 41.52	$ 15.57	$ 0.40	$ 57.49
MLRSFLXADS0	$ 21.87	$ 12.02	$ 0.40	$ 34.29
ORSPFLXADS0	$ 60.22	$ 18.73	$ 0.40	$ 79.35
RAFRFLXARS1	$ 42.65	$ 15.41	$ 0.40	$ 58.46
WALDFLXADS0	$ 44.27	$ 15.84	$ 0.40	$ 60.51
WHSPFLXARS1	$ 60.38	$ 16.82	$ 0.40	$ 77.60
WLBRFLXADS0	$ 85.17	$ 22.80	$ 0.40	$ 108.37

Comparison of Results Filed in DN 980696-TP

	BCPM 3.1 Results at Default Inputs	BCPM 3.1 Results at LEC Inputs	HAI 5.0a Results	LEC Embedded Costs
ALLTEL	$66.37			$41.97
Centel	$37.13	$33.14	$26.23	NA
Florala	$96.34			$49.81
Frontier	$77.96			$56.13
GTE	$29.43	$32.08	$15.07	
Gulf	$64.69			$38.07
Indiantown	$51.76			$73.07
Northeast	$55.39			$65.87
Quincy	$50.82			$44.39
BellSouth	$28.63	$31.51	$15.11	
St. Joe	$66.85			$44.16
United	$32.98	$33.14	$17.86	
Vista-United	$31.36			$65.65
ALL FL WCs	$30.06			

Notes:
(1) LEC results for Centel and United are for total Sprint Florida.
(2) HAI only produces results for non-rural LECs (values from Guepe direct).

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Dkt. No ______________
D. Blessing Ex. No. ___ (DCB-6)
Universal Service

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition	)
To Reduce Intrastate Switched Network	)
Access Rates In A Revenue Neutral	)
Manner Pursuant to Section 364.164,	)
Florida Statutes	)
______________________________	)

Exhibit DCB-6

Florida Statute § 364.025 Universal Service

***43904 West's F.S.A. § 364.025**

**WEST'S FLORIDA STATUTES ANNOTATED
TITLE XXVII. RAILROADS AND OTHER REGULATED UTILITIES (CHAPTERS 350-368)
CHAPTER 364. TELECOMMUNICATIONS COMPANIES
PART I. GENERAL PROVISIONS**

Current through Chapter 484 and H.J.R. No. 1 and S.J.R. No. 2394 (End) of 2004 Special "A" Session of the Nineteenth Legislature

364.025. Universal service

(1) For the purposes of this section, the term "universal service" means an evolving level of access to telecommunications services that, taking into account advances in technologies, services, and market demand for essential services, the commission determines should be provided at just, reasonable, and affordable rates to customers, including those in rural, economically disadvantaged, and high-cost areas. It is the intent of the Legislature that universal service objectives be maintained after the local exchange market is opened to competitively provided services. It is also the intent of the Legislature that during this transition period the ubiquitous nature of the local exchange telecommunications companies be used to satisfy these objectives. Until January 1, 2009, each local exchange telecommunications company shall be required to furnish basic local exchange telecommunications service within a reasonable time period to any person requesting such service within the company's service territory.

(2) The Legislature finds that each telecommunications company should contribute its fair share to the support of the universal service objectives and carrier-of-last-resort obligations. For a transitional period not to exceed January 1, 2009, the interim mechanism for maintaining universal service objectives and funding carrier-of-last-resort obligations shall be established by the commission, pending the implementation of a permanent mechanism. The interim mechanism shall be applied in a manner that ensures that each competitive local exchange telecommunications company contributes its fair share to the support of universal service and carrier-of-last-resort obligations. The interim mechanism applied to each competitive local exchange telecommunications company shall reflect a fair share of the local exchange telecommunications company's recovery of investments made in fulfilling its carrier-of-last-resort obligations, and the maintenance of universal service objectives. The commission shall ensure that the interim mechanism does not impede the development of residential consumer choice or create an unreasonable barrier to competition. In reaching its determination, the commission shall not inquire into or consider any factor that is inconsistent with s. 364.051(1)(c). The costs and expenses of any government program or project required in part II of this chapter shall not be recovered under this section.

***43905** (3) If any party, prior to January 1, 2009, believes that circumstances have changed substantially to warrant a change in the interim mechanism, that party may petition the commission for a change, but the commission shall grant such petition only after an opportunity for a hearing and a compelling showing of changed circumstances, including that the provider's customer population includes as many residential as business customers. The commission shall act on any such petition within 120 days.

(4)(a) Prior to January 1, 2009, the Legislature shall establish a permanent universal service mechanism upon the effective date of which any interim recovery mechanism for universal service objectives or carrier-of-last-resort obligations imposed on competitive local exchange telecommunications companies shall terminate.

(b) To assist the Legislature in establishing a permanent universal service mechanism, the commission, by February 15, 1999, shall determine and report to the President of the Senate and the Speaker of the House of Representatives the total forward-looking cost, based upon the most recent commercially available technology and equipment and generally accepted design and placement principles, of providing basic local telecommunications service on a basis no greater than a wire center basis using a cost proxy model to be selected by the commission after notice and opportunity for hearing.

(c) In determining the cost of providing basic local telecommunications service for small local exchange telecommunications companies, which serve less than 100,000 access lines, the commission shall not be required to use the cost proxy model selected pursuant to paragraph (b) until a mechanism is implemented by the Federal Government for small companies, but no sooner than January 1, 2001. The commission shall calculate a small local exchange telecommunications company's cost of providing basic local telecommunications services based on one of the following options:

1. A different proxy model; or

2. A fully distributed allocation of embedded costs, identifying high-cost areas within the local exchange area the company serves and including all embedded investments and expenses incurred by the company in the provision of universal service. Such calculations may be made using fully distributed costs consistent with 47 C.F.R. parts 32, 36, and 64. The geographic basis for the calculations shall be no smaller than a census block group.

(5) After January 1, 2001, a competitive local exchange telecommunications company may petition the commission to become the universal service provider and carrier of last resort in areas requested to be served by that competitive local exchange telecommunications company. Upon petition of a competitive local exchange telecommunications company, the commission shall have 120 days to vote on granting in whole or in part or denying the petition of the competitive local exchange company. The commission may establish the competitive local exchange telecommunications company as the universal service provider and carrier of last resort, provided that the commission first determines that the competitive local exchange telecommunications company will provide high-quality, reliable service. In the order establishing the competitive local exchange telecommunications company as the universal service provider and carrier of last resort, the commission shall set the period of time in which such company must meet those objectives and obligations.

***43906**

CREDIT(S)

Added by Laws 1995, c. 95-403, § 7, eff. Jan. 1, 1996. Amended by Laws 1997, c. 97-100, § 18, eff. July 1, 1997; Laws 1998, c. 98-277, § 1, eff. May 28, 1998; Laws 1999, c. 99-354, § 1, eff. June 11, 1999; Laws 2000, c. 2000-289, § 1, eff. June 14, 2000; Laws 2000, c. 2000-334, § 2, eff. June 20, 2000; Laws 2003, c. 2003-32, § 4, eff. May 23, 2003.

<General Materials (GM) - References, Annotations, or Tables>

REFERENCES

LIBRARY REFERENCES

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Telecommunications ⚷267.
Westlaw Topic No. 372.
C.J.S. Telegraphs, Telephones, Radio, and Television § 267.

RESEARCH REFERENCES

Encyclopedias

FL Jur. 2d Telecommunications § 13, Universal Service.

ANNOTATIONS

NOTES OF DECISIONS

Operator costs 1

1. Operator costs

Incumbent local exchange carrier (ILEC) which was statutorily precluded from offering local service without operators to consumers was not required to eliminate its cost of operator services from wholesale rate it charged competitor local exchange carrier (CLEC), which sought to obtain local service from ILEC for resale but wanted to provide its own operator services. AT&T Communications of Southern States, Inc. v. BellSouth Telecommunications, Inc., C.A.11 (Fla.)2001, 268 F.3d 1294. Telecommunications 🔑267

Current through Chapter 484 and H.J.R. No. 1and S.J.R. No. 2394 (End) of 2004 Special "A" Session of the Nineteenth Legislature

Dkt. No ______________
D. Blessing Ex. No. ___ (DCB-7)
Cost of Basic Service Order

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition	)
To Reduce Intrastate Switched Network	)
Access Rates In A Revenue Neutral	)
Manner Pursuant to Section 364.164,	)
Florida Statutes	)
	)

Exhibit DCB-7

In re: *Determination of the cost of basic local telecommunications service, pursuant to Section 364.025, Florida Statues*, Docket No. 980696-TP, Order No. PSC-99-0068-FOF-TP (excerpts).

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Determination of the cost of basic local telecommunications service, pursuant to Section 364.025, Florida Statutes.	DOCKET NO. 980696-TP ORDER NO. PSC-99-0068-FOF-TP ISSUED: January 7, 1999

The following Commissioners participated in the disposition of this matter:

JULIA L. JOHNSON, Chairman
J. TERRY DEASON
SUSAN F. CLARK
JOE GARCIA
E. LEON JACOBS, JR.

APPEARANCES:

LAURA GALLAGHER, ESQUIRE, Florida Cable Telecommunications Association, Inc., 310 North Monroe Street, Tallahassee, Florida 32301.
On behalf of Florida Cable Telecommunications Association.

TRACY HATCH, ESQUIRE, AT&T Communications of the Southern States, Inc., 101 North Monroe Street, Suite 700, Tallahassee, Florida 32301-1549; JIM LAMOUREUX, ESQUIRE, and GENE COKER, ESQUIRE, 1200 Peachtree Street N.E., Room 8150, Atlanta, Georgia 30309, and STEPHEN RUSCUS, ESQUIRE, McKenna & Cuneo, 1900 "K" Street, Washington, D.C. 20006.
On behalf of AT&T Communications of the Southern States, Inc.

PHILIP CARVER, ESQUIRE, MARY KEYER, ESQUIRE, and NANCY WHITE, ESQUIRE, 150 South Monroe Street, Suite 400, Tallahassee, Florida 32301.
On behalf of BellSouth Telecommunications, Inc.

VI. COST PROXY MODEL RESULTS

A. LECS With Greater Than 100,000 Access Lines

In the first part of this section, we address which local exchange companies must use the cost proxy model that we have selected in this proceeding, the BCPM 3.1. The answer is quite simple. Sections 364.025(4)(b) and (c), Florida Statutes, clearly indicate that all companies with 100,000 or greater access lines must use the cost proxy model selected. Those companies with fewer than 100,000 access lines may use the cost proxy model at our discretion. The parties unanimously concur that BellSouth, GTEFL, and Sprint are the only three local exchange companies that meet this criterion and must use the cost proxy model. Therefore, we find that BellSouth, GTEFL, and Sprint must use the cost proxy model selected in this proceeding.

In Section III of this Order, we ordered the BCPM sponsors to make certain structural changes to the model, primarily associated with minimizing the gap between the amount of facilities built by the plant versus the required amount indicated by a minimum spanning tree (MST) analysis. In addition, we required that the sponsors submit a revised version of the model (on CD-ROM), and model runs reflecting our approved inputs with the revised MST analyses. Further, in Section V of this Order, we required that certain adjustments be made to some input values filed in this proceeding (notably, the removal of inflation/deflation values embedded in some of BellSouth's inputs). Accordingly, given the compressed schedule associated with preparing the report to the Legislature that reflects our decisions in this proceeding, we require that BCPM sponsors submit these compliance filings no later than January 12, 1999.

Due to the required structural changes to the model, we are unable to provide final cost proxy model results. Appendix B to this Order shall be filed with the report to the Legislature and will contain the final cost proxy model results.

B. LECS With 100,000 Or Fewer Access Lines

Methodology

ALLTEL witness Curry sponsored the universal service embedded cost methodology used by all of the small local exchange companies (small LECs) in this proceeding. These companies include ALLTEL Florida (ALLTEL), Vista-United Telecommunications (Vista-United), Northeast Florida Telephone Company (Northeast), Frontier Communications of the South, Inc. (Frontier), TDS Telecom/Quincy (TDS), GTC Inc. (GTC), and ITS Telecommunications Systems, Inc. (ITS) Witness Curry states that all of the small LECs used Part 36 jurisdictional separations procedures in developing the embedded costs for each of the companies, and he believes that the small LEC methodology satisfies the legislative requirements for embedded studies. Witness Curry adds that rural LECs are to continue to calculate their interstate Universal Service Costs using embedded costs until at least January 1, 2001.

As witness Curry describes in his direct testimony, all of the small LECs used an 11.25% return on net investment. Modifications were also made by the small LECs to the Part 36 universal cost study including assigning 100% of non-traffic sensitive plant to the state jurisdiction along with non-traffic sensitive local switching equipment. The small LEC methodology excluded private line costs as well as all expenses, investments and reserves associated with pay telephones.

Witness Curry states that the cost proxy models are not appropriate for the small rural LECs, because the proxy models are not representative of the small company costs. He states that because one cannot re-create the network with new plant in reality, higher costs for new technology in the proxy models versus the lower costs of older technology in an embedded network causes the proxy model results to be higher. Witness Curry explains that while electronic costs are declining, copper and the installation costs are increasing. He also argues that when one compares loop plant that averages twenty years old to new plant, the proxy models with new plant are going to be significantly higher.

Witness Curry's embedded cost methodology adopted by the small LECs generally assigns the same types of costs to universal service as do the proxy models used by the larger LECs. When witness Curry was asked why 100% of the non-traffic sensitive plant was assigned to the state jurisdiction, he responded as follows:

> If you look at the proxy models or any other of these cost models, that's the way they're assigning costs in there. What we try to do is parallel the embedded cost of service study

> with the proxy model methodology, and that's what that is right there.

Witness Curry described the similarities between his embedded cost methodology and the cost proxy models in the following manner:

> Well, basically the proxy models, again, they take all the non-traffic sensitive costs and assign it to the cost of universal service. In addition, traffic-sensitive costs associated with local switching are assigned by a factor that equates to local usage through the end-office switch, and that's basically the cost drivers in the embedded cost study also.

Adjustments

Although we will not require major adjustments to the general methodology proposed by the small LECs, we will require numerous adjustments to the monthly cost per access line amounts filed by the companies. Each company states that its calculations are based on the same methodology. There were several differences, however, between the companies. ALLTEL, GTC, ITS and Northeast included Allowance For Funds Used During Construction (AFUDC) in the calculations and the other small LECs did not. ALLTEL, ITS, TDS and Vista included account 7370 Special Charges while the others did not. Account 7370 includes costs such as lobbying and contributions. We have removed AFUDC and account 7370 from the revenue requirements calculation, which is consistent with our normal method of calculating revenue requirements. Only Northeast included uncollectible revenue. Uncollectible revenues were added for the other companies. None of the companies included the amount of gross receipts tax which corresponds to the revenue of the company. Therefore, we recalculated gross receipts tax for all companies.

Some of the adjustments have been made to make the calculation of costs consistent with our usual method of calculating revenue requirements. For example, the amount of working capital was adjusted for each company to the amount computed using the balance sheet method. This resulted in increases for GTC and ITS and decreases for ALLTEL, Northeast and TDS to working capital.

Company-specific adjustments were necessary for several of the companies. Frontier's filed amounts were for total company and had to be adjusted to reflect local amounts only. We corrected the property taxes and also included interest expense in Frontier's amounts. ITS Telecommunication's Systems, Inc.'s ratebase and expenses were reduced to reflect Contributions in Aid of Construction, which was not included by the company. Northeast's deferred taxes were reduced to properly match the amounts on the company's balance sheet.

For the small LECs, the average for corporate operations expense is $6.88 per line per month. For Northeast and ITS, the amounts are $15.31 and $30.74 per line per month, respectively. According to witness Curry, the Federal Communications Commission (FCC) limits the amount of corporate expense per access line which a company is allowed for federal high cost fund purposes. In Florida, only ITS's and Northeast's corporate expenses exceed the limit. We have made an adjustment to limit the amount of corporate expenses included in the calculations of costs for ITS and Northeast, based on the FCC's methodology. This adjustment results in a reduction of the monthly local costs of $.62 and $3.56 for Northeast and ITS, respectively. Even after making this adjustment, Northeast's and ITS's corporate expenses are well above the statewide average for small LECs. Northeast's and ITS's embedded costs per access line shown on Table VI-2 exceed the results of the BCPM model due to the high amount of corporate expenses. The FCC limits corporate expenses, since they are often discretionary and subject to management control. We agree with the FCC and believe that it is reasonable to limit the amount of corporate expense allowed for calculating the amount of high cost support which a company may need for intrastate purposes. For purposes of this Order, we are limiting corporate expenses based on the FCC's methodology. However, if an intrastate universal service fund is implemented, we recommend that a further review of the allowable amount of corporate expenses be conducted.

In 1996, the operations of three companies (St. Joseph Telephone & Telegraph Company, Gulf Telephone Company and The Florala Telephone Company, Inc.) were purchased and merged into GTC, Inc. (GTC). For purposes of this proceeding, the three former companies have been reported separately. After the purchase, the net plant (ratebase) recorded on the books of GTC was increased to reflect a higher value. GTC has not provided any justification to increase its ratebase above the original cost of the assets.

Therefore, we have adjusted the ratebases for the GTC divisions to original cost.

Capital Structure and Return on Equity

As discussed earlier, all of the small LECs used an overall cost of capital of 11.25% for purposes of this proceeding. No witnesses appearing on behalf of the small LECs offered any testimony supporting the capital structure, cost of debt, or cost of equity underlying the assumed 11.25% rate of return. Moreover, there was no evidence presented to support the reasonableness of the 11.25% return other than the fact that this was the default rate established by the FCC in September 1990.

In FCC Report No. CC 98-33 (Docket No. 98-166) issued October 5, 1998, the FCC announced that it was seeking comment on how the formula for calculating the authorized rate of return for local telephone companies should be modified to reflect current market conditions. Since the time of the FCC's determination of the 11.25% rate of return, 30-year Treasury bond rates have fallen 380 basis points from an average of 8.99% in September 1990 to an average of 5.19% in September 1998. AT&T/MCI witness Hirshleifer testified that given the significant decline in capital costs as indicated by the drop in yields on 30-year Treasury bonds, there is no evidence to support 11.25% as the true cost of capital for the provision of universal service.

To be consistent with our use of the embedded cost studies filed by the small LECs for purposes of determining the cost of providing local service, we have used the company-specific debt and equity amounts and embedded cost of debt in determining the appropriate cost of capital for each of these companies. The one exception is the determination of the return on equity (ROE). The estimation of an appropriate ROE is the one input that is the same regardless of whether the return is used in an embedded cost study or a forward-looking cost model.

Because no evidence was presented by the small LECs regarding an appropriate ROE for purposes of this proceeding, it is necessary to estimate a reasonable return. Based upon our analysis in Section V-B of this Order, we shall require an ROE of 11.50% be used for determining the overall cost of capital. Because the purpose of this proceeding is essentially to determine the cost of providing service to high cost areas, it is reasonable to assume the cost of equity for this limited purpose would be the same for all efficient providers of telecommunications service.

Rural Telephone Bank stock was removed from the rate base and included as part of the capital structure. We used the company-specific debt and equity amounts, embedded cost of debt, and an ROE of 11.50% for determining the appropriate cost of capital for each company. The one exception was the determination of the cost of capital for Vista-United. Because Vista-United filed a capital structure comprised of 100% equity, it was necessary to use a hypothetical capital structure to determine the appropriate cost of capital for an efficient provider of universal service. Consistent with our determination in Section V-B of this Order, we shall require a relative capital structure of 60% equity and 40% debt, a cost of debt of 6.50%, and an ROE of 11.50% to determine Vista-United's cost of capital. The return resulting from these assumptions represents an appropriate cost of capital for an efficient provider of universal service.

Results

Table VI-1 shows the cost of basic local telecommunications service per access line per month as filed by the small LECs, the cost after our modifications as described above, and the cost based on BCPM defaults.

Table VI-1:
Comparison of Results: Embedded Costs vs. Cost Proxy Model

COMPANY	EMBEDDED COST PER ACCESS LINE		BCPM DEFAULTS
	Per Company	*Per Commission*	
ALLTEL	$ 41.97	$ 41.32	$ 66.37
Frontier	$ 56.13	$ 44.30	$ 77.96
GTC - Florala	$ 49.81	$ 42.18	$ 96.34
GTC - Gulf	$ 38.07	$ 33.43	$ 64.69
GTC - St. Joe	$ 44.16	$ 38.99	$ 66.85
ITS	$ 71.00	$ 65.50	$ 51.76
Northeast	$ 65.39	$ 55.43	$ 55.39

COMPANY	EMBEDDED COST PER ACCESS LINE		BCPM DEFAULTS
	Per Company	*Per Commission*	
Quincy	$ 44.40	$ 42.81	$ 50.82
Vista-United	$ 66.54	$ 63.34	$ 31.36

The amounts shown above in the column labeled "per Commission" are the results of using the small LEC methodology and our adjustments. Those amounts should be reported as the 1997 embedded costs of basic local telecommunications service using the small LEC sponsored methodology. The amounts are based on 1997 costs. Costs change from year to year, and the general trend has been a decline in costs. Therefore, these costs should be updated and reviewed before any use is made of the results.

The embedded cost methodology proposed by the small LECs and adjusted by us generally produces a lower cost for basic local service than the outputs of the models. We believe that it is appropriate to use the lower costs. It does not seem reasonable to provide the small LECs with more financial support than they need based on embedded costs. Providing the companies with more support than needed will not necessarily increase competition in the high cost areas. If the embedded costs of the incumbent LEC are lower than the costs of a new entrant, then the incumbent LEC has a cost advantage and will be able to underprice the new entrant and likely keep out competition. Providing the same amount of support per access line to both the incumbent LEC and the new entrant does not help the new entrant overcome any cost advantage of the incumbent LEC.

The amounts do not represent just the cost of basic local telecommunications service. The small LEC methodology does not separate out the costs of certain services such as call waiting and call forwarding. It also does not remove the costs for other services such as nonrecurring services or operator services, which are charged for separately. We nevertheless believe the small LEC methodology is appropriate, and we are not recommending a different definition of basic local telecommunications service than found in Section II of this Order. However, the small LEC methodology does generally produce lower costs than the proxy models.

Conclusion

Section 364.025(4)(c) states as follows:

> (c) In determining the cost of providing basic local telecommunications service for small local exchange telecommunications companies, which serve less than 100,000 access lines, the commission shall not be required to use the cost proxy model selected pursuant to paragraph (b) until a mechanism is implemented by the Federal Government for small companies, but no sooner than January 1, 2001. The commission shall calculate a small local exchange telecommunications company's cost of providing basic local telecommunications services based on one of the following options:
>
> 1. A different proxy model; or
>
> 2. A fully distributed allocation of embedded costs, identifying high-cost areas within the local exchange area the company serves and including all embedded investments and expenses incurred by the company in the provision of universal service. Such calculations may be made using fully distributed costs consistent with 47 C.F.R., sections 32, 36, and 64. The geographic basis for the calculations shall be no smaller than a census block group.

Therefore, for the purpose of fulfilling our statutory obligation under Section 364.025(4)(c), we will choose between a fully allocated, embedded cost study or a cost proxy model different than the one selected for the three LECS with 100,000 or greater access lines. Upon consideration, we shall determine the cost of basic local telecommunications service for each of the Florida LECs that serve fewer than 100,000 access lines using the embedded cost methodology proposed by witness Curry, with the modifications discussed above. The resulting costs are shown below in Table VI-2:

Table VI-2:

Company	1997 Costs per Access Line per Month
ALLTEL	$41.32
Frontier	$44.30
GTC-Florala	$42.18
GTC-Gulf	$33.43
GTC-St. Joe	$38.99
ITS	$65.50
Northeast	$55.43
Quincy	$42.81
Vista-United	$63.34

As stated above, we will not use a different cost proxy model as Section 364.025(4)(c), Florida Statutes, permits. We will, however, provide the results for the small LECs using the BCPM 3.1 cost proxy model with the Commission-ordered input values. There was concern raised regarding the use of an embedded cost methodology to determine forward-looking costs for universal service for any local telecommunications service provider, whether large or small. Therefore, we will provide to the Legislature the results for the small LECs using the BCPM with its Commission-ordered input values in Appendix B with our report.

VII. CONCLUSION

We have conducted this proceeding under Chapter 120, Florida Statutes, and the directives of Section 364.025(4)(b) and (c), Florida Statutes. We have based our decision on the evidentiary record before us, the briefs of the parties, and the advisory recommendation of our staff. We believe that our decision is consistent with legislative mandate. This Order will be attached

Dkt. No ____________
D. Blessing Ex. No. ___ (DCB-8)
Depreciation Order

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition	)
To Reduce Intrastate Switched Network	)
Access Rates In A Revenue Neutral	)
Manner Pursuant to Section 364.164,	)
Florida Statutes	)
	)

Exhibit DCB-8

Order No. PSC-96-0680-FOF-TL; Before The Florida Public Service Commission, In Re: Request for Approval of 1995 Depreciation Study by ALLTEL Florida, Inc.; Docket No. 950887-TL; Issued: May 23, 1996.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Request for approval of 1995 Depreciation Study by ALLTEL Florida, Inc.	DOCKET NO. 950887-TL ORDER NO. PSC-96-0680-FOF-TL ISSUED: May 23, 1996

The following Commissioners participated in the disposition of this matter:

SUSAN F. CLARK, Chairman
J. TERRY DEASON
JOE GARCIA
JULIA L. JOHNSON
DIANE K. KIESLING

NOTICE OF PROPOSED AGENCY ACTION
ORDER REVISING DEPRECIATION
RATES AND RECOVERY SCHEDULES

BY THE COMMISSION:

NOTICE IS HEREBY GIVEN by the Florida Public Service Commission that the action discussed herein is preliminary in nature and will become final unless a person whose interests are substantially affected files a petition for a formal proceeding, pursuant to Rule 25-22.029, Florida Administrative Code.

Background

ALLTEL Florida, Inc.'s (ALLTEL's) current depreciation rates and recovery schedules have been effective since January 1, 1993. Since then, ALLTEL's planning and net plant balances have changed. These changes require revision of the currently approved depreciation rates and recovery schedules.

Reserve Allocations

ALLTEL has discovered that the reserve for each of its amortizable general support asset accounts is misstated. Although these accounts were established correctly in 1988, an error was made in determining the annual expenses. ALLTEL reviewed each of these accounts and has revised its data to correct the reserve levels. As a result, there is a reserve surplus of $137,598. ALLTEL proposes to allocate this amount to reduce the reserve deficit in Metallic Buried Cable. We believe that its proposal is appropriate. The approved allocations are shown on Attachment A.

Recovery Schedules

ALLTEL's last depreciation study allowed for the recovery of six digital switches expected to retire between 1993 and 1995. As of January 1996, ALLTEL had only retired the Alachua and Florahome switches. ALLTEL projects that it will retire the Dowling Park switch by year-end 1997. ALLTEL proposes extending the recovery period of the existing schedule through December 31, 1999. Although it does not have firm retirement dates for three of these switches, ALLTEL expects to retire them within five years.

Our practice is to allow recovery of investments scheduled to be retired within three years. In this instance, only the Dowling Park switch falls into this category. Accordingly, we find that only the net investments associated with the Dowling Park switch should be recovered.

A review of the existing recovery schedule indicates that expenses were not adjusted to reflect changes in activity. As a result, Dowling Park has an unrecovered investment of $28,931 as of January 1, 1996. We approve a two-year recovery period, since that matches the projected remaining life of the switch. The recovery amount and monthly expenses for this recovery schedule are estimates based on current projections. Actual incurred net salvage may differ from that projected. If the remaining life or net salvage value change, the recovery schedule expenses should be revised to reflect the difference.

ALLTEL retired the Florahome switch at year-end 1995, leaving a shortfall of $77,095 to accumulated reserve. This shortfall should be recovered during 1996.

Subsequent to filing its study, ALLTEL undertook to identify and inventory the equipment booked to Account No. 2311.2, Station Apparatus - Network Terminal Equipment. It found that all equipment associated with this investment had been retired. In order to correct its accounts, ALLTEL should record an inventory adjustment for 1996. This will result in a reserve shortfall of approximately $4,000, which we believe should be recovered in 1996.

The approved recovery schedules are shown on Attachment B. These schedules allow for the recovery of unrecovered investments resulting from a digital switch retirement in 1995, a planned switch retirement in 1997, and an inventory adjustment.

Appropriate Lives, Net Salvages, Reserves, and Depreciation Rates Per Account

In general, we agree with ALLTEL's depreciation study. One minor difference exists regarding analog circuit: ALLTEL rounded the reserve to one decimal place; we believe that the reserve should be rounded to two decimal places.

The major change to expense derives from alterations in ALLTEL's projections for the retirement of digital switching equipment. As discussed above, ALLTEL projected that it would retire six switches between 1993 and 1995. It has already retired two of the switches, and intends to retire a third in 1997. Retirement dates for the remaining three switches are uncertain; however, ALLTEL expects to retire them after 1997. We believe that these investments should be transferred to the digital switching account. The approved remaining lives reflect the inclusion of these investments.

Currently, analog circuit equipment is divided among two subaccounts. Digital circuit equipment is divided among four. ALLTEL proposes to combine these subaccounts into two single accounts: analog and digital.

ALLTEL's investment in analog circuit equipment is steadily declining. Beginning in 1990, the average annual retirements exceeded $250,000. In contrast, additions for each of the last three years were less than $50,000. Some analog equipment may remain in service well into the next century. However, the total investment in analog circuit equipment will continue to decline. As this equipment is phased out, the distinctions between the different types will diminish.

ALLTEL's investment in digital circuit equipment continues to grow. However, the newer digital switches have digital circuit functions incorporated into their operational capability. Accordingly, future growth in digital circuits may slow as new switches are installed. Due to these circumstances, we agree with ALLTEL's proposal to maintain analog and digital circuits in separate single accounts.

The approved lives, net salvages, reserves, and resulting depreciation rates are depicted on Attachment C.

Amortization of Investment Tax Credits (ITCs) and Flowback of Excess Deferred Income taxes

Section 46(f)(6), Internal Revenue Code, states that the amortization of ITCs should be determined by the period of time used in computing depreciation expense for purposes of reflecting regulated operating results of the utility. Since we have approved changes in depreciation rates, it is also necessary to revise the amortization of ITCs.

In addition, Section 203(e) of the Tax Reform Act of 1986 (TRA) prohibits rapid write-back of protected (depreciation related) deferred taxes. Moreover, under Rule 25-14.013, Florida Administrative Code, Accounting for Deferred Income Taxes under SFAS 109, excess deferred income taxes associated with temporary differences may not be reversed any faster than allowed under Section 203(e) of the TRA, absent good cause shown.

Accordingly, the current amortization of ITCs and the flowback of excess deferred income taxes should be revised to reflect the approved depreciation rates and recovery schedules. The flowback of excess deferred taxes should also be revised to comply with Section 203(e) of the TRA and Rule 25-14.013, Florida Administrative Code. ALLTEL should file detailed calculations of the revised ITC amortization and flowback of excess deferred taxes at the time it files its December 1997 surveillance report.

It is, therefore,

ORDERED by the Florida Public Service Commission that ALLTEL Florida, Inc.'s 1995 depreciation study is approved, as modified in the body of this Order, effective January 1, 1996. It is further

ORDERED that the appropriate reserve allocations for the amortizable general support asset accounts are those depicted on Attachment A to this Order. It is further

ORDERED that the appropriate schedules for the recovery of unrecovered investments associated with digital switch retirements and an inventory adjustment are those depicted on Attachment B to this Order. It is further

ORDERED that the appropriate lives, net salvages, reserves, and resulting depreciation rates are those depicted on Attachment C to this Order. It is further

ORDERED that ALLTEL Florida, Inc. shall revise the current amortization of investment tax credits and the flowback of excess deferred income taxes to reflect the approved depreciation rates and recovery schedules. It is further

ORDERED that ALLTEL Florida, Inc. shall revise the flowback of excess deferred taxes to comply with Section 203(e) of the Tax Reform Act of 1986 and Rule 25-14.013, Florida Administrative Code. It is further

ORDERED that ALLTEL Florida, Inc. shall file detailed calculations of the revised investment tax credit amortization and flowback of excess deferred taxes at the time it files its December 1997 surveillance report. It is further

ORDERED that, unless a person whose interests are substantially affected by the action proposed herein files a petition in the form and by the date specified in the Notice of Further Proceedings or Judicial Review, this Order shall become final and this docket shall be closed on the following date.

By ORDER of the Florida Public Service Commission, this 23rd day of May, 1996.

/s/ Blanca S. Bayó

BLANCA S. BAYÓ, Director
Division of Records and Reporting

This is a facsimile copy. A signed copy of the order may be obtained by calling 1-904-413-6770.

(S E A L)

SOME (OR ALL) ATTACHMENT PAGES ARE NOT ON ELECTRONIC DOCUMENT.

RJP

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.59(4), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

The action proposed herein is preliminary in nature and will not become effective or final, except as provided by Rule 25-22.029, Florida Administrative Code. Any person whose substantial interests are affected by the action proposed by this order may file a petition for a formal proceeding, as provided by Rule 25-22.029(4), Florida Administrative Code, in the form provided by Rule 25-22.036(7)(a) and (f), Florida Administrative Code. This petition must be received by the Director, Division of Records and Reporting, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, by the close of business on June 13, 1996.

In the absence of such a petition, this order shall become effective on the day subsequent to the above date as provided by Rule 25-22.029(6), Florida Administrative Code.

Any objection or protest filed in this docket before the issuance date of this order is considered abandoned unless it satisfies the foregoing conditions and is renewed within the specified protest period.

If this order becomes final and effective on the date described above, any party substantially affected may request judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or by the First District Court of Appeal in the case of a water or wastewater utility by filing a notice of appeal with the Director, Division of Records and Reporting and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days of the effective date of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.

Dkt. No _____________
D. Blessing Ex. No. ___ (DCB-9)
Universal Residential Telephone Service

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition	)
To Reduce Intrastate Switched Network	)
Access Rates In A Revenue Neutral	)
Manner Pursuant to Section 364.164,	)
Florida Statutes	)
	)

Exhibit DCB-9

See *Handbook of Telecommunications Economics,* Amsterdam: Elsevier Science, 2001; *Chapter 10,* UNIVERSAL RESIDENTIAL TELEPHONE SERVICE, Michael H. Riordan, *Columbia University,* August 29, 2001.

[Forthcoming in Martin Cave, Sumit Majumdar and Ingo Vogelsang (eds.), *Handbook of Telecommunications Economics,* Amsterdam: Elsevier Science, 2001.]

Chapter 10

UNIVERSAL RESIDENTIAL TELEPHONE SERVICE

Michael H. Riordan*
Columbia University
August 29, 2001

Contents

* The author acknowledges helpful comments from seminar participants at the University of Pennsylvania and Columbia University, and from Martin Cave, Robert Crandall, Patrick DeGraba, Gerald Faulhaber, Chris Garbacz, Jerry Hausman, David Kaserman, Lester Taylor, Peter Temin, and Ingo Vogelsang, while retaining full responsibilility for the final product. Saurabh Jain, Wenying Jiangli, Seth Seabury, Govert Vroom, and Pearl Wang provided useful research assistance for different parts and stages of the project.

1. INTRODUCTION

Universal service is a chameleon-like phrase. It refers generally to widespread access to and affordability of telecommunications services, but it takes on different meanings depending on the time and the place, and the particular policy debate. AT&T president Theodore Vail coined the phrase in 1907 to refer to the company's goal of achieving an integrated centrally-controlled telephone network, but today in the United States and other developed countries the phrase essentially means high household telephone penetration (Mueller 1997). In less developed countries, where telephone penetration is low, the phrase more likely means good access to pay telephones (Hudson 1995). Recent universal service initiatives in the United States subsidize high-speed Internet access for schools, libraries, and health centers (Hausman 1998). And in the blue sky of the future, universal service may come to mean high residential penetration of broadband Internet access.

Since this landscape is too big to cover succinctly, this chapter focuses on the "paradigm problem" of advancing and maintaining universal service for basic residential telephone services in the United States in the late 20th century. The focus seems appropriate, if for no other reason than because this is where academic economic research has concentrated its attention. Moreover, some of the issues addressed by the chapter have wider applicability. For example, there is a "deadweight loss" of economic efficiency from taxing regular telephone service in order to subsidize advanced services (Hausman 1998). The chapter makes some international comparisons, and mentions a few emerging issues, but the reader is forewarned not to expect too much on these fronts.

Universal residential telephone service is an important and complex policy issue because large amounts of consumer welfare and corporate profits are at stake in the design of regulatory policies in the pursuit of universal service (Hausman 1998), and because important noneconomic values, like political democracy and social cohesion, are prominent in the policy debates. This volatile mix of elements makes for highly charged political debates on universal service policies, often with the Federal Communications Commission (FCC) at the center.[2] Economic arguments matter in these debates, even when noneconomic values have great salience, making universal service a worthy policy problem for applied economic analysis. What are the economic determinants of telephone penetration? What are the economic arguments for and against universal service policies? What is the most efficient way to achieve universal service goals? How successful are actual universal policies at increasing telephone penetration? The purpose of this chapter is to assess the current state of economic knowledge about universal service, and to point out needs for further research. The chapter mainly restricts its attention to published economic research which presumably has been vetted by some form of peer review.

Section 254 of the 1996 Telecommunication Act directs the FCC and the states to adopt policies "for the preservation and advancement of universal service..." and defines universal service as "an evolving level of telecommunications services that the Commission shall establish periodically..." So far, the FCC has defined universal service essentially to encompass basic residential telephone services (Federal Communications Commission 2000). The language of the Act suggests that universal basic telephone service has been substantially but perhaps incompletely achieved in the United States. Figure 1 confirms this idea by showing that house-

[2]The FCC has various policies designed to promote universal service: subsidies for schools, libraries and rural health centers; support to carriers serving high cost areas; subsidies for low income consumers. See *http://www.fcc.gov/ccb/universal_service/* .

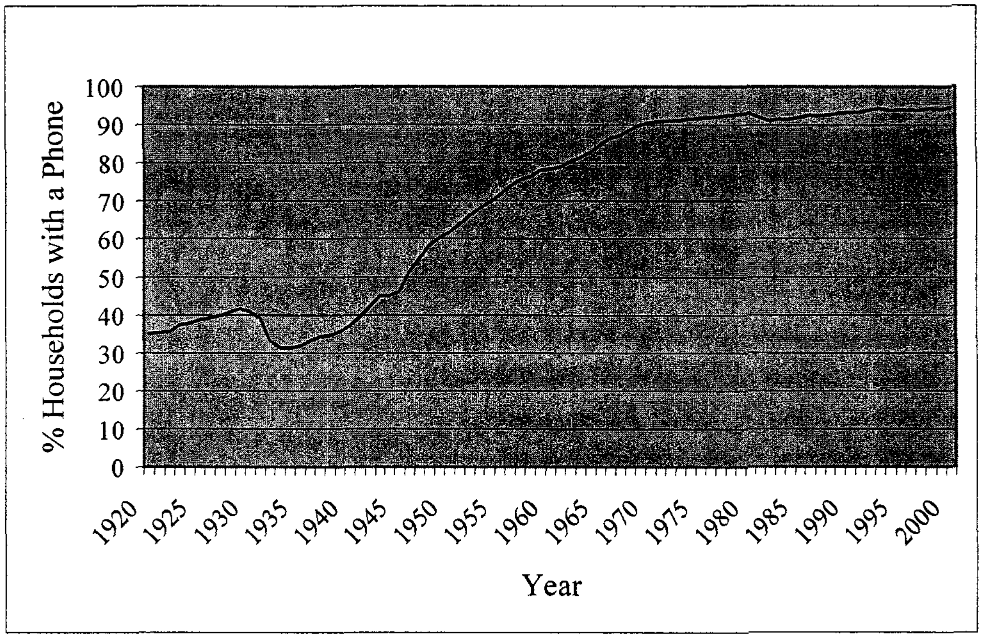

Figure 1: Telephone penetration in the United States, 1920-2000

hold telephone penetration has remained over 90% for more than a quarter century, and today approaches 95%.[3]

Behind this rosy aggregate picture, however, there is considerable regional and local variation. The map in Figure 2 shows that penetration rates varied significantly across the states in 1990, ranging from 87.4% in Mississippi to 97.9% in Maine.[4] The variance is even greater at the county level, where penetration ranges from 40.3% in Apache County, Arizona to 99.5% in Waukesha County, Wisconsin. Mueller and Schement (1996) find large variations in penetration rates among neighborhoods of a single city. At the census block level, penetration varies between zero and one hundred percent.

The United States has one of the highest household telephone penetration rates in the world. Still, some other developed countries enjoy a higher aggregate household penetration rate, e.g. Canada has maintained penetration over 98% through the 1990's. Moreover, while household telephone penetration has remained relatively flat in the U.S. in the 1990s, it has increased significantly elsewhere, e.g. in France, from 94% in 1990 to 98% in 1997 (International Telecommunications Union 1999). Thus, it appears that more could be done to advance universal residential telephone service in the United States. Questions for economists are "How

[3]This chart is constructed from various Census Bureau and FCC data sources, and contains linear approximations for some years to deal with missing and inconsistent data. Details of the construction are available from author upon request. See FCC, "Trends in Telephone Service," March 2000, Wash D.C. for a discussion of subscriber data.

[4]This is based on 1990 census data. See Dyer (1997) on regional variation in penetration rates in the United Kingdom.

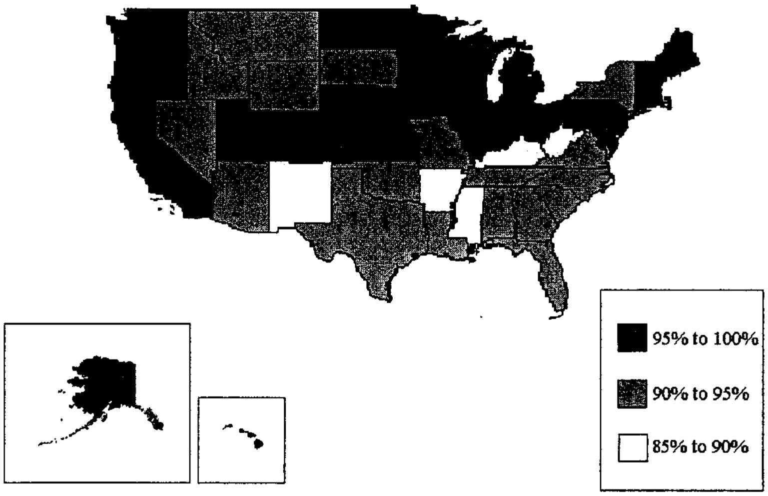

Figure 2: Telephone penetration by state, 1990

and at what cost?" and "Do the benefits outweigh the costs?"

The universal service problem for basic residential services has several dimensions, and the balance of the chapter is organized accordingly. Section II presents empirical evidence on the determinants of telephone penetration rates in the U.S. in 1990. The analysis shows that most of the variation in telephone penetration in the United States is explained by demography and climate. Cost proxies explain a statistically significant but quantitatively small fraction of the variation in penetration, and there is some slight evidence of local network externalities boosting penetration. While there remain significant differences between the states even after controlling for these factors, it appears that superior state regulatory policies can explain at most only a few percentage points of universal service performance. Section 3 reviews the normative economic theory of telecommunications pricing and its implications for universal service. Scale economies and especially network externalities provide theoretical rationales for departures from strict cost-based pricing, even though such departures sacrifice economic efficiency on some margins. Economic theory also demonstrates that optional service plans and low-income and high-cost universal service support potentially are valid methods of price discrimination in the pursuit of universal service goals. Section 4 reviews published empirical evidence on the performance of actual universal service policies. This limited evidence shows that low-income and high-cost subsidy policies are at best only marginally effective at advancing universal service. Section 5 summarizes and draws conclusions.

2. TELEPHONE PENETRATION IN THE UNITED STATES

Although approximately 95% of American households have a telephone, penetration varies significantly from place to place. Figure 2 illustrates different penetration rates in different states. Is this variation due to differences in population characteristics and other factors affecting the demand for telephone service, or differences in costs and regulatory policies affecting the price and availability of service? This section explores this question with a reduced form regression analysis. The purpose of the analysis is to identify and interpret some stylized facts, and to motivate the possibility that differences in state regulatory policies matter for the achievement of universal service goals.

Schement (1995) uses FCC and census data to describe the characteristics of households lacking telephones. The data show that the achievement of universal service varies across population groups. For example, the poor are less likely to have a telephone, as are blacks and Hispanics.[5] This kind of descriptive analysis is suggestive, but could be misleading, and leaves open important questions. For example: Are black households less likely to have a telephone because of different tastes, or because blacks tend to have lower incomes and telephone service is a normal good, or because blacks are discriminated against in the provision of telephone service? Or do blacks tend to live in states with less aggressive policies for promoting universal telephone service? Regression analysis is the appropriate tool for disentangling these effects.

A priori it seems plausible that demography might explain much of the geographic variations in penetration rates. Column (I) in Table 1 reports a regression equation explaining the telephone penetration rates of 1990 census block groups (CBGs) as a function of selected population demographics.[6] The definitions of variables and summary statistics are in an appendix. The numbers in parentheses are t-statistics, with the usual interpretation that a t-statistic above approximately 2.0 indicates statistical significance above a 95% confidence level. At given prices, shifts in the demographic composition of a group of consumers can be expected to shift the community demand for telephone service and change the penetration of service within the community. Nevertheless, the regression must be interpreted cautiously because it does not control for prices. The regression equation can be interpreted as capturing the pure effect of demand shifts on telephone penetration only if demand is price inelastic or if price differences are uncorrelated with population demographics. The results are broadly consistent with demand studies of penetration that do control directly for prices (Crandall and Waverman 2000; Taylor 1994; 2000).

Two things about the regression are striking. First, as expected from Schement's descriptive analysis, poverty is a major predictor of low CBG penetration. An income redistribution that would lower the poverty rate of a CBG by one percentage point, while holding its median income constant, would add $1/4$ percentage point to telephone penetration. FCC Lifeline and LinkUp policies, discussed later in more detail, are designed to make telephone service more affordable to low income households. Second, Native American populations have much lower telephone penetration than other population groups, even after controlling for poverty, median income, education, and other demographics. It is not clear why this is the case. Do Native Americans place less value on telephone service, are they victims of discrimination, or is service

[5]Schement, Belinfante and Povich (1997) provide a more detailed analysis showing among other things that households receiving various forms of public assistance have lower penetration rates.

[6]All of the data for this regression equation are from the 1990 census. This is a weighted least squares regression which adjusts for the varying population sizes of CBGs. For a description of this procedure see Greene (1993).

more expensive or less available in areas occupied by Native Americans? Recently, the FCC targeted increased subsidies at federally-recognized Indian tribes, on grounds that the 47% average telephone penetration for this consumer group is partly due to expensive and unavailable service.[7] [8]

Other demographic characteristics of CBG populations influence penetration noticeably but less dramatically. The estimated effects are generally consistent with published descriptive analyses (Schement 1995; Schement, Belinfante, and Povich 1997) and demand studies (Crandall and Waverman 2000; Taylor 1994). People living in wealthier and more educated communities are much more likely to have a phone in the house. Asian populations are more likely, and black and Hispanic populations less likely than white households to have a phone. Elderly populations are marginally more likely to have telephones, as are households headed by women.

Column (II) adds variables designed to capture aspects of network externalities at the local level, i.e. the idea that the household demand for telephone service depends on who else has telephone service locally. As discussed in Section 3, network externalities are a potentially important theoretical rationale for universal service policies. Controlling for population density, telephone service increases with the size of the wire center population to which the CBG belongs, suggesting that demand shifts out with the reach of local service. This stylized fact supports the hypothesis of local network externalities associated with the number of people that can be reached by a local telephone call.[9] Adding an additional 10,000 people to the wire center increases penetration by about 1/5 percentage point.[10] Controlling for population size, CBG population density reduces penetration in this regression, suggesting that face-to-face communication is to some extent a substitute for telephone usage. In contrast, Crandall and Waverman (2000), discussed in Section 4,[11] find a small positive significant coefficient on population density, which they interpret as confirming a positive local network externality. Their demand analysis controlled for prices but did not include a variable for population size. Since population size and density are positively correlated, it is possible that their density variable is picking up two contrary effects, the local network externality effect, and a face-to-face communication effect (Taylor 1994 p. 236). Finally, it is noteworthy that including these variables increases the coefficient on Native American population share by several percentage points, suggesting that Native Americans tend to live in relatively unpopulated areas where the ability to make free local calls is not very valuable. Alternatively, the less negative coefficient could be an artifact of a restricted sample, which arises from the fact that wire center data are available only for

[7]See paragraph 20 of FCC (2000), *Twelfth Report and Order, Memorandum Report and Order, and Further Notice of Proposed Rule Making*, CC Docket No. 96-45, June.

[8]The policy appears to have had an earlier impact in Oklahoma, where $1 a month Lifeline service added 6,000 new subscribers in October 2000. See Kade L. Twist, "The Digital Divide in Oklahoma Indian Country," Benton Foundation (kade@benton.org).

[9]The estimated local network externality could be biased downward, because statet tariffs typically set lower prices where the number of lines is fewer. See National Association of Regulatory Commissioners (NARUC), *Bell Operating Companies Exchange Service Telephone Rates*, various years.

[10]Moreover, doubling population size and density has a significant positive effect on penetration, which is generally consistent with Perl's 1983 study, discussed in Section 3.3. Perl allowed for a non-linear effect of phone density, and found a significant positive effect for areas with between 1,000-2,500 phones per square mile, and a negative effect elsewhere (Taylor 1994).

[11]The other studies discussed in Section 4 also include density variables ("urban" and "rural") with consistent signs.

large local exchange carriers.

Table 1: Determinants of CBG telephone penetration[12]

	(I)	(II)	(III)	(IV)	(V)
% Poor	-0.267	-0.259	-0.258	-0.248	-0.246
	(179.4)	(129.4)	(117.5)	(114.2)	(113.0)
Median income	0.035	0.032	0.034	0.033	0.028
	(31.1)	(22.9)	(21.6)	(21.3)	(17.6)
% Female h.o.h.	0.023	0.025	.007	-0.028	-0.033
	(12.4)	(9.8)	(2.5)	(9.9)	(11.7)
% Senior	0.004	0.003	0.006	0.002	-0.002
	(2.8)	(1.7)	(2.8)	(1.2)	(1.2)
% Children	-0.017	-0.009	-0.018	-0.012	-0.011
	(10.6)	(4.7)	(7.7)	(5.2)	(5.2)
% High school	0.117	0.103	0.111	0.102	0.098
	(63.8)	(42.7)	(41.1)	(38.5)	(36.7)
% College	0.111	0.104	0.105	0.083	0.088
	(77.8)	(57.3)	(52.0)	(40.9)	(43.1)
% Black	-0.013	-0.021	-0.009	-0.009	-0.008
	(19.8)	(22.5)	(8.8)	(9.1)	(8.1)
% Hispanic	-0.010	-0.016	-0.018	0.026	0.022
	(12.7)	(15.3)	(12.4)	(18.3)	(14.9)
% Native	-0.333	-0.247	-0.230	-0.212	-0.212
	(119.1)	(55.2)	(43.8)	(40.9)	(39.0)
% Asian	0.075	0.056	0.077	0.065	0.055
	(47.0)	(28.9)	(25.5)	21.8)	(18.1)
% Other nonwhite	0.115	0.063	0.021	0.002	0.0010
	(5.5)	(2.11)	(0.6)	(0.5)	(2.6)
Pop. density		-0.026	-0.041	-0.40	-0.037
		(11.8)	(17.7)	(17.3)	(15.4)
W.c. population		0.020	0.019	0.012	0.013
		(37.9)	(29.6)	(18.2)	(20.2)
Loop length				-0.020	-0.016
				(19.7)	(15.5)
Average f.l. cost				-0.036	-0.033
				(41.8)	(38.0)
Controls for climate	No	No	Yes	Yes	Yes
State effects	No	No	No	No	Yes
R^2	0.537	0.531	0.551	0.564	0.580
ΔR^2					0.015
$S^2 = \frac{Var(\text{estimated state effects})}{Var(\text{telephone penetration})}$					0.017
# Observations	222,264	116,715	95,171	95,171	95,171

[12]The coefficients in this table represent the percentage point change in telephone penetration in response to a unit change in the independent variable. For example, in column (I) a 1 percentage point increase in *% Poor* is

Column (III) controls for climate (precipitation and temperature) to capture the possibility that people living in inhospitable climates may spend more time indoors and therefore may have a greater demand for telephone service as a means of communication. This is superficially plausible, as the map in Figure 2 shows that penetration rates tend to be higher in the colder northern states. Indeed, Crandall and Waverman (2000) find a significant positive coefficient on a "cold northern state" dummy in their demand analysis. It turns out that penetration is higher where weather is more extreme.[13]

Column (IV) adds FCC estimates of the monthly forward-looking cost of local service and average loop length into the mix. The argument for including these variables is that local service prices, and especially installation charges, are partly cost-based.[14] As predicted by a cost-based pricing hypothesis, higher average costs and longer loop lengths have negative effects on penetration. However, these effects are small quantitatively, as would be expected from the low price elasticities estimated by demand studies (Crandall and Waverman 2000; Taylor 1994). An extra \$1 cost per month (about 3% of the mean CBG monthly cost) reduces penetration by three or four one hundreths of one percent. This implies an elasticity of about -0.01, which is roughly consistent with the demand studies under a cost-based pricing hypothesis.[15] The introduction of these supply side variables does not influence the other estimated coefficients in the regression model remarkably.

Finally, column (V) includes dummy variables for the state in which the CBG is located ("state effects"). The regression indicates significant differences between states even after controlling for demography and costs. An F-test of the joint significance of the state effects easily passes, indicating that these unexplained differences between states cannot be ignored. However, the state effects adds only 0.0153 to the R^2, and the variance share of the estimated state effects (S^2) is only 0.0174.[16] Thus the state effects appear to explain somewhere between

associated with a .267 percentage point decrease in penetration, while a \$1,000 increase in *Median income* (which is defined in thousands of dollars) is associated with a 0.035 percentage point increase in penetration.

[13]The estimated quadratic specifications for climate effects in this and subsequent regressions are:

	(III)	(IV)	(V)
Temperature	-0.5	-0.5	-0.3
	(20.2)	(21.1)	(8.0)
Temperature^2	0.004	0.004	0.003
	(17.9)	(18.6)	(8.6)
Precipitation	-0.006	-0.02	-0.03
	(-0.678)	(2.7)	(2.3)
Precipitation^2	2.56E-04	3.48E-04	4.16E-04
	(5.6)	(7.7)	(6.4)
Temp.*Precip.	-6.77E-04	-4.74E-04	-3.15E-04
	(5.1)	(3.6)	(1.6)

[14]As mentioned before, state tariffs typically set lower residential service prices in wirecenters with fewer lines, suggesting that prices are inversely related to costs within individual states. The regression, however, already captures this by controlling for the number of households served by a wirecenter. The cost-variables possibly could be picking up cost-related price variation across the states. For data on across- and within-state variation in prices see the *Bell Operating Companies Exchange Service Telephone Rates*, published annually by NARUC until 1997.

[15]Admittedly, cost-based pricing of local service is a tenuous hypothesis. Rosston and Wimmer (2000b) estimate that a 10% increase in average costs is associated with only a 0.65% percent increase in average local revenues. Such a small degree of pass-through would imply a much higher price elasticity.

[16]S^2 is equal to the variance of the estimated state effects divided by the variance of telephone penetration. ΔR^2 is the increase in R^2 that results from adding the state effects. These two numbers can be interpreted as upper and

1 and 2 percent of the variance in CBG penetration rates. These differences could be due to other population characteristics that are correlated with state of residence, or could be due to differences in state policies. Inasmuch as the total variation of penetration rates explained by the regression is not much more than 50%, the former explanation seems reasonable. However, it is unclear *a priori* what appropriate demographic or locational variables might soak up the state effects. For example, including more detailed income data into the regressions reduces the explanatory contribution of the state effects only slightly. Although it is worth entertaining the possibility that differences in state regulatory policies matter, the most optimistic interpretation of the evidence is that differences in state policies can explain no more than a small fraction of the variance in penetration rates.[17]

The final regression reported in Table 1 can be interpreted as a reduced form of a structural model in which both penetration and prices are endogenous. The first equation of the structural model is a community demand curve explaining CBG penetration as a function of prices, population demographics (including proxies for network externalities), and climate, as in demand studies (Crandall and Waverman 2000; Taylor 1994). The other equations explain relevant prices as a function of access costs (proxied by loop length and forward-looking cost) and state dummies. The state dummies capture differences in state policies, e.g. different approaches to price regulation or universal service subsidies.[18] It is an open question whether price variation alone is sufficient to explain the state effects on penetration rates. Published research generally finds the price elasticity of demand for local service to be very low - on the order of -0.01 or -0.02 (Crandall and Waverman forthcoming; Taylor 1994). The price elasticity for low income households is significantly higher (Cain and MacDonald 1991), and the elasticity with respect to installation charges is significantly higher than for monthly service charges (Hausman, Tardiff, and Belinfante 1993; Crandall and Waverman 2000). Thus published economics research finds some weak support for universal service policies that target low income households and focus on lowering installation charges. These are the aims of the FCC's Lifeline and LinkUp programs, which are evaluated in Section 4.

An intriguing possibility is that some of the substantial unexplained geographic variation in penetration rates is due to "coordination failures" associated with network externalities.[19] The basic economics of the telephone network externality is that an individual subscriber benefits when other consumers connect to the network. This interdependence of decision-making creates a coordination problem for consumers: "If enough consumers connect, then so will I, but if others don't connect then neither will I." Thus, under the network externality hypothesis, consumer decision-making depends on consumers' expectations about other consumers' decision-making. The circular reasoning inherent in consumer coordination problems allows multiple equilibria, e.g. low level equilibria in which few people connect to the network, and high level equilibria in which many connect. Depending on nonlinearities in demand, there can be many equilibria for a given community, yielding a variety of different possible stable penetration levels. Thus, in theory, part of the geographic variation in penetration levels could be

lower bounds on the percentage of penetration variance explained by state effects. ΔR^2 is a lower bound because it implicitly attributes the explanatory power of the correlated components of the state effects to other variables. S^2 implicitly attributes the correlated components to the state effects.

[17] Sappington (2001) discusses the possibility that certain forms of incentive regulation may increase penetration rates.

[18] Differences in state universal service policies, which establish low-income subsidies, are discussed later.

[19] See Katz and Shapiro (1994) and Liebowitz and Margolis (2001) for discussions of network effects.

due to similar communities arriving at different equilibrium levels of penetration for historical reasons. The significance of network externalities for optimal telecommunications pricing is discussed further in Section 3 below.

The questions "Could the United States do more to promote universal service?" and "Do state policies matter for the achievement of universal service goals?" are important questions in the realm of positive economics. The corresponding normative questions are "What are optimal levels of telephone penetration and how do they vary with the characteristics of consumer groups?" and "What are the best ways to achieve universal service goals?" The next section surveys what economic theory has to say about these and related normative questions.

3. NORMATIVE ECONOMICS OF UNIVERSAL SERVICE

3.1 Price distortions

Perhaps the most fundamental advice of economists is that marginal cost pricing maximizes economic efficiency. As discussed in detail in following subsections, the standard marginal cost pricing prescription must be qualified in the presence of scale economies and network externalities. Nevertheless, economists generally agree that universal service policies that distort usage prices above incremental costs sacrifice economic efficiency.

In the United States, access regulation and universal service policies have helped keep the prices of long distance usage above marginal cost. For example, the price of an interLATA long distance call carried by AT&T reflects federally-mandated access charges paid to the local telephone companies who originate and terminate the call. Almost everyone recognizes that usage-based components of these access charges have been maintained above the marginal cost of access.[20] Hausman (1998) and Prieger (1998) interpret the resulting price distortion as a usage tax,[21] and use approximations from public finance theory to measure the resulting loss of economic efficiency.[22] The analysis below follows Hausman's logic closely, but measures efficiency losses exactly by assuming a constant elasticity of demand over the relevant range.

The basic issue is illustrated in Figure 3, adapted from Hausman (1998). The price per minute of long distance is p, the marginal cost is c, and usage is q. The usage tax is t. In the absence of the tax, consumers would pay $p - t$ per unit of long distance usage. The revenue raised from the tax is

$$R = tq \qquad (3.1.1)$$

For an otherwise fixed market structure, the efficiency loss from the tax (called "deadweight loss" by economists) is measured by the sum of areas A and B. Area A represents the reduction in profits ("producer surplus") caused by the tax, assuming the tax is fully passed on to consumers.[23] Area B is the loss of consumer welfare ("consumer surplus") from the tax.

[20]The FCC is phasing out significantly above-cost usage-based access prices, replacing them with higher fixed charges and with revenue-based universal service "contributions" (i.e. revenue taxes).
[21]The FCC is moving from a system of usage taxes, implicit in access taxes, to a system of revenue taxes, implicit in the calculation of universal service contributions. Depending on market structure, revenue taxes may be more efficient than usage taxes.
[22]Hausman (2001) applies the methodology to the market for mobile telephony. See additional references therein.
[23]The assumption of full pass through is hard to defend theoretically in an oligopoly context, and exaggerates the

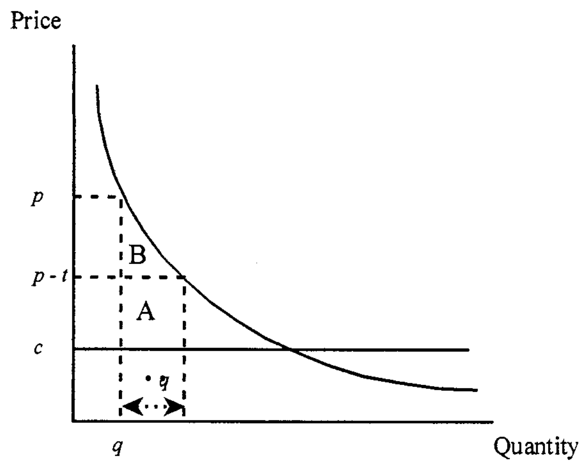

Figure 3: Consequences of an access tax

The deadweight loss per unit of tax revenue raised can be calculated as follows. Assume that the demand for long distance usage has a constant elasticity ε over the range of prices between $p - t$ and p. Then the reduction in quantity resulting from the usage tax is

$$\Delta q = \left[\left(1 - \frac{t}{p}\right)^{-\varepsilon} - 1\right] q \tag{3.1.2}$$

and loss of producer surplus (Area A) is

$$(p - t - c)\,\Delta q = (p - t - c)\left[\left(1 - \frac{t}{p}\right)^{-\varepsilon} - 1\right] q \tag{3.1.3}$$

The corresponding loss of consumer surplus (Area B) is calculated by integrating the demand curve between $p - t$ and p and subtracting tax revenue. This gives the formula

$$\left\{\frac{1}{1-\varepsilon}\left[p - (p-t)\left(1 - \frac{t}{p}\right)^{-\varepsilon}\right] - t\right\} q \tag{3.1.4}$$

The incremental loss of economic efficiency ("incremental deadweight loss") is equal to the sum of lost producer surplus and consumer surplus. Simple calculations yield an expression

efficiency loss if the tax partially extracts rents from oligopoly market power. Further analsysis of tax incidence and welfare consequences in the oligopoly case would clarify the debate on efficiency losses from usage price distortions.

for the incremental deadweight loss per unit of tax revenue: adding the expressions for lost producer and consumer surplus in equations (3.1.3) and (3.1.4), and dividing by the definition of tax revenue in equation (3.1.1), yields lost consumer and producer surplus per unit revenue raised by the tax; adding these up reveals that the average incremental deadweight loss equals

$$\left(\frac{p}{t} - 1 - \frac{c\,p}{p\,t}\right)\left[\left(1-\frac{t}{p}\right)^{-\varepsilon} - 1\right] + \left\{\frac{1}{1-\varepsilon}\left[\frac{p}{t} - \left(\frac{p}{t} - 1\right)\left(1-\frac{t}{p}\right)^{-\varepsilon}\right] - 1\right\}.$$

The significance of this complicated-looking formula is that a calculation of the average incremental deadweight loss from the price distortion caused by the access tax requires three numbers: the demand elasticity ε, the tax rate $\frac{t}{p}$, and the cost share $\frac{c}{p}$. Some representative calculations are presented in Table 2. Each entry in the table has two numbers. The first (larger) number is the incremental deadweight loss per unit of tax revenue; the second number is the corresponding loss of consumer surplus alone. A consensus estimate of the price elasticity of long distance usage is about $\varepsilon = 0.7$ (Taylor 1994). For this elasticity, if the tax rate and cost shares are $\frac{t}{p} = 0.25$ and $\frac{c}{p} = 0.25$, the incremental deadweight loss is \$0.55 per unit of revenue,[24] of which \$0.10 is lost consumer surplus, the rest being lost profit. In other words, every dollar of revenue raised by the tax costs the economy an additional fifty-five cents and reduces consumer surplus by ten cents.[25]

A debatable aspect of this analysis is the calculation of lost producer surplus. Hausman's calculations make sense if there are prohibitive barriers to entry into the long distance market, enabling incumbent firms to sustain supracompetitive profits. In this case, elimination of the tax does not cause a change in market structure, and area A represents an increase in industry profits that results from the expansion of incumbent firms. However, as Hausman (1998) notes, it is possible "that the industry is imperfectly competitive and price exceeds marginal cost to cover fixed costs." In this case, the elimination of the tax could prompt additional entry, and at least part of area A represent the additional fixed costs incurred by the new entrants. Increased industry fixed costs do not add to economic welfare, suggesting that Hausman's calculation of the efficiency loss from an access tax is biased upward. Indeed, if equally efficient firms drive equilibrium profits to zero both before and after the elimination of the tax, then the efficiency loss from the access tax is only the loss in consumer surplus measured by area B, which is the second, smaller number in each entry of Table 2.[26] Thus one's perspective on the efficiency loss

[24]Perhaps surprisingly, the average efficiency loss is not monotonic in $\frac{t}{p}$. This is because an increase in $\frac{t}{p}$ increases both numerator (total efficiency) and the denominator (tax revenue) of the expression for average efficiency loss.

[25]Hausman (1998) apparently estimated the deadweight loss using a second-order Taylor series approximation, although his precise calculations are difficult to unravel. He also assumed a higher tax rate of $\frac{t}{p} = .403$, which was plausible a few years ago before price caps lowered access rates. He arrived at an estimated deadweight loss of \$0.654 for each dollar of revenue raised. Substituting $\frac{t}{p} = .403$ into the above exact formula yields a smaller \$0.56. Prieger (1998) applies a similar public finance methodology (and explains it better) to estimate the deadweight loss from prospective universal service taxes. The point is the same. Price distortions to support universal service potentially entail substantial efficiency losses. The authors agree that a more efficient way to fund explicit universal service subsidies would be to tax local access. See also Hausman (1999).

[26]More generally, if entry is "lumpy", then abnormal long run profits can persist in a free entry equilibrium. However, it is unclear *a priori* whether industry profits will rise or fall if the elimination of a tax prompts additional entry. If industry profits were to fall then the efficiency loss from the tax would be even less than area B, and conversely. Lacking finely detailed information on market structure, it appears reasonable to assume a zero effect of entry on long run industry profits and to measure the efficiency loss by area B alone. However, if firms differ

from universal service taxes depends on assumptions about the industrial organization of the long distance market.[27]

Table 2: Efficiency and consumer surplus losses per $ tax revenue

	$\frac{c}{p} = 0$		$= 0.25$		$= 0.50$		$= 0.75$	
$\varepsilon = 0.6$								
$\frac{t}{p} = 0.25$	0.65	0.09	0.46	0.09	0.28	0.09	0.09	0.09
$= 0.50$	0.73	0.21	0.47	0.21	0.21	0.21		
$= 0.75$	0.85	0.42	0.42	0.42				
$\varepsilon = 0.7$								
$\frac{t}{p} = 0.25$	0.77	0.10	0.55	0.10	0.33	0.10	0.10	0.10
$= 0.50$	0.88	0.25	0.56	0.25	0.25	0.25		
$= 0.75$	1.06	0.51	0.51	0.51				
$\varepsilon = 0.8$								
$\frac{t}{p} = 0.25$	0.90	0.12	0.64	0.12	0.38	0.12	0.12	0.12
$= 0.50$	1.04	0.29	0.67	0.29	0.29	0.29		
$= 0.75$	1.29	0.61	0.61	0.61				

Hausman (1998 p. 14) argues that a more relevant calculation is the marginal effect of reducing usage taxes. Hausman assumed that any increase in the usage tax is fully passed on to consumers. Under this assumption, the marginal deadweight loss with respect to t is

$$(1 - \frac{c}{p})\varepsilon q \tag{3.1.5}$$

of which

$$\varepsilon \frac{t}{p} q \tag{3.1.6}$$

is the marginal loss in consumer surplus. The marginal tax revenue for an increase in t is

$$(1 - \varepsilon \frac{t}{p})q. \tag{3.1.7}$$

in efficiency, then part of area A could represent the rents of the more efficient firms, in which case the efficiency loss per unit of tax revenue is somewhere between the two numbers reported in Table 2.

[27]Prieger (1998 p. 66) recognizes that the efficiency loss depends on industry structure, but downplays it by suggesting that short run entry barriers might allow above-normal profits to persist temporarily. His calculations (1998 Table 2) confirm that the welfare loss from an access tax is much lower in the long run once new entry erodes the temporary market power of the incumbents. See Kaserman and Mayo (2001) for a detailed discussion of the industrial organization of the long distance market.

Dividing (3.1.5) and (3.1.6) by (3.1.7) gives the marginal efficiency loss and the marginal consumer surplus loss for an extra dollar of tax revenue raised by an increase in the usage tax. Table 3 presents some representative calculations. Following Hausman, these calculations assume that an increase in the usage tax is fully passed on to consumers in the final price. For example, if $\varepsilon = 0.7$, $\frac{t}{p} = 0.25$ and $\frac{c}{p} = 0.25$, then a $\$1$ increase in the amount of revenue raised by the access tax costs society an additional $\$0.64$, of which $\$0.21$ is a direct loss to consumers. A comparison of Tables 2 and 3 shows that marginal losses exceed average losses.

Table 3: Marginal efficiency and consumer surplus losses

	$\frac{c}{p} = 0$		$= 0.25$		$= 0.50$		$= 0.75$	
$\varepsilon = 0.6$								
$\frac{t}{p} = 0.25$	0.71	0.18	0.53	0.18	0.35	0.18	0.18	0.18
$= 0.50$	0.86	0.43	0.64	0.43	0.43	0.43		
$= 0.75$	1.10	0.82	0.82	0.82				
$\varepsilon = 0.7$								
$\frac{t}{p} = 0.25$	0.85	0.21	0.64	0.21	0.42	0.21	0.21	0.21
$= 0.50$	1.08	0.54	0.81	0.54	0.54	0.54		
$= 0.75$	1.47	1.11	1.11	1.11				
$\varepsilon = 0.8$								
$\frac{t}{p} = 0.25$	1.00	0.25	0.75	0.25	0.50	0.25	0.25	0.25
$= 0.50$	1.34	0.67	1.00	0.67	0.67	0.67		
$= 0.75$	2.00	1.50	1.50	1.50				

Hausman argues that it would be more efficient to finance universal service subsidies from general tax revenues. He bases this recommendation on published estimates of the marginal efficiency losses of general taxes ranging between 0.260 and 0.395 (Hausman 1998 p. 15). Table 3 shows that the marginal welfare effects of the asset tax exceed this range (for $\varepsilon = 0.70$) if lost producer surplus (area A of Figure 3) is part of incremental deadweight loss. However, if producer surplus is dissipated by entry costs, as in a symmetric free entry oligopoly equilibrium, then the marginal welfare effect of the usage tax, which is equal to the marginal consumer surplus loss, is less and may be below the marginal social cost of public funds. Thus, depending on the industrial organization of the long distance market, the access tax may or may not be an economically attractive method to finance universal service compared to financing out of general revenues.[28]

Hausman's main policy recommendation is that universal service is best achieved by targeted subsidies financed by a fixed universal service tax on access. The FCC is moving in

[28]The industrial organization literature recognizes that oligopoly entry may be excessive from a social perspective (Mankiw and Whinston 1986). In this case, an access tax can improve social efficiency by reducing excessive entry.

this direction by reducing per minute long distance access charges and by raising the monthly subscriber line charge (SLC). The wisdom of "going all the way" and completely eliminating per minute access charges depends on scale economies and network externalities, discussed in the next two subsections.

3.2 Scale economies

Local economies of scale provide a rationale for universal service policies, although this economic argument does not feature prominently in today's policy debates on the subject. Certainly, local scale economies cannot be dismissed out of hand. Maher (1999) reports modest estimated scale economies in access, based on central office cost data provided anonymously by two local telephone companies. If there are economies of scale of connecting people, then adding people to the network lowers the average cost of connections, potentially to the benefit of all.

The *a priori* plausibility of local scale economies depends on the nature of the universal service problem. One flavor of scale economy is an economy of density. An increase in telephone penetration at a wire center service area that is already built out amounts to an increase in the number of lines served in a given geographic area. For example, if 95 out of 100 households on a street already are getting telephone service, then the incremental cost of serving an additional household must be less than the average incremental cost of serving the street. The reason is that the necessary poles and conduits, and perhaps even spare copper wire pairs, are already in place. Thus scale economies are very plausible if the universal service problem is to increase penetration in a given service area.

Another flavor of local scale economy is an economy of geographic scope. If greater penetration requires extending the perimeter of the wire center, then it is plausible that the incremental cost of service is either greater or less than the average cost. On the one hand, average cost may decline because the geographic extension relies on existing remote terminals, transport and switching infrastructure. On the other hand, the greater costs of installing and maintaining longer copper wire loops could cause the incremental costs of service to rise above the average cost. For this reason, economies of geographic scope seem less plausible than economies of density as a source of local scale economies.

The economies of scale rationale for universal service poses a well known dilemma. Average cost pricing results in an inefficiently low level of penetration, but marginal cost pricing leaves a deficit to be funded somehow. What's a regulator to do? The famous Ramsey rule for second-best pricing resolves the dilemma optimally by marking-up prices above marginal cost in inverse proportion to the price elasticity of demand.

Most U.S. households pay a fixed monthly price for access (and local service) and usage sensitive prices for long distance calling. The long distance prices may depend on whether the call is intrastate or interstate, and on the distance of the call. However, a simple two-part service arrangement featuring a fixed usage price provides a good basis for an analysis of optimal pricing with economies of scale. The standard Ramsey rule requires some modification if there are separate prices for access and usage. The modification is required because access is a necessary ingredient of residential access to the telephone network. This section outlines the relevant theory of optimal two-part tariffs, along the lines developed by Brown and Sibley (1986), Vogelsang and Mitchell (1991), and Schmalensee (1981). It is appropriate to interpret the economy of scale in the theoretical model as an economy of density.

Ramsey pricing rules are based on demand as well as costs. Thus, the derivation of the optimal pricing rule requires a model of both. To keep matters simple, assume that there are just two services, usage and access, and a separate price for each, p and r.[29] Consumer heterogeneity is represented by a parameter θ. A type θ individual has a utility (consumer surplus) of

$$V = U(p, \theta) - r$$

from connecting to the telephone network. A service plan that is more favorable to the consumer yields a higher consumer surplus.

Different types of consumers have different preferences over service plans. To simplify further, assume a multiplicatively-separable functional form

$$U(p, \theta) = \theta u(p),$$

Thus the consumer surplus of a type θ consumer with service plan (p, r) is

$$V = \theta u(p) - r$$

where $u(p)$ is assumed to be a smooth, convex, and decreasing function of p. A consumer with a higher value of θ is more willing to accept a higher access price for a lower usage price. However, all consumers have the same price elasticity of demand for usage. By a standard economic argument,[30] a type θ individual has a demand curve for usage,

$$\begin{aligned} X(p, \theta) &= -\theta u'(p) \\ &\equiv \theta x(p), \end{aligned}$$

that is derived from the utility function. The corresponding price elasticity of demand for usage is

$$\epsilon = -\frac{p x'(p)}{x(p)}$$

The price elasticity might depend on p, but it does not depend on θ.

Only consumers with a positive consumer surplus will opt to connect to the network. The marginal type is θ_o satisfying

$$r = \theta_o u(p), \tag{3.2.1}$$

meaning that this consumer is just indifferent between connecting or not. By substituting this expression for r into the utility function expressed by equation (3.2.1), the consumer surplus of a type θ is written as

$$V = (\theta - \theta_o) u(p),$$

[29]This is an oversimplification: usage can be interpreted as long distance usage, with local usage bundled into access. More generally, economic efficiency requires separate usage-sensitive prices for local and long distance usage, because these have different price elasticities.

[30]The argument is known in the consumer theory literature as Roy's identity. The partial equilibrium framework adopted here assumes a constant marginal utility of income, implicitly interpreting a decrease in r as an increase in income.

which is a function of the consumer's type, the marginal consumer type, and the usage price.

If M is the total number of consumers, and N are connected, then the penetration rate is $n = \frac{N}{M}$. The penetration rate is related to the identity of the marginal consumer by the formula

$$n = \int_{\theta_o}^{\infty} f(\theta)d\theta \equiv [1 - F(\theta_o)]$$

Here $f(\theta)$ is the frequency (density) of type θ consumers in the population, and $F(\theta)$ is the fraction of consumers who make fewer calls than does a type θ. In this model, the elasticity of the penetration rate with respect to the access price r is

$$\eta = \frac{\theta_o f(\theta_o)}{n}$$

This "access elasticity" measures the sensitivity of the marginal consumer to a change in the access price. The average consumer is type

$$\bar{\theta} = \frac{\int_{\theta_o}^{\infty} \theta f(\theta)d\theta}{n},$$

makes $\bar{\theta}x(p)$ calls, and enjoys a consumer surplus of $\bar{\theta}u(p) - r$. The average consumer surplus over the entire population is therefore

$$\bar{V} = n\left[\bar{\theta}u(p) - r\right]. \tag{3.2.2}$$

Substituting equation (3.2.1) for the marginal consumer into (3.2.2) yields an expression for average population consumer surplus,

$$\bar{V} = n(\bar{\theta} - \theta_o)u(p)$$

as a function of the usage price, the marginal consumer, and the average consumer.

Now turn to costs and profits. Assume for simplicity that the marginal cost of usage is a constant at c. The average cost of a connection is $\bar{h}(\theta_o)$ when all types $\theta \geq \theta_o$ are connected to the network. The marginal cost is related to the average cost according to the formula

$$h(\theta_o) = \bar{h}(\theta_o) - \frac{\bar{h}'(\theta_o)\theta_o}{\eta}.$$

An economy of scale in providing access exists if $\bar{h}'(\theta_o) > 0$. In this case the marginal cost of a connection is lower than the average cost. This means that, as more subscribers are added to the network, the average cost declines. The profits earned on an average consumer are $r + (p - c)\bar{\theta}x(p) - \bar{h}(\theta_o)$. Using equation (3.2.1) to substitute for r and averaging over the entire population yields an expression for the average population profit,

$$\bar{\Pi} = n\left[\theta_o u(p) + (p - c)\bar{\theta}x(p) - \bar{h}(\theta_o)\right].$$

The problem of maximizing total welfare subject to a break-even constraint on profits amounts to maximizing a weighted sum of consumer surplus and profits according to the Lagrangian function

$$L = \bar{V} + (1 + \lambda)\,\bar{\Pi}$$

where $\lambda \geq 0$ is the shadow price of the break-even constraint. In other words, the optimal service plan maximizes an appropriately weighted sum of consumer surplus and profits (producer surplus). The greater weight on profits reflects the cost to society of solving the Ramsey dilemma of how best to recover access costs. As shown below, the shadow price is strictly positive if there are economies of scale.

Maximizing L with respect to p yields the modified Ramsey formula for pricing usage [?, p. 95]:

$$\frac{p - c}{p} = \frac{\lambda}{1 + \lambda}\,[1 - \varpi]\,\frac{1}{\epsilon}$$

where ϵ is the price elasticity of usage defined earlier, and the variable

$$\varpi = \frac{\theta_0}{\bar{\theta}}$$

is equal to the ratio of usage of the marginal consumer to average usage. Thus, assuming that the Ramsey dilemma is real and $\lambda > 0$, the usage markup is higher the greater is the difference in usage between the marginal and average subscriber. Brown and Sibley (1986 p. 96) interpret $1 - \varpi$ as "an adjustment term accounting for the cross-elasticity between consumption and participation." More specifically, the adjustment accounts for the facts that an increase in p requires a decrease in r in order to maintain penetration, and that this rebalancing impacts both average utility and profits.

The usage formula makes clear that marginal cost pricing can solve the welfare maximization problem only if $\lambda = 0$. This case obtains for a particular value of θ_0. In this singular case $p = c$, requiring $r = \bar{h}(\theta_o)$ if the firm is to break even. This consumer type is just willing to accept a strictly cost-based service plan with access price $r = \bar{h}(\theta_o)$ and a usage price $p = c$. Can this be optimal? The answer is no if there is a an economy of scale in connecting people to the network, i.e. if

$$\bar{h}'(\theta_o) > 0$$

To reach this conclusion, consider how social welfare changes with the identity of the marginal consumer. Evaluating the derivative of L with respect to θ_0 at the point of strict cost-based pricing yields

$$\frac{dL}{d\theta_o} = -\bar{h}'(\theta_o)n$$

which is unambiguously negative if $\bar{h}'(\theta_o) > 0$, meaning that welfare would be increased by lowering θ_o. But then the profit constraint becomes binding, i.e. $\lambda > 0$, and $p > c$ according to the usage formula. Thus, economies of scale provide a clear rationale for "price distortions."

The average consumer benefits from the resulting network expansion because economies of scale enable a lowering of the access price relative to the increase in the usage price.

The optimal access price satisfies a modified Ramsey formula that appropriately accounts for opportunity costs. The first-order condition for optimal θ_o yields (Brown and Sibley 1986 p. 95).

$$\frac{r-m}{r} = \frac{\lambda}{1+\lambda}\frac{1}{\eta}$$

where

$$m = h(\theta_o) - (p-c)\,\theta_o x(p)$$

is the marginal opportunity cost of a connection. The formula modifies the standard Ramsey inverse elasticity rule by treating marginal usage revenues as a component of marginal opportunity cost. A key observation from the formula is that, for purposes of optimal access pricing, the theoretically correct definition of marginal cost is marginal opportunity cost, which subtracts the usage profits earned on the marginal consumer from the marginal cost of a connection.

Economists' advice that usage should be priced close to its marginal cost is based on empirical evidence that the access elasticity is small, and on an implicit assumption that the revenue contribution of the marginal consumer is not likely to be large relative to marginal cost.[31] For example, suppose that the usage profits on the marginal consumer just cover the marginal cost of a connection. Then $m = 0$, $\frac{\lambda}{1+\lambda} = \eta$, and $\frac{p-c}{p} = (1-\varpi)\,\frac{\eta}{\epsilon}$. If the access elasticity (η) is small relative to the usage elasticity, then the usage markup is small. Empirical estimates of the price elasticities of access and (long distance) usage are in the neighborhood of $\eta = 0.02$ and $\varepsilon = 0.70$, i.e. the usage elasticity is an order of magnitude greater than the access elasticity, which implies that the usage markup is small. Thus, unless the profit contribution of marginal consumers exceeds the marginal connection cost significantly, scale economies do not appear to be an important justification for large price distortions to achieve universal service.[32]

3.3 Network externalities

Network externalities are inherent in the idea of a telephone network. The larger the network, the more people there are to call, and therefore the greater is the value of being connected to the network. Although network externalities provide a clear rationale for universal service policies, it is a rationale that has lost center stage in the policy debate. Laffont and Tirole (2000 p. 230) offer the following explanation for its neglect:

[31]The fact that penetration is lower for lower income households suggests that marginal consumers are predominantly lower income households. Crandall and Waverman (2000) document that lower income households do spend less on long distance usage, although the difference is not a dramatic one.

[32]This conclusion needs some qualification. If the average demand is great, then even a small usage markup (i.e. small λ) can justify a significant access discount. Moreover, it is possible to construct realistic examples of optimal two-part tariffs featuring both small usage markups and moderate access discounts. Using a model calibrated to 1970 data Mitchell (1978 p. 531) calculated that the optimal two-part tariff for local service has moderately-sized access discounts and usage markups, while achieving a high penetration rate. However, it is noteworthy that price elasticity for local usage implicit in Mitchell's model is significantly less than the consensus 0.7 elasticity for long distance usage (Mitchell 1978 p. 528). Building on Mitchell's example, Brown and Sibley (1986 p. 96) calculated that the optimal two-part tariff raised average consumer welfare by 5 cents a month compared to pricing usage at average cost, although at the cost of significantly reduced penetration.

> Network or club externalities are no longer at the forefront of the universal service debate (except perhaps for new services such as the Internet), partly because networks are largely developed in OECD countries and partly because it is recognized that network externalities are to a large extent internalized by operators.

This dismissal of the network externality rationale for universal service is not fully convincing. The argument that network externalities are unimportant in developed economies rests on an assumption that the average subscriber to the network does not have much interest in calling the marginal subscriber.[33] Crandall and Waverman (2000 p. 25) put the argument this way:

> (T)he network externality argument has little relevance for telephony in developed economies today for several reasons. If my telephone in Manhattan reaches 2 million people, another connection will probably have little value to me. Of course, if that connection is my mother, then the connection is of real value to me, and ... I can subsidize her telephone directly! Otherwise, there is no reason why I - in Manhattan - should subsidize someone in Kalamazoo.

The rhetoric does not quite hit its mark. Even if the average telephone subscriber in Manhattan places a small value on being able to call the marginal subscriber, multiplication of that small value by 2,000,000 can be a large number. Moreover, there surely are people in Manhattan who value calling people in Kalamazoo; that is, a network externality can be long distance as well as local. The magnitude of the network externality remains an empirical issue on which evidence is scant.

How do regulated firms internalize network externalities? To a large extent, this is up to the regulators. Raising the price of usage above its marginal cost, and reducing the price of access below its incremental cost, encourages the subscription of consumers who most likely do not originate a lot of calls.[34] Nevertheless, these subscribers may receive calls from other consumers who benefit from making these calls. Moreover, the increased call volume from this externality generates additional revenue which limits the need to raise the usage price to cover the access deficit. The economic efficiency of such price distortions is the focus of the network externality debate.

It is not hard to construct a theoretical model that illustrates the potential importance of network externalities. Consider a telephone network serving N consumers. Suppose that each consumer is potentially interested in calling a fraction θ of the others, and places an average of $x(p)$ calls to each at a price of p. Therefore, the number of calls the consumer makes is

$$X(p, \theta, N) = \theta(N-1)x(p)$$

and the consumer's value of calling is

$$U(p, \theta, N) = \theta(N-1)u(p).$$

[33] There are other less obvious network externalities. A large subscriber base creates a "market" for various network-based transactions. e.g. bank by phone. Such indirect network externalities most likely less important for mature networks, but arguably of crucial importance for emerging networks such as the Internet. See Katz and Shapiro (1994).

[34] On the other hand, Hausman *et. al.* (1993) report estimates suggesting that rebalancing rates in the opposite direction could increase penetration.

where the relationship between $u(p)$ and $x(p)$ is as in the previous section. Each consumer's usage and value of being connected increases linearly with the number of other consumers connected to the network. This is a mathematical statement of a particularly strong network externality.[35] More generally though, the network externality hypothesis only requires that value increases monotonically with subscribers.

The consequences of network externalities for usage prices can be derived by building on the previous model of optimal two-part pricing; see Vogelsang and Mitchell (1991) for a literature survey and a related model. With a network externality, the utility of an average subscriber is

$$\bar{\theta}\,(N-1)\,u(p) - r$$

and the marginal consumer (type θ_o) is defined by

$$r = \theta_o\,(N-1)\,u(p).$$

Substitution and multiplication by the penetration rate gives the population average utility,

$$\bar{V} = n\left(\bar{\theta} - \theta_o\right)(N-1)\,u(p).$$

Similarly, if the average network cost is fixed at $\bar{h}$ (ignoring scale economies), then the population average profit is

$$\bar{\Pi} = n\left\{(N-1)\left[\theta_o u(p) + (p-c)\,\bar{\theta}x(p)\right] - \bar{h}(\theta_o)\right\}$$

The Lagrangian is defined as before, and the "Ramsey formula" for the optimal usage price is exactly the same:

$$\frac{p-c}{p} = \frac{\lambda}{1+\lambda}\left[1-\varpi\right]\frac{1}{\epsilon}$$

where ϖ is the ratio of marginal to average usage. The optimal access price generalizes the previous formula:

$$\frac{[r-m]}{r} = \frac{\lambda}{1+\lambda}\frac{1}{\eta} - \chi;$$

with opportunity cost similar to as before:

$$m = \bar{h} - (p-c)\,(N-1)\theta_o x(p);$$

and a new term reflecting the network externality:

$$\chi = \frac{N-1}{N}\left[\frac{\bar{h}}{r} + \frac{1}{1+\lambda}\left(\frac{1}{\varpi} - 1\right)\right].$$

As in the case of scale economies, marginal cost pricing is not optimal, i.e. $\lambda > 0$, which requires an access deficit ($r < \bar{h}$) from the break-even constraint.

[35] This is a statement of "Metcalfe's Law" that the value of a network increases with the number of users squared. Robert Metcalfe was the founder of 3Com Corporation.

The network externality clearly justifies pricing access below the average cost of a connection, perhaps substantially depending on the values of λ and ϖ. Using the approximation $\frac{N-1}{N} \approx 1$, and assuming constant returns to scale, we obtain

$$\frac{r-\bar{h}}{r} \approx \frac{1}{1+\lambda}\left(\frac{1}{\varpi}\right)^2 - \frac{\lambda}{1+\lambda}\left(\frac{1}{\eta}-1\right)\left(\frac{1}{\varpi}\right)$$

The following is an example demonstrating that the network externality can justify a significant discount on the price of access. Suppose that the elasticities of access and usage are $\eta = 0.02$ and $\varepsilon = 0.70$, respectively, and that costs are $c = 0.015$ and $\bar{h} = 20$ with no scale economies. In dollars and cents, this means that the marginal cost of usage is a penny and a half, and the cost of access is \$20. Suppose further that $\varpi = 0.11$ and $\lambda = 0.186$.[36] The solution to the model for this example is: $p = 0.019$; $r = 16.90$. The optimal usage price is just under two cents and the optimal access price is just under \$17.

The example demonstrates that the network externality hypothesis potentially provides a sound theoretical rationale for subsidizing access to achieve universal service. Of course the model is too simple for practical purposes and probably overstates the case for an access subsidy. One blemish is the unrealistic assumption that doubling the size of the network also doubles the amount of usage at a given price. Telephone calls take time and consumers have other things to do. An increasing opportunity cost of time will curtail telephone usage even as network size grows. Nevertheless, with more calling opportunities, consumers can substitute from lower to higher value calls. The increased substitution opportunities of a larger network still validates the network externality hypothesis even if consumers do not make more calls. However, the rising opportunity cost of calls does lessen the quantitative significance of the network externality.

A second blemish is that the model assumes that all consumer types receive the same number of calls, even though they differ in their originating usage. It is possible and perhaps likely that people who make few calls when connected to the network also tend to receive few calls. The external benefits of connecting such people to the network are small. If this were true for marginal users as a class, then the case for an access subsidy is weakened significantly. This apparently is what Crandall and Waverman mean in the quotation above. However, the empirical validity of this intuitively plausible hypothesis remains unclear.

A final blemish is that the analysis ignores call externalities. A call externality occurs when some of the benefits of a telephone call accrue to the recipient, and are not internalized by the caller. In the United States and elsewhere the calling party pays for the telephone call,[37] and may decline to place a call if the price is too high, even though the joint benefits of the call are worth the cost. For example, I may wait for you to call me, and vice versa, and the call gets put off. The model can be modified to account for call externalities by supposing that the

[36] These values can be justified by a suitable choice of distribution function for θ, and by a suitable multiplicative scaling of the value of usage. The usage ratio $\varpi = 0.11$ determines the penetration rate from the distribution of types; for example, if θ has a standard uniform distribution, then the implied penetration rate is about 94%. The Lagrange multiplier $\lambda = 0.186$ means that it costs the economy an additional \$0.18 for every \$1.00 raised this way via the usage markup.

[37] An exception is a call to a wirelesss phone. In the United States the wireless receiver pays airtime charges. Elsewhere in the world, "calling party pays" is the norm even for wireless calls, and there is a move afoot for the FCC to require a "calling party pays" option in the U.S. as well.

value of receiving a call is (on average) equal to ν. Then the Ramsey formula for optimal usage pricing becomes

$$\frac{p-c}{p} = \frac{\lambda}{1+\lambda}\left[(1-\varpi)\frac{1}{\epsilon} - \frac{\nu}{p}\right].$$

Clearly, if ν is sufficiently large relative to p, then the optimal markup is negative, i.e. it is optimal to encourage more calls by setting the usage price below marginal cost.[38] Clearly, if usage is priced below cost, then access must be priced above cost if the firm is to break even. Thus, the call externality could completely undermine the case for access subsidies based on scale economies and network externalities.

Despite the conflict between call externalities and network externalities, the former has not received as much attention in the academic literature. Brown and Sibley (1986 p. 197) put the case against call externalities this way:

> The call externality is probably not too important. It only involves two people and can probably be easily "internalized." For example, two frequent callers could arrange to share the cost of calling. Furthermore, not all call externalities are positive externalities; there are certain phone calls that one is annoyed to receive. Since the telephone company cannot be expected to distinguish between positive and negative call externalities, it is probably not useful to incorporate them into price formulas. For this reason, and because call externalities can be internalized fairly well, they do not provide a strong case for call price reductions.

Vogelsang and Mitchell (1991) give more credence to the call externality by observing that successful bargaining over how to divide the cost of calling may itself require a costly telephone call. They also argue that call externalities are relatively more important in developed economies; their reason is that call externalities involve interactions among all consumers, while network externalities only involve interactions with marginal consumers. In the context of the above theoretical model, this means that, while network externalities increase with network size at rate N, call externalities increase at rate N^2. This is an interesting theoretical argument. However, empirical evidence on the relative significance of call and network externalities is lacking.

There are scraps of evidence on network externalities in telecommunications networks. As discussed in Section 2, Crandall and Waverman (2000) find a positive effect of population density on the demand for residential access, and interpret this as supporting the network externality hypothesis. Another scrap of evidence comes from Louis Perl's 1983 unpublished study of access demand, summarized by Taylor (1994 p. 86-96). Perl included in his discrete choice model measures of the size and density of the local network. His estimates imply that doubling size and density of a local network of 25,000 increases the average value of a subscription by \$4.36, while doubling the network again creates another \$1.17 of value for each subscriber (Taylor 1994 pp. 236-8). Thus, only modest network externalities appear at the local level, and the magnitude of the local network externality declines with size.

[38]Note that $\frac{\lambda}{1+\lambda}v$ can be interpreted as an additional component of opportunity cost in the Ramsey formula for usage prices. The reason for the $\frac{\lambda}{1+\lambda}$ adjustment is that the call externality enables the firm to charge a higher access price to the marginal consumer.

Network externalities can be either local or long distance. It is valuable to reach more people with a long distance call, as well as to be able to place more calls within a local service territory. It is unclear *a priori* which kind of network externality is the more important. The value of being able to call someone on the telephone depends both on the price of the call and on the availability of alternative means of communication. On the one hand, even though a local call typically is free, face-to-face communication is often an excellent alternative. On the other hand, a long distance call, while costly, often lacks a good substitute. The fact that long distance prices have been dropping sharply suggest that long distance network externalities are becoming more important.[39]

The network externality hypothesis allows that usage increases with the number of connected consumers. Taylor (1994 Appendix 3) estimated a log linear equation relating the average number of calls from city A to city B to relevant prices, the average household income in A, and the number of addressable telephones in B (market size) using quarterly data on off-peak long-haul traffic between Canadian cities between 1974 and 1983. The estimated elasticity of usage with respect to market size was 1.482 with a t-value of 8.5! It is not clear what to conclude from this estimate. Taylor speculates that the high elasticity reflects a usage externality, whereby one call leads to another.[40]

Barnett and Kaserman (1998) caution about the limits of the network externality hypothesis as a justification for subscriber subsidies. They make three important points. First, network externalities are mostly inframarginal at high penetration levels, and it is unnecessary to subsidize the bulk of subscribers who would join the network anyway. Second, economic efficiency is increased by targeting subscriber subsidies at marginal consumers who are most likely to generate network externalities. For example, these might be individuals who receive more calls than they make, and do not value communication sufficiently to subscribe without a subsidy. Third, subscriber subsidies only improve welfare if the external benefits of subscription from the network externality exceed the efficiency losses from financing the subsidies. These arguments lead the authors to the bottom-line conclusion that uniform subsidies are unlikely to improve average consumer welfare.

Although this conclusion is probably overdrawn, Barnett and Kaserman's three cautions are well taken. In particular, it is clearly desirable to target universal service support more efficiently. Third degree price discrimination, which offers discounts to selected consumer groups, or second degree price discrimination based on optional calling plans, are ways to do this.

3.4. Third degree price discrimination

Notwithstanding the attractive properties of Ramsey rules, a simple two-part tariff is not the best way to achieve universal service goals. The efficiency burden of maintaining universal service can be lessened by allowing price discrimination. Economists distinguish various kinds of price discrimination. First-degree price discrimination is charging different prices to different people based on their identity. Leaving aside the question of its legality, an effective first degree

[39]Implicit in this discussion is the idea that it may be possible to draw inferences about network externalities from changes in usage prices. The economic consequences of disconnecting someone from a network is not much different from charging an exceedingly high price for telephone calls. It may be possible to draw an inference about network externalities by extrapolating the consequences of small price change.

[40]This usage externality is discussed also by Taylor (2001).

price discrimination scheme is infeasible for mortal regulators because it requires an omniscient knowledge of consumers' preferences. Second-degree price discrimination is something of a misnomer, because all consumers are offered the same menu of choices and elect different items on the menu according to their preferences. Thus consumers end up paying different prices under second degree price discrimination because they choose to do so. Third-degree price discrimination charges different prices to groups of consumers based on observable characteristics of the group. Different prices based on income or location are examples.

Third degree price discrimination is a recognized tool for promoting universal service. The FCC's low-income and high-cost support policies, discussed in more detail in the next section, fall into this category. Low-income support policies provide discounts to individuals meeting certain means tests. High-cost support policies seek to narrow price differences based on the average cost of service in different locations.

The analytics of optimal third degree price discrimination are a straightforward generalization of the normative theories presented earlier. Suppose consumers are divided into two classes, Class I and Class II, and consider the theory of optimal two-part tariffs with access scale economies but no network externalities (a further generalization to allow for network externalities is pretty straightforward). In general, the two classes may have different demand characteristics and different costs of service. The Ramsey formulas for optimal usage and access prices generalize readily, with notation analogous to before. For Class I, the prices are

$$\frac{p_I - c_I}{p_I} = \frac{\lambda}{1+\lambda}\left[1 - \varpi_I\right]\frac{1}{\epsilon_I}$$

$$\frac{r_I - m_I}{r_I} = \frac{\lambda}{1+\lambda}\frac{1}{\eta_I}$$

and for Class II

$$\frac{p_{II} - c_{II}}{p_{II}} = \frac{\lambda}{1+\lambda}\left[1 - \varpi_{II}\right]\frac{1}{\epsilon_{II}}$$

$$\frac{r_{II} - m_{II}}{r_{II}} = \frac{\lambda}{1+\lambda}\frac{1}{\eta_{II}}$$

The optimal pricing policies for the two classes are linked by a common value of the Lagrange multiplier λ, which captures the social cost of meeting the expected profit constraint. The linkage arises because profits are aggregated across the two consumer classes. Thus, it is possible for profits on one class of consumers to compensate losses on the other.

This theory provides a rationale for low-income support policies. For simplicity, assume that both classes are served jointly and have the same cost of service, or equivalently that costs are "averaged". Assume also that both classes have the same price elasticity of usage, i.e. the two classes have different demand characteristics based only on different distributions of θ. For concreteness, suppose that Class II consumers are more likely to have a greater demand for usage, i.e. a lower value θ (in the sense of first-order stochastic dominance). Given the empirical evidence that usage increases with income (Crandall and Waverman 2000), it is natural to think of Class I as a low income group.

How should universal service support be targeted at low income (Class I) consumers? Applying the simplifying assumptions, the Ramsey formulas imply

$$\frac{p_I - c}{p_I} = \frac{\left[1 - \varpi_I\right]}{\left[1 - \varpi_{II}\right]}\frac{p_{II} - c}{p_{II}}$$

$$\frac{r_I - m_I}{r_I} = \frac{\eta_{II}}{\eta_I}\frac{r_{II} - m_{II}}{r_{II}}$$

That is, the price-cost markups for the two groups are proportional, although the proportionality factors differ for usage and access. For usage prices, the factor of proportionality depends on the ratios of usage demand for the marginal and average subscribers (ϖ) for each class. If both populations were to face the same prices, then the marginal type would be the same for the two classes, but $\varpi_I > \varpi_{II}$ because of differing mean values of θ. Thus the proportionality factor for usage prices is less than one, i.e.

$$\frac{[1 - \varpi_I]}{[1 - \varpi_{II}]} < 1,$$

indicating that Class I consumers should face a lower usage price. For access prices, the proportionality factor is the ratio of access elasticities. Although a common marginal type implies $m_I = m_{II}$, Class I would have a lower penetration rate because of the less favorable distribution θ, implying $\eta_I > \eta_{II}$, and indicating that Class I consumers should also get a lower access price. Since, at the point of no price discrimination, optimality conditions for usage and access prices fail in the same direction, it would be desirable both to lower p_I (relative to p_{II}) and to lower the price of r_I (relative to r_{II}), to bring the proportionality conditions into balance. This heuristic analysis suggests that optimal low income policies should involve both usage subsidies and access subsidies.[41]

The theory of third degree price discrimination also provides a logical basis for high-cost support policies, although the logic is rather different than for low-income support. Suppose that Class I and Class II consumers are identical, except that Class I consumers have a higher cost of access. At the optimum:

$$\frac{p_I - c}{p_I} = \frac{\lambda}{1+\lambda}[1 - \varpi_I]\frac{1}{\epsilon}$$

$$\frac{r_I - m_I}{r_I} = \frac{\lambda}{1+\lambda}\frac{1}{\eta_I};$$

and:

$$\frac{p_{II} - c}{p_{II}} = \frac{\lambda}{1+\lambda}[1 - \varpi_{II}]\frac{1}{\epsilon}$$

$$\frac{r_{II} - m_{II}}{r_{II}} = \frac{\lambda}{1+\lambda}\frac{1}{\eta_{II}}.$$

There are two interesting possibilities. On the one hand, if the marginal cost of access were the same for both consumer classes, and the difference were entirely in the fixed cost of access, then $m_I = m_{II}$ implies that both consumer classes should face the same prices. This is the economic logic for "geographic averaging". On the other hand, if the marginal cost of access were greater for Class I, then $m_I > m_{II}$ implies higher access prices for Class I. The resulting lower penetration rate means that $\eta_I > \eta_{II}$ and $\varpi_I > \varpi_{II}$; hence access and usage markups

[41] This theoretical analysis has not been developed much in the literature on optimal pricing. It is worth much more attention.

should be lower for Class I. Thus, some degree of geographic price discrimination is efficient when marginal access costs vary locationally. The price differences between the two classes for access and usage should move in opposite directions, even though the markup differences move in the same direction.

The fact that geographic price discrimination sometimes is efficient does not imply that the two geographic regions should be priced separately based on their respective costs. If the two classes were treated independently, then Class I would necessarily have higher markups to cover its higher access cost. Consequently, the structure of prices would be the same for both classes, except $\lambda_I > \lambda_{II}$. This means that it would be economically efficient to relax the profit constraint on Class I customers, and to tighten the constraint on Class II customers to make up the difference. This could be accomplished by balanced subsidies and taxes on the firms serving Class I and Class II consumers. These transfers should proceed until $\lambda_I = \lambda_{II}$ resulting in the optimal structure. Service to Class I consumers should operate at a deficit, recovered from profits (or taxes) on service to Class II consumers. This is almost a stylized description of federal high-cost policies in the United States. The difference is that in practice high income areas do not receive a usage subsidy, and perhaps receive an excessive access subsidy.

3.5 Second degree price discrimination

Optional tariffs are an example of second-degree price discrimination. Consumers are offered a choice of service plans, and allowed to self-select the plan that is best. In particular, consumers could be offered a range of service plans that trade off the access price against the usage price. Low volume consumers would prefer a plan with a lower access price and a higher usage price, and conversely for higher volume consumers. The optimal menu of service plans can be constructed using what are now well accepted methods from the mechanism design literature in economics.

The following analysis sketches the mechanism design approach to constructing an optimal menu of service plans, and characterizes the price distortions embedded in those plans. Let $[p(\theta), r(\theta)]$ denote the service plan chosen by a type θ consumer. Ignoring network externalities, the consumer enjoys a consumer surplus of

$$V(\theta) = \theta u(p(\theta)) - r(\theta)$$

Using standard analytical tools (i.e. the envelope theorem and integration), it can be shown that consumers maximize utility by choosing from the menu so that

$$V(\theta) = \int_{\theta_o}^{\theta} u(p(s))ds,$$

and that average consumer surplus over the entire population is

$$\bar{V} = \int_{\theta_o}^{\infty} u(p(\theta))\,[1 - F(\theta)]\,d\theta.$$

Now consider profits. Sales to a type θ consumer are

$$X(\theta) = \theta x(p(\theta)) \equiv -\theta u'(p(\theta))$$

and access revenues are related to usage prices according to

$$r(\theta) = \theta u(p(\theta)) - V(\theta).$$

Allowing for scale economies, the profit earned on the type θ consumer is

$$\pi(\theta) = [\theta u(p(\theta)) - V(\theta)] + [p(\theta) - c]\, \theta x(p(\theta)) - \bar{h}(\theta_o),$$

and average population profit is

$$\bar{\Pi} = \int_{\theta_o}^{\infty} \left\{ \theta u(p(\theta)) - [p(\theta) - c]\, \theta x(p(\theta)) - \bar{h}(\theta_o) \right\} f(\theta) d\theta - \bar{V}.$$

Maximizing the Lagrangian $L = \bar{V} + (1 + \lambda)\bar{\Pi}$ with respect to this price function yields the modified Ramsey formula

$$\frac{p(\theta) - c}{p(\theta)} = \frac{\lambda}{1 + \lambda} \frac{1}{\varepsilon} \left[\frac{1 - F(\theta)}{f(\theta)\theta} \right].$$

This formula depends on the hazard rate $\frac{f(\theta)}{1-F(\theta)}$, which is the probability of being a type θ consumer conditional on not being a lower type. If the hazard rate is increasing in θ, as it is for many common distributions, and the average profit constraint is binding ($\lambda > 0$), as it is in the presence of scale economies, then the usage mark-up is smaller for higher volume users.[42] For higher volume users, the usage price is closer to marginal cost. The access price is correspondingly higher for higher volume users, i.e. $r'(\theta) = -\theta x(p(\theta))p'(\theta) > 0$. Moreover, since usage is priced above marginal cost, it is immediate from the break-even constraint that $r(\theta) < \bar{h}(\theta_o)$ for at least some users. An optimal menu of service plans results in higher volume users selecting a plan with a lower usage price and higher access price. The usage price optimally is set above marginal cost for all but the highest volume users, and the access price is below the average cost of access for lower volume users.[43]

Cain and MacDonald (1991) provide some econometric evidence supporting the desirability of optional tariffs for local service. Their demand estimates show that, if a measured service option is available for local service, then telephone penetration is insensitive to the monthly charge for flat rate service. This result is consistent with the idea that marginal consumers opt for measured service when given the choice. Cain and MacDonald interpret their results in the following way (1991 p. 303):

> These estimates suggest that universal service can be maintained and expanded, even while more of the NTS financial burden is shifted to local charges. In particular, since telephone subscribership is sensitive to measured access charges, universal service goals can be met, at relatively low cost, by introducing and expanding budget measured service options.

[42]This generalizes the formula for an unregulated monopolist. See Tirole (1988 p. 156).

[43]Faulhaber and Panzar (1977) is an early analysis of the issue. Riordan (2000) considers the $c = 0$ case and shows that a choice of two extreme service plans is optimal. High volume users would choose a flat rate plan with unlimited long distance usage. Low volume users would choose a cheaper plan with prohibitively expensive long distance usage. By continuity, an extreme two-option menu is approximately optimal for c positive but sufficiently small. As a practical matter, the marginal cost of usage is dropping with technological advance and rapidly approaching zero.

Riordan (2000) points out that similar principles can be applied to long distance usage. In particular, consumers (or long distance companies acting as their agents) can be offered optional access arrangements, or, equivalently, optional arrangements for contributing to a universal service fund. Offered the choice, higher volume users would select a higher fixed monthly payment and lower usage-sensitive payment. Such an arrangement would better target universal service subsidies to marginal consumers.

4. POSITIVE ECONOMICS OF UNIVERSAL SERVICE

4.1 Cross-subsidies in the price structure?

Commentators frequently decry cross-subsidies in the structure of telecommunications prices. The AT&T divestiture was based partly on a claim of cross-subsidies running from local to long distance services (Temin 1990). In contrast, the frequent claims today are that business cross-subsidizes residential, long distance subsidizes local, and urban subsidizes residential services. While the term "cross-subsidy" often is used loosely even in the academic literature, economists typically are complaining that some set of services (residential, local, or rural) is priced below its long run incremental cost (LRIC). This appears to have become the "popular" meaning of cross-subsidy.

Twenty-five years ago, Faulhaber (1975) sought to discipline the discussion of cross-subsidies by advancing a formal definition and corresponding tests. He defined a subsidy-free price structure as one whose revenues do not exceed the stand-alone cost for any subset of services.[44] Moreover, assuming weak economies of scope, subsidy-free prices must also cover the incremental cost of any subset of services.[45] The stand-alone and incremental cost tests are equivalent for a zero-profit firm. If the firm makes positive economic profits, then cross-subsidies are indicated by a failure of the stand-alone test applied to whole product set, even though no product need fail the incremental cost test. Thus, the popular meaning of a cross-subsidy in a regulated price structure is justified in Faulhaber's (1975) framework if the firm is held to zero economic profits.

Temin (1990) recognizes Faulhaber (1975) by defining a "cross-subsidizing service" as one priced above stand-alone cost, but still accepts popular usage by defining a "cross-subsidized service" as one priced below LRIC. If the firm were to earn positive economic profits, then, by this terminology, it would be possible in the presence of joint costs to have a service receiving a cross-subsidy, but no other service doing the cross-subsidization. Temin meant these definitions to apply only to environments in which rate of return regulation held total profits to zero, e.g. the old Bell system.[46] In this case, a failure of incremental cost test for some group of services, necessarily implies a failure of the stand-alone test for other services.

A possible tension between the popular meaning and Faulhaber's definition of a cross-subsidy is revealed in the following quotation from Kaserman and Mayo (1994 pp. 135-6):

> To some extent, the argument over whether a subsidy exists is semantic. The answer hinges upon one's definition of a subsidy and how one would measure the

[44]The stand-alone cost is the cost of producing the relevant services in isolation.

[45]The incremental cost is the cost-saving from not producing these services. The necessary and sufficient condition for the equivalence result is that the services are produced subject to weak economies of scope.

[46]Personal communication with the author.

costs of the services involved. Regardless of the position one adopts, however, there is no economic justification for a system that places the burden of fixed network costs on usage-sensitive prices. Such a system is inefficient whether or not a subsidy results. Consequently, one need not become mired in the subsidy debate to make definite statements about efficient pricing policies. We will continue to use the cross-subsidization terminology throughout the remainder of this article because it is convenient to characterize the overpricing of one service along with the underpricing of another as a cross-subsidy, whether or not these prices fall outside the range that the Faulhaber criteria define. What is more, we are convinced that such cross-subsidization exists, is substantial, and is an accurate description of the existing price structure in this industry.

Kaserman and Mayo's blanket condemnation of price distortions implicitly denies the importance of scale economies and network externalities. As discussed earlier, normative theory provides a rationale for recovering fixed network costs from usage sensitive prices under these conditions. However, more importantly for the discussion at hand is Kaserman and Mayo's insistence on evaluating the merits of price structures in terms of economic efficiency. This is undoubtedly the principal perspective of economists when discussing cross-subsidy issues. Economists' complaints about cross-subsidies typically are on normative grounds: prices below LRIC encourage an overexpansion of telecommunications networks and are a barrier to more efficient entrants.

In contrast, Faulhaber (1975) had a more practical preoccupation. He was concerned that prices above stand-alone cost were not sustainable in a competitive market. The reason is that an equally efficient entrant could successfully undercut a price above stand-alone cost. This is an important issue for universal service, especially in the wake of the 1996 Telecommunications Act. The Act intends to open all telecommunications markets to competition. To the extent that universal service implicitly is supported by Faulhaber cross-subsidies, these subsidies are likely to be undermined by new competition. Recognizing this, the Act requires that implicit subsidies be made explicit and portable.[47] State regulators have been concerned about too much competition until new universal service mechanisms are in place. So far, there has been substantial new entry into business markets and not much entry into residential markets, suggesting cross-subsidies flowing from business to residential services. The existence of such a business-to-residential cross-subsidy has been established empirically by Palmer (1992). Rosston and Wimmer (2000b) estimate that nationally the average revenue per line for local service is $39.14 for business lines compared to $18.29 for residential.

A problem with the stand-alone test is that the stand-alone cost of a group of services typically is not observed and therefore is difficult to estimate (Curien 1991). Palmer (1992) addressed this issue for the case of two services by deriving an upper bound on the stand-alone cost under a non-decreasing returns to scale assumption. Using this bound Palmer derived a pair of sufficient conditions for prices to satisfy the stand-alone and incremental cost tests

[47] A portable subsidy is paid to whichever firm provides services. The flip side of the sustainability argument is that services priced below their stand-alone costs are immune to new competition from equally efficient entrants. This appears to be the case for residential local access services in rural areas. Thus, these areas should not expect much local competition unless there is a portable explicit subsidy that makes up the difference. The FCC has recently established limited portable subsidies for the highest cost wire centers in the highest cost states, but largely has left to the states the problem of creating local competition in high-cost rural areas. See Rosston and Wimmer (2000).

for subsidy-free prices. Palmer estimated costs and revenues for 32 suburban central offices operated by New England Telephone in the mid-to-late 1980s. Almost all of these central offices failed the stand-alone test and a majority failed the incremental cost test. On average, residential revenue fell short of the lower bound on incremental cost by \$0.39 per line per month, implying a business-to-residential subsidy of at least \$3.45 per business line. These results suggest a substantial business-to-residential subsidy. However, Palmer does not provide confidence intervals or otherwise address estimation errors.

There is some controversy and confusion in the literature about whether long distance services cross-subsidize local services. The stylized fact is that the revenues from local services do not recover their stand-alone costs while the revenues from toll services exceed their incremental costs. The following statement by Curien (1991 p. 91) is typical:

> In telecommunications industries all over the world, the local networks run a deficit, i.e. the connection and subscription charges which are paid by users for their access fail to recover the cost of building and maintaining the connection line and other non-traffic sensitive equipment. As a result, the non-traffic-sensitive costs are subsidized by the revenues derived from traffic and especially from trunk traffic.

Such an assertion apparently flies in the face of Faulhaber's (1975) definition of a cross-subsidy. Indeed, the conditions identified by Curien satisfy Faulhaber's conditions for subsidy-free prices:[48] the price of access is below its stand-alone cost, and the price of usage is above its incremental cost. Gabel (1995) builds on this point, arguing that the access services provided by the local loop should be interpreted as a shared input into local exchange and toll services. The published literature does not contain any rigorous showing of a cross-subsidy from toll services to local exchange services.[49]

It is also widely held that geographic averaging results in a cross-subsidy from urban to rural services. This follows almost immediately for a zero profit firm under the reasonable assumptions that the stand-alone cost of urban service is substantially less than the stand-alone cost of rural services, and that joint costs are small. However, if the firm is making significant positive profits, then the validity of the claim is less clear. In the United States, regulated local exchange carriers are allowed to earn positive profits on unregulated vertical services, e.g. voice mail and call forwarding. The published literature lacks a rigorous demonstration of an urban-to-rural cross-subsidy that takes account of the profits from vertical services.

4.2 Low income subsidies

In the United States, universal service subsidies are targeted at low-income households via the Lifeline (LL) and LinkUp (LU) programs established by the FCC at the end of 1984. The LL program reduces the monthly cost of telephone service of eligible low income households by an amount equal to \$7.00 currently.[50] States provide additional support resulting in total

[48] Curien's (1991 p. 91) characterization of a "cross-subsidy from traffic to access" is based on an *ad hoc* approach of using "revenue trade-offs" to measure cross-subsidies. The revenue trade-off approach arbitrarily allocates profits and costs to services, including joint and common costs, and asks whether service revenues recover allocated costs plus profits.

[49] See L. Taylor (1993), W. Taylor (1993), Kahn (1993), Gabel and Kennet (1993), and Gabel (1995) for debate on whether access should be regarded to be an input or a separate service.

[50] This is twice the federal subcriber line charge (SLC). The SLC is scheduled to increase to \$5.00 under a recent FCC access reform order. Presumably, the LL subsidy will increase commensurately.

monthly subsidies typically ranging between $5.25 and $10.50; the Virgin Islands is an anomaly with total support of $14.05. The LU program subsidizes the installation charges of a new subscription for eligible households up to $30 plus up to $200 in interest on deferred payments. Eligibility criteria for both programs are established by the individual states subject to FCC approval and vary widely (Federal Communications Commission 1999). Together, the federal components of these programs are projected to cost $480 million in 1999 (Eisner 2000).

Schement, Belinfante and Povich (1997 pp. 193-6) identify twelve states who experienced large increases in telephone penetration for low income households between 1984 and 1994: Connecticut, Georgia, Hawaii, Michigan, Nevada, New Mexico, North Carolina, South Carolina, Tennessee, Vermont, Washington, and Wyoming. Two-thirds of these states were among the early adopters of the federal low-income support programs. This casual evidence suggests that LL and LU programs have been effective at promoting universal service.

There is also some more rigorous empirical evidence showing that low-income subsidies have increased telephone penetration rates, although the quantitative impact appears to be small relative to the cost of these programs.[51] Table 4 reports selected regressions from three different studies: Garbacz and Thompson (1997; hereafter G&T); Eriksson, Kaserman and Mayo (1990; hereafter EKM); and Crandall and Waverman (2000; hereafter C&W). The three studies employ different data; G&T examines state-level data from the 1990 census; EKM examines annual state-level data from the Current Population Survey; and C&W examines 1990 census data at the level of town. The three studies also employ different specifications, and report the significance of estimates differently.[52]

G&T estimate a logit model of state-level penetration, and conclude that the LL and LU programs have a statistically significant but small marginal effect on penetration for the average state. Their explanatory variables include the monthly price of (flat rate) local service, and the installation charge for new accounts. Demographic variables include the percent of households living below the poverty line, and the percent of households living in urban areas. The key variable for testing the effectiveness of low income subsidies is the amount of LL and LU funds paid out per poor household in the state. Although G&T interpret their regression equation as a demand equation, the price variables are not significant.[53]

EKM report a related analysis based on pooled state-level cross section and time series data for the period from 1985 through 1993 and draw similar conclusions. The annual penetration data is drawn from the Current Population Survey, which Garbacz and Thompson (1997; 2000) criticize as being more subject to measurement error than the decennial census data, resulting in unreliable estimates. Also worrisome is that EKM apparently ignore serial correlation in the error terms for each state, which could bias their statistical tests. EKM find a positive significant effect of LL and LU subsidies only in states that have a large poor population.[54]

[51]Park and Mitchell (1989) show in a calibrated simulation model that Lifeline rates are unlikely to significantly increase penetration.

[52]See also Albery (1995) for a related study.

[53]This could be due to endogeneity bias. Prices of local service and installation are regulated by the states. The coefficients on these variables would be biased toward zero if states with low penetration rates tended to choose lower prices for residential service. (The LL and LU estimates could suffer similar endogeneity bias; see the discussion of C&W below.) G&T do find significant price coefficients in other specifications.

[54]EKM include 1984 penetration in all of their specifications as an explanatory variable "in order to standardize for the cross-sectional variation in the observed penetrations rates prior to the sample time period." It is unlikely that the relationship is stable over time; why should penetration levels in 1993 and 1998 bear the same relation

Both G&T and EKM interpret the estimated quantitative significance of the low income subsidies with the aid of "policy experiments". G&T estimate from their regression analysis that an across the board 10% increase in subsidies would increase average penetration by "substantially less than one tenth of one percent." EKM conclude that an additional $10,000 in subsidies would add only 18 new subscribers for a state whose poverty level is average, and 75 new subscribers for the poorest states. While these calculations are provocative, the policy interpretations are not really valid, because the parameter estimates on which they are based do not have clear structural interpretations. In particular, the models do not distinguish whether the increased subsidy levels of the policy experiment come from more generous support levels or more generous eligibility criteria.

To illustrate how eligibility criteria might matter consider the following simple model. Suppose that a subsidy of s dollars is targeted at households below the poverty line, but that the prevailing eligibility criterion results in only a fraction λ of poor households being able to receive the subsidy. Suppose further that households above the poverty rate choose to have a telephone with probability β_1, subsidized poor households with probability β_2, and unsubsidized poor households with probability β_3, with $\beta_1 > \beta_2 > \beta_3$. If POV is the poverty rate, then the observed penetration rate would be

$$PEN = \beta_1(1 - POV) + \beta_2\lambda POV + \beta_3(1 - \lambda)POV$$

and the subsidy per household would be

$$SUB = s\lambda POV.$$

Thus, looser eligibility criteria (i.e. higher λ) increases both the penetration rate and the amount of subsidy. Solving these two equations to eliminate λ gives

$$PEN = \beta_1 - (\beta_1 - \beta_3)\,POV + \left(\frac{\beta_2 - \beta_3}{s}\right) SUB.$$

Therefore, holding constant the amount of the subsidy (s), the penetration rate is decreasing in the poverty rate and increasing in the subsidy per household (SUB). In this specification, the subsidy per household is serving as a proxy for eligibility criteria. This simple model provides some justification for including per household subsidies directly into a penetration equation, but also suggests that functional form may be important and that the parameter estimates need to be interpreted carefully. In this example, a doubling of subsidy payments corresponds to the policy experiment of doubling the size of the eligible population. The effect of this experiment on measured penetration would be $\beta_2 - \beta_3$. Thus, the estimated coefficient on SUB would have to be multiplied by s to measure the effect of the policy change on telephone penetration.

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to 1984? It is not clear *a priori* how this source of specification error might bias the estimated effects of the low income subsidies. G&T show in their study that inclusion of lagged penetration does not much matter.

Table 4: Effectiveness of low income subsidies

study	G&T[55]	EKM[56]	C&W[57]
data source	1990 census	1985-93 CPS	1990 census
dependent variable	$\ln\frac{penetration}{1-penetration}$	*penetration*	*penetration*
(test statistic)	(standard error)	(t-statistic)	(t-statistic)
constant	3.35* (0.728)	0.54622* (16.879)	1.003* (146.6)
local service price	0.009 (0.008)	−0.00103* (4.103)	0.00017 (0.94)
installation charge	−0.003 (0.003)	−0.00032* (3.824)	−0.00070* (9.51)
long distance price		−0.10593* (6.064)	0.00096 (0.44)
p.c. income			0.00048* (7.09)
% poor	−8.757* (0.728)	−0.00200* (7.041)	−0.282* (6.43)
% poor squared			0.292* (2.83)
% urban	0.473* (0.132)		
% rural		−0.00013 (1.628)	
population density			0.0047* (5.22)
% black		−0.00040* (4.0060)	−0.034* (5.30)
% Hispanic		−0.00039* (2.926)	−0.032 (5.82)
penetration in 1984		0.50301* (16.036)	
p.h. LL-LU subsidy		−0.00605* (2.142)	
p.h. LL-LU subsidy×%poor		0.00059* (2.482)	
p.h. LL-LU subsidy÷%poor	0.017* (0.002)		
LL dummy×%poor			0.016 (1.30)
LU dummy×%poor			−0.098* (5.06)
p.h. high cost payments		−0.00009 (0.413)	
R^2	-	.8424	0.736
# observations	44	432	1,897

* Statistically significant at 0.05 level.

A priori, C&W seems the most interesting of the three studies because it relies on more disaggregated data. The study matches price data to census data on towns (cities, or designated places). The price data were obtained directly from large local exchange carriers, resulting in 1896 observations. The study measures the effect of LL subsidies with a dummy variable for the state's implementation of the program interacted with the poverty rate. Effectively, this is measuring whether poor communities in states who have LL programs in place have higher penetration rates than similar poor communities in states lacking LL programs. The regression analysis does not find a significant effect of LL on the measured penetration rate. This seems consistent with their related finding that the effect of local service prices is not significant either.

[55]This is regression (2) in Table 4 of Garbacz and Thompson (1997).
[56]Model A in Table 2 of Eriksson, Kaserman, and Mayo (1998).
[57]Model (1a) in Table 5-5 of Crandall and Waverman (2000).

These results suggest that LL has not been an effective policy tool for advancing universal service. It is possible that the supporting estimates suffer from endogeneity bias, although this seems less likely than in G&T and EKM, because in C&W the regulated prices and subsidy policies are set at the state level while penetration is measured at the town level.

C&W measure the effect of LU simply as a dummy variable interacted with poverty, effectively comparing penetration rates of poor towns in states with and without the LinkUp program. The regression equation finds that the LinkUp policies have a statistically significant *negative* effect on telephone penetration. This paradoxical result seems hard to explain, and appears inconsistent with the finding that higher installation charges reduce penetration. C&W suggest that the result is due to the fact that only two states, Delaware and Illinois, lacked LU programs and that the regulators in these states declined to implement LU because penetration rates were already high. In other words, the estimated coefficient suffers from an endogeneity bias. In view of this potential problem, the C&W study does not appear to provide very convincing evidence on the effectiveness of LinkUp.

4.3 High cost subsidies

Telephone companies serving high-cost areas in the U.S. receive direct subsidies. Federal subsidies to companies serving high-cost areas have been paid out under a variety of mechanisms (Federal Communications Commission 1999). "High-cost loop support" has been given to companies with above average non-traffic sensitive costs. Additional "long term support" subsidizes a uniform below-cost carrier line rate for participating companies. Finally, "local switching support" defrays some of the traffic sensitive costs of companies serving small market areas. Taken together, these mechanisms provided \$1.7 billion in assistance in 1999. A new high-cost program established in 2000 consolidated the subsidies to larger companies in a new cost fund, and established intrastate subsidies based on forward-looking economic cost and targeted to high-cost wire centers within the receiving state. The Telecommunications Act requires that implicit universal subsidies be made explicit and financed by taxes ("contributions") on the revenues of telecommunications companies. The federal programs are financed by taxes on interstate and international revenues.

Eriksson, Kaserman and Mayo (1998) studied the effectiveness of high-cost support on the prices of Bell Operating Companies (BOCs) with the following regression equation

$$PRI = 15.53250 + 0.014660 \cdot CST - 20.20702 \cdot BUS - 0.13469 \cdot USF$$

where PRI is a weighted average flat rate for residential service, CST is the historical cost of "outside plant" for providing local access in the rate base, BUS is the ratio of business and residential lines, and USF is high cost support per household paid from the Universal Service Fund. These variables are measured at the state level. Although the coefficients are all statistically significant, the R^2 of this regression equation is only 0.20. The regression indicates a negative correlation between the amount of high cost support and the price of local service. This estimated equation suggests that an extra dollar of high-cost support translates into only a 13 cent reduction in the price of local service. Thus, given a low price elasticity for local access, this suggests that high-cost subsidies paid to companies are not very effective at increasing penetration rates. Indeed, Eriksson, Kaserman and Mayo (1998 p. 498) conclude that a \$10,000 increase in BOC high-cost support would add only 15 subscribers at a cost of

$666 per new subscriber. As above, this "policy experiment" is suggestive, but not definitive because the estimated parameters lack clear structural interpretations.

Recent FCC policy has left the problem of high-cost support largely to the state jurisdictions. Rosston and Wimmer (2000a) ask what level of state universal service funds would be necessary to cover the forward-looking economic costs of local service under the assumption that telephone companies earn $32 per line, which is a benchmark revenue level that the FCC had considered previously as relevant for establishing high-cost support levels. They estimate that the state high-cost subsidies would come to almost $3 billion in the aggregate, the financing of which would require consumers to pay an weighted-average tax rate of 2.41% on intrastate revenues. They further estimate that, if instead of establishing high-cost subsidies, the states rebalanced rates to reflect costs, then telephone penetration rates would drop by only one-half of one percent nationwide. This calculation leads them to question whether this modest effect on penetration is worth the efficiency loss created by the distortionary revenue taxes, and to recommend that high-cost support be targeted better to low-income households.

5. CONCLUSIONS

A number of conclusions can be drawn from this survey of issues about universal residential telephone service. First, the two important "underserved" populations in the United States are the poor and Native Americans. These populations have substantially lower residential telephone penetration rates even after controlling for locational, demographic, and cost factors. Second, although penetration rates for similar communities are different in different parts of the United States, differences in state regulatory policies account for no more than 1-2% of this variation. Third, the extent to which "taxes" on long distance usage are an inefficient means of public finance for universal service programs depends on details of the industrial organization of long distance telephone services. Fourth, while scale economies and especially network externalities provide potentially important theoretical rationales for universal service policies, the empirical evidence on their quantitative significance is scant and inconclusive. Fifth, optional tariffs governing local and long distance toll services potentially are effective devices for targeting implicit subsidies for local access. Sixth, there is some econometric support for the proposition that business rates have cross-subsidized residential rates, according to the formal economic definition of a cross-subsidy, but the frequent claims that long distance cross-subsidizes local and that urban cross-subsidizes rural services rest on more casual appraisals. Seventh, although economic theory provides rationales for well-designed low-income and high-cost support policies for promoting universal service, the limited empirical evidence on the issue suggests that low income and high-cost subsidies have at best a quantitatively small impact on penetration rates relative to their cost.

The main conclusion of the chapter, though, is that there remains a shortfall of research on the economics of universal service. First, the determinants of telephone penetration are still not completely understood. For example, it is unclear why Native American populations suffer lower telephone penetration even after controlling for poverty, climate, and costs. It is also unclear to what extent price regulation and universal service policies explain state-specific variations in telephone penetration. Second, the empirical importance of scale economies and network externalities as rationales for universal service remains cloudy. For example, more information on usage profits earned by service providers on marginal subscribers would permit a better calculation of the economic opportunity cost of expanding basic access services. A serious attempt to estimate the quantitative significance of "long distance network externalities" from price elasticities for long distance services would contribute usefully to the policy debate. Evidence on the significance of offsetting call externalities is also sorely needed. Third, an empirical quantification of the potential welfare gains from implementing optional tariffs, or other forms of second-degree price discrimination, seems to be within reach of modern structural econometrics with a sufficiently rich data set (Miravete 2000). Fourth, well-crafted tests of the propositions that long distance has cross-subsidized local services and that urban have cross-subsidized rural services are long overdue. Fifth, a fully convincing appraisal of the performance of low-income and high-cost programs in advancing universal service awaits better data and more careful econometrics. Settling these issues for the paradigm problem of maintaining and advancing basic universal residential telephone service will strengthen the foundations for debating and evaluating the next generation of universal service policies.

Only a few qualified lessons can be drawn for policy-makers. First, while state regulators should "benchmark" their regulatory and universal service policies to other states, the adoption of "best practices" might increase residential telephone penetration by only a few percent. Second, even though policy-makers can in good faith remain hesitant to embrace too closely the chorus of calls for strict cost-based pricing of local access services, the economic case for a significant markup of usage prices is debatable. Third, while the FCC and the states should consider optional arrangements for universal service contributions as a better way to target universal service support, the quantitative significance of such policies remains an open question. Fourth, the FCC most likely should exempt service provided to Lifeline and LinkUp recipients from universal service contributions. All such advice is tentative, of course, pending further economic research.

Although beyond the scope of this chapter, it is worth mentioning, in closing, a few upcoming issues. One new issue is universal service auctions. The 1996 Telecommunications Act opens the door for the FCC to consider auctions as an alternative mechanism for high-cost support. The FCC has so far refrained from doing so, although in its 1997 *Universal Service Order* expressed an intention to open a proceeding on the matter. In the mid 1990s, California considered but did not adopt auctions for awarding state high-cost support. Other places, including Europe and Australia, have also considered auction mechanisms for high cost support. There is a new theoretical literature on the topic (Laffont and Tirole 2000; Sorana 2000). Another new issue for which there is an emerging literature is the effect of universal service policies on competition (Gasmi, Laffont, and Sharkey 2000; Choné, Flochel, and Perrot 2000). The Telecommunications Act requires that universal service policies in the United States be competitively neutral. In the U.S. and even more blatantly in other countries, new competitors pay taxes to incumbents to help finance the incumbents' universal service obligations. Armstrong (2001a, 2001b) argues that a well-designed universal service policy, together with cost-based access pricing, nevertheless can provide efficient incentives for entry and make-or-buy decisions. A third emerging issue is a broader definition of universal service, discussed by Crandall and Waverman (2000). There is considerable and growing political pressure to further expand the definition of universal service to encompass Internet access. Downes and Greenstein (1999) show empirically that access to Internet services is already widely available, albeit at very different speeds in different places. Cremer (2000) develops a theoretical argument that network externalities might be particularly strong for broadband Internet service. These are all likely to be among the important universal service policy issues in the coming decade.

6. APPENDIX: VARIABLE DEFINITIONS AND SUMMARY STATISTICS FOR TABLE 1

6.1 Census data

The following variables were created from the 1990 Census STF-3 files. Each variable is measured at the Census Block Group (CBG) level.

Penetration is the fraction of occupied housing units in the CBG with a telephone in the housing unit.

% Poor is the fraction of CBG population living below the poverty line.

Median income is the median household income of the CBG, measured in thousands of dollars.

% Female head of household is the fraction of households in the CBG with a female head of household.

% Senior the fraction of CBG population that is 65 years of age or older.

% Children the fraction of CBG population that is 15 years of age or younger.

% High school is the fraction of CBG population with a high school degree, including those with some college but no college degree.

% College is the fraction of CBG population with a college degree.

% Black is the fraction of CBG population that is black.

% Hispanic is the fraction of CBG population that is of Hispanic origin. If a person is black, white, Asian, etc., and also of Hispanic origin, then they are counted only as being Hispanic.

% Native the fraction of CBG population that is Native American.

% Asian the fraction of CBG population that is Asian.

% Other nonwhite the fraction of CBG population that is nonwhite and not a member of the aforementioned race categories.

Population density is the number of people, measured in thousands, per square kilometer living in the CBG.

Wire center population is the number of people, measured in thousands, living in the area serviced by the same wire center that services the CBG. This variable was created from the 1990 Census STF-3 files, but only after linking the CBGs to wire centers using data obtained from the FCC.

6.2 Climate data

In order to measure the effect of climate on telephone penetration, data from the United States Historical Climatology Network (U.S. HCN) was linked to the census data.[58] The U.S. HCN data is measured at the station level, identified by its latitude and longitude. Each CBG was assigned to the station with the minimum product of absolute differences between latitude and longitude. Data is available from 1221 stations for the 48 contiguous state, although data from Tennessee was missing. Data for Alaska, Hawaii, and the District of Columbia are not available from this source. A fully quadratic form was specified for the following variables:

Temperature is the annual mean temperature in 1989 recorded by the station, within state, nearest to the CBG.

Precipitation is the total precipitation in inches in 1989 recorded by the station, within state, nearest to the CBG.

6.3 Cost Data

The FCC has published an economic-engineering model that estimates, among other things, the forward-looking economic cost of providing basic local service.[59] This model incorporates locational data and 1996 quantity and price data into an optimization model. The cost estimation procedure is based on the FCC's TELRIC (total element long run incremental cost) methodology. The CBGs are matched to wire centers. Given the relatively small increase in telephone penetration rates in recent years, the relative forward-looking costs probably have not changed too much between 1990 and 1996, except that boundaries of wire centers do change occasionally. For given wire center assignments locational data, e.g. terrain, which are a critical determinant of cost differences, certainly remain constant.

Not every CBG can be matched to a wire center. The model uses a selection of wire centers in Bellcore's LERG database. Only wire centers which were listed as end offices, hosts or remotes, and which were not owned by wireless, long distance or competitive access providers were used. This left roughly some 12,000 wire centers, covering roughly half of the original sample of CBGs. When wire centers are matched to the CBGs for which weather data is available, roughly forty percent of the original sample of CBGs were left.

The cost variables used in the estimation are defined as follows.

Loop length is an estimate of the average length of the connection of the customer to the wire center, including distribution (the cable connecting a customer to a Serving Area Interface (SAI)) and feeder (the cable connecting an SAI to a wire center) distances.

Average forward looking cost is the FCC's estimate of the average monthly forward-looking cost of providing basic local service, including distribution, feeder and end-office switching costs, measured in dollars.

[58] The U.S. HCN data is made publicly available by the Carbon Dioxide Information Analysis Center. For more information see: Easterling, D. R., T. R. Karl, E. H. Mason, P. Y. Hughes, D. P. Bowman, and R. C. Daniels, T. A. Boden (eds.). "United States Historical Climatology Network (U.S. HCN) Monthly Temperature and Precipitation Data." ORNL/CDIAC-87, NDP-019/R3. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory. Oak Ridge, Tennessee, 1996.

[59] See Sharkey (2001) for a description of the FCC's Hybrid Proxy Cost Model.

6.4 Summary statistics

Table 5: Summary Statistics

	(I)		(II)		(III)-(V)	
	mean	s.d.	mean	s.d.	mean	s.d.
Penetration	93.9	9.0	94.4	7.9	94.3	7.8
% Poor	14.0	14.1	12.8	12.6	12.7	12.5
Median income	31.2	16.4	31.9	15.9	31.7	15.7
% Female h.o.h.	11.8	10.4	10.6	8.9	10.7	9.0
% Senior	13.3	9.2	12.9	9.0	13.1	8.8
% Children	23.8	9.2	23.7	9.0	23.6	8.8
% High School	31.8	9.5	32.1	8.9	32.2	8.7
% College	16.3	12.3	17.0	12.2	16.7	12.0
% Black	12.4	25.1	10.1	21.2	10.9	22.0
% Hispanic	7.6	16.5	7.4	15.8	5.7	13.6
% Native	0.9	4.9	0.7	3.8	0.7	3.4
% Asian	2.2	6.3	2.4	6.5	1.9	5.0
% Other nonwhite	0.1	0.6	0.1	0.5	0.1	0.5
Pop. density	2.9	4.8	1.9	5.0	2.0	5.4
W.c. population			29.7	26.3	28.3	25.7
Loop length					21.0	19.0
Average f.l. cost					31.4	25.2
Temperature					53.8	8.2
Precipitation					42.0	16.0
# Observations	222,264		116,715		95,171	

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Dkt. No ____________
D. Blessing Ex. No. ___ (DCB-10)
Rebalancing Order

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Alltel Florida, Inc.'s Petition)
To Reduce Intrastate Switched Network)
Access Rates In A Revenue Neutral)
Manner Pursuant to Section 364.164,)
Florida Statutes)
_______________________________)

Exhibit DCB-10

Order No. PSC-03-1469-FOF-TL Florida Public Service Commission; Comprised of Docket No.. 030867-TL, In re: Petition by Verizon Florida Inc. to reform intrastate network access and basic local telecommunications rates in accordance with Section 364.164, Florida Statutes; Docket No.. 030868-TL, In re: Petition by Sprint-Florida, Incorporated to reduce intrastate switched network access rates to interstate parity in revenue-neutral manner pursuant to Section 364.164(1), Florida Statutes; Docket No. 030869-TL, In re: Petition for implementation of Section 364.164, Florida Statutes, by rebalancing rates in a revenue-neutral manner through decreases in intrastate switched access charges with offsetting rate adjustments for basic services, by BellSouth Telecommunications, Inc.; and Docket No. 030961-TI, In re: Flow-through of LEC switched access reductions by IXCs, pursuant to Section 364.163(2), Florida Statutes.; Issued: December 24, 2003.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by Verizon Florida Inc. to reform intrastate network access and basic local telecommunications rates in accordance with Section 364.164, Florida Statutes.	DOCKET NO. 030867-TL
In re: Petition by Sprint-Florida, Incorporated to reduce intrastate switched network access rates to interstate parity in revenue-neutral manner pursuant to Section 364.164(1), Florida Statutes.	DOCKET NO. 030868-TL
In re: Petition for implementation of Section 364.164, Florida Statutes, by rebalancing rates in a revenue-neutral manner through decreases in intrastate switched access charges with offsetting rate adjustments for basic services, by BellSouth Telecommunications, Inc.	DOCKET NO. 030869-TL
In re: Flow-through of LEC switched access reductions by IXCs, pursuant to Section 364.163(2), Florida Statutes.	DOCKET NO. 030961-TI ORDER NO. PSC-03-1469-FOF-TL ISSUED: December 24, 2003

The following Commissioners participated in the disposition of this matter:

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J. TERRY DEASON
BRAULIO L. BAEZ
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ORDER ON ACCESS CHARGE REDUCTION PETITIONS

I. INTRODUCTION AND HISTORY

The telecommunications industry is in transition from an industry characterized by regional monopolies to one characterized by national competition. For most of its history, telephone service was furnished on a monopoly basis by a single provider. In exchange for a statutory monopoly, the telephone company was subject to economic regulation that gave it the opportunity to earn a fair rate of return on its investment. In this monopoly regime, prices for long distance and other premium services were set substantially above cost based on value of service principles. At the same time, local telephone service was priced residually to advance the social policy goal of providing universal service.

Effective January 1, 1984, this monopoly regime was radically changed nationwide by the entry of the "modified final judgment"[1] which reorganized AT&T and divested it of its

[1] United States v. American Telephone and Telegraph Co., 552 F. Supp 131 (D.D.C. 1982) aff'd sub nom, Maryland v. United States, 460 U.S. 1001 (1983), as subsequently modified by United States v. Western Electric Co., 569 F. Supp. 990 (D.D.C. 1983) and United States v. Western Electric Co., 569 F. Supp. 1057 (D.D.C.), aff'd sub nom, California v. United States, 464 U.S. 1013 (1983).

local telephone companies, restricted the operating areas of the local telephone companies, and provided for competitive interstate long distance service. See, Microtel, Inc. v. Florida Public Service Commission, 483 So.2d 415, 416 (Fla. 1986)(Microtel II). In apparent anticipation of the forthcoming consent judgment in the AT&T case, and motivated by a desire to promote competitive long distance telephone service within Florida, the Legislature in 1982 amended Florida law to allow the Commission to issue certificates for competitive intrastate long distance service. Id. at 417-418. As the Florida Supreme Court recognized in Microtel Inc. v. Florida Public Service Commission, 464 So.2d 1189, 1191 (Fla. 1985)(Microtel I), the 1982 Legislature made the "'fundamental and primary policy decision' that there be competition in long distance telephone services" in Florida.

As long distance competitors entered the market, state and federal regulators instituted a system of intercarrier compensation under which long distance companies paid "access charges" to the local exchange telephone companies for the use of the local networks to originate and terminate long distance calls. As the record reflects, these access charges were initially set to take the place of the revenue that had been provided by long distance service under the monopoly regime.

A decade after the introduction of long distance competition, the landscape in the telecommunications industry changed again with the elimination, first in Florida and then nationwide, of the statutory monopoly for local exchange service. In 1995, the Florida Legislature amended Chapter 364, Florida Statutes, to allow for competition in the provision of local service. The Legislature found that "the competitive provision of telecommunications services, including local exchange service, is in the public interest and will provide customers with freedom of choice, encourage the introduction of new telecommunications service, encourage technological innovation, and encourage investment in telecommunications infrastructure." Section 364.01(3), Florida Statutes. In conjunction with the opening of the local exchange market to competition, the incumbent local exchange companies (ILECs) were permitted to elect to substitute price regulation for the former rate base, rate of return regulation. Section 364.051, Florida Statutes.

The opening of the Florida local market to competition was followed the next year by the enactment of the federal Telecommunications Act of 1996 (1996 Act). Pub. L. No. 104-104, 104th Congress 1996, 110 Stat. 56, 47 U.S.C. §§ *et. seq.* This act established a national framework to enable competitive local exchange carriers (CLECs) to enter the local telecommunications market and to allow the former Bell Operating Companies to reenter the interLATA long distance market. The purpose of the 1996 Act was to bring the benefits of competition to all telecommunications markets by creating a pro-competitive, de-regulatory national policy framework. Senate Rpt. 104-023, entitled "Telecommunications Competition" (March 30, 1995).

Over the 19 years since the introduction of long distance competition, both interstate access charges and intrastate access charges have been reduced. Despite these reductions, the record shows that intrastate access charge rates in Florida are among the highest in the nation and are substantially above interstate access charge rates. The record also shows, as further analyzed in Section VI(B) of this Order, that intrastate long distance rates in Florida (through which an IXC must recover, among other things, its intrastate access charge costs) are likewise among the highest in the nation, and are substantially above interstate long distance rates. Local service rates in Florida, however, are the lowest in the Southeast.

While the long distance market is now vigorously competitive, local wireline competition has progressed more slowly, particularly in the residential market. At the same time, wireline companies are facing increased competition from providers using alternative technologies such as wireless, cable, and voice over internet protocol (VoIP). See FPSC Annual Report on Competition (June 30, 2003).

Against this backdrop, the Florida Legislature, during the 2003 Regular Session, enacted the Tele-Competition Innovation and Infrastructure Enhancement Act (2003 Act), which became effective on May 23, 2003. In broad terms, the 2003 Act allows the Commission to consider whether allowing the ILECs to reduce their intrastate access charges to interstate levels, and to make offsetting increases in local service rates, will further the Legislature's goal of increasing competition in the local telephone market. By returning some regulation of intrastate access charges to the Commission, the Legislature has given us the tools to address the question of whether access charges in fact support artificially low local service rates that may be impairing the implementation of competition in the local telephone market.

A key provision in the 2003 Act, Section 364.164, Florida Statutes, provides a process by which ILECs may petition this Commission to reduce their intrastate switched network access rates in a revenue-neutral manner. We are required by law to issue our final order granting or denying any such petition within 90 days of the filing. In reaching our decision, Section 364.164(1), Florida Statutes, sets forth four mandatory criteria we must consider. Those criteria are:

[W]hether granting the petition will:

(a) Remove current support for basic local tele-communications services that prevents the creation of a more attractive competitive local exchange market for the benefit of residential consumers.

(b) Induce enhanced market entry.

(c) Require intrastate switched network access rate reductions to parity over a period of not less than 2 years or more than 4 years.

(d) Be revenue neutral as defined in subsection (7),within the revenue category defined in subsection (2).

In laymen's terms, subsection (1)(d) means that any ILEC that is permitted to reduce its intrastate switched network access rates may offset those reductions through simultaneous increases in the local rates charged to its flat-rate residential and single-line business customers.

In addition, Section 364.163(2), Florida Statutes, provides a mechanism to ensure that any IXC that receives the benefits of access charge rate reductions will flow those benefits through to both residential and business customers in the form of lower intrastate long distance rates:

> Any intrastate interexchange telecommunications company whose intrastate switched access rate is reduced as a result of the rate adjustments made by a local exchange telecommunications company in accordance with s. 364.164 shall decrease its intrastate long distance revenues by the amount necessary to return the benefits of such reduction to both its residential and business customers. The intrastate interexchange telecommunications company may determine the specific intrastate rates to be decreased, provided that residential and business customers benefit from the rate decreases. Any in-state connection fee or similarly named fee shall be eliminated by July 1, 2006, provided that the timetable determined pursuant to s. 364.164(1) reduces intrastate switched network access rates in an amount that results in the elimination of such fee in a revenue-neutral manner. The tariff changes, if any, made by the intrastate interexchange telecommunications company to carry out the requirements of this subsection shall be presumed valid and shall become effective on 1 day's notice.

Section 364.163(3) gives this Commission continuing regulatory oversight regarding the access charge reduction flow-throughs described in subsection (2).

Finally, the 2003 Act amended Section 364.10 to provide increased protection to economically disadvantaged customers. This section requires any ILEC that reduces its access charges (and increases its local rates) pursuant to Section 364.164 to make its Lifeline Assistance Plan available to customers with incomes at or below 125% of the federal poverty level, up from 100% or less under the prior law.

Our jurisdiction in this matter arises from the above statutory provisions.

II. CASE BACKGROUND

On August 27, 2003, Verizon Florida Inc. (Verizon), Sprint-Florida, Incorporated (Sprint), and BellSouth Telecommunications, Inc. (BellSouth), each filed petitions pursuant to Section 364.164, Florida Statutes. Dockets Nos. 030867-TL (Verizon), 030868-TL (Sprint), and 030869-TL (BellSouth) were opened to address these petitions in the time frame provided by Section 364.164, Florida Statutes. On September 4, 2003, the Order Establishing Procedure and Consolidating Dockets for Hearing, Order No. PSC-03-0994-PCO-TL, was issued. At the September 15, 2003, Agenda Conference, the Commission decided to hold public hearings in the above referenced dockets.

On September 3, 2003, the Office of Public Counsel (OPC) filed Motions to Dismiss the Petitions in each of these dockets on the grounds that the Petitions proposed to make rate changes over one year, rather than the two year minimum required by Section 364.164(1)(c). On September 10, 2003, Verizon filed its Response to OPC's Motion to Dismiss. Also on September 10, 2003, Sprint and BellSouth filed their Joint Response to OPC's Motion to Dismiss. At the September 30, 2003, Agenda Conference, we voted to dismiss Verizon, Sprint, and BellSouth's Petitions with leave to amend within 48 hours to address the Commission's determination regarding the application of the two-year time frame in Section 364.164(1)(c), Florida Statutes. On September 30, October 1, and October 2, 2003, respectively, BellSouth, Sprint, and Verizon filed their amended petitions.

By Order No. PSC-03-1240-PCO-TL, we consolidated Docket No. 030961-TI, which was opened to address questions regarding the IXCs' flow-through to customers of any access charge reductions, into this proceeding for hearing. By Order No. PSC-03-1269-PCO-TL, the procedure in these consolidated Dockets was amended to include additional testimony filing dates and issues to reflect the consolidation of Docket No. 030961-TI. A hearing on this matter was held on December 10-12, 2003.

In this matter, we received the testimony of 26 witnesses on behalf of the ILECs, intervenors, the consumer advocates, and our own Commission staff. We also received testimony from customers at 14 customer service hearings conducted throughout the state, as well as written comments from customers submitted to the docket files associated with this case. In addition, we received into evidence 86 exhibits. We have carefully considered the evidence received in its entirety, as well as the arguments of counsel. Based thereon, we hereby render our decision on the issues presented.

III. MOTIONS

Three motions remained outstanding at the start of our hearing in this matter -- two motions for reconsideration of prior orders and one motion for entry of a summary final order. As a preliminary matter, we addressed the motions as follows:

A. Joint Petitioners Motion for Reconsideration of Order No. PSC-03-1269-PCO-TL, issued Nov. 10, 2003 - Second Order Modifying Procedure for Consolidated Dockets to Reflect Additional Docket, Associated Issues, and Filing Dates

This motion asked that the Commission reconsider the inclusion of Issues 6-10 in the Second Order Modifying Procedure. The motion argued that the inclusion of those issues, which relate to the IXCs' flow-through of any access charge reductions they receive, inappropriately imposed additional criteria on the Joint Petitioners' Petitions for switched network access rate reductions that go beyond the four mandatory criteria enumerated in Section 364.164(1). The Office of Public Counsel filed a response to this Motion on behalf of the Citizens. Upon consideration, we granted the Petitioners' request for oral argument on this Motion at the outset of the hearing.

The standard of review for a motion for reconsideration is whether the motion identifies a point of fact or law which was overlooked or which the Commission failed to consider in rendering its Order. See, Stewart Bonded Warehouse, Inc. v. Bevis, 294 So. 2d 315 (Fla. 1974);Diamond Cab Co. v. King, 146 So. 2d 889 (Fla. 1962); and Pingree v. Quaintance, 394 So. 2d 162 (Fla. 1st DCA 1981). In a motion for reconsideration, it is not appropriate to reargue matters that have already been considered. Sherwood v. State, 111 So. 2d 96 (Fla. 3rd DCA 1959); citing State ex.rel. Jaytex Realty Co. v. Green, 105 So. 2d 817 (Fla. 1st DCA 1958). Furthermore, a motion for reconsideration should not be granted "based upon an arbitrary feeling that a mistake may have been made, but should be based upon specific factual matters set forth in the record and susceptible to review." Stewart Bonded Warehouse, Inc. v. Bevis, 294 So. 2d 315, 317 (Fla. 1974). This standard is equally applicable to reconsideration by the Commission of a Prehearing Officer's order. See, Order No. PSC-96-0133-FOF-EI, issued January 29, 1996, in Docket No. 950110-EI.

Throughout this proceeding, one hotly contested issue has been whether, in making its determination to grant or deny the Petitions, the Commission can consider only the four mandatory criteria enumerated in Section 364.164(1) or whether it is also required or permitted to consider the extent to which residential customers whose local rates would be increased if the Petitions are granted are likely to benefit from offsetting long distance rate decreases. This is ultimately an issue of statutory construction which we indicated on several occasions would be considered at the conclusion of the evidentiary hearing.

The thrust of the Petitioners' motion for reconsideration is that the inclusion of Issues 6 through 10 in the Second Order Modifying Procedure improperly introduced consideration of this long distance rate impact into the proceedings on their Petitions. OPC, on the other hand, argues that these Issues were properly included, since the Commission must consider the combined impact on residential customers of any local rate increases and any long distance rate decreases.

Upon consideration, we conclude that the Motion for Reconsideration does not identify a mistake of fact or law made by the Prehearing Officer in rendering his decision. The determination about which the Joint Petitioners express concern is not one made by the Prehearing Officer in his Order. The Prehearing Officer did not impose additional requirements on the ILECs' Petitions to reduce access charges; instead, he included additional issues for consideration in this proceeding based upon our decision to consolidate Docket No. 030961-TI with Dockets Nos. 030867-TL, 030868-TL, and 030869-TL for hearing. His Order clearly set forth that this is the basis upon which he modified the schedule and the issues list for the proceeding. As such, his decision is not only correct, but needs no clarification. The decision to consolidate Docket No. 030961-TI was made by this Commission in Order No. PSC-03-1240-PCO-TP, issued November 4, 2003. Reconsideration of that decision was not requested. The Prehearing Officer's Order merely implements that decision by amending the schedule and including issues to reflect the consolidation. As for the legal issue raised by the Joint Petitioners, that being whether we should consider impacts on the toll market in making our decision on the ILECs' Petitions, that issue was not addressed by the Prehearing Officer and remains for decision by this Commission at the conclusion of the hearing. For these reasons, the Joint Motion For Reconsideration is denied.

B. OPC's Motion for Reconsideration of Order No. PSC-03-1331-FOF-TL (filed Dec. 5, 2003) / AARP's Motion for Reconsideration of Same Order (filed Dec. 8, 2003)(The Attorney General Joined in the Motions on December 9)

These motions asked that we reconsider certain language in our Order denying AARP's Motion to Dismiss these cases for failure to join the IXCs as indispensable parties. OPC and AARP argue that the language contained in the order did not accurately capture the rationale for the Commission's decision as expressed during the Commission's deliberations on that motion. A response in opposition was filed by the Joint Petitioners on December 9, 2003. We received additional argument on this Motion at the outset of the hearing.

While we do not believe that reconsideration is appropriate in this instance, upon consideration of the arguments and review of the Order itself, we do believe that some clarification is in order. It is clear that certain language included in the Order could be misconstrued. Therefore, Order No. PSC-03-1331-FOF-TL, at pages 11 and 12, is amended and clarified as reflected in the following type and strike version:

> In reaching this conclusion, we refer to the language of Section 364.164, Florida Statutes. Contrary to AARP's assertions, none of the four <u>mandatory</u> criteria set forth for our consideration in addressing the petitions <u>mandates</u> ~~necessitates~~ participation by the IXCs. ~~As plainly stated by the Legislature, t~~<u>T</u>he first factor set forth in Section 364.164(1), Florida Statutes, for our consideration does not <u>mandate that</u> ~~direct~~ the Commission ~~to~~ consider how the ILECs'

proposals will affect the ***toll market*** "for the benefit of residential consumers." Instead, the plain language states that consideration should be given to whether granting the petitions will:

> (a) Remove current support for basic local telecommunications services that prevents the creation of **a more attractive local exchange market** for the benefit of residential consumers. [Emphasis added].

~~As such, the relevant market for use in making the final determination on the Petitions is the local exchange market.~~ Thus, we find that, for purposes of Section 364.164, Florida Statutes, consideration of the impact on the toll market (and resulting impact on toll customers) is not *required* for the Commission's ~~full and complete~~ determination of the Petitions.[3] In reaching this conclusion, we do not find that we are precluded from such consideration, rather we conclude only that we are not required to do so.

[3] ~~In reaching this conclusion, we do not find that we are precluded from such consideration, rather we conclude only that we are not required to do so.~~

> ~~The language of Section 364.164, Florida Statutes, appears clear; thus, under principles of statutory interpretation, this Commission need not look further to divine the Legislature's intent. Southeastern Utilities Service Co. v. Redding, 131 So.2d 1 (Fla. 1950).~~ That said, we nevertheless acknowledge AARP's contention that the Legislature considered the impacts on customers' toll bills in passing the new legislation.[4] We emphasize, though, that the Legislature did address the impact on the toll market if the Petitions are granted, but it did so through a separate section of the statutes, Section 364.163, wherein intrastate toll providers are required to pass the benefits of the access charge reductions on to their residential and business customers. This Commission is charged under that section with ensuring that reductions are, in fact, flowed through.

Based on the foregoing, Order No. PSC-03-1331-FOF-TP is clarified as set forth above.

C. Attorney General's Motion for Summary Final Order, filed Nov. 17 (AARP and OPC Joined in the Motion)

The Attorney General moved for a summary final order on the grounds that the record raises no genuine issue of fact regarding whether granting the Petitions will benefit residential consumers. Verizon, AT&T/MCI, BellSouth, and Sprint timely filed responses to the Motion. We received argument on this Motion at the hearing.

As became clear from the oral argument on this motion, the underlying contention by the Attorney General, OPC, and AARP is that Section 364.164 requires the Petitioners to demonstrate that residential consumers will benefit from long distance rate reductions, and that the prefiled testimony and exhibits showed that such benefits are not sufficient to offset the impact of the proposed local rate increases. The opponents of the motion contended that no such showing is required, and that the prefiled testimony establishes that residential customers will benefit from increased competition if the Petitions are granted.

Rule 28-106.204(4), Florida Administrative Code, provides:

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[4]At footnote 1 of the Motion, AARP states that it is in the process of having the relevant industry and legislator comments recorded and transcribed for filing at a later date. This material was officially recognized during the final hearings in these proceedings.

> Any party may move for summary final order whenever there is no genuine issue as to any material fact. The motion may be accompanied by supporting affidavits. All other parties may, within seven days of service, file a response in opposition, with or without supporting affidavits. A party moving for summary final order later than twelve days before the final hearing waives any objection to the continuance of the final hearing.

The standard for granting a summary final order is very high. The purpose of summary judgment, or in this instance summary final order, is to avoid the expense and delay of trial when no dispute exists concerning the material facts. The record is reviewed in the light most favorable to the party against whom the summary judgment is to be entered. When the movant presents a showing that no material fact on any issue is disputed, the burden shifts to his opponent to demonstrate the falsity of the showing. If the opponent does not do so, summary judgment is proper and should be affirmed. The question for determination on a motion for summary judgment is the existence or nonexistence of a material factual issue. There are two requisites for granting summary judgment: first, there must be no genuine issue of material fact, and second, one of the parties must be entitled to judgment as a matter of law on the undisputed facts. See, Trawick's Florida Practice and Procedure, §25-5, Summary Judgment Generally, Henry P. Trawick, Jr. (1999).

In summary, under Florida law, "the party moving for summary judgment is required to conclusively demonstrate the nonexistence of an issue of material fact, and . . . every possible inference must be drawn in favor of the party against whom a summary judgment is sought." Green v. CSX Transportation, Inc., 626 So. 2d 974 (Fla. 1st DCA 1993)(citing Wills v. Sears, Roebuck & Co., 351 So. 2d 29 (Fla. 1977)). Furthermore, "A summary judgment should not be granted unless the facts are so crystallized that nothing remains but questions of law." Moore v. Morris, 475 So. 2d 666 (Fla. 1985); City of Clermont, Florida v. Lake City Utility Services, Inc., 760 So. 1123 (5th DCA 2000).

The parties disagree on the proper interpretation of Section 364.164, Florida Statutes. We find, based on the pleadings, the arguments, and the prefiled testimony, there are genuine issues of material fact in dispute, regardless of whose statutory interpretation is ultimately determined to be correct. Since the motion must be viewed in the light most favorable to the parties against whom the motion is sought, the Motion must be denied in this case. In reaching this conclusion, we make no determination on the legal or factual issues to be addressed through the hearing. Rather, we conclude only that the high standard for granting a summary final order has not been met.

IV. STATUTORY INTERPRETATION

The question of the proper interpretation of Section 364.164 is one that has been raised time and again in this case in various motions, testimony, and in this Commission's own comments. We carefully withheld ruling on the question of whether Section 364.164, Florida Statutes, is ambiguous until after conclusion of the evidentiary hearing and the closing arguments of counsel. It is important to address this question before reaching the other issues in the case, because our decision will determine whether we can consider arguments and evidence presented in the case regarding the Legislative history and intent of the statute.

The law on this aspect of statutory interpretation is clear. When interpreting statutory provisions, one first should look to the provision at issue to determine whether the "language is clear and unambiguous and conveys a clear and definite meaning. . . ." Holly v. Auld, 450 So. 2d 217 (Fla. 1984), citing A.R. Douglass Inc. v. McRainey, 102 Fla. 1141 (1931). If the meaning is clear, there is no need to resort to statutory interpretation. Furthermore, an unambiguous statutory provision cannot be construed to extend, modify, or limit its express terms or its reasonable and obvious implications. Holly, at 219. However, a statute should not be given its literal reading if such reading would lead to an unreasonable conclusion. Id.

Section 364.164 sets forth the criteria we must consider in determining whether to grant the ILECs' petitions. Those criteria are as follows:

> [W]hether granting the petition will:
>
> (a) Remove current support for basic local telecommunications services that prevents the creation of a more attractive competitive local exchange market for the benefit of residential consumers.
>
> (b) Induce enhanced market entry.
>
> (c) Require intrastate switched network access rate reductions to parity over a period of not less than 2 years or more than 4 years.
>
> (d) Be revenue neutral as defined in subsection (7) within the revenue category defined in subsection (2).

The ILECs argue that this language clearly expresses the Legislature's intent and, thus, is not subject to interpretation. The OPC, the Attorney General, and AARP present a vastly differing interpretation of the statute, and have offered into evidence and in their arguments the Legislative history of the bill. Each side offers tenable arguments regarding how the statute could be interpreted. We note that the lack of clarifying language or punctuation in the provisions at issue contributes to the differing interpretations. As such, having considered the arguments and the language of the statute itself, we find that the language of Section 364.164, Florida Statutes, is not clear on its face and, thus, is subject to statutory interpretation. Having reached this conclusion, our decisions as set forth below reflect our interpretation of the Legislature's intent as gleaned from the Legislative history, including consideration of the potential impacts of granting the Petitions on the toll rates paid by residential customers.

V. SUMMARY OF DECISION

As discussed in more detail later in this order, we find and conclude, based on the record, that:

1. Intrastate access rates currently provide support for basic local telecommunications services that would be reduced by bringing such rates to parity with interstate access rates.

2. The existence of such support prevents the creation of a more attractive competitive local exchange market by keeping local rates at artificially low levels, thereby raising an artificial barrier to entry into the market by efficient competitors.

3. The elimination of such support will induce enhanced market entry into the local exchange market.

4. Enhanced market entry will result in the creation of a more competitive local exchange market that will benefit residential consumers through:

   a. increased choice of service providers;
   b. new and innovative service offerings, including bundles of local and long distance service, and bundles that may include cable TV service and high speed internet access service;
   c. technological advances;
   d. increased quality of service; and
   e. over the long run, reductions in prices for local service.

5. The ILECs' proposals will reduce intrastate switched network access rates to parity over a period of not less than two years or more than four years.

6. The ILECs' proposals will be revenue neutral within the meaning of the statute, which permits access charge reductions to be offset, dollar for dollar, by increases in basic local service rates for flat-rate residential and single-line business customers.

7. Because of the mandatory flow-through provisions of Section 364.163, approval of the plans will be financially neutral to the IXCs, who are required to reduce their intrastate toll rates and charges to consumers to offset the benefit of any access charge reductions the IXCs receive.

8. Contrary to the position taken by the Attorney General in these proceedings, the statute does not require that implementation of the proposals be "bill neutral" to any particular customer or class of customers.

9. We are not mandated by Section 364.164 to consider the impact of the proposals on toll rates paid by residential consumers. However, consistent with the legislative history of the 2003 Act, we conclude that we are permitted to do so. In this regard, we find that many residential customers will benefit directly from the elimination of in-state connection fees and reductions in per-minute intrastate toll rates. We also find that residential customers as a whole will enjoy prices for toll services that are closer to economic costs and, therefore, will have less of a repressive effect on long distance usage. We also find that under the long distance rate reduction plans offered by the IXCs, residential customers as a whole will get a proportionate share of any toll rate reductions based on their share of total access minutes of use.

10. Experience from other states that have rebalanced local and toll rates shows that approval of the ILECs' proposals will have little, if any, negative impact on the availability of universal service. While no customer likes to see a rate increase, the record shows that basic local service will continue to remain affordable for the vast majority of residential customers.

11. Although we find that it is not a benefit that we should weigh in the balance in considering whether or not to grant the Petitions, the amended Lifeline provisions in Section 364.10 will help to protect economically disadvantaged consumers from the effect of local rate increases. This protection is enhanced by the ILECs' agreement to further increase the eligibility criteria for Lifeline assistance from 125% to 135% of the federal poverty level, increasing the number of customers eligible for the program by approximately 119,000, and to protect Lifeline recipients against basic local service rate increases for four years. Although we cannot predict the future with certainty, economic theory suggests, and we are encouraged to believe, that the establishment of a more competitive local market will put downward pressure on local exchange prices that will eventually reduce the need for targeted assistance programs such as Lifeline.

The following sections set forth a detailed analysis of our decisions on the points outlined above.

VI. REMOVAL OF CURRENT SUPPORT

In this section, we address whether the ILECs' proposals meet the requirements of Section 364.164(1)(a), Florida Statutes. For clarity of analysis, we have considered these requirements in three parts: (A) what is a reasonable estimate of the level of support for basic service provided by access charges; (B) does that support prevent the creation of a more attractive local exchange market; and (C) would the creation of a more attractive local exchange market benefit residential consumers.

A. REASONABLE ESTIMATE OF SUPPORT

1. Arguments

Verizon contends that its basic local services receive support from its network access charges, and that its plan removes this support by bringing the prices of those services more in line with costs. Verizon asserts that removing support for basic local services will promote local exchange competition for the benefit of residential customers. Verizon contends that it will make residential customers more attractive to competitors and thus induce enhanced market entry, encourage innovation, and promote increased freedom of choice. Verizon asserts that the plan will also reduce intrastate access rates, thereby allowing residential customers to make more long distance calls at lower prices. Verizon, along with BellSouth and Sprint, sponsored the testimony of Dr. Kenneth Gordon addressing this issue. Verizon's witnesses Fulp and Danner also offered testimony in this regard.

Verizon states that for purposes of this proceeding, it seeks to remove $76.2 million of support from basic local telecommunication services. Verizon contends that this amount is necessary to bring its intrastate switched network access rate to parity with its interstate switched network access rate.

Likewise, Sprint argues that the level of support provided for basic local services by intrastate switched network access rates in excess of parity in Sprint's service areas is $142,073,492 per year, based upon current access minutes of use. Sprint offered the testimony of witnesses Dickerson, Felz, and Staihr on this issue.

BellSouth emphasizes that this Commission has already found that BellSouth's residential rates receive support from access charges, which is further buttressed by the detailed testimony of BellSouth's witness Bernard Shell, particularly the information in witness Shell's exhibit WBS-1 (Hearing Exhibit 53). This support from above-parity intrastate access charges ranges from $125.2 million to $136.4 million per year, depending on the method used to perform the calculation. BellSouth maintains that its proposal will remove current support for basic local telecommunications services, and will bring the rates for basic local exchange service to a level that encourages competitive entry in the local exchange market. BellSouth argues that this is evidenced, in part, by the testimony of AT&T and Knology in this proceeding. BellSouth adds that residential customers will benefit from having new choices of providers and services that additional competition will bring and will also benefit from the pass-through of access charge reductions in the form of reduced toll rates. To address this aspect of its petition, BellSouth submitted the testimony of its witnesses Shell and Banerjee.

Knology asserts that granting these petitions will materially diminish the current support for basic local telecommunications services. Knology contends that this support prevents creation of a more competitive market. Knology asserts that diminution of the support will spur additional competition. Knology states that its experience in its existing markets provides examples of how the entry of a facilities-based competitor for telephone service expands the products available to consumers, increases the customer service levels, and promotes product and pricing competition.

AT&T and MCI agree that the ILEC proposals will remove current support for basic local telecommunications services by simultaneously reducing intrastate switched access rates that have been established at economically inefficient levels through the residential rate setting process and adjusting local exchange rates upward on a revenue neutral basis. They assert that through the process of residual ratemaking, intrastate switched access charges have been historically elevated well above their relevant economic cost and the surplus has served as residual support for basic local telecommunications services. Dr. John Mayo testified on AT&T and MCI's behalf on this point.

OPC asserts that residential basic local telephone service is not subsidized by access service or any other service. OPC contends that the ILECs' petitions, therefore, do not remove current support, because there is none. OPC further asserts that Basic Local Telecommunication Services (BLTS) are not supported by the rates for intrastate access, because the existing BLTS rates exceed their incremental costs. AARP, Common Cause, and Sugarmill Woods agree to a large extent, although they further argue that there is no support, because the loop itself is a common cost that should be fully allocated among all services that use the loop. Dr. David Gabel provided testimony on behalf of OPC addressing this issue, while Dr. Mark Cooper testified on behalf of AARP.

2. Findings and Decision

We find that the ILECs' access charge rates provide support to local exchange service. In making this determination, we accept the economic testimony of the ILECs' and IXCs' witnesses, which treat the cost of the local loop as a cost of basic local service. In particular, the testimony shows there is no economic principle requiring that the cost of that loop be allocated across other ancillary services that are provided over the loop.

We are not persuaded by the testimony of AARP and OPC's witnesses that all or some of the cost of the local loop should be shared, such that any costs shared by more than one service would be excluded from the ILECs' Total Service Long Run Incremental Cost (TSLRIC) calculations. This would be inconsistent with our past decisions, perhaps most notably in our 1998 Report on Fair and Reasonable Rates to the Legislature, that the costs associated with the local loop should not be allocated. The arguments raised by OPC and AARP have been considered and rejected in the past, and we find no new persuasive basis upon which to deviate from our consistent policy on this issue.

We note that the record raises some concern about the cost information provided in the proceeding by the ILECs. For instance, BellSouth's use of model inputs is inconsistent with past Commission decisions in the Docket No. 990649-TP, in which we established rates for unbundled network elements (UNEs). Also, we find that Verizon's use of interstate minutes to calculate switching and transport costs is problematic, and that Sprint and BellSouth's use of retail costs appears to be excessive, particularly since they do not differentiate between costs that apply to basic local service and costs that apply to all other services. Nevertheless, after weighing all the evidence, we find that the correction of these deficiencies would not alter our conclusion that local exchange rates are supported by intrastate access charge rates; that the ILECs have, in fact, provided a reasonable estimate of the level of support for basic local telecommunications service; and that their proposals appropriately remove that support as required by the statute. In reaching this decision, we do not in any way indicate agreement with the ILECs' costs, inputs, or methodologies considered herein for any purpose beyond this proceeding.

In addition, we note that AT&T/MCI witness Mayo emphasized that the statute does not require removal of a pure economic subsidy, but rather "support" for basic local service. Thus, he disputes witnesses Gabel and Cooper's arguments that there is no subsidy to be removed. We also find this argument persuasive in view of the plain language of the statute.

B. SUPPORT PREVENTS THE CREATION OF A MORE ATTRACTIVE COMPETITIVE LOCAL EXCHANGE MARKET

1. Arguments

Verizon contends that its current residential basic monthly rates are well below incremental cost, and therefore impair competition for residential customers. Verizon asserts that the availability of local service at supported prices limits the prices that competitive local providers can charge. Verizon contends that to the extent that competitive providers' costs are similar to Verizon's, the existing supported prices make it economically infeasible for those providers to compete. Dr. Gordon spoke to this issue on behalf of the three ILECs. In addition, Verizon offered the testimony of witness Danner in this regard.

Sprint contends that the presence of heavily supported residential basic local service acts as an obstacle to the creation of widespread residential local competition. The removal of this obstacle, according to Sprint, is the goal of the 2003 Act. Sprint's witness Staihr spoke to this issue.

BellSouth again contends that we have already determined that its residential rates are supported. BellSouth emphasizes that the testimony of its witness Shell lends further support to the argument that removal of the support for basic local service will bring rates to a level that encourages competition, leading to new choices for consumers, as well as reduced toll rates. BellSouth's witnesses Ruscilli and Banerjee offered additional testimony on this point.

Knology maintains that granting these petitions will materially diminish the current support for basic local telecommunications services. Knology asserts that this support prevents creation of a more competitive market and that diminution of the support will spur additional competition.

AT&T and MCI assert that the currently excessive intrastate switched access charge rate levels make it difficult for a telecommunications company to enter the local exchange market and compete against incumbent providers whose local rates are supported by access charges; the support allows incumbent providers to subject their competitors to an anticompetitive price squeeze. AT&T and MCI contend that excessive access charges further depress competition by limiting competitors' ability to compete across the full range of service categories. Dr. Mayo addressed this aspect of the ILEC Petitions on behalf of AT&T and MCI.

Although their analysis differs somewhat, OPC, AARP, Common Cause Florida, and Sugarmill Woods each contend there is no support for basic local service; therefore, raising current prices will not create a more attractive competitive local exchange market for the benefit of residential consumers. They contend that the existing levels of basic local telecommunications service rates have minimal, if any, impact on making the local exchange market more attractive to competitors. Drs. Gabel and Cooper also provided testimony in this regard on behalf of OPC and AARP, respectively.

The Commission staff offered the testimony of witness Ollila for purposes of providing additional perspective on this issue by way of the Commission's 2002 Report on Competition in Telecommunications Markets in Florida. In addition, the 2003 Report was received into the record as a stipulated exhibit.

2. Findings and Decision

Upon consideration, we agree with witness Gordon that the current level of support has allowed residential rates to remain lower than they would be in an undistorted competitive market, and that they are, in fact, lower than in other states in our region. We can find no basis in economics for the underpricing of basic service which is demand-inelastic relative to usage. Except for a limited range of residential customers, it is not economically feasible for a CLEC to price complementary products and packages in a manner that would allow it to make up for lack of profitability in the provision of basic service. As a result, there is little opportunity or ability to bundle products and services for consumers, and a very limited range of customers can truly be served on a profitable basis.

As recognized by both witness Mayo and witness Gordon, the state law, as well as the federal Telecommunications Act of 1996, shifts the utility commission's role away from historically protecting monopolists from competitors' entry and protecting consumers from the monopolist, to a role of encouraging competition. Under the old regime, utility commissions set rates for non-basic services, such as long distance, carrier switched access, and vertical features, above cost in order to hold down the price for basic local exchange service. This was in furtherance of universal service.

As witness Mayo emphasized, even as we moved toward price cap regulation, the pricing structure did not really change; thus, the prices for non-basic services continued to support basic service. Specifically, access charges were created after divestiture of AT&T to provide a source of revenue that would enable the local exchange companies to continue to keep prices low. Witness Mayo added that at the federal level, access charges have been reduced dramatically over the past 19 years, and this process has taken place for intrastate access charges in other states as well. Nevertheless, the witness emphasized that intrastate access rate levels in Florida are still in excess of their incremental cost, serving as continued support for low local service rates. As such, according to witnesses Mayo and Gordon, approving the ILECs' petitions to reduce intrastate access charges in a revenue neutral manner will, in fact, remove some of the support for local service, which will in turn make local service market entry more attractive for prospective entrants. This testimony was very compelling.

Witness Gordon further testified that the effect of having rates that are below cost is to discourage entry, as well as investment, by both new entrants and incumbents. Thus, not only is there less likelihood of competition, but of innovation as well. He emphasized that there is empirical evidence on this point, as referenced in the Ros-McDermott study he mentions in his pre-filed testimony. He also testified that in states that have implemented rebalancing, namely California, Illinois, Ohio, Massachusetts, and Maine, there was little noticeable impact on subscribership levels in spite of residential local service rate increases comparable to the increases proposed in the ILECs' petitions. In addition, he noted that, in the states that have implemented rebalancing, toll rates were lowered.

Our 2003 Competition Report shows that CLEC residential market share is only 9% in Florida, while CLEC's serve 29% of the business market. Similarly, Verizon's competition study for its territory shows that there is a 100 to 1 ratio of business versus residential customers being served by facilities-based CLECs. This drops to 10 to 1 if UNE-P and resale are taken into account. Together, these studies persuade us that competition for residential customers is currently suffering as a result of barriers to entry.

In addition, Knology's witness Boccucci specifically stated that, ". . .under current rates for local services in Florida, Knology has not been able to generate rates of return sufficient to attract the capital necessary to expand in adjacent areas to Panama City or elsewhere in Florida. If rate rebalancing is implemented, Knology has every intention to expand and compete further in Florida." He emphasized that because of Florida's low local rates, that ". . . from our investors' perspective, in the competition for the valuable CAPX or the capital expenditures, it was tough to make a business case to expand into the panhandle when we could expand into Georgia, Tennessee, Alabama and North Carolina [where local rates are higher] and be more assured that we could meet the returns that our investors expected in the marketplace."

Based on the foregoing, we find that current support provided by access charges does, in fact, impede competition in the residential local exchange markets.

C. BENEFIT TO RESIDENTIAL CONSUMERS AS CONTEMPLATED BY SECTION 364.164, FLORIDA STATUTES

1. Arguments

Verizon asserts that by moving basic local residential rates toward cost, its rate rebalancing plan will promote competition for the benefit of residential customers, which is the benefit contemplated by Section 364.164, Florida Statutes. Verizon contends that implementation of its rebalancing proposal will make these residential customers more attractive to competitors and thus induce enhanced market entry, encourage innovation, and promote increased freedom of choice. Verizon asserts that, in addition, its rebalancing plan will lower intrastate access rates and, ultimately, allow residential customers to make more long distance calls at lower prices. Again, Dr. Gordon provided testimonial support for the three ILECs on this point. In addition, Verizon's witnesses Danner and Fulp addressed this issue.

Similarly, Sprint contends that the creation of a more attractive competitive local exchange market will benefit residential consumers by giving them choices in providers, services, technologies, and pricing options. Sprint maintains that this is what consumers are demanding, and that this range of choice will only be made available through a competitive market. Sprint offered the testimonies of witnesses Staihr and Felz on this point.

BellSouth again argues that its residential rates are supported. BellSouth emphasizes that the testimony of its witness Shell lends further support to the argument that removal of the support for basic local service will bring rates to a level that encourages competition, leading to new choices for consumers, which is the benefit contemplated by the 2003 Act, as well as reduced toll rates. BellSouth's witnesses Banerjee and Ruscilli provided testimony on this issue.

Knology states that its experience in its existing markets provides examples of how the entry of a facilities-based competitor for telephone service expands the products available to consumers, increases the customer service levels, and promotes product and pricing competition. Knology's witness Boccucci emphasizes that telecommunications services are converging, such that a wireless consumer does not really think of his or her service in terms of local versus long distance service. He envisions that with increased competition in the wireline market, the same will hold true for wireline customers. Likewise, he argues that the value for consumers in a competitive market is a converged bill with multiple telecommunications services, upgraded service quality, as well as price competition. He also added that a higher local rate will enable Knology to provide bundled packages at prices economical to seniors on fixed incomes, so that they can receive more economic and better quality service than they do today.

AT&T and MCI agree that the ILECs' proposals will benefit residential consumers as contemplated by Section 364.164, Florida Statutes. They contend that the ILECs' proposals will reduce current deterrents to local market entry and create a more level playing field, which will ultimately induce increased market entry. The result will be to provide consumers, residential and business alike, with a wider choice of providers' offerings and prices. They contend that residential consumers will further benefit from toll rate reductions and the elimination of any in-state connection fee. Dr. Mayo provided testimony addressing this point on behalf of AT&T and MCI, while witness Fonteix provided additional information on behalf of AT&T.

OPC, AARP, Common Cause Florida, and Sugarmill Woods contend that the ILECs' rebalancing petitions will not benefit residential consumers as contemplated by Section 364.164, Florida Statutes. They assert that the ILECs have not made a showing that the proposed rebalancing of basic local telecommunications service rates would create a more attractive competitive local exchange market for the benefit of residential customers, nor that market entry will be enhanced, because the ILECs' analyses are based on a model that no entrant would ever use. They argue that, moreover, any claims of benefits to consumers based on the removal or reduction of support for residential basic local telecommunications service are moot, since no such support exists. Again, Drs. Gabel and Cooper provided testimony on this point for OPC and AARP, respectively.

Commission staff's witness Shafer testified that the ILECs' proposals will likely result in benefits for residential customers, such as increased value and choice in products.

2. Findings and Decision

Upon consideration of the evidence presented, as well as the Legislature's clear policy to enhance competition in Florida's telecommunications market, we find that the ILECs' proposals will ultimately benefit residential consumers as contemplated by Section 364.164, Florida Statutes. As evidenced by the results in other states that have engaged in rate rebalancing, the ILECs' proposals will make the residential market more economically attractive for CLECs, which should lead to an increase in choice of providers. This will be accomplished by increasing in the short term the rate at which residential service can be offered by competitors, leading to increased profit margins for CLECs serving residential customers. Witness Fonteix specifically stated that AT&T's decision to enter BellSouth's territory was ". . . predicated upon an assumption after the passage of the Act that it would be implemented." Furthermore, the witness testified that in AT&T's experience in Michigan and Georgia, where rates have already been rebalanced, although basic local service rates initially went up, in the long run, competition drove the price back down.

Companies providing bundled offerings that include both local and long distance service will benefit not only from the increased rate at which residential service can be offered on a competitive basis, but also from the decreased terminating access rate. These changes will make providing bundled packages to residential customers more economically attractive, because companies will increase their profit margin.

Again, as argued by AT&T's witness Fonteix, because the Bell incumbents are now able to enter the long distance market, it is better to proceed with access charge reform, which has been underway at the federal level for some time now. The witness emphasized that waiting will only further harm the long distance market. This testimony was consistent with that of witness Gordon, who maintained that long distance service is overpriced, because of the support provided by access charges to local service. He asserted that as prices come down for long distance service, people will respond by making more long distance calls, which he contends is a benefit to society. He concluded that:

> If the toll prices are overpriced, then there will be less calling and that constitutes a loss to society. And there's no reason to have it. It's a very expensive way to achieve the goal in Crandall's and Waverman's point. If you really want to have

> universal service and you think it's a problem, you know, a policy problem that should be addressed, better that the payments should be made directly in some fashion than by distorting the entire price structure, which is the mechanism we've used to date.

While it is uncontested that some customers will not receive a direct benefit as a result of the implementation of the ILECs' proposals, we find that Florida consumers as a whole will reap the benefits of increased competition and, ultimately, competition will serve to regulate the level of prices consumers will pay. Increased competition will lead not only to a wider choice of providers, but also to technological innovation, new service offerings, and increased quality of service to the customer. The evidence in this case shows that Knology will continue its plans to enter Florida markets if the Petitions are granted, and will consider broadening the number of Florida markets it enters, as demonstrated through the testimony of witness Boccucci. AT&T witness Fonteix has also indicated that AT&T's entry into BellSouth's territory has been largely influenced by the 2003 Legislation and the hope that with the granting of these Petitions, the raising of local rates will make Florida markets more profitable for competitors. Furthermore, witness Gordon explained that less regulation in the wireless market has not only produced lower prices, but also a beneficial impact on consumer welfare, because the use of the technology has become so prevalent.

While Section 364.164 does not mandate that we consider the degree of benefit to residential customers from long distance rate reductions, our review of the legislative history convinces us that it is within our discretion to do so. Thus, we have considered witness Ostrander's argument that the Petitioners have been unable to quantify the impact of competition, and therefore have been unable to show the benefit to customers. We reject that argument, and find that the preponderance of the evidence in the proceeding shows that the benefits to residential customers as a whole generated by the resulting decreases in long distance rates and elimination of the in-state connection fee will outweigh the increases in local rates. This benefit should be a continuing one, since the IXCs have indicated that they will flow through the reductions on a pro-rata basis according to minutes of access, and the record indicates that market forces should exert enough pressure to ensure that rates are kept low. Furthermore, as in the wireless industry, whose ability to offer bundled packages has been facilitated by the fact that they do not pay the high level of access fees that the wireline carriers do, we anticipate that the reduction in access fees will result in an increase in bundled offerings by wireline carriers and a decrease in the distinction between wireline local and long distance service.

We acknowledge, as OPC, the Attorney General and AARP have argued, that not every residential customer will get a long distance rate reduction, and those who do receive reductions will not necessarily receive reductions that totally offset the increase in their rate for local service. Such "bill neutrality" is not required by the statute and, in fact, would be inconsistent with its plain language. First, there could never be "bill neutrality" unless every residential customer made exactly the same number of long distance calls and could therefore share per capita in any long distance rate decreases. Second, Section 364.164 achieves revenue neutrality to the ILEC by permitting it to increase rates for flat-rate residential and single-line business service. Section 364.163, Florida Statutes, in contrast, gives the IXCs discretion in where to flow through their long distance rate decreases so long as some portion of the benefit goes to residential and business customers. As discussed in Section X(D), we find that the IXCs' proposals to flow through these reductions between business and residential customers in proportion to their access minutes of use complies with both the language and spirit of the statute.

Also on this issue, we acknowledge that the testimony from the public hearings was mixed. Many customers did not believe that the ILEC proposals would benefit them, but others were hopeful that they would see competition in their area. Generally, the written comments we received tended to be unfavorable. However, when considered with the economic testimony received through our technical hearing, we find that customers as a whole will benefit as contemplated by the statute. As noted by witness Boccucci, customers will get better quality service for the products they choose, as well as a wider variety of products and providers. The evidence also shows that even those customers that use calling cards or dial-around service will receive benefits from increased competition, as will older citizens that use 1+ calling.

We also acknowledge the customer testimony critical of extended calling service (ECS) rates. In recognition of the concerns raised, we direct our staff to organize a Commission workshop to discuss the history of ECS, the current state of the law on ECS, and what role, if any, ECS has in today's market. The Petitioners have all agreed to participate fully in this workshop. In addition, it is notable that Sprint's petition includes a five-free-call allowance for ECS.

Although we find that it is not a benefit that we should weigh in the balance in considering whether or not to grant the Petitions, we observe that the amended Lifeline provisions in Section 364.10 will help to protect economically disadvantaged consumers from the effect of local rate increases. The use of targeted assistance, rather than implicit rate subsidies, to address this social issue will result in more efficient pricing, which will benefit the competitive market, spur innovations and new product offerings. This is the benefit contemplated by the Legislature when it enacted this legislation and is further supported by the testimony of AT&T/MCI's witness Mayo. As noted by the witness, the ability to target assistance is far more effective at promoting universal service objectives. The witness also testified that targeted assistance is more economically efficient than continuation of implicit support from access charge prices. We agree, and expect that, over time, competition should take care of those protected by Lifeline, in spite of the current limited duration that these customers are protected from the local increases at issue here. The evidence shows that even with the proposed local rate increases, there will not be a significant number of customers that drop off the network. While the need for continued targeted assistance for some customers may foster its own social welfare concerns, those concerns must be balanced with the Legislature's clear intent to move Florida's telecommunications markets towards increased competition.

Furthermore, Dr. Cooper acknowledged that Exhibit 85 indicates that many seniors on fixed incomes take a number of additional services, such as cellular service, cable service, and Internet service. This indicates not only a likelihood that the increases proposed are within the zone of affordability for this segment of consumers, but also, as indicated by witness Boccucci, demonstrates that this segment in particular may see increased benefits as a result of bundled competitive offerings. Similarly, the evidence shows that 53% to 72% of Lifeline customers served by the Petitioners purchase one or more ancillary services.

As argued by witness Mayo, in approaching this task we must balance "hard-headed" economic principles with "soft-hearted" social welfare goals. It is the application of sound economic principles that will bring efficiencies, and as a result, competition to the telecommunications market, while the statute itself provides for targeted assistance that will assist those unable to afford the proposed increases.[5] At the end of the day, capitalism and the free market will maximize benefits to consumers in a way that regulation cannot. That is not, however, to say that the companies should not be encouraged to consider their social welfare obligations in targeting assistance to customers and coming up with new ideas to address the needs of the economically disadvantaged.

In the end, we find that the ILECs' proposals meet the statutory requirement set forth in Section 364.164(1)(a), Florida Statutes, providing required benefit of a more attractive
competitive telecommunications market for Florida consumers.

VII. INDUCE ENHANCED MARKET ENTRY

In this section, we address whether the ILECs' proposals will induce enhanced market entry as required by Section 364.164(1)(b), Florida Statutes.

A. Arguments

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5 It is noteworthy that the ILECs have also agreed to the increase the number of customers to whom Lifeline is available to those whose income is 135% or less of the federal poverty level. This increases the pool of Lifeline eligible customers by approximately 119,000 when compared to the 125% standard required by Section 364.10.

BellSouth states that by removing implicit support from basic local exchange rates, competitors will have increased business opportunities to attract new customers and offer new products, services, and bundles. BellSouth contends that competitors base their entry decisions on whether or not they can at least match the rates charged by ILECs. BellSouth argues that if these rates are lowered artificially by subsidies, but the incremental costs do not change, then competitors are likely to be deterred from entering the market. BellSouth concludes that this situation limits competition. BellSouth witness Banerjee offered testimony in this regard.

BellSouth further explains that there will never be competitive alternatives for customers who are receiving service at a price below the relevant cost of providing that service. As the price of service is raised to, and above, its relevant costs, such customers become more attractive to competitors, according to BellSouth witness Ruscilli.

Witness Gordon contends that when the price of services increases, a cash flow analysis would show that the investment project becomes more profitable (or less of a loss) and, thus, more attractive for new market entrants. Dr. Gordon adds that technology is changing so rapidly that competitive markets will do a much better job than a monopoly would of discovering which technologies can or cannot succeed in the long run. Dr. Gordon further opines that in order for the lowest cost mix of technologies to remain in the market, price and the signals it sends must not be distorted and must reflect the underlying cost of providing service.

BellSouth emphasizes that lowering intrastate access rates to parity with interstate rates eliminates an artificial discrepancy between two nearly identical services. Lower intrastate access rates make long distance calling more attractive for customers and competitors who wish to bundle long distance service with local service. BellSouth witness Banerjee testifies that the unevenness of the business market versus the residential market entry is attributable in large part to the relationship between end-user rates for basic local telephone service and UNE/UNE-P rates. Dr. Banerjee explains that generally the margins are far more substantial for business service. Unconstrained by public policy or regulation, the CLECs have gravitated naturally to business markets. As indicated by Dr. Gordon, the problem of an unattractive residential market may be worse in Florida than in other states because these other states have higher residential rates, indicating a greater need to rebalance the rates in Florida.

Verizon states that its rate rebalancing plan will bring the prices of its basic local services more in line with costs. Verizon asserts that prices that more closely reflect underlying costs, such as those proposed in its rate rebalancing plan, will increase the likelihood that competitive providers can offer services at a price equal to or lower than that offered by Verizon, and still remain profitable. Verizon contends that as a result, the reformed prices proposed in Verizon's rate rebalancing plan will make the local exchange market more attractive to competitors and induce enhanced market entry.

Verizon further contends that by removing implicit support from basic local exchange rates, competitors will be enticed into the market. Verizon contends that Knology's testimony that it decided to enter the Florida market following the passage of the access reduction legislation demonstrates that Verizon's rebalancing proposal will encourage competitive entry. Also, Verizon cites to Dr. Gordon's testimony, which includes statistical studies demonstrating that rebalancing will have a positive effect on competitive entry.

Sprint concurs with BellSouth and Verizon, stating that CLECs will benefit from the higher residential basic prices, without being required to reduce their own intrastate access prices. Sprint contends that rebalancing reduces risk for CLECs, improving the cash flow equation for serving residential customers. Sprint witness Staihr testifies that rebalancing rates for basic local service will create a situation where competitors will find that, on average, a larger percentage of the residential market will be financially attractive to serve. Witness Staihr states further that the current artificially low prices are unsustainable in the face of competition, and they come at a cost: (1) fewer options among services; (2) less innovation; and (3) in large portions of Sprint's territory, no competitive choices. Sprint concludes that rebalancing will induce enhanced market entry, thereby providing customers with the benefits of more choices, enhanced service offerings and greater innovation.

Knology states that the ILEC petitions should be granted because that decision will help to implement the policy underlying Section 364.164, Florida Statutes, and it will enhance the competitive choice available to Florida citizens. Knology identifies itself as a prime example of how granting the ILECs' Petitions will induce enhanced competition. As stated previously, Knology is a facilities-based intermodal competitor offering voice, video and data services over hybrid fiber coax (HFC) and fiber to the curb (FTTC) network in Panama City, with plans to expand in Pinellas County, Florida. Knology has been providing telecommunications services in Florida since 1997 and is currently providing its services to over 275,000 residential and business customers in Florida. Knology's witness Boccucci testified, however, that Knology's decisions on whether to further expand service in other Florida markets will be greatly influenced by whether or not the ILECs' Petitions are granted.

Knology witness Boccucci testified that the 2003 Act creates the regulatory environment necessary to attract capital investment to expand telephone competition in Florida. Knology contends that granting the ILEC petitions will allow it to attract and deploy new capital investment in Florida, thereby offering consumers a choice in facilities-based providers for new and advanced high-tech services. Knology asserts, however, that if the petitions are not granted, it will be forced to deploy capital in states with more favorable market conditions as it has done in the past.

AT&T and MCI state that economic theory demonstrates that a decrease in overpriced access charges together with an increase in the retail price of residential service will encourage market entry. AT&T and MCI contend that prices are a key signal to prospective entrants regarding the desirability of a particular market. Higher prices relative to cost provide greater inducements for entry. AT&T and MCI contend further that bundled offerings are undermined by excessive access charges, because the lower bound to which competitors can drive prices is defined by the artificially high level of access charges. The presence of excessive access charges will limit the ability of competitors to enter the market. AT&T/MCI witness Mayo offered testimony in this regard. Dr. Mayo opines that the reduction of existing access support will also make the market more attractive for traditional long distance companies to enter the telecommunications market.

Witnesses Mayo and Fonteix testified that the reduction and eventual elimination of the access support is critical to sustainable competition as it will allow CLECs to compete on a more equal footing. Witness Mayo explains that the anemic CLEC market share for residential customers provides prima facie evidence that low residential prices are inhibiting competitive entry.

AT&T states further that reducing intrastate access charges to parity will significantly reduce the ILECs' advantage of receiving large access charge subsidies, thereby moving ILECs and competitors closer to an equal footing and enhancing competition.

OPC responds that competition will not be enhanced to the residential consumer's benefit, although the ILECs' revenue from inelastic basic local service will be enhanced and the respective ILEC's market share will increase using revenues as a basis of measurement, according to OPC witness Ostrander. Witness Ostrander further contends that there will be no new or unique service introductions and no uniquely associated benefits of capital investment. OPC witness Gabel states that entry decisions are made on the basis of the expected total revenues and costs of all services an entrant can offer, not just one service. If total revenues cover total costs, it is completely irrelevant to a firm's decision to enter a market if one of the components of the offering (e.g. basic local service) may produce a loss according to some measure. Therefore, OPC surmises that a rise in total revenue from current levels may not be sufficient to allow entrants to overcome existing competitive barriers.

AARP concurs with OPC in its basic position that granting the ILECs' petitions will not induce enhanced market entry or increase competition. AARP witness Cooper argues that the Legislature intended that the ILECs be required to demonstrate that competition would, in fact, occur, as opposed to simply being more likely to occur, if the Petitions are approved. Witness Cooper further argues that none of the companies have provided such proof for any of their geographic areas. AARP contends that competition for bundled service is where the focus is in telecommunications. Therefore, AARP concludes that the shifting of costs from intraLATA long distance to basic service will have little, if any, impact on this competition since both are in the bundle.

However, Commission Staff witness Shafer testified that the likelihood of increased market entry is improved by granting the rebalancing petitions, particularly in those markets where profitability is marginal. Witness Shafer states that there appears to be a relationship between the subsidy and market entry, indicating that the removal of the subsidy will also increase market entry. Witness Shafer concludes that one can reasonably expect the ILECs' petitions will create additional market entry, particularly in markets that, to date, have been only marginally profitable or slightly unprofitable.

B. Findings and Decision

Upon consideration, we are persuaded that granting the ILEC petitions will induce enhanced market entry.

There are two types of evidence that the parties have presented in this case: empirical, which is based on real-life scenarios, and economic theory. We believe that the ILECs have offered strong theoretical and empirical evidence that the proposed changes to intrastate access charges and basic local service rates will improve the level of competition in many markets. The ILECs' witness Gordon testified that when the price of services increases, a cash flow analysis would show that investment in the market becomes more profitable and, thus, more attractive for market entry. BellSouth explains that if these rates are lowered artificially by subsidies but the incremental costs do not change, then competitors ineligible to receive the subsidy are likely to be deterred from entering the market. In addition, AT&T and MCI indicate that the reduction and eventual elimination of the access support is critical to sustainable competition as it will allow CLECs to compete on equal footing with the ILECs. We find that these arguments compelling. We conclude from the evidence presented that entry into the local telephone market is deterred if the ILECs' local service prices are below cost and that rate rebalancing is critical to actually promoting competition.

While OPC and AARP have expressed doubt about the effect that a reduction in access charges will have on competition, they have failed to convince us that these rate reductions will not induce enhanced market entry. To the contrary, Knology presents a model case on the impact that these reductions have had and will have on market entry by CLECs. Witness Boccucci testified that the granting of the ILEC petitions will allow Knology to attract and deploy new capital in Florida, thereby offering consumers a choice in facilities-based providers for new and advanced high-tech services. In addition, AT&T indicated that it has entered the BellSouth territory as a result of the 2003 Act.

We are persuaded that companies like Knology and AT&T provide the empirical evidence of how the ILECs' proposals will increase competition. We note that poor profitability, or limited profitability, is the main deterrent to market entry. We conclude that the evidence presented by the ILECs demonstrates that granting the petitions will induce enhanced market entry, thereby promoting competition, as required by Section 364.164(1)(b), Florida Statutes.

For almost 20 years, the telecommunications industry has been in transition from a monopolistic regime to a competitive one. While changes to Florida law and enactment of the Telecommunications Act of 1996 have made great strides in promoting competition, there is still a lack of widespread competition in the residential local exchange market. Implementation of the access reductions and offsetting rate increases permitted by the 2003 Act should serve to enhance competition in this important market.

Based on the foregoing, we find that the existing rate structure impairs competition for residential customers. Granting the ILECs' petitions will result in more attractive pricing for basic local telephone service, providing market entry opportunities for competitors that have been constrained by inefficient pricing in the past. Thus, we find that the petitions filed by BellSouth, Verizon and Sprint to reduce intrastate switched network access charges will induce enhanced market entry.

VIII. PARITY

In this section, we address the requirement of Section 364.164(1)(c) that any plan provide for intrastate access rates to be reduced to parity with interstate rates over a period of not less than two years or more than four years.

A. Arguments

Verizon contends that its proposal will reduce intrastate switched network access rates to interstate parity over a period of not less than two years or more than four years. Specifically, Verizon proposes to reduce its composite intrastate access total average revenue per minute (ARPM) from \$.0485441 to \$.0117043 in three increments over two years. The total Verizon reduction would be \$76.2 million.

There was conflicting testimony in the record regarding whether Verizon's inclusion of its non-traffic sensitive interstate presubscribed interexchange carrier charge (PICC) in the calculation of its switched access charge reduction was appropriate. Verizon's witness Fulp testified that the PICC was included because its interstate access rates include both traffic sensitive and non-traffic sensitive charges. Witness Fulp asserts that the 2003 Act permits the inclusion of the PICC, since the 2003 Act defines the term "intrastate switched access rate" to include the carrier common line charge and the PICC is a federal common line charge. He asserts that because the Act includes common line charges in Verizon's intrastate access rates, the analogous PICC federal common line charge must be included in Verizon's calculation of the interstate ARPM for a consistent comparison.

Verizon's witness Fulp asserts that if the PICC is excluded from its calculation, Verizon would have to reduce its composite intrastate access rate by a greater amount than originally proposed. As such, to preserve revenue neutrality, Verizon's basic local rates would have to increase more than its original proposal. Specifically, the witness explained that if Verizon were to exclude the PICC from the parity calculation, Verizon would have to reduce its access revenues by \$12,679,052 more than originally proposed, and, consequently, Verizon would have to increase its basic local revenues by a corresponding amount. The result would be an increase to Verizon's basic local rates of \$0.86 more than Verizon originally proposed.

AT&T and MCI assert that Verizon's proposal does not correctly reduce its intrastate switched access rates to interstate parity. AT&T witness Fonteix contends that Verizon's inclusion of the PICC is inappropriate for two reasons. He contends that the PICC is not part of the intrastate rate elements. Witness Fonteix asserts that even if the PICC was appropriate for inclusion in the calculation, Verizon should have used the interstate minutes of use in calculating the ARPM rather than the intrastate minutes of use. Finally, Witness Fonteix argues that the PICC should have been excluded because the PICC charge applies to multiline business customers and the access charge reductions allow Verizon to collect business line revenue from all Florida residents.

AARP, Common Cause Florida, and Sugarmill Woods also contend that Verizon's inclusion of the interstate PICC end-user charge in its calculation of intrastate access charges for the purpose of rebalancing means that Verizon has failed to comply with the provisions of the Act requiring parity and revenue neutrality. They assert that Verizon's petition should be denied on these grounds.

Sprint asserts that its proposal will reduce intrastate switched network access rates to interstate parity over a period of not less than two years or more than four. Sprint contends that its petition, testimony, and exhibits demonstrate that rebalancing prices over a two-year period (three annual increments) will provide the marketplace with the appropriate competitive signals and will not result in consumer rate shock. Sprint's initial proposal was to reduce its access rate by $62,319,890 the first year, $56,211,862 the second year, and $23,541,711 the third year. Sprint's total proposed reduction is $125.2 million. However, during closing arguments Sprint agreed to spread its reduction and corresponding increase in four steps over a period of three years, consistent with the position advocated by Commission staff witness Shafer. Under Sprint's revised proposal, the basic local telecommunications services increases will be $2.25 the first year, $2.25 the second year, $1.50 the third year, and $0.86 the fourth year.

BellSouth contends that its proposal will reduce intrastate switched network access rates to interstate parity over a period of not less than two years or more than four. BellSouth asserts that its proposed increases will occur over three installments, 1st quarter 2004, 1st quarter 2005, and 1st quarter 2006. BellSouth presents two alternative methodologies by which parity can be achieved: "mirroring" and the "typical network." Witness Ruscilli testified that BellSouth's proposed reductions under either methodology will be 40% in the 1st quarter of 2004, 35% in the 1st quarter of 2005, and 25% in the 1st quarter of 2006. Witness Ruscilli further testified that BellSouth's proposal reaches parity in 24 months, consistent with the requirement in Section 364.164(1)(c), Florida Statutes, that parity be reached in not less than 2 years and not more than 4 years.

AT&T and MCI assert that BellSouth's "mirroring" proposal appears to correctly reduce its switched access rates to interstate parity, but they contend that BellSouth's "typical network" proposal does not. Witness Fonteix explains that BellSouth's "mirroring" methodology appropriately quantifies the revenue impact of the intrastate rate reductions necessary to achieve parity by multiplying the demand times the difference between its intrastate and interstate tariffed rates. However, witness Fonteix asserts that BellSouth's "typical network" methodology is inappropriate because it targets only a select set of rate elements to equal interstate rate levels, and thus fails to address all of the rate elements in the statutory definition of intrastate switched network access rate.

Witness Shafer contends that Sprint should extend its implementation of access reductions and increases to basic local service rates by 12 months in order to mitigate rate shock to consumers. Witness Shafer testified that while the statute did not directly address or define rate shock, the statute does provide for a transition period for the access charge and basic local service rate adjustments of not less than 2 years and not more than 4 years. He asserts that due to this range it is reasonable to infer that the Legislature recognized the concept of rate shock or rate reasonableness. Witness Shafer asserts that it would be appropriate for Sprint to implement an additional incremental rate adjustment 36 months after the initial adjustment in order to complete its transition to parity. He argues that this would put Sprint's residential customers more on par with those of BellSouth and Verizon in terms of the amount of the increase they receive at any one time.

B. Findings and Decision

Section 364.164(1)(c), Florida Statutes, requires that we consider whether the Petitions will require intrastate switched network access rate reductions to parity over a period of not less than 2 years or more than 4 years. We find that each of the three amended Petitions meets the requirement of 364.164(1)(c), Florida Statutes.

As noted above, there was testimony regarding whether it was appropriate for Verizon to include the PICC in its access charge reduction calculation. Section 364.164(6), Florida Statutes, defines the term "intrastate switched network access rate" as:

> . . . the composite of the originating and terminating network access rate for carrier common line, local channel/entrance facility, switched common transport, access tandem switching, interconnection charge, signaling, information surcharge, and local switching.
> (Emphasis added.)

Based on the definition in the statute, as well as the testimony of witness Fulp, we are persuaded that the PICC can be included in the calculation of the interstate rate target, since it was developed to recover nontraffic sensitive charges that were originally in the traffic sensitive carrier common line charge. In construing the statute in this manner, we are mindful that the interpretation advocated by other parties would result in a higher overall charge to the consumer. Thus, we conclude that Verizon's explanation for inclusion of the PICC is not inconsistent with the statute and find that Verizon's methodology for calculating its switched access charge reduction complies with Section 364.164(1)(c), Florida Statutes.

We note that witness Shafer testified that it would be appropriate for Sprint to implement an additional incremental rate adjustment 36 months after the initial adjustment in order to complete its transition to parity. However, we find that Sprint's original proposal met the criteria set forth in Section 364.164(1)(c), Florida Statutes. We also note that Sprint subsequently agreed to spread its reduction and corresponding increase over a period of three years and that this revised proposal also meets the statutory criteria.

Finally, we address which of BellSouth's methodologies, "mirroring" or "typical network," is the appropriate method to be applied in the next section. However, we find that either method meets the "parity" criteria set forth in Section 364.164(1)(c), Florida Statutes.

IX. REVENUE NEUTRALITY

In this section, we address whether the ILECs' proposals will achieve revenue neutrality as required by Section 364.164(1)(d), Florida Statutes.

A. Arguments

Verizon contends that its rate rebalancing plan is revenue neutral, as defined in the statute. Verizon asserts the plan will reduce Verizon's intrastate switched network access rates by $76.2 million and offset that reduction with a corresponding increase in basic local rates. Verizon proposes incremental residential local service rate increases of $1.58 in its first increment, $1.58 in its second increment, and $1.57 in its third increment.[6] Verizon asserts that single-line business recurring rates will be raised to $32.00 per month. Verizon proposes to raise its network establishment charge and central office connection charges by $5.00 over three increments. Verizon proposes to raise its non-recurring single line business network establishment charges by $0.10.

Sprint asserts that, as demonstrated by the testimony and exhibits it filed, rebalancing will be accomplished in a revenue neutral manner. Sprint testified that it will be reducing its switched network access charges by a total of $142.1 million. Sprint initially proposed basic residential rate increases of $2.95 for increment one, $2.75 for increment two, and $1.16 for increment three for a total of $6.86. However, as noted previously, Sprint agreed in its closing argument to four incremental increases of $2.25 in 2004, $2.25 in 2005, $1.36 in 2006, and $1.00 in 2007. Sprint also proposes to increase its single-line business rates by $2.70 in the first increment, $2.40 in the second increment, and $0.90 in the third increment.

BellSouth argues that its proposal, using either methodology, reflects a reduction in intrastate access that will be rebalanced through increases in basic local exchange rates. Witness Hendrix explains that the "mirroring" methodology actually mirrors the recurring rate elements listed in Section 364.164(6), namely the carrier common line, local channel/entrance facility, switched common transport, access tandem switching, interconnection charge, signaling, information surcharge, and local switching. He testified that the revenue impact of reducing these elements to interstate parity is $136.4 million. Under the "mirroring" methodology, BellSouth would raise residential recurring rates a $1.39 in the first increase, $1.38 in the second increase, and $1.09 in the

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[6] We note that Verizon in its closing argument agreed to increase the amount it recoups through non-recurring revenues from $1.2 million to $2.4 million, so that basic local rates will be raised by $1.2 million less than originally requested.

third increase, for a total of $3.86 per month. BellSouth proposes to raise single line business to $25 (rate groups 1-3), $28 (rate groups 4-6), and $30.20 (rate groups 7-11, X2, X4) in two equal installments. BellSouth also proposes to raise its non-recurring charges in three installments.

Witness Hendrix also explained that BellSouth's "typical network" methodology achieves parity by comparison of the "typical network" composite rate for interstate switched access with the composite rate for intrastate switched network access utilizing the rate elements in BellSouth's annual filing with this Commission, the Florida Access and Toll Report, Tables 1 and 2. He further testified that the revenue reduction resulting from the achievement of parity using the "typical network" methodology is $125.2 million. Under the "typical network" methodology, BellSouth would raise residential recurring rates a total of $3.50; $1.25 for the first increase, $1.25 for the second increase; and $1.00 for the third increase.[7] BellSouth's proposal to raise single line business rates remains the same as set forth under the "mirroring" methodology, as does its proposed increase in non-recurring charges.

Witness Hendrix asserts that the difference in the revenue impact between these two methodologies stems from the number of rate elements utilized in each methodology. He contends that both methodologies use the most recent 12-months' demand to determine the intrastate switched network access revenue reduction. He asserts that the "mirroring" methodology uses all of the recurring switched network access rate elements, whereas the "typical network" methodology uses the limited, specific rate elements that are considered to be representative of averages for BellSouth's network. Witness Hendrix testified that use of composites from a typical network is consistent with the Commission's past practice for determination of switched access revenue reductions.

AT&T and MCI contend that the ILECs' rebalancing proposals appear to be revenue neutral notwithstanding any failures to correctly reach interstate parity. Under the parity section, AT&T and MCI argued that BellSouth's "mirroring" methodology, but not the "typical network" methodology, meets the criteria for parity. As noted previously, witness Fonteix claims that BellSouth's "typical network" methodology targets only a select set of rate elements to equal interstate rate levels, and thus fails to address all of the rate elements in the statutory definition of intrastate switched network access rate.

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[7] BellSouth agreed to increase its non-recurring charge so that the single line residential rates would be lowered by approximately $0.36.

AARP, Common Cause Florida, and Sugarmill Woods assert that the ILECs have not substantiated that their respective intrastate long distance rate reductions for residential customers will equal their corresponding basic long distance telecommunications service increases. They further assert that Verizon's inclusion of the interstate PICC end-user charge in its calculation of intrastate access charges for the purpose of rebalancing results in Verizon's failure to comply with the provisions of the Act requiring both parity and revenue neutrality. They conclude that Verizon's petition should be denied on these grounds.

The Attorney General argues that the ILECs have not substantiated that their respective intrastate long distance rate reductions for residential customers will equal their corresponding basic local telecommunications services increase. He argues that the ILECs have failed to demonstrate that the increase is revenue neutral.

B. Findings and Decision

AARP, Common Cause Florida, and Sugarmill Woods, articulate their specific position that because the PICC should not have been included in Verizon's switched network access charge reduction, Verizon's petition is not revenue neutral. For the reasons noted in the previous section, we find that it is appropriate for Verizon to include the PICC in its switched network access charge reduction calculation. Given that the PICC is appropriately included, we find that Verizon's proposed revenue reduction and basic rate increases are revenue neutral. Thus, we find that Verizon's proposal meets the criteria set forth in Section 364.164(1)(d), Florida Statutes. We also find that Sprint's proposed revenue reduction and basic rate increases are revenue neutral.

BellSouth has proposed two methodologies, "mirroring" and "typical network," which could be used to achieve revenue neutrality. We find that both the "mirroring" and "typical network" methodologies meet the statutory requirements for revenue neutrality. We note that the "typical network" methodology provides for less of an increase in basic local residential rates. Thus, we find it appropriate to approve the "typical network" methodology as the methodology which has a lesser impact on the local rates. In addition, we find that BellSouth's proposal meets the criteria set forth in Section 364.164 (1)(d), Florida Statutes.

Section 364.164(1)(d), Florida Statutes, requires that we consider whether approving the ILECs' proposals will be revenue neutral as defined in subsection (7) within the revenue category defined in subsection (2). Subsection (7) states that "revenue neutrality" means that the total revenue within the revenue category established by the statute remains the same before and after the local exchange telecommunications company implements any rate adjustments under this section. Subsection (2) states that once the ILEC petitions are granted, the local exchange telecommunications company is authorized to immediately implement a revenue category mechanism consisting of basic local telecommunications service revenues and intrastate switched network access revenues to achieve revenue neutrality. We find that each of the three amended Petitions meet the revenue neutrality requirement of 364.164(1)(d), Florida Statutes.

Furthermore, contrary to the position taken by the Attorney General in these proceedings as further elucidated in Section VI(C) of this Order, we find the statute does not require that implementation of the proposals be "bill neutral" to any particular customer or class of customers.

X. FLOW-THROUGH CONSIDERATIONS

In this section, we consider the proper application of Section 364.163, Florida Statutes. We note that for each of the flow-through issues, Common Cause Florida and Sugarmill Woods adopted the position of AARP.

A. Applicability and Content of Flow-Through Tariffs.

This section addresses which IXCs should be required to file flow-through tariffs and what information should accompany those filings.

1. Argument

AT&T and MCI argue that all IXCs should be required to flow through the switched access reductions they receive in order to keep long distance carriers on a level playing field. For competitive neutrality, any flow-through conditions imposed must be applied to all IXCs. However, AT&T and MCI would not be opposed to a de minimus threshold established by this Commission for those IXCs for which the flow-through would have no meaningful impact. Such threshold, however, should be set sufficiently low to allow only those IXCs with very low volume of access use to qualify.

BellSouth Long Distance notes that Section 364.163, Florida Statutes, requires that all IXCs who benefit from the access reductions must flow through the benefits. Also, a company's tariff filings should specify the rates to be reduced and contain a statement of the particular company's corresponding anticipated revenue reduction.

Sprint Communications Company's conditional position is that any IXC paying more than $1 million in access charges should be required to demonstrate that the required flow-through has occurred. It is not clear that the demonstration of flow-through should occur in the tariff filings. The demonstration of compliance with the statutory requirements should be up to each company and should insure that confidentiality is maintained where needed. Tariffs should reflect rates and charges that flow through benefits of reduced access charge prices.

Verizon Long Distance argues that any IXC that receives the benefit of intrastate switched access rate reductions must file intrastate tariffs (if tariff filings are required) flowing through such reductions. An IXC reseller should not be required to reduce prices to its customers unless it receives a reduction in the prices it is charged by its facilities-based supplier. IXCs should have the discretion to determine how to flow through the access charge reductions by lowering the in-state per minute rates, or monthly recurring plan charges, or both. If this Commission should decide to deregulate long distance services and eliminate long distance tariffing obligations, Verizon contends the reductions should be passed through to end users under end user service agreements.

OPC and AARP urge that all IXCs in Florida should be required to file tariffs and flow through the impacts of access rate reductions, except for those IXCs whose intrastate access expense reduction is $100 or less, per month. Those IXCs which are not required to flow through the reductions should attest to such, via a letter filed with this Commission. These flow-through reductions should be directed to residential customers in the same proportion as the basic local telephone service revenue increases proposed by the ILECs. Included in these tariff filings should be the information delineated in the testimony of witness Ostrander.

The Attorney General argues that all IXCs in Florida should be required to file tariffs and flow through the impacts of access rate reductions, except for those IXCs whose intrastate access expense reduction is $100 or less, per month. Those IXCs which are not required to flow through the reductions should attest to such, via a letter filed with this Commission.

2. Findings and Decision

There appears to be little disagreement among the parties as to the fact that the savings must be flowed through. There is disagreement, however, as to the type of documentation that should be required to demonstrate that this requirement has been met.

Upon consideration, all IXCs that paid $1 million or more in intrastate switched access charges within the most recent 12 month period shall include in their tariff filings: (1) a calculation of the dollar benefit associated with the LEC's intrastate access rate reductions; (2) separate demonstrations that residential and business long distance rates have been reduced and the estimated annualized revenue effect, residential and business, including how those estimates were made; and (3) a demonstration that all rate reductions have been flowed through.

Further, IXCs that paid less than $1 million in intrastate switched access charges within the most recent 12-month period shall include in their tariff filings a letter certifying that they paid less than $1 million in intrastate switched access charges within the most recent 12 month period, and that they have complied with each of the flow-through requirements as specified in Section 364.163(2), Florida Statutes. Any IXC whose intrastate switched access expense reduction is $100 or less per month shall not be obligated to flow through its reduction, but must attest to such through a letter filed with this Commission.

Finally, we direct our staff to work with the parties on an appropriate reporting format with consideration given to the formats used to demonstrate the 1998 access charge reduction flow throughs. In addition, our staff shall be diligent in assuring compliance with the requirements of this Order.

A. Timing

This section of our Order addresses the appropriate timing for filing of the IXC flow-through tariffs required by this Order.

1. Argument

AT&T and MCI state that it is unnecessary to set the exact same filing dates for both the ILECs and IXCs. They maintain the statute clearly requires the IXC's revenues to be reduced by the amount of access reductions it receives, but does not specify a time frame for making the reduction. They believe IXCs need a sufficient amount of time to both calculate the savings they will receive and to prepare tariffs for filing. As such, they argue that IXCs should be allowed 60 days from the date the ILEC files its access tariff revisions to file any IXC tariff revisions for flow-through. If this Commission chooses to mandate the ILEC and IXC tariffs be effective simultaneously, the ILEC access tariff revisions should be filed 60 days in advance of the effective date so that IXCs have the time necessary to conduct their analysis and file their tariffs, according to AT&T and MCI.

BellSouth Long Distance notes that affected IXCs should file their tariffs to flow through the access reductions within 15 days of the effective date of the last of the three LECs' filings. This would allow the carriers to avoid unnecessary multiple filings.

Sprint Communications Company's position is that IXCs should be allowed to have up to 60 days from the time that ILECs access reductions are effective in order to implement the tariff, billing and other administrative changes necessary to flow through the price adjustments.

Verizon Long Distance argues that facilities-based IXCs that benefit from reductions in the price of access should be required to pass through rate reductions via their intrastate tariffs (if tariffs are required), as soon as possible after the approved ILEC access rate reductions. Non-facilities-based IXCs should be required to flow through access charge reductions when they are received from the underlying facilities-based carrier. Since the flow-through of the access charges will require facilities-based carriers as well as IXC resellers, to make modifications to, for example, billing systems, rate tables, marketing and fulfillment materials, carriers should by given a reasonable amount of time to implement necessary plan and system changes before they are required to pass through access rate reductions.

On cross-examination, most of the IXC witnesses conceded that tariffs could be filed within 44 days after an ILEC's access charge tariff filing.

OPC, AARP and the AG all simply state that IXCs should be required to flow through the benefits of any rate reductions, via the tariffs, simultaneously with the approved ILEC access rate reductions.

2. Findings and Decision

Based on past experience with the 1998 access charge reduction flow-through, IXCs have not had difficulty complying with filing requirements as short as 21 and 30 days. We have heard no compelling testimony as to why, for the present dockets, 44 days from the filing of the LEC tariffs is not a reasonable time frame for filing of the IXC tariffs. The ILECs are required by Section 364.164(2), Florida Statutes, to give 45 days notice before tariffs go into effect, but IXCs need give only one day's notice. The goal of this requirement would be to have the ILEC and IXC tariffs become effective simultaneously. Accordingly, the IXC tariffs shall be required within 44 days after the filing of the ILECs tariffs, and the ILEC and IXC tariffs shall become effective simultaneously.

B. Duration of Revenue Reductions

Here, we address the appropriate duration of the IXC revenue reductions necessary to fully flow through the benefits of the access charge reductions to customers.

1. Argument

AT&T and MCI state that the highly competitive long distance market should and will decide this issue. They urge that specific restrictions have been unnecessary in the past, and could have negative consequences. In a highly competitive market, imposing any restrictions on the length of time a revenue reduction is in place could place the IXCs at a disadvantage in that it could prevent an IXC from implementing a pricing strategy that maximizes its competitive position. AT&T and MCI state that, should this Commission mandate the time period over which the reductions should be maintained, it would be the first time such a mandate has been imposed. In the earlier flow-throughs identified in these proceedings, this Commission did not impose a period of time that the rate reductions must be in place.

BellSouth Long Distance argues that, given the completely and irrevocably competitive nature of the intrastate interexchange long distance market in Florida, market forces will ensure that any long distance revenue reductions resulting from the flow-through of access charges will remain in place. There is significant and considerable competition among traditional long distance carriers as well as competition from other providers, such as voice over internet protocol providers and wireless carriers. According to BellSouth Long Distance, this competition will cause carriers to move their prices toward cost and prevent them from raising rates. Intrastate interexchange carriers should have the flexibility to change rates to meet market conditions, as long as they reduce their revenues in an amount equal to their access charge reductions.

Sprint Communications Company's conditional position is that market forces will insure that the revenue benefits of access reductions will be effective in maintaining the revenue benefits of the access reductions. Nevertheless, each provider required to make a flow-through filing should reduce average prices by an amount at least equivalent to the access reduction on a per minute basis and should maintain those average price reductions for all three years of the access reductions plus at least one additional year.

Verizon Long Distance urges that the long distance market is highly competitive in that the traditional wireline long distance carriers compete against each other as well as with wireless carriers, cable companies and IP telephony providers. Competition will ensure that IXCs flow through access reductions without any need for Commission intervention. Nevertheless, to remove any doubt about whether customers will actually receive the benefit of the access reductions, Verizon Long Distance (and its affiliates) agree to flow through the reductions for three years. After that time, Verizon Long Distance argue IXCs should be free to change their long distance rates in accordance with the demands of the marketplace.

OPC, AARP and the AG argue that the IXCs should be required to cap and maintain their long distance rate reductions for a period of three years after parity is achieved, as required by Section 364.163, Florida Statutes, and as further described by witness Ostrander.

2. Findings and Decision

We find that, in order to implement the intent of the statutory requirements, there needs be a period of rate certainty after parity is achieved. We are not, however, persuaded by the arguments that we should mandate that the reductions remain in effect for a period of three years after parity is achieved. This is contrary to the fact that the long distance market is highly competitive, and as noted by witness Kapka, market forces will likely prove effective in keeping long distance rates low over the long term. Accordingly, we find that rate reductions shall remain in effect for no less than one year subsequent to parity being accomplished.

C. Allocation of the Flow-Through Benefits between Residential and Business Customers.

Here, we address the proper method for allocating the flow-through benefits between residential and business customers.

1. Argument

AT&T and MCI argue that the 2003 Act simply requires the IXCs to return the benefits of access reductions to both residential and business customers. However, it does not micro-manage the IXC market by mandating a methodology or specific allocation between the customer classes. In doing so, the Act recognizes the competitive market will determine the specifics of the access flow-through. They argue the 2003 Act specifically has given IXCs the maximum flexibility to determine how best to make reductions that meet the needs of the market place. As long as both residential and business customers benefit, each IXC should be left to accomplish its flow-through consistent with its market needs, according to the companies. In addition, each IXC must eliminate any in-state connection fee by July 1, 2006.

BellSouth Long Distance urges that both residential and business customers must receive benefits from the reduction in access charges, but emphasizes that Section 364.163, Florida Statutes, does not require any specific allocation. Nonetheless, under current market conditions, and so long as the other carriers agree to do so, BellSouth Long Distance will allocate the revenue reductions in an approximately pro rata manner between residential and business customers based upon access minutes of use.

Sprint Communications Company states that the methodology contained in witness Kapka's direct testimony should be a guide for flow-through. In his testimony, witness Kapka explained his methodology as follows:

> For services which are substantially used by residential subscribed customers, Sprint would determine the average revenue per minute for these services in the aggregate.

> With each reduction in access charges, Sprint would adjust the average revenue per minute for this base of customers such that the average revenue per minute would be reduced by an amount at least equal to the reduction in access charges per minute.... This general approach will ensure that the residential subscriber base will experience a reduction in long distance prices at a level at least as much as the reduction in access costs associated with long distance minutes that customer segment consumes.

Verizon Long Distance (and the Verizon affiliates) plan to flow through the benefits realized from access reductions to both residential and business customers based on the relative proportion of access minutes associated with those classes of customers. The amount of intrastate switched access that Verizon Select Services uses is significantly less than the amount that Verizon Long Distance uses.

The position of OPC, AARP and the AG is that the IXCs should allocate rate reductions between residential and business customers in the same proportion as the respective percent revenue increases for those two classes of customers that have been proposed by the ILECs.

2. Findings and Decision

Each of the IXCs has agreed that the allocation of rate reductions between the residential and business customer classes should be in proportion to the respective access minutes of use. While we have considered the argument that the reductions should be allocated in accordance with the increases on the local exchange side, we are not persuaded that this is feasible, economically appropriate, or even contemplated by the statute. Accordingly, we acknowledge the reasonableness of the IXC proposals that the allocation of the rate reductions being flowed through to residential and business customers on a pro-rata basis according to access minutes of use is reasonable.

XI. CONCLUSION

Based on the foregoing, we hereby grant the Petitions of Verizon, Sprint, and BellSouth as filed in Dockets Nos. 030867-TL, 030868-TL, and 030869-TL, as amended by commitments made on the record at the final hearing. In doing so, we find that these Petitions meet the statutory criteria set forth in Section 364.164, Florida Statutes, and that granting the Petitions furthers the Legislature's stated policy of furthering competition in the local exchange market and promoting new offerings and innovations in the telecommunications market for Florida consumers.

We hereby accept and approve the additional proposals offered by the companies as listed below:

BELLSOUTH	SPRINT	VERIZON

BELLSOUTH	SPRINT	VERIZON
Increase non-recurring charges so that the single line residential rates would be lowered by approximately 36 cents.	Increases to basic residential recurring and non-recurring rates would be in four steps spread over three years.	Increase non-recurring revenues from $1.2 million to $2.4 million so that basic local rates can be raised by $1.2 million less than requested.
Increase Lifeline eligibility to 135% of the federal poverty level.	Increase Lifeline eligibility to 135% of the federal poverty level.	Increase Lifeline eligibility to 135% of the federal poverty level.
	Lifeline rates would not be increased for four years.	Lifeline rates would not be increased for four years.
Will work with PSC to review ECS in a Commission workshop.	Will work with PSC to review ECS in a Commission workshop.	Will work with PSC to review ECS in a Commission workshop.

The tariffs reflecting the ILECs' agreement to increase Lifeline eligibility to 135% of the federal poverty level shall be effective concurrently with the ILECs' 45-day tariff filings.

In addition, the IXCs shall flow through the benefits resulting from the granting of the ILECs' Petitions in accordance with the specific requirements set forth in Section X of this Order.

Finally, Commission staff is hereby authorized to administratively review and approve the tariff filings received implementing these proposals.

It is therefore

ORDERED by the Florida Public Service Commission that the Petitions filed by Verizon Florida, Inc., Sprint-Florida, Incorporated, and BellSouth Telecommunications, Inc., in respective Dockets Nos. 030867-TL, 030868-TL, and 030869-TL are hereby approved as set forth in the body of this Order. It is further

ORDERED that the modifications proposed by these companies are also accepted and approved as set forth herein. It is further

ORDERED that the tariffs implementing the increased Lifeline eligibility criteria shall be effective concurrently with the Petitioners' 45-day tariff filings. It is further

ORDERED that the flow through of the access charge reductions by the interexchange carriers shall proceed in accordance with the provisions set forth herein and within the timeframes specified. It is further

ORDERED that a Commission workshop shall be conducted to investigate Extended Calling Service, as prescribed herein. It is further

ORDERED that Commission staff is hereby authorized to administratively review and approve the tariffs implementing these decisions. It is further

ORDERED that these Dockets shall be closed after the time for filing an appeal has run.

By ORDER of the Florida Public Service Commission this 24th day of December, 2003.

/s/ Blanca S. Bayó

BLANCA S. BAYÓ, Director
Division of the Commission Clerk
and Administrative Services

This is a facsimile copy. Go to the Commission's Web site, http://www.floridapsc.com or fax a request to 1-850-413-7118, for a copy of the order with signature.

(S E A L)

RDM/BK/FRB/PAC/CLF

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Any party adversely affected by the Commission's final action in this matter may request: 1) reconsideration of the decision by filing a motion for reconsideration with the Director, Division of the Commission Clerk and Administrative Services, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, within fifteen (15) days of the issuance of this order in the form prescribed by Rule 25-22.060, Florida Administrative Code; or 2) judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Director, Division of the Commission Clerk and Administrative Services and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days after the issuance of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.