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# Building a Community Broadband Roadmap: Lessons in Implementation

Hosted by the National Telecommunications and Information Administration  
U.S. Department of Commerce

Hyatt Regency Minneapolis Northstar Ballroom 2<sup>nd</sup> Floor  
Thursday, September 04, 2014  
9:00 a.m. – 5:00 p.m.

Network name: "Hyatt Meeting Space" -- then go to browser  
Enter WiFi Password: NTIA2014  
Twitter: #NTIAworkshop





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## Opening Remarks

Glenn Reynolds, Chief of Staff, NTIA

Douglas Kinkoph, Acting Associate Administrator, NTIA





# Highlighting the State Role in Promoting Broadband – Minnesota's Story

Matt Schmit, State Senator

Ron Kresha, State Representative

Margaret Anderson Kelliher, Minnesota High Tech Association and  
Governor's Task Force on Broadband

Dan Dorman, Greater Minnesota Partnership

Danna MacKenzie, Minnesota Office of Employment and Economic  
Development

Moderator: Anne Neville, NTIA





# NTIA's Lessons Learned about Broadband Implementation

Aimee Meacham, NTIA





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## NTIA is responsible (by law) for advising the President on telecommunications and information policy issues

- Specific NTIA activities include:
  - Managing the Federal use of spectrum
  - Administering grant programs that further the deployment and use of broadband
  - Developing policy on issues related to the Internet economy
  - Performing cutting-edge telecommunications research and engineering with both Federal government and private sector partners



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- Source:

NTIA Connecting America's Communities Map  
<http://www2.ntia.doc.gov/BTOPmap/>



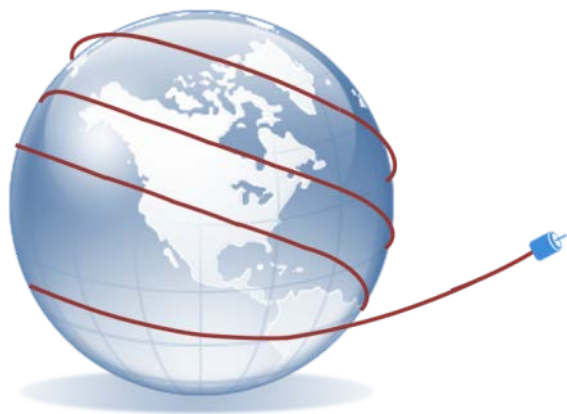


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## BTOP impacted communities across the nation: deploying infrastructure and teaching digital skills

Deployed More Than  
112,000 Miles of Fiber



Enough to circumnavigate the  
globe 4.5 times

Delivered 20 Million  
Training Hours



Equivalent to taking classes  
24/7 for more than two centuries

Trained More than  
4 Million People



More than six times the  
population of Washington D.C.





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### Broadband resources help Americans prepare for and participate in the 21st century digital economy

- Broadband is no longer just a household amenity - it is now a utility, just like water or electricity
- A quarter of Americans – approximately 78 million people – still do not have access to broadband at home
- Industries across America rely on broadband to help them advance their missions:
  - Economic Development
  - Education
  - Healthcare
  - Workforce Training







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## NTIA will support communities as they take on future broadband infrastructure and adoption investments

- Act as facilitator
  - Develop and provide resources for community broadband leaders (e.g., list of funding opportunities, toolkits, case studies)
  - Provide direct technical assistance to help apply resources effectively
  - Host conferences to facilitate sharing of ideas among communities
- Engage with the captive audience
  - Solicit input from stakeholders to develop market-responsive, inclusive and impactful programs
  - Build upon existing stakeholder base and brand awareness at the local level





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## NTIA is hosting a workshop series to share lessons learned & help communities manage successful broadband programs

### Workshop 1: *Community Strategies in Broadband Innovation*

- Share on-the-ground experiences and lessons learned from successful broadband projects
- Discuss topics, including:
  - Planning
  - Partnerships
  - Funding for community broadband programs
  - Stakeholder engagement

### Workshop 2: *Building a Community Broadband Roadmap*

- Share lessons learned to help communities seeking to expand broadband capacity
- Discuss topics, including:
  - Business models
  - Funding options
  - Public/private partnerships





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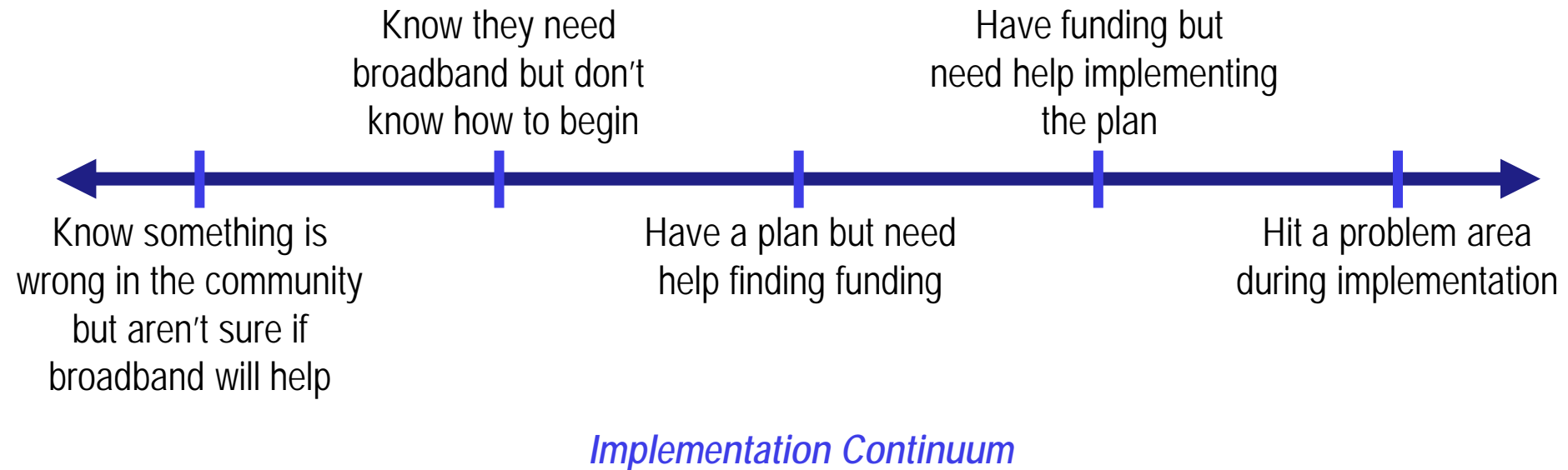
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**At the first workshop, participants shared challenges faced by broadband organizers and best practices to address them**

Challenges	Best Practices
Limited funding resources	<ul style="list-style-type: none"> <li>▪ Diversify potential funding sources</li> <li>▪ Consider methods for ensuring financial, demand, and impact sustainability throughout the project</li> </ul>
Selecting the right partners	<ul style="list-style-type: none"> <li>▪ Establish hub-and-spoke leadership</li> <li>▪ Identify a local champion</li> </ul>
Articulating the benefits of broadband	<ul style="list-style-type: none"> <li>▪ Define the value of broadband and describe its impact</li> <li>▪ Focus messages on how broadband will improve quality of life and encourage economic mobility</li> </ul>



## Communities May Start with Different Broadband Needs



## During this workshop, we will discuss lessons learned and best practices based on BTOP and SBI project implementation

Across all portfolios and states, recipients overcame challenges related to the following:

- Planning
- Stakeholder Outreach & Engagement
- Permitting
- Procurement & Contracts
- Project Management
- Training



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## Planning is Key to Implementing Broadband Projects

### Challenges

- Lacked understanding or proper assessment of target markets
- Failed to realize differences in wholesale and last-mile markets
- Needed to update preliminary market analyses to reflect current markets

### Lessons Learned

- Determine current state of broadband in the community
- Undertake a feasibility study
- Identify key stakeholders early in the process (elected officials, community groups, business leaders)
- Identify needs of key customers
- Identify existing infrastructure (e.g., poles, ROW, dark fiber, conduit)
- Identify existing broadband adoption and digital literacy programs
- Select the right partners





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## The C.K. Blandin Foundation Developed Planning Strategies and Tools

- **Challenge:** Rural Minnesotans needed to define their goals to Promote broadband adoption and deployment .
  - **Solution:** Encourage community to develop a shared vision for broadband expansion by:
    - Including key community members, businesses, and Policymakers in planning discussions
    - Incorporating digital inclusion programs
    - Developing a Community Technology Assessment tool to determine how community members are accessing the Internet
- Beyond BTOP, C.K. Blandin has also funded:
- Rural MN feasibility studies that communities can use as a model to adopt for their needs





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## Columbia County mapped existing infrastructure

- **Challenge:** Determine County's current broadband coverage.

- **Solution:** Undertake a coverage assessment of the County:

- Conducted extensive field coverage and created survey map by census block to evaluate coverage by existing providers
- Used visual inspections to cross reference against County's property record data
- Created a key stakeholder working group that included economic development authority, County's broadband utility group, tech firms and IT personnel to ensure that the project met stakeholders' diverse needs.







## Stakeholder Outreach & Engagement

### Challenges

- Needed to better explain and quantify the value to key markets
- Reactive stance to stakeholder questions or failure to engage
- Overpromised speed and impact of projects

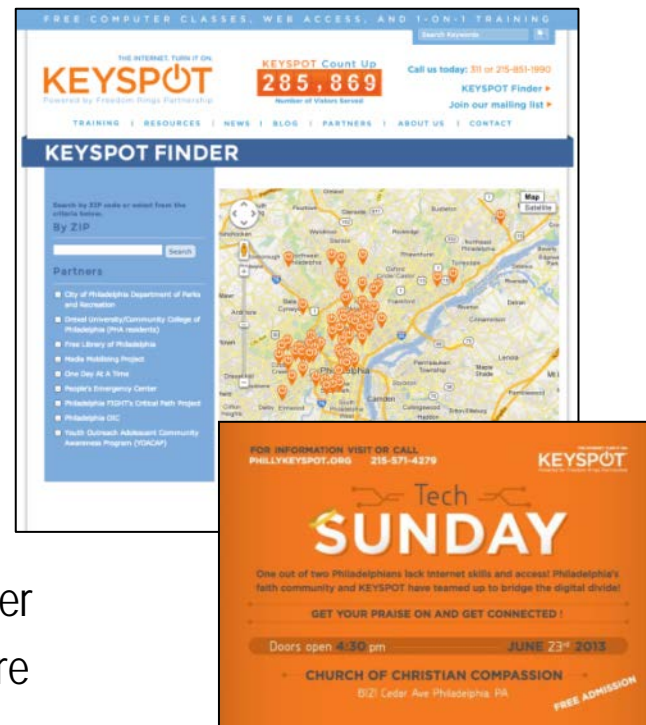
### Lessons Learned

- Develop a strong explanation of benefits and value
- Identify needs of key customers
- Hold events
- Build a professional team for stakeholder and community outreach
- Keep stakeholders informed and updated throughout the process



## The City of Philadelphia knew that location and accessibility were critical to encouraging Philadelphians to participation

- **Challenge:** Many vulnerable residents in Philadelphia did not use broadband in their daily lives because they didn't know where to find it or how to use it
- **Solution:** Reach residents while they are completing every day tasks and make it easy to participate:
  - Placed ads at public venues, including public transportation hubs and buses
  - Created an easily searchable website to find training. Residents can filter locations by zip code and can receive a SMS text-to-find a close training center
  - Integrated outreach with the city's 3-1-1 services to share information about centers and training with callers
  - Co-hosted events with local organizations, including churches, to reach broader segments of the population





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### The University of Wisconsin – Extension developed targeted messaging for each segment of the market

- **Challenge:** Non-adopters in Wisconsin didn't understand why broadband was important
- **Solution:** Identified the needs of the target market and developed outreach messaging to help them understand how to use broadband:
  - Developed target ads that showed residents specific ways to use the Internet in their lives
  - Reached 3.8 million residents through outreach campaigns and held approximately 950 educational and outreach events
  - Developed videos (received more than 7,500 views) featuring local residents discussing why broadband is important in their lives



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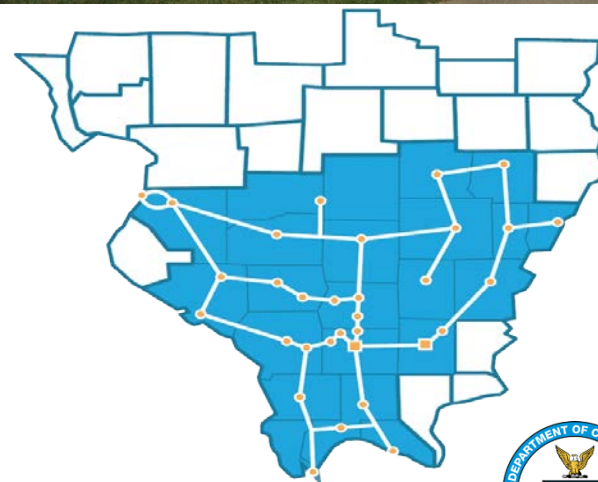


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## Clearwave Communication used intermediaries to manage communication and stakeholder outreach

- **Challenge:** Raising awareness about the importance of broadband and creating demand for service it was building
- **Solution:** Created active stakeholder networks:
  - Partnership with Connect SI (Southern IL) worked to explain broadband benefits to smaller communities
  - Kept community groups informed of progress, including the Chamber of Commerce
  - Worked closely with public officials, specifically mayors of the communities in the project who often did not use broadband technology in their official capacity





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## Securing permits is a critical part of infrastructure deployment and can be expensive and difficult to procure

### Challenges

- Lacked understanding permitting processes or requirements
- Failed to plan for the appropriate costs and time to secure permits
- Needed knowledge of the wide variance in permit types (railroad, ROW, private property, bridge attachments, etc.)

### Lessons Learned

- Build strong personal relationships with permitting entities/agencies
- Make use of franchise agreements that allow local governments to overlash on poles or use provider laid conduit
- Develop standard templates for easements, ROW, rights of entry





## Massachusetts Technology Park worked collaboratively with local companies to ease the permitting process

- **Challenge:** In Massachusetts, an entity wishing to gain access to attach to an existing utility pole must first submit an application to the pole owners:
  - Paid for pre-construction surveys to determine adequacy of the poles to handle the applicant's proposed attachment
  - Conducted a field survey to collect appropriate information on each pole that it wants to license
  - Had to submit applications to two pole owners: the incumbent telephone and electric companies own most poles jointly
- **Solution:** Faced with the prospect of licensing 35,000 pole attachments, MassTech worked collaboratively with local providers to execute Memorandums of Understanding (MOU).
  - Hired a single third party to expedite the application phase for determining pole adequacy and developing make-ready work estimates





## OSHEAN worked with a local provider to increase the number of organizations impacted by the grant

- **Challenge:** Permitting and pole rights requirements make it difficult to extend the impact of the grant project
- **Solution:** Developed a business strategy and agreement with Cox Communications, an existing provider in the area:
  - Enabled the consortium to connect significantly more CAls to the network than initially planned because of Cox's pricing structure, rights to utility poles, and adequate staffing to support the network build out in Rhode Island







## Procurement & Contracts

### Challenges

- Misunderstood the implications and differences of Fixed Price versus Time & Materials contracting
- Failed to negotiate out-clauses and service-level agreements (SLAs)
- Provided ambiguous wording in contracts that led to cost overruns and delays

### Lessons Learned

- Develop relationships with local contractors
- Contract construction on a fixed price basis by segment







## The Zayo Group developed relationships with local contractors to make the deployment process more efficient

- **Challenge:** Zayo needed to deploy fiber and develop interconnection points across three counties
- **Solution:** Sought contractors within the regions of the network build, as it was more cost effective for local construction companies to work in their area of operation.
  - Divided the build into seven sections, broke out laterals to each campus, and had contractors bid on each section
  - Awarded the contract to the lowest bid for each section, generating a substantial cost savings for the project
  - Finished the project 27 percent under budget





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## MCNC worked closely with a trusted supplier to alleviate logistical pressures

- **Challenge:** The scale of the project and amount of materials used was difficult for MCNC to manage on its own without a detailed planning processes
- **Solution:** Hired fiber supplier, CommScope, to provide materials and logistical support for the construction of the network:
  - Focused on reducing the costs of warehousing and distributing the fiber cables, conduit, and other related material by using a just-in-time delivery system
  - Manufactured the fiber at one of CommScope's three facilities and used CommScope trucks to deliver the material to the construction teams at their worksites
  - Minimized the amount of time any material was stored in a warehouse and reduced inventory expenses and wait times for the construction contractors





## Project Management

### Challenges

- Poor project planning and budget/actual tracking leads to cost overruns by contractors
- Failed to identify management challenges and take action early to improve performance

### Lessons Learned

- Plan and track results using a combination of management tracking and planning tools
- Perform strong construction oversight, including in-house inspectors or third party inspectors
- Hire expert consultants to supplement staff expertise



## The Mid-Atlantic Broadband Cooperative adjusted management practices to successfully complete the project

- **Challenge:** Deploy more than 600 miles of new fiber over a large region, while also working on a limited timeline
- **Solution:** Increase management oversight and planning to catch any issues early and increase efficiency of the process:
  - Completed frequent, random quality inspections at construction sites to ensure the construction was completed properly and on time, and to remedy any issues or deviations from the contract
  - Contacted schools individually during the engineering stage to obtain rights of way, determine where equipment could be housed, and resolve all engineering details prior to construction, which facilitated a smooth transition between the engineering and construction stages





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## University of Arkansas Medical Services hired consultants to help them comply with requirements and meet deadlines

- **Challenge:** UAMS was not familiar with all of the complex requirements and compliance rules, and knew that oversight would be difficult on such a large project
- **Solution:** Hired outside consultants for additional help and to supplement staff expertise:
  - Subcontracted the environmental assessment to an outside organization to help overcome delays caused by the team's unfamiliarity with the requirements and resources needed to perform the assessment
  - Held weekly meetings with the engineering team and supporting consultants to address issues, monitor progress, and ensure the project was on time



## Digital Inclusion Training

### ■ Challenges

- Lacked attention to public nervousness regarding technology, which inhibit learning
- Assumed higher level of computer skills than students (e.g., seniors) actually had
- Failed to train workforce adequately to support economic development efforts from new broadband infrastructure

### ■ Lessons Learned

- Assess training needs and review DigitalLiteracy.gov for curriculum
- Provide training in relevant languages
- Partner with organizations already serving immigrant, refugee, and low income communities
- Provide digital literacy and workforce development training to help individuals find employment



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## The Housing Authority of San Bernardino County provided workforce development opportunities to its constituents

- **Challenge:** Providing rural residents with skills necessary to prepare to find a job and work with technology
- **Solution:** Developed a specialized nine-week curriculum:
  - Included skill building curriculum to prepare students to enter the workforce
  - Partnered with the San Bernardino Employment Training Agency to provide instructors that would deliver high-quality training for residents
  - Monitored success of the program, which helped more than 200 participants find jobs



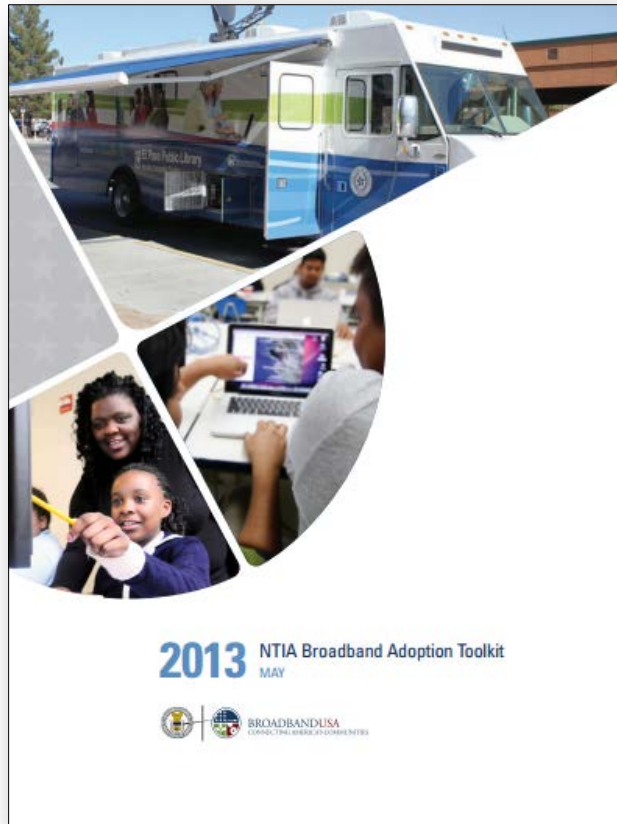




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NTIA developed the Broadband Adoption Toolkit to share tools, techniques, and best practices to increase adoption



*"We want to share the expert knowledge and experience of the broadband adoption and computer training projects with a broader base of anchor institutions, government agencies, non-profits and others engaged in this effort... we hope that as the grant program winds down, this toolkit will serve as a legacy and foundation for others to build on as they continue this vital digital inclusion effort."*







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## As communities continue to develop broadband programs, NTIA can offer support and guidance to help achieve success

- NTIA staff are experienced broadband program managers and have a wealth of knowledge on a range of topics including, permitting, program management, and overcoming barriers to adoption
- The Broadband Toolkits offer best practices and guidance to help communities create and manage successful broadband programs
  - **Broadband Adoption Toolkit:** Launched in 2013, the Toolkit shares NTIA's expert knowledge and experience from broadband adoption and computer training projects
  - **Local Government Toolkit:** In the coming months, NTIA plans to release a Toolkit aimed at supporting local governments as they develop broadband program





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Questions?





# The Community Broadband Roadmap: Ingredients for Successful Projects

Elwood Downing, Merit Network

Maria Alvarez-Stroud, University of Wisconsin Extension

Seth Arndorfer, Dakota Carrier Network

Rick Mervine, Alderman, Aurora, Ill.

Moderator: Jean Rice, NTIA



# Building a Community Broadband Roadmap



SEPTEMBER 4, 2014

# Panelists



Elwood Downing, Vice President – Membership Outreach & Engagement,  
Merit



Maria Alvarez Stroud, Director – UWEX Broadband & E-Commerce Education  
Center



Seth Arndorfer, CEO – Dakota Carrier Network



Rick Mervine, Vice President and Founding Board Member of OnLight  
Aurora





# Deep Dive into Business Models: The Upper Midwest Region as a Laboratory

Greg Flanagan, Enventis

Gary Shelton, Scott County, Minnesota

Essam El-Beik, Illinois Century Network

Kevin Beyer, Farmers Mutual Telephone Company and Federated  
Telephone Cooperative

Moderator: Sandeep Taxali





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# Tapping into Funding Streams: Federal and Private Funding Options for Broadband Deployment and Adoption Projects

Carol Matthey, Federal Communications Commission

Keith Adams, U.S. Department of Agriculture

Derrell Turner, Federal Highway Administration

Bernadine Joselyn, C.K. Blandin Foundation

Paul Weirtz, AT&T Minnesota

Patrick Haggerty, CenturyLink

Moderator: Glenn Reynolds, NTIA





## Closing Remarks

Douglas Kinkoph, Acting Associate Administrator, NTIA







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## Meet and Greet

