

AZ Broadband Initiatives

For the E-rate training

2007-2008

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Critical Infrastructure Value Statement

For Arizona, affordable broadband Internet and advanced telecommunications services are critical infrastructure to support:

Economic development, including growing existing businesses and starting or attracting new businesses. (Estimated \$8.5 Billion increase in GDP, \$100 Million increase in revenue for State government, 11,500 new (mostly hi-tech) jobs)

Quality of Life enhancements:

- Personal connection to worldwide sources of information
- Critical services such as police and fire
- Telemedicine and health care institutions
- eLearning for P-20 and for life long learning
- eGovernment for improved citizen services



WHAT BROADBAND CAN DELIVER

- E- GOVERNMENT** - including lower cost to deliver government services, a more responsive government, a more accountable government.
- E- HEALTH** - Including Tele-medicine, remote access to specialist and multi-discipline consulting, health training, remote triage during emergency transport
- E- COMMERCE** - including connection to world markets, Tele-commuting, and all the benefits of the Information age.
- E- LEARNING** - including vast improvements in student learning, lower costs to deliver education material and teaching, workforce development and lifetime learning.

Comparison of US to World

As we Enter the Information Age

- ◆ US ranked 16th and Falling
- ◆ Average Consumer Broadband connection in Korea (rest of Asia not far behind)
7 Mbps - Average cost per month - \$7
- ◆ Average Consumer Broadband connection in NYC
.5 Mbps Average Cost to Connect - \$39
- ◆ Comparison Ratio cost:
 - Korea = \$1 per 1 Mbps
 - USA (NYC) = \$78 per 1 Mbps

Arizona is ranked 12th in Broadband Deployment among the States. (2004 TechNet Report)

Currently in Arizona

- ◆ **An estimated 1 Million citizens in Arizona do not have access to Broadband (Download and upload at speeds > 200Kbps)**

Of Arizona's 225 communities of 500 population or more, 40 have no Broadband availability. In many where Broadband is available, the rates for T-1 lines are 2 - 3 times more expensive than rates in Phoenix or Tucson.

Though over 80% of Arizona's rural citizens have ADSL in the more dense centers of their communities, about half have no DSL reaching their own residences.

20% of Arizona's School Districts have schools within the district with only Dial-up (56k) connection to the Internet.

- ◆ **There are huge gaps in Arizona's "Middle-Mile" infrastructure (Backhaul between a community and Tier One site in Phoenix or Tucson).**
- ◆ **Telecom infrastructure in rural Arizona is incapable of supporting long-term economic development goals**
- ◆ **Long-term economic impacts are HUGE**



Barriers to Broadband Deployment in Rural Arizona

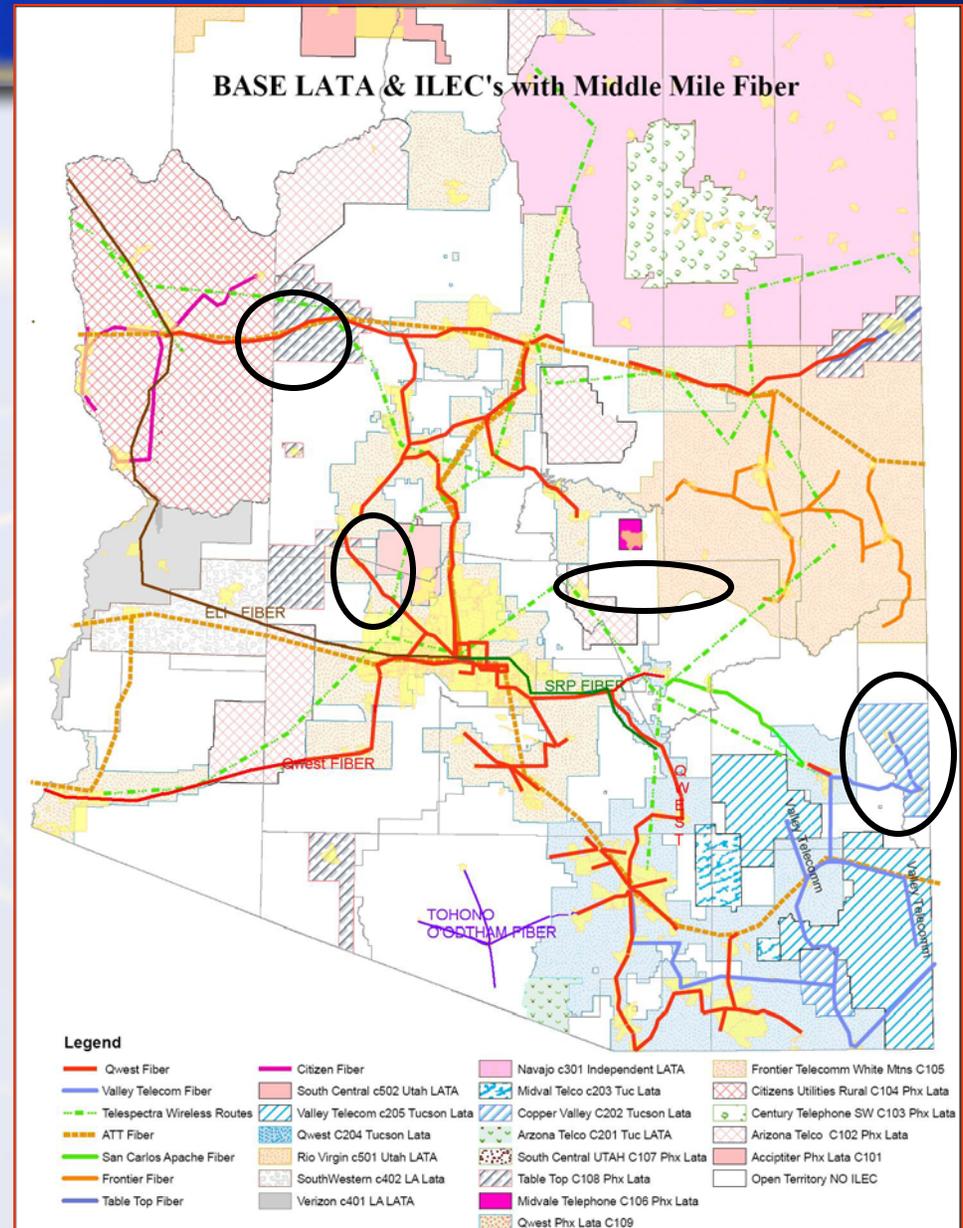
- ◆ **Leadership, Planning and Coordination are most important factors** to successfully deploy broadband.
- ◆ **A Lack of cooperation among the telecom providers and indifference by public**
- ◆ **The ROI in Rural Areas via rates is insufficient to support Broadband build-out say Telcos**
- ◆ **Rights-of-Way Access is a significant barrier**
- ◆ **A Lack of Funding subsidies**

Infrastructure Barriers in Arizona

Note the Stranded single runs and lack of loops. Lack of redundant paths can devastate whole regions when outages occur.

Note lack of Interconnection between areas of Telco owned Fiber

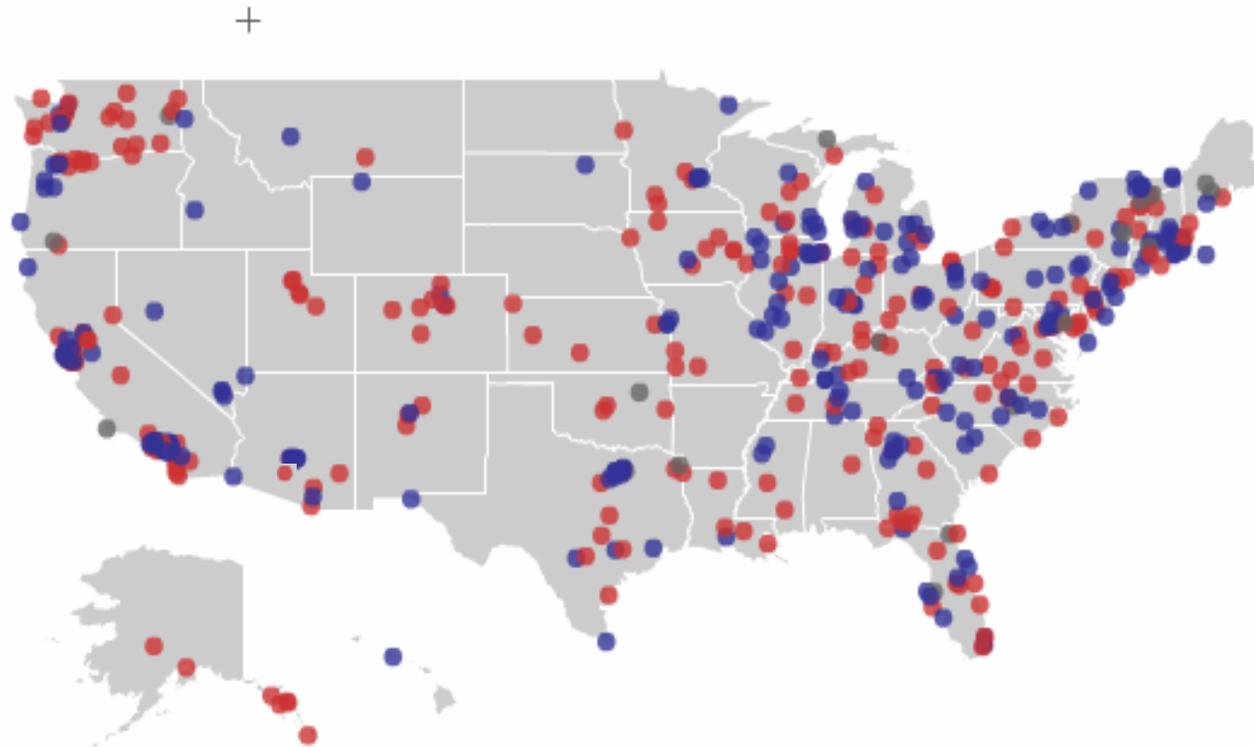
Law of Supply and Demand evident in End user Costs for Broadband Tariff (2007) for T-1 line in Arizona >\$350 + Distance charge (some as high as \$1,500 per month)



U.S. WIFI Communities

Community Internet Across America

Organized By Network Status



Red dot: Active
Blue dot: Not yet active
Grey dot: Unknown

Organize by:



General Benefits

- ◆ WiFi technology provides an inexpensive and commonly available method of broadband transport for all communities (public and private), and is especially suited as the initial network in a broadband deficit area.
- ◆ Experience shows that WiFi resources can be installed successfully in rural settings, thereby connecting cities and communities into one large grid, instead of islands of separate connectivity

A Challenging Locale

Superior was a boomtown
in the 1890's and in
the 1940's

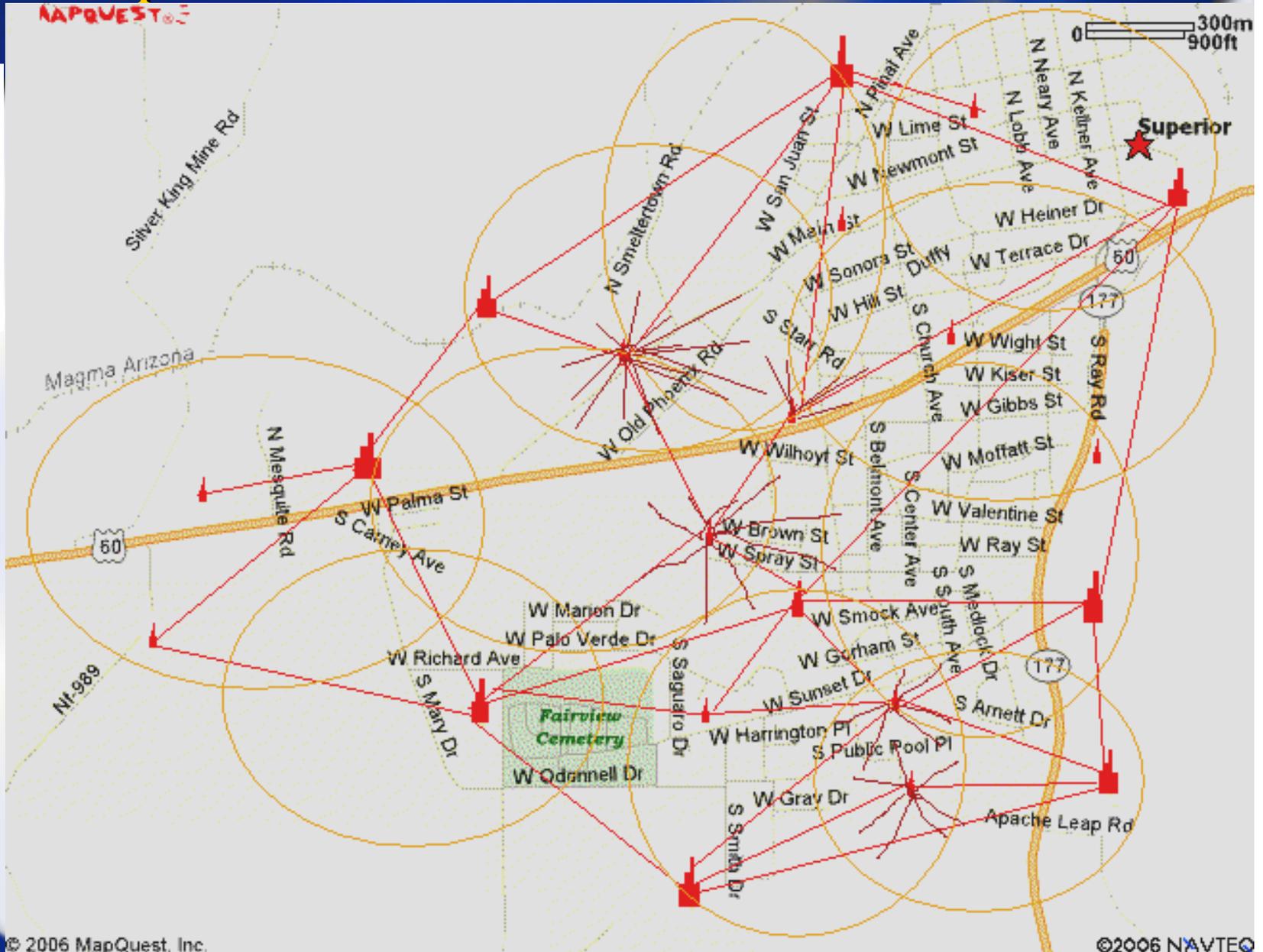


Can it prosper
Again ?

Until a WiFi Network was available,
A broadband connection was out
of reach for most residences



Superior Map - WIFI Install Transit Points

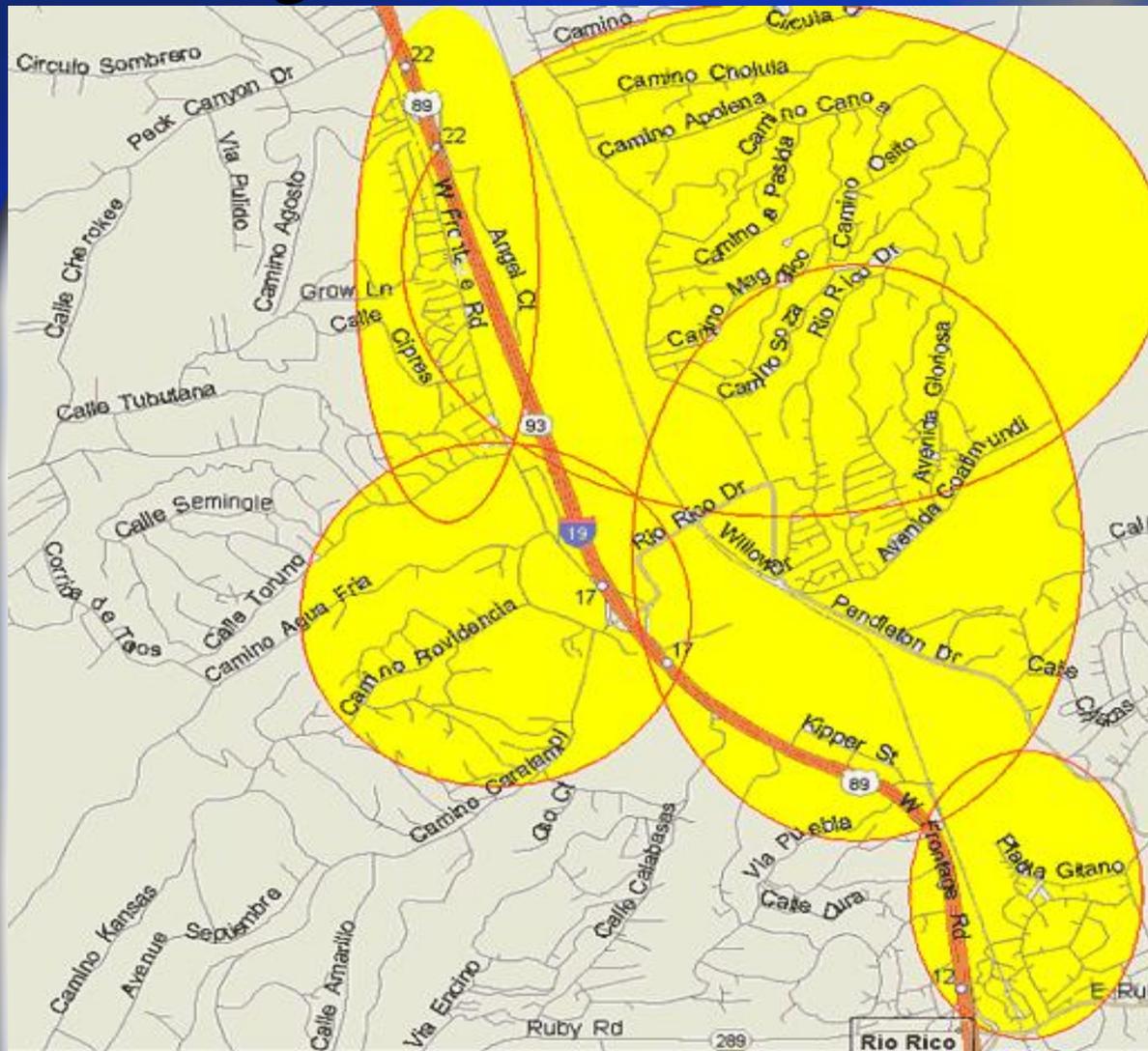


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Government Information Technology Agency

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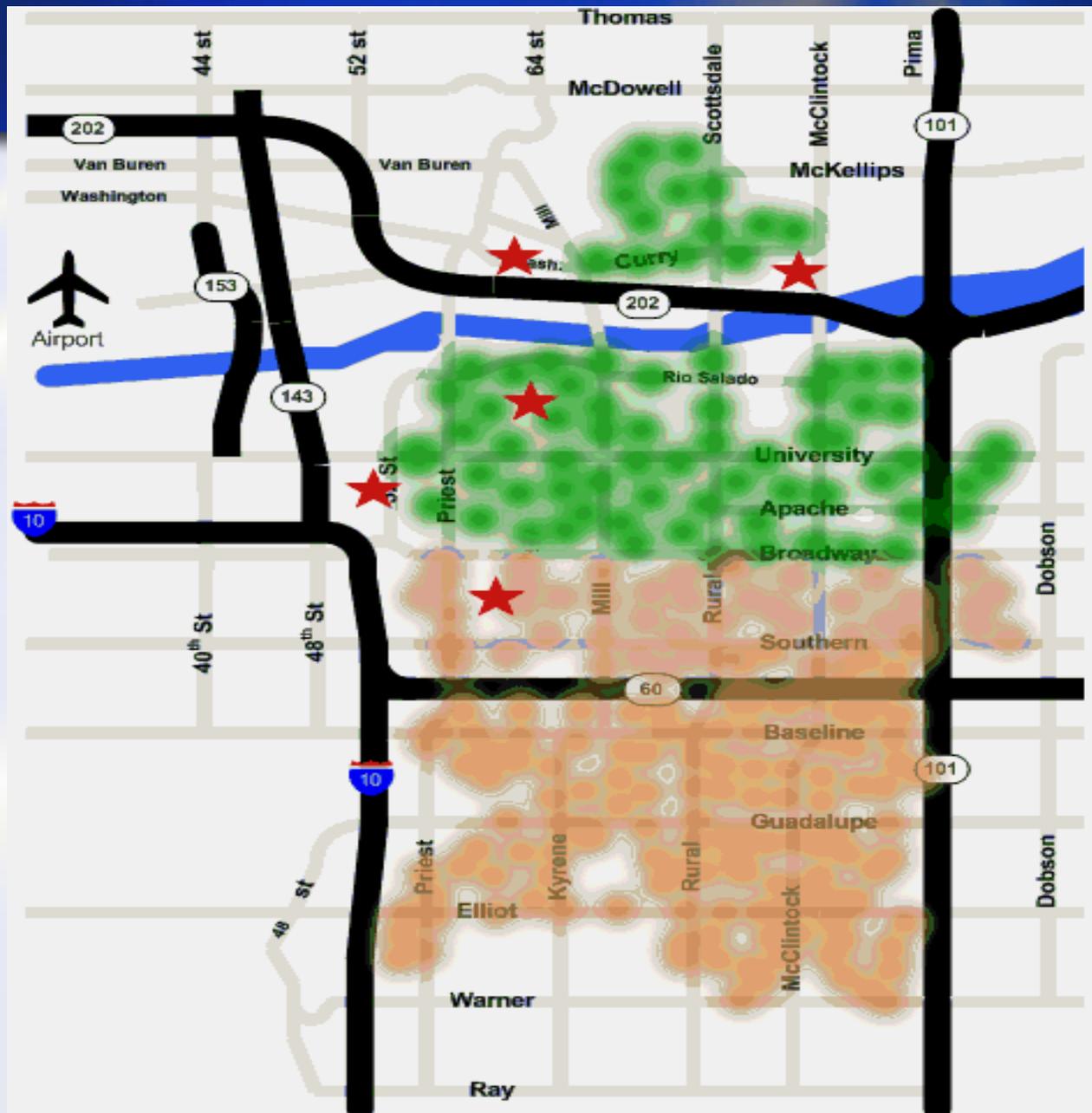
I-19 Coverages – Southern Third



- WI-VOD does not guarantee 100% coverage in the highlighted areas due to line of sight issues. If you live East of I-19 and can actually see I-19 from your location, there is a high probability that you can obtain high-speed Internet service from WI-VOD.



Tempe Coverages



Sources of Policy - Arizona Broadband Initiative Framework - Report

Next Steps:

- **Inventory the State's broadband infrastructure – GIS Survey**
- **Establish formal Leadership - *Arizona Broadband Development Authority or ABC Initiative***
- **Utilize existing Models of Success as Template – Superior Model Pinal County Model (Also other States' Models – Kentucky)**
- **Explore potential for Funding Sources within Government and from Private Sector**

SFB Recommendations

High-Speed Internet Access Recommendations

The State of Arizona should continue its multi-agency effort to complete a statewide survey of broadband capacity and capability in each school district. This is the next step necessary to ensure that all Arizona school districts have high-speed broadband access to the Internet and sufficient broadband capacity and capability to support a digital learning environment.

Once the broadband infrastructure gaps restricting Internet connectivity are identified, an action plan should be developed, in concert with the private sector, stating the infrastructure improvements needed, the investment levels required to pay for them, and the time schedule within which they should be made.

Each new school site and building shall be equipped with Local Area Network (LAN) capability designed to meet or exceed the connection demands and bandwidth of 80% of the designed student cohort with wireless laptops in simultaneous use.

Each new school shall be equipped with wireless infrastructure equal to the Institute of Electrical and Electronic Engineers, Inc. (IEEE) 802-11N series equipment standard, the release of which is imminent. *(This standard is capable of correcting most signal interference problems caused by masonry and concrete structural systems.)*



GITA's Role

GITA maintains a pro-active role in State related IT and Telecommunication Policy.

GITA Provides leadership and consulting regarding Technology Procurement - including E-Rate strategies and policies

GITA reaches impacts technology policy as a member of the Governor's Council on Innovation & Technology (GCIT) and through its Communication Infrastructure Advisory Committee (CIAC)

- The GITA Director is assigned as Chairman of CIAC
- CIAC Members are appointed from Government, Education, Corporate and Public Sectors.
- CIAC provides a nexus where recommendations can be developed, and plans and initiatives related to telecom infrastructure in Arizona can be worked out, both on a Statewide and a Regional basis.
- CIAC's current initiatives include:
 - The ABC Initiative A middle-mile off-ramp Plan,
 - Identifying uses and parameters of an Arizona Broadband Authority
 - Strategies for improved use of Right-of-Way to Build out of Infrastructure.

