Rural Broadband in Oklahoma – Research and Resources

Oklahoma Rural Development Conference and Workshop
December 5, 2017

Dr. Brian Whitacre
Professor and Extension Economist
Oklahoma State University
Topics

1. What the research says about rural broadband and local economic development
2. Resources for mapping your own broadband availability / adoption
3. Overview of pilot rural library “hotspot lending” program
A Persistent “Digital Divide”

- Rural areas lag behind in both broadband adoption and broadband availability
  - Adoption rates are persistently 10 – 15% points lower

- 2016 FCC Broadband Report: % of residents with access to 25 / 3
  - 4% of urban residents
  - 39% of rural residents
Research on Rural Broadband and Economic Development

We compared rural counties that had **high levels of broadband adoption (60+%)** with otherwise similar rural counties that did not...

**Income Grew Faster**

**Unemployment Grew Slower**

---

*Broadband's contribution to economic growth in rural areas: Moving towards a causal relationship*

Brian Whitacre, Roberto Gallardo, Sharon Strover
Resources on Local Broadband Availability / Adoption

- Broadband Availability:
  - FCC Form 477: Collected from ALL Internet providers, 2x / year
  - Census Block level (very low level of detail)
  - Requires some work to get into a usable format

- Broadband Adoption
  - FCC Internet Access Service Reports
  - Census Tract level (not as low as availability)
  - % of households that have adopted 0.2 MBPS
  - % of households that have adopted 10 MBPS / 1 MBPS
  - [https://www.fcc.gov/internet-access-services-reports](https://www.fcc.gov/internet-access-services-reports)

OSU Extension can help compile these into maps for your community!
Adoption Map Example

- [https://bwhitacre.carto.com/builder/8a11fe9f-0539-4338-a668-c154be0db01b/embed](https://bwhitacre.carto.com/builder/8a11fe9f-0539-4338-a668-c154be0db01b/embed) (Interactive)
Availability Map Example – Wagoner County

- [https://bwhitacre.carto.com/builder/76a8a05b-c06c-414e-9aa5-f2b200775703/embed](https://bwhitacre.carto.com/builder/76a8a05b-c06c-414e-9aa5-f2b200775703/embed) (Interactive)
Rural Library Hotspot Pilot

- 4 hotspots in each library (started in May 2017)
- Loaned out to library patrons (typically 1 week at a time)
- Patrons connect with their own smartphone / tablet / laptop

95% rank 9 or 10 (out of 10)
Wait lists at each library!
Internet Options for Life

Brian Whitacre
Professor and Extension Economist

Introduction
Internet access is crucial in today’s society — high-speed connections, or “broadband.” Whether in touch with family and friends, searching / applying staying up-to-date on local events or applying for government programs, having access to the Internet is in many aspects of life. Unfortunately, the cost of monthly internet connection exceeds what many can afford. Sixty percent of non-broadband users cite a primary reason they do not have a connection at all, 33 percent say cost is the most important reason (and Duggan, 2015). With average monthly costs ranging

Research & Policy Insights

Broadband’s Impact
A Brief Literature Review

Roberto Gallardo, Ph.D.
Purdue Center for Regional Development & Purdue Extension

Brian Whitacre, Ph.D.
Department of Agricultural Economics, Oklahoma State University

Alison Grant
Department of Agricultural Economics, Purdue University

December, 2017

Publication 001
ACRS CORPORATE OVERVIEW
JAMES LIGHTFOOT, P.E., President

Licensed Professional Engineering & Consulting Firm

Headquarters: Oklahoma City, OK

Established in 1987 – Over 30 Years of Experience
Turnkey Solutions

- Feasibility Studies
- Financing
- Engineering Services
FEASIBILITY STUDIES

• High Level Design
• Cost Estimate
• Market Analysis & Subscriber Forecast
  • Existing Service Providers – Service Plans Offered
  • Projected Take Rate & Subscriber Forecast
  • Recommended Service Plans
• Financial Forecast
  • Revenues
  • Operating Expenses
FINANCING

• RUS Financing
  • RUS Infrastructure & Broadband Loan Programs
  • Community Connect Program
  • Distance Learning Telemedicine Program
• Cost Recovery
  • Connect America Fund - CAF
CONNECT AMERICA FUND

- Provides 10 Years of Financial Support
- Auction in 2018 to Distribute nearly $2.0B
- Price Cap Carrier Areas
- Minimum Service Requirement of 10/1 Mbps
- ETC & Voice Service are Required
- https://www.fcc.gov/reports-research/maps/caf-2-auction-preliminary-areas/
ENGINEERING

- OSP - Fiber-to-the-Home
- Transmission & FTTH Electronics
- Wireless Broadband
CLIENT BASE

- Rural OK Telephone Companies
- Cable & Wireless Operators
- Electric Cooperatives
- Municipalities
- Tribal Nations
- State of Oklahoma (OneNet)
Contact Information

James Lightfoot, P.E.
ACRS
2601 NW Expressway, Suite 405W
Oklahoma City, OK 73112
(405) 843-9966
JAMESL@ACRSOKC.COM
Connecting Oklahoma to the Globe
ONE NET MISSION & VISION

Mission

OneNet’s mission is to advance technology across Oklahoma. OneNet enhances economic growth by meeting the mission-critical needs of our state’s education, research, health care and public service communities.

Vision

OneNet is committed to serving as the leading Internet and network service provider for the state of Oklahoma. We strive to fulfill a critical role within the success of our state by enabling citizens to cross state boundaries and reach around the world. We accomplish this vision by keeping pace with ever-changing technological advancements and by being the first to deploy those technologies across our state. We envision our customers’ needs even before they do and foster early adoption of advanced networking technologies. By providing leading-edge innovation, we empower our customers to create their own paths to success and improve their lives and the lives of those they serve.

OneNet does not receive state-appropriated funds.
OneNet Connects

- 667 Government Agency Sites
- 64 College & University Campuses
- 249 K-12 School Districts
- 29 Tribal Agency Sites
- 53 Career Technology Campuses
- 94 Libraries
- 35 Hospitals
- 19 Research, Nonprofit, Other Agencies
1,005 Miles of High-Speed Fiber

75 Community Anchor Institutions

35 Oklahoma Counties
The Shawnee Consortium
Questions?

Sonja Wall
Director of OneNet and OCAN Services
swall@osrhe.edu
swall@onenet.net
405-225-9345
Introduction to the USDA and Overview of Rural Utilities Service Programs

Rural Oklahoma Development Workshop: Rural Broadband
Moore Norman Technology Center - Oklahoma City, OK
December 5, 2017
Rural Development’s (RD) Mission

Rural Utilities Programs

- Water and Waste Disposal Direct Loans, Loan Guar., Grants
- Solid Waste Management Grants
- Technical Asst./Training/Circuit Rider
- Rural Broadband Direct Loans and Loan Guarantees
- Electric and Telecommunications Direct Loans/Loan Guarantees
- Distance Learning and Telemedicine Loans/Grants
- Community Connect Grants
# RUS Telecommunications Programs History

## From electricity to broadband...

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1935</td>
<td>Rural Electrification Administration (REA) created and began providing financing to promote rural electrification</td>
</tr>
<tr>
<td>1949</td>
<td>REA received authority to finance telephone service in rural communities</td>
</tr>
<tr>
<td>1995</td>
<td>Evolving from the REA, the Rural Utilities Service (RUS) required all financed telecommunications networks have the capacity to deliver broadband</td>
</tr>
<tr>
<td>2010 to present</td>
<td>RUS has provided <strong>$6.1 billion</strong> in loans and grants to build out broadband infrastructure in rural areas</td>
</tr>
</tbody>
</table>
FY 2018 Telecommunications Vision and Purpose

We will connect as many rural Americans as possible to enhanced broadband services through our loan and grant programs by September 30, 2018.
Since FY2010, RUS has invested approximately $6.1 Billion in projects serving rural residents in the United States:

<table>
<thead>
<tr>
<th>Program</th>
<th>Funds Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecommunications Infrastructure Program</td>
<td>$2.7 Billion</td>
</tr>
<tr>
<td>Farm Bill Broadband Program</td>
<td>$205.7 Million</td>
</tr>
<tr>
<td>Distance Learning and Telemedicine Program</td>
<td>$207.0 Million</td>
</tr>
<tr>
<td>Community Connect Grant Program</td>
<td>$98.3 Million</td>
</tr>
<tr>
<td>Broadband Initiatives Program</td>
<td>$2.9 Billion</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>$6.1 Billion</strong></td>
</tr>
</tbody>
</table>
Since 2010, RUS has invested over $254.4 million in projects serving Oklahoma rural residents:

<table>
<thead>
<tr>
<th>Program</th>
<th>Projects Approved</th>
<th>Funds Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecommunications Infrastructure Program</td>
<td>7</td>
<td>$46,067,960</td>
</tr>
<tr>
<td>Farm Bill Broadband Program</td>
<td>2</td>
<td>$104,243,000</td>
</tr>
<tr>
<td>Distance Learning and Telemedicine Program</td>
<td>30</td>
<td>$11,218,285</td>
</tr>
<tr>
<td>Community Connect Grant Program</td>
<td>13</td>
<td>$17,497,061</td>
</tr>
<tr>
<td>Broadband Initiatives Program</td>
<td>12</td>
<td>$75,286,557</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>64</strong></td>
<td><strong>$254,312,863</strong></td>
</tr>
</tbody>
</table>
## Oklahoma Successes...

<table>
<thead>
<tr>
<th>FTTH</th>
<th>Deployed in rural Oklahoma communities: Broken Bow, Medicine Park, Meers, Terral, Wright City, Valliant, Acme, Big Cabin, Pyramid, Fairland, Hinton, Cookie Town, Chelsea and many others. Many other communities are presently being engineered or constructed by rural ILEC’s.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Wireless</td>
<td>Deployed in rural Oklahoma Communities and rural areas: Cooperton, Smithville, Seminole rural, Agawam, Shamrock, Kildare, Clearview, Lima, Tatums, Gans, Amett, Leedey, Gotebo, Dustin, Wetumka, Lomega and many others.</td>
</tr>
<tr>
<td>Schools</td>
<td>Howe, Boswell, Choctaw Language Institute, Arkoma, McAlester, Wapanucka, Lane, Guymon, Buffalo Valley, INCA Community Services and many others.</td>
</tr>
<tr>
<td>Hospitals Clinics</td>
<td>OU Health Services Center, Logan Hospital, Integris, OSU Health Services, Mercy Memorial Hospital and many others.</td>
</tr>
</tbody>
</table>
RUS Telecommunications Program

Oklahoma Support Efforts...

**ONATC**  
Technical Advisor to the Oklahoma Native American Technology Council.

**Local Efforts**  
Participates in Oklahoma Southeast Economic Development committee, Supporting Cool and Connected efforts in Pawhuska, Supporting HUD broadband efforts in the Choctaw Nation.

**Outreach**  
Conducts workshops on RUS Telecom programs, working with interested ILEC’s and consultants on possible reverse auction acquisitions and promotes the DLT and Community Connect programs throughout the year.
Oklahoma 2018 Opportunities...

• FCC reverse auctions and associated CAF funding

• Working with OneNet and rural ILEC’s to create CLEC opportunities

• Encourage the use of the RUS Farm Bill and Community Connect loan funds in support of these efforts

• Work with communities in their efforts to bring broadband to their communities

• Work to educate local and state officials on critical importance of broadband to the success of economic expansion.
## Rural Utilities Service Telecommunications Key Contacts

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistant Administrator</td>
<td>Chad Parker, Assistant Administrator, RUS Telecommunications</td>
<td><a href="mailto:chad.parker@wdc.usda.gov">chad.parker@wdc.usda.gov</a> / 202.720.7287</td>
<td></td>
</tr>
<tr>
<td>Deputy Assistant Administrators</td>
<td>Laurel Leverrier, Deputy Assistant Administrator, RUS Telecommunications</td>
<td><a href="mailto:laurel.leverrier@wdc.usda.gov">laurel.leverrier@wdc.usda.gov</a> / 202.720.3416</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peter Aimable, Office of Portfolio Management &amp; Risk Assessment</td>
<td><a href="mailto:peter.aimable@wdc.usda.gov">peter.aimable@wdc.usda.gov</a> / 202.720.1025</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shawn Arner, Office of Loan (&amp; Grant) Origination &amp; Approval</td>
<td><a href="mailto:shawn.arner@usda.gov">shawn.arner@usda.gov</a> / 202.720.0800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kenneth Kuchno, Office of Policy &amp; Outreach</td>
<td><a href="mailto:kenneth.kuchno@wdc.usda.gov">kenneth.kuchno@wdc.usda.gov</a> / 202.720.9424</td>
<td></td>
</tr>
</tbody>
</table>
Rural Oklahoma Development Workshop: Rural Broadband - Oklahoma City, OK

Michael Becker | General Field Representative
michael.becker@wdc.usda.gov | Office: 972.780.7832

Rural Development | Telecommunications Program
Rural Utilities Service | U.S. Department of Agriculture
1400 Independence Ave., S.W. | Washington, D.C. 20250
www.rd.usda.gov

USDA is an equal opportunity provider, employer and lender.
Questions?