

Technical Report

October 2001

***Southeastern Arizona Telecommunications Inventory Study:
Development & Testing of an Evaluative Model in Today's Digital Divide***

Prepared for

**SEAGO
SouthEastern Arizona Governmental Organization
Joe Brannan, Director**

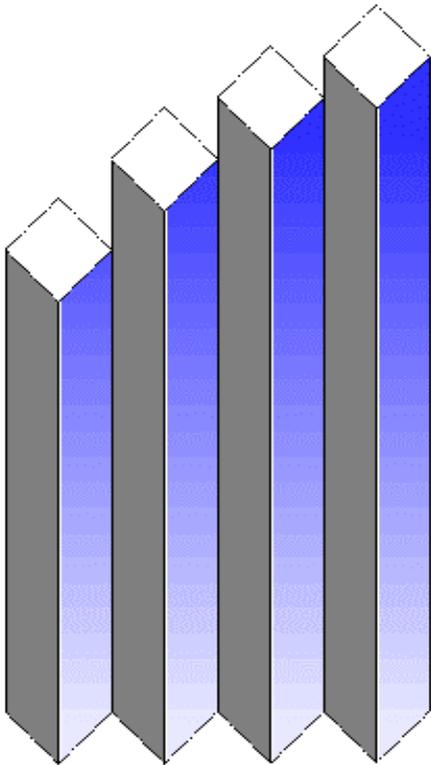
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INTRODUCTION

American society has witnessed rapid improvements in telecommunications technology over the past decade. Perhaps nothing more effectively symbolizes this phenomenon than the proliferation of the Internet. With this, access to electronic commerce, distance learning, and telemedicine has increased dramatically. However, there is concern that people and communities have not experienced similar degrees of access and benefit from the recent telecommunications boom. One of the dimensions of inequality falls upon urban versus rural areas and the kind of access available to each. The broadband infrastructure necessary to realize opportunities associated with the Internet often bypass rural areas, which may lack the market to attract such investment or may fail to capitalize on local resources. Telecommunications providers also realize a higher return on their investment in urban areas, where fixed costs are spread over a large number of customers and where volume is greater.²

The concern of a growing "digital divide" between Arizona's metropolitan centers and the state's rural regions is what prompted the SouthEastern Arizona Governmental Organization (S.E.A.G.O.) to approach the University of Arizona's Economic Development Research Program in the Fall of 2000. The "digital divide" is used to describe different levels of access between two groups of people to new computer technology, to the most reliable and up-to-date telephone service, and to the fastest or most convenient kinds of Internet services. At the national level, measures such as the "Digital Divide Elimination Act of 2001", which was introduced in the U.S. House of Representatives on July 2, 2001, are being brought forward to help address the issue of the digital divide. The proposal would, in essence, provide tax incentives to induce private companies to donate computer technology to schools and libraries and induce

² This information is drawn from a valuable submission by Kathleen McMahon and Priscilla Salant in an article entitled "Strategic Planning for Telecommunications in Rural Communities." This article can be found in *Rural Development Perspectives*, vol. 14, no. 3, and published in October, 1999.

poor families to purchase computers.³ On a more regional scale, SEAGO, among others, is concerned that if current and potential capacity and capability demands of rural Arizona are not addressed, economic growth will not be commensurate in quality to that of metropolitan Phoenix and Tucson. This could effectively exacerbate the difference in overall quality of life between rural and urban Arizonan's as society surges forward in the "new economy". With these concerns in mind, SEAGO asked the Economic Development Research Program to create a model for looking at the status of access, demand and infrastructure in rural communities throughout Arizona.

This report is based on the results of a pilot study conducted by the Economic Development Research Program. The process involved helping develop an evaluative model for obtaining a telecommunications profile in rural communities and we field-tested this model on the city of Willcox in southeastern Arizona. We are well aware that our scope is limited, and our findings should be viewed with this in mind. However, we believe the model can be further tested and applied to a larger scope of communities. This would be valuable in creating region-wide profiles and obtaining a better overall sense of the telecommunications status of rural communities.

APPROACH

In developing a model, we needed to consider the proverbial questions of "Who?", "What?", "Why?" and "How?". We first looked at who we wanted to potentially gather data from as a foundation for structuring the model. Together with our client (SEAGO), we determined that public institutions were logical points in getting a sense or measure of local telecommunications access and infrastructure. Our reasoning behind this was simple. Public institutions such as schools, libraries, hospitals, city governments and community colleges not only provide a good measuring stick of the telecommunications infrastructure and capacity available to the local public, but also give insights as to the

³ Our information on the "Digital Divide Elimination Act of 2001" came from the *Digital Divide* Network. More information on "The Digital Divide Elimination Act of 2001" and the digital divide in general can be found on the website for the *Digital Divide Network*, found at <http://www.digitaldividenetwork.org>

kinds of services available for public utilization (for example, computer training and telemedicine services). Because the scope of a project of this nature can quickly expand to a point where the purpose loses its identity, we determined that these public institutions should remain our focus for this particular model.

Once we determined “who” were going to target in our data collection efforts, we constructed a data base that includes 112 public institutions throughout 14 communities in a four county region (Graham, Greenlee, Cochise and Santa Cruz) in Southeastern Arizona (see Appendix A).

Our next step was to determine exactly “what” we wanted to find out from these public institutions. We took this into consideration in the development of our methods and ultimately determined that an amalgamation of the survey and interview methods would be the most effective way to capture the information we were looking for. Incorporating the survey and interview methods would help allow us to capture both the critical “hard data” and the anecdotal information. In the process of constructing a survey⁴ and interview, we found that the four main questions or themes we wanted to find insights into included:

- Who provides telecommunications services in the community?
- How are the existing telecommunications services rated by institutions in the community offering access to the public?
- What kinds of telecommunications services are provided?
- How do the public institutions offering Internet access like what they have, and what, if anything, can be changed to improve their current infrastructure?

⁴ There were a couple of previous telecommunications studies that were helpful models for us in terms of the linguistics used within telecommunications. We therefore would like to acknowledge the “Assessment of Telecommunications Needs Survey” and “Critical User Survey” developed by the Oregon Economic and Community Development Department.

With these questions serving as a foundation for our study, we now had a model with a framework that encompassed:

- Who: Local public institutions such as schools, libraries, hospitals, community colleges and local government.
- What: Four primary themes with questions focusing on issues of access and infrastructure within public institutions offering a variety of telecommunications access, with a specific focus on Internet access and services.
- How: Through an amalgamation of a survey and interview process.
- Why: Offer a look at the existing telecommunications status in rural Arizona communities, and a model for looking at the telecommunications profiles for rural communities in the future.

We now had a framework for our model. We have included a schematic of our model here in our report (Figure 1). However, we felt it was important to field test it and to do a “pilot study” of sorts to help determine the strengths and weaknesses of our methods. We selected Willcox, Arizona as the site for our pilot study, and we conducted our fieldwork in Willcox in January and February, 2001.

We intend on incorporating highlights of the results from our case study later in this report. While we feel that the information we collected is revealing and provides valuable insights into the status of telecommunications in rural Arizona, we recognize the diverse issues that uniquely affect communities on an individual basis. However, we feel the model we’ve developed is an effective way to capture useful information on the telecommunications status in rural communities, and can find application in other studies. Having field-tested the model ourselves gives us added confidence in making this assertion.

Figure 1.

EVALUATIVE MODEL FOR TELECOMMUNICATIONS RESEARCH⁵

QUESTION

WHO?

IDENTIFY



HOW?

**SURVEY AND
INTERVIEW**



WHAT?

**CREATE
PROFILE**



**DISTRIBUTE TO
COMMUNITY
LEADERS**



OUTCOME

WHY?

Provides insights
into current
telecommunications
status and resources

⁵ This model has been developed by the Economic Development Research Program at The University of Arizona.

WILLCOX PROFILE

Willcox is located in the Sulphur Springs Valley of southeastern Arizona, approximately 81 miles east of Tucson along Interstate-10 (Figure 1). The 2000 Census population of Willcox was at 3,733 residents, up about 16.5% from the 1990 Census figure. The key economic activities in Willcox include the cattle industry and the agricultural production of cotton crops, apple orchards, and pistachio and pecan groves. These two features of the local economy help contribute to Willcox's distinctly rural feel.

In terms of Willcox's telecommunications profile, the community is serviced by two area telephone providers (one for local telephone service, one for wireless), two local Internet service providers, and a cable provider. While Willcox possesses a digital switching station, the community does not have Internet service offered through its cable provider, nor does it have fiber optics access at this time. There are a handful of public telecommunications access points available to tourists and residents of Willcox, including the local library, schools, and the community college branch.

FINDINGS

The following discussion is organized around the questions of "who?", "how?" and "what?". First, we will look at who provides local telecommunications services to Willcox residents and its service area, as well as tourists who may be passing through town. We then will take a glimpse at how we interviewed these entities within Willcox. Finally, we will discuss what the results from our research reflect.

Our first task was to identify and interview public institutions offering telecommunications access to local residents and/or tourists. We defined this as civic, social or educational entities providing some type of telecommunications-related service for the public, whether through computer and Internet access or a webpage for residents or tourists to view. In Willcox, we identified eight institutions that met this

Figure 2.
Map of Willcox and Southeastern Arizona



Source: 2001 Microsoft Streets and Trips

definition. They were the local branch of the regional community college, the hospital, three schools, the chamber of commerce, the library, and the City of Willcox.

Once we identified these institutions, we went into the field and distributed a survey to leading officials in Willcox from each entity (Appendix B). We also conducted semi-structured interviews with the officials from these entities that lasted approximately 15-30 minutes each (Appendix C).

We have already outlined the major categories of questions we asked in our survey and interview amalgamation. Our first question was geared towards finding out what knowledge or awareness exists among these institutions regarding the telecommunications services offered by local providers.

There are two telecommunications companies who provide local telephone service within Willcox (Qwest and Valley Telecom). The survey results show that most respondents know who provides their telephone services, but a few do not know that one of the carriers provides exclusively wireless and Internet services. Therefore, there is a good overall sense of the services available, but not a full understanding of who necessarily provides them.

The majority of respondents surveyed know that the most basic phone services such as voice mail and voice messaging are available in Willcox. However, some respondents are not aware of exactly what telephone services are available in the community. This indicates some confusion regarding the availability of certain services. With one half of the respondents actively using these services, there seems to be a good sense of what is available. However, the survey results indicate that there may also be a lack of understanding as to the kinds of telephone services that can be obtained.

We also found that there are two local providers of Internet services in Willcox. We've already mentioned Valley Telecom, which provides wireless phone service to the community. The other local Internet provider is the Sulphur Springs Valley Electric Cooperative.

Two primary concerns, speed and access, emerged with a striking consistency among our survey and interview respondents regarding Internet services in Willcox. Most institutions indicate that the speed of their Internet connection is often 56K grade or lower. This means that the access speeds are often relatively slow, and certainly not commensurate to the speeds available in places like Tucson and Phoenix. The speed of access is directly tied to the method of connection available. Government institutions with access to county or state government networks could access the Internet via cable, and therefore have greater speeds in their Internet services, while those entities that only possess local dial-up access have slower access speeds. This means that Willcox residents who do not access the Internet through a government network most likely do not have similar access speeds to residents in Arizona's urban centers, not even within the public institutions offering public Internet access in their community.

Respondents indicate that the most common problem with their Internet access in Willcox is an overloaded server which during peak hours makes connecting to the Internet almost impossible. Some 75% of the entities interviewed cited access as an important telecommunications-related issue facing the community. The respondents also indicate that when using a local call to dial up their Internet access during peak hours, it sometimes requires well over a couple dozen attempts to access the Internet, taking up to forty-five minutes in the process. This demonstrates that the demand and use of Internet services in Willcox is exceeding the local telecommunications infrastructure capacity. This seems to be the most important issue that needs to be addressed in the community of Willcox.

The eight institutions surveyed have a total of 306 computers, and of these, 47 are available to the public to access. This second figure doesn't necessarily include availability to employees or students of these entities, simple the number available to residents who would like computer or Internet access. Thus, approximately 15% of the computers found within these entities are available for usage by the public at-large. Another survey question asked the lead officials from these entities to rate their current telecommunications-related configuration in meeting the needs of the community. Respondents were asked to rate their configuration on a 1-10 scale, with 10 being representing the best rating and 1 representing the worst. The average rating among respondents was at 6.2 on the 10 point scale, indicating that these entities feel that they are doing an average or adequate job in meeting the needs of Willcox residents. However, the 6.2 figure also indicates a feeling that the current configuration could also stand to improve.

These findings are intended to provide a sample glimpse at the current telecommunications status within Willcox. We are well aware that a more comprehensive view of Willcox would require further study. That said, we have been able to accomplish our main goal of field testing our developed model on a rural community in southeastern Arizona.

CONCLUSIONS

The primary benefit of utilizing this model is that it helps create a telecommunications profile of a community. It identifies providers of telecommunications services and measures the infrastructure in place at civic, educational and social entities throughout a community. It also serves as a first step in identifying locally-specific telecommunications issues and needs in a community. After testing our model in Willcox, we found that it's community-specific needs centered around issues of

Internet speed and access. Our model thus functions and finds its purpose as being a preliminary identifying tool or step. Once this information or profile is presented to community leaders, it can be the impetus for bringing people in the community together and developing strategies for improving the telecommunications configuration for their locale. It can also bring a keener awareness as to the resources already intact within a community, and strategies can be developed on how to maximize and network these resources between local and regional entities.

Economic development is one area in which telecommunications strategies revolving around e-commerce, telemedicine and internet educational activities can be created in order to maintain a level playing field with larger urban areas. Our model helps serve as an identifier in elucidating the infrastructure and capacity already in place in a community. Subsequently, it can serve as a measuring stick as to what can or needs to be done to ensure that, from an economic development standpoint, rural communities provide comparable qualities of telecommunications-related resources to their citizens. This is very important in terms of mitigating the "digital divide" as the Internet and other telecommunications-related technologies will continue to have an increasing influence on American society down the road.

Appendix A

Potential Community Inventory Sites

S.E. Arizona Telecommunications Study
City Governments, Community Colleges, Hospitals, Schools, Libraries

I. COCHISE COUNTY

- A. Benson
- B. Bisbee
- C. Douglas
- D. Sierra Vista
- E. Tombstone
- F. Willcox

III. GREENLEE COUNTY

- A. Clifton
- B. Duncan
- C. Morenci

II. GRAHAM COUNTY

- A. Pima
- B. Safford
- C. Thatcher

IV. SANTA CRUZ COUNTY

- A. Nogales
- B. Patagonia

I. COCHISE COUNTY

A. Benson

- 1) City of Benson, 160 South Huachuca, Benson 85602
Community Development Dir: Larry Kreps (520) 586-2245
- 2) Benson Hospital, 415 S. Ocotillo, Benson 85602
(520) 586-2261 www.bensonhospital.org
- 3) Benson High School, 360 S. Patagonia St., Benson 85602
Contact – Robert McKenzie (520) 586-2214
- 4) Benson Middle School, 360 S. Patagonia St., Benson 85602
Contact – Charles Young (520) 586-2213
- 5) Benson Primary School, 360 S. Patagonia St., Benson 85602
Contact – Richard Valentine (520) 586-2213
- 6) Benson Public Library, 300 S. Huachuca, Benson 85602
Contact – Kay Whitehead (520) 586-9535
- 7) Benson Chamber of Commerce, 234 E. 4th St., Benson 85602
(520) 586-2842 www.theriver.com/bensonspvchamber/

B. Bisbee

- 1) City of Bisbee, 118 Arizona Street, Bisbee AZ 85603
Community Development Dir: Brena Mercer (520) 432-6000

- 2) Copper Queen Community Hospital, 101 Cole Ave., Bisbee 85603
(520) 432-5383
- 3) Bisbee High School, School Terrace Rd., Bisbee 85603
Contact – Ross Anderson (520) 432-5714
- 4) Bisbee Middle School, 519 Melody Lane, Bisbee 85603
Contact – Michael May (520) 432-6100
- 5) Greenway Primary School, 98 Cole Ave., Bisbee 85603
Contact – Margaret Jenia (520) 432-4361
- 6) Lowell School, 100 Old Douglas School Rd, Bisbee 85603
Contact – Michael May (520) 432-5391
- 7) PPEP TEC – Manuel Borjorquez Learning Center, 203 Bisbee Rd.,
Bisbee 85603. Contact – Jim Parks (520) 432-5445
- 8) Copper Queen Library, P.O. Box 1857, Bisbee 85603
Contact – Lise Gilliland (520) 432-4232
- 9) Bisbee Chamber of Commerce, 31 Subway St., Bisbee 85603
(520) 432-5421 www.bisbearizona.com

C. Douglas

- 1) City of Douglas, 425 10th Street, Douglas AZ 85607
Community Economic Dir: J. Art Macias, Jr. (520) 805-4047
- 2) Cochise College (Main), 4190 W. Hwy 80, Douglas 85607
1-800-966-7943 www.cochise.cc.az.us
- 3) S.E. Arizona Medical Center, R.R. 1, PO Box 30, Douglas 85607
(520) 364-7931
- 4) A Avenue Elementary School, 15th St. and A Ave., Douglas 85607
Contact – Guadalupe Mejia (520) 364-8473
- 5) Clawson School, 1235 7th Street, Douglas 85607
Contact – Clara LaForge (520) 364-8466
- 6) Douglas High School, 1500 15th Street, Douglas 85607
Contact – George Montano (520) 364-3462
- 7) Joe Carlson Elementary School, 1132 12th Street, Douglas 85607
Contact – Manuel Valenzuela (520) 364-4401
- 8) Maryvale School, 12th Street and Madison Ave., Douglas 85607
Contact – Huntley Hoffman (520) 364-4416
- 9) PPEP TEC – Raul Castro Learning Center, 1012 G Ave., Douglas 85607
Contact – Jeannie Dunn (520) 364-4405

- 10) Ray Borane Middle School, 840 12th Street, Douglas 85607
Contact – Raul Torres (520) 364-2461
- 11) Sarah Marley School, 735 7th Street, Douglas 85607
Contact – Minera Kong (520) 364-3408
- 12) Stevenson Elementary School, 2200 11th Street, Douglas 85607
Contact – Gail Zamar (520) 364-2442
- 13) Douglas Public Library, 560 10th Street, Douglas 85607
Contact – Glenda Bavier (520) 364-3851
- 14) Douglas Chamber of Commerce, 1125 Pan American Ave., Douglas 85607
(520) 364-2477

D. Sierra Vista

- 1) City of Sierra Vista, 1011 North Coronado Dr, Sierra Vista AZ 85635
Community Development Dir: James Herrewig (520) 458-3315
- 2) Cochise College (Branch), 901 N. Colombo, Sierra Vista 85635
- 3) Sierra Vista Community Hospital, 301 El Camino Real, Sierra Vista 85635
(520) 458-4641 www.svch.com
- 4) Apache Middle School, 3305 Fry Blvd., Sierra Vista 85635
Contact – Bill Eddings (520) 515-2920
- 5) Buena High School, 5225 E. Buena School Blvd., Sierra Vista 85635
Contact – Frances Miller (520) 515-2800
- 6) Carmichael Elementary School, 701 Carmichael NE, Sierra Vista 85635
Contact – Marjorie Carrithers (520) 515-2950
- 7) Coronado Elementary School, 5148 Coronado School Dr., Sierra Vista 85635
Contact – Alice Anderson (520) 378-0616
- 8) Huachuca Mountain Elementary School, 3228 St. Andrews, Sierra Vista 85635
Contact – Elaine Newton (520) 515-2960
- 9) PPEP TEC – Colin Powell Learning Center, 4116 Avenida Cochise #F-H,
Sierra Vista 85635 Contact – Jim Parks (520) 458-8205
- 10) Pueblo Del Sol Elementary School, 5130 Paseo Las Palmas, Sierra Vista 85635
Contact – John Wilson (520) 515-2970
- 11) Sierra Vista Middle School, 1047 S. Lenzner, Sierra Vista 85635
Contact – Don Rothery (520) 515-2930
- 12) Town and Country Elementary School, 1313 S. Lenzner, Sierra Vista 85635
Contact – Kaye Dean (520) 515-2980

- 13) Village Meadows Elementary School, 905 El Camino Real, Sierra Vista 85635
Contact – Kelly Segal (520) 515-2990
- 14) Sierra Vista Public Library, 2600 E. Tacoma, Sierra Vista 85635
Contact – David Gunckel (520) 458-4225
- 15) Sierra Vista Chamber of Commerce, 21 East Wilcox Dr., Sierra Vista 85635
(520) 458-6940 www.sierravistachamber.org

E. Tombstone

- 1) City of Tombstone, 315 East Fremont St., Tombstone AZ 85638
City Clerk: Kathy Miller (520) 457-3562
- 2) Tombstone High School, 605 Fremont St., Tombstone 85638
Contact – D. Michael Roane (520) 457-2215
- 3) Walter J. Meyer School, 411 N. 9th St., Tombstone 85638
Contact – Terri Romo (520) 457-3371
- 4) Tombstone Library, P.O. Box 218, Tombstone 85638
Contact – Joyce Hoffman (520) 457-3612
- 5) Tombstone Chamber of Commerce, 105 S. 4th St., Tombstone 85638
(520) 457-9317 www.tombstone.org

F. Willcox

- 1) City of Willcox, 101 S. Railroad Ave., Ste. B, Willcox AZ 85643
Contact – Larry Rains, City Manager (520) 384-4271
- 2) Cochise College (Branch), 110 W. Fremont, Willcox 85643
Contact – Debbie Ellis, Branch Director (520) 384-4502
- 3) Northern Cochise Community Hospital, 901 W. Rex Allen Dr., Willcox 85643
Contact – Chris Cronberg, Director (520) 384-3541
- 4) Willcox Elementary School, 501 W. Delos St., Willcox 85643
Contact – Bill Halloway, District Computer Librarian (520) 385-4211
- 5) Willcox High School, 240 N. Bisbee Ave., Willcox 85643
Contact – Bob Nelson, Principal (520) 384-4214
- 6) Willcox Middle School, 360 N. Bisbee Ave., Willcox 85643
Contact – Sue Delgado, Principal (520) 384-4218
- 7) Elsie S. Hogan Community Library, 207 W. Maley, Willcox 85643
Contact – Nancy Guerrero, Library Director (520) 384-4271
- 8) Willcox Chamber of Commerce, 1500 N. Circle I Road, Willcox 85643
Contact – Eddie Browning, Executive Director (520) 384-2272

II. GRAHAM COUNTY

A. Pima

- 1) Town of Pima, 110 W. Center, Pima AZ 85543
Assistant City Clerk: Etha Bartlett (520) 485-2611
- 2) Life School College Prep, 127 E. Hwy 70, Pima 85543
Contact – Randy Skinner (520) 485-0642
- 3) Pima Elementary School, 131 S. Main, Pima 85543
Contact – Lynne Jones (520) 485-2570
- 4) Pima Junior/Senior High School, 131 S. Main, Pima 85543
Contact – Larry O’Dell (520) 485-2421
- 5) Pima Library, P.O. Box 426, Pima 85543
Contact – Vicky Foote (520) 485-2822

B. Safford

- 1) City of Safford, 717 Main Street, Safford AZ 85546
City Clerk: Sherrie French (520) 348-3100
- 2) Mt. Graham Community Hospital, 1600 20th Ave., Safford 85546
(520) 428-1171
- 3) Dorothy Stinson School, 2013 8th Ave., Safford 85546
Contact – Robert Rounsaville (520) 428-2113
- 4) Klondyke Elementary School, 921 Thatcher Blvd., Safford 85546
Contact – Melanie Brown (520) 428-2880
- 5) Lafe Nelson School, 734 11th St., Safford 85546
Contact – Patrick Warren (520) 428-0471
- 6) Mt. Graham High School, 300 32nd St., Safford 85546
Contact – Dean Phillips (520) 428-1139
- 7) Safford High School, 1400 11th St., Safford 85546
Contact – Virginia Latta (520) 428-5999
- 8) Safford Middle School, 612 11th St., Safford 85546
Contact – Brad Moon (520) 428-3447
- 9) Safford Public Library, P.O. Box 272, Safford 85546
Contact – Glen Dowdle (520) 348-3202
- 10) Graham County Chamber of Commerce, 1111 Thatcher Blvd., Safford 85546
(520) 428-2511 ; (888) 837-1847 www.graham-chamber.com

C. Thatcher

- 1) Town of Thatcher, 3700 W. Main St., Thatcher AZ 85552
Deputy City Clerk: Lona Duncan (520) 428-2290
- 2) Eastern Arizona College, 3714 W. Church St., Thatcher 85552
1-800-678-3808 www.eac.cc.az.us
- 3) Jack Daley Primary School, 3427 2nd St., Thatcher 85552
Contact – Barbara Prestridge (520) 428-5222
- 4) Thatcher Elementary School, 1350 N. 4th Ave., Thatcher 85552
Contact – David Shafer (520) 428-0510
- 5) Thatcher High School, 601 N. 3rd Ave., Thatcher 85552
Contact – Paul Nelson (520) 348-3653
- 6) Thatcher Middle School, 1300 N. 4th Ave., Thatcher 85552
Contact – Dennis Martin (520) 428-0515

III. GREENLEE COUNTY

A. Clifton

- 1) Town of Clifton, 210 N. Coronado Blvd., Clifton AZ 85533
Town Clerk: Esperanza Castaneda (520) 865-4147
- 2) Clifton High School, 110 Hill Street, Clifton 85533
Contact – Luis Montoya (520) 865-3262
- 3) Eagle Elementary School, Upper Eagle Creek, Clifton 85533
Contact – Ida Ann Hardy (520) 348-1134
- 4) Laugharn Elementary School, 110 Hill Street, Clifton 85533
Contact – Luis Montoya (520) 865-4917
- 5) Clifton Library, 102 School Street, Clifton 85533
Contact – Rebecca Oliver (520) 865-2461
- 6) Clifton Chamber of Commerce, 100 N. Coronado Blvd., Clifton 85533
(520) 865-3313

B. Duncan

- 1) Town of Duncan, 235 High Street, Duncan AZ 85534
Town Clerk: Cynthia Nichols (520) 359-2791
- 2) Duncan Elementary School, McGrath Ave., Duncan 85534
Contact – Terrill Rowley (520) 359-2471

- 3) Duncan High School, 106 Stadium Ave., Duncan 85534
Contact – Teo Rodriguez (520) 359-2474
- 4) Duncan Primary School, Campbell Street, Duncan 85534
Contact – Terrill Rowley (520) 359-2054
- 5) Duncan Library, P.O. Box 115, Duncan 85534
Contact – Barbara Blackburn (520) 359-2094

C. Morenci

- 1) Morenci Hospital, Coronado Blvd., Burro Alley, Morenci AZ 85540
(520) 865-4511
- 2) Fairbanks Elementary School, Fairbanks Rd., Morenci 85540
Contact – Philip Martinez (520) 865-3501
- 3) Morenci Junior/Senior High School, Stadium Dr., Morenci 85540
Contact – H. Dwayne Howard (520) 865-3631

IV. SANTA CRUZ COUNTY

A. Nogales

- 1) City of Nogales, 777 N. Grand Ave., Nogales AZ 85621
City Clerk: Ignacio Barraza (520) 287-6571
- 2) Carondelet Holy Cross Hospital, 1171 W. Target Range Rd., Nogales 85621
(520) 287-2771
- 3) A.J. Mitchell Elementary School, 855 N. Bautista St., Nogales 85621
Contact – Paul Kasparian (520) 287-0840
- 4) Challenger Elementary School, 901 E. Calle Mayer, Nogales 85621
Contact – Frank Thompson (520) 377-0544
- 5) Desert Shadows Middle School, 451 N. Arroyo Blvd., Nogales 85621
Contact – Mark Valenzuela (520) 377-2646
- 6) Lincoln Elementary School, 652 N. Tyler Ave., Nogales 85621
Contact – Liza Monriel (520) 287-0870
- 7) Mary Welty Elementary School, 1050 W. Cimarron St., Nogales 85621
Contact – Javier Barajas (520) 287-0880
- 8) Mexicayotl Charter School, 590 N. Morley Ave., Nogales 85621
Contact – Baltazar Garcia (520) 287-5469
- 9) Nogales High School, 1900 N. Apache Blvd., Nogales 85621
Contact – Marcelino Varona (520) 377-2021

- 10) Pimeria Alta High School, 310 N. Grant Court Plaza, Nogales 85621
Contact – Sandra Potter (520) 287-3540
- 11) Francisco Vasquez De Coronado School, 2301 N. Al Harrison Rd.,
Nogales 85621 Contact – Annette Barber (520) 377-2855
- 12) Wade Carpenter Middle School, 595 W. Kino St., Nogales 85621
Contact – Rebecca Holler (520) 287-0820
- 13) Nogales-Santa Cruz Public Library, 518 N. Grand Ave., Nogales 85621
Contact – Suzanne Haddock (520) 287-3343
- 14) Nogales Chamber of Commerce, 123 Kino Park Pl., Nogales 85621
(520) 287-3685

B. Patagonia

- 1) Town of Patagonia, McKeown Ave., Patagonia AZ 85624
Deputy Town Clerk: Isabel Van Nest (520) 394-2229
- 2) Patagonia Elementary School, 100 School St., Patagonia 85624
Contact – Sue Scherz (520) 394-3070
- 3) Patagonia Middle School, Hwy 82, Patagonia 85624
Contact – Sue Scherz (520) 394-2202
- 4) Patagonia Union High School, Hwy 82, Patagonia 85624
Contact – Peter Fagergren (520) 394-3000
- 5) Patagonia Public Library, 342 Duquesne, Patagonia 85624
Contact – Amy Popadak (520) 394-2010

Appendix B

Southeastern Arizona Telecommunications Study Survey

Hello! My name is _____ and I'm a researcher at the University of Arizona. We're working on a study in cooperation with the SouthEastern Arizona Governments Organization and local town governments and we hope you might tell us something about the area's telecommunications demand. We ultimately hope to use this information to provide insights as to the status of telecommunications infrastructure and demand in rural areas of Arizona. May I have a few minutes to ask you some questions?

A. GENERAL

*Please note – This information is being obtained so that we can follow up and contact you in case we have any questions or need any clarifications. Your organization contact information will not be distributed and the answers you provide for this survey and interview will be kept strictly anonymous and confidential.

Your city/town _____ County _____

Organization _____

Name of person who completed survey _____ Title _____

Phone number _____ Email _____

B. TELEPHONE

1. Who is your local telephone service provider?
2. Overall, how well do providers of telephone services meet your community's needs?

Very Well _____ Fairly Well _____ Somewhat Poor _____

Very Poor _____ Don't Know _____

3. Is this feature available in your community? (Please circle yes, no or don't know)

Wireless Service	Yes	No	Don't Know
Voice Mail	Yes	No	Don't Know
Conference Calling	Yes	No	Don't Know
Caller ID	Yes	No	Don't Know
Call Waiting	Yes	No	Don't Know
Call Forwarding	Yes	No	Don't Know
Other (Specify) _____	Yes	No	Don't Know

4. Does your organization utilize these features? (Please circle yes, no or don't know)

Wireless Service	Yes	No	Don't Know
Voice Mail	Yes	No	Don't Know
Conference Calling	Yes	No	Don't Know
Caller ID	Yes	No	Don't Know
Call Waiting	Yes	No	Don't Know
Call Forwarding	Yes	No	Don't Know
Other (Specify)_____	Yes	No	Don't Know

C. INTERNET ACCESS/SERVICE

5. How important is Internet access to your community?

Critical____ Very Important____ Somewhat Important____ Not Important____

6. Who are the major Internet providers who serve your community?

7. How does your organization log onto its Internet provider?

Via Local Call____ Via long distance call____ No internet____
Via 800 Number____ Cable (or direct linked intranet/dedicated line)____
Other____ Don't Know____

8. What is the speed of the Internet connections that are available to your community?
(Please circle)

- a. 14.4K or slower
- b. 28.8K
- c. 56K
- d. Faster than 56K
- e. DSL (Digital Subscriber Line)
- f. ISDN (Integrated Services Digital Network)
- g. Cable Modem
- h. Other
- i. Don't Know

9. Overall, how well do providers of Internet services meet your community's needs?

Excellent____ Good____ Fair____ Poor____

10. Overall, how well do providers of Internet services meet your organization's needs?

Excellent____ Good____ Fair____ Poor____

11. Approximately how many computers do you have in your organization?

a. Of these, what percentage are available for public use? _____

b. Do you offer training in the use of computers/internet, software training, etc.?

Yes _____ No _____ Don't Know _____

12. What services do you offer through computers/internet? (i.e. training courses, community access to computer or through web page, teled, requests, etc.)

13. On a scale of 1 to 10 (where **1** represents **very poor** and **10** represents **very well**), how would you rate your organization's current telecommunications configuration or infrastructure in meeting the needs of the community? (Please circle the number that best applies):

Very Poor		Average						Very Well	
1	2	3	4	5	6	7	8	9	10

14. Does your organization maintain a web page? If so, approximately how many hits has it received in the past year? What has been the trend in the number of hits your web page has received in the past five years?

15. How satisfied do you believe the consumers of your telecommunications technology are with your telecommunications infrastructure?

Very Satisfied _____ Somewhat Satisfied _____ Generally Unsatisfied _____

Very Unsatisfied _____ Don't Know _____

Thank you very much for completing this survey. We appreciate your time and the feedback you have provided here. If you have any questions, please feel free to contact Bryant Evans, Andrew Grogan or Dr. Lay Gibson at the University of Arizona's Economic Development Research Program at (520) 621-8579.

Appendix C

Southeastern Arizona Telecom Study INTERVIEW QUESTIONS

1. Are you aware of desires within your community for internet services that are not available? If yes, what desired internet services are not available?
2. Do you see demand for internet and (other) telecommunications technology increasing in your community over the next five years? Are needs being met as demand grows?
3. In your opinion, does your organization's current telecommunications infrastructure/services meet the needs of the community? What, if any, kind of feedback do you get from consumers of your telecommunications technology regarding your telecommunications infrastructure/access/services?
4. If there is one thing you could change about your organization's internet service, what would it be? What, if any, problems does your organization have with its service?
5. What is your organization's most pressing need at this time regarding telecommunications technology?
6. Who are the primary consumers of the telecommunications services/infrastructure that you have in place or offer? Do you believe that you will have the same kinds of consumers in the future as you have today?

*Note – The survey and interview questions were developed by Dr. Lay James Gibson and Bryant Evans of the Economic Development Research Program at the University of Arizona. Dr. Gibson can be reached at (520) 621-7899 and Bryant can be reached at (520) 621-8579. The questions were developed in cooperation with Joe Brannan and Joel Viers of the SouthEastern Arizona Governments Organization.