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PROJECT NARRATIVE

Starting with a dream, a little knowledge, and people with talent, energy, and a common mission, the La Plaza Telecommunity Foundation Inc. (La Plaza) has developed, over the last year and a half, an electronic plaza where third graders, seniors, Hispanos, Native Americans, Anglos, and others meet, get to know each other, communicate, and get information important to their daily lives. La Plaza is helping bring the diverse cultures in the Taos region closer together in community. Whether students at the Taos High School and a secondary school in Helsinki are comparing notes for a cultural affairs project, or a single parent is providing home schooling for her or his young daughter, La Plaza provides the resources and skills necessary. La Plaza provides access to the arts, education, government, healthcare, business, and other information and communication resources *free-of-charge* for everyone via public-access computers and dial-in connections--truly providing democratic access. Currently, La Plaza has about 1,800 users and is growing at a rate of 10-20 persons per day. This is close to 20 percent of the local dial-in-capable population, compared with a national average for "freenets" of only 5% over the first year.

La Plaza currently is being supported in large measure by State of New Mexico funding that will terminate at the end of September 1995. The new Republican Governor vetoed $300,000 in legislated funding for La Plaza. So it is increasingly more important that other funding be secured to insure the survival, growth, and free public access of La Plaza.

EXECUTIVE SUMMARY

Because of the large Hispano (70%) and Native American (10%) populations, diabetes and hypertension are a major killers and debilitators of these groups. Providing education, maintenance, and follow-up for diabetes and hypertension are major problems in this sparsely populated region. The project will provide the online system to connect healthcare providers from Holy Cross Hospital to five remote clinics and their patients. It will also answer the question: "how does one develop cooperation between heathcare providers, an existing community network, rural clinics, and the Indian Health Service services?" By providing these remote villages with La Plaza and Internet access, many other important problems will be addressed, including: providing K12 information resources; access to government information; economic development and job creation; and providing an global outlet for regional Hispano, Anglo, and Native American arts and crafts. Providing access in these remote areas is essential for all of these important problems to be solved. The project will also create cost-effective remote-site access, training, and outreach for the development of a turnkey system for any region in the country.

THE PROBLEMS

Rural Northern New Mexico's Taos (rhymes with Laos) and Rio Arriba Counties cover over 8,000 square miles (larger than Connecticut), comprising approximately 59,000 people including Anglos, Hispanos, and Native Americans (see statistics in Appendix). The immediate Taos region has a population of about 10,000; the county has about 25,000 inhabitants scattered over about 2,200 square miles. Rio Arriba County is adjacent to Taos County with about 34,000 residents scattered over 5,800 square miles. Currently, the La Plaza Telecommunity provides dial-in access and a telecommunity center with 20 computers for *free* public access to La Plaza local communications and information

resources and to the global Internet. The problems addressed in this proposal are three fold. First, local dial-in access covers less than half of the total Taos County population and none of Rio Arriba. Thus, for those outside the local calling area, a toll call is required to access La Plaza resources, which for a population with an average income of $9,300 and a real unemployment rate of 35% annually, is prohibitive. Providing remote-site access in these regions is paramount for creating democratic access for the entire county and parts of Rio Arriba. Until the creation of the La Plaza Telecommunity, there was no Internet access or other online access unless an individual was capable of spending between $10 to $13 per hour for a commercial service and long-distance telephone charges. Now, about 10,000 people have local free access in Taos County. It is essential that La Plaza create remote-site access for other parts of the region. As the first step in this process, three remote sites will be created--in Questa, Peñasco, and Ojo Caliente--also the locations of the three principal regional healthcare clinics--Questa Clinic, Peñasco Clinic, and Las Clinicas del Norte, respectively. An added benefit is that the clinic in Ojo Caliente is associated with two other clinics in Abiquiu and El Rito. Because of new infrastructure being installed in these two areas, the Ojo Caliente remote site actually will serve three distinct towns and associated clinics. Thus, a total of five clinics in two counties will serve over 60 communities. In addition, the Indian Health Service hospital located at the Taos Pueblo will participate in the project for both the Taos Pueblo and Picuris Pueblo.

Second, healthcare in rural parts of the country is always difficult and frequently marginal. Because of the high populations of Hispanos and Native Americans in Taos and Rio Arriba Counties, diabetes and hypertension are huge problems for the patients and for the healthcare providers. Using online systems is believed to be an ideal, innovative, method for providing diabetes and hypertension education, maintenance, and follow-up. Now, patients must find transportation to travel up to 65 miles to obtain this help. With local online access, remote clinics and patients will be able to communicate with healthcare experts at Holy Cross Hospital, the only hospital in Taos county. The health, geographic, and cost problems are compounded by a hospital staff that is already stretched to their limits. Providing online interactive access for hospital staff, remote clinic staff, individual physicians, and patients will create an efficient and effective means for using very limited staff, physical, and financial resources to solve a critical life-threatening problem.

Third, by creating remote-site access in these villages, residents will have full La Plaza and Internet access thus providing them with the means for: obtaining K12 information and communications; access to government information and resources; creating jobs and enhancing economic development in some of the poorest parts of the region; and accordingly, encouraging and providing a global outlet for local Hispano, Anglo, and Native American arts and crafts. In Taos, all of these areas are currently being addressed. The elementary and middle schools are the first to go online, home schoolers are using La Plaza to great benefit, already entrepreneurial activities are sprouting around the La Plaza infrastructure, and local artisans are starting to tap into worldwide markets.

Fourth, because these problems are not unique to Taos and Rio Arriba Counties, La Plaza is developing as a model system that can be provided as a reasonably priced turnkey system to other rural regions nationwide. The turnkey system will help support La Plaza over the long term.

IMPORTANCE OF PROBLEM AND TIIAP RELEVANCE

Reducing Disparities of Access

Providing online resources in more rural parts of the country is critical to creating a fair and democratic system of access. La Plaza is developing cost-effective ways of providing rural access to community network resources, including the Internet. In order for public, democratic access to flourish, a means must be developed for creating these wide-area networks, support systems, and resources cost-effectively, and ultimately be self-supporting. When populations are dispersed widely across great expanses of geography, it becomes very difficult to provide access. However, La Plaza is proposing to create this access efficiently and effectively. An important part of this process is education. Simply providing access will not get many people online. When a computer illiterate person is faced with a computer terminal and keyboard, frequently panic sets in. La Plaza has created innovative educational systems which address this problem through its free QuickStart™ classes taught by volunteer members of the community, online UsersGuide©, help-line staff and volunteers, and ongoing community outreach activities. The effectiveness of La Plaza's methods is evidenced by the astonishing growth of usage--almost 20% of the local population is online in only four months. The national average for "free-nets" is 5% of the population over the first year, which rarely grows beyond 7% or 8%.

The Clinton Administration recognized early on the critical importance of healthcare issues and the development of the "Information Superhighway." This proposed project carefully and thoughtfully combines rural healthcare and the Information Superhighway. Diabetes and hypertension are a major healthcare problems in the United States, particularly among Hispanos and Native Americans. The Taos region provides the perfect test bed for creating a turnkey system that will provide an innovative solution to providing critical diabetes and hypertension care to patients in remote areas, as well as the other essential information and communications resources of a community network.

Technical Quality

The existing La Plaza system and proposed growth are all based on TCP/IP protocol to run seamlessly via T1- and 56kb-line access. According to US West, by the time this project would be funded, frame relay will also be available. Currently, La Plaza's operational technology resources include:

- T1 connectivity via Los Alamos National Laboratory (LANL)
- Silicon Graphics Indy workstation server (LANL)
- Ten incoming telephone lines and modems for public dial-in access to La Plaza.
- Computer and related equipment currently in use: Apple Macintosh 840AV, 610, PowerBook 180c, PowerBook 540C, Quadra 650, an Apple networking laser printer, software, and its QuickTake 100 digital camera; HP 550C color ink jet printer; five Apple Quadra 630 computers.
- Local area networks connecting the UNM--Taos computer laboratories to the La Plaza server computer and the La Plaza Telecommunity Center to the La Plaza server computer.
- La Plaza Telecommunity Center--20 computers and terminals available to the public, located at the UNM--Taos Education Center

- UNM-Taos computer laboratories--32 computers available to the public when not in-use by students or faculty.

One of the problems that La Plaza is facing is that some of our equipment, including the SGI server, T1 line, and some personal computer equipment, is owned by Los Alamos National Laboratory and must be returned to LANL at the end of the fiscal year (September 1995). La Plaza currently is making plans to obtain equipment to be owned by La Plaza.

The remainder of the equipment has been obtained through equipment grants (Apple Computer, US Robotics, and Global Village); corporate donations (Network Systems); or purchased with current funding from the State of New Mexico and the Town of Taos.

La Plaza technical staff has developed a cost-effective remote-site access kit that can be used at any remote site for both dial-in and telecommunity center access to La Plaza and its resources. As more funding becomes available, more remote sites in Taos and surrounding Counties will be connected. The use of these kits is made possible by the existing La Plaza infrastructure that is in-place. This infrastructure, including hardware, software and education and community outreach systems, will be leveraged with the TIIAP funding to increase the reach of La Plaza. As a small, innovative, and entrepreneurial organization, La Plaza has the freedom to move rapidly, effecting change whenever needed and the funding is available. All La Plaza systems and activities are created with flexibility in mind. Obsolescence is not a problem for La Plaza.

La Plaza is the provider of online access in Taos County, and it is the first and only community network in the State of New Mexico. Utilizing the flexible and totally interoperable La Plaza infrastructure, planning, and expertise are the most cost-effective ways to provide access. In order for the hospital, or other organization, to develop a similar system for the diabetes and hypertension healthcare applications, or any other applications, would be a waste of increasingly sparse and precious resources. La Plaza personnel are highly trained, creative, local residents, and "workaholics." They are intimately involved in all facets of the community and understand the needs and resources available in the region. Duplication of effort with stand-alone, proprietary systems would be costly and in-efficient. The La Plaza approach outlined in this proposal is the most elegant, cost-effective, and parsimonious use of resources.

La Plaza As A Model Community Network/Healthcare Provider Conduit

La Plaza has done its homework. From the outset of this project, all participants viewed La Plaza as the model for community networking worldwide. La Plaza is fortunate to have three Managing Directors who are enormously talented, creative, and hardworking. The level of expertise and commitment by volunteers also is extraordinarily beneficial to the project.

La Plaza is being developed as an innovative, easy-to-use network system that is completely adaptable and transferable to any community in the world. User interface systems are based on the WorldWide Web, but with intuitive, eye-catching icons for accessing the various features of La Plaza (see http://laplaza.taos.nm.us). It is also possible to view La Plaza in both graphics and text mode. Without the La Plaza concept and in-place systems, the diabetes/hypertension project would be much more difficult and costly to accomplish. Regardless of the type of project, the innovative features of La Plaza make

accomplishing individual projects much easier. Moreover, this approach is completely scalable for larger projects and any amount of connectivity. Thus, it is essential to have an easy-to-use, intuitive, flexible system in-place. La Plaza fulfills all of these criteria.

An evaluation of La Plaza systems and approaches are ongoing. In-house evaluations are performed by La Plaza staff on at least a monthly basis. In addition, in collaboration with the Fielding Institute, La Plaza evaluations are conducted on a quarterly basis by a Fielding Ph.D. student, Cyd Strickland, one of the founders of Cisco Systems.

La Plaza is very sensitive to the problem of long-term sustainability of community networks. Community networks cannot live on the dole for much longer. La Plaza's approach to this serious problem is to create commercial products and a wholly owned commercial subsidiary for the sole purpose of supporting the free public-access nonprofit La Plaza system. As mentioned previously, the La Plaza turnkey system will be licensed, franchised, or sold in order to provide support for La Plaza growth and maintenance. Already, a number of organizations, companies, states, and provinces in the U.S. and Canada have approached La Plaza regarding a turnkey system.

The second method for long-term, continuing support is the creating of a separate commercial network, wholly owned by La Plaza. There are a number of precedents for this approach, including New Mexico Technet and ANS+Core (now owned by America Online). Currently, La Plaza is investigating the options for commercial network creation. La Plaza is quite literally approached every day to put commercial applications online. These commercial applications go well beyond the current trend of online shopping malls. These commercial applications are considered proprietary at this time.

The application of the La Plaza Community Network to healthcare problems is in part due to its flexibility and ease-of-use. Healthcare providers typically are not well trained in computer-based technologies and there tends to be a significant amount of resistance due to a lack of understanding of the technologies and uses for those technologies. The proposed project will create an adaptable system that brings in the healthcare providers by hands-on training and demonstrations of the enormous benefits and efficiencies possible through the use of online systems. The ease-of-use of the system, hands-on education, community involvement and need, will all drive the use of the systems by the healthcare providers and patients. Of course, these methodologies also will be used to increase remote-site community involvement for the other K12, economic development, and arts portions of the project.

PROJECT PLAN

La Plaza has been working with Holy Cross Hospital personnel for about three months discussing ways of collaborating and creating more efficient use of healthcare facilities and personnel in the Taos region. It was decided to target diabetes and hypertension because they are serious problems in the region, the appropriate personnel are interested in exploring online systems to assist them in their work, and it appears to be reasonably straightforward and manageable. The project is doable and provides an ideal platform for creative expansion of the La Plaza system.

One of the key elements in the proposed project is the training of remote clinic personnel and others in diabetes and hypertension management techniques. This training will be done through a partnership with the University of New Mexico--Taos Education Center, either by local instructors or by interactive video distance learning facilities to be put in-place during the summer, 1995 by the University. Depending on the actual funding timeline, during the semester timeframe for training personnel, the physical infrastructure will be put in-place, configured, and trouble shot in the remote sites by La Plaza personnel. Roughly, this will be done over the first five months of the project. Thus, once the personnel are trained, the infrastructure will be in-place and operative.

The project's progress and effectiveness will be monitored by La Plaza, hospital personnel, and the individual from the Fielding Institute (as previously mentioned).

Perhaps the strongest argument for La Plaza/Holy Cross Hospital project is that in planning for its success, each organization's policy-makers and administrators have solicited and accepted the input of staff members who are "in the trenches" working with patients. Once consensus was reached about the doable objectives of the project, timelines were set out to accommodate the work realities of those to be directly involved in the implementation of the project. All parties fully expect to develop a successful model for disease prevention and management in a poor, rural, bi-lingual, multi-cultural environment using technology as an enhancement at the close of the two-year project. The project also will be unique in that each clinic will tailor its specific services to its specific needs--in this case, one size does not fit all. It is essential that the clinics have the flexibility to develop their own specific applications. It is anticipated that they will see new opportunities for solutions to problems related to distance, minimal staffing, and current programmatic and operational costs of travel. La Plaza is positioned with its specially selected and trained staff to respond with creative solutions.

Diabetes and hypertension were chosen as central opportunities because there is momentum in the state to control these diseases. The project offers an extension of current initiatives. However, in the broader context, establishing the infrastructure for cooperation between primary care clinics and hospital personnel in focusing on specific disease prevention and management will have an impact on other disease prevention and management efforts.

QUALIFICATIONS AND PARTNERS

La Plaza Telecommunity Foundation Inc.

La Plaza currently employs eight individuals: Dr. Richard W. Bryant, Managing Director--Projects and R&D; Mr. Paul A. Cross, Managing Director--Technology; Mr. Patrick J. Finn, Managing Director--Human and Organizational Development. Support staff includes: Ms. Carmella Archuleta--Receptionist/clerk; Ms. Denise Blanchette, Office Manager; Ms. Cassandra Dracup--HTML Design Engineer; Ms. Marie Parker, Telecommunity Center/Learning Resource Center Manager; Mr. Daniel Pruitt, Senior Member of the Technical Staff. The three Managing Directors of La Plaza are all original founders of the La Plaza project. The project is managed laterally by these three individuals. Please see resumes for key La Plaza staff in the Appendix.

La Plaza personnel have created one of the most successful community networks in the United States. A staff has been formed that has expertise in networking and software technologies, system design, research and development, business, community outreach, organizational development, and other key fields. In the first four months of operation, almost 20 percent of the local population is online, and the rate of growth continues at 10-20 persons per day signing up for La Plaza. La Plaza's first remote-site access project is with the Taos Elementary and Middle schools. Paul Cross, La Plaza's Managing Director for Technology, designed the network system for both schools. It is currently being implemented. La Plaza currently has a wide range of information available, including Town of Taos ordinances and Land Use Code, to NM Department of Labor jobs, NM County Attorneys, the Taos Talking Picture Festival, and many others.

Community Support

La Plaza has earned widespread community support, including: many individuals from the three main cultures; the Town of Taos; Taos County; Taos Pueblo Day School; Indian Health Service; Taos Public Schools; Taos Public Library; Chamber of Commerce; US West; Taos Local Television; banks; etc.

Holy Cross Hospital

Holy Cross Hospital personnel include: Susan Kargula, RN--Responsible for Holy Cross Hospital coordination and patient educational and clinical activities; Edie Steed, MIS Director--Responsible for staff computer education; Start-up hospital/clinical coordinator--New hire to coordinate first-year's efforts; Indian Health Service--Dr. Dobbs responsible for IHS activities in Taos and Picuris Pueblos.

University of New Mexico--Taos Education Center

Under a memorandum of understanding, UNM--Taos provides physical space for offices and equipment, utilities, copying and other support services, and early on provided a telephone line for the project. La Plaza provides technical expertise, including: the university's Internet access; setting up the UNM-Taos' internal network; and setting up local area networks for the computer laboratories and Learning Resource Center. In addition, La Plaza has provided training for faculty, staff, and administration in the use of the Internet. La Plaza also provides accounts for all faculty, staff, and administration. UNM-Taos now offers five sections of a Basic Internet class which are taught by one of the principals of La Plaza and two other individuals associated with La Plaza. The ongoing La Plaza/UNM--Taos collaboration has been, and continues to be, mutually beneficial to both entities. The University of New Mexico also will be providing interactive video distance-learning facilities for UNM--Taos during the Summer, 1995. This will provide all of the necessary clinical training expertise for the project.

BENEFICIARIES OF THE PROJECT

There are approximately 4,000 diabetics and 6,800 hypertensives in Taos and the project-related parts of Rio Arriba Counties. Many live in remote parts of the region, and will receive direct healthcare benefits from the project. Everyone in these regions will receive the benefits of access to the La Plaza Telecommunity network.

Diabetes and hypertension education training will be done through a partnership with the University of New Mexico--Taos Education Center, either by local instructors or by interactive video distance learning facilities by the University. User training will be organized by La Plaza, utilizing La Plaza staff and volunteers. The La Plaza QuickStart classes will be the principal means for getting users online and competent to use the systems. Medical/clinical personnel also will be trained by La Plaza in a similar fashion.

In addition to the direct diabetes- and hypertension-related benefits to the patients and clinical personnel, because of the remote-site connectivity and La Plaza access, all members of these remote communities will have full La Plaza and Internet access free-of-charge. This will bring into La Plaza approximately 12,000 more potential users, who heretofore had to make long-distance telephone calls to La Plaza, or had to travel up to 65 miles to the La Plaza Telecommunity Center in Taos.

PROJECT EVALUATION

The La Plaza system will be configured to automatically record "hits" in the diabetic information database that will be implemented. In addition, email inquiries from patients to healthcare providers will be saved, evaluated for content, and tallied. Those patients and healthcare providers using the system will be compared qualitatively with others who will not be using the proposed system. These measures will be reviewed on a monthly basis to help fine tune the system and methodology. At the conclusion of the project, a thorough evaluation will be made, written-up, and published in one or more of the following forms: professional journal; La Plaza Telecommunity Web site; other appropriate Internet sites. Monthly evaluations will be conducted by Dr. Richard W. Bryant, Project Director and Ms. Susan Kargula, Holy Cross Hospital Education Director. The final evaluation will be a collaborative effort with Dr. Bryant, Ms. Kargula, and Ms. Cyd Strickland, Fielding Institute.