

1.0 Introduction - Situation and Objectives

The Pinal-Gila Telecommunications Partnership is seeking first-time assistance to conduct a Community Telecommunication Assessment. This assessment would assist the Partnership's efforts to provide needed infrastructure to make e-government and e-business a reality in several rural communities in Arizona.

In the area of public safety, a recent incident points up the need to bring redundancy to the area. Five Pinal County communities, including Florence and Arizona City, were left without long distance, cellular phone and pager service for more than 15 hours due to a severed fiber line. Even more significant is that 9-1-1 service was disabled. Banks had to close and businesses were unable to accept debit or credit cards during that time. Of most concern about this incident is that it has now happened twice in two years. It is believed the Community Telecommunications Assessment would help identify how this is a deficiency that must be urgently addressed.

There are very few communities represented by the Partnership with broadband access. Those that do have some access seem unable to use it in the business community. There are populated areas with no telephone, and still others lie in 'dead zones' where cellular service is useless. Mining and agriculture industries can no longer support and sustain the population. Arizona is one of the fastest-growing states in terms of population in the nation. A Community Telecommunications Assessment is not only vital to the economic development, but likely to the survival of the communities represented by this Partnership.

Public health concerns in the 21st Century dictate that all medical providers are linked to conduct on-line surveillance and reporting in the event of a biological release of any kind in order to ensure containment and control. Another health issue is the need to provide early recognition of communicable diseases and rash surveillance in remote areas. Presently, there are many areas in Pinal and Gila Counties that are so far behind in terms of broadband access that health care to residents is adversely affected.

Ultimately, the public health and public safety issues are related to economic development. The public safety concern caused by the major fiber line cut, also severely hindered commerce. The lack of broadband access is cited by physicians as a reason for their reluctance to locate in the area.

Additionally, the two counties are finding it necessary to upgrade telecommunication capability in order to enhance higher education opportunities for their residents. Central Arizona College (CAC) now has campuses at Signal Peak, Apache Junction, and Mammoth. It already offers distance-learning opportunities and is finding that as faculty and students become more comfortable using the information superhighway, greater broadband access is necessary. Even more critical is finding the funding sources to support the technology. The need will become even more critical as CAC begins to offer dual credit classes to high school students.

The Pinal-Gila Telecommunications Partnership has sought to include all communities within the borders of Pinal and Gila Counties. The 27 assessment communities listed in Table A are

represented either by a Chamber of Commerce, an Economic Development Corporation, a municipal government, a law enforcement agency or a public health agency.

The communities of Casa Grande, Coolidge, and Eloy have chosen to join the Partnership. Pinal and Gila Counties showed more than 231,000 residents in the 2000 census, more than 43,000 of whom were reported to live in Casa Grande, Coolidge, or Eloy, an area of about 137 square miles. The total area of the two counties combined is more than 10,000 square miles. All three of these communities have participated in joint economic development efforts for a number of years through the Greater Casa Grande Valley Economic Development Foundation.

Finally, efforts have been made to include Native American communities in the Partnership. These communities lack broadband access and in some places, telephone service is not available. Presently, the Gila River Indian Community has a data sharing agreement with the Pinal County Department of Public Health and the Arizona Department of Health Services, and is the primary health care provider for the Ak Chin Indian Community near Maricopa and the Tohono O’Odham Nation in Pinal County.

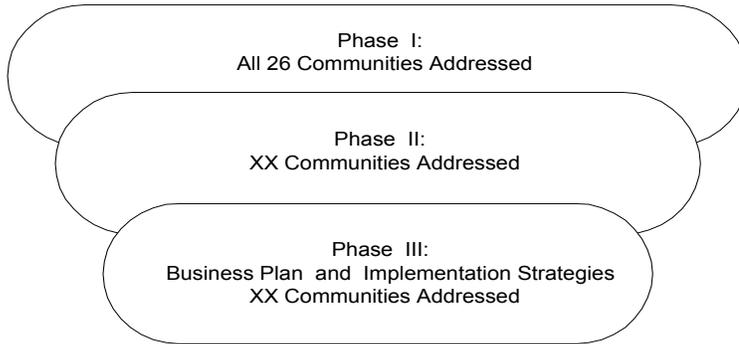
An extensive community telecommunications assessment, which would include an inventory of the infrastructure, needs assessments and recommendations for objectives would provide the following:

- Serve as a planning tool to support the implementation of the goals and objectives that have been built-on from the 1996 ad-hoc committee formed through the Greater Casa Grande Valley Economic Development Foundation agenda and integrated into the general plans and strategic planning documents of the partnering communities
- Allow for a comprehensive economic development strategy that would focus on specific industries at the Foundation level
- Promote a community based and regional effort to improve infrastructure in the “last mile”
- When fully implemented, it could attract, grow and retain new and existing businesses, which could diversify the local economy
- Citizens would enjoy and enhance quality of life, as new infrastructure would allow access to the newest of technologies.

2.0 General Approach

The Pinal-Gila Community Telecommunications Assessment Partnership, hereafter referred to as the Partnership, is recommending Manweiler Telecom Consulting (MTC) use a multi-phase approach to the assessment project. Phase I will look at all of the 27 communities which make up the Partnership. MTC will use a quantitative method to choose potential communities to continue in each subsequent phase of the project. This quantitative method may or may not result in all 27 communities progressing to the next phase. The final phase should result in a business plan and strategies to implement the plan for specific communities. Diagram 1 below depicts the Partnership’s understanding of the phased approach of this project.

DIAGRAM 1 - Multiple Phase Project Approach



3.0 Scope of Work – Phases, Requirements, Tasks and Deliverables

For the purpose of defining and establishing cost associated with the requirements and deliverables, MTC must provide a complete task list to include the cost, if any, for each item and deliverable. This Task List and associated costs should be in a format similar to that in Table B.

4.0 Phase I - Communities Represented in the Pinal-Gila Community Telecommunications Assessment Partnership.

4.0.1 Phase I of the project will focus on all of the 27 communities identified in the partnership. These communities are listed in Table A and are identified in the attached Assessment Communities Area Map. At the end of Phase I, MTC will provide rationale as to which communities will continue in the assessment and be further reviewed in Phase II and which communities should not be further assessed.

4.0.2 Results of surveys for each of the 27 communities in Gila and Pinal County.

- Tabulations and cross tabulations of survey questions per community.
- Satisfaction of current providers
- Willingness to pay for higher bandwidth services
- Survey results will respect the confidentiality of private businesses, residential households and telecommunications providers.

4.0.3 Health Care

- Identification of for profit and not-for-profit health care businesses in area, their gross revenues, and their impact on the local economy.
- Analysis of health care spending with a view toward how revenue might be increased by improved telemedicine infrastructure
- Potential Universal Support subsidy for Rural Health Care sites
- Health care business network analysis (how this effects telecom participation)
- Analysis of current telemedicine/teleradiology/medical videoconferencing use in the area.
- Potential for improved reimbursement, and greater capture of Medicare Medicaid reimbursement.

- Identification of job/revenue losses to adjacent county health care providers.

4.0.4 Libraries

- Library network connectivity/services in the regions for K-12, special and public library sites.
- Libraries as business development resources.
- Libraries as community access sites to demonstrate high-speed access and applications.
- Grant funding sources specific to libraries.
- Libraries as potential participants in community aggregation consortia.

4.0.5 Educational Institutions

- Network connectivity/services in the regions for K-12, Community College, University, and for-profit school and college sites.
- Educational Institutions as business development resources.
- Educational Institutions as community access sites to demonstrate high-speed access and applications.
- Grant funding sources specific to Educational Institutions.
- Educational Institutions as potential participants in community bandwidth aggregation consortia.

4.0.6 Law Enforcement

- Network connectivity/services in the regions for Law Enforcement and Judicial Service sites.
- Identification of Law Enforcement, Prison, and Judicial locations in the area.
- Law Enforcement, Prisons, and Judicial Facilities as development resources.
- Law Enforcement and Judicial Facilities as community access sites to demonstrate high-speed access and applications for community safety.
- Grant funding sources specific to Law Enforcement, Prison, and the Judiciary.
- Law Enforcement, Prisons, and Judiciary services as potential participants in shared bandwidth aggregation consortia.
- Analysis of Law Enforcement, Prison, and Judicial spending with a view toward how revenue might be increased by improved communications infrastructure.
- Potential Universal Support subsidy for Rural Law Enforcement sites.
- Law Enforcement network analysis (how this effects telecom participation).
- Analysis of current Law Enforcement, Prison, and Judicial videoconferencing use in the area.
- Potential for cost reduction through reduced need for prisoner transportation.

4.0.7 Fire and Fire Rescue

- Network connectivity/services in the state for Fire Department and Fire/Rescue sites.
- Identification of for profit, not-for-profit, and municipal Fire and Fire Rescue departments and businesses in the area,
- Fire and Fire/Rescue Services as development resources.
- Fire and Fire/Rescue Services as community access sites to demonstrate high-speed access and applications for community safety.

- Grant funding sources specific to Fire and Fire/Rescue.
- Fire and Fire/Rescue services as potential participants in shared Fire, Safety, and Law Enforcement bandwidth aggregation consortia.

4.0.8 Detailed list of current high bandwidth users as well as future high bandwidth users.

4.0.9 MTC will present findings of Phase I and recommend next steps.

- MTC will provide written recommendations for next steps including:
 - Which communities should be included in Phase II and Phase III
 - Which communities will not benefit from further investigation.
- MTC will provide, as specified in AD020228, for each of the 27 communities listed in Table A, the geographic distribution of the service availability, and to an extent the actual infrastructure should be geocoded in a database and presented in the form of GIS maps and electronic format (ArcView) for each community.
- MTC will provide geocoded in a database and presented in the form of GIS maps and electronic format, maps showing current medium and high bandwidth users within the communities.
- MTC will provide database of survey results.
- MTC will identify and document each community's vision for connectivity.
- MTC will provide a set of recommendations specific to each community. These Business Plans will be a 10-year-plan in 5-year increments for each community, with greater detail in the first 5-year plan. A quantitative method will be used to identify potential communities to move forward with implementation.
- MTC will deliver in hard copy and electronic format all deliverables to the Partnership. The database and all information related to the assessment will become the property of the Partnership.

5.0 Phase II – Infrastructure Inventory

5.0.1 Determine the current infrastructure of the service providers in the communities and their plans for future deployment of high bandwidth services. MTC will gather from local community leaders, telecommunication managers and government agencies as much information about local service contracts and contacts as possible. MTC will ascertain current services and infrastructure.

5.0.2 Determine carriers and items to include in inventory study

- Incumbent Local Exchange Carrier (ILEC)
 - Service area
 - Central office configuration
 - Cost of service (wholesale and retail) – tariffs for specific items
 - Planned upgrades – switch, backhaul, outside plant
- CLEC – same items as in ILEC
- Telecommunications network characteristics
 - Interoffice backbones
 - Wide Area Networks
 - Local Area Networks
- Wireless

- Cellular
- PCS/Digital Wireless
- Satellite
- Long Distance services
 - Identify providers of long distance service
 - Boundaries for local access, transport area
 - Boundaries of extended-area service
- Internet Service Providers
 - local dial-up access
 - number of modem lines and their speed
 - dedicated lines
 - connection to backbone
 - variety (cable modem, DSL, wireless microwave and satellite)
 - cost of services
- High bandwidth FCC Licenses
 - License holders of FCC-auctioned spectrum that may be used to offer high-speed telecommunications services in the community
- Television/Video
 - Public cable
 - Private cable
 - Satellite downlinks and uplinks
 - Interactive video
- Government Networks
- Public Schools
- Libraries
- Health Care
- Other agencies
 - Federal
 - State
 - County
 - City/Town
 - Tribal

5.0.3 Availability of IP, ATM and Frame Relay by city/town

5.0.4 GIS maps

- Maps will be developed of infrastructure showing service availability, and to an extent the actual infrastructure should be geocoded in a database and presented in the form of GIS maps. A database will be included showing the various service providers and the services available by GIS for geocoding purposes. Note: GIS maps and databases are dependent on access to private company information. The Partnership realizes that MTC will make best efforts to obtain this information but cannot guarantee access to all private information.

5.1 Phase II – Business Models

This is a high-level forecast of the telecommunications market and demand for bandwidth over ten years by each community. MTC will work with the County-designated financial officers as well as the economic development office to obtain the data necessary to create a financially sound business plan.

- 5.1.1 Create a database, by community, of all potential public and commercial telecom customers broken out into market segments
- Government: Federal, State, County, Municipal, Tribal
 - Business
 - Residential

5.1.2 Description of funding alternatives: Internal cash/grants/loans

5.2 Phase II – Deliverables

- 5.2.1 Detailed report on characteristics and statistics of current service providers, including, but not limited to:
- Coverage area
 - Technology deployed
 - Retail Pricing
 - Inter-community/inter-County broadband connection facilities
 - Network Access Lines report for each community, where the information available

5.2.2 Coverage maps, where available (the accuracy of this deliverable will depend on the availability and willingness of the vendors to participate)

5.2.3 Reporting on future plans of the local and regional service providers to provide high bandwidth services to the communities, including contact names and phone numbers for each service provider

- 5.2.4 A business plan showing ten-year projections by community and by County. The purpose of this plan is to attract new service providers as well as to encourage incumbent service providers to implement or expand current broadband services for the county and its communities.
- Population projections over ten years
 - Household projections over ten years
 - Percent of households with PCs with access to the Internet
 - Market penetration of households who will subscribe to broadband
 - Number of businesses and growth over ten years
 - Penetration of businesses over ten years that will subscribe to broadband
 - Market pricing assumptions of low, medium and high bandwidth users
 - Cost Assumptions by technology type (*e.g.* wireline, wireless, satellite, etc.)
 - Internal Rate of Return and Payback Analysis

6.0 Phase III – Technology Plans and Deliverables

MTC will provide technology plans for communities ranging from utilizing the business plan to encourage current service providers to build out new network services to complete fiber build-outs for communities and the associated costs for each strategic alternative.

- MTC will engineer the appropriate high-level “size the pipe” for each community.
- MTC will recommend technology alternatives including:
 - WANs and MANs including GIS drawings for communities that can financially sustain a new network build-out.
 - Budgetary pricing for network build-outs and/or leased services that require new network hardware (*e.g.* ATM, IP, Gigabit Ethernet, etc.)
 - Leased services and/or infrastructure builds
 - Transmission and electronics alternatives for each community
- MTC will evaluate performance versus cost structure including the analysis of:
 - Build versus buy or lease related to applications, bandwidth, technology, inherent limitations and scalability

6.1 Phase III – Financing Alternatives

Once a technological approach is approved by the Partnership, the next step is for MTC to seek potential sources of financing for infrastructure or other investment needs associated with the strategies and plans selected by the Partnership. Examples of funding sources to be investigated by MTC as to feasibility incorporate County/Local funds available, Federal Funds, Private Placements and Bonds. Some of these financing alternatives are detailed below:

- E-rate Subsidy Overview
 - History of e-rate in area
 - Identification of e-rate subsidy program participants /non-participants and technical and administrative contacts per organization or site.
 - Impact of non-participant sites; potential for increased subsidy participation.
 - Multi-year analysis of e-rate eligible spending
 - Potential for increased e-rate support and internal connections funding
 - Potential for mixed participant (partial subsidy) for consortia comprised of eligible and ineligible members *e.g.*, a mix of schools, libraries, health care and government sites).
 - Future of e-rate support for schools, libraries and consortia in the Counties
- Grant Funding Overview
 - Current state of grant funding
 - What funders are looking for
 - What they are not looking for
 - Identify and describe potential funding opportunities from private non-profit foundations
- Identify and describe State government funding and other support sources
- Tax credits (if any) and other funding sources
- Identify and describe current Federal sources
- New federal Initiatives
 - Homeland defense (public health, public safety, disaster recovery)

- Identify grant opportunities from Departments of Commerce, education, agriculture (RUS & economic development), health and human services.

6.2 Phase III – Final Presentation and Deliverables

- MTC will provide technology alternatives including:
 - WANs and MANs including GIS drawings for communities that can financially sustain a new network build-out.
 - Budgetary pricing for network build-outs and/or leased services that require new network hardware (*e.g.* ATM, IP, Gigabit Ethernet, etc.)
 - Leased services and/or infrastructure builds
 - Transmission and electronics alternatives for each community
- MTC will evaluate and present finding regarding technology performance versus structure
- MTC will report on financing options
 - Grants
 - Loans
 - Venture Capital
 - Angel Financing
- MTC will provide overall county-wide telecommunications recommendations and action steps

TABLE A – Pinal-Gila Telecommunications Assessment Partnership Communities

Community	Location
Apache Junction	Pinal County
Arizona City	Pinal County
Casa Grande	Pinal County
Central Arizona College	Pinal County
Coolidge	Pinal County
Dudleyville	Gila County
Eloy	Pinal County
Florence	Pinal County
Gila River Indian Community	Pinal County
Globe	Gila County
Gold Canyon	Pinal County
Hidden Valley	Pinal County
Hayden	Gila County
Kearny	Pinal County
Mammoth	Pinal County
Maricopa	Pinal County
Miami	Gila County
Oracle	Pinal County
Payson	Gila County
Pine	Gila County
Saddlebrook	Pinal County
San Manuel	Pinal County
Stanfield	Pinal County
Superior	Pinal County
Queen Valley	Pinal County
Winkelman	Gila County
Young	Gila County