AT&T is the market leader in a rapidly-growing industry. It continues to grow, even though its market share has declined. One can confidently predict that AT&T will need to expand its capital base in order to meet future demand. Under these circumstances, the economic value of AT&T's capital is replacement cost. with downward adjustments to reflect:

- The shorter remaining life of embedded plant, relative to newly purchased plant; and
- The higher maintenance cost (if any) associated with embedded plant.[7]

LECs use plant that is similar to AT&T's — in some cases identical. LEC plant is subject to the same forces that drive down economic values; *viz.*, obsolescence and declining equipment prices. In addition, some LEC plant is stranded or is likely to become stranded in the near future. AT&T faces this risk to a much lesser extent. Stranded plant naturally has lower economic value than plant that is not stranded.

*For these reasons, economic depreciation of LEC plant is likely to be at least as rapid as for comparable AT&T plant — regardless of how competitive conditions differ between the long-distance and LEC industries.*[8]

## III. Kravtin-Selwyn Study

The Kravtin-Selwyn (KS) study includes a statement of the authors' views on capital recovery. It also includes a study of LEC investment. The latter study consists of three parts: a

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[7] In fundamental terms, economic value is the discounted present value of capital services that embedded plant can be expected to provide. This present value must be compared to the next best alternative if one did not own the embedded plant. In a growing industry, the next best alternative is usually to buy new plant. Thus, replacement cost, with appropriate adjustments as described above, is the proper standard for determining economic value.

[8] Lee argues that appropriate depreciation rates may differ between interexchange carriers and LECs. However, he adduces no evidence that the economic value of any specific IXC plant declines more rapidly than corresponding LEC plant.

vintage study, a composition study, and a utilization study. Below, we comment on KS's general views and the three parts of their study of LEC investment.

## A. General Views

### 1. Principles of Public-Utility Regulation

It is widely-recognized that public-utility regulation should work as follows:

> Regulators allow the firm to set prices so that *on a forward-looking basis*, the firm has the opportunity to earn a fair return on capital. Prices may be set according to rate-of-return regulation or as part of a price-cap plan. In either case, it may turn out that the firm actually earns more or less than its cost of capital. Regulators periodically readjust rates.[9] When they do so, they again set rates so that *on a forward-looking basis*, the firm has the opportunity to earn a fair return on capital.

The FCC and most state commissions have chosen to implement the above principles as follows:

1) The capital base, on which fair return is calculated, is original cost less allowed depreciation and amortization to date; *i.e.*, the net book value of embedded plant.

2) Fair return is calculated with reference to rates of return actually realized in financial markets.

Under this scheme, regulators should set prices so that *on a forward-looking basis* the firm's revenues can be expected to cover depreciation expense (as well as other expenses), in addition to the fair return.

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[9] We have argued elsewhere that price-cap plans should not be adjusted too frequently, or else efficiency incentives will be diluted. *See* Jeffrey H. Rohlfs, John Haring and Harry M. Shooshan III, *Regulatory Reform for the Information Age: Providing the Vision.*, January 11, 1994. However, the issue of price-cap review goes beyond the scope of the instant filing.

The above view of public-utility regulation is fundamental and, we would have thought, incontrovertible. It is accepted implicitly by standard textbooks in public-utility economics.[10]

Nevertheless, KS (and incredibly, now AT&T) have a different view. They recommend that the FCC look back and determine retrospectively that LECs earned "excessive returns." They further recommend that the FCC treat part of those returns as recovery of capital. Presumably, LECs would not thereafter be allowed to earn a return on the hypothetically-recovered capital; nor would they be entitled to recover that capital through depreciation charges. This policy is tantamount to confiscation.

An analogy will help clarify the issues involved:

- Suppose that a developing country offers favorable conditions to investors in the hope of attracting foreign capital. Suppose that a foreign investor is, indeed, attracted by the prospect of favorable returns and actually earns such returns for five years. Suppose that the government then follows KS's general approach; *i.e.*, it looks back and determines that profits have been excessive. Suppose it then takes the view that the foreign investor's capital has already been recovered and confiscates the remaining investment. Politicians could use AT&T's language to characterize this confiscation as a "dividend" to the citizens of the country.[11]

Whatever the moral and legal ramifications of this policy, one thing is clear: Investors will think long and hard before they ever invest another dollar in that country.

The problem in the example — and with the KS approach in general — is that the returns were earned under rules that were established by the government. It is a blatant breach of faith for the government to change the rules to be less favorable for investors, *after* the profits have been

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[10] For example, *see* C. F. Phillips, Jr., *The Regulation of Public Utilities, Theory and Practice* (Arlington, Virginia: Public Utilities Reports, Inc., 1993), pp. 171 ff.

[11] The eminent economist P.T. Bauer coined the term "kleptocrat" to describe Third-World politicians who take actions such as declaring this type of "dividend."

earned. In telecommunications, in particular, government cannot expect to attract capital for information-age infrastructure if investors do not trust the government to keep its promises.

KS and AT&T also recommend that LEC profits from unregulated activities be considered in determining whether LECs have the opportunity to earn a fair return. That approach would have the effect of subjecting *all* LEC activities to regulation. Under that approach, any efficiency gains in (so-called) unregulated activities could be expropriated *via* ordered reductions in regulated prices. Conversely, lowering prices and profits of (so-called) unregulated activities could help justify increases in regulated rates.

This approach runs counter to one of the most successful Commission policies in recent times; *viz.*, the separation (structural or accounting) of regulated and unregulated activities. The Commission's policy has yielded great public benefits in a wide range of telecommunications markets. Backsliding and broadening the scope of regulation to include all LEC activities would be utter folly.

It is ironical that such backsliding is advocated by AT&T. In the past, AT&T has been one of the strongest advocates and the probably the largest beneficiary of the separation of regulated and unregulated activities.[12]

### 2. Nature of Price-Cap Regulation

KS explicitly state their view of price-cap regulation. They claim that it:

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[12] Again, a Third-World analogy is useful. Suppose that investments within a particular developing country have not been especially profitable. However, a kleptocrat in that country observes that the investor has been successful in other countries. The kleptocrat might then adopt the general approach recommended by KS/AT&T and confiscate that investor's assets. He/she could reason that even after confiscation, the investor earned excessive returns — considering all countries together. As before, investors will think long and hard before they ever invest another dollar in a country that pursues such policies.

> . . . was expressly intended to sever the link between prices and costs and to place the ILECs 'at risk' with respect to capital investments made from that point forward. ILECs are not entitled to special revenue recovery of net book investment associated with plant placed after the onset of price caps and that was motivated by the sale of competitive offerings (e.g., additional lines, custom calling and other vertical services) and that utilize spare plant supposedly contributing to a 'stranded investment' problem.

This analysis misses the point that price-cap regulation constrains LEC prices, the same as rate-of-return regulation. Furthermore, LECs still retain obligations to provide service subject to service standards set by regulators. They cannot turn away customers who are unprofitable to serve. LECs cannot decline to make investments necessary to accomodate growth in demand — even if they believe that the resulting revenues do not cover economic costs, including economic depreciation.

If regulators constrain prices (through any means) and establish service requirements, they must accept certain obligations in return. In particular, they must afford the regulated firm the opportunity to cover expenses (including depreciation) and to earn a fair return. Under price-cap regulation, this principle should be applied *on a forward-looking basis* each time that a new plan is initiated.[13]

In our previous filing, we urged the Commission to address the capital-recovery problem. Indeed, regulatory book values must move closer to economic values if regulators are to meet their explicit and implicit commitments to investors in the future. Addressing the problem may or may not involve "special revenue recovery," as envisioned by KS. In any event, the issue is certainly not whether LECs are *entitled* to special revenue recovery. The problem for regulators is how to

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[13] These regulatory obligations automatically terminate when a market is deregulated or detariffed. For example, prices for terminal equipment, enhanced services, and interLATA services are no longer reviewed by the Commission. Hence, there is no issue whether the rates allowed by the Commission afford suppliers of those products and services the opportunity to earn a fair return.

maximize economic efficiency and achieve other regulatory goals, while honoring explicit and implicit commitments to investors.

### B. Vintage Study

KS do an elaborate study of the vintages of LEC investment. They find that the majority of LEC net investment (*i.e.*, gross plant less accumulated depreciation) is newer than 1989. It is worth noting what this finding does and does not show:

- It does *not* show that the majority of LEC (gross) plant is newer than 1989. The KS analysis, itself, clearly demonstrates the opposite.
- It *does* demonstrate that even if depreciation is too slow, old plant eventually becomes largely depreciated.

KS conclude on the basis of this analysis that the majority of LEC plant is not obsolete. That conclusion is incorrect with respect to copper cable. If LEC networks were to be rebuilt today, much of copper cable investment would be replaced by fiber-optic cable and loop carrier systems. For that reason, the economic value of copper cable is substantially less than regulatory book value. The finding that much copper cable is obsolete is clearly confirmed by the Hatfield Model (HM), which is espoused by AT&T.

Furthermore, much as a new car incurs its biggest decline in value when it is driven off the dealer's lot, the disparity between economic value and regulatory book value is often greatest in the early years of the plant's life. In particular, economic depreciation is often nonlinear, with the greatest declines in the early years. Such nonlinear depreciation is especially likely if declines in economic value are driven primarily by falling prices of new equipment.

In summary,

*KS use their vintage analysis to minimize the LEC's capital-recovery problem. In reality, the vintage analysis provides little, if any, support for that position.*

## C. Composition Study

KS analyze the composition of LEC investment and conclude that cable and wire accounts for most of the net value of plant installed prior to 1989. They then observe that copper cable costs more to install now than it did originally.

It may be true that copper cable costs more to install now than it did in the past. However, this observation misses the point. Much copper cable, if replaced today, would be replaced by fiber-optics and loop-carrier systems. The cost of such modern systems is often substantially lower than the original cost of the copper cable. Indeed, the low TELRIC estimates for loops in the HM (espoused by AT&T) reflect *precisely* this effect. That is, the HM chooses (in the optimization step) the widespread use of fiber-optic cable and loop carrier systems instead of copper cable.

In general, economic value of plant reflects the costs of the most cost-effective technology. Where fiber optics and loop-carrier systems are cost-effective, the economic value of copper cable should reflect their (lower) costs. In particular, embedded copper cable, at its depreciated value, should be no less cost-effective than new fiber-optics and new loop-carrier systems.

In summary,

*KS use their composition analysis to minimize the LEC's capital-recovery problem. In reality, the composition analysis provides little, if any, support for that position.*

## D. Utilization Study

The KS utilization study concludes that LEC switching and loop plant has been largely overbuilt.[14] AT&T relies largely on that conclusion in its filing. KS devote numerous pages elaborating this result and discussing its implications.

Unfortunately, the filing gives little detail on the methods that KS used to estimate the amount of overbuilt capacity. Key assumptions are not disclosed — let alone justified. The only way that the reader can determine how the estimates were derived is to request Appendix C, which was not included with the filing. Appendix C contains no text; it is simply a spreadsheet. However, the row headings are sufficiently informative that one can follow the calculations.

The superficial reader of the KS study and the AT&T filing might conclude that KS have uncovered some evidence of LEC imprudence. However, a reader who is sufficiently curious to request Appendix C and examine the calculations will find something quite different. He/she will discover that KS so torture the facts that their analysis can hardly be called empirical. The facts are stretched beyond recognition on a rack of indefensible assumptions.

Our rebuttal of the KS utilization study covers their analysis of both switching and loop investment. For each type of plant, we first describe what actually happened between 1989 and 1994. We then show how the KS analysis completely distorts the facts.

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[14] KS define overbuilding relative to the standard of what is required to provide basic service. For an analysis of capital recovery, this definition is inappropriately narrow. What matters is whether the capital was required to meet demand for services that are *subject to regulation*. LECs are obligated to meet customer demands for *all* regulated services, regardless of whether KS regard those services as basic. Furthermore, the revenue from non-basic services that are nevertheless regulated are counted in determining whether the company has the opportunity to earn a fair return. It follows that the costs of providing such services — including capital costs — should also be considered.

## 1. Switching Investment

### a. What actually happened

At the end of 1989, RBOCs had about $37 billion of switching (gross) investment, $21 billion in analog switches and $16 billion in digital switches. At the end of 1994, total switching investment had grown to $41 billion. Analog switching investment declined (through retirements) from $21 billion to $11 billion. Digital switching increased from $16 billion to $30 billion.

The total growth in switching investment is about 11 percent. This growth can be compared to 15 percent growth in switched access lines and even faster growth in number of calls and minutes. During the period, the LEC industry largely changed out its analog switching plant, replacing it with digital. However, the change-out can hardly be called rapid. More than a decade after digital switching was first deployed, 27 percent of LEC switching plant was still in the old analog technology.

### b. Kravtin-Selwyn distortion

KS observe that number of (RBOC) access lines increased by about 15 percent. They then multiply this growth rate by 1.075 to get the amount of digital switching that is "justified." The value 1.075 is the ratio of Pacific Bell's limiting switching capacity to actual output, as filed in a recent California regulatory proceeding.

Simply put, KS are arguing that LECs should have stood pat with their analog switching capacity from 1990 through 1994; *i.e.*, that digital switching should have been deployed *only* to meet growth in access lines (with a slight buffer to allow some spare capacity). They characterize the entire change-out of analog switching for digital as overbuilding the LEC network. If KS had baldly stated this Luddite-like view in their study, many readers would have (justifiably in our view) rejected the entire analysis out of hand.

### c. Feature capping of 1A ESS

In an AT&T filing, this whole line of argument is the height — indeed the quintessence — of irony. Starting in the late 1980s, AT&T promulgated the policy of capping features on 1A ESS.[15] As a result, all subsequent investments in 1A ESS capacity were locked into a largely stagnant technology. Such investments, therefore, became much less attractive, and the transition to digital was accelerated. Presumably, that outcome was precisely what AT&T intended. How can AT&T come back now and say that this result — the inevitable consequence of its own deliberate policy — involved imprudence by LECs?

KS claim that LECs deployed digital switching primarily to make their Centrex services more attractive. In reality, digital has little inherent advantages over analog for Centrex. Indeed, for several years after the 5ESS was introduced, it was playing catch-up with the 1A ESS (which was a moving target) in terms of Centrex feature capabilities. Thus a LEC that valued Centrex capabilities had every incentive *not* to upgrade to digital. Of course, that situation changed after AT&T capped features on 1A ESS. Then, digital technology became better for all LEC customers — Centrex and non-Centrex alike.

## 2. Loop Investment

### a. What actually happened

At the end of 1989, the RBOCs had 104 million loops (switched plus special) in service and 187 million equipped loops. The ratio of equipped loops to loops in service was 1.80. There are important reasons why this ratio has traditionally been so much greater than unity:

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[15] Under feature-capping, AT&T greatly reduced its development workforce for 1A ESS. Many new features (*e.g.*, those associated with AIN) were priced far higher for 1A ESS than for digital switches. AT&T declined altogether to provide many requested features, claiming that its (reduced) development workforce did not have the necessary resources.

1) It is cost-effective, because of scale economies, to add capacity in large increments. Much of an added increment necessarily remains idle for some time.

2) It takes considerable time to add loop capacity. In order to meet new demands quickly, LECs must maintain some level of spare capacity.

These benefits must, in practice, be weighed against the capital costs of carrying spare loop capacity. In addition, geographic shifts in population and business activity sometimes leave excess capacity (stranded plant) in some areas.

In any event, from 1990 to 1994, the number of loops in service grew to 129 million, while the number of equipped lines rose to 228 million. The ratio of equipped loops to loops in service was 1.77. This ratio declined slightly during the 1990-1994 period (a slight increase in capacity utilization).

### b. Kravtin-Selwyn distortion

KS estimate the amount of justified increase in loop investment as the growth in switched access lines times 1.25. Their exclusion of special access lines in this calculation reflects their inappropriately narrow definition of basic services. Again, we note the irony of this view in an AT&T filing. AT&T is by far the largest customer of special access. Yet, the filing characterizes the investment needed to provide special access as overbuilt plant. AT&T uses the (so-called) finding of overbuilt plant to justify lower LEC prices — including (presumably) the prices for special access!

The exclusion of special access makes a considerable difference in the KS analysis. During 1990-1994, switched access lines grew by 15 percent, while total access lines (switched plus special) grew by 25 percent.

KS assume that additional demand could be accommodated with a ratio of 1.25 equipped loops per loop in service. This ratio is far less than the actual ratio in either 1989 or 1994. KS offer no justification whatever for their assumed ratio. Furthermore, it is not obvious from the *curriculum vitae* of Ms. Kravtin or Dr. Selwyn what expertise they have to make an informed judgment on this issue. The ideal experience for making the judgment would be as a plant engineer. With a plant-engineering background, the analyst would have detailed knowledge of:

- The trade-off between scale economies to incremental capacity and the cost of spare capacity;
- The likelihood of service problems associated with various levels of spare capacity; and
- The amount of spare capacity caused by geographic shifts in population and business activity.

If KS were forthright about their views of spare capacity in their filing and had attempted to justify their capacity factor of 1.25, many readers would (justifiably in our view) not give the analysis much credence. In the actual filing, KS imply that LECs overbuilt their networks in order to prepare for competition. This implication is a gross distortion of their own data. Their data clearly indicate that LECs continued their traditional policies with regard to spare capacity. Those policies long predate the threat of local telecommunications competition.

### 3. Summary: Utilization Study

*The KS utilization study purports to demonstrate that LECs have overbuilt their networks. In reality, the study simply quantifies KS's indefensible and unsupported views on retirement of analog switching and on spare loop capacity.*

### E. Inconsistency with Past Positions

The KS filing is ironical, given Dr. Selwyn's previous publications on LEC investment.[16] In the past, Dr. Selwyn argued that LECs were not making sufficient investment in infrastructure. He used that argument to justify recommending slower capital recovery for LECs. Now KS argue that the LEC network is overbuilt. They use that argument to argue for slower (or no) capital recovery for LECs. Apparently, a finding of any level of LEC investment can, if artfully crafted, constitute an argument for slower capital recovery.

We might also inquire how it is that Selwyn's views on the adequacy of LEC investments have undergone such a dramatic transformation. Perhaps the road to Basking Ridge resembles, in some respect, the road to Damascus.

## IV. Conclusions

In our previous filing in this proceeding we adduced a variety of evidence to quantify the depreciation shortfall. Richard B. Lee filed a study on behalf of AT&T to minimize the capital-recovery problem. However, Lee's analysis inappropriately focuses on accounting issues and does not adequately address economic depreciation. Moreover, Lee's study is belied by AT&T's own depreciation practices.

AT&T's filing argues that LECs should not be allowed to fully recover their costs. That approach involves abrogating explicit and implicit commitments that regulators made to investors. The policy would have a chilling effect on telecommunications investment and would be poor public policy.

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[16] For example, *see* Lee L. Selwyn, *Financing RBHC Diversification: Patterns of Investment in Non-LEC Ventures* [undated].

Patricia D. Kravtin and Lee L. Selwyn also filed a study on behalf of AT&T. Their studies of the vintages and composition of LEC investment were intended to minimize the capital recovery problem. In reality, the studies provide little or no support for that position.

Kravtin and Selwyn also filed a utilization study to demonstrate that LEC plant is overbuilt. In reality, the study simply embodies:

- Their Luddite-like view that LECs should not have changed over from analog to digital switching technology; and
- Their view (for which they adduce no evidence whatever) that LECs maintain excessive spare loop capacity.

Furthermore, the Kravtin-Selwyn study defines excess capacity in relation to an inappropriately narrow definition of basic service. All in all, the study is seriously flawed and does not support the conclusion that LEC plant is overbuilt.

# Attachment 5

# Competitive Providers by City
# United States Telephone Association

## USTA Reply Comments
## CC Docket No. 96-262
## February 14, 1997

# COMPETITIVE PROVIDERS

| STATE | EXISTING CITY/AREA | CP | PLANNED CITY/AREA | CP |
|---|---|---|---|---|
| ALABAMA | Birmingham | Amer. Com.Svcs.,IntelCom,Interstate FiberNet, | Birmingham | MCI Metro,TCG |
| | Anniston | Interstate FiberNet | | |
| | Auburn | Interstate FiberNet | | |
| | Gadsden | Interstate FiberNet | | |
| | Huntsville | Intermedia Com.,Kamine MultiMedia Corp. | | |
| | Leeds | Interstate Fibernet | | |
| | Mobile | ACS | Mobile | MCI Metro |
| | Montgomery | ACS | | |
| | Opelika | Interstate Fiber Net | | |
| | Pell City | Interstate FiberNet | | |
| | Statewide (GTE) | ATT,Paramount Com.,ACSI | | |
| | Tuscaloosa | Interstate Fiber Net | | |
| ARIZONA | Phoenix | TCG,ICG,GST Telcom,ELI, MFS | | |
| | Tucson | ACSI,Brooks,GST | Nogales | GST Telecom |
| | | | Tempe | InteCom Group |
| | | | Scottsdale | MFS |
| | | | Chandler | Teleport |
| | | | Mesa | TCI, Times Mirror - Cox |
| ARKANSAS | Alexander | MCI | | |
| | Cammack Village | AT&T | | |
| | Jacksonville | MCI,SPRINT | | |
| | Little Rock | ACSI,AT&T,BROOKS,MCI,SPRINT | | |
| | Maumelle | SPRINT | | |
| | Mulberry | ACSI,AT&T,MCI,SPRINT | | |
| | North Little Rock | ACSI,AT&T,MCI,SPRINT | | |
| | Sherwood | MCI | | |
| | Wrightsville | AT&T,SPRINT | | |
| CALIFORNIA | Alameda | MFS, TCG | Alameda | IntelCom (ICG) |
| | Altadena | MFS | Bakersfield | Brooks Fiber |
| | Anahiem | IntelCom Group (ICG), Linkatel/TW, MFS, TCG | Belmont | PFI |
| | Antioch | TCG | Bishop Ranch | TCG, MFS |
| | Bakersfield | Brooks,GST | Bakersfield | Time-Warner |
| | Belmont | MFS, TCG | Burlingame | MFS |
| | Berkeley | TCG,gst | Carlsbad | MFS |
| | Beverly Hills | MFS, TCG | Chula Vista | Time Warner (TW) |
| | Brea | TCG | Clairmont | MFS |
| | Buena Park | MFS | Colton | PLI |
| | Burbank | IntelCom Group (ICG), MFS, MTEL, TCG | Concord | TCG |
| | Burlingame | TCG | Costa Mesa | MFS, TCG |
| | Canoga Park | IntelCom Group (ICG), Linkatel/TW, MFS, TCG | Cypress | Linkatel |
| | Carmichael | PFI | Danville | TCG |
| | Century City | Linkatel, MFS, TCG | DelMar | Time Warner (TW), Linkatel |
| | Cerritos | Intel | | |
| | Citrus Heights | PFI | Dominguez Hills | Linkatel |
| | City of Industry | GST | | |
| | Coachella Valley(GTE) | Colony Cable | Dublin | TCG |

# COMPETITIVE PROVIDERS

| STATE | EXISTING CITY/AREA | CP | PLANNED CITY/AREA | CP |
|---|---|---|---|---|
| CALIFORNIA (cont'd) | Colton | MFS,GST | El Cajon | Time Warner (TW) |
| | Compton | IntelCom Group (ICG), MTEL,TCG | | |
| | Concord | GST | | |
| | Culver City | MFS, TCG | El Segundo | Linkatel |
| | Cupertino | MFS, TCG | El Sorbranto | TCG |
| | Daly City | MFS,TCG | Emeryville | TCG |
| | Davis | IntelCom (ICG) | Fairfield | TCG |
| | Dominguez Hills | TCG | Fashion Island | IntelCom Group (ICG) |
| | East Los Angeles | TCG | Folsom | ELI, PFI |
| | El Segundo | MFS, TCG | Fresno | Brooks Fiber |
| | Emeryville | MFS | Fullerton | MFS |
| | Encino | MFS | | |
| | Fair Oaks | ELI, PFI | Gardena | MFS |
| | Folsom | ELI, PFI | Golden Triangle | Time Warner (TW), Linkatel |
| | Foster City | MFS, TCG | Hayward | MFS, Brooks Fiber |
| | Fremont | IntelCom Group (ICG), MFS,TCG,GST | Hillsborough | MFS |
| | Fresno | Brooks Fiber,GST | | |
| | Garden Grove | IntelCom Group (ICG), MTEL,TCG | Huntington Park | TCG |
| | Gardena | TCG | Irvine | Linkatel, MFS, IntelCom Group (ICG) |
| | Glendale | MFS, TCG | Kearny Mesa | Time Warner (TW), Linkatel |
| | Golden Triangle | MFS, TCG | La Jolla | Time Warner (TW), Linkatel |
| | Hawthorne | MFS | La Puente | Pacific Lightwave |
| | Hayward | TCG | Larkspur | TCG |
| | Hillsborough | TCG | Livermore | TCG |
| | Hollywood | MFS, TCG | Long Beach | MFS,Teleport |
| | Inglewood | MFS, TCG | Los Altos | TCG |
| | Irvine | Intel,MFS | | |
| | Kearny Mesa | MFS, TCG | Los Angeles | Pacific Lightwave (PLI) |
| | La Jolla | MFS, TCG | Marin | TCG |
| | Laguna Hills | MFS | Martinez | TCG |
| | Long Beach | MFS,MCI Metro | | |
| | Los Angeles | MFS, TCG, IntelCom Group (ICG), Linkatel,MCI Metro | Menlo Park | Brooks Fiber |
| | Los Gatos | Bay Area Transport | Millbrae | MFS |
| | Menlo Park | MFS | Mission Valley | Linkatel, Time Warner (TW) |
| | Milpitas | TCG, MFS, Brooks | Mission Viejo | TCG |
| | Mission Valley | TCG, MFS | Morena | MFS |
| | Morgan Hill | Bay Area Transport | Mountain View | TCG |
| | Mountain View | MFS, IntelCom (ICG) | Napa | TCG |
| | Newport Beach | MFS, TCG, MTEL/ (ICG), Linkatel/TW | Newport Beach | Linkatel |
| | North Ridge | MFS | North Ridge | TCG |
| | Oakland | TCG, MFS, IntelCom Group (ICG) | Novato | TCG |
| | Ontario | IntelCom Group (ICG), Pacific Lightwave,GST | Ontario | Pacific Lightwave |
| | Orange | MFS, IntrelCom Group (ICG) | Orange | MFS, IntelCom Group (ICG) |
| | Palm Springs(GTE) | Pacific Lightwave | | |
| | Palo Alto | TCG, MFS, Brooks | Palm Springs | Pacific Lightwave |
| | Pasadena | MFS | Pasadena | TCG |
| | Pitsburg | TCG | Petaluma | IntelCom (ICG), TCG |
| | Rancho Cordova | PFI, ELI, IntelCom Group (ICG) | Pleasanton | TCG, MFS |
| | Redwood City | MFS | | |
| | Rialto | PLI,GST | Rancho Bernardo | Linkatel, Time Warner (TW), MFS |
| | Riverside | PLI, IntelCom Group (ICG) | Red Hills | IntelCom Group (ICG) |
| | Rodondo Beach | MFS, TCG | Redwood City | MFS |

# COMPETITIVE PROVIDERS

| STATE | EXISTING CITY/AREA | CP | PLANNED CITY/AREA | CP |
|---|---|---|---|---|
| CALIFORNIA (cont'd) | Sacramento | PFI/Brooks, ELI, IntelCom Group (ICG) | Rialto | Pacific Lightwave |
| | San Bernadino | Pacific Lightwave | Richmond | TCG |
| | San Bruno | MFS, TCG | Rodeo | TCG |
| | San Carlos | MFS, TCG | Rodondo Beach | Linkatel |
| | San Diego | TCG, MFS, Electric Lightwave (EL),MCI Metro,Linktel,Time Warner | Rohnert Park | IntelCom Group (ICG) |
| | San Fernado(GTE) | Teleport | Sacramento | MFS, TCG, ELI |
| | San Francisco | TCG, MFS, IntelCom Group (ICG),Brooks,MCI Metro | San Bernadino | Pacfic Lightwave |
| | San Jose | TCG, MFS, Brooks,ICG | San Carlos | PFI |
| | San Juan Capistrano | TCG | San Diego | Linkatel, Time Warner (TW) |
| | San Leandro | TCG | San Francisco | MFS |
| | San Mateo | MFS, TCG | San Leandro | MFS |
| | Santa Ana | MFS, IntelCom Group (ICG), Linkatel/TW,TCG | | |
| | Santa Barbara(GTE) | Com Cable | San Rafael | MFS |
| | Santa Clara | TCG, MFS, PFI,ICG | | |
| | Santa Cruz | ICG | | |
| | Santa Monica | MFS,Teleport | San Ramon | TCG |
| | Sherman Oaks | MFS, TCG, MTEL/IntelCom Group (ICG) | Santa Ana | TCG |
| | Sorento Mesa | TCG, MFS | | |
| | South Bay(GTE) | MFS | Santa Barbara | MFS |
| | Statewide(GTE) | CMUA,AT&T,Continental | | |
| | Sunnyvale | MFS, TCG, Brooks,ICG | Santa Clara | MFS, TCG, PFI |
| | Torrance | MFS | Santa Rosa | IntelCom (ICG) |
| | Van Nuys | MFS, TCG | Santiago | IntelCom (ICG) |
| | Walnut Creek | IntelCom (ICG) | Sierra Mesa | MFS |
| | West Hollywood | TCG, MFS | Sonoma | TCG |
| | West Los Angeles | MFS,Teleport | Sorento Mesa | Time Warner (TW), Linkatel |
| | West Sacramento | PFI, ELI | Stockton | Brooks Fiber |
| | Wilshire Corridor | MFS, TCG | Torrance | Linkatel |
| | Woodland Hills | MFS, TCG, MTEL/IntelCom Group (ICG) | Tustin | MFS, TCG |
| | | | Walnut Creek | TCG, MFS |
| COLORADO | Boulder | IntelCom Group | Boulder | MFS, TCG |
| | Colorado Springs | IntelCom Group | Colorado Springs | ACSI |
| | Denver | IntelCom Group, TCG, MFS,MCI Metro | | |
| CONNECTICUT | Hartford | Brooks Fiber Comm, MCI Metro, MFS, TCG | Entire State | AT&T,Cablevision Lightpath,Dail & Save,Excel, LCI Intl.,TCI Telephony, TCG, SPRINT,Working Assests, GE Capital d/b/a TCG |
| | Meriden | TCG | | |
| | West Hartford | TCG, TCI Telephony | Entire State minus Waterbury | Cable and Wireless |
| | Windsor | TCG | | |
| | Windsor Locks | TCG | | |
| | Stamford | MFS | Stamford | Brooks Fiber |
| | Statewide | Connecticut Telephone and Communication | | |

# COMPETITIVE PROVIDERS

| STATE | EXISTING CITY/AREA | CP | PLANNED CITY/AREA | CP |
|---|---|---|---|---|
| DELAWARE | Wilmington | MFS, MCI Metro, Eastern Telelogic | | |
| | New Castle County | MFS,ETC,LOCATE | | |
| DIST. OF COL. | Washington Met | MFS, LOCATE, MCI Metro,WinStar,Teleport | | |
| FLORIDA | Boca Raton | TCG | | |
| | Fort Lauderdale | TCG | | |
| | Jacksonville | Intermedia, AlterNet, MFS,TCG,Winstar Wireless | Jacksonville | ACSI |
| | Lakeland(GTE) | City of Lakeland | | |
| | Melbourne | IntelCom Group (ICG) | | |
| | Miami | Intermedia, TCG, WinStar Wireless,MCI Metro, MFS,Interstate Fiber | | |
| | Orlando | Intermedia,Interstate FiberNet,MCI Metro,MFS,SPRINT,Time-Warner | | |
| | West Palm Beach | TCG, Intermedia,Interstate FiberNet | | |
| | Sarasota(GTE) | Interstate FiberNet | | |
| | Statewide (GTE) | Ameritech,ATT,BellAtl,ICI,MCI,MFS,NYNEX,Tech Data | | |
| | St. Petersburg(GTE) | MCI Metro | | |
| | Tampa(GTE) | BellSouth,Fairchild Com.,MCI Metro,,TECO,TCCF,Teleport,Winstar | | |
| GEORGIA | Athens | Interstate FiberNet | | |
| | Atlanta | Interstate Fibernet,Carolinas FiberNet,Intelcom,Marietta,MCI Metro, Media One,MFS,WinStar Wireless | Atlanta | ICG |
| | Augusta | Interstate FiberNet | | |
| | Carrolton | Interstate FiberNet | | |
| | Columbus | Interstate FiberNet, ACSI | | |
| | Gainesville | Interstate FiberNet | | |
| | LaGrange | Interstate FiberNet | | |
| | Newnan | Interstate FiberNet | | |
| | Savannah | Carolinas FiberNet | Savannah | ACSI |
| HAWAII | Honolulu | Digital Transport Inc. (DTI), Oceanic, GST | Hawaii | Time-Warner |
| | | | Kauai | GST |
| | | | Lanai | GST |
| | | | Maui | GST |
| | | | Molokai | GST |
| | Oahu | Digital Transport Inc. (DTI), Oceanic | | |
| IDAHO | | | Boise | Phoenix Fiberlink,GST |
| ILLINOIS | Wheaton | MCI | Champaign | TWC |

# COMPETITIVE PROVIDERS

| STATE | EXISTING CITY/AREA | CP | PLANNED CITY/AREA | CP |
|---|---|---|---|---|
| ILLINOIS (cont'd) | Bloomington(GTE) | TCI,IL Consolidated | Chicago | Winstar,AT&T |
| | Carbondale(GTE) | TCI | Springfield | TWC |
| | Champaign | ILC | | |
| | Chicago (Metro) | MFS, Teleport, MCI Metro,Jones Intercable,TCI | | |
| | Decatur | ILC | | |
| | Dekalb | Norlight,TWC | | |
| | Springfield | TWC,Illinois Consolidated Com. | | |
| | Statewide (GTE) | AADS,ATT,SPRINT,MCI,AMERITECH | | |
| INDIANA | Cicero(GTE) | Micro Com | Indianapolis | Winstar |
| | Fort Wayne(GTE)) | US Signal,Comcast | | |
| | Indianapolis | MFS,TCG,TWC,MCI | | |
| | Jasper(GTE) | GTL | | |
| | Lafayette(GTE) | ComLink,WorldCom,Cox | | |
| | Statewide(GTE) | ATT,SPRINT,MCI,AADS | | |
| | Terre Haute | CNI | | |
| IOWA | Des Moines | McLeod | | |
| | Cedar Rapids | McLeod | | |
| KANSAS | Andover | Multimedia Hyperion, KINNET | | |
| | Agra City | KINNET | | |
| | Alexander | KINNET | | |
| | Alton | KINNET | | |
| | Arlington | KINNET | | |
| | Assaria | KINNET | | |
| | Athol | KINNET | | |
| | Axtell | KINNET | | |
| | Baxine | KINNET | | |
| | Beattel | KINNET | | |
| | Beverly | KINNET | | |
| | Bluff City | KINNET | | |
| | Brookville | KINNET | | |
| | Bunker Hill | KINNET | | |
| | Burdett | KINNET | | |
| | Burlingame | KINNET | | |
| | Bushton | KINNET | | |
| | Caldwell | KINNET | | |
| | Carlton | KINNET | | |
| | Cassoday | KINNET | | |
| | Centrailia | KINNET | | |
| | Cimarron City | KINNET | | |
| | Coats Cits | KINNET | | |
| | Copeland City | KINNET | | |
| | Cunningham | KINNET | | |
| | Damar | KINNET | | |
| | Derby | KINNET | | |
| | Dexter | KINNET | | |
| | Dorrance | KINNET | | |
| | Dresden | KINNET | | |
| | Dearing | KINNET | | |
| | Dwight | KINNET | | |

# COMPETITIVE PROVIDERS

| STATE | EXISTING CITY/AREA | CP | PLANNED CITY/AREA | CP |
|---|---|---|---|---|
| KANSAS (cont'd) | Edmond | KINNET | | |
| | Elgin | KINNET | | |
| | Ensign | KINNET | | |
| | Eskridge | KINNET | | |
| | Everest | KINNET | | |
| | Galva | KINNET | | |
| | Garfield | KINNET | | |
| | Geuda Springs | KINNET | | |
| | Gorham | KINNET | | |
| | Gove City | KINNET | | |
| | Grainfield | KINNET | | |
| | Grinnell | KINNET | | |
| | Gypsum | KINNET | | |
| | Hanston | KINNET | | |
| | Hardner | KINNET | | |
| | Havana | KINNET | | |
| | Haviland | KINNET | | |
| | Haysville | KINNET | | |
| | Hazelton | KINNET | | |
| | Hepler | KINNET | | |
| | Hesston | KINNET | | |
| | Holyrood | KINNET | | |
| | Hope | KINNET | | |
| | Hugoton | KINNET | | |
| | Hunnewell | KINNET | | |
| | Huron | KINNET | | |
| | Ingalls | KINNET | | |
| | Iuka | KINNET | | |
| | Jennings | KINNET | | |
| | Jetmore | KINNET | | |
| | Kensington | KINNET | Kansas City | MFS |
| | Kincaid | KINNET | | |
| | Kiowa | KINNET | | |
| | La Cygne | KINNET | | |
| | Lecompton | KINNET,Multimedia | | |
| | Lenora | KINNET | | |
| | Leona | KINNET | | |
| | Liberty | KINNET | | |
| | Lincolnville | KINNET | | |
| | Logan | KINNET | | |
| | Lost springs | KINNET | | |
| | Louisburg | KINNET | | |
| | Miltonvale | KINNET | | |
| | Montezuma | KINNET | | |
| | Morland | KINNET | | |
| | Moundridge | KINNET | | |
| | Muscotha | KINNET | | |
| | Nashville | KINNET | | |
| | Natoma | KINNET | | |
| | Ness City | KINNET | | |
| | Niotaze | KINNET | | |
| | Oaklawn-Sunview | Multimedia | | |

# COMPETITIVE PROVIDERS

| STATE | EXISTING CITY/AREA | CP | PLANNED CITY/AREA | CP |
|---|---|---|---|---|
| KANSAS (cont'd) | Osawatomie | KINNET | | |
| | Otis | KINNET | | |
| | Oxford | KINNET | | |
| | Palco | KINNET | | |
| | Partridge | KINNET | | |
| | Paxico | KINNET | | |
| | Protection | KINNET | | |
| | Quinter | KINNET | | |
| | Ransom | KINNET | | |
| | Rantoul | KINNET | | |
| | Rozel | KINNET | | |
| | Rush Center | KINNET | | |
| | Russell | KINNET | | |
| | Santana | KINNET | | |
| | Selden | KINNET | | |
| | Severence | KINNET | | |
| | Sharon | KINNET | | |
| | Sharon Springs | KINNET | | |
| | South Hutchinson | KINNET | | |
| | ST.George | KINNET | | |
| | Sylavan Grove | KINNET | | |
| | Tescott | KINNET | | |
| | Timken | KINNET | | |
| | Tipton | KINNET | | |
| | Turon | KINNET | | |
| | Ulysses | KINNET | | |
| | Utica | KINNET | | |
| | Vermillion | KINNET | | |
| | Victoria | KINNET | | |
| | Waldron | KINNET | | |
| | Wamego | KINNET | | |
| | Wellsville | KINNET | | |
| | White City | KINNET | | |
| | Whiting | KINNET | | |
| | Wilson | KINNET | | |
| | Winona | KINNET | | |
| | Woodbine | KINNET | | |
| | Zurich | KINNET | | |
| KENTUCKY | Glasgow(GTE) | Glasgow Electric | | |
| | Lexington(GTE) | ACSI,TCI,ICS | | |
| | Louisville | Interstate FiberNet,IntelCom Group,Louisville Lightwave,Hyperion | | |
| | | | Baton Rouge | ACSI |
| | | | Kenner | American Metrocom |
| LOUISANA | Monroe | Interstate FiberNet | | |
| | New Orleans | American Metrocom,Cox FiberNet,WinStar Wireless | New Orleans | ACSI |
| | Shreveport | Interstate FiberNet | Shreveport | ACSI |

# COMPETITIVE PROVIDERS

| STATE | EXISTING CITY/AREA | CP | PLANNED CITY/AREA | CP |
|---|---|---|---|---|
| MAINE | Portland | TW | Augusta | State Cable |
| | So. Portland | TW | Bangor | Access |
| | Saco | Freedom Ring | Portland | Maine Com |
| | Westbrook | TW | Sanford | Maine Com |
| | | | Gorham | Maine Com |
| | | | Westbrook | Maine Com |
| | | | Southern Area | TCG, Time Warner |
| MARYLAND | Baltimore | MFS, LOCATE, MCI Metro, TCG,Intermedia | | |
| | Baltimore City | MFS,,MCI METRO,TCG,LOCATE | | |
| | Baltimore County | MFS,LOCATE,MCI METRO,TCG | | |
| | Montgomery County | MFS,LOCATE,MCI METRO | | |
| | Prince George's County | MFS,LOCATE,MCI METRO | | |
| | Statewide | ACSI,WinStar | | |
| MASSACHUSETTS | Acton | MFS | | |
| | Amherst | FiveCom | Boston | Cablevision,,Frontier,ACC |
| | Andover | MFS, TCG | Braintree | MFS,TCG,Braintree Electric |
| | Bedford | MFS | Carver | Helpia |
| | Belmont | MFS | Chestnut Hill | MFS,tcg |
| | Billerica | MFS | Dorchester | MFS,RCN |
| | Boston | MFS, TCG, MCI Metro,RCN | Easton | ACC |
| | Boxboro | MFS | Greenfield | FiveCom |
| | Brockton | TCG | Holyoke | FiveCom |
| | Brookline | MFS,TCG | Marlboro | TCG |
| | Burlington | MFS, TCG | Plymouth | Helphia |
| | Cambridge | MFS, TCG,MCI | Quincy | RCN,CCI |
| | Canton | MFS,TCG | Springfield | ACC,Frontier,FiveCom |
| | Charlestown | MFS,RCN | Tewksbury | MFS |
| | Chelmsford | MFS,TCG,CCI | West Springfield | ACC,Frontier,FiveCom |
| | Concord | MFS | Weymouth | RCN |
| | Danvers | MFS | Worcester | TCG |
| | Dedham | TCG | | |
| | Easton | TCG | | |
| | Foxboro | MFS,SPRINT | | |
| | Framingham | MFS, TCG,MCI | | |
| | Hudson | MCI | | |
| | Kingston | MFS,TCG,Helphia | | |
| | Lawrence | TCG | | |
| | Lexington | MFS,TCG | | |
| | Lincoln | MFS | | |
| | Lowell | MFS,TCG | | |
| | Malden | TCG,RCN | | |
| | Medford | MFS, TCG,RCN | | |
| | Natick | TCG | | |
| | Needham | MFS, TCG,,CCI | | |
| | Newton | MFS, TCG,CCI | | |
| | North Reading | TCG | | |

# COMPETITIVE PROVIDERS

| STATE | EXISTING CITY/AREA | CP | PLANNED CITY/AREA | CP |
|---|---|---|---|---|
| MASSACHUSETTS (cont'd) | Peabody | MFS,TCG | | |
| | Quincy | MFS, TCG | | |
| | Reading | MFS, TCG | | |
| | Revere | MFS | | |
| | Somerville | MFS, TCG | | |
| | South Boston | RCN,TCG,MFS | | |
| | Springfield | Brooks | | |
| | Taunton | MFS | | |
| | Wakefield | MFS,TCG | | |
| | Waltham | MFS, TCG,CCI | | |
| | Watertown | MFS,CCI | | |
| | Wellsley | MFS,CCI | | |
| | Westboro | MFS,TCG | | |
| | Weston | MFS,CCI | | |
| | Wilmington | MFS, TCG,CCI | | |
| | Woburn | MFS, TCG,CCI,SPRINT | | |
| MICHIGAN | Ann Arbor | Brooks Fiber | Detroit | WinStar |
| | Detroit | MFS, TCG, MCI | | |
| | Grand Rapids | US Signal,AT&T,Brooks,MICTA,Continental Cable,LCI,ACI | | |
| | Holland | US Signal,Brooks Fiber | | |
| | Lansing | Brooks Fiber | | |
| | Muskegon | US Signal,TCI | | |
| | Statewide GTE | AADS,MICTA,Comcast,SPRINT | | |
| MINNESOTA | Traverse City | US Signal,Brooks | | |
| | Zeeland | US Signal,Brooks | | |
| MINNESOTA | Minneapolis-St. Paul | MFS, Paragon Cable/FibrCom | | |
| MISSISSIPPI | Gulfport | Interstate FiberNet | | |
| | Hattiesburg | Interstate FiberNet | | |
| | Jackson | Interstate FiberNet,ACSI,Brooks Fiber | Jackson | American Metrocomm |
| | Meridan | Interstate FiberNet | | |
| | Vicksburg | Interstate FiberNet | | |
| MISSOURI | Affton CDP | Digital TELEPORT | | |
| | Battfield | TCI | | |
| | Bel-Ridge | Digital TELEPORT | | |
| | Bellfontaine Neighbors | Digital TELEPORT | | |
| | Belton | ACSI | | |
| | Berkeley | AT&T,Digital Teleport,Intermedia,MFS | | |
| | Breckenridge Hills | Intermedia | | |
| | Brentwood | MFS,DIGITAL TELEPORT | | |
| | Bridgeton | AT&T,Digital Teleport,Intermedia,MFS | | |
| | Brookline | TCI | | |
| | Champ | AT&T,DIGITAL TELEPORT | | |
| | Charlack City | DIGITAL TELEPORT | | |
| | Chesterfield | MFS,TCG,DIGITAL TELEPORT,INTERMEDIA | | |
| | Clayton | MFS,TCG,DIGITAL TELEPORT,INTERMEDIA | | |
| | Concord CDP | DIGITAL TELEPORT | | |

# COMPETITIVE PROVIDERS

| STATE | EXISTING CITY/AREA | CP | PLANNED CITY/AREA | CP |
|---|---|---|---|---|
| MISSOURI (cont'd) | Cool Valley | MFS,DIGITAL TELEPORT | | |
| | Country Club Hills | AT&T | | |
| | Crestwood City | DIGITAL TELPORT | | |
| | Creve Coeur | MFS,TCG,DIGITAL TELEPORT,INTERMEDIA | | |
| | Dardenne Prairie | DIGITAL TELEPORT | | |
| | Dellwood City | AT&T | | |
| | Des Peres City | DIGITAL TELPORT | | |
| | Edmundson | DIGITAL TELPORT | | |
| | Eureka | DIGITAL TELPORT | | |
| | Fenton | DIGITAL TELPORT,AT&T | | |
| | Ferguson | DIGITAL TELPORT,AT&T,INTERMEDIA | | |
| | Flordell Hills | AT&T,INTERMEDIA | | |
| | Florissant | DIGITAL TELPORT,AT&T | | |
| | Foristell | DIGITAL TELPORT | | |
| | Frontenac | DIGITAL TELPORT | | |
| | Gladstone | ACSI | | |
| | Glasgow Village CDP | DIGITAL TELEPORT | | |
| | Grandview | ACSI | | |
| | Hanley Hills | MFS | | |
| | Hazelwood | DIGITAL TELPORT,AT&T,INTERMEDIA,MFS | | |
| | Independence | ACSI | | |
| | Jennings | DIGITAL TELPORT,AT&T,INTERMEDIA | | |
| | Kansas City | ACSI | Kansas City | MFS |
| | Kinloch | MFS | | |
| | Ladue | DIGITAL TELPORT,,INTERMEDIA,MFS,TCG | | |
| | Lake St.Louis | DIGITAL TELEPORT | | |
| | Lee's Summit | ACSI | | |
| | Lemay CDP | DIGITAL TELEPORT,WORLDCOM | | |
| | Liberty | ACSI | | |
| | Manchester | AT&T | | |
| | Maryland Heights | DIGITAL TELPORT,AT&T,INTERMEDIA,MFS,TCG | | |
| | Mehlville CDP | DIGITAL TELEPORT,WORLDCOM | | |
| | Normandy | MFS,DIGITAL TELEPORT | | |
| | North Kansas City | ACSI | | |
| | Northwoods City | DIGITAL TELPORT,AT&T,INTERMEDIA | | |
| | Morwood Court | DIGITAL TELEPORT | | |
| | O'Fallon | DIGITAL TELEPORT | | |
| | Oakland | DIGITAL TELEPORT | | |
| | Oaks | ACSI | | |
| | Oakview | ACSI | | |
| | Oakview CDP | WORLDCOM | | |
| | Oakwood Park | ACSI | | |
| | Oakwood | ACSI | | |
| | Olivette | MFS, TCG,DIGITAL TELEPORT,INTERMEDIA | | |
| | Overland | MFS, TCG,DIGITAL TELEPORT,INTERMEDIA | | |
| | Pagedale | MFS | | |
| | Parkville | ACSI | | |
| | Peerless Park | AT&T,DIGITAL TELEPORT | | |
| | Pine Lawn | DIGITAL TELEPORT,INTERMEDIA | | |
| | Platte Woods | ACSI | | |
| | Pleasant Valley | ACSI | | |
| | Raytown | ACSI | | |