



THE STATE OF TELECOMMUNICATIONS IN NEW JERSEY

RESPONSE TO THE TELECOMMUNICATIONS ACT OF 1992



New Jersey Board of Regulatory Commissioners

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I. EXECUTIVE SUMMARY

This report is in response to the requirements of the Telecommunications Act of 1992, Public Law 1991, Chapter 428 dated January 17, 1992 (N.J.S.A. 48:2-21.16 et seq.). The Act requires that:

...Not later than two years following the effective date of this act, the board shall submit a report to the Governor and the Legislature reviewing the implementation of the provisions of the act, which shall include, but not be limited to, an evaluation of any alternative form of regulation approved by the board, any plan of such alternative form of regulation and the success of the deregulation of competitive services required and permitted by this act. In its recommendations, the board may also propose any legislative or other changes to the Legislature and the Governor which it deems appropriate (L.1991, c.428 Section 7).

To date, this Board has approved one plan for alternative regulation. New Jersey Bell Telephone Company (NJ Bell) filed a Plan, as well as a network deployment proposal, on March 31, 1992. An amendment was filed on May 21, 1992. NJ Bell's Plan (both the alternative regulation and deployment proposal) was the subject of extensive public and technical scrutiny. The Board held three public hearings around the State, in addition to 15 and one-half days of hearings involving intense examination.

The Act set forth eight (8) primary points that had to be satisfied prior to Board approval of an alternative form of regulation for a Local Exchange Carrier (LEC). The Act stated that:

[T]he board shall review the plan and may approve the plan, or approve with modifications, if it finds, after notice and hearing, that the plan:

1. will ensure the affordability of protected telephone services;
2. will produce just and reasonable rates for telecommunications services;
3. will not unduly or unreasonably prejudice or disadvantage a customer class or providers of competitive services;
4. will reduce regulatory delay and costs;
5. is in the public interest;
6. will enhance economic development in the State while maintaining affordable rates;
7. contains a comprehensive program of service quality standards, with procedures for board monitoring and review; and

8. specifically identifies the benefits to be derived from the alternative form of regulation (N.J.S.A. 48:21.18(a)).

Section III of this report provides a detailed summary of the Board's Decision and Order, issued May 6, 1993 in Docket No. TO92030358. The Board specifically addressed each of the eight points within its Order:

1. affordability of protected services was maintained through a series of rate caps (e.g. basic residential service is capped through 1999), performance formula (GNP-PI less 2% productivity offset) and service quality standards;
2. over the past six years, the Board carefully monitored NJ Bell's earnings using three different cost methodologies, direct, embedded and fully distributed, and as noted in the record of NJ Bell's proceeding, no overearnings were found, therefore, the Board concluded that the rates going in were just and reasonable and will remain as such throughout the term of the modified plan;
3. unduly or unreasonably prejudicing or disadvantaging customers or competitors was directly addressed through unbundling of services (so a competitor could purchase only the piece parts needed to compete) and through imputation of the same cost to NJ Bell services as would be charged competitors;
4. the Board instituted several procedures to reduce regulatory cost and delay, such as formula based rates eliminating the need for costly rate proceedings;
5. as modified by the Board, with its rate caps and reporting requirements, as well as opportunities to expand services, the Board found the Plan to be in the public interest and balanced to the needs of both the users and the company;
6. economic development was a key point addressed by the experts and as noted elsewhere in this report, jobs have already been attracted to New Jersey because of the advanced network;
7. the Board ordered NJ Bell to continue reporting on some 96 service quality measurements and ordered an additional review in 1995, after further deployment of technology;
8. the benefits to be derived were addressed by the Board throughout its Order. Areas such as economic development and technology deployment touch on the benefits. As noted herein, the added quality of life benefits highlight the benefits to be derived by all citizens, businesses, and users of an advanced telecommunications network.

Our attempt herein at summarizing a complex proceeding, while instructive, is not to be taken as the final word, the Board's Decision and Order (Docket No. TO92030358) speaks for itself.

In more concrete terms, NJ Bell's commitment under the Plan, as modified by the Board, is to accelerate network deployment between 1992-1999, above and beyond its business as usual expenditures to ensure deployment of a technically advanced network capable of providing WideBand services to 93% of the State and BroadBand services to 25% of the State. During the course of NJ Bell's Plan proceeding, the company estimated the first phase of its network deployment initiative (through 1999) to result in an additional investment of \$1.5 billion, above business as usual expenditures of approximately \$4.2 billion. However, the Board required that NJ Bell meet the service commitments specified in the company's Opportunity NJ proposal regardless of the cost. To meet its services commitment, by the end of 1993, NJ Bell had installed an estimated 500,000 miles of fiber optic throughout the State. When completed in 2010, NJ Bell will have replaced virtually all of its copper wire, some 56,000,000 miles, with fiber optic cable and completely digitized all central offices, bringing full interactive voice, data, and video capabilities to New Jersey.

With construction beginning only a little less than a year ago, the benefits have already begun. Opportunity NJ investment has translated into advanced service applications and trials including distance learning, telecommuting, and video dialtone.

Children in Union City have twenty-four hour access to their teachers, library, and each other via computer links delivered over fiber optic lines. Doctors in hospitals in remote and underserved areas are planning links with "resource rich" hospitals in more densely populated areas to improve access, and to reduce the cost of quality health care.

Several telecommuting experiments are underway using Integrated Services Digital Network (ISDN) systems benefiting businesses, workers, and the State. With telecommuting, businesses reduce overhead, workers reduce or eliminate road travel, and the State may be able to grow closer to meeting its Clean Air Act mandates.

Shortly, NJ Bell expects to begin video dialtone experiments in Morris County and Dover Township. Sammons Communications and FutureVision have leased space on fiber optic lines being installed to provide a new alternative to traditional cable systems. FutureVision will compete head-to-head with an established cable system while Sammons intends to increase channel capacity to provide an increased level of service. Consumers of the new system could eventually have access to programs of their choice by "dialing them up" via their television. These capabilities are the anticipated down payment on the future promises of Opportunity NJ.

The second requirement within the Act, for this report, relates to "the success of the deregulation of competitive services required and permitted by this act." This report at Section IV addresses head-on the success of deregulation of services. The report finds that in just one year since the deregulation of competitive services, there has been a 41% increase in tariff filings from the previous year. These tariff filings represent service modifications in response to competitive market changes. The filings can be characterized as increases or decreases in rates, or changes in terms and conditions of service. All-in-all, the competitive telecommunications market has been able to respond quickly, without regulatory delay, to changing market conditions. However, even more instructive are the number of new services introduced into the New Jersey marketplace. The report, within Section IV, finds that a comparison of pre-and-post

deregulation of interexchange carriers services (Chart 4) finds an approximate 47% increase in new services.

Given the revised tariff filing requirements, the number of service modifications, as well as the growth in new services, the report demonstrates that the Act has been successful in promoting and encouraging innovation for the New Jersey marketplace.

Thus, this report finds that the minimum requirements articulated in the Act (L. 1991, c. 428 Section 7) have been met. The Board's Decision and Order in NJ Bell's Alternative Form of Regulation proceeding clearly finds that the Plan filed, as modified by the Board, addresses the Act's stated objectives. The growth in competitive service offerings, both new services and changes to existing services, gives witness to the success of deregulation. Competitive services are being offered by both interexchange companies and local exchange companies. These services have been offered in a restructured regulatory environment that has indeed benefited all with little or no consumer complaint. However, these facts tell only a part of the story. The Act establishes a framework from which telecommunications can grow and expand to its full potential. To this end, the report addresses the other areas within the Act dealing with economic impacts and quality of life aspects.

Section V of this report details the advances in technology deployment, as well as the services now available or potentially available given the network deployment plan known as Opportunity NJ. Section VI looks at the quality of service being provided. The wealth of services available is breathtaking in their scope and ability to transform everyday life. These services grew from rather modest technical beginnings with limited capabilities [e.g., follow-me type services that allow you to have a call follow you around (these are advanced intelligent network services)] to the gee-whiz applications of video on demand, and full motion high definition television (captured by BroadBand technologies).

The quality of service aspects of the telecommunications network in New Jersey are continually explored using both available data routinely submitted to the Board, as well as, the results of a Board Staff survey of service quality conducted within the business community. The available quality of service information is an outgrowth of reporting requirements ordered by the Board primarily in a rate stability proceeding back in 1987 with NJ Bell. The Board in the order approving that rate stability plan required quarterly reports on some 96 varying standards. The standards were first updated to current NJ Bell practices and then held there as a mandatory requirement. Thus, the Board had an extensive in-house database to work with in exploring service levels. Notwithstanding this database, Board Staff developed a business customer survey which was mailed to survey participants in early 1992 to elicit customer responses. The survey finds a healthy, efficient telecommunications network in New Jersey. Thus, the Act's requirement on quality of service is met. A further review of service quality for NJ Bell has been ordered by the Board in 1995 to gauge the impacts of an advancing technologically complex network.

Having an advanced network in place would be nice, but the real question is "what can it do for me?" Section VII, Social and Economic Impact, addresses this issue in terms of job creation. The report finds that based on the record developed from NJ Bell's alternative regulation

proceeding, at least some experts believe something in the neighborhood of 80,000 jobs will be created once an advanced telecommunications network is emplaced. In support of job creation, the report looks at real world examples of job development through either new firms moving into the State or existing companies electing to stay. What was found was very encouraging. The network deployment is less than one year old and already the benefits are there. A high speed, self-healing network (referred to as a SONET) in Jersey City has attracted businesses out of New York City. The World Trade Center incident proved a critical test case for the SONET system. NJ Bell was able to provide rapid uninterrupted service over a weekend to companies for their operations. The report provides other examples of firms selecting New Jersey or negotiating for New Jersey sites. For now, Lehman Brothers, Prebon Yamane and the Associated Press have agreed to relocate to New Jersey, bringing an estimated 1420 jobs across the river from New York. All three companies have pointed to New Jersey's advanced telecommunications capabilities as a reason for their decision to relocate here. These companies are telecommunications intensive and are extremely interested in the availability of an advanced network.

While job creation is critical to the State and an aspect of economic development within the Act, equally important to this report are the quality of life aspects available or capable of being provided once the network deployment is completed. Quality of life capabilities and present day realities are chronicled at Section VIII. The report details current applications which were enhanced or developed with assistance from the network. The report looks at actual projects and trials, on distance learning, as well as other applications such as distance work (to possibly reduce air pollution) to potentials in distance health care. The Bergen County interactive educational distance learning system is a prime example of what can be done. Health care initiatives, on the other hand, have been slow in developing, therefore much of our discussion centers on the potential available through a sophisticated telecommunications network.

Finally, the Act provides the Board an opportunity to address changes to the Legislature and the Governor. This Board has discovered one very specific area that may require legislative clarification. The entire discussion is contained at Section IV.D. Briefly put, the Board was considering an attempt to promulgate rules regulating procedures for alternative operator service providers (AOS), resellers of telecommunications services, and private pay phone providers. As part of our research for this report, Board Staff sent a letter to the AOS, Reseller, and Payphone communities. These groups were unanimous in contending that the Board cannot regulate rates, terms, and conditions, among other things, based on the Act. However, Board experience has been, and continues to be, that in many instances, the environment in which these companies operate (the only payphone available in a locale, for example) has created a captive customer, leading to opportunities for excessive rates. In order to cure this problem, the Board may seek rate caps or other action for these type of services to prevent the problem of the \$5.00 call from a child at the mall to home to be picked up; a call that was expected to cost \$.50. The Board continues to receive complaints on these services. The Board may seek legislative change to make clear that AOSs, Resellers, and Private Payphone providers were not intended to be relieved of Board regulatory oversight and rate regulation as is now the case.

In conclusion, the Board report finds that the Act has been a success; a success in stimulating the development of an advanced telecommunications network; a success in limiting regulatory delay

for competitive services such that the marketplace has been enriched by new services and new options for customers. The alternative regulation plan approved by the Board meets or exceeds the requirements of the Act. The Act and Plan are expected to be an even bigger success once the full effects of the technologically advanced network is in place and all of the economic and quality of life potential are available to all. Finally, in recognition of the on-going nature of telecommunications, the Board offers to prepare a follow-up report to be presented by January 1996.

SECTION II

BACKGROUND

II. BACKGROUND

A. TELECOMMUNICATIONS ACT OF 1992

In 1990, the Board commissioned an extensive study titled "The New Jersey Telecommunications Infrastructure Study" aimed at identifying the relationship between telecommunications and New Jersey's future. The study concluded that there is a direct causal relationship between an advanced telecommunications infrastructure and economic development. The study concluded that by investing in new and diverse communications services including voice, data, and video services, benefits will accrue to all sectors of the economy, producing jobs and thrusting New Jersey into the forefront of the "Information Age."

The conclusions drawn by the study supported the need for new ways to regulate and led to the Telecommunications Act of 1992 (Act). As a result of the advances in telecommunications technology, it was time for regulation to also change. The New Jersey Legislature adopted revised rules for the industry eliminating unnecessary regulatory barriers, defining a framework for competitive standards and safeguards, freeing Interexchange Carriers (Sprint, MCI, AT&T, etc.) from pricing regulation and permitting Local Exchange Carriers (NJ Bell, United, Warwick Valley) to petition the Board to be regulated under an alternative form of regulation.¹ The Telecommunications Act of 1992 (N.J.S.A. 48:2-21.16 et seq.) became effective on January 17, 1992. Appendix A contains the legislation which is referred to as the Telco Act of 1992 or the Act.

B. NJ BELL'S ALTERNATIVE FORM OF REGULATION

On March 31, 1992 New Jersey Bell filed a petition with the Board seeking consideration of a Plan for an Alternative Form of Regulation (Plan) as permitted by the Act. The filing was later revised on May 21, 1992 with final Board approval after modification coming less than a year later, on May 6, 1993. The Plan runs through December 31, 1999, with a commitment by NJ Bell to complete fiber optic deployment by 2010.

The Plan is one of the most significant undertakings in the Board's history and was shaped with input from people and parties throughout the State and the nation. The Board solicited wide input by inviting comments from interested parties through public hearings in diverse parts of the State, beginning in Trenton, moving to Hackensack and concluding in Millville. The Board held evidentiary hearings and heard testimony from 29 expert witnesses representing a total of 13 intervenors.

The hearings were the basis for vital changes that would help shape the Plan. Through all of this, the Board found it necessary to modify the Plan filed by NJ Bell to ensure that the public interest and welfare was protected. The Board ordered numerous modifications, including the

¹ NJ Bell is the only local exchange carrier in New Jersey to petition the Board to be regulated under an alternative form of regulation. United Telephone Company of New Jersey has expressed interest in pursuing an alternative plan; however, to date no plan has been filed.

assurance that residential basic service and low use message rate service rates would remain capped until the year 2000.

The Plan centers around an incentive-based alternative form of regulation -- one that departs from traditional rate base/rate of return regulation. The key component is the formula-based rate mechanism that utilizes the Gross National Product Price Index (GNP-PI), less a 2% productivity offset, as the basis for any increases or decreases in the rates of rate regulated services. A profit sharing provision is also a key feature of the Plan. In the event services become highly profitable, subscribers will share the benefits.

The following chart highlights how and when an increase, decrease or sharing provision is implemented. Increases correspond only to years when the GNP-PI less 2% productivity offset is greater than zero. Decreases correspond to years when the GNP-PI less 2% productivity offset is less than zero.

CHART 1

	Increases	Decreases	Sharing
Residential Basic Exchange Service	Capped through 12/31/99	Eligible after 12/31/95 if ROE is greater than 11.7%	Eligible to share in earnings on a 50/50 basis when ROE is greater than 13.7%
Rate Regulated Service ²	Eligible after 12/31/95 if ROE is less than or equal to 12.7%	Eligible after 12/31/95 if ROE is greater than 11.7%	Eligible to share in earnings on a 50/50 basis when ROE is greater than 13.7%
Protected Telephone Services ³	Eligible after 12/31/95 if ROE is less than or equal to 11.7%	Eligible after 12/31/95 if ROE is greater than 11.7%	Eligible to share in earnings on a 50/50 basis when ROE is greater than 13.7%

Rates will no longer be determined based on lengthy traditional proceedings to establish rate base and rate of return, but will take into account external (GNP-PI) and internal (Return on

² Rate Regulated Services include protected services and enhancements such as call waiting and call forwarding.

³ Protected telephone services include residential and business basic service, touch-tone service, access service not already deemed competitive, toll service, ordering, installation and restoration services.

Equity or ROE) occurrences. Resources are expected to be allocated with productivity and efficiencies in mind, and therefore, preclude unnecessary investments in plant to influence return. The emphasis will shift from one that seeks to maximize return through plant investment to one that seeks to introduce new products and contain costs.

The Plan, as modified, not only satisfies the Act's requirements and intent, but it provides a vehicle for NJ Bell to pursue the accelerated deployment of an advanced telecommunications network. Opportunity NJ, as the program is known, will bring interactive BroadBand capabilities to New Jersey by the year 2010 -- some 20 years sooner than would otherwise be possible. Taken in its entirety, the Plan re-focuses the traditional role of the telecommunications providers and positions New Jersey at the forefront of technology and regulation.

C. OPPORTUNITY NJ

Opportunity NJ entails the deployment of fiber optic and digital facilities throughout the State on an accelerated basis and is detailed at Section V. It involves the capabilities necessary to bring about New Jersey's modern telephone network and economic stimulus needed to help position New Jersey as a leader in the world of information. Opportunity NJ will benefit the State in different ways. It will increase employment directly by its construction activity, and indirectly by offering businesses the advanced communications networks needed to be competitive. The additional investment will increase local property tax ratables thus generating additional municipal revenues. Opportunity NJ will provide newer and diverse services, making the conduct of business for New Jersey firms more efficient and profitable. These modern services will also be available to all residents and are expected to improve the quality of life in the State in many ways. Section VIII attempts to quantify these opportunities with real world applications, mixed with some potentials.

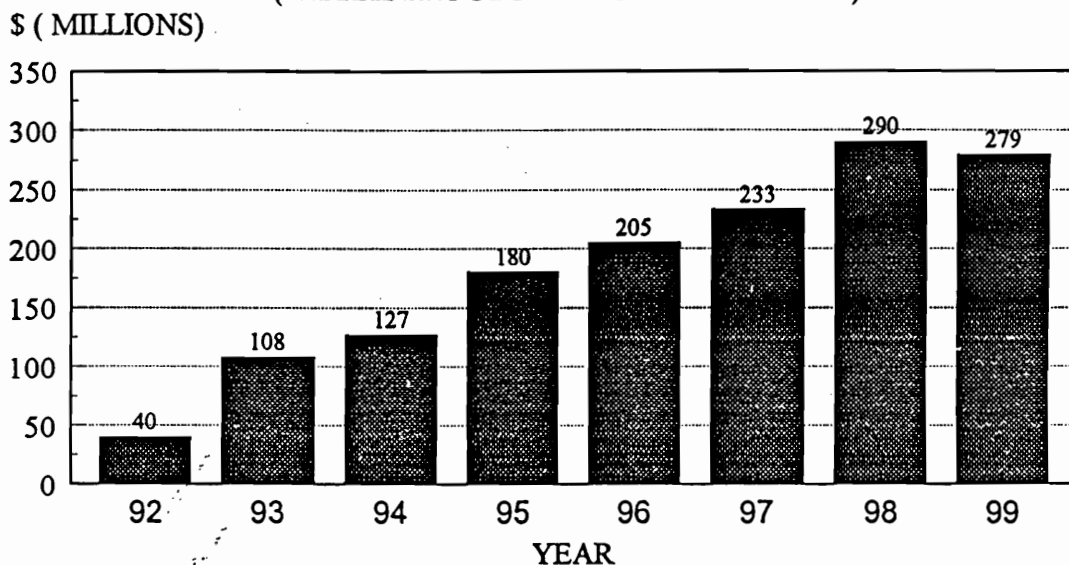
As part of Opportunity NJ, NJ Bell has committed an investment (estimated during the proceeding to be about \$1.5 billion) above its anticipated business as usual activity (about \$4.2 billion) to meet specific service capabilities on an accelerated basis. This investment in New Jersey will be used to upgrade all telecommunications plant providing service to businesses and homes in the State. This level of investment will make the direct, as well as indirect, economic benefits of Opportunity NJ possible.

Accelerated network modernization is a firm commitment by NJ Bell and is part and parcel of the Board's approved alternative regulation plan. This commitment is incorporated in the Board order approving the modified plan (See Section III for the details of the Board Order). Recognizing that certain elements of network modernization are based upon projections of technology, NJ Bell is required to meet or exceed the deployment levels of Opportunity NJ. NJ Bell will report its deployment annually. The Board has reserved the right to ensure that NJ Bell does not receive the benefits of incentive regulation without at the same time fulfilling its obligations under Opportunity NJ.

The Opportunity NJ modernization program for the telecommunications network infrastructure is shown by year in chart 2. The chart shows the incremental investment to be made from 1992 to 1999 inclusive. NJ Bell is on track in meeting its investment target but with a one year lag

due to the starting date of Opportunity NJ. The starting date for investment was approved along with the Plan. In 1993 and 1994 the additional investment for the acceleration of network modernization is \$108 million and \$127 million, respectively. The investment levels for acceleration gradually increase in such a manner that by 1998 the additional investment runs \$290 million.

CHART 2
OPPORTUNITY NJ
INCREMENTAL INVESTMENT
(INFRASTRUCTURE MODERNIZATION)



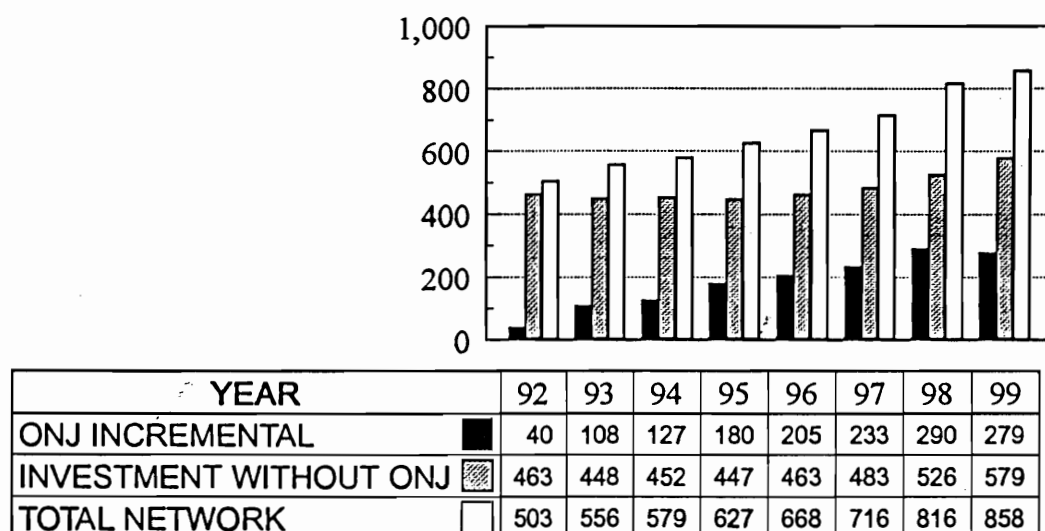
Per NJ Bell

This investment for accelerated purposes will be on top of planned expenditures throughout NJ Bell's serving area. Technology acceleration merges anticipated developments in telephone switching technology with the deployment of fiber optics and other transmission technologies so that new service capabilities will be made available as soon as possible to meet the requirements of New Jersey consumers. Switching technology is that technology that receives calls and routes them to their destination. Opportunity NJ will provide for the accelerated replacement of existing switching technology and of the copper wire now used to access the switch. The existing switching technology will be replaced with digital facilities. The copper wire will be converted to high speed fiber optics (glass strands capable of carrying voice as well as data and video communications). Opportunity NJ represents approximately 20% to 30% of NJ Bell's total construction expenditures.

The additional investment for acceleration purposes is shown in chart 3 along with the total plan for capital investment between 1992-1999. This chart also includes the total of these two

investment components. As pictured, the total network modernization investment planned for 1993 and 1994 is \$556 million and \$579 million, respectively. The network modernization levels gradually increase each year until 1999, to \$858 billion.

CHART 3
OPPORTUNITY NJ
INCREMENTAL CAPITAL INVESTMENT
and TOTAL PLANNED CAPITAL INVESTMENT
\$(MILLIONS)



Per NJ Bell

D. OPPORTUNITY US

The call for an accelerated modernization initiative of the telecommunications infrastructure is not strictly a local matter. The modernization of the telecommunications or information infrastructure is a national issue. The regional Bell Operating Companies, as well as the Independent Telephone Companies, have been promoting a modern infrastructure for some time. A modern infrastructure that enables the delivery of a wider range of services from simple dialtone to the more advanced telephone and data services that enable highly sophisticated video service is believed to be in the national interest. It is envisioned that the development of a modern telecommunications infrastructure will improve the quality of life in the United States and stimulate the economy by maintaining a competitive position in the global marketplace. As stated in the Clinton administration's agenda for action:

....Information is one of the nation's most critical economic resources, for service industries as well as manufacturing, for economic as well as national security. By one estimate, two thirds of U.S. workers are in information-related jobs, and

the rest are in industries that rely heavily on information. In an era of global markets and global competition, the technologies to create, manipulate, manage and use information are of strategic importance for the United States. Those technologies will help U.S. businesses remain competitive and create challenging high paying jobs. They will also fuel economic growth which, in turn, will generate a steadily increasing standard of living for all Americans.

The movement to modernize the nation's telecommunications infrastructure, coupled with current communications capabilities has stimulated information industry participants to focus their business on innovations and improved services. Industry members are beginning to realign themselves forming new ventures and uniting their respective areas of expertise to remain competitive. These areas have the potential to combine various information and telecommunications technologies to provide alternative uses and new services. A case in point is the recently announced merger of Bell Atlantic and Tele-Communications, Inc. (TCI). This proposed merger would bring together the long standing telephone experience of Bell Atlantic as well as TCI's cable television and competitive access businesses. Additional information concerning the merger is provided in Appendix B. Another case in point is the recent acquisition of McCaw, a mobile phone service provider, by the American Telephone and Telegraph Company (AT&T), a long distance telephone service provider. This acquisition brings together AT&T's land and satellite based long distance network and McCaw's wireless mobile serving area facilities. It represents a possible future combination of wireless and wireline services.

The modernization of the information infrastructure is stimulating all participants to modernize and bring information technologies to an enhanced level to remain competitive in the information marketplace. It is expected that this stimulation will bring to everyone all the benefits of the competitive marketplace including source diversity, increased product availability, increased service alternatives, improved service quality, increased circulation of capital and economic revitalization.

SECTION III

NJ BELL'S ALTERNATIVE FORM OF REGULATION

III. NJ BELL'S ALTERNATIVE FORM OF REGULATION

A. INTRODUCTION

The Act set forth eight (8) primary criteria that had to be met before the Board could approve an alternative form of regulation for a Local Exchange Carrier (LEC). It stated that

[T]he board shall review the plan and may approve the plan, or approve with modifications, if it finds, after notice and hearing, that the plan:

1. will ensure the affordability of protected telephone services;
2. will produce just and reasonable rates for telecommunications services;
3. will not unduly or unreasonably prejudice or disadvantage a customer class or providers of competitive services;
4. will reduce regulatory delay and costs;
5. is in the public interest;
6. will enhance economic development in the State while maintaining affordable rates;
7. contains a comprehensive program of service quality standards, with procedures for board monitoring and review; and
8. specifically identifies the benefits to be derived from the alternative form of regulation.

The following discussion examines the provisions of New Jersey Bell's alternative form of regulation. This discussion summarizes the Board's Decision and Order in Docket No. TO92030358 dated May 6, 1993, which approved NJ Bell's alternative regulation plan, and as such, is not intended to be the final word. The Order speaks for itself. This is a guide through the Order and for detail please refer to the Decision and Order (we note that the Decision and Order have been appealed by the NJ Cable Television Association and the Public Advocate, Division of Rate Counsel).

B. DISCUSSION

Two of the most important criteria that must be met before an alternative form of regulation could be approved were the provisions that ensure the affordability of protected telephone service and the guarantee that the overall rates for telecommunications service will be just and reasonable.

The Plan, as modified by the Board, accomplishes this through five separate mechanisms:

- 1) Rate of return/rate cap formula
- 2) Earnings reporting
- 3) Exogenous event
- 4) Revenue neutral rate restructures
- 5) Depreciation reports

Each will be discussed in a separate section that follows.

C. AFFORDABILITY OF PROTECTED TELEPHONE SERVICE AND JUST AND REASONABLE RATES

In discussing the affordability of protected telephone services the Board noted that currently, NJ Bell's basic service rates are the lowest of the former Bell operating companies and more than 40% below the national average. In fact, overall rates, including Message Telecommunications Services (MTS) remained unchanged since 1985 when the Board heard NJ Bell's last rate case at Docket No. 848-856. Moreover, reports received by the Board under an existing Rate Stability Plan (RSP) at Docket No. TO87050398 employing three cost methodologies (direct, embedded, and fully distributed) show that since the inception of the RSP in 1987, NJ Bell has not exceeded its authorized return on equity of 12.9% for the Group II non-competitive services.

As modified, the alternative regulation plan will provide for rate stability for all rate regulated services through 1995 and for residential basic exchange service through 1999. Combined with the fact that rates have been unchanged since 1985, residence customers in New Jersey will not see a basic rate change for a period encompassing almost 15 years, unless an exogenous event or revenue neutral rate restructure is approved by the Board.

In an additional effort to promote universal and affordable telecommunications services, the Plan will not affect Low Use Message Rate service and the Link Up America program, notwithstanding exogenous events and revenue neutral rate restructures (these are described later). Low Use Message Rate service is available to all residential customers for the purpose of providing low cost local calling on a measured basis, with the first 20 message units included in the monthly service fee. Link Up America is a program designed to promote universal service to low-income residential customers by offering discounted connection fees.

The Board concluded that the rates going-in were in fact affordable and just and reasonable and will remain as such given the provisions and safeguards contained in the entire Plan as modified by the Board.

D. FORMULA-BASED RATE ADJUSTMENT

A key component of NJ Bell's alternative form of regulation, as modified by the Board, is the formula-based rate mechanism that utilizes the Gross National Product Price Index (GNP-PI), less a productivity offset of 2%, as the basis for any increases or decreases in the rates of rate regulated services.

It departs significantly from traditional rate base/rate of return regulation in that rates are no longer determined on the net depreciated value of plant in service. Future investments in plant will be made on an economically justifiable basis. Resources are expected to be allocated with productivity and efficiencies in mind precluding unnecessary investments in plant to increase revenues. The emphasis will shift from one that seeks to maximize return through plant investment to one that seeks to introduce new products and to control costs.

The GNP-PI was selected over other price indices because it was found to provide the best measure of a telecommunications carriers' costs, and therefore more closely tied to actual operating costs. The productivity offset, on the other hand, is incorporated in the rate mechanism to ensure that changes in prices for telecommunications services closely match anticipated changes in the costs of providing those services. It is another means of ensuring that the relative affordability of service remains intact and is not eroded by advances in productivity.

E. IMPLEMENTATION THRESHOLD FOR RATE INCREASES AND DECREASES

After December 31, 1995, NJ Bell may increase or decrease rates for rate regulated (other than residential basic exchange service and Link-Up America) services by the change in the previous year's GNP-PI less the 2% productivity offset. NJ Bell, however, is not automatically granted a rate increase each year the GNP-PI exceeds 2%. The Plan sets forth specific guidelines that will provide the basis for all formula-based increases and decreases. No formula-based rate increases will be permitted for protected telephone service when NJ Bell's average intrastate return on equity (ROE) ⁴ for rate regulated services for the applicable twelve (12) month period exceeds 11.7%. Similarly, no formula-based increases will be permitted for other rate regulated services if the average intrastate ROE for the applicable twelve month period exceeds 12.7%. Lastly, no formula-based decreases will be required if NJ Bell's intrastate ROE falls below 11.7%. As previously noted, Residential Basic Exchange service, Low Use Message Rate service and Link-Up America will not be subject to formula-based increases. They will, however, remain eligible for rate decreases in any year that the GNP-PI is less than 2% (i.e., the adjustment factor is less than zero as a result of the productivity offset) and earnings are not less than 11.7%.

NJ Bell has been given the flexibility to forego formula-based rate increases for particular services when, in its estimation, the rate increase will produce revenue erosion as customers forego the service or seek alternative arrangements. In doing so, however, it cannot make up for the lost revenue through increases in other services.

F. REVENUE SHARING

As an added incentive for NJ Bell to manage costs efficiently and in recognition of NJ Bell's commitment to Opportunity NJ, the Plan provides for the sharing of excess earnings when NJ Bell's intrastate ROE for rate regulated services exceeds 13.7%. The earnings will be shared 50/50 between NJ Bell and all customer service groups.

⁴ The average ROE will be calculated based on the most recent four quarters available. NJ Bell must submit to the Board by October 31 preceding the anticipated rate increase/decrease data showing 1) the GNP-PI for the 12 month period ended September 30th and the percent change for that twelve month period; 2) calculations showing the rates to be adjusted; 3) calculations showing the average intrastate ROE for the most recent four months available for rate regulated services; and 4) tariff pages to reflect the revised rates.

G. EARNINGS REPORTING

The Board will require NJ Bell to continue to file monitoring reports for rate regulated services. The reports will be consistent with the format established by the Board in the predecessor Rate Stability Plan Order. This will be closely reviewed to determine if there are significant aberrations from trends that might necessitate further investigation into earnings or cost shifts.

H. EXOGENOUS EVENTS

In the event, during the life of the Plan, NJ Bell is confronted with a major, unforeseen or exogenous event⁵ that would have a material, substantial, and demonstrable impact on NJ Bell's financial condition, the Company would be permitted to file for rate relief notwithstanding formula-based rate adjustments.

The clause is to be used sparingly and not as a means to seek routine rate relief. The results of the impact will be allocated on a total company basis, between intrastate and interstate jurisdictions, and rate regulated and competitive services.

A filing must be made within sixty (60) days of the date on which the event(s) is known and calculated, but not more than twelve (12) months from the occurrence. Included in the filing must be: 1) supporting documentation; 2) evidence of the event; and 3) data quantifying the financial impact.

The Board has reserved the right to propose an exogenous event on its own motion in order to effect a rate decrease if it is deemed in the public interest. Additionally, the Board must approve any request for exogenous event relief before it can become effective. Furthermore, the Board has reserved its authority to determine appropriate rate design. In the event the Board chooses to reject or modify the Company's proposal for exogenous rate relief, the Company is prohibited from terminating the Plan or altering the proposed schedule for accelerated network deployment (Opportunity NJ).

I. REVENUE NEUTRAL RATE RESTRUCTURES

New Jersey Bell may submit a proposal to the Board for a revenue neutral rate restructure to address inconsistencies that may arise over time between current rate design and the effects of future competitive, technological, and regulatory changes. Revenue neutral rate restructures shall be generally limited within specific service categories and not be used to geographically deaverage rates. In order to ensure that the rate restructures are indeed neutral, NJ Bell will be required to provide documentation, calculations, and data, if necessary, to substantiate the requested rate restructures. The Board will review all relevant data and must approve a revenue neutral rate restructure request before it can become effective. As part of a revenue neutral restructure filing, NJ Bell must provide convincing and compelling evidence that no class of service would be unduly disadvantaged over another and that rates remain just and

⁵ Major, unforeseen or exogenous events can be both positive and/or negative.

reasonable. Lastly, the Board reserves the right to accept, reject, modify, or effect a revenue neutral rate restructure on its own motion. Regardless of the outcome of a revenue neutral rate restructure (either on NJ Bell's or Board action), NJ Bell will not be permitted to terminate the Plan or alter its scheduled deployment of Opportunity NJ.

J. DEPRECIATION REPORTS

In recognition that advances in technology have outpaced the underlying assumptions that were utilized to determine annual depreciation rates, and in recognition of the Company's proposed accelerated deployment of Opportunity NJ, the Board will permit NJ Bell to submit revised depreciation rates. Depreciation reports must be submitted annually and contain a detailed description on an account-by-account basis of all depreciation rate adjustments resulting from Opportunity NJ deployment, and identify the composite total depreciation rate.

NJ Bell shall employ the same depreciation methods and techniques as previously approved by the Board including the straight line method of depreciation. All proposed changes in depreciation rates must be submitted to Staff, who will review the proposed changes to ensure that they are reasonable and consistent with the Board's depreciation policies. Upon completion of the review, Staff will submit a written report to the Board advising it that the submittal is or is not in conformance with Opportunity NJ and Board depreciation practices. The Board reserves the right to require an audit, or initiate a formal investigation, and if found necessary, to order a change in the depreciation rates.

By instituting this rigorous review process, the Board is provided with the necessary framework to prevent the possible manipulation of depreciation rates to avoid earnings sharing or trigger a formula-based rate increase based on threshold ROE.

K. THE PLAN WILL NOT DISADVANTAGE A CUSTOMER CLASS OR PROVIDERS OF COMPETITIVE SERVICES

Another critical element of the Plan is the provision that it will not unduly or unreasonably prejudice or disadvantage individual customer classes or providers of competitive services. The following discussion is separated into two parts, the first dealing with individual customer classes and the second dealing with providers of competitive services.

L. CUSTOMER CLASSES

There are numerous safeguards in the Plan that are included to protect individual customer classes from being unduly or unreasonably prejudiced or disadvantaged. They include the Board's ability to review and approve all aspects of the Company's proposed rate design for formula-based rate adjustments, exogenous events, revenue neutral rate restructures, and depreciation rate adjustments. Additionally, the Board reserves the right to effect a revenue neutral rate restructure or an exogenous event filing on its own motion if it is deemed in the public interest. Furthermore, NJ Bell is specifically prohibited from making up for lost revenue in an instance when it foregoes an increase to a particular service by increasing another service's rate in order to compensate for the lost revenue. Lastly, NJ Bell is required to

file an annual report on the status of the implementation of the Plan which will aid in identifying any significant issues that may arise over time.

M. COMPETITIVE SERVICES

In order to safeguard competitive service providers from being unduly prejudiced or disadvantaged, the Board found it necessary to address three areas: 1) cross-subsidization, 2) imputation, and 3) unbundling.

N. CROSS-SUBSIDIZATION

The Act specifically prohibits the cross-subsidization of competitive services by rate regulated services. To protect ratepayers, the Board found it necessary to continue stringent non-structural safeguards to analyze revenue and expense categories. The Board was concerned with the issue of cross-subsidization before the Act and had been monitoring the profitability of both competitive and non-competitive services under the rate stability plan (Docket No. TO87050398). The tool used to determine if a subsidy existed was known as the Embedded Analysis System (EAS). The EAS has consistently shown, since its inception in 1987, that non-competitive services were not subsidizing competitive services. The Board continues to use this tool. To provide further assurances that costs are allocated properly on a going forward basis the Board ordered an operations review of the entire EAS process. This review will examine the methods used to allocate costs as well as those used to separate regulated and unregulated costs.

O. IMPUTATION

Another means of precluding the possibility of cross-subsidization is the provision prohibiting NJ Bell from charging itself less for a non-competitive tariffed service component included in a competitive service than they would charge a competitor. The Plan requires that NJ Bell set rates for its own competitive services, that include non-competitive tariffed service components, above the rate charged to others for the non-competitive components used in their competitive service.

P. UNBUNDLING

To promote and encourage the optimal utilization of the public switched network and to make available all subordinate components of competitive services as may be required by competitive service providers, NJ Bell must unbundle all non-competitive service components used in competitive services. The individual components must be made available to all customers, including competitors, on the same rates, terms, and conditions that NJ Bell provides the services to itself.

Q. REDUCES REGULATORY COST AND DELAY

The Act requires that any plan for an alternative form of regulation must reduce regulatory cost and delay. The Act did not specify a singular framework to accomplish this in order to foster innovation in the development of a plan. NJ Bell's Plan, as modified, will significantly reduce both cost and delay through the elimination of protracted rate cases with the implementation of the rate cap/price adjustment mechanism.

Over a ten year period encompassing 1976 through 1986, NJ Bell was involved in thirteen (13) rate proceedings, each lasting an average of 12.7 months. Using an estimation formula provided by the National Telecommunications and Information Administration (NTIA), NJ Bell calculated that rate base/rate of return regulation was costing New Jersey ratepayers \$30 million to \$40 million annually. Within the current framework of NJ Bell's Plan there would be no need for these types of costly and time consuming proceedings. The GNP-PI rate adjustment mechanism has the advantage of accomplishing rate increases or decreases through a predetermined formula that is readily calculated and easy to administer. It provides a streamlined approach to ratemaking in comparison to traditional rate base/rate of return regulation. Although no exact estimates have been established as to the expected cost savings, the Federal Communications Commission has determined that incentive regulation will substantially lessen regulatory costs (In the Matter of Policy and Rules for Dominant Carriers, CC Docket No. 87-313).

R. SERVICE QUALITY STANDARDS FOR BOARD MONITORING AND REVIEW

The Plan maintains its commitment to safe, adequate, and proper service through the continuation of the service quality standards that were developed as part of NJ Bell's Rate Stability Plan at Docket No. T087050398. NJ Bell is required to file quarterly service quality reports on 96 various service measurements to assist the Board in the detection of potential violations.

The standards, while comprehensive in nature, will be subject to review due to evolving technologies and availability of increasingly reliable equipment. The Board has targeted sometime in 1995 to begin a review of existing service quality standards and to examine any new or proposed standards that may merit implementation.

S. ENHANCE ECONOMIC DEVELOPMENT IN THE STATE WHILE MAINTAINING AFFORDABLE RATES

The Act declared that any alternative form of regulation must enhance economic development in the State while maintaining affordable rates. NJ Bell has made a commitment to accelerate service capabilities between 1992 and 1999 through the deployment of a technologically rich network. The network is the central theme behind Opportunity NJ, and will benefit individuals and businesses alike. Existing businesses will be able to compete more efficiently on a global basis as telecommunications play a larger role in their activities; and because telecommunications is a significant consideration in the business relocation process, New Jersey will clearly have an edge in attracting new businesses to the State.

- ♦ the deployment of an advanced, state-of-the-art telecommunications network by the year 2010 is ensured; and
- ♦ a comprehensive program of service quality standards, with procedures for Board monitoring and review, including a comprehensive review after technology deployment has commenced.

U. IS THE PLAN IN THE PUBLIC INTEREST?

Mindful that the Plan must be found to be in the public interest, the Board from the outset sought comment from all interested parties. Public hearings were conducted in diverse parts of the State beginning on September 8, 1992 in Trenton, moving to Hackensack on September 15, 1992 and concluding in Millville on October 29, 1992. The final Plan, as modified, incorporates many of the ideas that were presented throughout the proceedings and was found to be in the public interest.

SECTION IV

**THE EFFECTS OF THE
TELECOMMUNICATIONS ACT OF 1992**

IV. THE EFFECTS OF THE TELECOMMUNICATIONS ACT OF 1992

The Act had an immediate impact on the regulation of competitive services of interexchange carriers (IXCs) such as AT&T, Sprint, MCI, as well as the Local Exchange Carriers' (LEC) competitive services. Following is a discussion and analysis of what has happened since the adoption of the Act with regard to new rules, new services offered, rate increases or decreases, customer perceptions, experiences, and Board concerns.

A. COMPETITIVE SERVICES AFTER ADOPTION OF THE TELECOMMUNICATIONS ACT OF 1992

The Act precluded the Board from regulation of rates, rate structures, terms and conditions of service, rate base, rate of return and cost of service, for competitive telecommunications services. The Act, however, did not limit the Board's authority to determine whether an IXC can offer service in the State. The Board is charged with monitoring the competitiveness of services and, if necessary, reclassifying services to a rate regulated category if they are found to be non-competitive. The Board is also empowered to require LECs and IXCs to file tariffs. Not long after the adoption of the Act, the Board initiated a rulemaking proceeding to revise the regulatory structure for all carriers to conform with the Act. To this end, the Board sought to devise a system of notification filings for IXCs and LECs that would advise the public, Rate Counsel and the Board of all competitive service activity.

On May 18, 1992, the Board published a proposal to initiate a rulemaking proceeding in the New Jersey Register. On June 15, 1992 a public hearing was held before the BRC Commissioners during which oral comments were presented by MCI, New Jersey Bell, AT&T, and the Department of the Public Advocate, Division of Rate Counsel. Written comments were received from AT&T, New Jersey Bell, MCI, Sprint Communications Company Limited Partnership and Teleport Communications.

On April 30, 1993, the Board adopted new rules, N.J.A.C. 14:10-5 et seq., for the Regulation of Competitive Telecommunications Services which had been published in the New Jersey Register and which became effective on June 7, 1993. The Board determined to promulgate additional requirements applicable to local exchange carriers under N.J.A.C. 14:10-5.7. These will be the final rules for the regulation of new competitive local exchange company telecommunications services.

These rules serve as a mechanism for the Board to administer and structure the changes to the carriers' competitive services which have occurred as a result of the Act. The Act left the decision of whether or not to maintain the local exchange company's or IXC's competitive service tariffs up to the Board. The Board chose to require that companies file competitive service tariffs in order to help facilitate the monitoring of the competitiveness of telecommunications services. Monitoring is a key requirement of the Act. In addition, this decision will continue to facilitate the public's interest in these items, i.e., it would continue to give the public one place to go in order to obtain the companies' information on their services as opposed to calling or writing to the individual companies themselves (easier access).

B. BOARD'S FINDINGS OF COMPETITIVE SERVICES AFTER ADOPTION OF THE TELECOMMUNICATIONS ACT OF 1992

The success of the deregulation can be measured by a comparison of pre and post deregulation service offerings. Prior to the Act, which deregulated interexchange carriers' (IXCs) services, there were 13 IXCs; post deregulation there are still 13 IXCs operating in the State of New Jersey (however, two new competitive access provider companies, Access Transmission Services, Inc. and Cablevision Lightpath of New Jersey, Inc. have petitioned the Board for approval to offer service. If approved, this list will increase to 15). Chart 4 below represents by interexchange carrier the number of services each company had pre and post deregulation.

CHART 4
Service Offerings

Name of Company	Before	After
Atlantic Communications, Inc.	2	2
AT&T Communications of NJ, Inc.	23	43
Cable & Wireless Communications, Inc	12	14
Eastern Message of NJ, Inc.	1	1
MCI Telecommunications Corp.	14	18
LDDS Metromedia Communicatons	20	20
Metropolitan Fiber System of NJ, Inc.	2	2
M.H. LightNet	2	2
RCI Corp.	22	26
Teleconnect Long Distance Service & System Co.	10	10
Teleport Communications	1	1
Sprint Communications Co.	17	32
WilTel Inc.	4	16

Chart 4 shows that all of the interexchange carriers either increased the number of services they offer or kept the same number of services they had offered prior to the Act. No interexchange carrier's services were reduced. Our findings show that the companies that have significantly increased the number of services they offer were some of the largest interexchange carriers in New Jersey. This shows that the larger companies are aggressively competing with one another by offering more and different types of services for customers to choose.

The Act found and declared that competition would promote efficiency, reduce regulatory delay and foster productivity and innovation. Additionally, it found that permitting the competitive interexchange telecommunications marketplace to operate without traditional utility regulation will produce a wider selection of services at competitive market-based prices. As a result of these findings and declarations, the regulation of competitive services were redefined from one of traditional regulation, to one driven by the marketplace. The modifications made by the Board in response to the Act in the regulation of competitive services included the initiation of

the new competitive service rules as previously mentioned. In those rules all carriers were directed to continue to file tariffs for competitive services. Any tariff changes which resulted in the introduction of new services, changes to existing services, or an increase or decrease in rates were permitted to become effective with one calendar to five business days' notice to the Board by submitting a notification by letter, instead of a formal petition which required Board approval and took longer to accomplish. This change alone provided for a substantial reduction in the regulatory process and promoted the quick introduction of new services in response to the competitive marketplace. This reduction in regulatory delay allowed for more productivity on the part of the interexchange carriers.

Since the January 1992 signing of the Act and the deregulation of competitive services through September 30, 1993, there have been 128 competitive service notification filings submitted to the Board. The competitive service filings submitted included introductions of new services, increases/decreases of rates, new service enhancements and options, incentive discount plans, and quality of service guarantees, to name a few. These changes show that the change in regulation encouraged innovation, thereby producing a wider and greater selection of services from which New Jersey consumers can choose.

C. CUSTOMER COMPLAINTS

Staff has not received any written complaints regarding carriers' service since deregulation and only a few oral complaints.

D. POTENTIAL PROBLEMS RESULTING FROM DEREGULATION OF COMPETITIVE SERVICES

I. INTRODUCTION

On November 16, 1988, the Board of Public Utilities (BPU) predecessor agency to the Board of Regulatory Commissioners approved the publication of proposed rules pertaining to Alternate Operator Service (AOS) in New Jersey. An AOS provider competes with the traditional telephone company by providing operator assistance for calls such as collect, third party billed, and credit card calling. AOSs generally provide service to hotels, hospitals, and private pay telephones. Among other things, the rules required AOS providers to identify themselves as part of the call and either connect the consumer to the telephone carrier of choice or provide free access to the caller's chosen carrier. In addition, access to the local exchange telephone company was to be available. On August 4, 1989, following receipt of public comments, the Board adopted these rules as final, and they became effective September 5, 1989.

On January 12, 1990, State legislation pertaining to the provision of AOS was enacted (P.L. 1989, c337, N.J.S.A. 48:17-23 and 24). This legislation allows AOS companies or aggregators to block access to other operator service providers if the AOS provider obtains a waiver from either the Board or the Federal Communications Commission. In addition, rate quotes must be available upon request. However, the Legislature chose not to institute rate regulation. Finally, the legislation establishes the imposition of a fine for violations of the AOS rules.

The rules noted above attempted to provide end users with a choice of operator service providers by permitting operator competition to be developed in New Jersey within the context of the existing marketplace. Allowing free, direct customer access to the carrier of choice was expected to minimize opportunities for excessive rate levels. This was a major lynch pin in the Board's reasoning for permitting AOS without rate regulation. Thus, in formulating AOS rules, the Board stated: "[T]he new rules have been formulated to allow the AOS industry to operate on an interLATA basis with as few restrictions as necessary. However, this is to be done with the expectation that the industry will provide a competitively priced quality service in the public interest."

Unfortunately, a "competitively priced quality service in the public interest" has not always been the Board's experience, particularly with respect to the captive transient customer of the AOS. Since the inception of the rules, the Board has received numerous written customer complaints regarding the provision of AOS service, as well as many verbal complaints and inquiries. In addition, there have been similar complaints nationwide. Excessive price levels were the reason for the vast majority of the complaints received by the Board.

In 1991, as a result of its continued monitoring of the industry, the Board had expressed its concern with the frequency of complaints and the industry's apparent inability to self regulate. Therefore, the Board determined that more stringent regulation was necessary. Regulation beyond that enacted in 1989 became necessary because the anticipated competition had not materialized, in part, as a result of the failure of the AOS industry to provide free and equal carrier access to consumers to other operator service providers in those locations where alternate operator service providers exist.

In light of this the Board determined, first, that rate regulation could be appropriate and second, it would be necessary to improve and enhance the knowledge and choice of captive users regarding rates and access to the telephone network of choice.

Proposed rules were offered in the form of a Notice of Pre-Proposal on March 4, 1991 to allow interested parties ample opportunity to comment. If adopted, the pre-proposed amendment to N.J.A.C. 14:10-6 would have significantly changed the regulations which apply to the provision of AOS and would affect all AOS providers in New Jersey.

Rules similar to the AOS requirements were established for those entities reselling service and private pay phone providers. The rules and consequences generally followed the same path as the AOS pre-proposal.

The pre-proposal for each industry (AOS, Reseller, and Private Pay Phones) contained language that would have imposed more stringent regulations on these entities, such as limiting the rates that these providers may charge consumers. However, subsequent to the publication of these rules, the Telecommunications Act of 1992, N.J.S.A. 48:2-21.16 et seq., was signed which deregulated the rates, terms, and conditions of competitive telecommunications services in the State of New Jersey.

In light of the new regulatory environment created by the Act, on August 9, 1993, Board Staff sent a letter to interested parties seeking further comments regarding all aspects of the proposed rules as published, but especially on the Board's authority to regulate or limit the rates charged to consumers by Alternate Operator Service providers, Resellers of Telecommunications Services, and Customer Provided Pay Telephone Service (CPPTS) providers. Staff sought the comments so it may consider all options in evaluating appropriate further recommendations herein.

Comments were received from 12 parties, 8 alternate operator service providers, an association representing resale carriers, an association representing pay telephone providers, an individual pay telephone provider and the Department of the Public Advocate, Division of Rate Counsel. The AOS and CPPTS industries have clearly proclaimed their opinions that the Board has no authority to regulate the rates, terms, and conditions of their services. They suggest that last year the Legislature conducted an examination of the intrastate telecommunications marketplace. It found that the telecommunications services provided by IXC's are being offered on a fully competitive basis. They go on to suggest that there can be no question that AOS providers constitute interexchange carriers (i.e., long distance carriers) within the meaning of the statute because they are primarily engaged in the business of completing interexchange calls. Thus, they assert that the Legislature declared that traditional utility regulation is no longer necessary to protect the public interest, and carriers should be relieved from such regulatory restraints.

In light of this new legislation, these industries argue that the proposed rules cannot be adopted in their current form. While the Board retains the authority to require carriers to obtain permission before providing service within the State and regulate service quality, it no longer has the authority to regulate the rates, terms or conditions under which interexchange carriers provide service. Therefore, they conclude that the Board must substantially revise its proposed rules.

The only party to suggest that the Board's authority remains fully intact is Rate Counsel, who states that there has been no finding by the Board that the services of AOS, private pay phone providers or resellers are in fact competitive, such that they would have been deregulated by the Act. Rate Counsel is the only party whose comments dispute that these services are, in fact, competitive.

The Board is concerned that the legislation may have had the unintended effect of limiting or eliminating the Board's ability to restrict the rates of these providers, especially in situations where a captive market may exist. A captive market is a situation where the choice of carriers at a particular location is limited or non-existent from a practical standpoint, e.g. an end-user of a payphone may be considered to be in a captive market if there are no other phones around and also no opportunity to access a telephone carrier from that phone other than the carrier chosen by the person who controls the phone. The only alternative is to use another phone, which is not always a practical alternative. While the Board may wish to continue with current regulation, where customer choice is required and rate caps are not mandated and the market will determine rate levels, the Board may need the ability in the future to review rates and take appropriate measures to ensure fair and reasonable rates from these competitive carriers. One reason for this is that the Board continues to receive customer complaints of excessive rates

from AOS companies. In fact, 96% of the written complaints received in 1993 by the Division of Telecommunications were related to excessive AOS rates for payphones.

II. Need For Legislative Reform

In our opinion, for alternate operator services, resale and customer provided pay telephone services, the Board's ability to determine appropriate rate levels is at issue. The industry's position that the Board lacks the jurisdiction to determine rate levels is not consistent with the industry's lack of restraint and excessive price levels. Should the industry attempt to block efforts by the Board to implement its proposed rules, a modification of the Act may be necessary.

It is anticipated that implementation of certain provisions of the proposed rules, particularly those pertaining to rate regulation, will prompt a court challenge by the industry. However, some form of rate regulation is justified, based on consumer complaints and given the pricing behavior of the industry. It is our opinion that the provision of the Act which deregulated competitive services was not intended to thwart efforts of the Board to protect the consumers. Therefore, the Board may seek legislative discretion to permit it to regulate rates, terms, and conditions of service or other suitable methods for consumer protection.

SECTION V

ADVANCED TELECOMMUNICATIONS SERVICES

V. ADVANCED TELECOMMUNICATIONS SERVICES

A. BASIC NETWORK DEVELOPMENT

To deliver the advanced telecommunications services promised by Opportunity NJ, modern technology must be deployed on an accelerated basis. This deployment will serve to modernize the transport, intelligence, and switching components of the telecommunications infrastructure. These modern features will be obtained from fiber optic facilities in the transport component, all digital facilities in the switching component and advanced intelligent signalling systems deployed throughout the network. The transport functions provide the physical connections between two points. It includes the transport of messages to the home and between serving offices. The signalling/intelligence function allows communication between switching elements to properly set up, transfer, and control calls within the network. The switching function, together with the network intelligence function, routes communications from one caller to another and administers the connection.

The advancement over time of the new technologies is illustrated by the deployment levels and time frames for digital switching and for modern intelligence/signalling technology shown at Chart 5. It shows fiber optic deployment levels in the interoffice network, the feeder network, and the distribution facilities. As demonstrated in the chart: 99% of all network access lines (NALs) will have the latest in network intelligence signalling systems (SS7) available in 1993, and digital switching will be available to all access lines by 1998. Furthermore, by 1998, at least 36% of all access lines will have some fiber as part of the connection and 18% will be all fiber. Combinations of wire and fiber provide for greater availability of NarrowBand and WideBand services (these terms are explained later).

**CHART 5
ENABLING TECHNOLOGY DEPLOYMENT**

Percent Network Access Lines	1993	1994	1995	1996	1997	1998	1999
Digital Switching	68%	80%	86%	90%	96%	100%	100%
SS7	99%	99%	99%	99%	99%	100%	100%
Fiber Feeder	9%	11%	16%	18%	18%	18%	18%
Distribution Fiber	1%	2%	3%	6%	11%	18%	26%

Per NJ Bell

Digital switching and intelligent signalling technology are needed to provide advanced intelligent network (AIN) services. Signalling System 7 provides the network intelligence to effect advanced service processing and provides greater customer control of features. The network uses this signalling to talk to its various switching units to provide special features without tying up lines reserved for you and me to talk with each other.

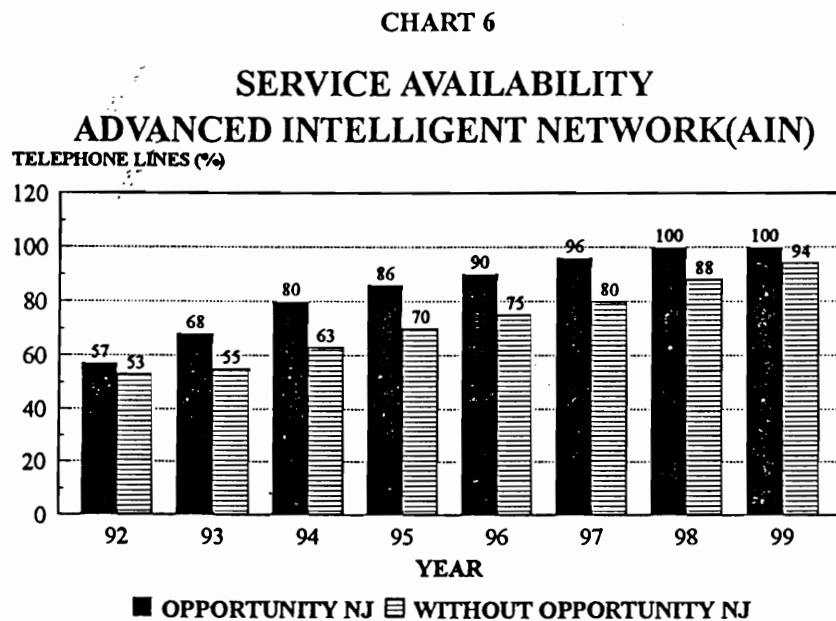
B. ADVANCED NETWORK DEPLOYMENT

Opportunity NJ is an evolving plan designed to bring new technologies and services to the business and residence market. This section will explore some of the services Opportunity NJ's technologies make possible and how businesses and residences will benefit. These are not intended to be all the specific services but rather infrastructure development technologies that will support one's imagination in providing communication services.

I. ADVANCED INTELLIGENT NETWORK SERVICES

The first installed technology under Opportunity NJ is what will be referred to as Advanced Intelligent Network (AIN). AIN deploys digital switching and signalling systems and provides call routing and database access services. AIN enables "follow me" type services, that permit customers to program the public switched network to forward their calls automatically to different locations depending on the time of day.

The initial availability of AIN was in 1992 and the technology will reach 100% deployment by 1998. A comparison of the service availability of the AIN with Opportunity NJ and without it is summarized as:



Per NJ Bell

AIN architecture consists of a number of software and hardware components, which can be introduced into the network as required to support desired services. This enables the initial deployment of a subset of AIN capabilities (which may vary from location to location) with additional functionality as demand requires. AIN capabilities and physical systems deployed

depend on a variety of factors including existing network characteristics, types of services to be deployed, and desired ubiquity of services. No one solution is best for all network providers; the flexibility of the AIN architecture could support varied needs.

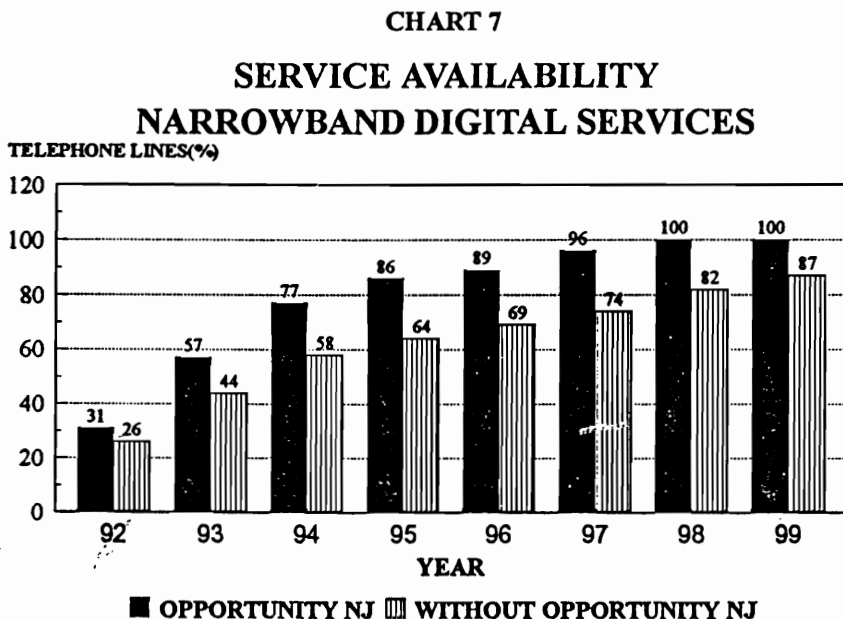
The following are examples of services made possible by AIN. At the present time, Centrex Extend is being offered on a competitive basis under tariff and Voice Activated Dialing is being tested on a trial basis. The other services are technological capabilities which do exist and the telecommunications market will determine if these services come to fruition.

1. Single Number Service - This service would provide businesses with multiple locations the ability to have their customers dial a single number and be connected to the business location nearest their homes. An example of how this would work would be if an appliance company such as Whirlpool designated a certain number such as 1 (800)SERVICE for New Jersey customers to call for information or repair. AIN would connect callers to their nearest Whirlpool appliance dealer or authorized repairman.
2. Automatic Callback Incoming (ACI) - This service would allow a small business customer to have callers who reach a busy signal be given the option to remain on hold, leave a voice message or be placed on a "callback list." Callback information is obtained automatically through Caller ID or interactive voice prompts to the caller. Later, when the business' phone becomes idle, the service assists in returning calls to the person on the callback list.
3. Personal Access Service (PAS) - This service could allow specialized call forwarding service allowing a residence or small business customer to direct calls to different locations based on the time of day. An example would be a subscriber who could transfer calls to her office during the day, change the forwarding instructions to follow her to a visit with her mother and then send the calls back home again.
4. Centrex Extend - This service allows medium to large business customers to connect multiple remote locations on a single network and treat them as though they are within the same building or served by the same central office. Customers are able to use abbreviated dialing to connect their locations.
5. Customized Intercept Call Completion (CICC) - This service would allow residence or small business customers to have callers who reach an intercept message to be automatically connected to them. Examples of how this works would be if the customer moved or changed his telephone number, he could program a specific message informing the caller of the move or number change and then have the caller automatically connected to the customer's new location or telephone number.
6. Voice Activated Dialing - This service will allow residence customers to have calls completed or functions like call forwarding done by issuing a voice command. For example, the customer could instruct the system to "dial mom" and it would automatically connect him/her with mom. An important use will be for the elderly or

handicapped where number recall or dialing capability is limited. This service is currently available in one location in the State on a trial basis.

II. NARROWBAND DIGITAL SERVICES

The second technology level beyond the AIN services are the NarrowBand Digital services. NarrowBand Digital Services are switching technologies which transmit data up to 144,000 bits per second. The NarrowBand capability enables services to meet the requirements of customers who use any combination of work stations, personal computers, FAX machines and telephones. The initial availability of NarrowBand capability was in 1992 with 100% deployment expected by 1998.



Per NJ Bell

Examples of services either already available or potentially available based on NarrowBand technology include:

1. Integrated Services Digital Network (ISDN) - ISDN is currently available and provides end-to-end digital connectivity to support a wide variety of services. The ISDN offers residence, small, medium and large business customers the ability to combine work stations, personal computers, FAX machines and telephones with simultaneous voice, data and imaging capabilities over the same line. A large business customer could use ISDN to facilitate employee work-at-home (telecommuting) projects, allow a series or cluster of work stations to share the same line to simultaneously transmit data and/or make calls to different locations or customers. Large businesses could also use the service so that employees at different locations could view the same spreadsheet on a computer and discuss it over the phone without tying up two lines. Simultaneous voice

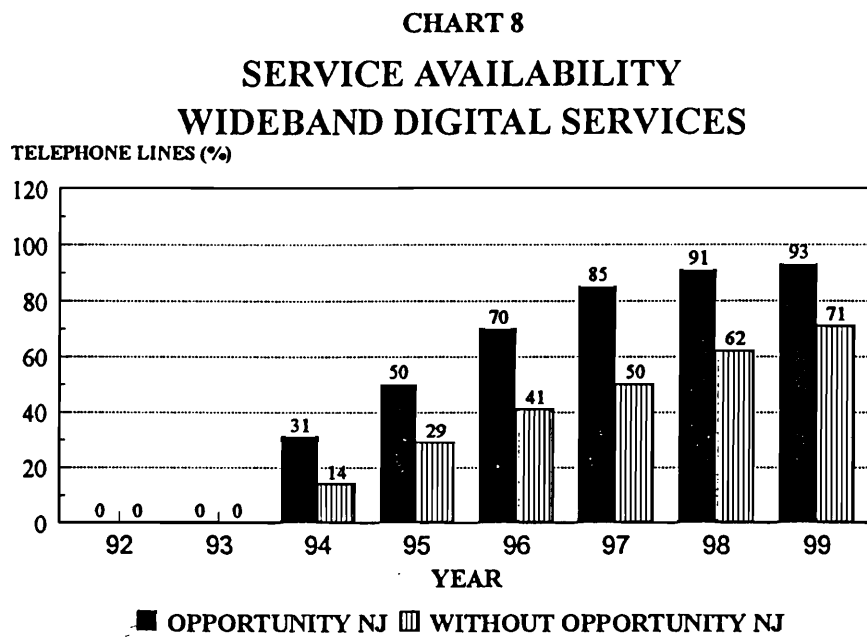
and data capability could also expand a medium or small business' capabilities. For example, a lumber yard or plumbing supply store could be responding to customer questions on the telephone while at the same time electronically ordering inventory from their suppliers and verifying a credit card transaction for a tradesman at the store. Residence customers can likewise benefit from this capability. For instance, a residence user could simultaneously receive a FAX from the office, interact with a computer service and talk to a son or daughter away at college over the same line. This eliminates the need to have separate lines/numbers for the customer telephone, personal computing and FAX needs.

2. 9-1-1 - Opportunity NJ NarrowBand capability may at some point in the future make it possible to provide a new, more reliable version of 9-1-1 service known as Network 9-1-1. The use of fiber rings and trunking, in conjunction with distributed call processing at the end office level would increase reliability and minimize the possibility and impact of a catastrophic switch failure. This will further enhance the security and reliability of data communications for the service.
3. Videotelephony - This potential new service could allow a residential customer with a videophone to make and receive calls from other videophone or telephone users. Calls between two videophone users could allow them to see each other. The voice and video images could be transmitted over a single line.
4. Data Grade "POTS" Service - This service would allow small business and residence customers to use an ordinary telephone line for faster nearly error free data transmissions. This system upgrade is expected to eliminate data transmission errors experienced at slower voice grade speeds. Residence users of computer services would find this useful because it would reduce incidents of "lost data" and increase the speed of transmission thereby shortening the length of the call.
5. Home Automation - Again, a potential service that could allow a residence customer to call home and through their telephone line turn on heat, lights, air conditioning, etc. This is available through current technology to customers with the necessary equipment. Essentially, this service computerizes the home. Future enhancements expected by the year 2000 will include the ability to have voice activated commands for house access so that a verbal command would unlock and open doors to the users home. Availability of this capability will require and depend on further development and appliance manufacturer upgrades to accommodate remote access or voice commands.

III. WIDEBAND DIGITAL SERVICES

The next technology level known as WideBand Digital Services brings us closer to the network of the 21st Century. The WideBand Digital Services are the switching technologies which are matched with transmission capabilities to support data rates up to 1,500,000 bits per second (1.5 megabits). The WideBand capabilities enable services, for example, that will allow students to remotely access multimedia information, including video, from home or school. The initial

availability of WideBand services will be in 1994 with approximately 95% deployment in the year 2000.



Per NJ Bell

As evident from the chart, without Opportunity NJ WideBand Services would be about 70% available by the year 2000; with Opportunity NJ this jumps to 93%, or nearly everywhere.

Some examples of known WideBand Digital services include:

1. *Video on Demand* - This service, which is currently being tested by approximately 400 Bell Atlantic employees in Northern Virginia, allows residence customers to use ordinary telephone lines to call a video library and "rent" a movie. Residential customers using video on demand will be able to access any movie or video without having to leave home and go to a video store only to discover that all copies of the movie they wish to see are out. Handicapped persons and "shut-ins" will be given whole new opportunities beyond ordinary cable television.
2. *Multimedia Database* - This service will allow a computer user to interact with a computer database for video and text information. A trial of this service is expected to begin in September 1994. An example of how this service could be used is a biology student using the system to dissect a video simulated frog. Unlike a real frog, the student could perform a dissection of the video simulated frog several times, each time exploring different areas of the frog. The student could also use the database to research

answers to questions on the frog's anatomy or for further study in biology. These forms of interactive video studies could save a school the expense of costly supplies.

3. *Asynchronous Transfer Mode (ATM) Cell Relay Service* - This service would eventually, once approved, give large business customers the ability to combine various services such as video, voice, imaging and high speed data. An example of how this could be used would be for videoconferencing. Companies could have individuals video conference on a desk to desk basis or room to room basis.
4. *Switched Multimegabit Data Service (SMDS)* - This service would give a large business customer the ability to use high speed packet switched data capability to interconnect local computer networks without requiring the customer to set up a connection through NJ Bell's network before sending data. Since every SMDS user can have their own unique network "address," packets of data could be sent independently, like a letter using the source and destination address to control data transmission.

A new technology is being developed and deployed in conjunction with existing WideBand services to provide a near BroadBand quality (i.e. motion picture quality). The advantage of this technology, which is known as Asymmetrical Digital Subscriber Line (ADSL), is that it utilizes existing copper cables and thus, can be used to accelerate the deployment of certain services that may require the replacement of copper lines with fiber optic cables. BroadBand utilizing fiber optics, however, will enable even higher quality video than does ADSL. In addition, ADSL is not capable of providing the same speed in both directions.

Nevertheless, there are some specific services which can take advantage of ADSL technology, at least until the deployment of fiber optic based BroadBand technology. One application that is ideally suited to utilize ADSL technology is distance learning. Under this technology the speed of data transfer need not be the same in both direction (i.e. from user to network and from network to user), since in distance learning the user sends very little data to the network (i.e. a few key strokes or mouse movements). ADSL could be a cost effective technology for such an application.

IV. BROADBAND DIGITAL SERVICES

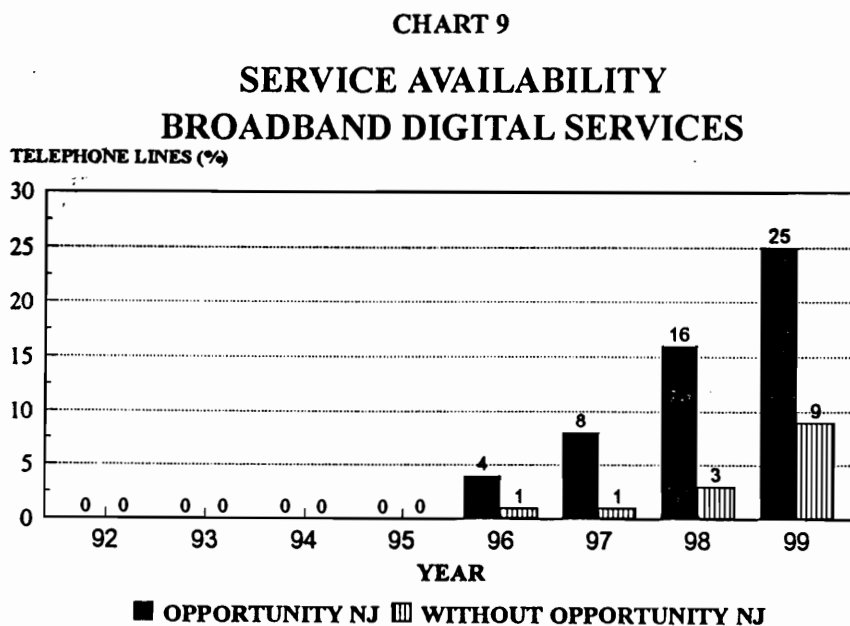
The final level of technology under the Plan are the BroadBand Digital Services. The BroadBand Digital Services are switching technologies which support data transmission of 45,000,000 bits per second and higher. BroadBand provides the full range of high definition TV as well as two way interactive capabilities.

The requirements for BroadBand capabilities are driven by advances in computer technology. As a result of increases in the processing power of computers, there is a need for higher bandwidth networks. Computers are increasingly able to execute "multimedia" applications, so it is expected that future networks must be able to carry several kinds of traffic. BroadBand networks will lead to applications that are used for a wider range of capabilities, with emphasis on image-based communications.

The computer and telecommunications industries have conceived BroadBand network designs for these requirements, with fiber optic links as the key component. However, replacing the smaller capacity links in current networks with higher bandwidth fiber optic links is not all that is needed, improvements in protocol and switch design must also follow. Future switches must have more processing power in order to keep pace with the faster flow of traffic through the links. They will also be designed in a way that allows them to handle different types of traffic (e.g. integrated services). Today's switching technologies do not have this capability. The telephone network's circuit switches are suited for voice traffic, while special networks are needed for video. The "integrated services" concept envisions networks that use the same links and switches for all types of traffic, instead of different technologies for video, data, and voice.

The initial availability of switched BroadBand digital services will be in 1996 with approximately 35% deployed by the year 2000. The complete deployment is not expected until 2010. The potential for optic switches that use beams of light to maintain the flow through fiber optic lines is also possible. This would mean that traffic would not have to be slowed down and converted into electrical impulses to be switched. Rather, traffic flow and switching could take place at the speed of light, with near instant access to the entire world of information.

Although many of the capabilities of BroadBand are discussed in greater detail in the distance learning, health care and technology sections, below is a brief description and some actual examples.



Per NJ Bell

1. High Definition Video - This service would give the customer CD quality sound and video images so sharp that it would be like being in a movie theater. A residential customer could watch a favorite sitcom and get the feeling that they were sitting in the

studio audience. Doctors could perform remote diagnostics and patient consultations without leaving their offices. Imagine a family doctor in Vineland examining an angiogram with a doctor at Deborah Hospital and discussing treatment alternatives, or an orthopedic surgeon from the Hospital Center at Orange diagnosing a Salem patient's scoliosis condition through a life-like video image of the patient and X-rays displayed in a doctor's office in Salem.

2. Interactive Video - This service would give customers many of the advanced capabilities displayed in recent TV commercials such as a student attending classes from home, actively participating in the class discussion by signaling the professor, and asking a question as though they were in the same room. Other capabilities of interactive video include the "couch potato" directing a sporting event by choosing what camera angle to view or a music lover selecting what songs are played at a concert. Also, imagine shopping from your chair at home. Interactive video could allow you to browse the shopping centers for your favorite stores and discuss purchase options with a salesperson at the store.
3. Multimedia Applications - Multimedia applications take advantage of the capability of high-bandwidth integrated services networks to deliver many different kinds of data, video, image, audio, and text and numerical data. They also take advantage of the processing power of advanced workstations and other devices attached to the network, allowing users to edit, process, and select data arriving from a variety of sources over the network. Multimedia applications have been suggested for a large number of areas, including education and health care. There are many different concepts for delivering multimedia catalogues for home shopping, information services, entertainment video, and videotelephone services. Many segments of both service and manufacturing industries are increasingly using image-based applications (for example, computers are widely used in the publishing and advertising industries to compose pages using high-resolution images).

In education, multimedia could be used in computer-based instructional materials. Multimedia databases would give students and teachers access to image and video data. Video conferencing and collaborative applications could enable closer interaction between teachers and students at multiple locations. For example, it might be possible to better emulate the classroom environment by allowing more two-way communication than is currently possible. Students might also be able to select a particular view of an experiment being demonstrated by a teacher.

SECTION VI

QUALITY OF SERVICE

VI. QUALITY OF SERVICE

A. INTRODUCTION

Quality of Service (QOS) standards for telephone companies in New Jersey have existed since 1978 and are memorialized in N.J.A.C. 14:10-1.10. These standards and their measurement thresholds were originally defined through consideration of generally accepted telephone industry design and operational standards and are conceptually similar to QOS standards used in most states.

During the Board's consideration of NJ Bell's proposal for a Rate Stability Plan (RSP) beginning late in 1986 (at Docket No. TO87050398), Staff became concerned that the basic rate capping aspect of the then NJ Bell proposal might lead the company to expense cutting as an effort to maximize its financial performance. Such expense cutting could thus lead to a deterioration in the Company's service quality.

A QOS monitoring program was appended to NJ Bell's RSP proposal that called for increasing the quality standards to NJ Bell's then current average performance levels, the establishment of exception and surveillance monitoring thresholds, the violation of which would trigger automatic reports of corrective action to Staff or the Board, positive reporting to Staff of all QOS measurements quarterly, and explicit Board authority to take action against any degradation of service. The Board approved the concept of making RSP's acceptance dependent upon continued high service quality in the Board's Order.

This effort proved successful in that NJ Bell's service quality generally improved over the six years of the RSP. NJ Bell failed to achieve all its quality standards only once since 1987 and this was due to a strike against the Company from August 6 to September 15, 1989. Even during the reporting period including the strike, NJ Bell met the QOS standards in 80 of its 96 measurements.

Moving forward in time to alternative regulation, the same basic concerns arose. In The Matter of the Application of NJ Bell for Approval of its Plan for an Alternative Form of Regulation (Plan), NJ Bell asserted that it will continue to file reports demonstrating compliance with the RSP QOS standards and would "continue to work closely with the Board's Staff to identify whether additional standards are necessary." No mention was made of increasing the QOS thresholds to current performance levels or continuing the public protections already in existence.

During the Plan proceeding, several intervenor parties testified on the topic of service quality, which is one of the Act's criteria. A comprehensive program of service quality standards with procedures for Board monitoring and review to ensure the provision of safe, adequate, and proper service was deemed necessary to meet the Act's requirements. Consequently, the Board modified NJ Bell's proposal to fully incorporate the now prevailing QOS standards. That is, the Board retained all of the old RSP mandates. The reason for this is because the construction of the network was not yet underway. The Board ordered a complete review of service quality standards to be instituted in 1995, after the technology has begun to be deployed.

B. BUSINESS CUSTOMER SURVEY ON SERVICE QUALITY AND COMPETITION

As a follow-up to the Board's intent of thoroughly reviewing service quality, Staff developed a service quality survey for the business community which was mailed to survey participants in early 1992. Board Staff took advantage of the service quality survey vehicle to also elicit information on competition.

The business survey was taken as part of the Board's outreach effort to learn users' viewpoints. Staff surveyed the business community to learn their views of the telecommunications environment rather than waiting for members of the community to seek us out when circumstances dictate, or learn from the carriers. The survey is included as Attachment A at the end of this Section. As part of this effort, letters were sent to local businesses and Staff was made available to handle any inquiries and concerns. The survey was conducted to assist with the implementation of portions of the Act. The intent was to gain business views on telephone quality in the State while at the same time generating information on competition.

The areas probed were the subjective values of the business constituency. In essence, business subscribers were asked how they "feel about their telephone service" to gain a humanistic view of what can be a very technical subject. Staff sought subscriber participation in grading the quality and availability of service as well as the treatment received from their service providers. While the 22 percent of customers electing to participate in the survey initiative is lower than anticipated, the results, nevertheless, are informative and useful.

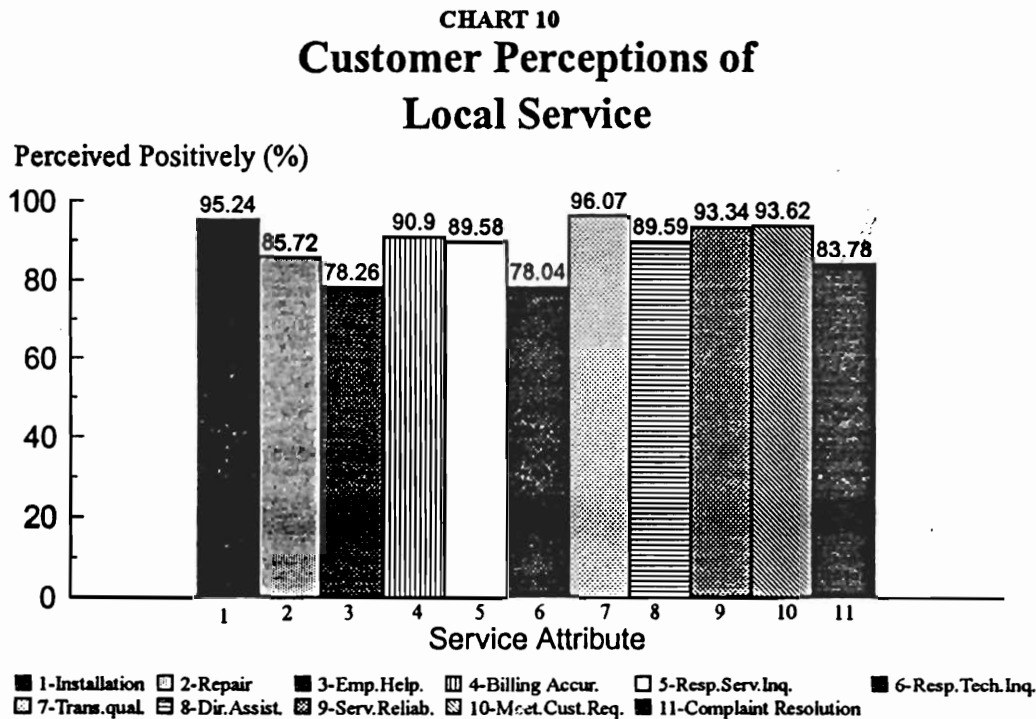
The results reinforce the hypothesis that customers perceive the quality of their telephone service positively with an average of 89 percent describing the eleven service items as excellent, very good or good.

The eleven service items analytically describe and define those attributes of telephone service which all of us deal with in our work lives. That is:

- Is installation of working telephone lines on time and without problems?
- Are repairs made efficiently when needed?
- Do telephone employees demonstrate a helpful attitude when contacted?
- Are bills mailed consistently, are they understandable and accurate?
- Is the telephone carrier responsive to questions about service?
- Is the telephone carrier responsive to compatibility inquiries, interfacing requirements with other carriers and unique difficulties?

- Is the service free of static, noise, interference from other lines and of sufficient volume?
- Are calls for Directory Assistance handled efficiently, politely and accurately?
- Can the customer count on telephone service with assurance?
- Do the service offerings available from the telephone carrier meet the perceived needs of the customer?
- Are customer appeals handled fairly and in a timely and professional manner?

The following depiction, on a scale of 0 to 100, emphasizes these results.



We observe that customers perceive the technical quality of telephone service itself very highly with over 96% positive on transmission (item 7) and over 93% believing their service is reliable (item 9) and meeting their requirements (item 10). Both billing (item 4) and directory assistance (item 8) also received good grades. The lowest ratings were for employee helpfulness and responsiveness to technical queries, both in the 78% range. There is an almost ten percentage points difference between customer perceptions of installation (item 1) and repair (item 2), even though both functions are performed by the same technicians.

The second major dimension probed by the survey was customer perceptions of interLATA and intraLATA competition. For both interLATA and intraLATA calling, customers were asked to rate seven Carrier Selection Criteria on a five point scale. The scale was used to establish relative customer perceptions of the importance to them of the seven criteria. The five point scale, similar to the five point A,B,C,D,F scholastic grading system, was assigned values of 4, 3, 2, 1, 0 to develop a "grade" for each criteria based upon the norm of a C being a 2.00. The grades, themselves, are meaningless outside the context of this comparison.

CHART 11
Customer Perceptions
of Carrier Service Features

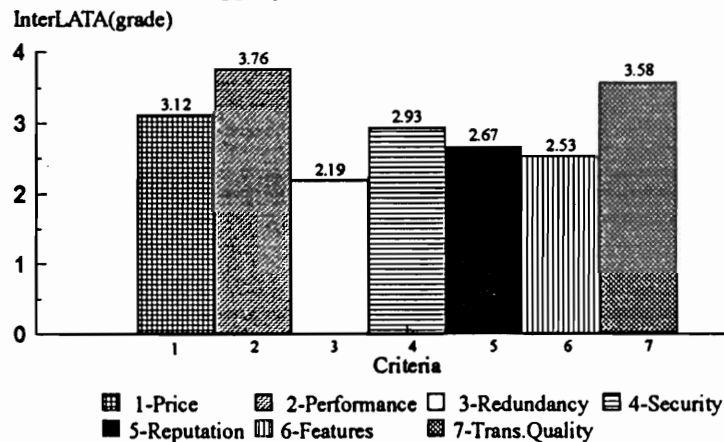
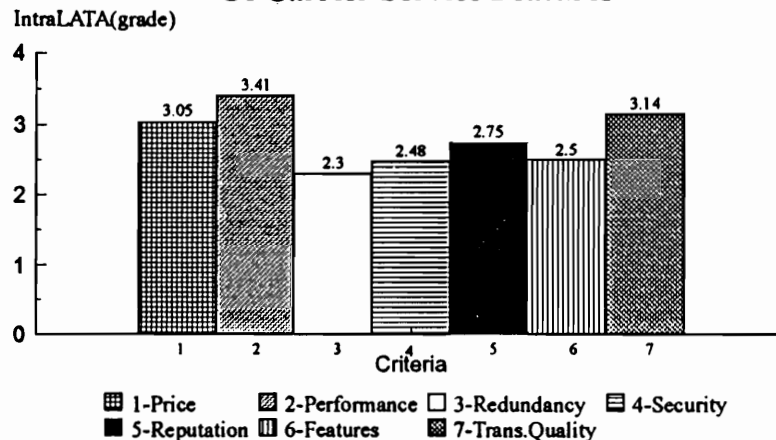


CHART 12
Customer Perceptions
Of Carrier Service Features

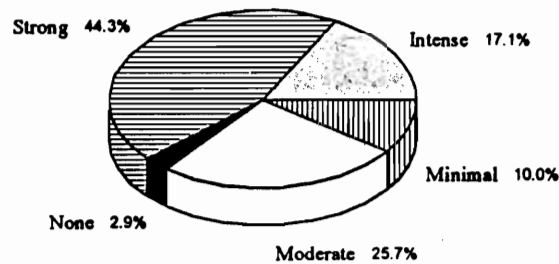


Staff observes that customer rankings for both inter and intraLATA carrier selection criteria are consistent, with performance, transmission quality and price, respectively, receiving the top three gradings in each case. Since both performance and transmission quality imply

functionality, it is clear that customers perceive "how well it works" to be a top consideration. Redundancy scored last in both measures.

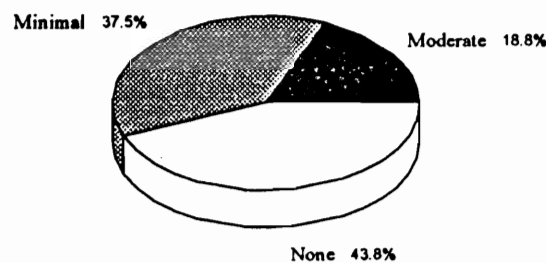
Concerning interLATA calling, customers also were asked to rate their perception of competition on a five point scale ranging from none to intense with the following results:

CHART 13
Customer Perceptions of Competition
on InterLATA Calling



Combining the results for intense, strong and moderate yields, 87% of customers perceived noteworthy levels of competition whereas only 13% perceive minimal to no competition. The same analysis as that of the foregoing for intraLATA calling indicates:

CHART 14
Customer Perceptions of Competition
on IntraLATA Calling



Again, combining the top three categories, only 19% of customers perceive noteworthy competition whereas 81% perceive minimal to no competition.

The results also indicate that business customers understand the competitive differences currently existing between interLATA and intraLATA calling, with 87 percent describing

interLATA competition among carriers as intense, strong or moderate; whereas only 19 percent described intraLATA calling similarly.

Almost one-third of those responding took the opportunity to offer unstructured comments about telecommunications in New Jersey. These were interpreted as being particularly meaningful since the comments reflect "what is on people's mind." The two most mentioned subjects were dissatisfaction with privately owned pay telephones and alternative operator provider served public phones and annoyance with bothersome promotional efforts by interexchange carriers. Not far behind was the perceived need for intraLATA calling competition. It is interesting to observe that while customers desire the benefits of multiple suppliers seeking their business, customers also decry the aggressive efforts of multiple suppliers seeking to attract their business.

In summary, and based upon these survey responses, the results indicate that:

- Business customers perceive the quality of telephone service in the State positively; and
- Business customers appreciate the effects of competition while being annoyed with the consequential inconvenience of aggressive promotion by carriers.

ATTACHMENT A

Service Quality Survey

Name of Company	_____
Person Responding	_____
Phone Number	_____
Telephone Company	_____
Telephone service type	_____

Service Perception Checklist

During the past 6 months my service experience with the following items has been: (Place a check in the appropriate box)

<u>Item</u>	<u>Excellent</u>	<u>Very Good</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Installation					
Repair service					
Employee helpfulness					
Billing accuracy					
Responsiveness to service inquiries					
Responsiveness to technical inquiries					
Transmission quality (voice)					
Directory assistance					
Service reliability					
Meeting customer requirements					
Complaint resolution					

Please enter N/A on any line where you have no response.

Comments:

INTERLATA CALLS (CALLS HANDLED BY LONG DISTANCE CARRIERS)

Perceived level of competition

Companies Used Telecom None Minimal Moderate Strong Intense
Service

Other Companies Considered

Carrier Selection Considerations

(Place a number from 1-5 on the line,
where, 1 = very important and 5 = not
considered)

Price _____
Performance _____
Redundancy _____
Security _____
Reputation _____
Features _____
Transmission quality _____

Comments:

INTRALATA CALLS

Perceived level of competition

<u>Companies Used</u>	<u>Telecom Service</u>	<u>None</u>	<u>Minimal</u>	<u>Moderate</u>	<u>Strong</u>	<u>Intense</u>

Other Companies Considered

Carrier Selection Considerations

(Place a number from 1-5 on the line, where, 1 = very important and 5 = not considered)

Price_____

Performance_____

Redundancy_____

Security_____

Reputation_____

Features_____

Transmission quality_____

Comments:

SECTION VII

SOCIAL AND ECONOMIC IMPACT

VII. SOCIAL AND ECONOMIC IMPACT

A. ECONOMIC DEVELOPMENT/JOB CREATION

In 1990, the Board commissioned a study titled "The New Jersey Telecommunications Infrastructure Study" that was aimed at identifying the relationship between telecommunications and New Jersey's future. The study concluded that a direct relationship exists between an advanced telecommunications infrastructure and economic development. By investing in new and diverse communications services, including voice, data, and video services, benefits will accrue to all sectors of the economy, producing jobs and thrusting New Jersey into the forefront of the "Information Age."

Among other things, the study identified that telecommunications capabilities are a significant consideration in the business relocation process. Telecommunications was ranked 4th among more than 20 factors considered important by executives relocating companies in New Jersey and 6th by executives relocating elsewhere. As such, telecommunications has clear ramifications for economic development initiatives in attracting or retaining businesses in New Jersey.

In a study performed for the Pennsylvania Public Utilities Commission released in March of 1993, relocating businesses identified five key technologies or services as important to their ability to compete in today's business environment and into the future. These were: 1) digital switching and transmissions systems; 2) fiber optics and BroadBand transport; 3) computer networking; 4) Integrated Services Digital Network (ISDN); and 5) information services. Health care and education professionals mirrored this view and added video teleconferencing to their lists of key services. These are the types of services expected by Opportunity NJ and are thus considered a key in job growth.

Throughout the pendency of the proceeding regarding NJ Bell's alternative regulation proposal, there were a number of witnesses and parties who outlined their views on how Opportunity NJ would impact job growth in New Jersey. The Board reviewed the evidence in the record and concluded that although a precise number could not be developed on the number of jobs expected from the introduction of Opportunity NJ, the record was clear that Opportunity NJ will have a positive economic impact on the State.

According to calculations presented by NJ Bell in the alternative regulation plan proceeding, the Opportunity NJ network construction phase will result in a total of 3,708 jobs during the Plan's term 1993 through 1999. The Opportunity NJ construction related jobs forecasted for NJ Bell represents the amount of labor needed in the actual process of building the new network. The non-NJ Bell construction related jobs fall in the manufacturing, nonmanufacturing services and wholesale and retail trade industries and represent the inputs needed by NJ Bell to build the network, such as material (fiber optic cable), equipment (switches) and capital. Job growth in these industries could be directly related to the Opportunity NJ network. These figures represent expected net job gains. Additionally, employment is also expected as a result of production efficiencies realized by businesses in their increased use of the improved telecommunications network. NJ Bell's estimate was done using two parameters; a lower bound,

using a job growth equal to historical trends, and an upper bound of twice the lower bound based on job growth in telecommunications dependent technologies like computers and fax machines. These production efficiencies are estimated at between 7,600 and 21,000 additional jobs between 1992 and 1999 and 22,000 to 80,000 when full network deployment is completed in 2010. Combining the construction and production efficiencies expected from Opportunity NJ, the fiber network was predicted to result in 24,000 jobs by the end of the century and 80,000 jobs by 2010.

A further job growth potential which was not included in NJ Bell's Opportunity NJ estimates are the economic impacts of businesses relocating to New Jersey or those retained by the State, and the effects of clustering. Clustering occurs when interdependent business with similar markets or supply needs locate in the same region. Also not included in NJ Bell's Opportunity NJ job estimates are jobs expected from the new telecommunications services and information businesses that the fiber network could generate. These factors could provide additional opportunities for jobs and economic growth in New Jersey over the term of the plan.

B. ACTIONS TAKEN TO DATE

As part of its economic development efforts under the alternative regulation plan, and Opportunity NJ deployment, NJ Bell has given approximately 200 presentations to various groups. The presentations discussed potential Opportunity NJ applications with emphasis on the particular group's needs. For example, presentations to the medical community would stress medical imaging and remote diagnostics. Presentations to businesses on the other hand could explore ISDN and its work-at-home potential, while presentations to educators could stress distance learning applications such as the trial in Union City (see distance learning section for more detail). The average group size for these presentations has been about 75 people.

Of the almost 200 presentations given thus far, around 40 have been structured with particular emphasis on economic development, job retention, and business development, expansion, and attraction. The Department of Commerce has asked NJ Bell to participate in its initial contacts with business to explain how its services and potential Opportunity NJ applications make New Jersey the place to do business.

The link between reliable communications and business relocation was graphically demonstrated after the World Trade Center bombing. Valuable communications links were disrupted and companies scrambled to find alternatives. One of the alternatives was New Jersey. Advanced fiber ring technology called SONET allowed NJ Bell to install data circuits for World Trade Center occupants within 90 minutes, compared to the several days it used to take. This fiber ring is credited with helping attract business to New Jersey and has made New Jersey the relocation site of choice for Dean Witter, Solomon Brothers, IBM, and Bear Sterns.

SONET technology and other communications advances made possible by Opportunity NJ have formed the basis of NJ Bell's economic development and business retention efforts. NJ Bell's economic development team is attempting to coordinate its business retention and job development efforts with State departments (such as the Department of Commerce), local officials, and other utilities. It is hoped that this coordination will facilitate the sharing of

knowledge and costs of setting specific programs to attract and/or expand businesses in New Jersey.

C. ECONOMIC DEVELOPMENT INITIATIVES

Specifically, NJ Bell has held business expansion, relocation and retention discussions with Liz Claiborne, Prebon Yamane, Oaktree Packaging, Kidder Peabody, Lehman Brothers, the Associated Press, Dean Witter, Solomon Brothers, IBM, Bear Sterns, the New York Daily News, Mercedes Benz and Delta Airlines.

The advanced telecommunications capabilities and reliabilities available in New Jersey have already made this State a prime location for New York's financial community. Many such companies are looking at the Harborside Financial Center located at 101 Hudson Street, Jersey City. Harborside is a "state-of-the-art" building that would allow for easy wiring of all the telephone and computer equipment used by financial firms. Three firms either located or considering Harborside as a location are Lehman Brothers, Prebon Yamane and Kidder Peabody. Lehman Brothers has already signed a 15 year lease for approximately 350,000 square feet at Harborside and plans to invest \$80 million in high technology equipment at the Jersey City facility. The company also plans to employ 1,400 people at Harborside, 900 employees will be relocated from New York by July of 1994, and an additional 500 people will be hired within a year.

Like Lehman Brothers, Prebon Yamane also has a presence at Harborside and NJ Bell has been discussing placement of additional voice grade and high speed data circuits at that location. A Star Ledger article (10/6/93) concerning Prebon Yamane discussed the company's possible Jersey City relocation when the lease on its New York headquarters runs out in May 1994. A relocation by Prebon Yamane would result in a shift of 320 jobs from New York.

Kidder Peabody is also looking seriously at New Jersey as a relocation option. The company is expected to decide shortly whether or not to move its 500 person trade processing group to Jersey City. The Jersey City move by Lehman Brothers and the strong indications by Prebon Yamane and Kidder Peabody could represent 2,220 jobs to New Jersey.

The economic importance of advanced telecommunications technology to New Jersey becomes even more evident when companies in diverse industries view it as a primary factor in their relocation or expansion decisions.

New Jersey's advanced telecommunications capabilities were a key reason the Associated Press decided to locate in New Jersey. In discussing its New Jersey plans, the Associated Press cited New Jersey's Northeast Corridor's fiber optic capabilities as an important reason why the company expects to gradually consolidate 150-200 jobs currently in New York City and New Brunswick to a 65,000 square foot facility in Cranbury.

New Jersey's advanced technologies have also played a vital role in keeping the State as the location of choice for companies considering business expansion and relocation options. Liz

Claiborne and Oaktree Packaging have made the decision not to move out of the State saving about 2,230 jobs.

New Jersey's advanced telecommunications capabilities are keeping it in the running as a choice location for Delta Airlines and the New York Daily News. Mercedes Benz has since dropped out of the location picture in New Jersey with its decision to locate its American manufacturing plant in Alabama. New Jersey's communications abilities kept the State in the game until the very end, but Alabama was able to present the company with other non-telecommunications incentives that decided this issue.

Future developments being examined by NJ Bell's economic development team include the feasibility of offering an economic development tariff concentrating on Urban Enterprise Zones. The Urban Enterprise Zone tariff would waive all or a portion of the telephone service installation charges to businesses with between one and twenty telephone lines. The amount to be waived would be based on a NJ Bell financial analysis.

In order to increase the desire of large and medium-sized businesses to remain in the State, NJ Bell is also examining tariff alternatives which may institute specific pricing for large businesses which would otherwise leave New Jersey. Similar proposals have been advanced by other utilities in New Jersey and elsewhere to retain or attract businesses.

What is clear from an economic perspective is that the advanced telecommunications capabilities in New Jersey have strengthened the State as a prime choice for business location and economic growth. This was confirmed during a recent regional economic panel discussion exploring prospects for the regional economy in the twenty-first century. Lester Thurow, an economist at the Massachusetts Institute of Technology Sloan School of Management, and the keynote speaker at the discussion, stated that when recovery begins, "New Jersey will be the driver" for the region's economic cycle. Of seven key industries that could supply the power for economic growth, Thurow cited two areas where New Jersey is already strong -- biotechnology and telecommunications.

It is important to recognize that the Alternative Regulation Plan, Opportunity NJ and NJ Bell's economic development efforts growing out of them are relatively recent and too new to plot a full trend for job growth. However, NJ Bell's initial efforts look promising and have resulted in real job relocation and retention.

SECTION VIII

QUALITY OF LIFE APPLICATIONS

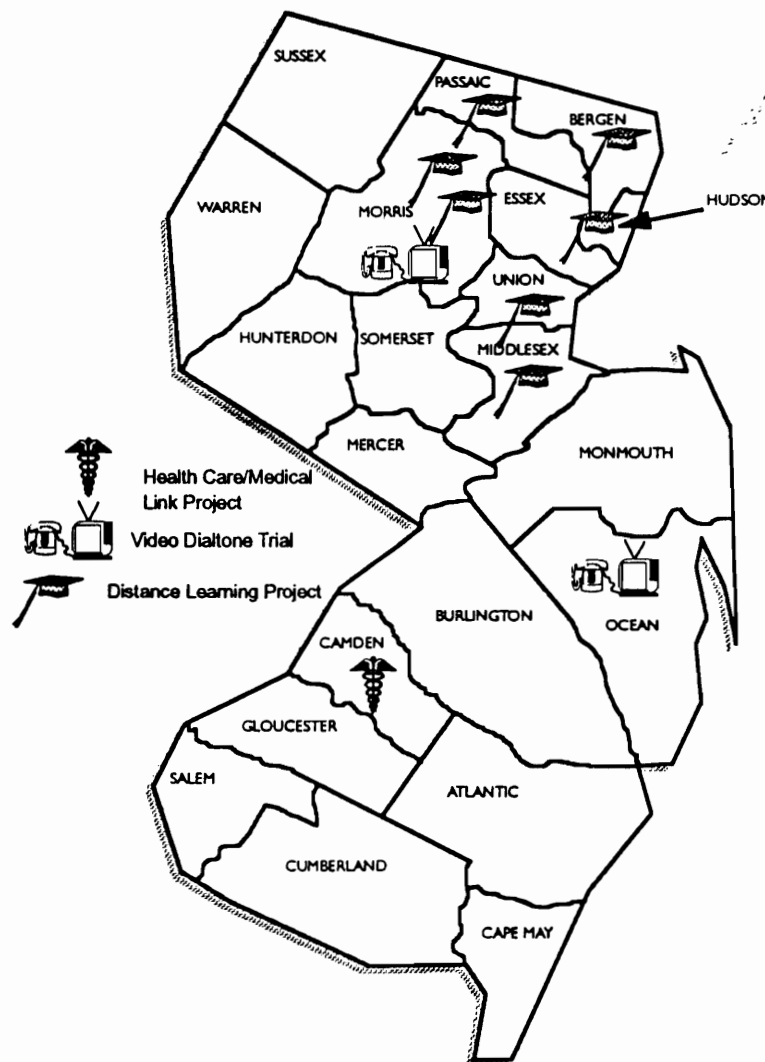
VIII. QUALITY OF LIFE APPLICATIONS

A. INTRODUCTION

Opportunity NJ has created an environment for futuristic telecommunications applications. We have explored the numerous emerging areas and found a wealth of advantages for improving the quality of life through such diverse advanced network applications as distance learning, health care, telecommuting and exciting real world trials of just what can be done. The following map outlines some of the advanced telecommunications trials in progress or anticipated. More detail on the trials follows.

CHART 15

Advanced Telecommunications Applications By County



B. EDUCATION-DISTANCE LEARNING

I. BACKGROUND

Educational opportunities have traditionally been bound by distance, time, and the availability of classrooms and qualified teachers. But now with the incorporation of educational technology, opportunities can be enhanced. Educational technology is the incorporation of a wide mix of available and projected sources (computers, software, video, tapes) to extend and enhance the instructional process for students of all ages. There is substantial evidence that technology improves the learning process, and while the world is saturated with technology, in the classroom very little technology actually exists.

NJ Bell's Opportunity NJ program will now enable the utilization of a statewide, technologically advanced network. Opportunity NJ is a blueprint for building a high speed information highway. As the network deployment begins, it will provide the capability for a number of distance learning applications. The network will allow for the delivery and sharing of scarce educational resources among all schools. It is anticipated that the technology required for distance learning applications will be in place throughout the entire State by the end of the century. The ultimate goal of distance learning is not to have any student denied by virtue of geography or chance, an opportunity to participate in a technology-rich environment. The goal is to meet instructional needs and enhance public education. An educational network available to all regardless of income, or location.

II. DISTANCE LEARNING

Distance learning is the transmission of educational or instructional programming to geographically dispersed individuals and groups through a single medium or a combination of mediums including audio, video, and data. Applications have been aggressively adopted in some areas mainly due to two factors: 1) teachers are not available or courses are too costly to provide learning for a limited number of students; and 2) in some areas the provision of training and staff development for teachers has been difficult to obtain. Eventually, distance learning applications are expected to link all levels of education. Although most of the emphasis is currently with high schools and colleges, future applications will include grammar schools and municipal government. The major obstacles to distance learning applications include the availability of technology and the availability of funding. NJ Bell's Opportunity NJ program will gradually provide the technology which is the basis for applications. However, until a complete fiber optic network is in place, a number of other interim technologies are being utilized.

III. TECHNOLOGIES

There are many ways to transmit a signal between two points. Transmission can be by copper wire, fiber optics, satellite, microwave, or a combination of methods. Each technology has capabilities and limitations that would affect a particular distance learning system. In applying some distance learning applications, one form of technology may be better suited than another or a combination of technologies may be the way to go.

Satellites allow for point-to-multipoint transmission but for example, do not allow the teacher to see the students, which is a critical concern for many educators. Fiber optic transmission does allow for two-way video transmission and has almost limitless capacity. It can carry full motion video signals as well as audio data. The two-way interactive capacity allows for feedback and the opportunity for dialogue. Broadcast television signals are transmitted from a central point that anyone can receive within a specified range. Viewers only need a standard television set to receive signals. While educational programming broadcast over television does not allow for interaction between the students and the television, teacher interactivity can be designed into live or recorded telecourses in a number of ways, including using the telephone to link students to teachers.

Additionally, an Instructional Television Fixed Service (ITFS) transmission may also be used. ITFS uses microwave signals to transmit signals to remote locations. It functions as a broadcast (point-to-multipoint) television system but a special converter is used to convert the microwave signal to a standard television signal. ITFS is used to deliver one-way video to schools with telephone hook-ups for two-way audio. Two-way video is possible using ITFS to transmit back from the remote schools.

Asymmetrical Digital Subscriber Line (ADSL) is another form of interim technology which utilizes copper wire as opposed to fiber optics. Its capabilities are not as limitless as fiber optics but it can provide an adequate interim form of technology over short distances. This technology utilizes a video compression technique which squeezes more capacity out of an ordinary copper line.

IV. STATE EDUCATIONAL TECHNOLOGY PLAN

In December 1992, an educational technology plan, "A Plan for Action" was adopted by the New Jersey Department of Education, providing guidelines for educational technology activities during the next five years. At the present time, some New Jersey school districts have begun to tap the capacity of educational technology. The State is taking the initiative to promote interest, guide collaboration with partnerships, promote funding and monitor implementation of technology. The Department of Education's Bureau of Curriculum and Technology is encouraging each county to plan for the appropriate educational applications so the local school districts will have a course for action when the statewide installation of fiber optic cable is complete.

V. APPLICATIONS AND TRIALS

Most of New Jersey's educational technology projects are initiated, funded and implemented at the local district level. Therefore, there is a great disparity between districts in terms of planning for technology, the type and amount of education technology available, and the level of integration across curricula. The following is a summary of distance learning applications that are currently in progress.

1. BERGEN COUNTY ITV NETWORK

The most aggressive application of distance learning to date is the Bergen County Interactive Television (ITV) network, which is a consortium supported by the Bergen County Board of Chosen Freeholders and coordinated by the Bergen County Technical Schools with system support from NJ Bell. The ITV network permits a teacher in one location to provide instruction to students at remote sites as well as the site of origination and to interact with those students as though they were all in the same classroom. This type of education, provided via two-way interactive television, provides simultaneous, real-time, full motion video and audio signals carried by existing technologies such as cable TV, fiber optic telephone or copper cable lines. The Bergen County System uses fiber optics provided by NJ Bell. Currently, this two-way transmission system has been configured into a model for homework and tests. For example, homework could be transmitted from teacher to student and student to teacher during any given class period by facsimile machine.

This network has been in operation since September 1990, and for the 1993-94 school year will include eighteen schools. The 1994-95 school year will include twenty-six schools. The schools include high schools and colleges. Member schools are connected for interaction over a computer system and are linked to NJ Bell's switching system.

The network consists of a countywide fiber optic telecommunications network enabling schools to share personnel and resources in order to expand educational offerings. Through the use of satellite, member schools may participate in video conferences and special events that are produced for nationwide distribution by various educational institutions, corporations, and government agencies. While the fiber optic network allows for two-way interactive communications, there are also other forms of technology being utilized, including microwave, satellite and ITFS. (Instructional Television Fixed Service consists of a microwave signal that is converted and transmitted as a standard television signal).

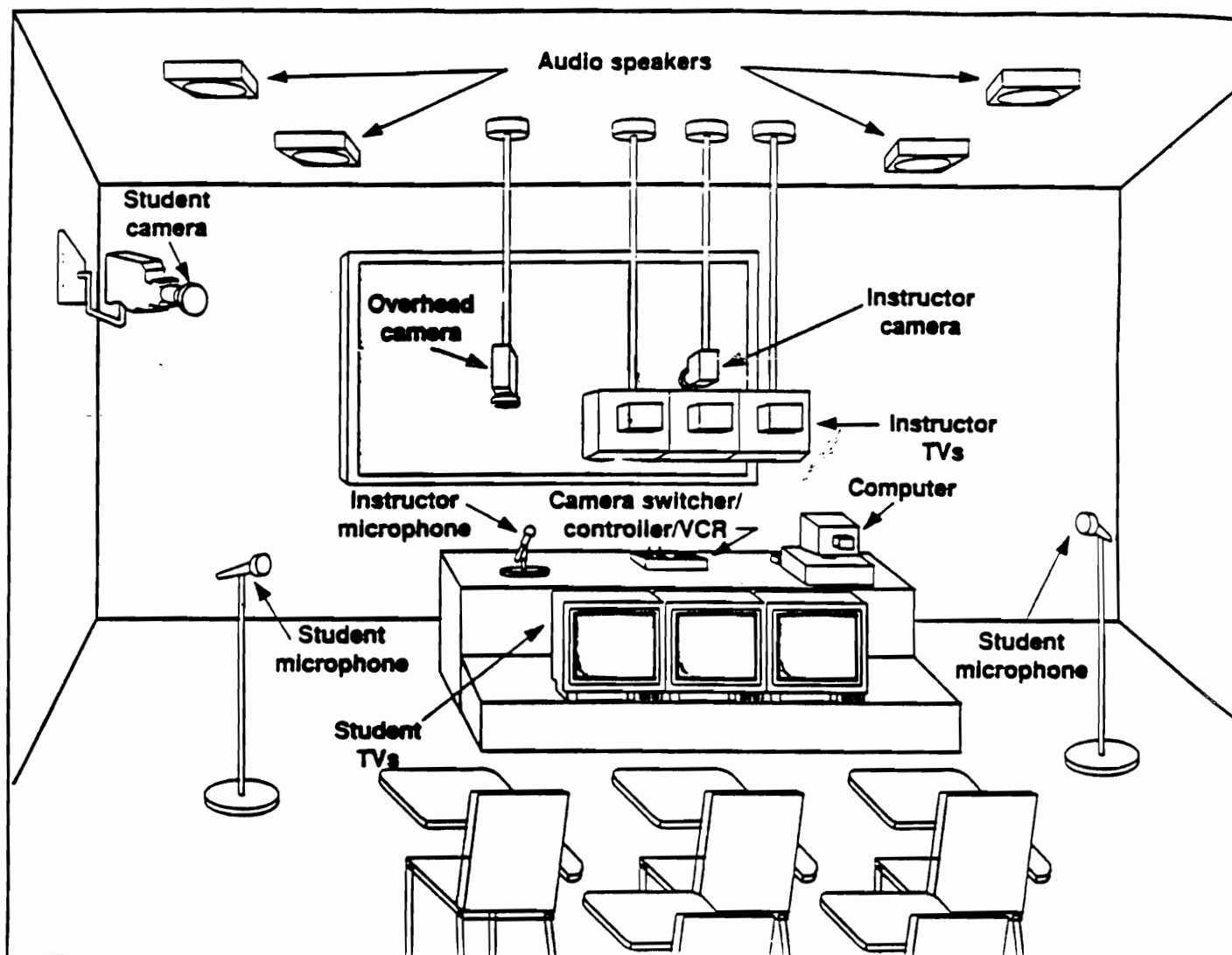
Up to three remote locations may be connected to the site from which instruction originates. Classes are typically limited to 20-25 students. Each of the Interactive Television Network classrooms in the network are similarly equipped so that any site can serve as the deliverer or receiver of instruction. One-time financing for the ITV room and classroom equipment is required of all participating districts, as well as a monthly charge for the fiber optic service and system maintenance.

Using Bergen County as an example, the following is a breakdown of the costs for an average instructional classroom:

Equipment (audio, video, system integration)	\$35,000
Fax, Dedicated Phone, other equipment	\$2,364-\$5,556
Room Envelope (lighting, acoustical treatment, floor, rugs, etc.)	\$5-\$15,000
Teacher Station	\$750
Furniture	\$5,650
Total Costs can range between	\$48,764-\$61,956

A typical two-way interactive instructional classroom floor plan is depicted below:

Two-way Interactive Instructional Classroom



This two-way interactive classroom can function as either a sending or receiving site.

SOURCE: Tele-Systems Associates, Inc. 1989.

With Bergen County up and running, Morris County will soon tie into the ITV network to coordinate activities. The decision to interconnect schools is a function of customer preference. However, the technology is there and with the acceleration of network interoperability, the sky is the limit on what the State educational community can do.

2. MORRIS COUNTY ITV NETWORK

The Morris County Board of Freeholders has approved funding for an ITV network like Bergen County. It will operate as a stand-alone network but will be able to tie into the Bergen County network. The 1993-94 school year will include seven schools, and another seven are expected for the 1994-95 school year. Currently, this includes only high schools and colleges but eventually will include middle schools and municipal governments. By 1996, more than 25 schools are expected to be on line.

The County freeholders have allocated approximately \$900,000 for technology but each participating school must fund their own classroom renovation and pay for camera equipment (\$45-60,000 per classroom). This system is headquartered in Morris County Vocational Technical School and NJ Bell is wiring it with fiber optic cable to provide the infrastructure.

3. UNION CITY DISTANCE LEARNING TRIAL

This trial is a distance learning application taking place in Union City at Christopher Columbus Elementary School, beginning in the 1993-94 school year. Most distant learning has been at the college or high school level. Therefore, this trial is especially significant. It is a multi-media educational network which connects students and selected teachers' homes as well as the classrooms to multimedia libraries and databases. The first year application will include mostly electronic mail. The second year of the trial will include an interactive multi-media application, including a library application. There is only one school participating in the trial. The entire seventh grade class will participate in the trial through completion of eighth grade. The trial will include use of a multi-media library from the home in order to complete homework assignments or browse through a wide diversity of historical, scientific, and cultural materials. The trial will use currently available network technologies that utilize a copper network. This particular form of technology uses video compression, a technique that squeezes more capacity out of a copper line.

The network will be available on a 24-hour basis. All multi-media information will be bilingually accessible. This project is a multi-industry collaboration comprised of video content providers, computer hardware manufacturers, AT&T, Center for Children and Technology, Bellcore, Bell Atlantic and NJ Bell.

4. MORRIS RESEARCH AND EDUCATION NETWORK

Another application of distance learning is in the research area, which includes libraries. A Bellcore project is currently underway in Morris County called Morris Research and Education Network (MORENET), which enables Morris County residents to be connected to a worldwide computer network. MORENET will be tied into another network, called Internet, which is a

global network of computer systems that includes access to academic, government and public institutions such as the Library of Congress. It is a two-year trial project utilizing a high-speed data transmission service developed by Bellcore for use over NJ Bell's fiber optic lines. Morris County was chosen due to its high-speed transmission network capabilities that include phone lines and switches which are more advanced than those in other parts of the State.

Internet is a global interconnection of 34,000 smaller computer networks, both public and private. It is available to users in over 50 countries. It is a non-profit cooperative managed by volunteers and derives operating costs from its members who pay connection fees to large regional hubs. The Federal government also supports it.

Internet can be accessed with a personal computer modem by calling the county library information system in Randolph in Morris County. Information is made available by an increasingly broad range of individuals. Most universities and commercial companies involved in research are on Internet. Commercial networks represent the fastest growing category on Internet. Other networks include research, defense, government and education. Some of the databases available include: The Library of Congress, SPACELINK, which provides information about NASA activities, KIDSNET, which was established to stimulate the development of an international computer network to be used by students and their teachers, ERIC, an educational database with references to articles from more than 700 magazines and journals dealing with educational research and CANCERNET, the computer of the National Cancer Institute. In addition, almost every New Jersey college and university, including Rutgers and Princeton, subscribes to Internet. Many of the databases include entire works of literature, articles on current research topics and master lists of reference titles available at libraries outside Morris County. No timetable has been set to provide other counties in the State with network access to Internet.

As part of the trial, MORENET is the first to offer use of a Bellcore-developed high-speed text browsing and retrieval software system called Superbook. Superbook is a system for locating specific information in documents thousands of pages in length. The Superbook Document Browser takes documents already in computer-readable form and automatically enhances them with advanced indexing, document navigation and display features. Library patrons will be able to use Superbook to gain nearly instantaneous access to a variety of documents. Documents will be added to the MORENET Superbook library throughout the trial. MORENET also includes one of the initial applications of Bellcore developed Switched Multimegabit Data Service to provide Internet access. This is part of NJ Bell's network and can support many simultaneous users across a wide geographic area.

MORENET will also allow Morris County residents to express their views on local issues to their legislators via one-way electronic mail. Currently, there is no timetable for delivering MORENET services to grammar schools and municipal governments.

Bellcore and the county have split the installation cost of the \$150,000 project. Bellcore has donated eleven computers to library branches. Bellcore claims this trial project is the first step toward providing an information highway everyone can access. Bellcore will gain essential information from this trial as it works towards facilitating the establishment of an information

infrastructure. The experiment will monitor how information professionals and libraries adapt to electronic information services and how community information networks can use data communications services to improve their level of service and efficiency. The results will help local telephone companies throughout the United States develop and configure services that support the communications needs of community information networks.

5. OTHER ACTIVITIES

Additionally, there are a number of statewide activities to encourage and assist New Jersey's local school districts with educational technology implementation to enhance instruction and increase information access. While Opportunity NJ will provide the capability for sophisticated distance learning applications, there are a number of activities currently in progress which may not require a complete fiber optic network.

A. MIDDLESEX COUNTY

In the Piscataway school district, all classrooms and schools are connected by fiber optics. Each school also has a satellite dish. Much of the investment was applied first in the lower grades where each classroom was equipped with four personal computers for students and one for the teacher. Every kindergarten through fifth grade classroom has a telephone with conferencing capability, a scanner for quickly getting text or data into a computer, a videocassette recorder, and a video disc player. There is a fax machine for every five classrooms and a color printer and laser printer for every three. Teachers are receiving training in how to use the equipment in conjunction with existing educational theory.

B. UNION COUNTY

The Union County school district is using the telephone in a number of innovative ways. At some schools, parents can call a number to find out what homework has been assigned that day. Also, students can call toll-free around the country to take advantage of a network of tutors. Students can receive tutoring and/or homework assistance in any subject and grade level. This program is available for student use twenty-four hours a day, seven days a week. The service is being provided free. This is part of the Learning Methods International, Inc. program called Homework Hotline. It receives grants through private industry to operate the hotline, so there is no cost to the participating school districts. Public school students in Roselle, Kenilworth, Garwood and Union Township are part of the program. The system is designed to give students access to teachers in their districts, but if none are available, the call is transferred to a teacher from a participating district.

C. WILLIAM PATERSON COLLEGE

William Paterson College operates the only non-commercial facility in New Jersey with the capacity to originate teleconferences and transmit them and other types of programming via satellite. This teleconferencing capability will expand interactive learning opportunities for students, faculty and the community. The new communications facility includes:

- ♦ two broadcast-quality television studios
- ♦ two teleconferencing rooms
- ♦ complete satellite transmission systems
- ♦ computer labs and a network with high speed connection to the campus and Internet

William Paterson College is seeking to create partnerships with private organizations, businesses, individuals and governments, as they continue to explore how technology can make teaching more compelling and learning more effective. They are also in the process of developing live, interactive television programs or teleconferences.

The new facility was part of the State of New Jersey's Jobs, Education and Competitiveness Bond Program. This project goes well beyond distant learning and this recap does not do justice to the wide extent of its operation. However, knowing it exists and is operational, we hope will be enough to attract interest.

D. STATEWIDE TELECOMMUNICATIONS NETWORK

New Jersey Link (NJ Link) is a statewide educational telecommunications project aimed at educators and their students with a focus on sharing of educational content, correspondence, and concerns. More than 4,000 New Jersey teachers and administrators participate in NJ Link. This free information service provides communications, discussion centers, and databases that allow educators to share experiences, ask for help, and access a broad array of gateways. Because NJ Link is a gateway to the worldwide telecommunications network, New Jersey educators now have immediate access to colleagues around the world.

6. CONCLUSION

While most of the world is increasingly saturated with technology, there is very little technology currently used in the classroom. For example, few classrooms have a telephone or telephone line; and without a telephone line, much of the technology needed for interactive computers and TVs and national databases is not possible. Fewer than 10 school districts in New Jersey have teachers with access to a telephone line.

Once the public network is fully capable of handling multi-media interactive communications, students will no longer be limited to their classroom and school library for the educational process. They will be able to access interactive voice, data, imaging, and video materials in their own homes and browse among a wide diversity of historical, scientific and cultural materials. Additionally, these applications can provide needed access to those who are homebound or disabled by providing to them the education opportunities available to others. Technology can literally bring the world to their doorstep.

C. SPECIAL PROJECTS AND TRIALS

Opportunity NJ requires that NJ Bell deploy advanced technology. This section describes the proposed, planned and/or under construction projects stemming from Opportunity NJ. The communications industry in New Jersey is going through revolutionary changes that are expected to affect the way we live and conduct our daily businesses. Modern technology projects and trials are taking place throughout New Jersey. These technology applications are expected to have a positive impact on the quality of life of every citizen. Projects like distance learning, will allow a teacher to deliver instructions to students located at distant locations on an interactive basis. Video dialtone, a service currently under consideration, will enable the television viewer to use their television for home shopping and other video information services. Another very important project of network modernization that will enhance the exchange of information with greater reliability than existing mediums is known as SONET, and is being deployed in the major commercial centers throughout New Jersey.

The following are additional projects stemming from Opportunity NJ:

I. UNION CITY DISTANCE LEARNING TRIAL:

The trial is a multimedia educational network which is described fully in the distance learning section of this report. The technology deployed under this project will enable a teacher or an expert to instruct not only individuals within her/his school but also reach out to other schools in a district.

This project utilizes the existing copper lines with the help of a newly developed communication protocol called Asymmetrical Digital Subscribers Line (ADSL). In simple words, this technology allows users to exchange information at an interactive and cost effective basis. This service uses a higher speed of data transfer in the direction of network to user and a lower speed from user to the network. Distance learning projects such as the Union City trial are an ideal, practical and economical application of this technology.

II. SONET:

The emergence of different manufacturers of telecommunications products and information based industries such as banks and insurance companies, created the need for a high speed data transfer network which is not only highly reliable in a catastrophic failure but one also able to utilize communication products manufactured by different vendors. SONET (Synchronized Optical Network) refers to a highly technical group of standards to impart needed compatibility among multiple communications services and products so that everyone can communicate with everyone else.

The importance of survivability became very apparent when one considers the World Trade Center incident. NJ Bell was able to provide alternate site communications to businesses who moved to New Jersey locations to continue

key business operations. SONET based network applications are what enabled very short internal restoral of these business data systems at New Jersey sites. In the event of a disaster due to a cable cut, fire, flood, storm, a building power outage, or because of a unique situation, the SONET base network will be able to provide continuous service with no major interruptions. With SONET, the service can be redundantly routed over diverse paths instantaneously. A high degree of service reliability can be achieved by SONET rings with dual service wire center access. This network design configuration under SONET standards insure service when a catastrophic failure occurs at the serving wire center by routing service to a second wire center.

III. VIDEO DIALTONE:

Video dialtone represents a service that will enable a subscriber to use video, computer and telephone service simultaneously. This service will be capable of delivering movies and other video programs to consumers on demand, along with other advanced interactive services such as home shopping, educational and health care services. New Jersey will be one of first states in the country to have this advanced service available to its citizens.

Video dialtone service availability (pending FCC approval) is currently scheduled for Dover Township in Ocean County and Florham Park Borough, Madison Borough, and Chatham Borough in Morris County. The services will transport video programming of unaffiliated video programmers on a common carrier, non-discriminatory basis.

Initially these services were limited to sixty four (64) channels. NJ Bell, however, represented that within twelve (12) months of the commencement of construction, the capability will exist to provide several hundred channels to meet demand. It is expected that the advancement in technology will increase the capacities of these systems to around fifteen hundred (1500) channels.

D. INFORMATION PROVIDERS

The term "Information Providers" is a generic telecommunications industry description for firms supplying the program content for messages delivered to, or directly accessed by, the public. Information Providers (IP) team with local or long distance carriers who "connect" the calling customer with the IP for information delivery. By rough analogy, Opportunity NJ might be thought of as an electronic UPS (United Parcel Service) which carries information parcels for their clients. UPS delivers physical parcels for mail order houses like Lands Ends, Eddie Bauer and Spiegel. Opportunity NJ will deliver electronic parcels for IPs (or "electronic mail order houses") whose development NJ Bell hopes to foster. IPs can be either socially beneficial (weather, time, sports) or detrimental (GAB lines, sex lines).

Anticipating the increasing data transmission capability beginning in 1996 and growing to widespread availability by 2010 under the current Opportunity NJ schedule, NJ Bell has formed

a team to focus on the Opportunity NJ-IP challenges. The objective is to reach out to potential IPs for whom NJ Bell would provide both signal carriage and video gateway capabilities. The team has made presentations to several newspapers and banking institutions; the former focusing on expanding the traditional role of newspapers from the printed medium to the interactive video medium while the latter is concentrating on banking from home applications. The team plans to position New Jersey as the national model for expanding access to public information services by use of the switched network.

E. TELECOMMUTING

The United States Small Business Administration (SBA) and the United States Department of Transportation (DOT) recently released studies on telecommuting which explore many of the myths and realities surrounding home-based work. The DOT study discusses profiles and experience gained by major demonstration projects such as the California telecommuting project. The SBA study, on the other hand, performed by Joanne H. Pratt Associates, examines actual work patterns of home-based workers to answer many of the objections to telecommuting. Telecommuting could be a valuable resource to New Jersey in assisting in the reduction of air pollution through work-at-home.

The key issue for this report can best be summarized by a reduction in the number of cars on the road. The Clean Air Act Amendments of 1990 require states like New Jersey with pollution levels defined by the Federal Government as "severe" or "extreme," to implement programs to reduce vehicular emissions. The Employer Trip Reduction Program is aimed at reducing work related vehicle trips and vehicle miles traveled during peak commuting periods in ozone "non-attainment" areas.

Emerging telecommunications technologies in New Jersey such as Integrated Services Digital Network (ISDN) make telecommuting a viable strategy. ISDN allows the telecommuter to use a standard two-wire phone connection for simultaneous transmission of voice, data and imaging. Telecommunications solutions and the possibilities that Opportunity NJ represent are important to our State. Opportunity NJ alternatives offer New Jersey businesses real alternatives to comply with an Employee Trip Reduction Program, especially where public transportation is limited.

A further item that is being studied to reduce traffic delays also includes fiber optic Opportunity NJ technology. The Garden State Parkway is currently looking at an automated toll lane device that allows motorists to pay their toll without stopping at a toll plaza. A driver would continue through the toll at approximately 30 miles per hour and an electronic device reads an identification card on their vehicle and deducts the appropriate toll from an account. This system uses fiber optic technology to connect the toll plazas with the central computer system. This automatic toll reading plan combined with telecommuting may help New Jersey satisfy some of its responsibilities under the Clean Air Act.

F. HEALTH CARE

In 1992, NJ Bell filed "Opportunity NJ" with this Board as its plan to accelerate the deployment of advanced switching and transmission technologies in the public telecommunications network. The initial applications of this advanced network are expected to provide new and diverse communications services including voice, data, and video services. These services will include, among other things, advanced education, entertainment, and health care applications. Since the approval of its Plan, NJ Bell has explored numerous applications for the health care industry. This is not unlike the nation's initiative linking health care and telecommunications. Given the explorations by NJ Bell and the expected impetus from a national level, we believe some or all of the applications discussed herein will materialize.

As part of this report and investigation into the benefits to be found in an advanced communications network, we have looked at as many facets as we could find (things change so fast that it is hard to tell how many). In the realm of health care we have identified numerous advantages from medical imaging, to reduced paper work.

The transmission of digitized images such as X-rays, CAT scans, and MRIs, within the hospital, and to locations outside that hospital over the telephone network, is referred to as teleradiology. The transmission of the image allows for simultaneous viewing among specialists for consultation, and reduces film costs. Transmission between external facilities allows the hospital to provide diagnostic and consultative services to associated and non-associated facilities. It also allows a doctor to send the image to a specialist for further consultation, reducing liability and increasing quality of care.

An emerging hybrid of telecommunications and patient care, called telemedicine, is designed to provide medically underserved areas with highly trained specialists through two-way video interaction transport services provided by a telecommunications carrier. Cameras and televisions at each site allow consulting specialists to sit down face to face (so to speak) with the attending physician and patient and run through symptoms, diagnosis and treatment. Not only will the consulting specialist be able to view live, real time video images, but through sophisticated biomedical telemetry devices (e.g., electronic stethoscope, digitized X-rays, microscopy, and EKG) practitioners could listen to heartbeats, study X-rays and laboratory results, and peer into the body of the patient. Thus, through the advanced network, telemedicine of the future could bring the specialist to the patient rather than requiring the patient to go to the specialist.

In addition to potentially saving costs as described above, an advanced network could help address the concern over accelerating costs which has created a new imperative; patient care provided in a cost-effective environment, consistent with quality standards. This evolution, along with the growth of the elderly population in the United States, makes home health care an attractive future alternative to institutional forms of care. Increasingly, health care providers are experimenting with expanded telecommunications applications that allow them to communicate with patients at home. Some have provided patients with communications devices that allow them to monitor "high risk" patients. Others are testing home health terminals that direct the patient to the appropriate level of care on the basis of his or her symptoms. These approaches

facilitate early intervention through improved diagnosis. Other potential benefits include reduced patient visits to emergency rooms, doctor's offices, and hospitals.

We have been advised by NJ Bell that in discussions with hospitals, another cost burden to hospitals is materials management, which is often inefficient and costly. Hospitals are striving to minimize their inventory costs while maintaining acceptable inventory and quality levels. Just-in-time inventory strategies using electronic data links, provided by the advanced telecommunications network between hospitals and suppliers, once available, could allow hospitals to receive more frequent deliveries in bulk quantities and, as a result, reduce their warehouse and departmental storeroom space.

An exciting new technology called Electronic Data Interchange (EDI) will be available through the network. EDI has the potential for streamlining the purchasing function by managing the amount and flow of paper work. EDI reduces the administrative time and expense involved with placing orders and expedites those orders through the rapid exchange of information, provided by electronic purchase orders, confirmations, invoices, price and sales catalogs, and funds transfer.

Another new technology that will evolve from the advanced network is Transaction Switching and Transport Services or TSTS, which is the local telephone companies' response to the growing need of the health care industry to reduce administrative costs of providing services. TSTS provides an efficient, secure, low-cost method of transmitting and receiving claim information from pharmacies, hospitals, physicians, and dentists to claim processors. Most health care providers such as hospitals, physicians, and dentists, use regular telephone company dial access methods for electronic claims processing. This technology, while adequate for some applications, cannot support the health care providers who are doing more and more on-line medical administrative tasks as cost-effectively and efficiently as TSTS.

The advanced network will also permit hospital-physician telecommunications links so that doctors in their offices and homes can access hospital information. These links often are deployed by institutions as a physician-bonding tactic. Hospitals can create these programs to strengthen their alliances with heavy admitters, thereby increasing inpatient utilization and recruiting new clinicians to the hospital. Similarly, telecommunications could make it possible for transcribers, computer programmers, and other information-intensive employees to work full or part time in their homes. This benefit may eventually reduce employee turnover and allow the hospital to attract competent employees at a somewhat reduced cost, while helping to reduce traffic and air pollution.

These specific examples are not just theoretical, but practical applications that lead to real life solutions to real life problems. For example, large, diverse medical centers with a main hospital in one location, an imaging center in a second city, a computing office in a third and a records library in a fourth location, could use a fiber network to connect these four locations. The network makes those distances virtually disappear, allowing doctors, to work in two places at once. The hospital's own storage and retrieval system, linked to the network, allows physicians to review the same data from different locations.

By combining video, still pictures, voice and text into a single package, transmitted images over the BroadBand network, expected by the year 2000, will be as sharp as the originals. Related paperwork such as patient files and diagnostic annotations can be sent with the images, and doctors can examine an image or even a whole record in what amounts to a conference call. In routine use, both a radiologist in the imaging center and a treating physician in the hospital (in another location) could display an image on their screens. Each has an electronic pointer that shows on both monitors, as well as access to the patient's file. After examining the X-ray, they switch to a magnetic resonance image, pointing to particular coordinates on the image and discuss the patient's problem. They are in different cities, but they might as well be standing shoulder to shoulder. However, the radiologist is not sure of the implications of one image, so he sends the records and images to an electronic mailbox for a review by a specialist due at the hospital that evening. By morning, the treating physician will have a second opinion. Doctors do not need to be aware that the digital files are immense and the technology to store and transmit them is highly complex. They click on a menu, push a few buttons, and everything appears on their screens. The network will enable a large, busy urban hospital to provide diagnostic services to other less utilized medical-care providers. Since they see so many cases, they can offer experience in diagnosing unusual or rare conditions.

This very type of futuristic health care system was the focal point for a proposed project in Camden County. The project, which could create new and advanced health care and educational programs is in the development stage. The health project components of the initiative were announced in September of 1993. NJ Bell is actively involved in defining network parameters and in discussing its role in the initiative. NJ Bell would provide the essential communications links between diverse locations, both educational and health care facilities, that will comprise 21st Century health care.

SECTION IX

APPENDIX

IX. APPENDIX A

A. TELECOMMUNICATIONS ACT OF 1992

AN ACT concerning the regulation of telecommunications carriers and supplementing chapter 2 of Title 48 of the Revised Statutes.

BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey:*

1. a. The Legislature finds and declares that it is the policy of the State to:
 - (1) Maintain universal telecommunications service at affordable rates;
 - (2) Ensure that customers pay only reasonable charges for local exchange telecommunications services, which shall be available on a non-discriminatory basis;
 - (3) Ensure that rates for noncompetitive telecommunications services do not subsidize the competitive ventures of providers of telecommunications service;
 - (4) Provide diversity in the supply of telecommunications services and products in telecommunications markets throughout the State;
 - (5) Permit the board the authority to approve alternative forms of regulation in order to address changes in technology and the structure of the telecommunications industry; to modify the regulation of competitive services; and to promote economic development.
- b. The Legislature further finds and declares that:
 - (1) In a competitive marketplace, traditional utility regulation is not necessary to protect the public interest and that competition will promote efficiency, reduce regulatory delay, and foster productivity and innovation.
 - (2) Whether measured by the number of interexchange companies operating in New Jersey, the variety and number of services and/or competitive alternatives, or barriers to entry, the interexchange telecommunications marketplace in New Jersey is sufficiently competitive to relieve interexchange telecommunications carriers from traditional utility regulation.
 - (3) Permitting the competitive interexchange telecommunications marketplace to operate without traditional utility regulation will produce a wider selection of services at competitive market-based prices.
 - (4) The board has found the interexchange telecommunications market place sufficiently competitive to relieve interexchange carriers from traditional utility regulation but found it lacked the authority to eliminate unnecessary regulatory constraints under the existing public utility statute.
 - (5) It is in the public interest to relieve interexchange telecommunications carriers from traditional utility regulation.

2. As used in this act:

"Alternative form of regulation" means a form of regulation of telecommunications services other than traditional rate base, rate of return regulation to be determined by the board and may include, but not be limited to, the use of an index, formula, price caps, or zone of rate freedom.

"Assess" means, in relation to the Director of Rate Counsel the making of any assessment or statement of the compensation and expense of counsel, experts and assistants

employed by rate counsel and billed by the Director of the Division of Rate Counsel as a final agency order or determination to a local exchange telecommunications company or an interexchange telecommunications carrier filing a petition with the Board of Regulatory Commissioners pursuant to the provisions of this act.

"Board" means the Board of Regulatory Commissioners or its predecessor agency.

"Competitive service" means any telecommunications service determined by the board to be competitive prior to the effective date of this act or determined to be competitive pursuant to sections 4 or 5 of this act, or any telecommunications service not regulated by the board.

"Interexchange telecommunications carrier" means a carrier, other than a local exchange telecommunications company, authorized by the board to provide long-distance telecommunications services.

"LATA" means Local Access Transport Area as defined by the board in conformance with applicable federal law.

"Local exchange telecommunications company" means a carrier authorized by the board to provide local telecommunications services.

"Protected telephone services" means any of the following telecommunications services provided by a local exchange telecommunications company, unless the board determines, after notice and hearing, that any of these services is competitive or should no longer be a protected telephone service: telecommunications services provided to business or residential customers for the purpose of completing local calls; touch-tone service or similar service; access services other than those services that the Board has previously found to be competitive; toll service provided by a local exchange telecommunications company; and the ordering, installation and restoration of these services.

"Rate counsel" means the Division of Rate Counsel of the Department of the Public Advocate acting pursuant to section 19 of P.L. 1974, c. 27 (C.52:27E-18).

"Telecommunications service" means any telecommunications service which is subject to regulation by the board pursuant to Title 48 of the Revised Statutes.

3. a. A local exchange telecommunications company may petition the board to be regulated under an alternative form of regulation. The company shall submit its plan for an alternative form of regulation with its petition. The company shall also file its petition and plan concurrently with the Director of the Division of Rate Counsel. The board shall review the plan and may approve the plan, or approve with modifications if it finds, after notice and hearing, that the plan:

- (1) will ensure the affordability of protected telephone services;
- (2) will produce just and reasonable rates for telecommunications services;
- (3) will not unduly or unreasonably prejudice or disadvantage a customer class or providers of competitive services;
- (4) will reduce regulatory delay and costs;
- (5) is in the public interest;
- (6) will enhance economic development in the State while maintaining affordable rates;
- (7) contains a comprehensive program of service quality standards, with procedures for board monitoring and review; and;

- (8) specifically identifies the benefits to be derived from the alternative form of regulation.

b. Notwithstanding the provisions of R.S. 48:2-18, R.S. 48:2-21, R.S. 48:3-1.1 and section 31 of P.L. 1962, c. 198 (C. 48:21.2) or any other law to the contrary, in determining just and reasonable rates, the board may authorize a local exchange telecommunications company to set rates based on an alternative form of regulation pursuant to a plan approved under subsection a. of this section.

c. No local exchange telecommunications company may use revenues earned or expenses incurred in conjunction with noncompetitive services to subsidize competitive services.

d. The board shall have the power to require an independent audit or such accounting and reporting systems from local exchange telecommunications companies as are necessary to allow a proper allocation of investments, costs or expenses for all telecommunications services, competitive or noncompetitive, subject to the jurisdiction of the board.

4. a. Notwithstanding the provisions of R.S. 48:2-18 R.S. 48:2-21, section 31 of P.L. 1962, c. 198 (C. 48:2-21.2), R.S. 48:3-1, or any other law to the contrary, the board shall not regulate, fix or prescribe the rates, tolls, charges, rate structures, terms and conditions of service, rate base, rate of return, and cost of service, of competitive services. The board may require the local exchange telecommunications company or interexchange telecommunications carrier to file and maintain tariffs for competitive telecommunications services.

b. The board is authorized to determine, after notice and hearing, whether a telecommunications service is a competitive service. In making such a determination, the board shall develop standards of competitive service which, at a minimum, shall include evidence of ease of market entry; presence of other competitors; and the availability of like or substitute services in the relevant geographic area.

c. The board may determine, by rule, order, or in accordance with the provisions of a plan filed pursuant to subsection a. of section 3 of this act, what reports are necessary to monitor the competitiveness of any telecommunications service.

d. The board shall have the authority to reclassify any telecommunications service that it has previously found to be competitive if, after notice and hearing, it determines that sufficient competition is no longer present, upon application of the criteria set forth in subsection b. of this section. Upon such a reclassification, subsection a. of this section shall no longer apply and the board may determine such rates for that telecommunications service which it finds to be just and reasonable. The board, however, shall continue to monitor the telecommunications service and, whenever the board shall find that the telecommunications service has again become sufficiently competitive pursuant to subsection b. of this section, the board shall again apply the provisions of subsection a. of this section.

e. Notwithstanding the provisions of subsection a. of this section, the following safeguards shall apply to the offering of any competitive service by a local exchange telecommunications company;

(1) the local exchange telecommunications company shall unbundle each noncompetitive service which is incorporated in the competitive service and shall make all such noncompetitive services separately available to any customer under tariffed terms and

conditions, including price, that are identical to those used by the local exchange telecommunications company in providing its competitive service;

(2) the rate which a local exchange telecommunications company charges for a competitive service shall exceed the rates charged to others for any noncompetitive services used by the local exchange telecommunications company to provide the competitive service;

(3) tariffs for competitive services filed with the board shall either be in the public records, or, if the board determines that the rates are proprietary, shall be filed under seal and made available under the terms of an appropriate protective agreement, such as those used in cases before the board; and

(4) nothing in this act shall limit the authority of the board, pursuant to R.S. 48:3-1, to ensure that local exchange telecommunications companies do not make or impose unjust preferences, discriminations, or classifications for noncompetitive services.

5. a. For purposes of subsection a. of section 4 of this act, telecommunications services provided by interexchange telecommunications carriers are deemed to be competitive services.

b. Nothing in this act shall affect the board's authority to determine whether and under what terms and conditions it will permit interexchange telecommunications carriers to offer intraLATA services within the State.

c. The board may establish service quality standards for interexchange telecommunications carriers and nothing in this act shall limit the authority of the board to promulgate service quality standards for interexchange telecommunications carriers or to resolve complaints regarding the quality of interexchange telecommunications carrier service.

d. Nothing in the act shall limit the authority of the board to determine whether an interexchange telecommunications carrier should be extended the privilege of operating within this State.

6. Whenever rate counsel represents the public interest pursuant to its statutory authority in the review of the petition and plan filed by a local exchange telecommunications company or an interexchange telecommunications carrier with the board pursuant to the provisions of this act, the Director of Rate Counsel may assess each participating local exchange telecommunications company or interexchange carrier for reimbursement to the Treasurer of the State of New Jersey pursuant to section 20 of P.L. 1974, c. 27 (C.52:17E-19).

7. Not later than two years following the effective date of this act, the board shall submit a report to the Governor and the Legislature reviewing the implementation of the provisions of this act, which shall include, but not be limited to, an evaluation of any alternative form of regulation approved by the board, any plan of such alternative form of regulation and the success of the deregulation of competitive services required and permitted by this act. In its recommendations, the board may also propose any legislative or other changes to the Legislature and the Governor which it deems appropriate.

8. This Act shall take effect immediately.

COMMUNICATIONS

Revises regulatory scheme for telecommunications.

IX. APPENDIX B

B. Bell Atlantic/TCI Proposed Merger

On October 13, 1993, Bell Atlantic Corporation (Bell Atlantic) and Tele-Communications, Inc. (TCI) announced that they had signed a letter of intent to merge. The information below has been gleaned from the multitude of articles written about the merger; suffice it to say, much more will be written.

Bell Atlantic, the corporate parent of NJ Bell and one of the seven Bell Regional Holding Companies, provides telephone service for the six Middle Atlantic States and the District of Columbia. TCI, the nation's largest cable operator and the programming company, Liberty Media Corporation will merge initially. TCI/Liberty Media will be subsequently merged with Bell Atlantic.

These are complementary businesses. Bell Atlantic has expertise in two-way audio technology, but little in video and none in programming. TCI has expertise in one-way transmission of multiple video signals and offers a variety of programming, but has limited experience in two-way communications. Liberty Media is an entertainment company that was once wholly owned by TCI and is the largest shareholder in QVC Network, Inc., the home shopping network. Liberty Media also owns 22 percent of Turner Broadcasting System, Inc., 49 percent of the Discovery Channel and has a stake in some two dozen cable networks. The merger could be viewed as combining the strengths of all three companies which combine leading telephone, wireless and cable networks in the United States and overseas with cutting edge video programming and new interactive, multimedia technologies.

As explained by Bell Atlantic, the transaction will combine essentially all of the assets and operations of TCI and Liberty Media (excluding those cable assets that are within Bell Atlantic's regional area) with the existing businesses of Bell Atlantic. Because of the various regulatory and legal restrictions, principally the interLATA prohibition, the full combination of Bell Atlantic and TCI/Liberty Media may have to be completed in phases. To deal with any possibility of legal delay, Bell Atlantic has decided to divide the transaction into phases.

The merger when completed will, according to Bell Atlantic, position it as the number one cable system operator in the nation with nearly 10 million subscribers. It will emerge as the largest telco/cable service provider serving 22 million customers in 49 states and Washington, D.C., and a leading entertainment programmer. The new Bell Atlantic could become the premier media and entertainment communications company. However, there are several issues that require clearing in order for this merger to take place.

On the Federal level, Bell Atlantic must file with U.S. District Court Judge Harold Greene for a decree waiver providing for modifications to interLATA related issues which would allow the merged company, Bell Atlantic/TCI, to cross the LATA boundaries. The Modified Final Judgment (MJF) decision that broke up the AT&T Bell system in the early 1980s could be interpreted as prohibiting the Regional Bell Holding Companies from transmitting video programming signals long-distance. Cable programming involves transmitting video signals

long-distance over satellite, fiber and microwave. The waiver is required for two reasons. The uplinks and downlinks to satellites which programmers use to distribute their programming are considered interLATA traffic and some TCI properties straddle or cross LATA boundaries. Bell Atlantic is not required to file anything with the Federal Trade Commission (FTC) or the Department of Justice (DOJ). However, due to the magnitude of this merger, the FTC and DOJ are expected to examine it for antitrust clearances. Bell Atlantic does not have to file for approval with the Securities and Exchange Commission (SEC). However, they have made an informational filing with the SEC regarding how the stock would be structured. At the Federal Communications Commission (FCC), TCI needs to file for approval to transfer some of their radio licenses they own to Bell Atlantic.

On a state and local level, Bell Atlantic must transfer control of the cable franchise from TCI to Bell Atlantic. There are some 4,000 franchise authorities, typically city councils which have granted cable franchises to TCI. Of the 4,000 franchise authorities, about 1,600 use change-of-ownership clauses to review transactions like Bell Atlantic's proposed acquisition. There will be no requirement for approval from local franchise authorities for the transfer of control of cable systems within Bell Atlantic's region because Bell Atlantic plans to divest itself of the TCI properties in its service territory. In the 1984 Cable Act, local telephone companies were banned from offering cable television in their own service areas. The Board will be reviewing any transfers that affect New Jersey.

However, on August 24, 1993, a Federal court in Virginia overturned the 1984 Cable Act that prohibited telephone companies from providing television programming in their service areas. If this decision is ultimately upheld, it would allow Bell Atlantic to offer cable service in their own region.

With the addition of TCI's expertise in cable and video programming, Bell Atlantic would instantly have the ability to compete with other Regional Bell Operating Companies and existing cable franchises in New Jersey when the network is video capable.

Since the August 24th decision, the FCC, and U.S. Attorney General jointly filed a motion in the US District Court in Alexandria, VA, indicating they will appeal that court's decision. Additionally, NYNEX Corporation has filed a suit in Federal court in Portland, ME, to overturn the ban on offering cable television services in areas where that company provides telephone service. There have been similar suits made by Pacific Telesis Corporation and Ameritech Corporation.

Pending the final decision of the appeal, Bell Atlantic/TCI plans on divesting the in-region cable properties of TCI to alleviate any roadblocks. The divesting of these properties will be accomplished by one or more of the following:

1. TCI can do a systems swap with other cable companies in other regions of the country. (This actually did happen with Storer Systems owned by COMCAST and TCI).
2. Sell off stock of in-region properties to some other cable company or any investor who wants to own a cable company.

3. Create a company that has all TCI in-region property by grouping the properties together to form a new independent company, then issue shares of stock to all TCI stockholders (similar to what was done at divestiture with Regional Bell Companies). The management of both of those companies would not be related.

While no direct impact is expected as a result of the merger, the type of change it represents could affect New Jersey customers. For example, if other Regional Bell Operating Companies, like Bell Atlantic, pursue mergers with cable companies having a New Jersey presence, NJ Bell could face competition for its local dialtone service. Also, if the Federal court ruling overturning the 1984 Cable Act's video programming prohibitions is sustained on appeal, Bell Atlantic could stop the planned divestiture of TCI's New Jersey properties and directly compete with established cable companies by offering video programming.

Bell Atlantic will benefit from TCI/Liberty Media's programming expertise. However, it is still too early to estimate the impact of the merger due to the pending legal and regulatory decisions outstanding.