Contents

Executive Summary

This document represents Bell Atlantic-New Jersey's (BA-NJ) sixth annual infrastructure deployment report pursuant to its Plan for an Alternative Form of Regulation (PAR).[1] Because the New Jersey Board of Public Utilities (Board, BPU) revised the reporting requirements, this report emphasizes BA-NJ's second full year under Opportunity New Jersey℠ (ONJ), as accelerated by Access New Jersey℠ (ANJ).

This narrative chronicles 1999 and addresses network service capabilities, technology levels, and pending or planned market, technical and operational trials. In addition, this report identifies critical technology issues relating to infrastructure deployment, describes deployment objectives for the coming year and addresses the impact of infrastructure deployment on New Jersey's citizens and the state's economy.

In 1999, BA-NJ continued aggressive technology deployment to fulfill its commitments under ONJ and ANJ. Key highlights include:

- $1.04 billion invested, the Company's highest level of capital spending for any one-year in its history and $405 million more than BA-NJ invested in 1994, the first full year of ONJ. Since ONJ was approved, BA-NJ has invested $5.25 billion, representing $1.06 billion more than original business as usual estimates.

- 1,827 more employees were hired bringing the cumulative number of new hires since 1993 to 7,311 in New Jersey.

- The replacement of the remaining nine analog switches fulfilled BA-NJ's commitment to achieve 100% digital switching by year-end 1999.

- 128,260 miles of fiber were deployed which accounts for 23 percent of the overall Bell Atlantic regional total. With a total of 1,287,604 miles of fiber, BA-NJ leads all other Bell Atlantic states in fiber deployment. In fact, this achievement distinguishes BA-NJ as having more fiber per thousand access lines and a higher percentage of fiber sheath miles than Ameritech, BellSouth, SBC (including Pacific Telesis), or US West.

- Three more Asynchronous Transfer Mode (ATM) switches and 23 additional fast packet switches were deployed to augment the capacity of the high-speed data network deployed initially in 1998 to accelerate availability of high-speed data services to schools, libraries and urban areas.

- In addition to deploying the latest technology, BA-NJ continues to work diligently to open New Jersey's local telephone market to competition. BA-NJ accelerated the deployment of local number portabili-

ty by making it 100% available to competitors throughout its serving territory, allowing customers to keep their telephone numbers when changing local service providers

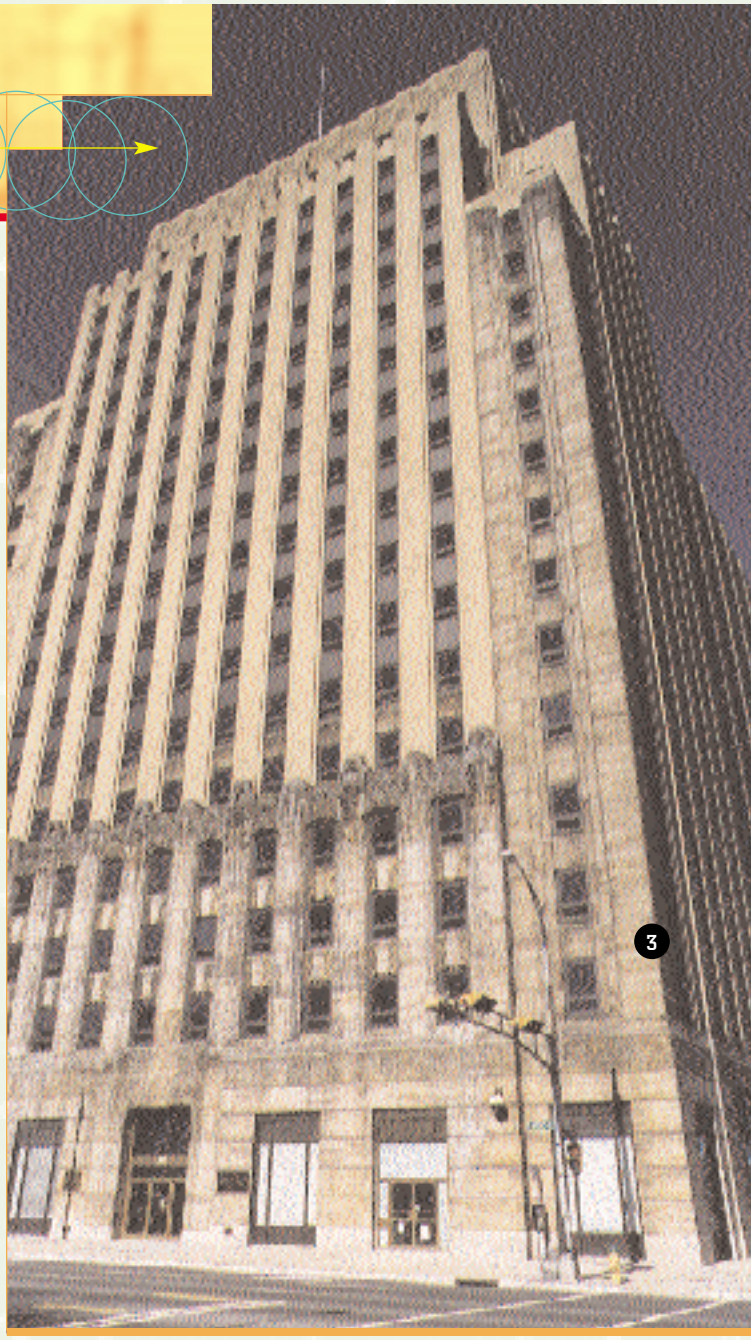
- A one-of-a-kind video portal, located in Newark, with additional ATM switches and a backbone network was constructed. In 2000, the video portal will deliver two-way interactive video services or Internet services over dedicated facilities to K-12 schools.

- An estimated $42 million of savings from free equipment and service discounts were provided to schools and public libraries throughout every county. At year-end 1999, 77 percent of the Abbott Districts were participating in the program.[2]

- Deployment of Infospeed DSL[sm] services continued in 1999. Initial rollout of the service was targeted to key urban areas. As of the end of 1999, 128 Central Offices serving 285 municipalities in northern and southern New Jersey were equipped to provide 1 million households with high speed Internet access.

- Further progress on service capability deployment created 84% of wideband and 42% availability of broadband service capabilities.

This past year, the Board initiated a proceeding to review BA-NJ's progress on ONJ, as accelerated by ANJ. The



Assistant Commissioner of the New Jersey Department of Education (DOE) testified that "overall, the number of contracts, the service to the Abbott Districts, the allocation of customer premise equipment and the development of the ATM-based network met or exceeded the expectations of DOE." After two days of hearings and

a review of the case record, the Board agreed unanimously that BA-NJ met its commitments. The Board found that:

- **"Bell Atlantic has either satisfied or is on track to satisfy each of the ANJ commitments contained in the 1997 stipulation."**

- **"BA-NJ has deployed a statewide ATM-based network which allows any school or library to connect upon request."**

- **"The Company has sufficiently demonstrated that it has expended about half of the $55 million network commitment."**

- **"BA-NJ has similarly expended approximately 80% of the $25 million CPE fund in less than two years and will spend the entire $25 million."**

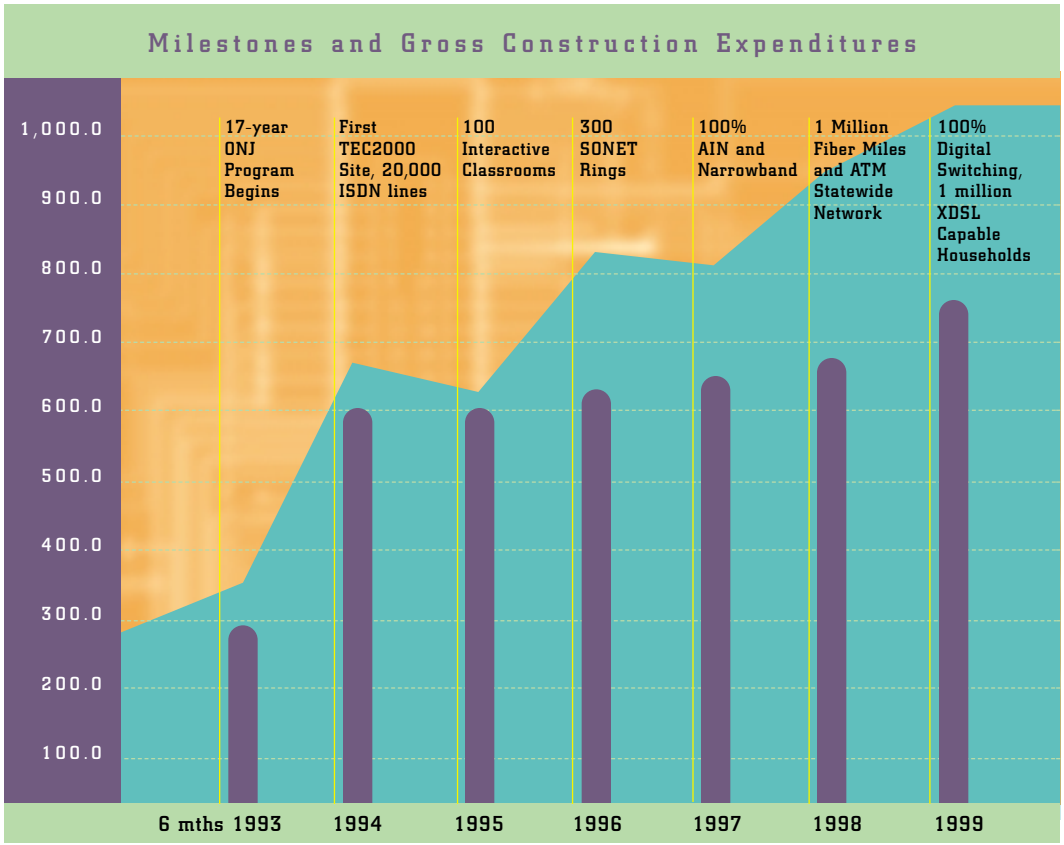
As part of that proceeding, BA-NJ also agreed to expand the Communications Lifeline Program to provide additional choices that include message rate use and flat-rate service that will help enable the economically disadvantaged to reap the benefits of ONJ, as accelerated by ANJ. Shortly after a mailing announcing the additional choices, approximately 8,000 more customers signed up in a one-month period.

BA-NJ's ONJ, as accelerated by ANJ, has positioned New Jersey as an economic leader ready to compete in the new millennium.

The State of the Network

The modernization of BA-NJ's network infrastructure and the deployment of new technologies have been, and will continue to be, critical to the success of New Jersey and BA-NJ. The development and deployment of new technologies are evolutionary processes, driven by the need to meet the constantly changing sets of customer requirements. Explosive demand for data connectivity has provided new challenges both in modernizing the network and in serving our customers.

A primary objective of BA-NJ is to build the infrastructure necessary to support New Jersey's economic development and BA-NJ's growth. BA-NJ's network must have the necessary capabilities and capacity to meet both the current and future demands of an ever-changing marketplace to continue providing high-quality communications services. BA-NJ is committed to service capability deployment and makes capital expenditures as necessary to achieve its ONJ and ANJ commitments. The chart on page five titled *Milestones and Gross Construction Expenditures* compares actual investment to original plan estimates without ONJ for the period 1993 through 1999. The



	6 mths 1993	1994	1995	1996	1997	1998	1999
Act w/ONJ	361.9	638.5	618.9	838.5	805.6	945.7	1043.5
Est BAU	299.5	600.3	600.7	620.8	644.6	688.2	741.5

chart also shows that BA-NJ has spent significantly more than was projected without ONJ and ANJ acceleration.

By integrating a number of services on a single network, BA-NJ will optimize our service delivery capabilities. The evolution to the full service ATM switched broadband network will significantly increase the efficiency of serving New Jersey through automated provisioning and activation processes, increase capacity availability, and result in an even more flexible delivery platform.

BA-NJ's integrated network of switches, transmission facilities and operating systems provides New Jersey's residential and business communities with an advanced telecommunications infrastructure that is ready, willing and able to act as the state's on-ramp to the Information Highway. Network investments are being driven by the exploding demand for a broadening array of services. These services range from additional lines, Internet access, and high-speed transport to applications requiring packet-switched networks, combinations of switched and private networks, and

customized network designs. Additionally, the network must be able to handle increased traffic volumes from competitors utilizing BA-NJ's wholesale service offerings. BA-NJ is implementing a comprehensive process to make it easier for competitors to gather preordering information on customers, submit orders for service, have that service provisioned, bill users, and report troubles. For example BA-NJ will:

- Combine different elements of BA-NJ's network (unbundled network elements) for basic residential local service and residential ISDN service, making it easier for competitors to provide local service.

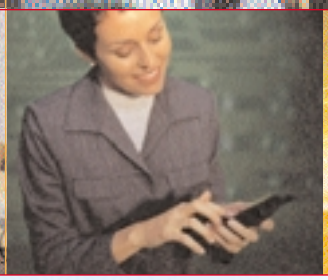
- Provide enhancements to a comprehensive process to make it easier for competing local telephone companies to do business with BA-NJ, including: using a database to track escalation of service-related problems and written procedures for reporting such problems, enhancing a service center dedicated to processing local service requests of competitors, and a measurement process to gauge the center's performance.

- Provide non-discriminatory access allowing competitors to tie their systems directly to BA-NJ's operating support systems for pre-ordering, ordering, provisioning, maintenance, repair, and billing.

BA-NJ also has a facility in New Jersey solely dedicated to handling the needs of competitors. In New Jersey, 53 carriers are certified to provide local telecommunications services and 21 more have filed for regulatory approval. These companies are experiencing explosive growth. In 1999, BA-NJ exchanged 5 billion minutes of traffic with them, a five-fold increase over 1998.

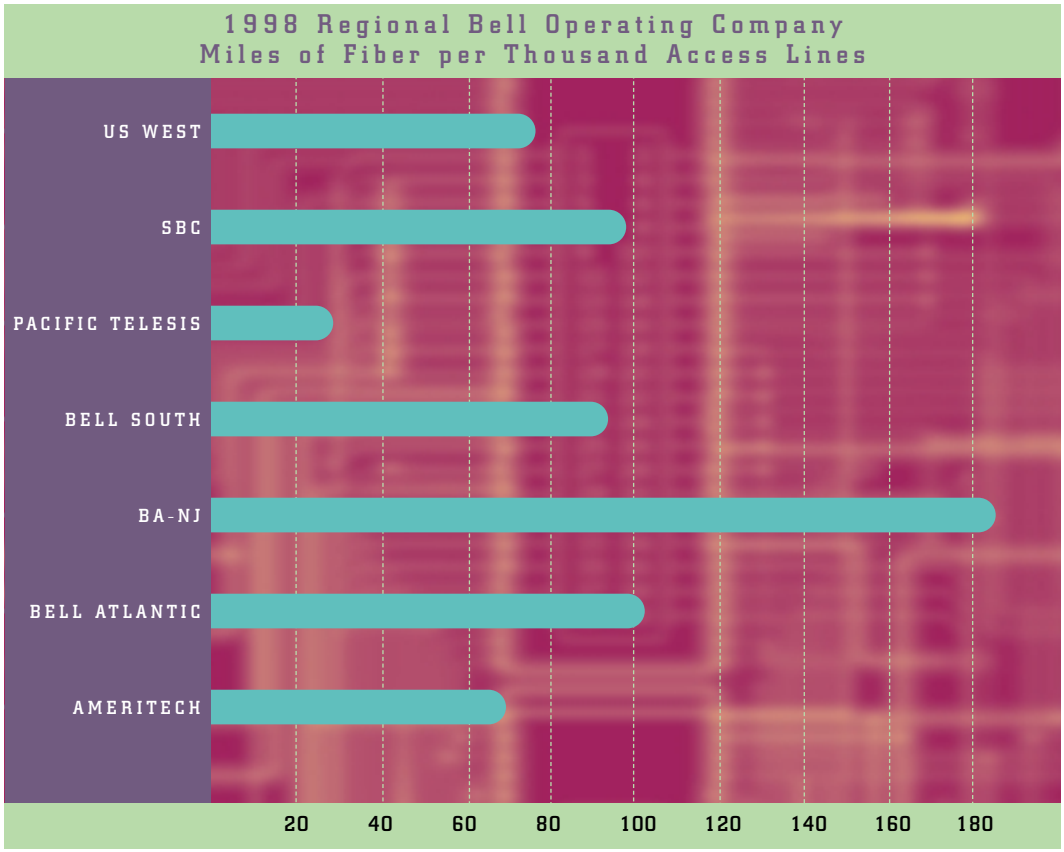
Today, BA-NJ's sophisticated and intelligent communications network provides a world-class vehicle for accessing voice, data, imaging, and video. As previously reported, BA-NJ exceeded its commitments by making the Advanced Intelligent Network (AIN) and narrowband service capabilities 100 percent available in 1997, one year earlier than required. This section will address progress on the remaining two service capabilities of ONJ[3] and ANJ — wideband and broadband. To accommodate ONJ, as accelerated by ANJ, BA-NJ developed a deployment strategy so that the benefits of a broadband capable network could be realized even sooner than required. The initial deployment of Asynchronous Transfer Mode (ATM) switches and fast packet switches at key hub locations linked with a high-speed fiber optic backbone provided statewide availability of an ATM-based network to all schools, libraries and urban areas in the BA-NJ serving area one year ahead of schedule in 1998.

Sixteen ATM switches and 125 fast packet switches at key hub locations provided statewide availability of an ATM-based network. In 1999, BA-NJ augmented this capacity by placing three additional ATM and 23 fast packet switches and began construction of a statewide video portal. With a total of 19 ATM and 148 fast packet switches, BA-NJ's network provides the availability of ATM, frame relay and Switched Multimegabit Data Services (SMDS) to all New Jersey schools, libraries, Abbott Districts and urban areas.



By partnering with FVC.COM, BA-NJ is stepping up to New Jersey Governor Christine Todd Whitman's promise to "deliver high-speed access to every classroom in New Jersey by 2002." The broadband network will use FVC.COM video networking equipment to deliver live and stored video resources to schools throughout the state. Through ANJ, classroom sessions can be broadcast live to multiple sites, maximizing the impact of guest speakers or subject matter experts. For example, several video classrooms can participate in a real-time interactive interview with a government official or curator of a museum. This interview can be broadcast live to classrooms throughout the state, while simultaneously being recorded for replay at a later time as part of another class session.

Explained Governor Whitman, "By working with Bell Atlantic and FVC.COM to video-enable our classrooms, we are leveling the playing field for New Jersey's students by delivering the finest quality educational resources to all schools, regardless of geographic or socioeconomic boundaries[4]."



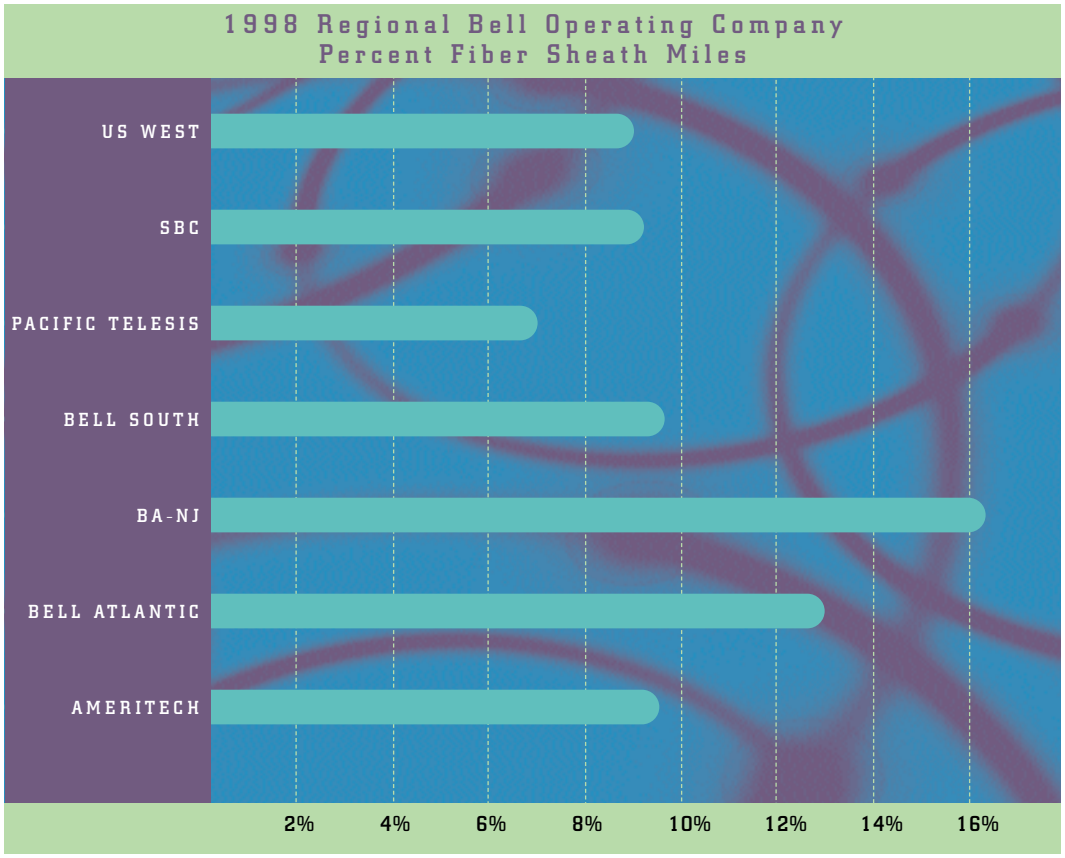
Source: *FCC Fiber Deployment Update (table 12)*

"Bell Atlantic is the first regional Bell operating company (RBOC) to deliver broadband video services on a large scale to its customers. Now they have raised the bar for telecommunications carriers around the country," explained Rich Beyer, President and Chief Executive Officer of FVC.COM. "Through our continuing partnership, we look forward to delivering broadband video services to other parts of the Bell Atlantic region." Appendix C lists BA-NJ's accomplishments and shows the progress made toward fulfilling the commitments under the ANJ program.

BA-NJ fulfilled its commitment to be 100% digital by year-end 1999 by replacing the remaining nine analog switches.

The company deployed 128,260 miles of fiber accounting for 23 percent of the overall Bell Atlantic regional total. Fiber optics accounts for nearly one-fifth of BA-NJ's total cable miles. With 1,287,604 miles of fiber deployed, BA-NJ leads all other Bell Atlantic states. BA-NJ's single-state fiber deployment record is impressive when compared to total fiber mile statistics for the other Regional Bell Operating Companies (RBOCs).

Based on the most recently available data from 1998, BA-NJ continues to outpace all other RBOCs in fiber deployment. As illustrated in the chart above, with 184 miles of fiber per thousand access lines, BA-NJ far exceeds the efforts of any of the RBOCs. In addition, the chart on the following page clearly demonstrates



Source: *FCC Fiber Deployment Update (table 12)*

that BA-NJ's percentage of fiber sheath miles to total sheath miles far exceeds all other RBOCs. The numbers show that BA-NJ continues to be a national leader in fiber optic deployment.

In 1999, BA-NJ announced that it would deploy dense wavelength division multiplexing (DWDM) systems in its core network. By deploying this technology between the Freehold and New Brunswick central offices, BA-NJ became one of the first RBOCs to deploy DWDM systems in its network to support customer traffic. Multiwave systems provide immediate bandwidth relief so that new fiber is not needed. DWDM extends the life of current fiber optic plant and has the flexibility to handle all types and speeds of traffic. It also provides the flexibility to respond to the needs of customers for increased bandwidth in a timelier manner than having to place additional fiber.

The Telecommunications Act of 1996 brought sweeping changes in telecommunications regulations. Competition in local markets and the convergence of technologies have significantly altered the landscape of telecommunications. The explosive growth in the Internet has resulted in consumer demand for high-speed data services. Consequently, the technological community has focused its efforts on the development of technology capable of providing data access to residential

customers at greater speeds and functionality. Competitors like cable TV companies and wireless service providers now offer access to the Internet.

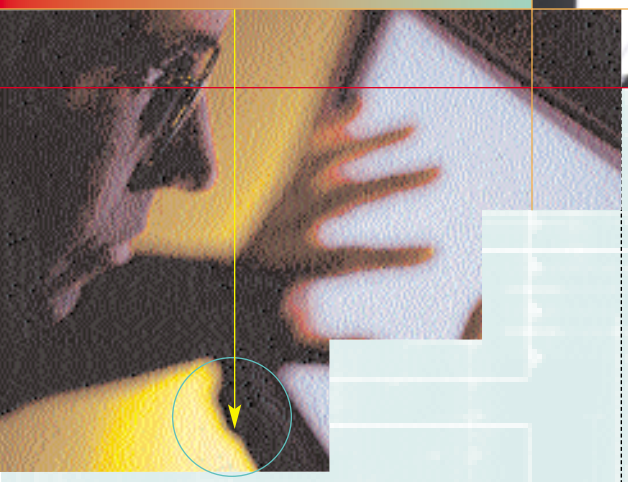
To speed broadband service availability to the residential marketplace, BA-NJ equipped a total of 116 additional central offices in northern and southern New Jersey, including additional offices in Newark, with RADSL (Rate Adaptive Digital Subscriber Line). The technology uses existing copper facilities to provide high-speed Internet access. The rollout was targeted to key urban areas. In addition to Newark, RADSL is available in Camden, East Orange, Elizabeth, New Brunswick, Paterson, Trenton, and most of Hudson County, including Jersey City.

RADSL enables customers to use BA-NJ's Infospeed DSL service to access the Internet at data rates ranging from 640 kbps (kilobits per second) to 7.1 mbps (megabits per second) or 240 times faster than a 28.8 kbps modem. For example, downloading the entire *Encyclopedia Britannica* with a 28.8 kbps modem would take 26 minutes. An ISDN (Integrated Service Digital Network) line working at 128 kbps would perform the same task in 6 minutes, while the slowest speed RADSL at 640 kbps would download the volumes in 70 seconds.

In 1999, BA-NJ added 124 more SONET (Synchronous Optical Network) rings bringing the total deployed to 855, including 445 customer rings, 394 interoffice facilities rings, and 16 interexchange carrier rings. SONET technology continues to provide unparalleled security, faster service provisioning and network survivability. This technology continues to make New Jersey highly attractive to business.

BA-NJ is committed to service capability deployment and makes capital expenditures as necessary to achieve its ONJ and ANJ commitments. BA-NJ has invested $5.25 billion in New Jersey since mid-1993. In 1999, the Company spent $1.04 billion. Since the plan was approved, BA-NJ's spending averaged $808 million per year and a total of $1.06 billion more than original business as usual estimates. With 11 years left in the deployment schedule, these investments position BA-NJ to fulfill its remaining ONJ and ANJ service capability commitments. BA-NJ's progress has provided the state with early recognition as a leader in advanced telecommunications technology and services as envisioned by public policymakers.

Benefits to New Jersey and New Jerseyans



For well over a decade, experts have agreed that there is a direct causal relationship between advanced telecommunications infrastructure deployment and economic development. In its 1991 Infrastructure Study, the Deloitte & Touche Consulting Group projected that telecommunications services would become increasingly important in the business environment. Five years later, this assessment was confirmed by a follow-up study conducted by the same consulting firm.

The Hezel report, entitled *Educational Telecommunications and Distance Learning - the State by State Analysis 1998-1999*, further links New Jersey's advanced telecommunications infrastructure and various partnerships between the state and business, such as Bell Atlantic's ONJ, as accelerated by ANJ, with stimulating the economy. According to the report, "New Jersey is a technologically rich state that is becoming even richer." Leveraging advanced technology helps create a

business environment that encourages employers to locate and expand in New Jersey and helps lead to solid job growth and a lower, more favorable, unemployment rate.

In their cover letter to Governor Christine Todd Whitman for its report on New Jersey Review & Economic Outlook for 1999-2000, the State Of New Jersey Council Of Economic Advisors wrote the following:

"For the last decade, New Jersey's job growth has been concentrated in five clusters of economic activity - high technology, health, financial, entertainment and logistics. One of every three of our workers are in these sectors, and as a whole these sectors accounted for a 19 percent increase in employment over the past decade compared to a 4 percent employment growth for all other State industries. These sectors depend on an effective and efficient public infrastructure for distribution and access and/or a well-educated, productive, skilled and available work force. The economic results for the past two years have brought falling unemployment, rising incomes, a healthy State treasury, and revitalized urban economic development. These are accomplishments in which you and the State can take great pride. Providing the necessary foundation of an efficient and modern infrastructure and a well-educated workforce will ensure that New Jersey's economy will remain dynamic in a world where uncertainty, fierce competition, and rapid and profound technical change will be ever present."

In his Testimony for the Senate Special Study Committee on the Federal Telecommunications Act of 1996 on May 25, 1996, Herbert H. Tate, Jr., President of the New Jersey Board of Public Utilities, recognized BA-NJ's role in supporting New Jersey's economic development through its telecommunications infrastructure initiative:

"To determine the answers to these questions, the Board will be conducting public hearings to discuss Bell Atlantic's commitment to Opportunity New Jersey to make New Jersey the first state in the country to have advanced, broadband statewide services to all residences and businesses. The capital expenditures to keep New Jersey competitively ahead of other states to become the telecommunications center of the United States are extensive."

As referenced earlier in this report, the Board agreed unanimously that BA-NJ met its commitments.

BA-NJ has hired 7,311 employees and invested $5.25 billion in New Jersey since ONJ took effect in 1993. During this time, New Jersey's resident and non-resident employment has grown by 391,200 jobs, and at year end 1999 the state's unemployment rate of 4.1 percent[6] was at its lowest since July of 1989.

BA-NJ provides a full range of customized communications solutions to address the complex requirements of business customers. Our products and services are

designed to meet the connectivity requirements of a dynamic business environment, reaching beyond traditional boundaries to an increasingly distributed workforce, suppliers, and key customers. Today companies are looking for customized network communication solutions that enable them to share information quickly and securely among employees, customers and suppliers by combining the broad availability of the Internet with the control, high-speed connectivity and security offered by traditional communications networks. As a result, the network is increasing in its importance to business, as it becomes the central means not only to deliver information, but also to manage, direct and monitor all information flows within a business.

In 1999, several large corporations took advantage of the capabilities of BA-NJ's advanced network by contracting for services such as SONET. SONET is an important service because the client's local access, up to and including presence in a Carrier Point of Presence (POP), is protected by a self-healing fiber ring in the contracted bandwidths. No local outages should occur. This is the cornerstone for alternate routing and disaster avoidance.

The availability of advanced telecommunications continues to be attractive to business in New Jersey. Service quality, SONET deployment, and the availability of fiber optics were some of the factors that convinced a major automobile manufacturer to stay and grow its business in northern New Jersey. Many businesses, including small start-ups, are technology driven and need more than basic local voice access to be competitive in their markets, both domestically and globally. Customers of all sizes require advanced digital services including Frame Relay, Primary Rate ISDN, xDSL, High Capacity Digital Lines, and Digital Hand-offs. BA-NJ's advanced network has facilitated meeting these requirements despite the diverse needs and geographic location of many of these customers.

BA-NJ hosted a program for youth representing urban leagues from around the state at its learning center in South Plainfield. The purpose was to introduce these young people to the world of telecommunications technology. As a result of this first visit, members of the Urban League of Union County returned to learn more about ISDN Centrex service. Subsequently, they moved to larger quarters and ordered the service.

Health systems also use New Jersey's advanced network to link remote affiliates to create a seamless health care system of services. For example, last year, a South Jersey hospital system designed a network that connects its four hospitals in Cherry Hill, Mt. Laurel, Voorhees and Washington Township with eight local clinics. Patient records, insurance information and physi-

cian expertise are shared online. The system uses Primary Rate ISDN circuits with ATM. The system was expanded this year and allows dial-up access by doctors. Eventually, it is estimated that more than 600 physicians, in addition to laboratory companies, will be participating.

Learning and telemedicine programs were introduced through a joint effort between Bell Atlantic and Morristown Memorial Hospital that enabled students in the classroom to observe medical procedures at Liberty Science Center in Jersey City via distance learning programs. The new cardiac classroom allows students to talk with doctors, nurses and technicians during medical procedures. It is estimated that about 1,800 students have observed 60 surgeries through this one-of-a-kind program. Expansion of the program to include neurosurgery is under consideration.

Economic development depends greatly on the availability of a skilled workforce. BA-NJ and the State of New Jersey have been extremely successful in marrying technology to education. Included in that effort is the continued activity of Workforce Investment Boards (WIBs). The WIBs' mission is to ensure that New Jersey businesses take the lead in the state's Workforce Readiness Initiatives and that Prosperity New Jersey will link the employment, training, and education system to the competitive demands of the global economy. This partnership of the private and public sectors exists in each county or multi-county area to develop, maintain, and implement a new system that is consumer and labor based. BA-NJ managers sit on 10 of the 15 WIBs. One of the objectives of the WIBs is to develop School-to-Career opportunities.

TEC2000 is a School-to-Career program that began in 1993. It is a nationally recognized program that prepares students, as well as people re-entering the job market, for technology-related jobs in New Jersey's telecommunications industry. BA-NJ proudly watched as additional TEC2000 sites were officially opened at the Union County Vocational-Technical School and Warren County Technical School in Washington, N.J. The centers offer Union and Warren County students a comprehensive telecommunications education.

Students learn how to wire, install and repair telephone systems and computer networks. The two-year program is designed to facilitate the school-to-career transition for high school juniors and seniors who choose not to attend college. BA-NJ has spent about $2 million to set up the centers and so far has hired 80 percent of the graduates since the program began in Ocean County in 1993. To date, 12 TEC2000 centers are located in Burlington, Cumberland, Essex, Hudson, Mercer, Morris, Ocean, Passaic, Salem, Somerset, Union, and Warren counties. Students hired by BA-NJ, after graduating from the program, earn starting salaries of around $20,000 a year and in five years can make as much as $52,000 annually.

Since its inception, the TEC 2000 Program has enrolled 420 students. BA-NJ, Sprint, AT&T and Suburban Cable, as well as several smaller networking companies, have hired graduates.

TEC2000 has been extremely successful. In 1996, the U.S. Department of Education selected the program as one of the 10 best school-to-work programs in the nation. TEC2000 was honored in 1997 with the New Jersey Business and Industry Association's Enterprise Award for job creation. BA-NJ has also provided employment opportunities under the joint Youth Opportunity Movement (YOM) program with the Department of Commerce.

BA-NJ continues to advocate the use of technology to benefit New Jersey children. The ONJ Technology grant program, begun jointly with the New Jersey Association of School Administrators, encourages the development of technology applications in New Jersey's K-12 schools. Since 1996, the ONJ grant program provided approximately $700,000 to fund opportunities for schools and libraries to bridge geographic, cultural, and socio-economic differences. Five more grants were awarded in 1999. One grant offers Newark students virtual international business experience. Students at St. Phillips Academy will use videoconferencing to explore career opportunities with students in St. Petersburg, Russia and Paris, France. Another grant awarded to the Passaic County Elks Cerebral Palsy High School will enable students with special needs to prepare for the workplace through the use of telecommunications technology.

Students in Jersey City will train to become the next generation of telecommunications technicians at a new $1 million Network Training Facility Lab at Dickinson High School launched by BA-NJ and the Jersey City Schools. The state-of-the-art lab is designed to give students entry-level skills for careers in telecommunications technology. The training facility was built during the last year by BA-NJ, and a consortium of 19 telecommunications vendors including Fujitsu America Inc., Lucent Technologies and Nortel. Together, the consortium provided more than $1 million in labor and state-of-the-art equipment.

In 1998, under ANJ, the ONJ Grant program was extended to libraries. Six more library grants were awarded in 1999. To date, 19 libraries have benefited from more than $325,000 in grants awarded under this program.

Bell Atlantic also received a Corporate Leadership Award from the National Urban League in recognition of its philanthropic efforts to bring technology to urban communities. Hugh Price, the

League's president and CEO, presented the award to Bell Atlantic Chairman and CEO Ivan Seidenberg during the organization's Equal Opportunity Day Dinner, on Nov. 9, 1999. In presenting the award, Price noted the expert talent and training Bell Atlantic has provided during the past two years to get the League's five community technology centers (in addition to Newark, the technology centers that received Bell Atlantic Foundation support are located in Baltimore, Boston, Binghamton, and White Plains, N.Y) up and running.

"At these centers, Urban League constituents have access to the hardware and software they need to plug into cyberspace, thereby crossing the 'digital divide' that separates so many communities from the world of technology," said Price. "Our partnership with Bell Atlantic to build these community technology centers supports our mission, which is to help African Americans and others obtain social and economic equality. Knowledge of emerging technologies enhances the opportunities available to members of our community to compete and succeed in a new global economy. We are very grateful to the Bell Atlantic Foundation for making these centers possible and for stimulating our drive to lead all of our affiliate organizations into the information age[6]."

Access New Jersey (ANJ)

ANJ is a comprehensive solution for acquiring or upgrading telecommunications technology for virtually every facet of the learning environment in schools and libraries throughout the BA-NJ service area.

ANJ has proven to be an overwhelming success[7]. As of December 31, 1999, BA-NJ spent $28 million building the ATM-based network. In 1999, BA-NJ installed 26 additional ATM and fast packet switches at key hub locations, supplementing the statewide availability of ATM services previously provided in 1998, a full year ahead of schedule. Every public and non-public school and public library in every urban, suburban and rural area of the state served by BA-NJ has been given the opportunity to take advantage of the program. By the end of 1999, 1,876 K-12 schools and public libraries, representing every county in the state, have taken advantage of ANJ. In fact, contracts have been signed in 100% of the towns with Urban Enterprise Zones (UEZ). In addition, 77 percent of the Abbott Districts and 61 percent of the Economically Disadvantaged Districts participate in the program.

Schools and libraries within the BA-NJ serving area participating in the program are expected to save $25 million on customer premise equipment (CPE). BA-NJ distributed $20 million of free equipment through 1999, representing 80 percent of the CPE fund. Of that total, $617 thousand was used to fund free ITV (interactive television) classrooms for ten Abbott

Districts. Through 1999, including discounts on services, savings to schools and libraries are $41.7 million. Appendix D lists the number of contracts, locations and savings by county.

In letters to BA-NJ, school districts across the state acknowledge how pleased they are with what ANJ has done for their schools. According to these educators, two direct outcomes, one budgetary and one instructional, are "forcing districts to move into the Information Age[8]." The discounts and free equipment allow school districts to devote more of their limited fiscal resources to provide direct instructional services to children while at the same time upgrading their networking technologies and systems.

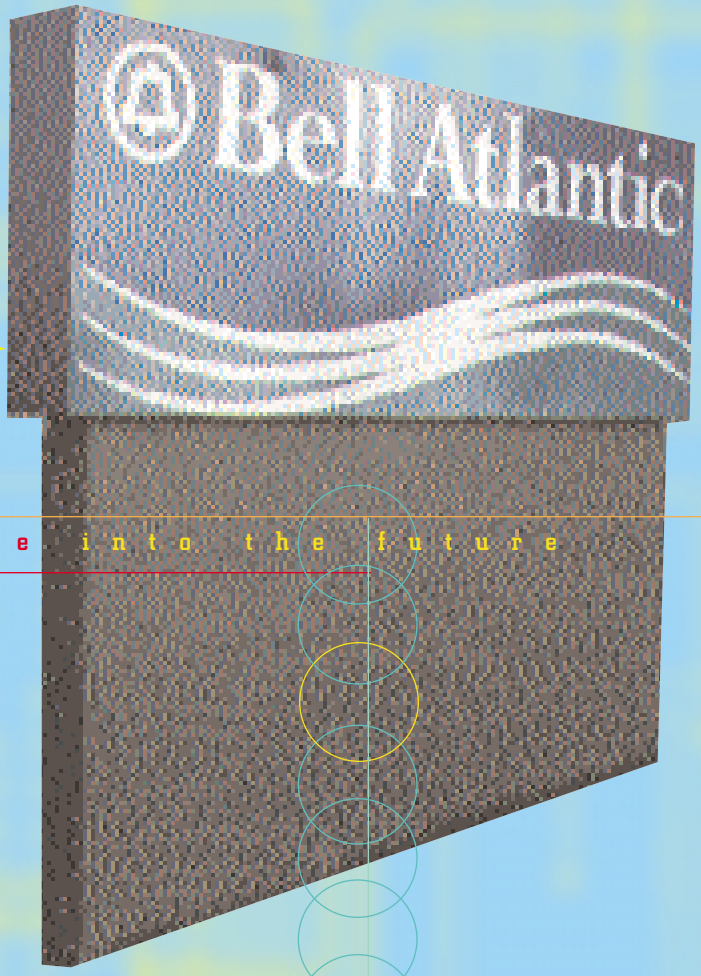
Participation in ANJ continued to grow in 1999. Advanced technology through ONJ and ANJ continue to help prepare New Jersey's 1.2 million K-12 students for the future.

Conclusion

When Alexander Graham Bell made the first telephone call in 1876, he started a revolution in the way people communicate. The telephone became the prime method for families and friends to bridge the geographic distance that separated them. It became a tool critical to commerce. Businesses came to rely on it. Today, businesses continue to rely on it.

The infusion of advanced technologies into New Jersey's telecommunications infrastructure continues to tear down the barriers of distance and time. The BA-NJ network equips our state with an affordable full service network that will keep New Jersey prosperous, educated, safe and strong. As validated by the 1998-1999 Hezel report, BA-NJ's advanced network capabilities, offered under ONJ and ANJ, position New Jersey among the leaders in telecommunications for the Information Age.

We at BA-NJ realize that while recognition is nice, the work is not yet done. This year, $5 million of the equipment fund will be available to allow schools and libraries to take advantage of the wideband and broadband services that this new network provides. We will continue to work with the DOE and educators to help schools and libraries within the BA-NJ serving area take advantage of special discounts. And above all, we will continue our larger commitment to bring the benefits of the Information Age to every citizen in New Jersey. BA-NJ's commitment to technology and learning, under ONJ as accelerated by ANJ, works hand in hand with New Jersey's goal to leap forward into the 21st century.



a bridge into the future

Evolution of "The Plan"

The 1992 New Jersey Telecommunications Act allowed the New Jersey Board of Public Utilities (Board, BPU) to deal more effectively with changes in markets and technology that were occurring within the telecommunications industry. This law permitted the BPU to adopt alternative forms of regulation and provided a road map for New Jersey's entry into the information age.

In 1993, the BPU approved a Plan for an Alternative Form of Regulation (PAR)[1] that provided an initial framework enabling Bell Atlantic - New Jersey (BA-NJ, Company) to accelerate the deployment of an advanced infrastructure over a 17-year period. The infrastructure plan, called Opportunity New Jersey[sm] (Plan, ONJ), provided a blueprint for upgrading New Jersey's telecommunications network to position the state to deliver a wide variety of new information age services and enhance New Jersey's economic competitiveness. The deployment plan was forward looking, in that it contained the flexibility to address the evolution of technology during the 17-year life of the plan.

The plan evolved from a comprehensive Infrastructure Study that was commissioned by the BPU. The objectives of the study were, among other things, to identify what would be required for the state's policymakers to chart a new course for telecommunications regulatory policy. The study, published in 1991 by Deloitte and Touche, found that a "significant strategic opportunity exists to advance the public agenda in New Jersey through the accelerated deployment of a reasonably priced, advanced telecommunications network in the state." Five years later, this assessment was sustained by a follow-up study conducted by the same consulting firm.

The 1996 Deloitte and Touche study surveyed New Jersey businesses, as well as Economic Development Managers. Study findings showed a significant increase, from 20 percent in 1991 to 97 percent in 1996, in the belief held by businesses that advanced telecommunications services were "critical" to their ability to compete in a global marketplace. This belief was reinforced by the Economic Development Managers' view that the availability of an advanced telecommunications infrastructure is a "key" element in attracting and maintaining businesses in New Jersey.

Between October 1996 and June 1997, the Board reviewed Bell Atlantic's progress under ONJ and found that Bell Atlantic-New Jersey was meeting, and in many cases, exceeding its commitments. Although the record clearly established that BA-NJ was meeting the commitments of the Plan, the Company agreed to accelerate ONJ further via the deployment of wideband and broad-

band service capabilities to K-12 schools, public libraries, and urban areas. In April 1997, in cooperation with the BPU and the Ratepayer Advocate, BA-NJ developed the Access New Jersey[sm] (ANJ) program. ANJ evolved as a comprehensive solution for acquiring or upgrading telecommunications technology for virtually every facet of the learning environment in New Jersey's schools and libraries throughout the Bell Atlantic service area.

Under ONJ as accelerated by ANJ, Bell Atlantic-New Jersey agreed to:

- Deploy a $55 million ATM/fast packet high-speed network over four years. This network would provide voice, video and data capability to all 28 Abbott districts by the end of 1999, and all remaining school districts and libraries in the Bell Atlantic-New Jersey service area by the year 2001;

- Establish a $25 million equipment fund for schools and libraries who subscribe to ANJ to acquire the equipment they need to connect computers and video equipment to the high-speed network; and

- Provide schools and libraries with educational discounts on tariff rates, on a flat rate basis, ranging from 31 to 72 percent for ATM (AsynchronousTransfer Mode), SMDS (Switched Multimegabit Data Service), Frame Relay, and ISDN (Integrated Services Digital Network) services.

In 1999, the Board reviewed the Company's progress under ONJ as accelerated and found, once again, that BA-NJ has either satisfied or is on track to satisfy all of its commitments. In testimony before the Board, the Assistant Commissioner of the New Jersey Department of Education stated, "Overall, the number of contracts, the service to the Abbott Districts, the allocation of customer premise equipment, and the development of the ATM-based network met or exceeded the expectations of DOE."

On December 30, 1999 BA-NJ filed a modified plan responding to the profound changes in the New Jersey telecommunications marketplace brought about by the Board's pro-competitive policies, the sweeping changes resulting from the federal Telecommunications Act of 1996 and continuing transition of New Jersey's telecommunications marketplace from regulated to competitive. The modified plan, known as the Competitive Telecommunications Plan, reclassifies rate regulated services as competitive and maintains BA-NJ's commitments to advanced infrastructure deployment under the ONJ/ANJ programs.

BA-NJ remains fully committed to meet all of the Board's objectives under ONJ/ANJ. We are satisfied and the record supports the conclusion that BA-NJ is in full compliance with all of the goals and objectives set forth by the Board in approving ONJ as accelerated by ANJ.

Service Capability & Enabling Technology Deployment

I. Opportunity New Jersey's Service Capabilities	1994	1995	1996	1997	1998	1999	Commitments
Advanced Intelligent Network							
w/o acceleration (est)	63%	70%	75%	80%	88%	94%	none
with acceleration (act)	72%	78%	83%	100%	100%	100%	100% 1998-achieved
Narrowband (up to 144 kbps)							
w/o acceleration (est)	58%	64%	69%	74%	82%	87%	none
with acceleration (act)	67%	73%	80%	100%	100%	100%	100% 1998-achieved
Wideband (144 kbps to 1.5 mbps)							
w/o acceleration (est)	14%	29%	41%	50%	62%	71%	none
with acceleration (act)	n/a	37%	50%	66%	78%	84%	95% 2000
Broadband (up to 45 mbps & higher)							
w/o acceleration (est)	0%	0%	1%	1%	3%	9%	none
with acceleration (act)	n/a	13%	19%	34%	35%	42%	100% 2010

II. Enabling Technology Deployment & Resources	1994	1995	1996	1997	1998	1999	Commitments
Analog Switches	36	29	24	17	9	—	
Digital Switches	181	186	191	197	205	215	
% Digital Switches	83%	87%	89%	92%	96%	100%	100% 1999
RADSL Equipped Offices					12	128	
Infospeed DSL Qualified Households					243,387	1,048,371	
ATM/Fast Packet Switch Locations	6	7	10	10	10	10	
ATM Switches	n/a	n/a	3	3	16	19	
Fast Packet Switches	n/a	n/a	n/a	79	125	148	
Annual Optical Fiber Miles Installed	109,010	105,597	69,779	140,728	203,182	128,260	
Cumulative Optical Fiber Miles	640,058	745,655	815,434	956,162	1,159,344	1,287,604	
% fiber sheath miles	11%	12%	14%	15%	16%	18%	
Estimated Investment (m) *w/o acceleration*	$600	$601	$621	$645	$688	$742	
Cuml Investment (m) *w/o acceleration*	$900	$1,501	$2,121	$2,766	$3,454	$4,196	
Actual Investment (m) *w/o acceleration*	$639	$619	$838	$806	$945	$1,044	
Cuml Investment (m) *w/o acceleration*	$1,000	$1,619	$2,458	$3,263	$4,209	$5,253	
Access NJ Network Expenditures (m)					$14	$28	$55m 1998-2001
Equipment Fund (m)					$9	$20	$25m 1998-2002
Total NJ Workforce	17,101	16,140	16,980	17,651	18,008	18,297	
Net Gain	(178)	(961)	840	671	357	289	
New Hires	135	629	1,894	1,371	1,129	1,827	
Cumulative Hires	461	1,090	2,984	4,355	5,484	7,311	

III. Miscellaneous	1994	1995	1996	1997	1998	1999
SONET Fiber Rings Deployed	133	276	279	475	661	855
TEC2000 Sites	1	1	6	9	11	12
Interactive Classrooms	37	84	159	178	199	201
Abbott District ITV classrooms				12	15	22
Access NJ Contracts					500	826
Access NJ Locations					1,300	1,876
ISDN Lines in service (000)	20	30	47	65	80	89
Infospeed DSL Lines in service (000)					<1	4

Progress Report on Bell Atlantic-New Jersey's Opportunity New Jersey Program as accelerated with Access New Jersey

Commitments	Accomplishments
ACCESS NEW JERSEY	
During 1998-2001, deploy an ATM based network that provides fast packet services for narrowband, wideband and broadband transmission rates. An estimated 15-18 ATM switches to be added.	On schedule. Initial deployment of 13 ATM and 28 fast packet switches at key hub locations provided statewide availability of an ATM based network in 1998. 3 ATM and 23 fast packet switches added in 1999. To date, 16 ATM switches have been added.
ATM availability to all Abbott Districts by year end 1999.	Achieved. Statewide ATM availability to K-12 schools and public libraries in 1998, one year ahead of schedule. Already, 77% of Abbott Districts have taken advantage of the program.
Estimated $55 million of capital and expense for an ATM-based network 1998-2001.	Ongoing. Expended $27.7 million as of December 1999 representing 50.4% of the commitment.
Discounted services packaged on a flat rate basis retroactive to 9/97, minimum 3-year contract.	Achieved. ISDN, frame relay, SMDS, and ATM service discounts for K-12 schools and public libraries: 826 contracts signed; 1,876 locations taking advantage of the program.
$25 million CPE fund 1998-2002, $1 million set-aside for free ITV classrooms for the Abbott Districts that don't have one.	Ongoing. Together, BA-NJ and the NJ DOE developed an allocation formula to ensure the availability of funds to eligible schools and libraries. Ongoing. $19.7 million of CPE distributed through 1999, 79% expended, including $617,074 of funding for ITV classrooms in 10 Abbott Districts. 73% of the Abbott Districts have ITV classrooms.
Key sponsor of NetDay 1997; provide up to 500 free NetDay kits.	Achieved. Funded a statewide coordinator and provided 539 free NetDay kits wiring 3,234 classrooms.
Opportunity New Jersey Grants extended to libraries in 1998.	Achieved. 6 more grants were awarded to public libraries in 1999, including Asbury Park, Bradley Beach, Dunellen, Elizabeth, Piscataway and South Brunswick in conjunction with Libraries of Middlesex Automation Consortium and Mount Laurel. Under Access New Jersey, BA-NJ funded 13 public library grants totaling $260,000.
Overseeing performance, assign a manager to work on ANJ and report progress in a separate section of annual infrastructure report.	Achieved. Full time manager assigned. Marsha Schaffner leads an inter-departmental team and meets monthly with the NJ DOE on progress and any issues regarding implementation. Achieved. Appendix C of annual Infrastructure Deployment Reports.

Commitments	Accomplishments
ACCESS NEW JERSEY	
Reasonable efforts will be made to provision IDLS service within 6-months of a request subject to tariffed rates, terms and conditions.	Ongoing. BA-NJ's standard IDLS service provisioning interval is 90-days. The functionality of the service relies on the readiness of the customer and the completion of the ITV classroom.
ATM network deployed in a way to accelerate access to urban areas. Any business offering will be provisioned to Urban Enterprise Zones (UEZs) within 90-days of a request.	Achieved. Statewide ATM availability to K-12 schools and public libraries in urban areas in 1998, one year ahead of schedule, 77% of Abbott Districts have taken advantage of the program. 100% of municipalities with UEZs have schools and libraries participating in the program. Ongoing. ATM network services are generally complex business services. For complex business services, over 98% of the due dates were met within 30-days.
Rate Stability: withdraw 1996 filed formula based rate increase, forego additional formula based adjustments.	Achieved. 1997 formula based increase withdrawn, no additional formula based adjustments filed.
Support an interim Lifeline program until a universal service program is established.	Achieved. In cooperation with state agencies, 400,000 residents were identified as eligible for the interim Lifeline program established in 1998. The program was offered to these residents initially via direct mail from these agencies. The offer included a letter and application form in English and Spanish, followed by a public notice in the 15 major dailies and minority media. In addition, BA-NJ furnished posters and brochures to the agencies for "walk in" applicants. Approximately 8000 new customers, in a one month period signed up for the Lifeline program and roughly 15,800 subscribers are taking advantage of the program.
100% Digital Switching year-end 1999, no effect on presubscription.	Achieved. IntraLATA Toll presubscription implementation completed in May 1997. Achieved. 100% digital switching achieved Nov. 1999, one-month ahead of schedule.
Hire additional employees such that the expected net gain will be 800 full time employees in New Jersey in 1997.	Achieved. Hired 1,371 employees in 1997. However, with over 500 voluntary separations, the completion of 90 term assignments and other attrition resulted in a net gain of 671. An increase of 168 employees in January resulted in a net gain of 839 from Jan. 1997 through Jan. 1998.
Modify plans to provide full service network technology to 40,000 homes in Newark and Elizabeth.	Achieved/Ongoing. Central Offices in Newark and Elizabeth equipped with RADSL technology for more than 100,000 qualified households.

APPENDIX D

Access New Jersey Participation by County as of December 1999

County	Total Nnumber of Contracts	Public Schools Districts Participating	Abbott Districts Participating	Free Customer Premises Equipment Provided	Eastimated Total Savings (CPE+Discounts)
Atlantic	83	92%	100%	$1,361,644	$2,367,991
Bergen	133	53%	0%	$2,880,767	$6,824,058
Burlington	26	29%	100%	$531,306	$1.085,624
Camden	38	19%	50%	$1,273,425	$2,169,370
Cape May	11	32%	NA	$82,175	$205,251
Cumberland	28	81%	100%	$797,965	$1,170,108
Essex	52	61%	100%	$2,739,109	$6,009,506
Gloucester	42	66%	NA	$396,668	$973,973
Hudson	31	69%	60%	$664,440	$1,971,960
Hunterdon	8	50%	NA	$32,799	$80,796
Mercer	20	73%	100%	$766,900	$1,619,604
Middlesex	56	81%	100%	$1,912,548	$3,359,378
Monmouth	63	50%	75%	$1,647,572	$3,081,648
Morris	75	63%	NA	$1,198,357	$3,005,955
Ocean	19	43%	NA	$1,361,644	$971,713
Passaic	30	57%	50%	$1,361,644	$1,756,162
Salem	12	33%	NA	$1,361,644	$179,591
Somerset	23	55%	NA	$1,361,644	$1,015,078
Sussex	3	60%	NA	$1,361,644	$32,793
Union	49	70%	100%	$1,361,644	$2,926,303
Warren	24	73%	0%	$1,361,644	$866,977
Total BA-NJ	**826**	**54%**	**77%**	**$19,657,878**	**$41,673,849**

NA = No Abbott Districts