

PROJECT PURPOSE

Problem Definition

The population of the Bering Strait region is over 9,000 people, 75% of whom are Eskimo. This region suffers severe economic, ecological and health problems. There are 16 year-round village settlements in the region that range in population from 161 to 798. Nome is the largest community with approximately 3,700 people, and is the transportation and service hub for the region.

Employment opportunities are extremely limited in the villages of the region. In June 1999, close to 2700 people were employed in the area, over half working in Nome. Joblessness rates in the villages range from 75% to 80% in the winter, and around 50% in the summer. In June of 1999, the official unemployment rate for the Bering Strait region was 13.8%. However, the Alaska Department of Labor reports that the official unemployment statistics do not give an accurate representation of rural Alaska, because it excludes anyone who has not made an attempt to find work in the four-week period prior to the reporting period. The Department states that most Alaskan economists believe that Alaska's rural localities have proportionally more discouraged workers because job opportunities in villages are scarce.

Community (or Tribe)	Population	% Native	% unemployed	% adults not working	% poverty
Brevig Mission	276	92.00%	2.40%	47.70%	48.40%
Council	0	0.00%	0.00%	0.00%	0.00%
Diomedede	146	93.80%	2.20%	48.90%	35.40%
Elim	313	94.90%	26.00%	59.00%	7.90%
Gambell	649	95.80%	19.50%	67.90%	28.50%
Golovin	144	92.40%	3.50%	34.50%	4.40%
King Island	0	0.00%	0.00%	0.00%	0.00%
Koyuk	297	94.30%	34.60%	62.20%	28.00%
Mary's Igloo	0	0.00%	0.00%	0.00%	0.00%
Nome	3,505	58.70%	11.00%	39.40%	6.30%
Saint Michael	368	93.20%	21.20%	56.60%	22.90%
Savoonga	643	95.50%	37.40%	65.40%	29.10%
Shaktoolik	230	94.80%	27.70%	56.70%	6.10%
Shishmaref	562	94.50%	16.40%	51.80%	16.30%
Solomon	4	75.00%	0.00%	0.00%	0.00%
Stebbins	547	94.70%	22.60%	52.50%	41.90%
Teller	268	92.50%	14.70%	64.40%	37.70%
Unalakleet	747	87.70%	14.60%	48.60%	11.00%
Wales	152	90.10%	18.90%	42.90%	18.30%
White Mountain	203	86.20%	18.80%	69.80%	22.40%

Alaska Department of Community and Economic Development using 2000 Census

As a result of the isolation and joblessness rate, family incomes in the region are very low and the poverty rates are high. To complicate matters, the cost of living in the Bering Strait region is among the highest in the nation. The University of Alaska-Fairbanks

compared buying food for a family of four in communities in Alaska with buying the same food in two cities in the lower 48 states. The survey found that food costs in Nome are twice as expensive as Portland, and in the villages, the cost for the same food is as high as 270% of Portland's cost. Utility costs are extremely high, with some communities paying over 30 cents a kilowatt-hour. The price of a gallon of gasoline in Nome is over \$2.00 and exceeds \$3.00 in some villages. Air travel is the most common method of transportation, but airfare and shipping costs are very high.

Except for the school district's Internet connection, telecommunications and network resources are scarce or nonexistent in most of these communities. Some of the satellite services that are available are expensive and difficult to obtain and maintain. While the tribal health clinics use a T1 line for their telemedicine network, Kawerak has a few tribal service programs that share a very slow 56K T1 fractal connection. These links are dedicated and result in islands of technology that are not shared with the residents or businesses in the community.

Residents in the Bering Strait Region face many of the challenges identified in the January 2002 report from the Technology Opportunities Program "Networking the Land: Rural America in the Information Age". Geographic isolation, a poor understanding of programs and services, social problems and cultural differences are all barriers to improving the lives of these tribal members. Communication with their tribal governments, collaboration between tribes, and the logistics of communicating over such a large geographical area are difficulties that must be overcome.

Solution

The Tribal Councils of the Bering Strait Region operate offices in their respective village locations that facilitate convenient access to services for tribal members. In some instances, new multipurpose buildings, community centers, or Computer Learning Centers will serve as a better gathering place since many of the buildings in village locations are small due to high heating costs and a very cold climate. These locations will be equipped with computer systems for tribal member use in accessing Internet services, including information about their tribe and Kawerak's programs and services.

The goals of the Wireless WALRUS are twofold. The first is to link the tribal offices with computer and Internet access to available services, programs, eligibility, instruction, documents, and cultural information in an interactive, web based format to tribal members. The second is to provide community members and tribal council members with the means to interact with each other, interact with other tribes, share information, and become proactive in developing programs. These goals will encourage tribal members to participate in their tribal government programs and services, as well as the preservation and sharing of their culture, history and language.

This solution compliments several initiatives that Kawerak is undertaking. These include the Eskimo Heritage Program, which maintains a historical collection of translated audio tapes of elders telling stories in their native language; videotapes of regional tribal customs and dances; and detailed descriptions of crafts like ivory carving and building

skin boats used for whale hunting. The proposed solution will enable these materials to be accessible to the tribal members of the region.

The proposed solution will help provide access to community and economic development plans, grant writer tools, business planning tools, and access to banking and financial alternatives that were simply not possible before. It will also allow our tribal reindeer herders to access the Internet tracking system for caribou so that they can protect their herds from caribou invasion. It will facilitate communication between tribal members, tribal leaders, neighboring tribes, and program facilitators as they collaborate on community wellness initiatives in each village. It will provide access to documentation for ordinances, procedures, roles and responsibilities for the new restorative justice Wellness Courts recently introduced to our region. Kawerak's village based Computer Learning Centers will be able to provide improved distance delivery of educational programs to compliment their current GED instruction and basic computer training. Our vocational training programs can reduce their costs for enrollment in their village based programs, which currently requires extensive travel.

The solution also compliments our previous investments in technology. Kawerak's program services have been gradually linked to a wide area network (WAN) that provides inter-connectivity, Internet access, email and other data services. Kawerak also has a site on the World Wide Web that provides a description of services and programs offered to the tribes of the region. This web site may serve as a baseline for expanding into interactive services provided over the Internet as proposed in this application.

Outcomes

The outcomes of Wireless WALRUS will be:

- ❖ More efficient and effective services provided to tribal members
 - Online access to information about Kawerak's programs and services, eligibility criteria, required documentation, schedules and timeframes
 - Standardized online application
 - Improved client satisfaction
- ❖ Increased involvement of tribal members in their tribal government
 - Online access to tribal documents
 - Feedback system for email communication with tribal leaders
 - Increased voter participation in tribal elections
- ❖ Improved preservation and sharing of traditions, culture and language.
 - Online access to audio and videotape archives of elder stories, traditional dances, photographs, art and craft techniques, and native language tools
 - Increased awareness of tribal history
 - Increase in the quantity and quality of archived materials
- ❖ Improved prosperity and self-reliance in remote communities of the region
 - Online access to community and regional planning documents, business planning assistance, financial assistance, and grant writing resources.
 - Increase in the number of new businesses
 - Increase in the number of projects carried out by community members

- Improved community spiritual, mental and physical well-being

INNOVATION

While program and service delivery to tribal members is not new, the innovation of Wireless WALRUS brings an entirely new concept to the remote villages in the Bering Strait Region. Many Eskimos have never touched a computer. While some have had Internet exposure, instant communication throughout the region has never been possible. Kawerak is a tribal consortium representing twenty separate and distinct tribes, each with its own history, culture and traditions. Kawerak proposes to use interactive tools and multi-media presentations unique to each tribe, in addition to regional cultural and program services.

Another innovation is the combined approach of having a telecommunications company provide an infrastructure in one of the most remote regions of America, while simultaneously building web-based applications that use this infrastructure to surmount geographic, climatic, economic, social and cultural barriers. The relatively flat terrain provides a unique opportunity to construct a line-of-sight wireless network within each village that connects to the Internet at affordable rates. The use of the infrastructure is critical to the business case developed by our partner in this application, GCI. The infrastructure is critical to the future of Kawerak's tribal members.

COMMUNITY INVOLVEMENT

Partnerships

Kawerak's major partner in this project is GCI (Global Communications, Inc.). Originally incorporated in 1979, GCI became a publicly traded company in 1987 (Nasdaq: GNCMA). Based on revenues, today GCI is the largest Alaska-based and operated integrated telecommunications company and provides local, wireless, and long distance telephone, cable television, Internet, and data communication services throughout Alaska. The wireless solution proposed in this application is modeled after similar installations in Kotzebue, Alaska that have proven cost effective and highly functional for delivering wireless Internet services to coastal communities in rural Alaska. GCI has developed a business case that warrants an investment in wireless infrastructure equipment in the Bering Strait Region communities in addition to 60 other communities in rural Alaska. GCI hopes eventually to earn a profit from this investment by offering an affordable service to rural residents and businesses. Ongoing relationships with partners like Kawerak whose efforts encourage subscribers to the service are critical to this investment.

Community Involvement

Kawerak uses a Long Range Planning process that involves community members, board members, elders, youth and program directors. The plans that were drafted in 1997 were aligned with the Board of Director's Vision Statement that was developed in 1995: **“Building on the inherent strength of our cultural values, we shall empower our tribes to take control of their future”**. This vision changed the fundamental relationship between Kawerak and the tribes of this region. It placed more responsibility on tribes to

determine their future and manage their own affairs and changed Kawerak's role from a primary service provider to a provider of training and technical assistance to empower tribes to achieve their goals. Various community meetings have been held, surveys have been conducted, and tribal members have provided input. The results of this process include use of computer technology to access, exhibit, and share information. Many of the communities in the region have been clamoring for affordable Internet access for the past few years and have insisted on local access to services, programs and information for the last five years.

Information has been collected from tribal council meetings, Kawerak board meetings, and client surveys, complaints and suggestions. Clients want improvements to service delivery, program availability, simplification of the application process, and a better understanding of eligibility requirements. They also want better access to tribal leaders and more power to affect change in their communities. Additional information obtained through a survey of Kawerak's Computer Learning Center users revealed that 56% (119 of 214 respondents) of the total surveyed used the Learning Centers to become more skilled for employment or future training programs. 50% (97 of 193 respondents) of the total surveyed attributed the Learning Centers to helping them find employment.

Support for End Users

Computer and Internet literacy is another barrier that must be overcome in order for the Wireless WALRUS project to succeed. Many Eskimos have never used a computer. For tribal elders who may be intimidated by computers, Kawerak plans to purchase large-display "touch" screens to minimize the use of the keyboard and mouse. In addition, the Wireless WALRUS design will include a graphical user interface so that tribal members of all ages will find the programs, services and information easy to use.

To familiarize tribal members with the capabilities of this new technology, classes will be offered in the Computer Learning Centers specifically for email and Internet users. These courses will include access to WALRUS as a curriculum component and will compliment the current training being conducted for computer basics. Kawerak has worked in partnership with University of Alaska Fairbanks Northwest Campus in Nome to provide instruction to each village in the region. This training is conducted on a scheduled basis in a different village each month. The courses include college credit and are being planned in conjunction with the rollout of GCI's WirelessNet service.

EVALUATION AND DISSEMINATION

Evaluation

The Wireless WALRUS project includes a continuous internal evaluation of activities and outcomes as well as a comprehensive annual, external evaluation. The internal evaluation will allow changes to occur as problems arise, or as client feedback may indicate. The comprehensive annual, external evaluation will allow for an unbiased report of project accomplishments and impact. Both evaluations will include qualitative and quantitative information. A few of the outcomes are more long-term and qualitative in nature. These include an increased awareness in traditions, culture and history and an

increase in community wellness. Most of the outcomes for Wireless WALRUS lend themselves to measurement.

Each tribal office site will maintain visitor logs to determine if the visit is a repeat visit; the type of information accessed; and the visitor's need for assistance in accessing the information. The WALRUS website will count the number of "hits" it receives to determine the percent increase in use. Site visitors will also be asked to complete a survey to determine their levels of satisfaction with ease of use and informational content. A sample of survey questions is included in Appendix B Evaluation. Tribal community meetings are held periodically throughout the year and will be used to develop project awareness as well as solicit feedback from tribal members. Comments from tribal members will be documented and forwarded to project staff for evaluation.

The comprehensive, annual external evaluation will examine both the social and technical aspects of the project. Two individuals from University of Alaska Fairbanks Northwest Campus will provide their services to conduct this evaluation. A set of evaluation questions is included in Appendix B along with the evaluation strategy and techniques used for data collection and data analysis.

Dissemination

The Wireless WALRUS will serve as a model for program and service delivery, a model for tribal consortiums, a model for tribal government interaction, and a model for community wellness interaction. Kawerak participated in the Rural Communications Forum held in Anchorage, Alaska in November 2002. At that time, there were only two rural communication projects that could be described as reasonably successful throughout the entire state. Neither project used Interactive web tools for program and service delivery or tribal government communication. In these projects community interaction was very limited. It was as though just being connected was the goal. The Wireless WALRUS approach will use the connections to surmount geographic, climatic, economic, social and cultural barriers.

The results of Wireless WALRUS will be posted on the Kawerak web site so that it will be available to any interested party. Kawerak will also share the experience with presentations to regional and national organizations, other Native American tribes, and other tribal consortiums. These organizations include the Alaska Regional Development Organization (ARDOR), the Alaska Federation of Natives (AFN), Alaska's eleven other tribal consortiums, the Alaska Native Health Board (ANHB), and the National Congress of American Indians (NCAI). In addition, a comprehensive report will be prepared for the US Department of Commerce that documents the approach, the lessons learned, and the project evaluation. Hard copies of the report will be available to interested parties upon request.

PROJECT FEASIBILITY

Technical Approach

Wireless WALRUS will utilize advanced wireless and satellite earth station technology to accomplish the goals and objectives of the project. The solution coincides with a new initiative being launched by GCI Corporation to install towers and additional circuits in each village within the region. These towers will allow direct line-of-sight wireless communication to satellite earth stations that currently carry the required Internet bandwidth. Kawerak has been working with GCI over the past several months to bring affordable Internet service to the remote areas of the region. GCI's WirelessNet service is attractively priced (see Appendix G for Partner Letters) in order to be affordable to village residents and businesses. GCI's business case requires that installations be carried out in 74 communities, including 14 in the Bering Strait Region. The business case estimates profitability at a 30% market penetration rate based on existing households throughout the 74 communities. Residential and business use of the WirelessNet service is critical to the business case developed by GCI. The availability of this service is critical to the success of Wireless WALRUS and the future of Kawerak's tribal members.

Computers in each tribal office will connect to a 10" antenna mounted on the outside of each office. A wireless signal will transmit to and from the GCI's earth station tower, providing access to email and the Internet. Digital Rage, located in Anchorage, Alaska, will host the Wireless WALRUS site. They offer a dedicated hosting service that is scalable, affordable, and capable of handling a large volume of dynamic, interactive web applications in a secure environment.

The wireless solution is modeled after similar installations in Kotzebue, Alaska. Of ten remote villages in the Kotzebue Region, five were connected to earth stations with DSL connections and five were connected with wireless line-of-sight connections. The wireless connections proved more reliable due to the aging of the copper telephone network. The telephone network in the Bering Strait Region suffers from similar aging problems, so wireless connections were selected. The installation of a cable network infrastructure was cost prohibitive in these remote villages.

Kawerak anticipates population growth in the region due to recent birth rates in the villages. In addition, growth in the level and frequency of service provided by WALRUS is anticipated as users become more sophisticated and begin subscribing to home and business Internet service. This is the primary reason for selecting a web hosting company who can accommodate growth as well as upgrades and changes in technology for web applications.

Applicant Qualifications

Kawerak's Information Systems Department employs four individuals who currently maintain the tribal consortium's computers and networks. Brief bios describing each staff member's qualifications are included in Appendix F. The overall project management will be administered by the IS Director, Tom Guillian. Two additional positions will be added to the IS team to assist with the development of web applications for Wireless WALRUS. These positions will be responsible for working with Kawerak's program

directors and village tribal leaders on web content issues. They will also be responsible for developing and implementing the online access system and cultural archive system in an easy to use format. Job descriptions for these positions are also included in Appendix F.

The Kawerak IS staff first introduced the use of line-of-sight wireless connections from a few tribal offices to its shared T1 line in some of the villages to reduce telephone line costs. Working with GCI Corporation, wireless connections will soon be used to connect to satellite broadband Internet services by any resident or business subscriber. The Kawerak IS staff has worked diligently to extend its shared T1 line to as many program offices as possible. This contributed greatly to program access and service delivery even though broadband service was not available. The IS staff has become adept in network monitoring, network management, remote trouble-shooting, and system security.

Project Implementation and Completion

The project is estimated to take 36 months (3 years) to complete. Kawerak has included an Activity Plan in Appendix A. The Activity Plan includes the Wireless WALRUS goals, the measurable objectives that support the goals, and a variety of activities, timelines, persons responsible, and outcome measurements used to evaluate progress toward goal achievement.

Privacy and Security

Kawerak will use wireless encryption technology for the tribal office computers to maintain security for the wireless connections. Tribal member identification and passwords will be used to protect the security of tribal members who access services that require confidential information. In addition, Kawerak has a computer and network use policy in place. Each system user must review the policy, acknowledge that he or she has read it and understands it. As an added precaution, secure areas of WALRUS will require login and password identification prior to system access by any remote user.

Sustainability

Kawerak anticipates that future maintenance and enhancements will be required. Once the WALRUS site is constructed, the maintenance activities will no longer require design and development staff. The remaining IS staff will then work with the tribes and Kawerak division staff to process maintenance requests with the web hosting organization. The funds used to build WALRUS will demonstrate to the Kawerak Board of Directors and tribal members how technology can be used to overcome many of the barriers facing our communities. Future enhancements will be estimated and negotiated based on customer demand, the approval of the Board of Directors, and availability of funds. The tribes of this region are dedicated to the goals and objectives stated in this application which are supportive of the goals and objectives in Kawerak's Long- Range Plan. Kawerak is aggressively pursuing additional resources to conduct activities supporting these goals and objectives and plans to build upon the success of WALRUS.