RESUME

NAME	POSITION TITLE
Curtis L. Lowery, MD	**Professor and Chairman, Department of Obstetrics and Gynecology, UAMS**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University Montevallo, Montevallo, AL	BS	1977	Science
University of Alabama at Birmingham School of Medicine, Birmingham, AL	MD	1981	Medicine
Charleston Area Medical Center, Charleston WV	n/a	1981 – 1985	Residency in Obstetrics and Gynecology
Medical University of South Carolina, Charleston, SC	n/a	1985 – 1987	Fellow in Maternal-Fetal Medicine

Positions and Honors

Selected Professional Experience

1992 –   Director of Obstetrics, UAMS, Little Rock, AR
2002 –   Associate Professor, Department of Maternal and Child Health, UAMS, Little Rock, AR
2003 –   Medical Director, ANGELS (Antenatal & Neonatal Guidelines, Education Learning System) Program, Department of Obstetrics & Gynecology, UAMS, Little Rock, AR
2006 –   Medical Director, Center for Distance Health, College of Medicine, UAMS, Little Rock, AR
2008 –   CEO of SARA Technologies, LLC, Little Rock, AR

Selected Honors and Awards

2006   American International Health Alliance - second tour of medical facilities in Moscow and Volgograd, Russia
2007   Education Innovation Award, College of Medicine, UAMS, Little Rock, AR
2007   American Telemedicine Association: Innovation Award – ANGELS selected as the year's most innovative telemedicine program
2007   AT&T Center for Telehealth Research and Policy's Hugo Gernsback Award for Clinical Innovation in Telemedicine
2008   Rural Telecon 08, Rural Telecommunications Congress, 11th Annual Conference, People's Choice: Biggest Impact Award

Selected Peer-Reviewed Publications (in Chronological Order)

Eswaran H, Lowery CL, Wilson JD, Murphy P, Preissl H. Fetal Magnetoencephalography – A multimodal approach. *Developmental Brain Research*, Jan 2005; 154:57-62.

Lowery CL and Wendel, PJ. Prolonged Pregnancy in Reece & Hobbins (eds) *Handbook of Clinical Obstetrics: The Fetus and Mother*, Print ISBN 9781405156097, Jan 2007, 3rd ed., pp 513-515.

Lowery CL, Bronstein J, McGhee J, Ott R; Reece AE, Mays GP. "ANGELS and University of Arkansas for Medical Sciences paradigm for distant obstetrical care delivery." *American Journal of Obstetrics and Gynecology*. 2007 Jun, 196 (6): 534.e1-9.

Govindan RB, Wilson JD, Preissl H, Murphy P, Lowery CL, Eswaran H. "An objective assessment of fetal and neonatal evoked responses." *NeuroImage*, Nov 2008: 43(3): 521-527.

Selected Research Support

2006 – 2007   Principal Investigator, "Train & Maintain: A Center for Distance Health Initiative in association with the Arkansas Division of Health and Bioterrorism" CE for Health Professionals Steering Committee ($184,000) (Awarded)
2007 – 2008   Principal Investigator, Arkansas Telehealth Network Oversight, FCC Rural Health Care Pilot Program proposal ($5,054,988) (Pending)
2007 – 2012   Principal Investigator, Train & Maintain: A Center for Distance Health Initiative in association with the Arkansas Division of Health and Bioterrorism CE for Health Professionals Steering Committee ($184,000) (Awarded)
2009 – 2014   Principal Investigator, Arkansas Center for Clinical and Translational Research, U54 RRO25209, ($19,354,312) (Awarded)

NAME	POSITION TITLE
Ann Bailey Bynum, EdD	**Director, Rural Hospital Program, Regional Programs, and Associate Director, Program Development, Area Health Education Centers Program, UAMS**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Arkansas, Fayetteville, AR	BS	1963	Biological Science, Health Education/HPER
University of Arkansas, Fayetteville, AR	MEd	1976	Health Education/HPER
Nova Southeastern University, Miami, FL	EdD	1980	Higher Education
Teletraining Institute, Stillwater, OK	CDLI	2002	Certified Distance Learning Administrator

Positions and Honors
Selected Professional Experience

2002 –	Assistant Professor, Department of Health Policy and Management, UAMS, Little Rock, AR
2003 –	Assistant Professor, University of Arkansas Clinton School of Public Service, Little Rock, AR
1996 –	Certified Instructor, Organizational and Interpersonal Communications, Forte Institute, Internet/Online
1991 –	Associate Director, Program Development, Area Health Education Centers, UAMS, Little Rock, AR
1991 –	Director, Rural Hospital Program, Regional Programs, UAMS, Little Rock, AR

Selected Appointments

1997 – 2000	American Telemedicine Association Nursing and Allied Health Task Force
1996 – 2000	American Telemedicine Association Rural Telemedical Task Force
1998 – 1999	Southern Governors' Association Task Force on Medical Technology
2000 –	American Telemedicine Association Research and Evaluation Task Force
1999 –	Board, Southwest Center for Agricultural Health, Injury Prevention and Education

Selected Peer-Reviewed Publications (in Chronological Order)
Tilford JM, Garner WE, Strode S., Bailey CA, "Rural Arkansas Physicians and Telemedicine Technology: Attitudes in Communities Receiving Equipment," *Telemedicine Journal*, vol. 3, no. 4, 1997.

Bynum B, Irwin C, "Cost-Benefit Analysis of a Telemedicine Program in Rural Arkansas," *Telemedicine Journal and e-Health*, Abstract, Volume 8, Number 2, summer 2002.

Bynum CA, Cranford CO, Irwin C, Denny DS, "Participant Satisfaction in Adult Telehealth Education Program Using Interactive Compressed Video Delivery Methods in Rural Arkansas," *Journal of Rural Health*, summer 2003, Vol.19.No.3.

Irwin C., Bynum CA, "Access to Medical Care Among Participants in a Telemedicine Program," *Telemedicine Journal and e-Health*, Volume 11, Number 2, April 2005, p.210.

Selected Awarded Research Support

1995 – 1996	Co-Investigator, Rural Electrification Administration, Department of Agriculture, "Arkansas Rural Medlink" ($490,000) (Awarded)
1998 – 1998	Principal Investigator, "Telemedicine: Improving Access of Arkansas Communities through Telecommunications," Grant Department of Information Services ($296,660) (Funded)
1997 – 2000	Principal Investigator, Office for the Advancement of Telehealth (HRSA), "Telehealth: Taking the Distance Out of Caring" ($849,986) (Awarded)
2000 – 2003	Principal Investigator, Office for the Advancement of Telehealth (HRSA), "Rural Arkansas Delta Integrated Telehealth System" ($846,000) (Awarded)
2006 – 2009	Principal Investigator, Office for the Advancement of Telehealth (HRSA), "Telehealth for Kids in Delta Schools (Telehealth KIDS)" ($750,000) (Awarded)
2009 – 2011	Principal Investigator, Office for the Advancement of Telehealth (HRSA), "Arkansas Center for Telehealth (ACT)" ($750,000) (Pending)

<div align="center">**RESUME**</div>

NAME	POSITION TITLE
Tina L. Benton, RN, BSN	**Program Director, ANGELS (Antenatal & Neonatal Guidelines and Education Learning System) Program, Department of Obstetrics and Gynecology, and Oversight Director, Center for Distance Health, UAMS**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Henderson State University, Arkadelphia, AR	BSN	1984	Nursing

Positions and Honors

Professional Experience

1982 – 1985   Relief Charge Nurse for general medical and surgical units, Charge Nurse for Pediatric Unit, Charge Nurse for Obstetrical Unit, Saline Memorial Hospital, Benton, AR

1985 – 1989   Public Health Nurse, Home Health Nurse, Preventative Health Care and Lead Nurse for Maternity Program, Saline County Health Unit, Benton, AR

1989 – 1991   Staff Nurse, Clinic Nursing Coordinator, Department of Obstetrics & Gynecology, UAMS, Little Rock, AR

1991 – 2003   Perinatal Outreach Nurse, Division of Maternal-Fetal Medicine, Department of Obstetrics & Gynecology, UAMS, Little Rock, AR

1991 – 2003   Aide in the teaching of Medical Students rotating through the Department of Obstetrics and Gynecology, UAMS, Little Rock, AR

1992 – 2003   Preceptor to senior nursing students, UAMS, Little Rock, AR

2003 –   Program Director, ANGELS (Antenatal & Neonatal Guidelines and Education Learning System) Program, Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology, UAMS, Little Rock, AR

2006 –   Oversight Director, Center for Distance Health, Little Rock, AR

Selected Honors, Awards, and Professional Appointments

1988   Employee of the Month, Arkansas Department of Health

1993 –   Association of Women's Health, Obstetric and Neonatal Nurses

1996   Super Services Award, UAMS

Presentations

1995   Antepartum Nursing and AIDS
         Delta Regional AIDS Education
         St. Bernard's Hospital, Jonesboro, AR

1996   Diabetes and Pregnancy Nursing Management Considerations
         13th Annual Conference on Perinatal Care
         UAMS, Department of OB/GYN, Little Rock, AR

1996   Preterm Labor, Maternal Core Course (Bi-Annual)
         Arkansas Department of Health, Little Rock, AR

RESUME

NAME	POSITION TITLE
Bruce Thomasson	**Manager, Arkansas Telehealth Oversight & Management (ATOM) and Director of Hospital Relations, Rural Hospital Program, UAMS**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Henderson State University, Arkadelphia, AR	BSE	1974	Education

Positions and Honors

<u>Selected Professional Experience</u>

1974-1976	Caseworker / Casework Supervisor, Arkansas Department of Human Services, Little Rock, AR
1976-1980	Community Services Coordinator, Arkansas Department of Human Services, Little Rock, AR
1980-1984	Assistant Director, Camp Aldersgate, Little Rock, AR
1984-1989	Executive Director, Arkansas Spinal Cord Commission, Little Rock, AR
1989-1994	Administrator, HIV/AIDS Surveillance, Arkansas Department of Health, Little Rock, AR
1994-1997	Director, Arkansas Cancer Registry, Arkansas Department of Health, Little Rock, AR
1997-1999	Director, Division of Chronic Disease and Disability Prevention, Arkansas Department of Health, Little Rock, AR
1999-2002	Business Analyst, Division of Quality Engineering, Arkansas Department of Information Systems, Little Rock, AR
2002-2006	Coordinator for Hospital Preparedness, Office of Public Health Protection, Arkansas Department of Health, Little Rock, AR
2006-2007	Enterprise Architect, Arkansas Office of Information Technology, Little Rock, AR
2008 –	Manager, Arkansas Telehealth Oversight & Management (ATOM), UAMS, Little Rock, AR
2009 –	Director of Hospital Relations, Rural Hospital Program, UAMS, Little Rock, AR

RESUME

NAME	POSITION TITLE
Mary P. Leath	**Deputy Director for Administration, Arkansas Department of Health, Little Rock, Arkansas, and ATOM Board Member**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Arkansas at Little Rock	n/a	1978	n/a

Positions and Honors

Selected Professional Experience

1978 – 1978	Budget Technician, Department of Finance and Administration, Little Rock, AR
1979 – 1995	Budget Analyst Trainee to Senior Budget Analyst/Systems Specialist, Department of Finance and Administration, Little Rock, AR
1979 – 1995	Bill Clerk during various legislative sessions, Office of the Governor, Department of Finance and Administration, Little Rock, AR
1996 – 1997	General Business Manager, Department of Environmental Quality, Little Rock, AR
1997 – 1999	Assistant Administrator, Budget Analysis, Department of Finance and Administration, Little Rock, AR
1999 – 2000	Finance Director, Department of Health, Little Rock, AR
2000 – 2007	Chief Deputy Director, Department of Environmental Quality, Little Rock, AR
2000 – 2007	Chairperson of Chief Information Officer Council (governor-appointed position), Department of Environmental Quality, Little Rock, AR
2007 –	Deputy Director for Administration, Department of Health, Little Rock, AR

Selected Professional Appointments

Member, Arkansas Telehealth Oversight and Management Board (ATOM)
Member, Association of State and Territorial Health Officers – Finance Committee
Arkansas Governmental Manager
Past Chair, Chief Information Officer Council
Past Member, AASIS Steering Committee
Past Member, State Government's Administrative Efficiency and Improvement Committee
Past Member, National Association of State Budget Officers

NAME	POSITION TITLE
Michael Abbiatti	**Executive Director, Arkansas Research and Education Optical Network**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Arkansas, Fayetteville, AR	BS	1971	Biology
University of Arkansas, Fayetteville, AR	MS	1975	Microbiology
Northwestern State University, Natchitoches, LA	EdS	1990	Academic Technology

Positions and Honors

Selected Professional Experience

1998 – 2008   Associate Commissioner, Information and Learning Technology – Louisiana Board of Regents
2004 – 2008   Founding Coordinator of the Louisiana Optical Network Initiative
2008 –   Executive Director of the Arkansas Research and Education Optical Network, Fayetteville, AR

Professional Activities

American Society for Mechanical Engineers Postsecondary Education Campus Physical Security Standards National Advisory Board
ComputerWorld –Smithsonian Laureate Award
Founding Director, Louisiana Electronic Campus/Statewide E-learning Support Center
Founding Chair, Louisiana Statewide Interoperability Executive Committee
Former National Lambda Rail Board of Directors
MICTA National Learning Management System (LMS) selection Board
Southern Regional Education Board Technology Cooperative, Electronic Campus - Boards/Committee leadership

Collaborations

Dr. Ed Seidel (National Science Foundation) collaborating on the founding/operation of the Louisiana Optical Network Initiative
Dr. Allen Sugg (President of the University of Arkansas System), Institutional Presidents and Chancellors of the eleven public postsecondary institutions in the state of Arkansas on the founding/operation of the Arkansas Research and Education Optical Network

RESUME

NAME	POSITION TITLE
Edward L. Franklin	**Executive Director, Arkansas Association of Two-Year Colleges**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Arkansas, Fayetteville, AR	BA	1969	Psychology
University of Arkansas, Fayetteville, AR	MEd	1975	Rehabilitation Counseling
University of Kansas, Lawrence, KS	EdD	1988	Higher Education

Positions
1991 – 1996   Assistant Dean of Student Development, Johnson County Community College, Overland Park, KS
1992 – 1996   Senior Partner, The Maxam Group
1996 –   Executive Director, Arkansas Association of Two-Year Colleges, Little Rock, AR

Appointments
1992-96   ACT State Council and as Secretary of the governing board
1992-96   Chair, Board of Heartland, Incorporated
1996-97   President, National Council for Student Development - American Association of Community Colleges
1999 – 2000   Vice President, State Board of Communities in Schools
2000   Vice Chairman, Annual National Conference for Community and Justice Banquet
2000 – 2004   Board, ExploreNet
2000 – 2002   President, State Board of Communities in Schools
2002 –   Finance Committee, Salem United Methodist Church
2003 –   Board, Faulkner County Single Parent Scholarship

Memberships
National Council on Student Development
American Society of Association Executives
American Association of Community Colleges
Association of Community College Trustees
Arkansas State Chamber of Commerce

Publications
Assisted in writing The League for Innovation Statement on Student Success. (1985)

Participated in creating the ACT monograph on Access, Assessment, and Developmental Education (1993)

Franklin, E. (1997) The 504/ADA as a Philosophical Basis for Advising Students. In M. Ramos and D. Vallandingham (Eds.)., Advising Students with Disabilities (pp. 13-17). NACADA monograph 5.

Griffin, P., & Franklin, E. (Eds.). (1994). Student Development - Leadership for a New Century ACT.

Franklin, E. (1994). What leadership should student development administrators provide in dealing with disability issues? In P. Griffin & E. Franklin (Eds.) Student development - Leadership for a New Century, ACT.

Denton, P., Seybert, J., & Franklin, E., (1988). AIdeas and practice: A content based learning strategies program. Journal of Developmental Education, 11(3), 20-24.

Franklin, Ed. (1988) Attrition among community college hearing impaired students in mainstreamed programs. Dissertation, University of Kansas

Franklin, E., & Rubin, S. (1976). Facilitating the suitable placement of deaf rehabilitation clients. The Journal of Applied Rehabilitation Counseling, 7(3), 164-169.

RESUME

NAME	POSITION TITLE
Carolyn Ashcraft	**State Librarian/Director, Arkansas State Library, Little Rock, Arkansas**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Arkansas at Monticello, Monticello, AR	BA	1979	English
University of Alabama, Tuscaloosa, AL	MLS	1991	Library Science and Librarianship

Selected Positions

1981 – 1986   Librarian, Grant County Library, Sheridan, AR
1986 – 1993   Director, Saline County Library, Benton / Bryant, AR
1993 – 1996   Library Program Advisor, Arkansas State Library, Little Rock, AR
1996 – 2004   Coordinator of Extension Services, Arkansas State Library, Little Rock, AR
2004 – 2005   Associate Director for Library Services and Development, Arkansas State Library, Little Rock, AR

Honors/Awards/Committees/Memberships

1981   Member, American Library Association
1981 –   Member, Arkansas Library Association
1999 – 2001   Member of Executive Board, Arkansas Library Association
1999 – 2003   Member, Federal-State Cooperative System Steering Committee
2000   President, Arkansas Library Association
2002   Chair, Federal-State Cooperative System Steering Committee
2006 – 2007   Representative for Chief Officers of State Library Agencies, State Library Agency Steering Committee

RESUME

NAME	POSITION TITLE
Emerson Evans	**GIS and Data Collection Manager, Connect Arkansas**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Central Arkansas, Conway, AR	BS	2006	Geography

Selected Positions

2008 –   GIS and Data Collection Manager, Connect Arkansas, Little Rock, AR
2006 – 2008   Engineer, Alltel Wireless, Little Rock, AR
2006   Contractor, Centerpoint, Little Rock, AR

<div align="center">**RESUME**</div>

NAME **Tom S. Butler**	POSITION TITLE **Vice-Chancellor for Administration & Governmental Affairs and Administrator of the Donald W. Reynolds Center on Aging, UAMS**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Arkansas Polytechnic College, Russellville, AR	BA	1965	Business Administration

Positions and Honors

Selected Professional Experience

1967-1968	Customer Service Representative, Arkansas Power & Light Company, Little Rock, AR
1968-1972	Arkansas Department of Finance & Administration Personnel Supervisor
1972-1975	Administrator, Maternal and Child Health, Arkansas State Department of Health, Little Rock, AR
1975-1979	Administrator, Bureau of Medical Care Services, Arkansas State Department of Health, Little Rock, AR
1979-1981	Director, Bureau of Administrative Support, Arkansas State Department of Health, Little Rock, AR
1981-1997	Deputy Director for Administration, Arkansas State Department of Health, Little Rock, AR
1981-1997	Director, Bureau of Administrative Support, Arkansas State Department of Health, Little Rock, AR
1997 –	Vice-Chancellor for Administration & Governmental Affairs, UAMS, Little Rock, AR
1997 –	Administrator, Donald W. Reynolds Center on Aging, UAMS, Little Rock, AR

Selected Honor

1991	National Governors Association, Distinguished Service to State Government

Memberships and Activities

Association of State and Territorial Health Officers
Arkansas Public Health Association
Past President, Board of Directors, Junior Deputy Baseball Park
Little League Coach, Junior Deputy Baseball Park
Mentor, Little Rock School District

<div align="center">**RESUME**</div>

NAME **Rhonda Jorden**	POSITION TITLE **Chief Technology Officer and Director of Clinical Operations,** **Information Technology, UAMS**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Arkansas State University, Jonesboro, AR	BS	1987	Computer Information Systems
Arkansas State University, Jonesboro, AR	MBA	1992	Business Administration

Positions and Honors

1987 – 1992   Contract Programmer/Analyst, Wood Software, Inc., Jonesboro, AR
1992 – 1997   Application Systems Analyst/Programmer – Lead, UAMS, Little Rock, AR
1997 – 1998   Application Systems Analyst/Programmer – Manager, UAMS, Little Rock, AR
1998 – 2002   Director – ERP, Development & Patient Systems**,** UAMS, Little Rock, AR
2002 –   Chief Technology Officer and Director of Clinical Operations, UAMS, Little Rock, AR

Other Training

AAMC GIR Leadership Graduate
CHIME CIO Boot Camp Graduate
Microsoft SQL 6.5 – Administration
Microsoft SQL 6.5 – Implementation
Continuous Quality Improvement (CQI)

RESUME

NAME	POSITION TITLE
Julie Hall-Barrow, EdD	**Clinical Instructor, College of Nursing and Public Health, and Division Director, Center for Distance Health, UAMS**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Longwood College, Farmville, VA	BS	1992	Physical and Health Education
University of North Texas, Denton, TX	MS	1994	Kinesiology
University of Arkansas at Little Rock, Little Rock, AR	EdD	2004	HIED, Administration

Positions and Honors

Selected Professional Experience
1994 – 1997   Director of Health Works,
1997 – 2002   Director of Health Promotion and Wellness, College of Nursing
1997 –   Clinical Instructor, College of Nursing, UAMS, Little Rock, AR
2001 –   Clinical Instructor, College of Public Health—Health Policy and Management, UAMS, Little Rock, AR
2002 – 2007   Associate Director, Program Development, Rural Hospital Program, UAMS, Little Rock, AR
1999 – 2007   Director of Education, Rural Hospital Program, UAMS, Little Rock, AR
2007 –   Division Director, Center for Distance Health, UAMS, Little Rock, AR

Selected Memberships
Wellness Councils of America
UAMS Women's Health Advisory Board
Wellness Council of North Carolina, Advisory Board Member

Selected Peer-Reviewed Publications (in Chronological Order)

West, D., Adams, B., O'Sullivan, P., Hall-Barrow, J. & Hine, R.J. (2004). "Developing a diabetes review course for rural health professionals using Videoconferencing." *The Diabetes Educator*, 30, 2, 210-221.

Hodges, L., Satkowksi Harper, T., Hall-Barrow, J., & Tatom, I. (2004). "Reducing Overall Healthcare Costs for a City Municipality." *American Association of Occupational Health Nurses, Inc.*, 52 (6): 247-53.

Burke, B., Bynum, A., Hall-Barrow, J., Ott, R., Albright, M. (2008). "Rural School-Based Telehealth: How to Make It Happen." *Clinical Pediatrics*, 47 (9), 926-929.

Balanurugan, A., Hall-Barrow, J., Blevins, M.A., Brech, D., Phillips, M., Bittle, K., Holley, E., (2009). "A Pilot Study of Diabetes Education via Telemedicine in a Rural Underserved Community: Opportunities and Challenges. A Continuous Quality Improvement Process." *The Diabetes Educator*, 35 (1).

Selected Research Support
2008 – 2009   "AR SAVES (Stroke Assistance through Virtual Emergency Support"
               Arkansas Department of Human Services
               Role: Project Director
               Amount: $6,200,000 (Awarded)

2006 – 2009   "Telehealth for Kids in Delta Schools"
               Office for the Advancement of Telehealth
               Role: Co- Investigator
               Amount: $750,000 (Awarded)

2006 – 2006   "Telehealth Diabetes Self-Management Education"
               Department of Health and Human Services – Arkansas
               Role: Principal Investigator
               Amount: $25,000 (Funded)

RESUME

NAME	POSITION TITLE
Roy Kitchen, MS	**Business Administrator, Center for Distance Health, and Deputy Administrator, Department of Obstetrics and Gynecology, UAMS**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Arkansas at Monticello, Monticello, AR	BS	1998	Business Administration
University of Arkansas, Fayetteville, AR	MS	2001	Operations Management

Positions and Honors

Professional Experience

1985 – 1999 Supervisor/Specialty Operator, Georgia Pacific Corporation, Crossett, AR
1999 – 2000 Assistant Manager, Wal-Mart, Incorporated, Little Rock, AR
2000 – 2000 Diversity Director/ Recruiter, Arkansas Waffles Incorporated, Little Rock, AR
2001 – 2001 Financial Services Manager St. Vincent Infirmary Medical Center, Little Rock, AR
2002 – 2007 Business Administrator, Cardiovascular Medicine, UAMS, Little Rock, AR
2001 – Instructor/Adjunct Professor, Marketing and Sales Management, University of Central Arkansas, Conway, AR
2007 – Deputy Administrator, Department of Obstetrics and Gynecology, UAMS, Little Rock, AR
2007 – Business Administrator, Center for Distance Health, UAMS, Little Rock, AR

Selected Professional Appointments
 • General Business Administrators Committee
 • Faculty Group Practice Subcommittee
 • Professional Standards Committee
 • Continuing Education Committee
 • Contract Management Training Committee
 • ATOM (Arkansas Telemedicine Oversight Management Committee)
 • Member of American Telemedicine Association

Presentations
 • Barringer SN, Baxter C, Miller LH, Thompson J, Pick BK, Kitchen R, Benton TL, Ott R. (2009) Substance Abuse & Mental Health: Improving Comorbidity Services through Telemedicine. Poster presentation, American Telemedicine Association, 14th Annual International Meeting & Exposition, Las Vegas, NV.

 • Ibrahim E Fahdi, Chenghui Li, Rosalyn Perkins, Becky Hall, Melanie Green, Karen Cox, Roy Kitchen, Rachel E Ott, Curtis Lowery. (2009) Oral presentation, American Telemedicine Association, 14th Annual International Meeting & Exposition, Las Vegas, NV.

Selected Professional Development
 • St. Vincent Leadership Institute
 • Dale Carnegie's Leadership
 • Arkansas Leadership School
 • Communication-Group Problem Solving/Grievance Handling
 • Quality and Productivity Improvement
 • Grants Management Certification
 • SBIR Training
 • Tandberg Training Center
 • Managing a Professional Life: Ethics and Professionalism

RESUME

NAME	POSITION TITLE
Eric McKenney	**Video Conferencing Team Manager, ANGELS, UAMS**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Community College of the Air Force, Montgomery, AL	Certificate	1992-1993	Avionics and Electronics Systems
University of Arkansas at Little Rock, Little Rock, AR	n/a	Current	Electronic Technology and Computer Programming

Positions and Honors

1992 – 1996	F-16 Avionics Systems Specialist, United States Air Force, Valdosta, GA
1996 – 1997	Computer Technician I, UAMS, Little Rock, AR
1997 – 1998	Systems Analyst, Entergy, Little Rock, AR
1998 – 1999	Help Desk HEAT 5.0 Administrator, UAMS, Little Rock, AR
1999 – 2002	Desktop Support Specialist, UAMS, Little Rock, AR
2002 – 2007	Network Engineer, UAMS, Little Rock, AR
2007 – 2007	Video Conferencing Team Lead, UAMS, Little Rock, AR
2008 –	Video Conferencing Manager, UAMS, Little Rock, AR

The Arkansas Healthcare, Higher Education, Public Safety & Research Integrated Broadband Initiative

The Arkansas Healthcare, Higher Education, Public Safety & Research Integrated Broadband Initiative

University of Arkansas for Medical Sciences (UAMS)

UAMS Chancellor, Daniel W. Rahn, MD

AREON

Board of Directors

Executive Director, Mike Abbiatti

Management Council

Director of Administration, Diane Didier

Chief Technology Officer, David Merrifield

Steering Committee

Network Engineer, Steven Karp

Network Engineer, Scott Ramoly

ATOM

Board Members
Don Adams, Darren Caldwell, David House, Mary Leath, Curtis Lowery, & Jerry Pack

UAMS College of Medicine

UAMS Center for Distance Health, Grant Executor

ATOM Advisory Committee/Membership
Baptist Health, St. Vincent Health, Home Care of AR, Mental Health Council of AR, AR Research & Education Optical Network, Community Health Centers of AR, AR Hospital Assn, AR Center for Health Improvement, Dept of Information Services, AR Foundation for Medical Care, AR Dept Human Services and other community anchor institutions represented in the BTOP Infrastructure proposal, if granted

Arkansas Research and Education Optical Network (AREON)

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                          │ Board of Directors │
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                 ┌─────────────────┴──┐      ┌────────────────┐
                 │ Executive Director, │──────│   Management   │
                 │   Mike Abbiatti    │      │    Council     │
                 └─────────┬──────────┘      └────────────────┘
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│   Director of    │ │ Chief Technology │ │    Steering    │
│ Administration,  │ │    Officer,      │─│   Committee    │
│  Diane Didier    │ │ David Merrifield │ └────────────────┘
└──────────────────┘ └─────────┬────────┘
              ┌────────────────┴──────────────┐
   ┌────────────────────┐        ┌────────────────────┐
   │ Network Engineer,  │        │ Network Engineer,  │
   │   Steven Karp      │        │   Scott Ramoly     │
   └────────────────────┘        └────────────────────┘
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UAMS Center for Distance Health

Curtis Lowery, MD, Director

Ann Bynum, EdD, Co-Director

Tina Benton, RN, BSN, Oversight Director

Brenda Tennison, Executive Assistant

Roy Kitchen, MS, Business Administrator, Counsel

Becky Pillert, Kim Richardson & Tameka White, Administrative Staff

Julie Hall-Barrow, EdD, Project Dev/Marketing, Counsel

Richard Washam, Health Educator
TBA, (1) Health Educator

Michael Manley, MNSc, Outreach Education Dev, Counsel

IT Network Team

Grants, Research & Evaluation

Rachel Ott, BA Grants

Sarah Rhoads, DNP, APN Research

David Fletcher, MS Evaluation

Gordon Low, APN Special Programs

Shannon Barringer, MS Special Projects/ Programs

Shannon Lewis, RNP, Neonatal/ Pediatrics

Rosalyn Perkins, APN, Telemedicine

Stephanie Wyatt, APN, Clinical

Barbara Smith, RN Guidelines/Con't Ed

Terri Imus, RN, Training Center & Equip, Stroke Nurse Educator

Brenda Pick, BA Project Manager

Genetics & Newborn Screening

Stacy Pitsch, RNC

ANGELS Appointment Call Center Agents (8)

Donna Williams, ANGELS Triage Call Center Mgr

Margaret Albright, BA Technical Writer

Nancy McDonald Billing

ANGELS Triage Call Center Nurses

Mandi Dixon, RDMS U/S Imaging

APN Clinic Staff (5)

Paige Hare, RN Outreach Nurse

Lori Heil, RDCS Pediatric & Fetal Echo

Teresa Spicer Administrative Staff

Bill Hickey, RDMS

Sonographer TBA

BTOP Comprehensive Community Infrastructure
Subscriber Estimates Template

Please complete the complete the Subscriber Estimates worksheet.

All applicants should indicate their 8-year subscriber forecasts with a breakdown by type of subscriber (residential/individual, businesses, community anchor institutions, third party service providers) and service offerings. The names of the service offerings should match those provided in the Service Offering and Competitor Data upload, enabling reviewers to easily cross-reference between the two documents. The Year 0 column should be used to denote any existing customers within the Proposed Funded Service Area. In addition, applicants that project that they will have third party service provider customers should include a line for parties "Served by Third Party Service Providers," showing an estimate of how many residential/individual, community anchor institution, and business customers will be served by those service providers, as demonstrated in the example below. At the bottom of the table, applicants should provide customer totals across all service offerings, with and without customers indirectly served through a third party service provider (if applicable). Applicants should also include a brief discussion of their methodology for deriving these estimates.

In contrast to several other upload templates in this application, the data provided via this template will NOT be subject to automated processing. Applicants are permitted to modify the template layout in order to provide the most effective presentation of the data for their specific project, but such modifications are generally discouraged. Applicants should, in any case, ensure that they provide at least as much detail as the provided template requires. To the extent that you modify these templates please ensure that the print layouts are adjusted so that rows do not break across pages in a manner that will be difficult to understand. A PDF of this file will be automatically generated upon upload to Easygrants, and the print settings will be used to format the PDF file.

EXAMPLE

Name of Service Offering	Customer Type	Year 0	Cumulative/ Net Add	Year 1				Year 2			
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Mega-Metro E - 100 Mbps	Community Anchor Inst.	0	Cumulative	0	0	0	0	5	10	17	26
			Net Add	0	0	0	0	5	5	7	9
	Business	0	Cumulative	0	0	0	0	12	27	52	82
			Net Add	0	0	0	0	12	15	25	30
	Third Party Service Provider	0	Cumulative	0	0	0	0	1	2	4	6
			Net Add	0	0	0	0	1	1	2	2
Served by Third Party Service Providers	Indirect - Res./Ind.	0	Cumulative	0	0	0	0	1000	3000	5000	10000
			Net Add	0	0	0	0	1000	2000	2000	5000
	Indirect - Business	0	Cumulative	0	0	0	0	2	8	18	30
			Net Add	0	0	0	0	2	6	10	12
	Indirect - Com. Anchor Inst.	0	Cumulative	0	0	0	0	0	2	3	5
			Net Add	0	0	0	0	0	2	1	2

Broadband Subscriber Estimates

Name of Service Offering	Customer Type	Year 0	Cumulative/ Net Add	Year 1				Year 2				Year 3				Yea	
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
Higher Education - ARE-ON Location	Community Anchor Inst.		Cumulative	0	6	11	16	21	27	33	33	33	33	33	33	33	33
			Net Add	0	6	5	5	5	6	6	0	0	0	0	0	0	0
Healthcare Provider Hub - ARE-ON Connection	Community Anchor Inst.		Cumulative	0	8	8	8	8	8	8	8	8	8	8	8	8	8
			Net Add	0	8	0	0	0	0	0	0	0	0	0	0	0	0
Healthcare Provider 100 mbps MPLS	Community Anchor Inst.		Cumulative	0	0	7	7	7	7	7	7	7	7	7	7	8	8
			Net Add	0	0	7	0	0	0	0	0	0	0	0	0	1	0
Healthcare Provider 20 mbps MPLS	Community Anchor Inst.		Cumulative	0	0	0	15	15	15	15	15	15	15	15	15	15	15
			Net Add	0	0	0	15	0	0	0	0	0	0	0	0	0	0
Healthcare Provider 10 mbps MPLS	Community Anchor Inst.		Cumulative	0	0	0	22	59	59	59	59	59	59	59	59	61	61
			Net Add	0	0	0	22	37	0	0	0	0	0	0	0	2	0
Healthcare Provider 1.5 mbps MPLS	Community Anchor Inst.		Cumulative	0	0	0	0	0	35	69	111	154	154	154	154	151	151
			Net Add	0	0	0	0	0	35	34	42	43	0	0	0	-3	0
Broadband Service Equipment	Community Anchor Inst.		Cumulative	0	198	198	198	198	198	198	198	198	198	198	198	198	198
			Net Add	0	198	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative Totals (excluding Indirect)	Residential/Individual		Total														
	Business		Total														
	Community Anchor Inst.		Total	0	212	224	266	308	349	389	431	474	474	474	474	474	474
	Third Party Service Provider		Total														
Cumulative Totals (including Indirect)	Residential/Individual		Total														
	Business		Total														
	Community Anchor Inst.		Total	0	212	224	266	308	349	389	431	474	474	474	474	474	474

Table of Customer Types

Residential/Individual
Business
Community Anchor Inst.
Third Party Service Provider
Indirect - Res./Ind.
Indirect - Business
Indirect - Com. Anchor Inst.

Explanation of Methodology:

These subscriber estimates are based solely on community anchor subscribers, as this middle mile network will use Internet Service Providers selected through a competitive bid process to provide broadband services to community anchor institutions.

In Years 1, 2, and 3: All community anchor institutions are included at the time they receive their bandwidth and/or equipment from this project.

Tertiary Sites
Years 4-8:
By building a statewide comprehensive network for healthcare, higher education, public safety, and research, this project anticipates new subscribers to join the network for shared applications and broadband benefits.
Year 4, Quarter 4:
The UAMS Centers on Aging and the UAMS Center for Distance Health plan to offer interactive video services to nursing home and long-term care facilities across Arkansas near this estimated time. The expansion of this network is predicted to reach half of the nursing home and long-term care facilities in Arkansas (412 total, 206 predicted subscribers). Since these institutions are often privately owned, the project estimates to recruit half of these facilities by this time.

Year 6, Quarter 4:
The Arkansas K-12 public school system has expressed past interest in joining this network for healthcare education and in-school healthcare. It is estimated the entire statewide school system will join the network at one time, with a predicted timeline of Year 6, Quarter 4. The Arkansas K-12 public school system operates on the VNet, a statewide broadband network that provides T1 (1.5 Mbps) connectivity to every school in Arkansas. There are 1,072 K-12 schools in Arkansas.

Year 8, Quarter 4:

Name of Service Offering	Customer Type	Year 4		Year 5				Year 6				Year 7				Year 8		
		Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
Higher Education - ARE-ON Location	Community Anchor Inst.	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Healthcare Provider Hub - ARE-ON Connection	Community Anchor Inst.	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Healtcare Provider 100 mbps MPLS	Community Anchor Inst.	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12
		0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
Healthcare Provider 20 mbps MPLS	Community Anchor Inst.	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Healthcare Provider 10 mbps MPLS	Community Anchor Inst.	61	61	64	64	64	64	67	67	67	67	70	70	70	70	73	73	73
		0	0	3	0	0	0	3	0	0	0	3	0	0	0	3	0	0
Healthcare Provider 1.5 mbps MPLS	Community Anchor Inst.	151	357	353	353	353	353	349	349	349	1421	1417	1417	1417	1417	1413	1413	1413
		0	206	-4	0	0	0	-4	0	0	1072	-4	0	0	0	-4	0	0
Broadband Service Equipment	Community Anchor Inst.	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative Totals (excluding Indirect)	Residential/Individual																	
	Business																	
	Community Anchor Inst.	474	680	680	680	680	680	680	680	680	1752	1752	1752	1752	1752	1752	1752	1752
	Third Party Service Provider																	
Cumulative Totals (including Indirect)	Residential/Individual																	
	Business																	
	Community Anchor Inst.	474	680	680	680	680	680	680	680	680	1752	1752	1752	1752	1752	1752	1752	1752

Table of Customer Types

Residential/Individual
Business
Community Anchor Inst.
Third Party Service Provider
Indirect - Res./Ind.
Indirect - Business
Indirect - Com. Anchor Inst.

Name of Service Offering	Customer Type	Qtr 4
Higher Education - ARE-ON Location	Community Anchor Inst.	33
		0
Healthcare Provider Hub - ARE-ON Connection	Community Anchor Inst.	8
		0
Healtchare Provider 100 mbps MPLS	Community Anchor Inst.	12
		0
Healthcare Provider 20 mbps MPLS	Community Anchor Inst.	15
		0
Healthcare Provider 10 mbps MPLS	Community Anchor Inst.	73
		0
Healthcare Provider 1.5 mbps MPLS	Community Anchor Inst.	1515
		102
Broadband Service Equipment	Community Anchor Inst.	198
		0
Cumulative Totals (excluding Indirect)	Residential/Individual	
	Business	
	Community Anchor Inst.	1854
	Third Party Service Provider	
Cumulative Totals (including Indirect)	Residential/Individual	
	Business	
	Community Anchor Inst.	1854

Table of Customer Types

Residential/Individual
Business
Community Anchor Inst.
Third Party Service Provider
Indirect - Res./Ind.
Indirect - Business
Indirect - Com. Anchor Inst.

Name of Service Offering	Customer Type	Year 0	Cumulative/ Net Add	Year 1				Year 2				Year 3				Yea	
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
			By the end of the eight-year estimation period, the project hopes to add ambulance companies to expand its proposed ambulance service to a statewide level. Since many ambulance companies in Arkansas are privately owned, the project estimates 50% subscribers among the 203 licensed ambulance services in Arkansas. **Primary and Secondary Sites** **Year 4-8** **It is expected that as broadband needs grow and the number of consumers grow at participating community anchor institutions, some institutions may need increased bandwidth. Predicted at a 5% annual increase at primary and secondary sites, sites are upgraded into higher bandwidth and remain subscribers within the network. The 5% increase is an estimate based on previous experience.** **Notes on further expansion:** **The project lays the foundation for scalability and expansion into new community anchor sites and broadband networks. As stated in the narrative responses, the project has identified a number of community anchor institutions that may be included in the network in the years to come, possibly more within this eight-year estimation period. These additional community anchor institutions that stand as potential subscribers are as follows: 29 charter schools, 305 private schools, 758 private provider clinics,** **231 public libraries, 264 police departments, 575 fire departments, and 77 offices of emergency management**														

Name of Service Offering	Customer Type	r 4		Year 5				Year 6				Year 7				Year 8		
		Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3

Name of Service Offering	Customer Type	Qtr 4

The Arkansas Health Care, Higher Education, Public Safety & Research Integrated Broadband Initiative

Proposed Funded Service Area Overview

SITES

Primary AREON Site
Two-Year College or
Four-Year University

Primary Atom Site

Secondary Site

Tertiary Site

Leased Circuits

100 mbps
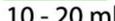
10 - 20 mbps

1.5 mbps

Middle Mile Service Area

AREON NETWORK

Existing

New
Blended Fiber Construction
and Leased Circuits

Counties

The Arkansas Health Care, Higher Education, Public Safety & Research Integrated Broadband Initiative

Middle Mile Service Areas and Unserved/Underserved Areas

Legend

- Served Areas
- National Forests & Parks

Unserved Census Blocks
- Unserved Census Blocks

Underserved Census Blocks
- Qualification 1
- Qualification 2

- **Middle Mile Service Area**

The Arkansas Health Care, Higher Education, Public Safety & Research Integrated Broadband Initiative

Middle Mile Service Areas, Unserved/Underserved Areas and Proposed Network Overview
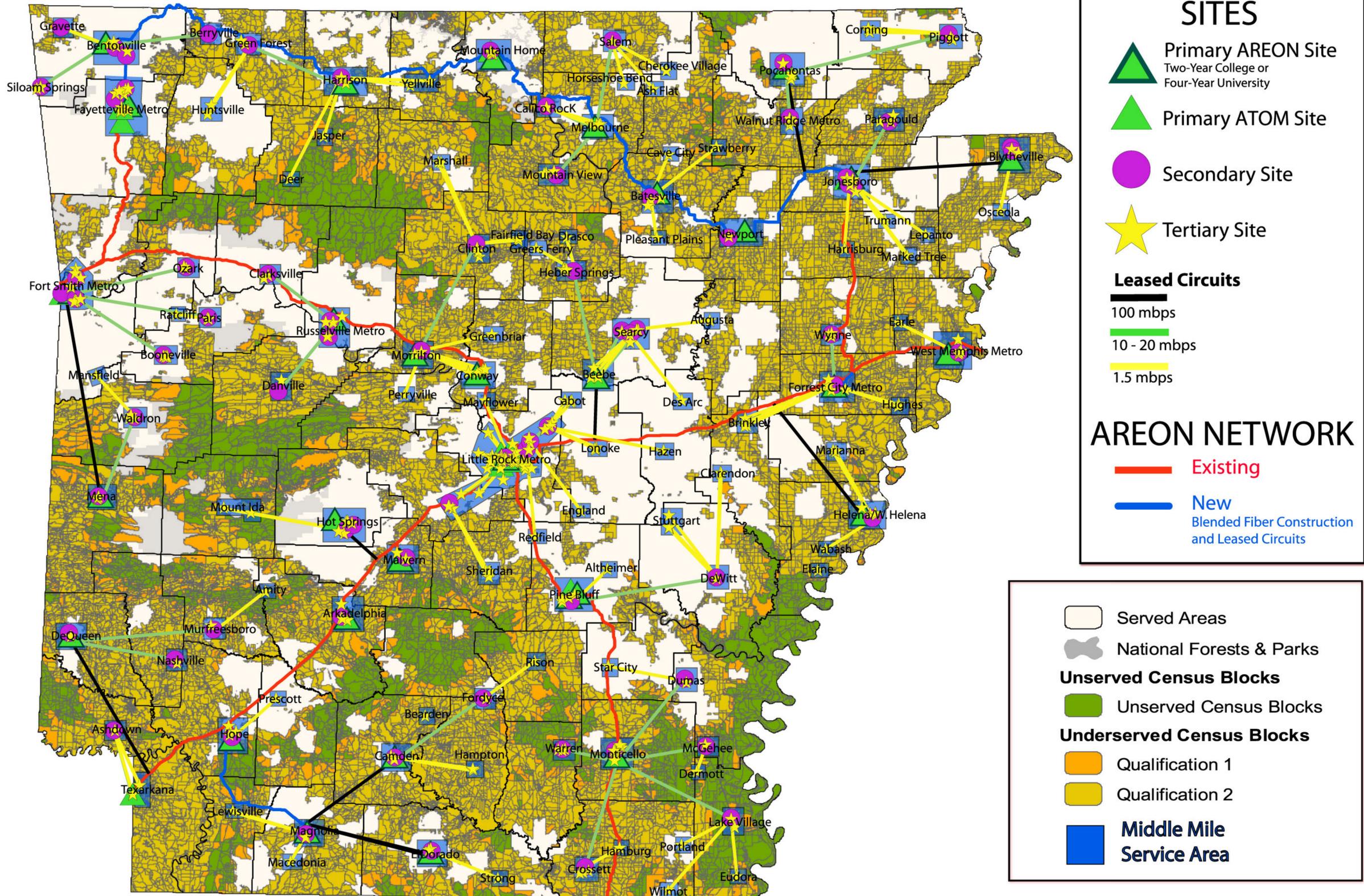
SITES

Primary AREON Site
Two-Year College or Four-Year University

Primary ATOM Site

Secondary Site

Tertiary Site

Leased Circuits
100 mbps
10 - 20 mbps
1.5 mbps

AREON NETWORK

Existing

New
Blended Fiber Construction and Leased Circuits

Served Areas
National Forests & Parks
Unserved Census Blocks
Unserved Census Blocks
Underserved Census Blocks
Qualification 1
Qualification 2
Middle Mile Service Area

The Arkansas Health Care, Higher Education, Public Safety & Research Integrated Broadband Initiative

Proposed Funded Service Area
and Distressed Counties Overview
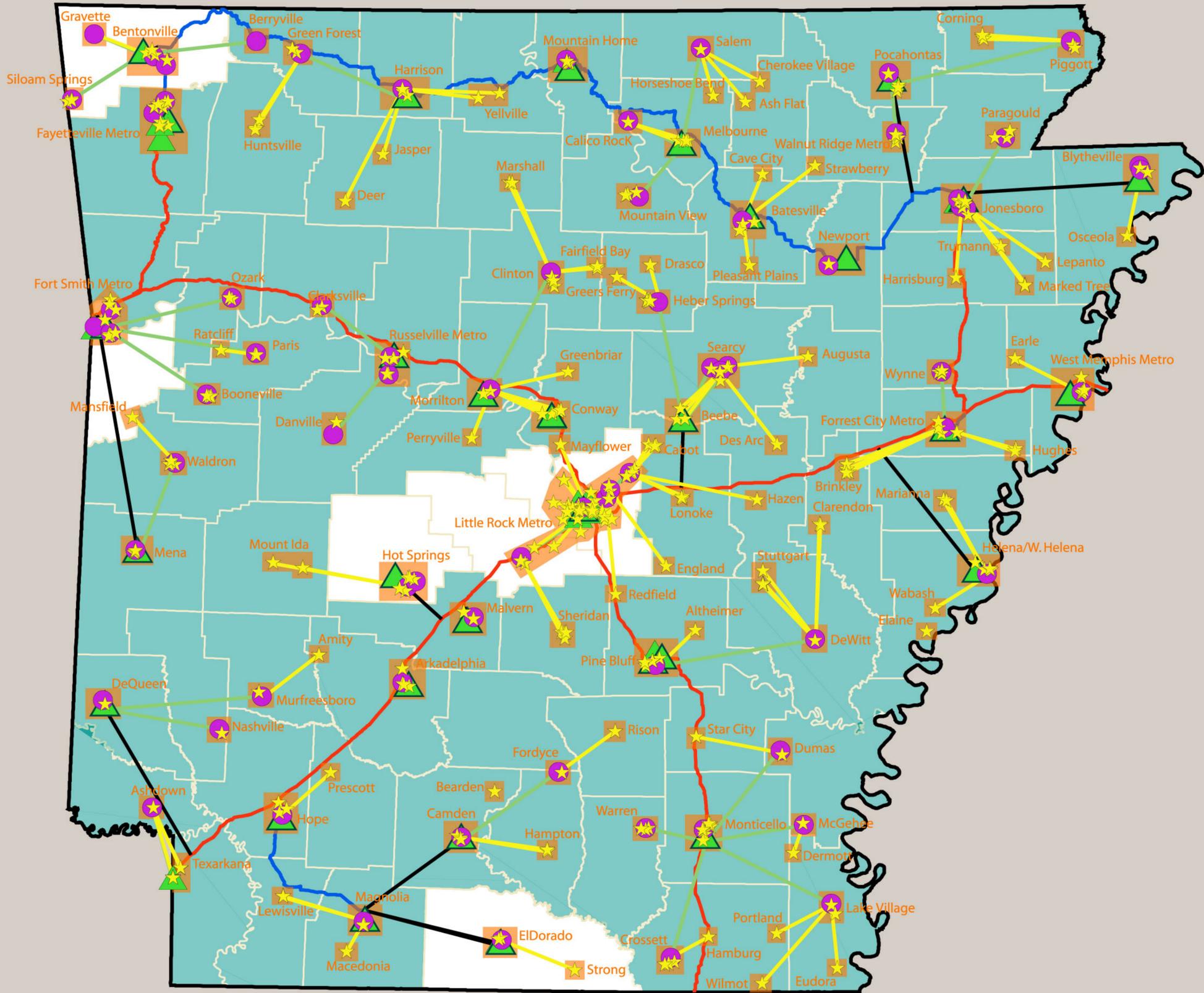
SITES

△ **Primary AREON Site**
Two-Year College or
Four-Year University

▲ **Primary ATOM Site**

● **Secondary Site**

★ **Tertiary Site**

Leased Circuits

— 100 mbps

— 10 - 20 mbps
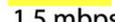
— 1.5 mbps

■ **Middle Mile Service Area**

AREON NETWORK

— **Existing**

— **New**
Blended Fiber Construction
and Leased Circuits

☐ **Counties**

☐ **Economically Distressed Areas**

The Arkansas Health Care, Higher Education, Public Safety & Research Integrated Broadband Initiative

West Region

Johnson
Clarksville
Pope
Russelville Metro
Greenbriar
Paris
Ratcliff
Morrilton
Fort Smith
Sebastian
Conway
Mansfield
Booneville
Mayflower
Danville
Perryville
Waldron
Mena
Mount Ida

SITES

Primary AREON Site
Two-Year College or
Four-Year University

Primary ATOM Site

Secondary Site

Tertiary Site

Leased Circuits
100 mbps
10 - 20 mbps
1.5 mbps

Middle Mile
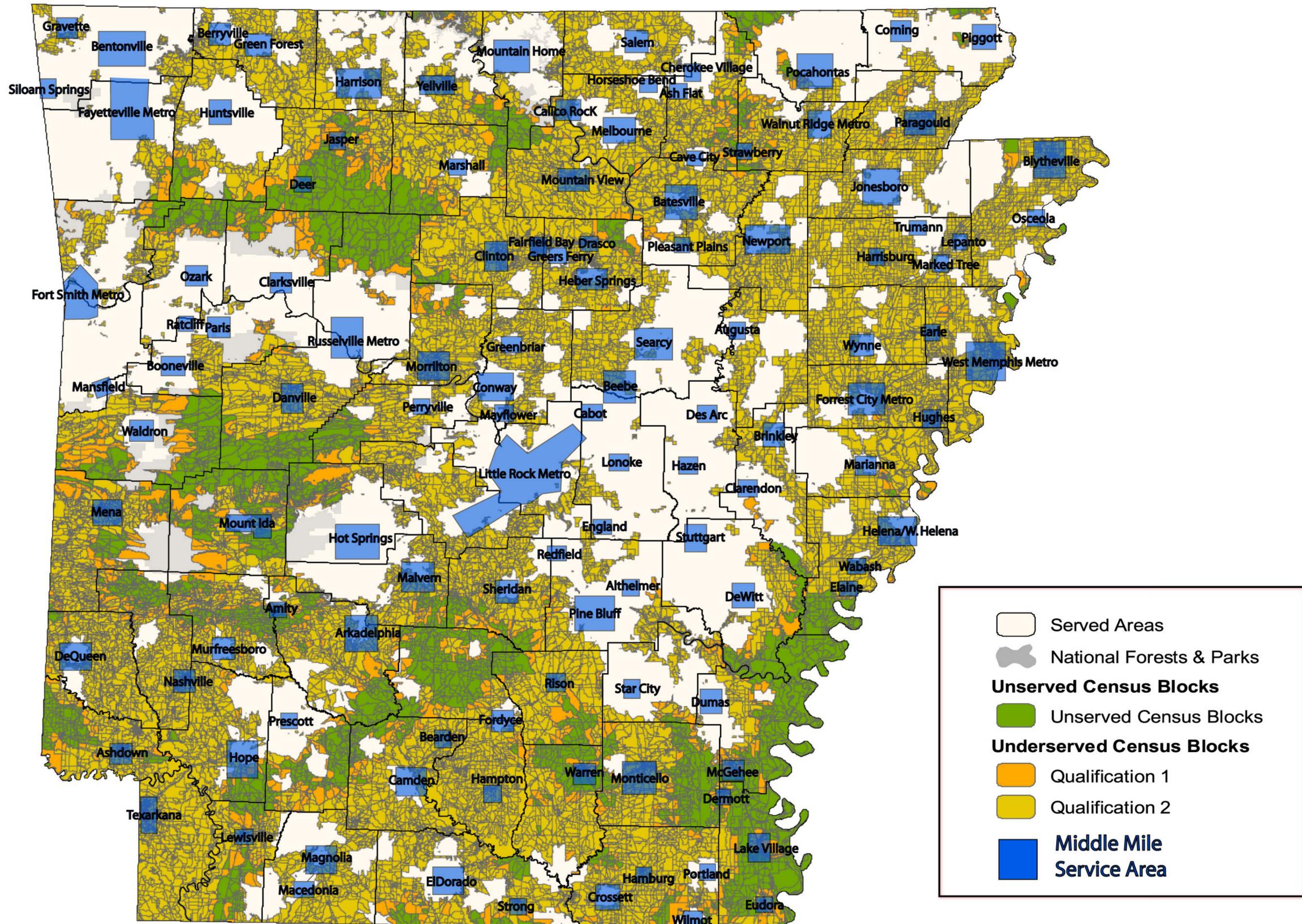Service Area

AREON NETWORK

Existing

New
Blended Fiber Construction
and Leased Circuits

Counties

Served Areas

National Forests & Parks

Unserved Census Blocks

Unserved Census Blocks

Underserved Census Blocks

Qualification 1

Qualification 2

The Arkansas Health Care, Higher Education, Public Safety & Research Integrated Broadband Initiative

Southw**e**st Region

Hot Springs

Little Rock

Garland

Hot Spring

Malvern

Amity

Murfreesboro

DeQueen

Arkadelphia

Nashville

Hempstead

Prescott

Hope

Nevada

Ashdown

Texarkana

Lewisville

Magnolia

Macedonia

SITES

▲ Primary AREON Site
Two-Year College or
Four-Year University

▲ Primary ATOM Site

● Secondary Site

★ Tertiary Site

Leased Circuits

— 100 mbps

— 10 - 20 mbps

— 1.5 mbps

■ Middle Mile
Service Area

AREON NETWORK

— Existing

— New
Blended Fiber Construction
and Leased Circuits

☐ Counties

Served Areas

National Forests & Parks

Unserved Census Blocks
Unserved Census Blocks

Underserved Census Blocks
Qualification 1
Qualification 2

The Arkansas Health Care, Higher Education, Public Safety & Research Integrated Broadband Initiative

South-East Region

Map labels (sites):
Little Rock Metro, Redfield, Stuttgart, Altheimer, DeWitt, Pine Bluff, Sheridan, Rison, Star City, Dumas, Fordyce, Bearden, Warren, McGehee, Camden, Hampton, Monticello, Dermott, Lake Village, ElDorado, Portland, Strong, Hamburg, Crossett, Wilmot, Eudora

SITES

- Primary AREON Site
  Two-Year College or
  Four-Year University
- Primary ATOM Site
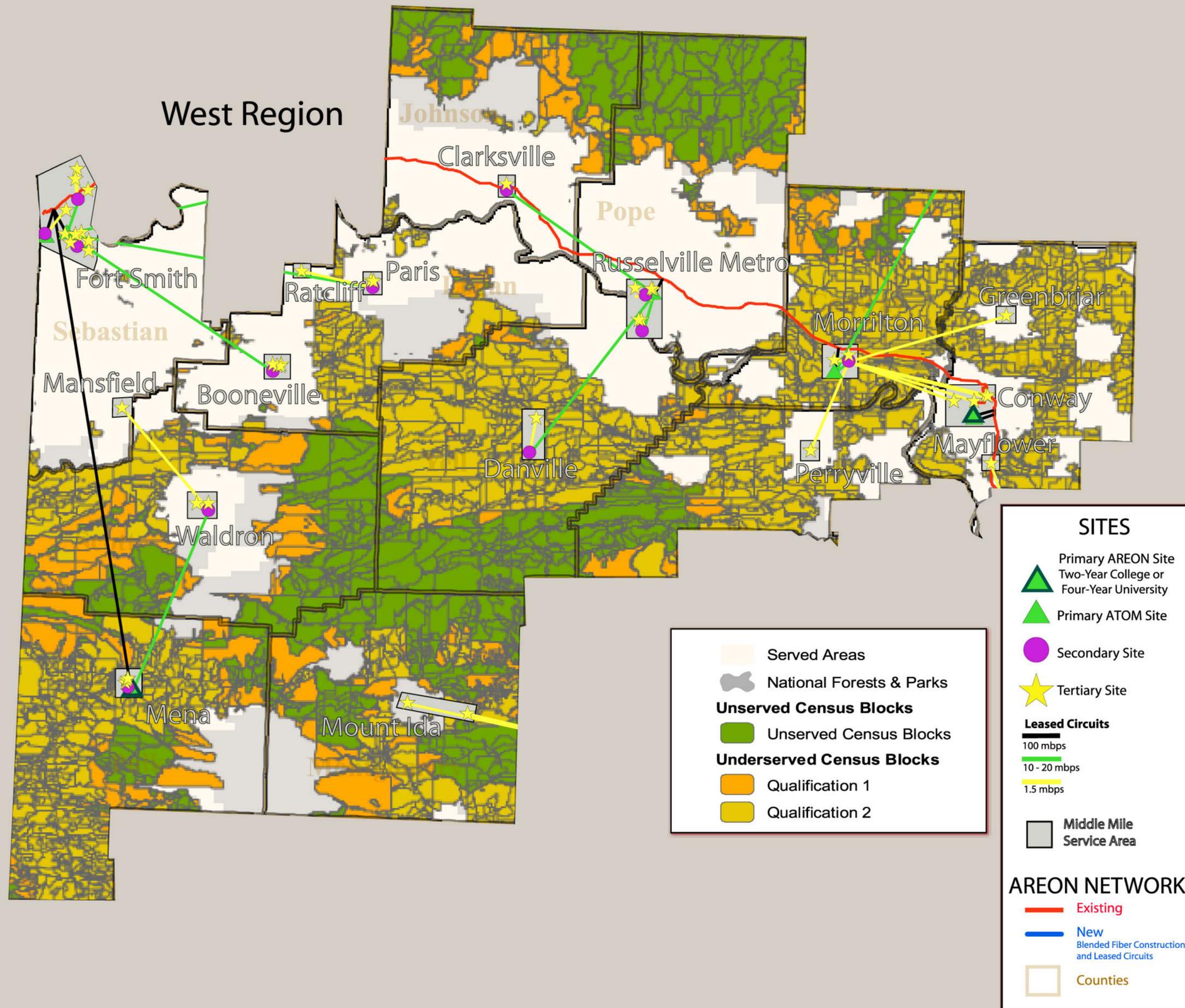- Secondary Site
- Tertiary Site

Leased Circuits
- 100 mbps
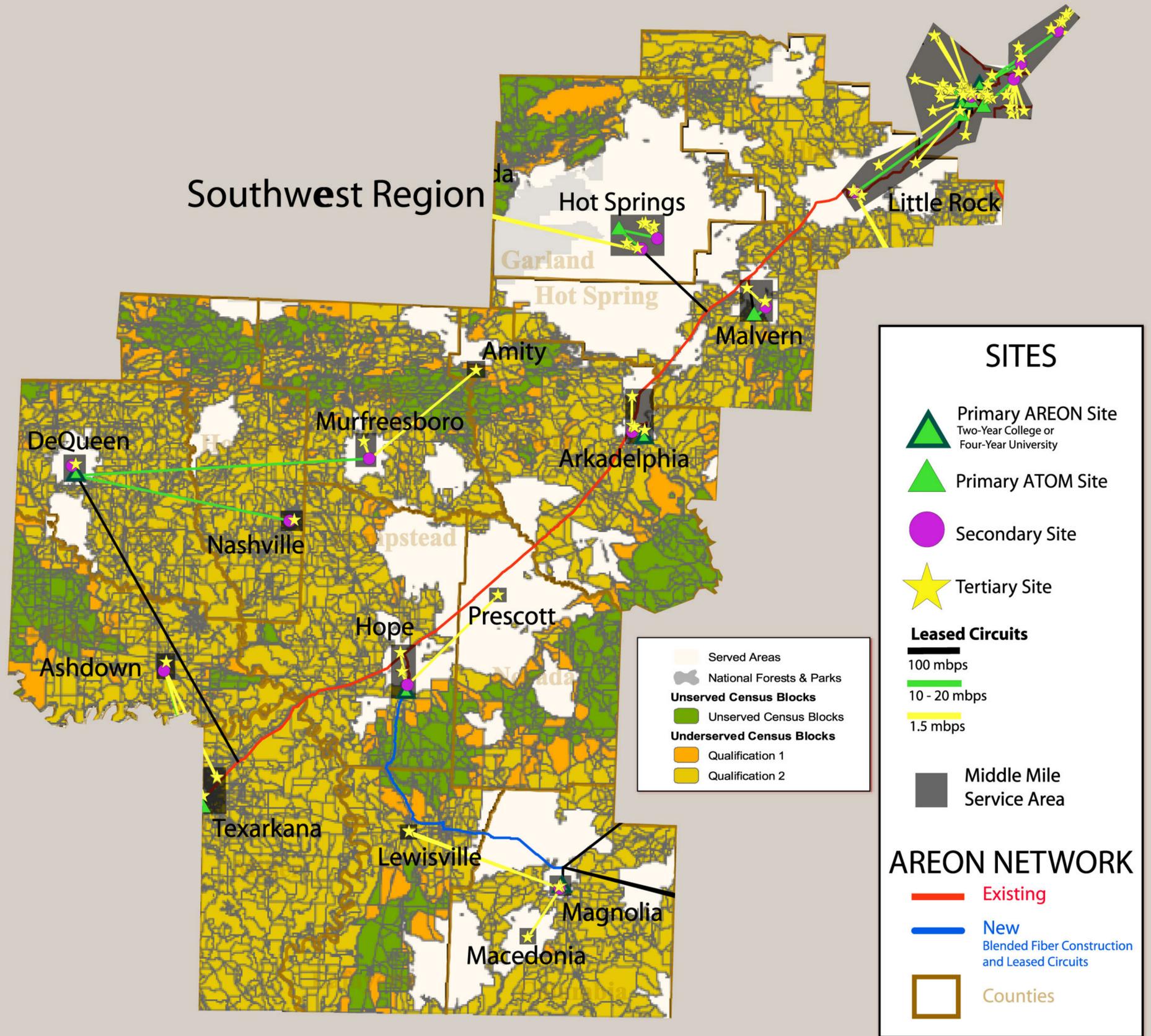- 10 - 20 mbps
- 1.5 mbps

Middle Mile Service Area

AREON NETWORK
- Existing
- New
  Blended Fiber Construction
  and Leased Circuits
- Counties

- Served Areas
- National Forests & Parks

Unserved Census Blocks
- Unserved Census Blocks

Underserved Census Blocks
- Qualification 1
- Qualification 2

The Arkansas Health Care, Higher Education, Public Safety & Research Integrated Broadband Initiative

Northwest Region

Gravette
Bentonville
Berryville
Green Forest
Benton
Boone
Harrison
Siloam Springs
Huntsville
Jasper
Madison
Fayetteville Metro
Deer
Washington
Crawford
Fort Smith Metro
Ozark

SITES

△ Primary AREON Site
Two-Year College or
Four-Year University

▲ Primary ATOM Site

● Secondary Site

★ Tertiary Site

Leased Circuits
— 100 mbps
— 10 - 20 mbps
— 1.5 mbps

Middle Mile
Service Area

AREON NETWORK

— Existing

— New
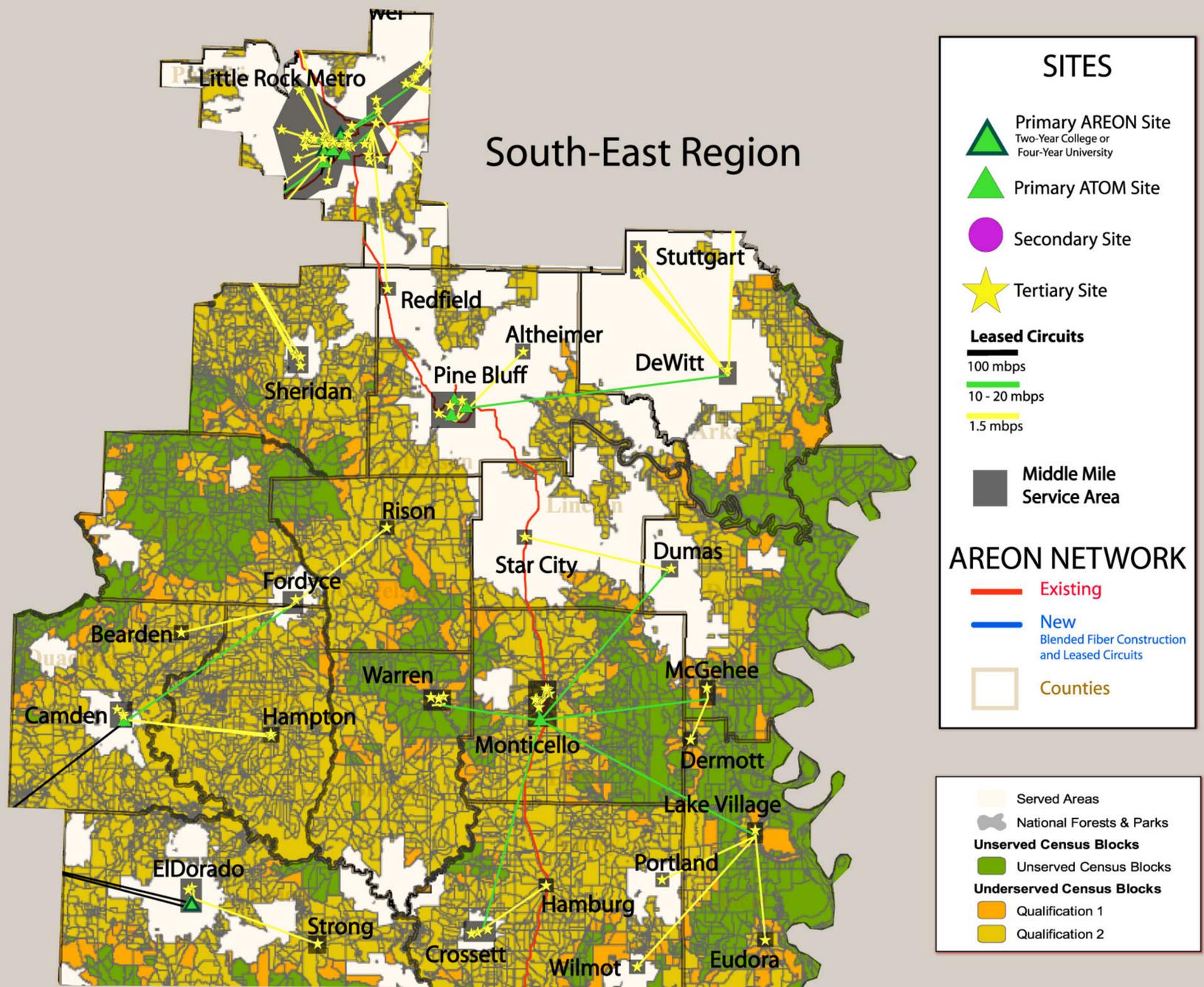Blended Fiber Construction
and Leased Circuits

Counties

☐ Served Areas
National Forests & Parks

Unserved Census Blocks
Unserved Census Blocks

Underserved Census Blocks
Qualification 1
Qualification 2

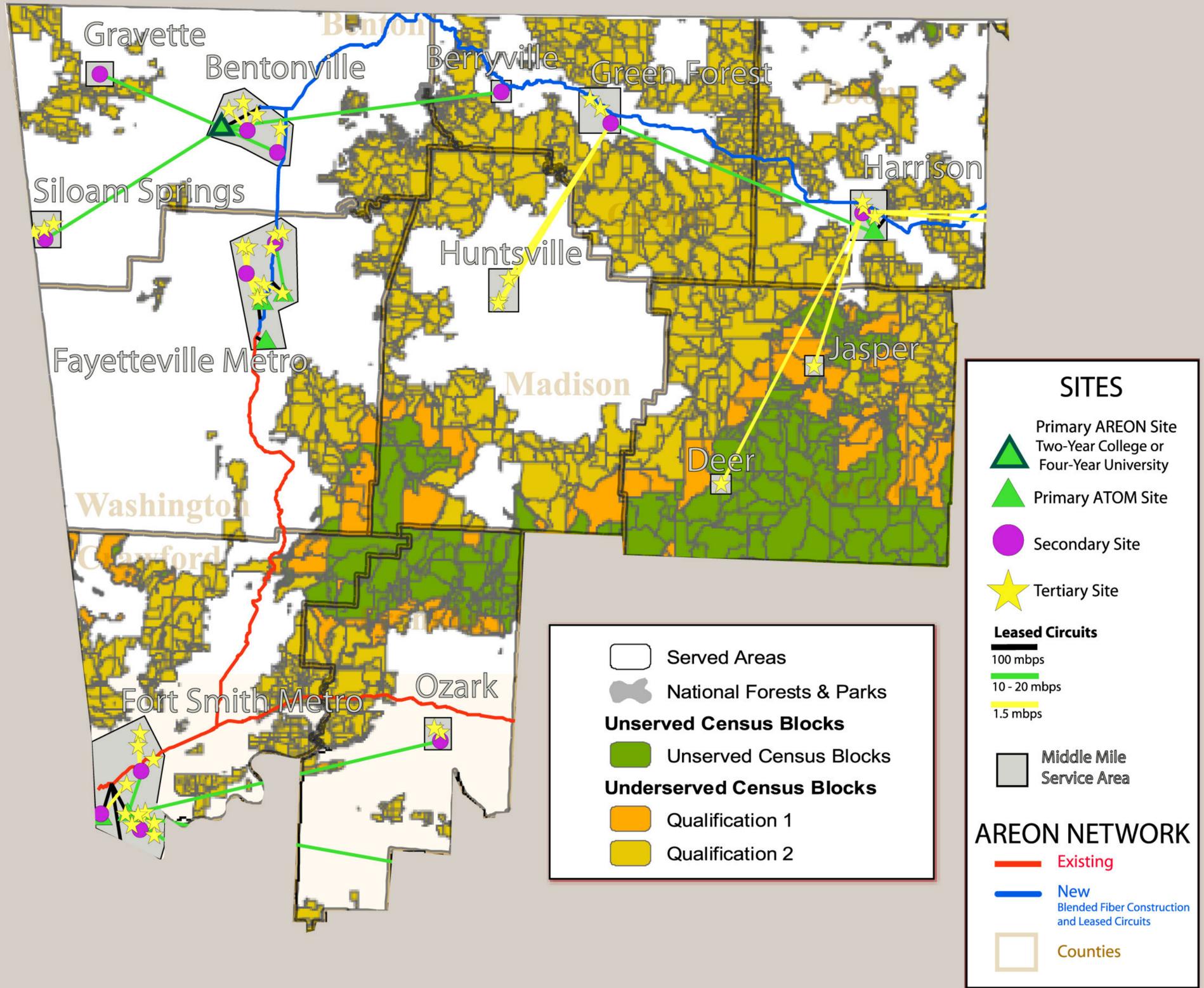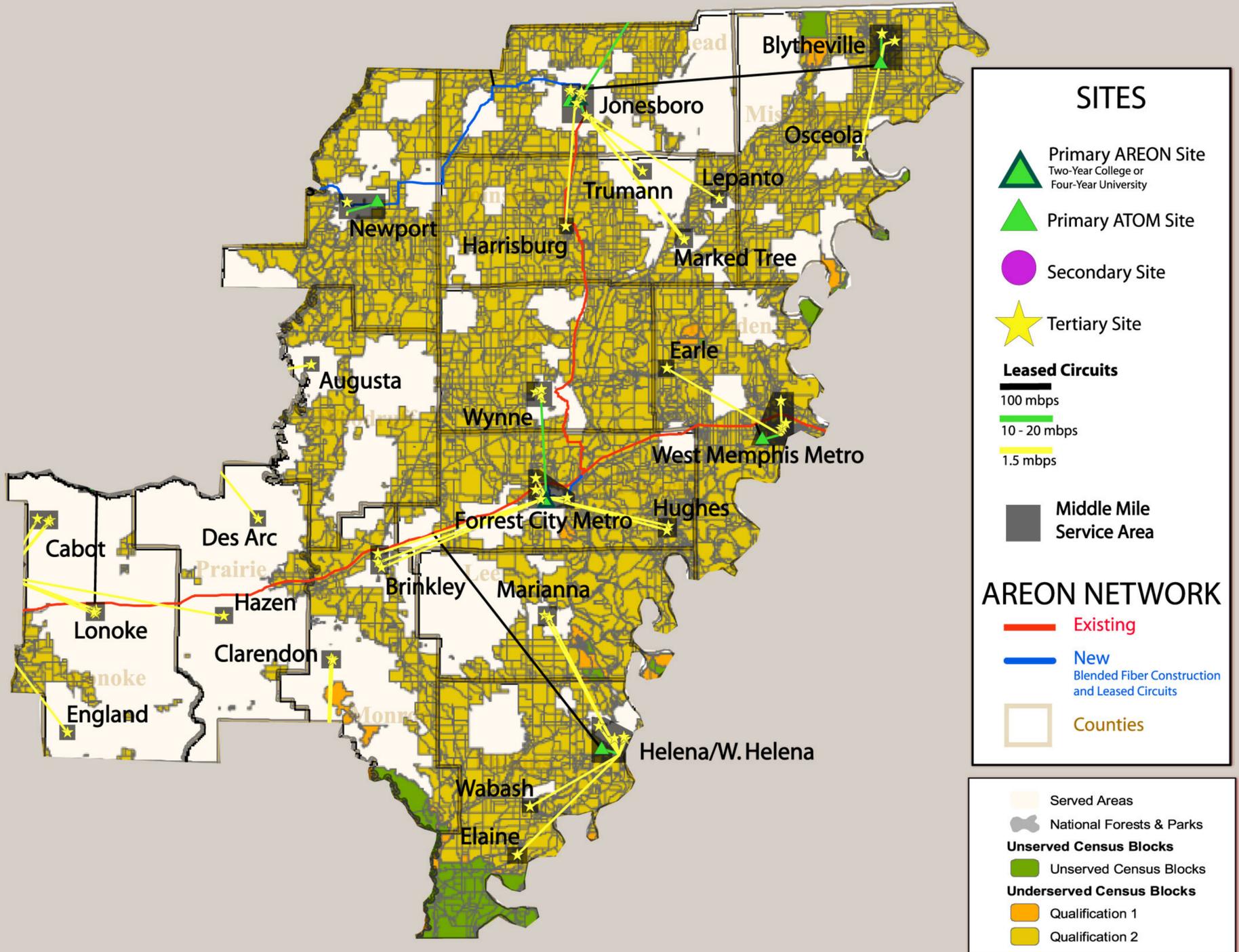# The Arkansas Health Care, Higher Education, Public Safety & Research Integrated Broadband Initiative

North-East Region

Blytheville

Jonesboro

Osceola

Lepanto

Trumann

Harrisburg

Marked Tree

Newport

Earle

Augusta

Wynne

West Memphis Metro

Cabot

Des Arc

Hughes

Forrest City Metro

Lonoke

Hazen

Brinkley

Marianna

Clarendon

England

Helena/W. Helena

Wabash

Elaine

SITES

▲ **Primary AREON Site**
Two-Year College or
Four-Year University

▲ **Primary ATOM Site**

● **Secondary Site**

★ **Tertiary Site**

Leased Circuits

■ 100 mbps

■ 10 - 20 mbps

■ 1.5 mbps

■ **Middle Mile Service Area**

AREON NETWORK

— **Existing**

— **New**
Blended Fiber Construction
and Leased Circuits

□ **Counties**

■ Served Areas
■ National Forests & Parks
Unserved Census Blocks
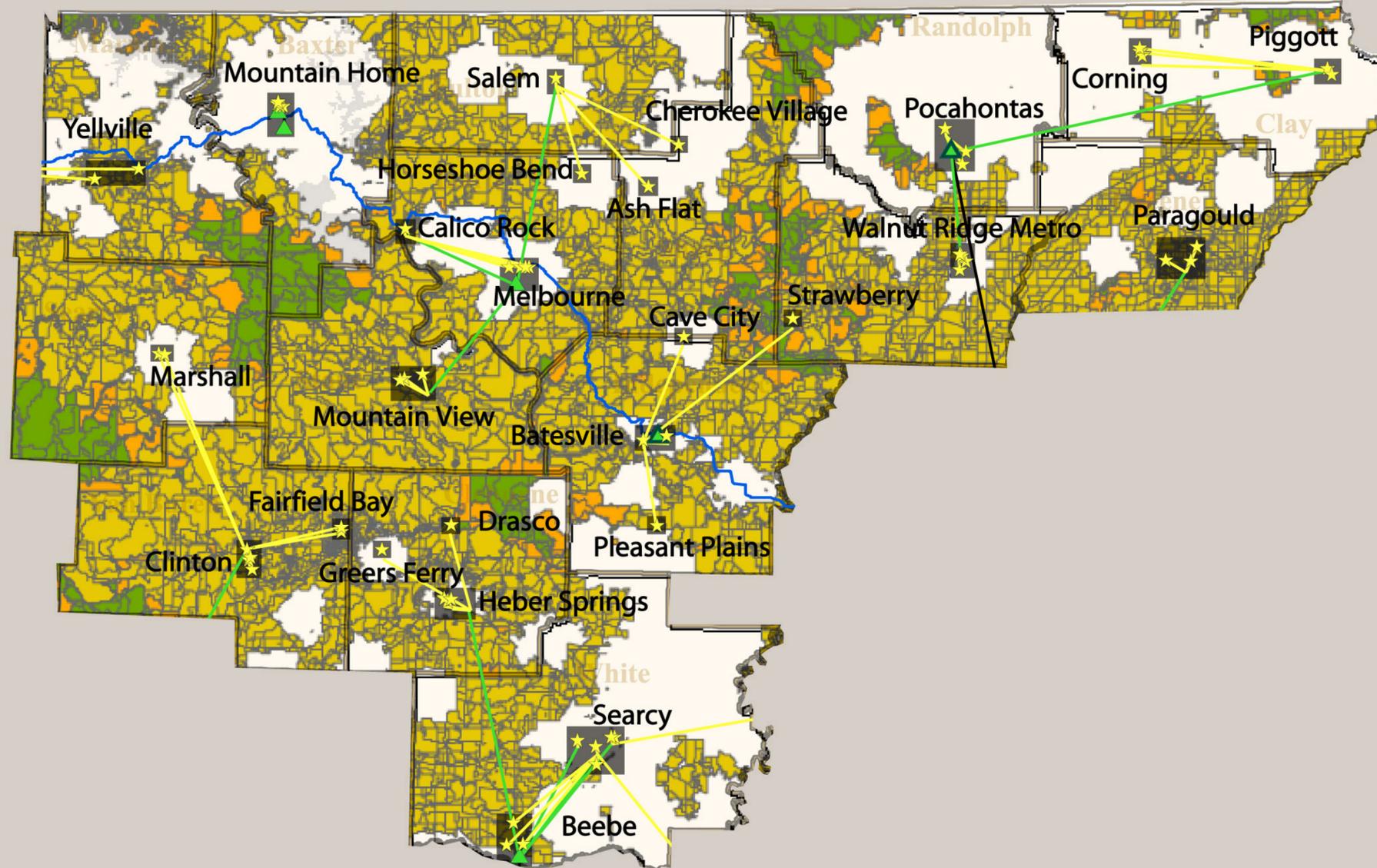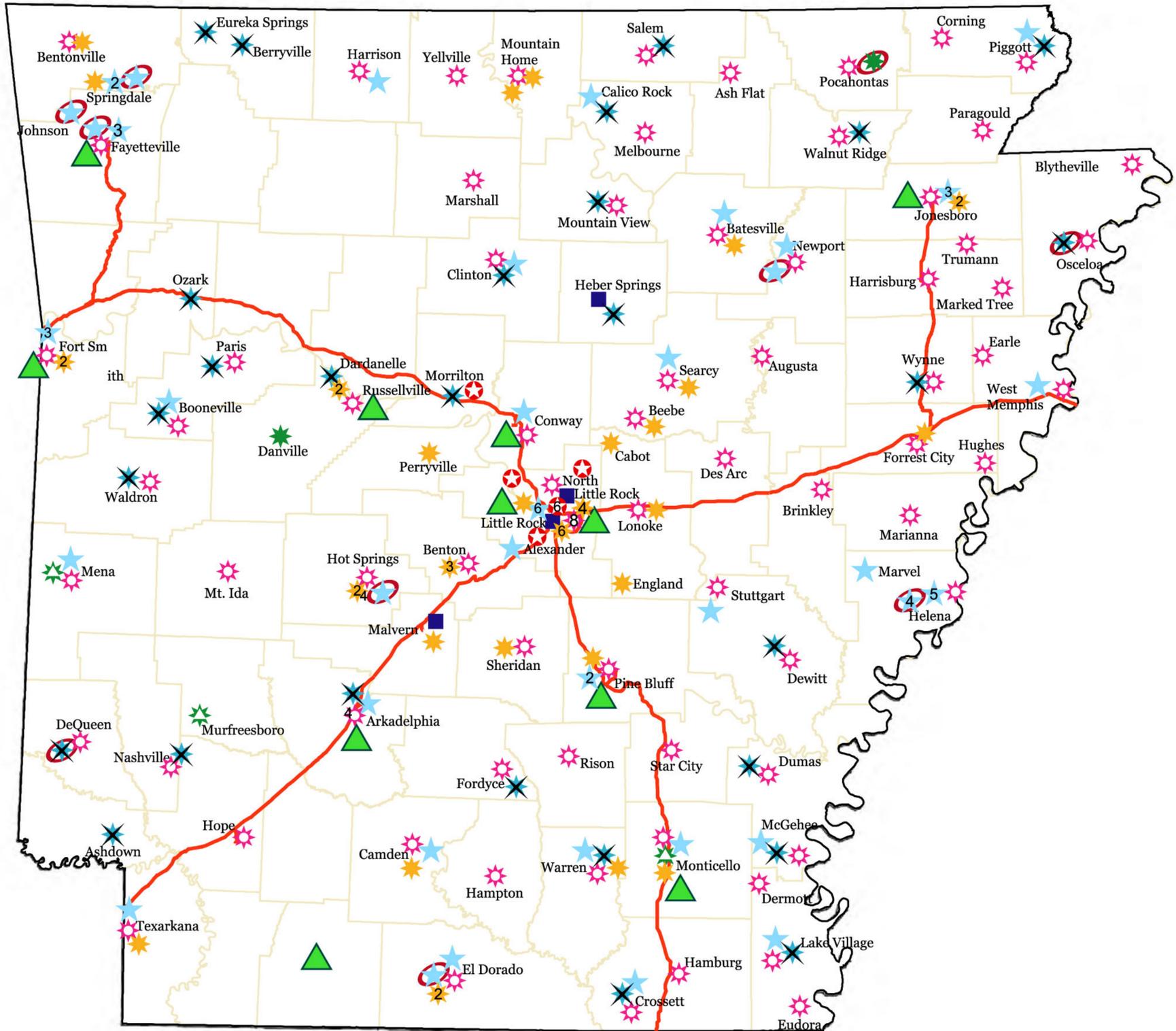■ Unserved Census Blocks
Underserved Census Blocks
■ Qualification 1
■ Qualification 2

The Arkansas Health Care, Higher Education, Public Safety & Research Integrated Broadband Initiative

North-Central Region

SITES

▲ Primary AREON Site
Two-Year College or
Four-Year University

▲ Primary ATOM Site

● Secondary Site

★ Tertiary Site

Leased Circuits

— 100 mbps

— 10 - 20 mbps

— 1.5 mbps

■ Middle Mile
Service Area

AREON NETWORK

— **Existing**

— **New**
Blended Fiber Construction
and Leased Circuits

□ Counties

Served Areas

National Forests & Parks

Unserved Census Blocks

Unserved Census Blocks

Underserved Census Blocks

Qualification 1

Qualification 2

Map labels: Mountain Home, Yellville, Salem, Cherokee Village, Pocahontas, Corning, Piggott, Horseshoe Bend, Ash Flat, Calico Rock, Walnut Ridge Metro, Paragould, Melbourne, Cave City, Strawberry, Marshall, Mountain View, Batesville, Fairfield Bay, Drasco, Clinton, Pleasant Plains, Greers Ferry, Heber Springs, Searcy, Beebe

County labels: Baxter, Randolph, Clay, White

Applicant's / Key Partner's Existing Networks

Legend:

- ✷ Department of Health Bioterrorism Network (At-Risk Hospitals)
- ✷ Department of Health Bioterrorism Network (Critical Access Hospitals)
- ✷ Department of Health Local Health Clinic Network
- ✷ Department of Human Services Family Clinic
- ★ University of Arkansas for Medical Sciences Network
- ■ Baptist Health
- ⬭ Denotes for-profit status.
- ✪ St. Vincents Medical
- ➤ AREON fiber
- ▲ Four-Year University

Please note: This map depicts currently existing broadband networks found among the community anchor insitutions within the project. Since FCC Rural Health Care Pilot Project award funding is pending adminstrative approval to begin work, this map does not depict the 316 sites specifically inclusive of that effort. Instead, the FCC award was built upon 174 existing network sites, which are illustrated in this map, alongside other networks that have developed since the 2007 FCC proposal.

Map labels: Bentonville, Eureka Springs, Berryville, Harrison, Yellville, Mountain Home, Salem, Corning, Piggott, Springdale, Johnson, Fayetteville, Calico Rock, Ash Flat, Pocahontas, Paragould, Melbourne, Walnut Ridge, Blytheville, Ozark, Marshall, Mountain View, Batesville, Newport, Jonesboro, Trumann, Osceloa, Fort Smith, Paris, Dardanelle, Russellville, Morrilton, Clinton, Heber Springs, Searcy, Augusta, Harrisburg, Marked Tree, Earle, Booneville, Conway, Beebe, Wynne, West Memphis, Danville, Perryville, Cabot, Des Arc, Forrest City, Hughes, Waldron, North Little Rock, Little Rock, Lonoke, Brinkley, Marianna, Mena, Mt. Ida, Hot Springs, Benton, Alexander, England, Stuttgart, Marvel, Helena, Malvern, Sheridan, Dewitt, DeQueen, Murfreesboro, Arkadelphia, Pine Bluff, Nashville, Rison, Star City, Dumas, Fordyce, Hope, McGehee, Ashdown, Camden, Warren, Monticello, Dermott, Hampton, Hamburg, Lake Village, Texarkana, El Dorado, Crossett, Eudora

BTOP Comprehensive Community Infrastructure
Pro Forma Financial Projections

Please complete the Income Statement, Balance Sheet, Cash Flows, and NPV-IRR Table worksheets. Key assumptions used to formulate these financial projections should be listed in the Key Assumptions worksheet. Please note that these are **project-specific** projections, in contrast to the historical financial information which is provided at the organizational level.

Please refer to the Comprehensive Community Infrastructure Grant Guidance for detailed instructions on the completing this upload.

Applicants are required to provide this upload as an Excel file, and not to convert it to a PDF prior to upload. Applicants may make adjustments to the format of the templates as necessary to provide the most effective presentation of the data for their specific project, but should not remove major headings (*e.g.* Revenues and Expenses on the Income Statement) or provide less detailed information than would be required to complete the provided templates.

Income Statement

	Forecast Period							
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**
Revenues								
Broadband Offerings								
Wholesale Data	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Retail Data	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dark Fiber	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Collocation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other (list specific services)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Network Driven Revenues								
Video Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Voice Services (local/toll/long distance)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other (list specific services)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Universal Service Fund	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Installation Revenues	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Revenues	$ 35,740,177	$ 50,589,419	$ 16,134,640	$ 27,978,845	$ 28,216,666	$ 28,456,507	$ 28,698,387	$ 28,942,324
Total Revenues	$ 35,740,177	$ 50,589,419	$ 16,134,640	$ 27,978,845	$ 28,216,666	$ 28,456,507	$ 28,698,387	$ 28,942,324
Expenses								
Backhaul	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Network Maintenance/Monitoring	$ 100,000	$ -	$ -	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Utilities	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Leasing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sales/Marketing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Customer Care	$ 500,000		$ -	$ -	$ -	$ -	$ -	$ -
Billing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Corporate G&A	$ 6,142,072	$ 3,887,818	$ 783,771	$ 533,698	$ 548,245	$ 563,228	$ 578,661	$ 594,557
Other Operating Expense	$ 28,998,105	$ 46,701,601	$ 15,350,869	$ 24,476,009	$ 24,476,009	$ 24,476,009	$ 24,476,009	$ 24,476,009
Total	$ 35,740,177	$ 50,589,419	$ 16,134,640	$ 25,309,707	$ 25,324,254	$ 25,339,237	$ 25,354,670	$ 25,370,566
EBITDA	$ -	$ -	$ -	$ 2,669,139	$ 2,892,412	$ 3,117,270	$ 3,343,718	$ 3,571,758
Depreciation	$ 1,335,276	$ 2,639,782	$ 2,667,782	$ 2,667,782	$ 2,667,782	$ 2,667,782	$ 2,667,782	$ 2,667,782
Amortization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Earnings Before Interest and Taxes	$ (1,335,276)	$ (2,639,782)	$ (2,667,782)	$ 1,357	$ 224,630	$ 449,488	$ 675,936	$ 903,976
Interest Expense	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Income Before Taxes	$ (1,335,276)	$ (2,639,782)	$ (2,667,782)	$ 1,357	$ 224,630	$ 449,488	$ 675,936	$ 903,976
Property Tax	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Income Taxes	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Income	$ (1,335,276)	$ (2,639,782)	$ (2,667,782)	$ 1,357	$ 224,630	$ 449,488	$ 675,936	$ 903,976

Balance Sheet

		Forecast Period						
Assets	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**
Current Assets								
Cash	$ -	$ -	$ -	$ 2,669,139	$ 2,892,412	$ 3,117,270	$ 3,343,718	$ 3,571,758
Marketable Securities	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Accounts Receivable	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Notes Receivable	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Inventory	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Prepayments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Current Assets	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Current Assets	$ -	$ -	$ -	$ 2,669,139	$ 2,892,412	$ 3,117,270	$ 3,343,718	$ 3,571,758
Non-Current Assets								
Capital Investments	$ 10,682,208	$ 19,782,980	$ 18,702,474	$ 18,674,474	$ 18,674,474	$ 18,674,474	$ 18,674,474	$ 18,674,474
Amortizable Asset (Net of Amortization)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Plant in Service	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Less: Accumulated Depreciation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Plant	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Non-Current Assets	$ 10,682,208	$ 19,782,980	$ 18,702,474	$ 18,674,474	$ 18,674,474	$ 18,674,474	$ 18,674,474	$ 18,674,474
Total Assets	$ 10,682,208	$ 19,782,980	$ 18,702,474	$ 21,343,613	$ 21,566,886	$ 21,791,744	$ 22,018,192	$ 22,246,232

Liabilities and Owners' Equity	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**
Liabilities								
Current Liabilities								
Accounts Payable	$ 10,682,208	$ 19,782,980	$ 18,702,474	$ 18,674,474	$ 18,674,474	$ 18,674,474	$ 18,674,474	$ 18,674,474
Notes Payable	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Current Liabilities	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Current Liabilities	$ 10,682,208	$ 19,782,980	$ 18,702,474	$ 18,674,474	$ 18,674,474	$ 18,674,474	$ 18,674,474	$ 18,674,474
Long-Term Liabilities								
Long Term Notes Payable	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Long Term Liabilities	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Long-Term Liabilities	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Liabilities	$ 10,682,208	$ 19,782,980	$ 18,702,474	$ 18,674,474	$ 18,674,474	$ 18,674,474	$ 18,674,474	$ 18,674,474
Owner's Equity								
Capital Stock	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Paid-In Capital	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Retained Earnings	$ -	$ -	$ -	$ 2,669,139	$ 2,892,412	$ 3,117,270	$ 3,343,718	$ 3,571,758
Total Equity	$ -	$ -	$ -	$ 2,669,139	$ 2,892,412	$ 3,117,270	$ 3,343,718	$ 3,571,758
Total Liabilities and Owner's Equity	$ 10,682,208	$ 19,782,980	$ 18,702,474	$ 21,343,613	$ 21,566,886	$ 21,791,744	$ 22,018,192	$ 22,246,232

$ - $ - $ - $ - $ - $ - $ - $ - $ -

Statement of Cash Flows

	Forecast Period							
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Beginning Cash	$ -	$ -	$ -	$ -	$ 2,669,139	$ 5,561,551	$ 8,678,821	$ 12,022,539
CASH FLOWS FROM OPERATING ACTIVITIES:								
Net Income	(1,335,276)	(2,639,782)	(2,667,782)	1,357	224,630	449,488	675,936	903,976
Adjustments to Reconcile Net Income to Net Cash Provided by Operating Activities								
Add: Depreciation	1,335,276	2,639,782	2,667,782	2,667,782	2,667,782	2,667,782	2,667,782	2,667,782
Add: Amortization	-	-	-	-	-	-	-	-
Changes in Current Assets and Liabilities:								
Marketable Securities	-	-	-	-	-	-	-	-
Accounts Receivable	-	-	-	-	-	-	-	-
Inventory	-	-	-	-	-	-	-	-
Prepayments	-	-	-	-	-	-	-	-
Other Current Assets	-	-	-	-	-	-	-	-
Accounts Payable	-	-	-	-	-	-	-	-
Other Current Liabilities	-	-	-	-	-	-	-	-
Net Cash Provided (Used) by Operations	$ -	$ -	$ -	$ 2,669,139	$ 2,892,412	$ 3,117,270	$ 3,343,718	$ 3,571,758
CASH FLOWS FROM INVESTING ACTIVITIES:								
Capital Expenditures	-	-	-	-	-	-	-	-
Amortizable Asset (Net of Amortization)	-	-	-	-	-	-	-	-
Long-Term Investments	-	-	-	-	-	-	-	-
Net Cash Used by Investing Activities	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CASH FLOWS FROM FINANCING ACTIVITIES:								
Notes Receivable	-	-	-	-	-	-	-	-
Notes Payable	-	-	-	-	-	-	-	-
Principal Payments	-	-	-	-	-	-	-	-
New Borrowing	-	-	-	-	-	-	-	-
Additional Paid-in Capital	-	-	-	-	-	-	-	-
Additions to Patronage Capital Credits	-	-	-	-	-	-	-	-
Payment of Dividends	-	-	-	-	-	-	-	-
Net Cash Used by Investing Activities	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Increase (Decrease) in Cash	$ -	$ -	$ -	$ 2,669,139	$ 2,892,412	$ 3,117,270	$ 3,343,718	$ 3,571,758
Ending Cash*	$ -	$ -	$ -	$ 2,669,139	$ 5,561,551	$ 8,678,821	$ 12,022,539	$ 15,594,297

*Builds a cash reserve to begin upgrading equipment in year 9

NPV/IRR Table

	Net Present Value	Internal Rate of Return
Without BTOP Funding	-$75,351,149.75	-33.47%
With BTOP Funding*	$13,407,052.81	#NUM!

*With no initial outlay of funds, we can not calculate an IRR for the "With BTOP Funding" section

Cash Flows withou	$ (35,740,177.00)	$ (50,589,419.00)	$ (16,134,640.00)	$ 2,669,139	$ 2,892,412	$ 3,117,270	$ 3,343,718	$3,571,758
Cash Flows with F	$ -	$ -	$ -	$ 2,669,139	$ 2,892,412	$ 3,117,270	$ 3,343,718	$3,571,758

Revenue Assumptions

Factor	Specific Metric Used in Analysis
Customers Passed	
Anchor Institutions - Segment A	Health Information Fee
Anchor Institutions - Segment B	
Businesses	
Households	
Last Mile Providers	
Other	
Take Rate (should likely vary across 8-Year Forecast)	
Anchor Institutions - Segment A	100%
Anchor Institutions - Segment B	
Businesses	
Households	
Last Mile Providers	
Direct Customer Connections	
Customer Segment A	
Customer Segment B	
Other	
Average Revenue per User (may vary across 8-year forecast)	
Anchor Institutions - Segment A	$60,039
Anchor Institutions - Segment B	
Businesses	
Households	
Last Mile Providers	
Other	

Expense Assumptions

Factor	Specific Metric Used in Analysis
Network Expenses	
Backhaul	
Maintenance	$100,000 for initial software and $300,000 to extend warranties and continue to monitor network

Utilities	
Leasing	
Depreciation	
Other	
Sales & Marketing	
Advertising	
Commissions	
Salaries	
Other	
Customer Care & Billing	
Systems	$500,000 for healtchare monitoring center
Personnel	
Other	
General & Administrative	
Professional Services	$2,692,935 in project management salary costs for the first 3 years, then $484,898 in salaries for year 4
Insurance	
Non-Network Utilities	
Travel	$15,000 per year
Supplies	$23,000 in first year and $5000 in succeeding years
Miscellaneous	Cost of equipment, circuits, installation fees, subrecipient, and indirect charges
Interest Expenses	
Debt Instrument A	
Debt Instrument B	
Taxes	
Federal Tax Rate	
Other Tax Rates	

Rationale (Cite Basis)
Transaction Fee for health information exchange based on Vermont experience
All middle-mile institutions in our project have agreed to participate
Revenue from HIE fees, divided among the sites in the network

Rationale (Cite Basis)
Quotes from vendors

Quote from vendor

12 FTEs in years 1-3 for implementation, then 6 FTEs to maintain project, assuming a 3% growth in salaries in years 4-8

Based on historical data from other programs

Based on quotes and historical data

Based on average quotes from vendors, quote from subrecipient and NICRA indirect rate of 26% of eligible costs

Comprehensive Community Infrastructure
Key Metrics Dashboard

Please refer to the CCI Grant Guidelines for instructions on completing this form.

Applicant Profile

Applicant Name	University of Arkansas for Medical Sciences
Title	The Arkansas Healthcare, Higher Education, Public Safety, & Research Integrated Broadband Initiative
Easygrants ID	4493
Headquarters	**Little Rock, Arkansas**
Size (2009 Data) of Applicant Entity	• Current Year Revenues: $988,358,000 • Employees: 10,552
Technology Type	**MPLS clouds, wireless, fiber, and other geographically accessible broadband technologies**
Key Partners	**Arkansas Research and Education Optical Network, Arkansas Association of Two-Year Colleges, Arkansas Department of Health, Arkansas Department of Human Services, Baptist Health, Arkansas Hospital Association, Arkansas State Library, Community Health Centers of Arkansas**

Project Economics

Budget Information		Project Financials	
Project Budget	**$149,184,650**	Project Revenues (Yr 8)	**$28,942,324**
Federal Contribution (%)	**68.7%**	Net Income and Margin (Yr 8)	**$903,976 (3.12337%)**
Cash Match Amount (%)	**0.06%**	EBITDA and Margin (Yr 8)	**$3,571,758 (12.34095%)**
In Kind Match Amount (%)	**31.24%**	Rate of Return (w/o BTOP Funds)	-33.47
Middle Mile/Last Mile Budget Allocation		Rate of Return (w/ BTOP Funds)	With no initial outlay of funds, IRR cannot be calculated
Middle Mile Percentage (%)	100%	**Cost Efficiency**	
Last Mile Percentage (%)	0%	Cost per Mile (MM)	**$0**
Rural Last Mile Percentage	0%	Cost per Household (LM)	**N/A**

Market Territory

Geographic Area(s)	**The proposed funded service area exclusively lies within the boundaries of Arkansas and has the potential to meet the broadband needs of citizens in all 75 Arkansas counties.**
Middle Mile Network Composition	
Total Proposed Network Miles (MM only)	• Total Miles: 1874.8 • Backbone Miles: 1809.6 • Lateral Miles: 65.2

Comprehensive Community Infrastructure
Key Metrics Dashboard

New Construction Network Miles (MM only)	• Total Miles: 379.8 • Backbone Miles: 354.6 • Lateral Miles: 25.2
Existing Applicant Network Miles Utilized (MM only)	• Total Miles: 1,495 • Backbone Miles: 1,455 • Lateral Miles: 40
Leased Network Miles Utilized (MM only)	• Total Miles: 0 • Backbone Miles: 0 • Lateral Miles: 0
Underserved/Unserved	• Percentage of Backbone Miles in Underserved/Unserved Areas: 46% • Percentage of Lateral Miles in Underserved/Unserved Areas: 46%
Existing Customer Base	
Existing Residential/Individual Customers within PFSA	**0**
Existing Business Customers within PFSA	**0**
Existing Community Anchor Institution Customers within PFSA	• Total CAI's: 474 • Community Colleges: 22 • Public Safety Entities: 1
Existing Third Party Service Provider Customers within PFSA	**0**
Potential Customer Base	
Market Potential Households (within PFSA)	• Total HH's: 548,305 • Located in Underserved/Unserved Areas: 185,324
Market Potential Businesses (within PFSA)	• Total Businesses: 61,714 • Located in Underserved/Unserved Areas: 20,204
Market Potential Community Anchor Institutions (within PFSA)	• Total CAI's: 3,926 • Located in Underserved/Unserved Areas: 1,749 • Community Colleges: 0 (all community colleges are included in project) • Public Safety Entities: 1,119
Market Potential Third Party Service Providers (within PFSA)	• Total Third Party Service Providers in PFSA: 62 • Expressing Commitment or Letter of Interest: 7
Funded Network Coverage	
Households Connected to Network (via BTOP Funds by end of Year 3)	• Total Households Connected: 0 • Located in Underserved/Unserved Areas: 0
Businesses Connected to Network (via BTOP Funds by end of Year 3)	• Total Businesses Connected: 0 • Located in Underserved/Unserved Areas: **0**
Community Anchor Institutions Directly Connected (via BTOP Funds by end of Year 3)	• Total Directly Connected CAI's: 474 • Located in Underserved/Unserved Areas: **218** • Community Colleges: 22 • Public Safety Entities: 1

Projected Subscribers by Year Five	**Directly Served by Applicant** • Community Anchor Institutions: 680 • Households: 0 • Businesses: 0 • Third Party Service Providers: **0** **Served by Proposed Network Via Third Party Service Provider** • Community Anchor Institutions: 0 • Households: 0 • Businesses: 0

Other	
Proposed MM Network Capacity	• Backbone: Up to 40 (forty) 10-gigabit circuits per pair of fibers • Laterals: 1-gigabit and 10-gigabit connections
Proposed LM Network Speed	• Highest offered speed tier: N/A • Estimated Average speed for highest speed tier: N/A
Total Points of Interconnection	• Total PoI's: 34 • PoI's in Underserved/Unserved Areas: 10 • Environmentally-controlled, non-passive PoIs: 0
Jobs Created	• **Direct Job-years: 66** • **Indirect Job-years:** 647 • **Induced Job-years:** 401
Required Time for Project Completion (Number of Required Quarters to Fully Build-out and Test Network and Make Ready for Commercial Service)	**9**