

needed to bring the benefits of the information age to these entities. The controlling issue is the application to which these technologies will be applied. For instance, if a rural school needs interactive video conferencing to allow students to participate in classes in urban areas, the school might need video monitors, microphones, computer controllers, cable inside wiring to each classroom, and high capacity dedicated facilities linking the various schools. Internet access could be accomplished with quite different computer hardware and software, and with ISDN or even voice grade lines. Simply making telecommunications services available, without the associated equipment and software and professional training and support, and without an understanding of whether those services will meet the user's needs, would not accomplish the goals of the Act. Moreover, the needs of each entity will vary in the years ahead as new technologies and applications are developed.

In addition, it is not obvious that the goals of the Telecommunications Act of 1996 are not currently being met with regard to health care providers. Section 254(h)(1)(A) requires telecommunications carriers to provide service to rural health care providers at rates that are reasonably comparable to the rates charged for similar services in urban areas. Since the LECs generally offer rates that are averaged throughout their study areas, they may already be in compliance with this requirement.

The Commission should develop a plan that allows the schools, libraries, and health care providers to define the services for which they need support by

the universal service fund. For instance, the Commission should establish an Education Telecommunications Council with representatives from public and private schools, the telecommunications industry, State and Federal government agencies that deal with education, and providers of educational computer software and hardware, professional training and educational research and evaluation, to develop proposals to enable schools to obtain access to information technologies. Such a council, modeled on the Commission's experience with the Network Reliability Council, was called for in a recent Aspen Institute Report.<sup>34</sup>

The Commission should avoid adopting an inflexible universal service support mechanism that would dictate a standard set of services to be provided to every school or library, or that would specify a particular discount on each telecommunications service. Such a "one size fits all" approach would probably not meet the needs of these entities, and the prescribed discounts might not be sufficient to allow them to obtain the services they need. In addition, it might be difficult to administer a prescribed discount in the future where some or all providers no longer file tariffs that can be referenced for the "undiscounted" rate. Also, the Commission should adopt a mechanism that would allow these entities to solicit bids for telecommunications services by aggregating the

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<sup>34</sup> See Exhibit C. See also letter from American Telemedicine Association to Honorable Reed Hundt, dated March 5, 1996, proposing a telemedicine advisory council to review and advise the Commission on the needs of health care providers.

demand for all similar entities in the state, or in multiple states. If carriers could seek compensation from the universal service fund for the discounts that they would have offered for such aggregated demand even in the absence of a universal service fund, it would do nothing to expand the availability and affordability of telecommunications services. For these reasons, the Commission should adopt a flexible plan, such as the plan outlined below, that would apply Section 254 in a manner that would enhance the ability of state authorities to obtain services at the most affordable price.

**B. The Commission Should Adopt The NYNEX Education Plan For Support To Schools.**

With regard to assistance to schools, NYNEX proposes that the Commission adopt the NYNEX Education Plan (“NEP”), which would give schools and state education administrators the greatest flexibility to use universal service funding to obtain access to telecommunications and information services.<sup>35</sup> The NEP has the following elements;

•With the assistance of the Education Telecommunications Council, the Commission would develop an “educational vision” of the services that would be made available to every school and classroom in the nation.<sup>36</sup>

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<sup>35</sup> Exhibit D provides an example of how the NEP would be funded. A similar plan could be developed to fund telecommunications services to libraries. The Commission would determine the amount to be funded per-library, with an adjustment for the size of the community served by each library.

<sup>36</sup> For example, the Commission could use data such as the estimates by the United States Advisory Council on the National Information Infrastructure, regarding the costs of wiring all of the nation’s classrooms and libraries with advanced telecommunications. See United States Advisory Council on the

- The Commission would then estimate the total nationwide costs of providing telecommunications services, including inside wiring, to achieve the educational vision. The Commission would divide this amount by the number of students to develop a Benchmark Price per student. The Benchmark Price would be applied to a Benchmark Discount to develop the amount per-student that would be supported by the universal service fund.<sup>37</sup>

- Each school would develop a proposal for bringing information technology into a classroom. The school would submit the proposal to a State Authority for certification that the proposal was consistent with the educational vision. The State Authority would have the ability to vary the level of the discount applicable to each school if that were necessary to achieve the educational vision. However, the average discount for all schools in the state would have to equal the Benchmark Discount, and the discounts would have to be within a range set by the Commission.

- After a school's proposal was certified by the State Authority, the school could solicit the best market price for the telecommunications services it desired to purchase. The school would inform the telecommunications carrier or carriers of the Benchmark Discount that would be applied to the purchase price in the form of Telecommunications Credits, along with an account number assigned by the universal service fund administrator. Bidding carriers would incorporate that amount as a discount on the total charges for the services in question.

- The telecommunications carrier that was selected by the school to provide the telecommunications services would seek reimbursement from the universal service fund administrator for the amount of Telecommunications Credits, and bill the school for the remainder.<sup>38</sup>

- The state could supplement this discount with additional credits for intrastate services that would be funded by a state universal service fund, or with other alternative support mechanisms, as permitted by Section 254(f).

This plan would have several benefits. It would delegate decision-making to those who know the most about the types of telecommunications services that are desired, and the amount of support that each school needs -- the

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National Information Infrastructure, "KickStart Initiative, Connecting America's Communities to the Information Superhighway," January 1996.

<sup>37</sup> See Section 254(h)(1)(B).

<sup>38</sup> The school could provide a certified letter specifying the amount of Telecommunications Credits that applied to the services purchased from that carrier. The carrier would submit the letter to the fund administrator for reimbursement.

state authorities and the schools themselves. It would allow all telecommunications carriers to compete freely in providing services to schools, since the customers, rather than designated carriers, would determine the amount of assistance that would be applied. It would allow the schools to negotiate the best deals they could with telecommunications carriers, since the Telecommunications Credits would be applied against the total amount bid by a carrier, which presumably would reflect the amount that the carrier would charge to a similar customer for a similar volume and/or term purchase. It would not tie funding to any particular technology, and it would allow the schools to decide from year to year how to apply the funds in the most cost-effective manner.

**V. All Interstate Telecommunications Carriers Should Contribute To The Universal Service Fund Based On Their Interstate Retail Revenues.**

All interstate telecommunications carriers that provide voice and data telecommunications should contribute to the interstate fund. The list, at a minimum, should include LECs, CLECs, IXCs, cable companies that provide telephone service, public commercial mobile radio service providers, microwave and satellite carriers, resellers, and 900 service providers. While the Commission could establish different funds to meet different needs, the revenues to support these funds should be collected through a single surcharge mechanism. The

funding mechanism should be competitively neutral; it should not favor one technology, service, or company over another.

Each contributor's interstate universal service payment should be based on its pro-rata share of nationwide interstate retail telecommunications revenues.<sup>39</sup> All interstate carriers should collect universal service support through a percentage surcharge on their interstate customers' bills. This would ensure that universal service support would have a neutral competitive impact and that it would be explicit, as required by the Act.

Under new Section 214(e), State authorities may designate a carrier that provides core universal service using its own facilities and resale of another carrier's services as an "eligible carrier" to receive universal service support. NYNEX believes that an eligible carrier should be required to offer core universal service as a single package on an unbundled basis without packaging with other services, and also to provide Lifeline and Link-up America services to low income customers.

To the extent an eligible carrier receives more revenues from the high-cost portion of the new universal service fund than it received under the previous

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<sup>39</sup> The Commission should not include revenues associated with services that are used as an input for the provision of other telecommunications services, such as access services. The Commission also should not include revenues from transactions involving the content component for cable television services, video dialtone services not used in the provision of telecommunications services, and regulatory surcharges and taxes. In short, only revenues from telecommunications services should be included.

funding mechanisms, those revenues should be used by the carrier to reduce its interstate access rates, its state access rates, or its state toll rates, whichever are higher. This would help to lower interstate and state toll rates, which generally recover a greater proportion of joint and common costs than local exchange rates.

## VI. Conclusion

The Commission should adopt a narrowly-tailored universal service fund, as described herein, to target universal service support to high cost, rural and insular areas, low-income customers, and schools, libraries, and health care providers.

Respectfully submitted,

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Dated: April 12, 1996

### **THE BENCHMARK COST MODEL**

The Benchmark Cost Model (BCM) is a proxy model designed to identify areas of the country where the cost of providing basic residential service is relatively higher than other areas. It produces a benchmark cost range for a defined set of basic residential telephone services assuming efficient engineering and design criteria and deployment of current state-of-the-art technology. The BCM presents monthly cost results using two alternative factors for determining expenses and overhead loadings associated with basic local service. In the attached Tables 2 and 3, NYNEX has employed the BCM results based on a set of factors using historical accounting data and not the factors using the methodology contained in the MCI/Hatfield study.

NYNEX has conducted a series of studies, using BCM results, to estimate the funding levels needed to provide a subsidy to high-cost, rural and insular areas. By applying a series of cost ranges and a sliding scale of support values to model results, support levels for high-cost CBGs can be estimated. In addition, the high-cost funding for providing basic residential telephone service for each Price Cap company can also be approximated.

Tables 2 and 3 are the result of applying cost ranges and a sliding scale of support values to BCM output. Annual high-cost support funding, and support detail by cost range and coinciding support value, is provided by Price Cap company. All of the dollar amounts have been rounded to the nearest million

The following is a brief description of each of the attached Tables:

1) Table 1 - Number of Households for Price Cap Companies by

Support Range - This Table provides the total number of households and the number of households for each of the given cost ranges for each of the Price Cap Companies.

2) Table 2 - Universal Service Fund - Benchmark Cost Model

Funding Support Example - In this Table, high-cost funding begins at \$10 per-household per-month where the cost range of providing basic residential service is between \$60 to \$70 monthly. The support values increase in \$5 increments for each cost range, with a maximum support value of \$30 per-household per-month for basic monthly residential telephone service in excess of \$100.

3) Table 3 - Universal Service Fund - Benchmark Cost Model Funding

Support Example - In this Table, high-cost funding begins at \$10 per-household per-month where the cost range of providing basic residential service is between \$50 to \$60 monthly. The support values increase in \$5 increments for each cost range, with a maximum support value of \$35 per-household per-month for basic monthly residential telephone service in excess of \$100.

**Benchmark Cost Model**  
*Universal Service Funding for Price Cap Companies*

**TABLE 1 -- Number of Households for Price Cap Companies by Support Range**

Price Cap Holding Co.	Number of Households within given Support Range							Total # HH
	< \$50	\$50-60	\$60-70	\$70-80	\$80-90	\$90-100	> \$100	
<b>Ameritech</b>	10,549,735	98,581	33,724	10,974	5,138	3,236	6,469	10,707,857
<b>Bell Atlantic</b>	10,312,882	101,257	20,993	9,919	5,497	3,346	3,518	43,273
<b>Bell South</b>	11,558,213	323,456	101,712	55,630	36,070	24,773	27,855	246,040
<b>Contel/GTE</b>	9,8982,354	579,175	272,438	148,559	101,592	87,351	203,020	812,960
<b>Frontier</b>	508,723	25,000	12,687	9,562	8,218	6,995	9,464	46,926
<b>Lincoln</b>	137,361	4,553	4,149	3,532	2,275	3,841	6,856	20,653
<b>NYNEX</b>	9,261,497	101,530	36,621	13,035	4,573	6,113	9,781	70,123
<b>Pacific Telesis</b>	7,800,049	56,007	19,093	10,859	12,801	10,092	41,824	94,669
<b>SNET</b>	1,198,694	2,868	1,417	7	17	0	17	1,458
<b>Southwestern Bell</b>	7,766,850	130,523	71,774	38,045	35,089	26,442	65,134	236,484
<b>United Telephone</b>	3,708,408	228,800	76,347	30,866	30,333	22,212	48,656	208,414
<b>US West</b>	8,019,485	121,108	72,121	41,079	49,683	47,514	199,387	409,784
<b>Total Price Cap Companies</b>	80,804,251	1,772,858	723,076	372,067	291,286	241,915	621,981	84,827,434

**Benchmark Cost Model**  
*Universal Service Funding for Price Cap Companies*

**TABLE 2 --Universal Service Fund Benchmark Cost Model Funding Support Example**

Monthly Cost Range Support Value	Annual USF Funding for given Support Range						Annual USF
	< \$60 \$0	\$60-70 \$10	\$70-80 \$15	\$80-90 \$20	\$90-100 \$25	>\$100 \$30	
Ameritech	\$0	\$4	\$2	\$2	\$1	\$2	\$11
Bell Atlantic	\$0	\$3	\$2	\$1	\$1	\$1	\$8
Bell South	\$0	\$12	\$10	\$9	\$7	\$10	\$48
Contel/GTE	\$0	\$33	\$27	\$25	\$27	\$73	\$185
Frontier	\$0	\$2	\$2	\$2	\$2	\$2	\$10
Lincoln	\$0	\$0	\$1	\$1	\$1	\$2	\$5
NYNEX	\$0	\$4	\$2	\$1	\$2	\$4	\$13
Pacific Telesis	\$0	\$2	\$2	\$3	\$3	\$15	\$25
SNET	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Southwestern Bell	\$0	\$9	\$7	\$8	\$8	\$23	\$55
United Telephone	\$0	\$9	\$6	\$7	\$7	\$17	\$46
US West	\$0	\$9	\$7	\$12	\$14	\$72	\$114
<b>Total Price Cap Companies</b>	<b>\$0</b>	<b>\$87</b>	<b>\$68</b>	<b>\$71</b>	<b>\$73</b>	<b>\$221</b>	<b>\$520</b>

**Benchmark Cost Model**  
*Universal Service Funding for Price Cap Companies*

**TABLE 3 --Universal Service Fund Benchmark Cost Model Funding Support Example**

Monthly Cost Range Support Value	Annual USF Funding for given Support Range							Annual USF
	< \$50 \$0	\$50-60 \$10	\$60-70 \$15	\$70-80 \$20	\$80-90 \$25	\$90-100 \$30	> \$100 \$35	
<b>Ameritech</b>	\$0	\$12	\$6	\$3	\$2	\$1	\$3	\$27
<b>Bell Atlantic</b>	\$0	\$12	\$4	\$2	\$2	\$1	\$1	\$22
<b>Bell South</b>	\$0	\$39	\$18	\$13	\$11	\$9	\$12	\$102
<b>Contel/GTE</b>	\$0	\$70	\$49	\$36	\$30	\$31	\$85	\$301
<b>Frontier</b>	\$0	\$3	\$2	\$2	\$2	\$3	\$4	\$16
<b>Lincoln</b>	\$0	\$1	\$1	\$1	\$1	\$1	\$3	\$8
<b>NYNEX</b>	\$0	\$12	\$7	\$3	\$1	\$2	\$4	\$29
<b>Pacific Telesis</b>	\$0	\$7	\$3	\$3	\$4	\$4	\$18	\$39
<b>SNET</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Southwestern Bell</b>	\$0	\$16	\$13	\$9	\$11	\$10	\$27	\$86
<b>United Telephone</b>	\$0	\$27	\$14	\$7	\$9	\$8	\$20	\$85
<b>US West</b>	\$0	\$15	\$13	\$10	\$15	\$17	\$84	\$154
<b>Total Price Cap Companies</b>	\$0	\$214	\$130	\$89	\$87	\$87	\$261	\$868

## NYNEX EDUCATIONAL INITIATIVES FOR GRADES K-12

### NEW YORK

**NYNet/The Living Schoolbook:** NYNEX's pilot education network, NYNet, links Cornell University, Syracuse University, the Museum of Science and Technology in Syracuse, Rome Labs, and Columbia and Polytechnic Universities with the NYNEX Science and Technology Center. NYNet, for which NYNEX is supplying the multimedia, fiberoptic gigabit network, is being used for research and economic development. The network uses leading edge network technology, Synchronous Optical Network Transmission (SONET) switched over Asynchronous Transfer Mode (ATM) switches.

The Living Schoolbook is a trial of multimedia software over the ATM backbone network in the K-12 segment, and the project links the Ralph Bunche School in Harlem, the School for the Physical City in Manhattan, and several Syracuse-area schools, including six K-12 schools in Rome, NY, to the Internet, to computers at Syracuse University and Columbia University, and to research facilities at Rome Labs. Students are connected to the vast research resources and to each other, and work in distant teams to collaborate on projects and share multimedia educational experiences together.

**NYClassNet:** This is a partnership among New York City Public Schools, City University of New York (CUNY), New York City's Department of Information Technologies & Telecommunication, and NYNEX. Four inner-city high schools, Borough of Manhattan Community College and Lincoln Center Institute use a digital distance learning network to deliver interactive college courses, share teaching resources, and host cultural events and teaching artists.

**Project TELL I & II:** Funded through a grant from NYNEX, with additional support from the City University of New York (CUNY) and the New York City Public Schools, these projects focused on assessing the impact of telecommunications technology on kids at risk. At-risk inner-city sixth graders were given computers, printers, modems, chairs, desks, paper, disks, software, access to on-line resources, phone lines if necessary, and access to teachers both in user groups and via e-mail, to determine if access to educational resources via telecommunications aided students in the learning process. The trial is now in its sixth year and the results are very encouraging.

**Nassau/Suffolk County Board of Cooperative Educational Services (BOCES):** Suffolk was the first customer to purchase distance learning from NYNEX in 1988. Its network connects high schools located in eastern Suffolk and includes a site in the Nassau County Jail. Suffolk County BOCES recently signed a contract for expansion to 62 sites to include all three BOCES organizations in the area. The phase-in is expected to be

completed by 1998, as the network is upgraded to a digital platform. The contract also calls for a virtual private voice network on Long Island, with savings from telephone bills becoming available to partially offset the price of distance learning. The individual school districts can qualify for high levels of state financial assistance through the BOCES contract.

**Dutchess County BOCES:** NYNEX provides Dutchess BOCES with a multi-channel video network currently serving 15 high school sites with a curriculum of about 35 courses. NYNEX is working with Dutchess BOCES to determine if distance learning can be used effectively in elementary classrooms. Trials at the elementary and middle school level are underway focusing on remedial and enrichment programs using a portable, roll around distance learning cart.

**Project Connect/Erie I BOCES:** Project Connect is a distance learning network for Erie I BOCES participating schools, and is the only video network of its kind in the country that links urban, rural and suburban districts to each other. Ten area high schools share courses, while Buffalo State College and WNED, the local public broadcasting station in Buffalo, provide additional content and staff development over the network. The network is one of only a handful of video networks nationally that's fully digital, thanks to NYNEX's \$4.5 million digital switching upgrade in the metropolitan Buffalo region. Project Connect is expected to expand to 29 sites in Erie I BOCES. Another 25-30 sites in Erie II BOCES have the potential to join the network because of its digital technology platform. Erie I BOCES also utilizes Frame Relay service to share administration and learning resources between schools.

**Otsego/N. Catskill BOCES:** NYNEX is the vendor for the Otsego/N. Catskill BOCES multi-channel video network for distance education linking nine sites in the region, with potential for an additional 15-20 sites.

**Herkimer BOCES:** NYNEX is the vendor for the Herkimer BOCES multi-channel video network for distance education linking six sites school sites in Herkimer County, NY. Three additional rural sites are expected to join the network in a second phase.

**Steuben-Allegany BOCES:** NYNEX is the vendor for the multi-channel video network for a three-site distance learning network in Arkport, NY. The network is expected to expand to six sites in 1996.

**Rockland BOCES:** Rockland BOCES has signed a contract for a fiber-distributed data interface (FDDI) wide area network connecting local networks together at seven sites. The network will be utilized for Internet access, administration and learning resource sharing, and library management.

**Oswego City Schools:** Oswego City Schools has signed a contract for an FDDI wide area network connecting local networks together at six sites. The network will be utilized for Internet access, administration and learning resource sharing, and library management.

**Westchester/Putnam BOCES:** Westchester/Putnam BOCES has signed a contract for a virtual private network, which will enable intra-district communications at great savings as well as improved communications between districts. Westchester/Putnam BOCES is also served by a Frame Relay network stretching to Rockland County, which provides data communications between the districts and the BOCES Regional Information Center in southern Westchester.

**School-to-Work Partnership: N. Westchester/Putnam BOCES grant proposal:** NYNEX supported BOCES' application for a U.S. Challenge Grant by providing strategic and technical language for the ISDN network solution. N. Westchester/Putnam BOCES proposes to connect its member high schools with the surrounding business community utilizing the capabilities of ISDN and video-conferencing software. Students will be provided with opportunities to collaborate with local business leaders via PC-based video conferencing, data communications and resource sharing, and learn firsthand about succeeding in today's business environment. BOCES will work with the business community to design a curriculum that develops and tests the knowledge and skills currently sought by businesses.

**The Virtual Museum: Tarrytown UFSD/Briarcliff UFSD grant proposal:** NYNEX supported eight school districts in central Westchester County, NY--led by the Tarrytown and Briarcliff school districts--in applying for a U.S. Challenge Grant to establish "virtual museums." Virtual museums are student/teacher/community collaborations to develop interactive multi-media on-line "displays." The project would utilize ISDN to link members of project teams to develop these electronic displays and provide "museum admission" (i.e., access) from the community on a dial-up basis. This proposal emphasizes the benefits of technology for multi-disciplinary approaches to solving academic problems and teaching staff development opportunities.

**Binghamton City Schools Voice Messaging and Ithaca City Schools Voice Messaging:** Parents can call into teacher mailboxes. Teachers broadcast homework assignments, class events, trivia quizzes, etc., and parents overcome scheduling conflicts by being able to leave a message with the child's teacher.

**P.S. 203, Brooklyn, NY Voice Messaging:** The Brooklyn voice messaging experiment is a unique, community voice messaging, trial. The trial provides teachers, administrators and every student's parent/guardian with a voice mailbox to improve parent-to-teacher, school-to-parent, school-to-teacher and teacher-to-teacher communications. Parents can communicate with administrators and teachers by leaving them messages in their mailboxes. Administrators and teachers can forward messages to every parent, a group of parents or an individual parent, with voice mail consisting of various kinds of administrative, school event, student attendance, student performance and/or class assignment information.

**NY Institute of Technology:** NYIT links its three campuses together with analog two-way, full motion video/audio, with plans to go digital in the near term. In the fall of 1995, there were nine distance learning classrooms supporting 140 courses. With the help of NYNEX, NYIT is involved in many college-level distance learning projects, some of

which reach down to the high school level. NYIT has video links to the Long Island BOCES network to provide various education content. This network also supports teacher education applications. NYIT offers an accredited graduate certificate in Distance Learning, teaching teachers how to use distance learning, and a Masters program in instructional technology, both of which go toward permanent teacher certification. NYIT also will be putting up a World Wide Web page and giving Internet accounts to Nassau and Suffolk County K-12 schools, allowing classrooms PC access to the Internet.

**Houghton College:** NYNEX funded a distance learning center located in an after-school program in the inner city, providing elementary and middle school students the opportunity to communicate with students from Houghton's school of education for on-line tutoring. NYNEX also funded a multi-media lab at Houghton College's school of education to teach future teachers how to use technology in a meaningful way before they are in a classroom setting. One of the innovative applications in this program is training in the area of alternative assessments such as multi-media portfolios.

### NEW ENGLAND

**Bunker Hill Community College:** A six-site multi-channel analog video network links the college and the Massachusetts Consortium for Education and Technology (MCET) with several Boston high schools. Classes are taught via distance learning from college to local high schools and to classes in other parts of the country.

**MCET Partnership:** MCET is a quasi-public agency which provides educational programming and other communications services to nearly all K-12 schools in the Commonwealth of Massachusetts. It operates the LearnNET, a computer network that gives students and teachers access to the Internet, E-mail and bulletin boards. MCET uses NYNEX's Infopath data network to link its member schools and to provide students and teachers with toll-free access to the LearnNET. Schools that needed additional telephone lines in order to accommodate increased access and usage of the LearnNET were able to have them installed free of charge for a limited period under NYNEX's Add-A-Line Program.

NYNEX is developing ways to package and price its services specifically for the education market. As a result, MCET has a joint agreement with NYNEX for a Predictable Rate ISDN to be offered to all non-profit Massachusetts schools beginning in January, 1996, at a flat monthly rate for a period of six months.

MCET has also conducted the One Voice Project in Cambridge, using NYNEX's call answering service to improve parent-teacher communications.

**South Shore Collaborative:** NYNEX has a series of efforts in schools and communities throughout this region of Massachusetts, including the South Shore Educational Collaborative, Berkshire County and the City of Somerville, to provide technical and financial resources needed to develop integrated technology plans, including opportunities to link to the Internet.

**The Computer Museum (Boston):** NYNEX was a major sponsor of “the Networked Planet,” a permanent “walk through” exhibit. The exhibit showcases telecommunications technology through applications such as telemedicine, high speed Internet connections and interactive factual information on the public switched network. The exhibit, which opened in the fall of 1994, has hosted thousands of teachers and students.

**Minuteman Library:** NYNEX provides data networking and user support for the Minuteman Library Consortium in Massachusetts. This has allowed expanded access to library resources in homes and schools.

**Timberlane Middle School:** An ISDN line was brought to the Timberlane Middle School so that a seriously ill, home-bound student in Plaistow, NH, could work interactively with his teachers and classmates with the help of a computer, monitor and mounted camera.

**University of Maine:** A Maine statewide two-way audio/video, high-speed communications network connects the University system campuses and provides one way call-in audio/video to selected high schools. The network is utilized for college classes, teacher development and certification and community needs. The university’s distance learning network will be expanded to high school, vocational school and library locations under the state’s ATM initiative (see p. 7).

**Vermont GovNet:** NYNEX was awarded the contract to expand the GovNet’s Internet access to the K-12 community. To help stimulate interest, NYNEX is hosting a fair to raise awareness of the potential of the Internet as a tool to create new learning environments in classrooms.

**The National Business Roundtable Education Task Force:** In Vermont, NYNEX is in the seventh year of a ten-year commitment to help facilitate systemic education reform through the use of technology, under which NYNEX funds several grant programs.

**Vermont Educational Telecommunications Consortium:** NYNEX provides funding through VETC to teachers who develop and implement innovative uses for telecommunications technology in their K-12 classrooms. VETC directs efforts to all schools to support the use of telecommunications to facilitate classroom learning. Its mission is to connect all classrooms across the state. Some exciting applications have been developed as a result of these grants.

**National Association of Partnerships in Education (NAPE):** In Vermont, NYNEX implemented an “intergenerational” project with NAPE. This partnership consists of NYNEX, the Vermont Department of Education, AARP, SeniorNET, RSVP and the Vermont Chamber of Commerce. NAPE chose three Vermont public schools to plan, develop and implement an innovative project aimed at utilizing senior citizens in the schools. Through use of donated PCs, NAPE in conjunction with NYNEX set up a community network connecting senior citizen centers with the schools for purposes of

information sharing and experiential learning. The project was a rousing success, and now seniors vote in favor of technology when the school budget comes up for a vote.

**Vermont Interactive Television (VIT):** The Vermont statewide multi-channel analog video network was implemented with the help of NYNEX for purposes of professional teacher development, college classes, including those for nursing certification, technology training and community interests.

**ParentLink:** The State of Vermont Department of Education with the participation of NYNEX developed the ParentLink program, which provided ten schools in Vermont with Voice Messaging services. An independent study showed that the program improved parent-teacher communications and increased parental involvement and satisfaction. Based on the results, additional schools purchased Voice Messaging.

## **GENERAL**

**National Geographic Society Education Foundation/KIDSNET:** NYNEX has been a partner with National Geographic's development of National Geographic Kids Network since 1991, when it supported the development and testing of this science curriculum project series for grade four through six. NYNEX funded 86 classrooms in New York, Vermont, the U.K., Gibraltar and Prague, and in 1995, brought KIDSNET to 50 inner-city classrooms in Boston and New York. Using dial-in and networking services along with interactive software, participating classrooms share information about such things as water quality with their sister sites and foreign countries, and have dialogues with their school teams and real-life scientists. Groups of classes are linked in teams of about twelve. The program is now used by 40,000 classrooms in 47 countries.

**Excellence in Education Awards:** Initiated by NYNEX in 1992, grants are carried out through an RFP process, and go toward programs and projects that foster the application of technology into the curriculum in college classrooms and in grades 7 to 12 classrooms from Maine to New York. The first-place award this year went to Brown University, which will use the funding to expand its TV system to provide more than 250,000 K-12 students in Rhode Island with interactive workshops and distance-learning language classes in 14 languages. NYNEX has previously given awards totaling over \$1.9 million through this program. In 1996, its fourth year, NYNEX has announced it will dispense a total of \$1.2 million in grants.

**Westchester Education Coalition:** NYNEX has funded the Westchester Education Coalition since its beginning in 1988. The coalition acts as conduit and program manager for corporate grant dollars that are ultimately awarded to schools in Westchester and Putnam counties. The coalition is currently doing research on district wide technology plans so that they may share "best practice" models with other districts. In January, 1996, the Coalition announced that it developed a program funded by a grant from the NYNEX Foundation to enable 16 librarians and teachers from public secondary schools in the two counties to improve their computer skills and learn to use the Internet.

**Grantwriter Program:** Grantwriter is a program being piloted in at-risk areas of Westchester County, NY, which trains teams of educators to write grant applications so that their schools/districts can compete for grant funds for infrastructure, curriculum development, training, etc.

**Kids in Touch (KIT):** Kids in Touch is a hands-on science kit for children in grades 4-6 which demonstrates concepts of light and sound and how we communicate. Many teachers were trained on how KIT could be integrated into the curriculum, and it was made available to all 8,000 of the schools in the NYNEX region at no charge.

**Northeastern University:** NYNEX committed to support a group of seventh graders from the Tobin School in the Mission Hill section of Boston, and to help them succeed through high school. If accepted into Northeastern University, the students will receive free tuition as a result of the University's partnership with the Tobin School. The NYNEX-supported group will receive mentors, a special summer tutorial, Outward Bound training, summer jobs, and possible NYNEX careers.

**Dorchester High School Partnership:** NYNEX's 25-year school-business partnership with Dorchester (MA) H.S. aims to improve access to employment and higher education, strengthen professional development and increase family involvement at this inner-city school. Partnership activities have included provision of software and computers, access to corporate technical staff, introductory classes for teachers on PCs and the Internet, mini-grants for curriculum projects and formation of a school technology committee.

**School to Career Initiatives:** NYNEX works with the Private Industry Council in Boston to combine classroom learning with mentoring and worksite internships. NYNEX is also the leading corporate employer of Boston high school students for summer jobs.

### **STATE-APPROVED INITIATIVES**

NYNEX has worked in each of its states to reach regulatory agreements which benefit schools. NYNEX is also working to develop specific pricing plans, and to package services, in order to provide discounts and customized, turnkey solutions to schools.

#### **Maine**

As part of a regulatory agreement in Maine, NYNEX will supply funding for a plan to provide access to information networks and services to those public libraries and K-12 public schools that presently lack adequate access. Up to \$4 million a year for five years will be used to provide reduced rates and/or provide access to a statewide frame relay network, including Internet access. NYNEX's "backbone tier" of services will include frame relay (56 Kbs) connectivity, as well as shared services including: Internet and other gateway access, training, network monitoring, help desk, and University Resources Serving Users State-wide (URSUS) equipment. NYNEX also entered into a contract with the Maine Department of Education in 1995 to provide for a lower cost for in-state toll services for state schools, allowing them to triple their current level of usage at no

additional cost, which will provide affordable access to on-line services, allow for lower-cost voice communications, and stimulate improved communications among schools, districts, libraries and the Department of Education. Additionally, in response to an RFP from the state of Maine, NYNEX entered into an agreement to pilot DS3 (45 Mbs) interconnection involving 6 high schools and several libraries, for purposes of extending distance learning from the university setting to the high school level.

### **New Hampshire**

NYNEX in New Hampshire has prompted legislation which, if approved, will allow the company to price its services specifically for the education market.

### **New York**

In conjunction with a state regulatory agreement signed in June, 1995, NYNEX has established a \$50 million Diffusion Fund as part of its incentive regulation agreement. A 13-member Diffusion Program Committee of diverse interests has responsibility for reviewing project applications and selecting those which will be funded. Starting in 1996, \$10 million per year will be expended to bring advanced telecommunications to impoverished areas of New York for the benefit of education, health care, small business and local government.

### **Rhode Island**

Under the Rhode Island Partnership, NYNEX, the State Department of Education, Brown University and the University of Rhode Island are working together to provide Internet and other network access and training opportunities to teachers for use in the classroom.

In return for a four-year trial of price regulation approved by the Rhode Island Public Utilities Commission in 1992, NYNEX committed to an Asymmetrical Digital Subscriber Line (ADSL) technology trial, a voice messaging trial and additional public education trials, which provided access to the Internet and distance learning applications incorporating ISDN or ADSL. The purpose of the technology trials was to encourage the public to experiment with and utilize the capabilities of the network and to encourage innovative uses of telecommunications. An interactive video distance learning trial which was conducted in six locations for the East Providence Special Services Department Nursery Resource Program ended under the terms of the settlement in December, 1995. The trial utilized advanced technologies (ADSL and ISDN) to allow a special needs school teacher to interact both in the nursery school and at home with three- to five-year-old children with learning disabilities and their parents. The Internet trial, which provides access lines without charge to all public libraries and not-for-profit K-12 schools for the purpose of accessing the Internet and was scheduled to end in December, 1995, has been extended by NYNEX until the end of the school year in June, 1996. As of year-end 1995, 2,271 lines had been requested and were in use by libraries and various school districts.

Under the terms of a proposed Price Regulation Plan and Settlement Agreement, filed January 31, 1996, between NYNEX and the Rhode Island Division of Public Utilities and Carriers, NYNEX will spend \$7.5 million over a 5-year period to provide Internet access to libraries and not-for-profit K-12 schools. NYNEX would provide the Internet services or other data network access, in consultation with and in accordance with methods and procedures approved by NYNEX and the Rhode Island Department of Education, using technology which is mutually agreed upon by NYNEX and the individual institution, and which allows for user discretion and flexibility for the most efficient use of available funding. This Price Regulation Plan and association Settlement Agreement still require Commission approval.

### **Vermont**

As part of a rate case in Vermont, NYNEX agreed to work with the state of Vermont to implement an ISDN trial for 20 schools, to be implemented for the 1996-97 school year. The parties agreed to form an advisory board--made up of education, business and government representatives--which will go through an RFP process for selection of the 20 schools.

*The Communications*

*Devolution:*

Federal, State, and Local Relations  
in Telecommunications  
Competition and Regulation

**Robert Entman, Rapporteur**  
**Charles M. Firestone, Director**

Report of the Tenth Annual  
Aspen Institute Conference on  
Telecommunications Policy  
August 6–10, 1995  
Aspen, Colorado

## *Appendix A*

# Societal Goals Working Group Report

From August 6–10 of 1995, The Aspen Institute held its Tenth Annual Conference on Telecommunications Policy, convening a small group of leaders from the telecommunications policy community. Local exchange companies, cable companies, consumer representatives, academics, and federal, state, and local government decision-makers attended. The societal goals working group was charged with identifying the social goals that telecommunications policy and regulation should seek to achieve. The working group determined that ubiquity of access to the tools of telecommunications technology should be a primary societal goal and that the telecommunications industry should play a role in providing such access. Working group members also agreed that, given our increasingly information based society, it is imperative that the nation prevent the creation of a new class of technological have-nots. The working group concluded that an essential step towards meeting the goal of ubiquitous access is to equip public schools (K–12) and libraries with telecommunications technology and provide access to that technology.

In analyzing the goal of ubiquitous access, the working group recognizes that contributions from telecommunications providers are not the only contributions needed to achieve the goal. We do not believe that achievement of the goal should be the responsibility of one industry; rather, it is the responsibility of the entire nation. Indeed, we recognize that the demand side—the educational sector—must play the primary role in developing applications, obtaining and maintaining equipment, and training teachers in the use of the applications. These aspects, however crucial, are beyond the focus of the working group. In our view, the task of the telecommunications and related

industries is to serve speedily and effectively the needs of the educational sector. To the extent that the telecommunications industry continues to make contributions towards the national goal, such contributions should be coordinated in a manner that maximizes their efficacy in preparing the nation and our children for the information age.

There is one further preliminary observation: We do not think it appropriate for this working group to comment on the pending (and, we note, still shifting) legislative proposals in this field.

After identifying our primary societal goal, the working group analyzed how telecommunications providers have responded thus far to the call to prepare our citizens to use advanced technology in accessing information. Each segment of the telecommunications industry represented in the working group described their individual contributions to education in the attached summary. While this is not an exhaustive survey of the industry, it does provide a fairly comprehensive overview of the role that the industry can play in achieving the goal. Briefly, the industries include:

- *Cable companies.* Cable television has dedicated considerable resources to ensure that children are an integral part of the information revolution. The cable industry has provided human resources, programming, and equipment to schools so that teachers and students may experience first-hand the benefits of broadband communications networks. Cable companies are continuing to develop instructional programming and teacher support materials.
- *Interexchange Carriers (IXCs).* For interexchange carriers, the areas of distance learning, videoconferencing, and Internet access have received particular emphasis. The IXCs offer a vast array of National Information Infrastructure—related products and services to the education community. These services range from a simple telephone in the classroom to technology as complex as a full-motion interactive distance learning network. In addition to offering products and services, IXCs have contributed products, services, and expertise.
- *Local Exchange Carriers (LECs).* A United States Telephone Association (USTA) survey that covered about half of the local exchange industry found that recent and near term planned expenditures for providing community and school sites with access to the National Information Infrastructure (NII) totaled hundreds of millions of dollars and covered over 40,000 sites across the nation.

As we analyzed the contributions being made by telecommunications providers, it became clear that, although many are contributing, the contributions are occurring on an erratic basis, without coordination and perhaps not always in the most effective manner. While the telecommunications industry has contributed millions of dollars to help provide information access to public schools, the contributions have been somewhat ad hoc, at times redundant, and not always responsive to the needs of schools and libraries. Although educators understand the potential value of information technology in the learning process, and telecommunications providers understand the technology, the entities often may not truly understand each other. We conclude that there is a need for a forum in which the telecommunications industry, joined by interested educators and government representatives, can discuss the telecommunications needs of our citizens.

The working group proposes that such a forum should be convened under government auspices, thereby enabling government to serve as a catalyst to focus the efforts of industry to assist in serving the educational needs of the nation. The governmental auspices would also give assurance against any concerns on antitrust grounds. While it is reasonable to rely primarily upon open markets and free competition to produce the benefits of the information revolution, the working group concluded that government has a role as catalyst. Part of this function includes facilitating the exchange of information regarding possible options and contributing towards the implementation of a national information infrastructure. The group concluded that:

- A government coordinator could serve to bring together the major telecommunications industry players and other interested parties so that, to the extent possible, all options can be entertained and understood by those entities seeking to maximize the usefulness of advanced technology to access information.
- Because a fair and equitable distribution of the benefits of the information revolution is not a foregone conclusion, the attention of a government coordinator is most helpful to ensure a nationwide implementation of the information infrastructure.
- To the extent the government will act by necessity to encourage access to advanced technology, the input of industry and the education sector to that process should be more coordinated.

The Committee for Economic Development (CED) issued a similar call for increasing the coordination and involvement of business, education, and government in order to make information technology