THE 50 STATES OF BROADBAND

A State-by-State Study on the State of Broadband Investment and Activity in Each American State

REISSUED MAY 3, 2016

Table of Contents

1 Introduction

In the interest of providing current and comprehensive research regarding broadband activities currently undertaken by American states, Strategic Networks Group (SNG) in partnership with the Rural Telecommunications Congress (RTC) sought to uncover the current state of broadband activity and investment in all fifty American states. We would like to thank the National Telecommunications and Information Administration (NTIA) for their support in this initiative.

Data collection took place during February and March of 2016. The 10-minute online survey created for this study was completed by **48 States** (Rhode Island and New Jersey chose not to participate). Each state was asked to report on five key dimensions of broadband: availability, adoption, meaningful use, growth investment, and regulation. Responses were used to rank states on these dimensions and develop a composite overall ranking.

SNG's core business is measuring how broadband is used by individual businesses, organizations, and households. This includes obtaining micro-level data to develop strategies that advance the economic opportunities at a community, regional, or state level. RTC is a national nonprofit organization comprised of government, university, industry, and private citizens who are committed to addressing crucial broadband issues to ensure that citizens of rural America have access to the enabling information and technology resources they need for greater social and economic development opportunities.

Key contributors to this initiative were:

- Doug Adams, Strategic Networks Group
- Michael Curri, Strategic Networks Group
- Lori Sherwood, Vantage Point Solutions
- Gary Dunmore, Strategic Networks Group
- Monica Babine, Washington State University
- Maria Alvarez-Stroud, University of Wisconsin-Extension

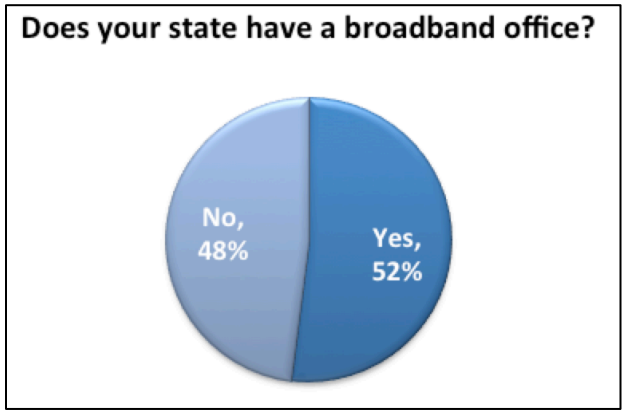
A special thanks to:

- Lynn Chadwick, National Telecommunications and Information Administration
- Brian Gibbons, National Telecommunications and Information Administration
- Each of the state representatives that took the time to participate in this research initiative

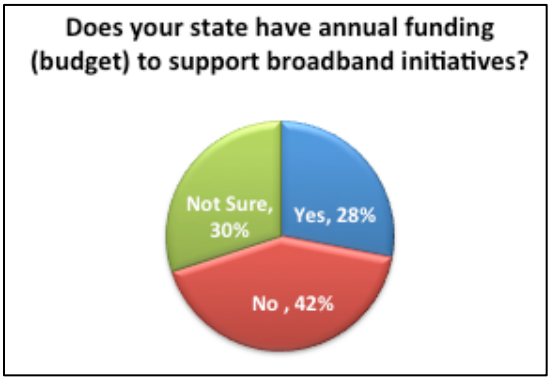
For more information you can email states@sngroup.com or visit sngroup.com/states.

1.1 Key Findings from States

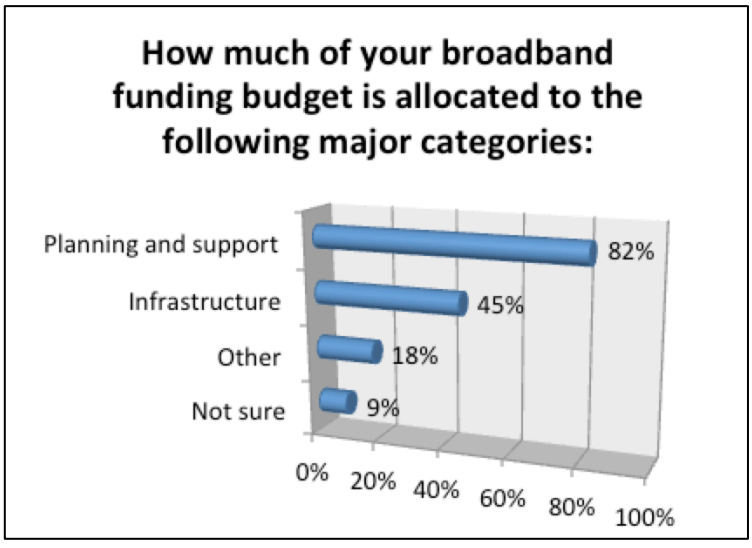
Half of all states and 25 of 48 states surveyed reported they have a broadband office. Only **one** state (Oregon) ranked in the overall top 20 did not have a broadband office. State broadband offices average 3.8 employees, with a median of 3 employees.



Only 28% surveyed said their state definitely has annual funding (budget) to support broadband initiatives. 30% were unsure, while 42% said that funding definitely did not exist. Thirteen states reported their budget and with the exception of California ($330M) and New York ($500M) these budgets are modest. The average funding for the 11 states that are not NY or CA is $596,000 a year.



When funded, activities most often funded are "planning and support" by 82% while infrastructure is being funded by 45%.



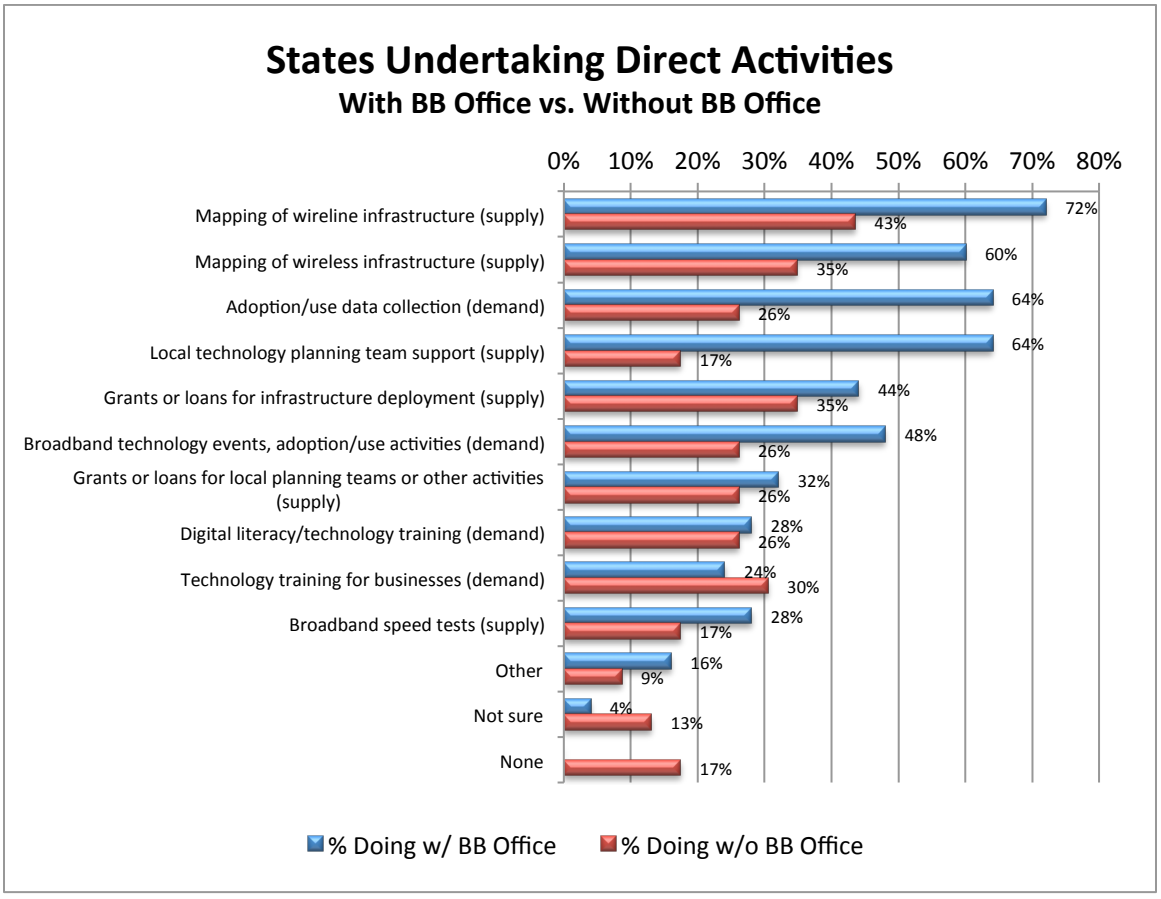
1.2 Funding Sources

For states with a broadband budget, SNG asked states to reveal the three main sources of their funding.

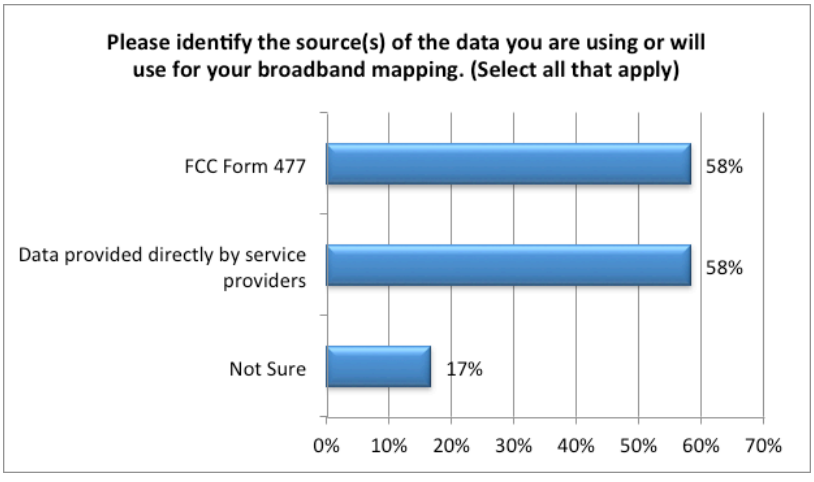
Primary Sources	Secondary Sources	Tertiary Sources
Broadband Outreach & Aggregation Fund	Advertising/promotion fee	Dedicated and Federal funds
DIS Budget	Educational Technology Fund (E-Fund)	Government Operations (support staff)
eRate	Department Enterprise Funds	Grants - 2 states
Multi-year capital budget allocation from the state	Department of Services Agency	State Industrial Development and Export Authority Loan Program
Public purpose program (CASF)	eRate subsidy funds	
Special Funds	Federal grants - FirstNet	
State Admin	Grants	
State Budget – 5 states	Liquor Sales Revenue	
State General Fund – 8 states	Program revenue	
Surcharge on instate retail telco services – 2 states	Public/Private Partnership with local Telco's	
Universal Service Fund – 3 states	State budget category	
Utility gross receipts	State General Funds	
	State staff time	
	Universal service fund	

1.3 State Broadband Activities

SNG expanded its questions to ask if a state broadband office or another entity within was handling specific broadband activities and what was the focal point of those activities. Activities seem to be heavily weighted towards the "supply side" of broadband and include mapping, infrastructure planning, and grants. These activities far surpassed "demand side" undertakings around raising awareness, training, and driving utilization with end-users.



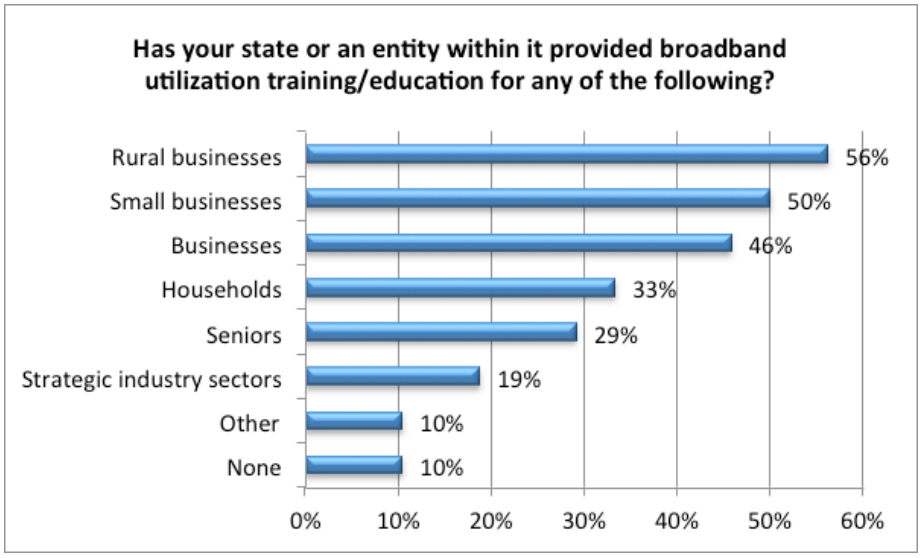
Mapping data is being obtained at the same level (28 states, 58%) through service providers and the FCC. Many states rely on both for mapping data.



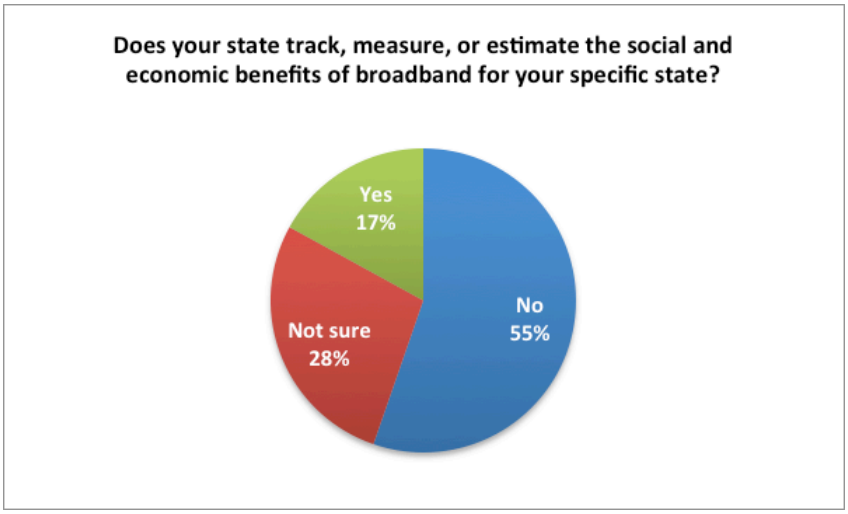
States were asked specifically when data was collected in key areas of broadband. Availability has been mapped by every state surveyed since 2014 (26 in 2014, 22 in 2015) while actual utilization was only measured by a little more than half of states surveyed.

Type of Broadband Data Collection	before 2013	2013	2014	2015
Availability of broadband to potential users (supply)	0	3	26	22
Adoption of broadband where available (demand)	2	5	19	13
Utilization of broadband – how and how much broadband is used by adopters	4	2	18	8
Mapping of broadband availability by type, speeds, etc.	0	3	27	20

Within states there is some training and education to address the "demand side" of broadband to help drive meaningful use of internet applications. Most training, when it does occur, is targeted at helping businesses better utilize the Internet and revenue-generating online applications.



Finally, with all of the broadband investment that has taken place so far this decade, one would expect that the benefits and economic impacts of these investments would be measured. This is not the case as only 8 states reported measuring economic and social benefits.



2 Five Dimensions to the State of Broadband

2.1 Availability

The first dimension used to measure the states comes from the Federal Communications Commission (FCC) published availability numbers of 25 Mbps download / 3 Mbps upload availability, reported by carriers in each state. The argument could be made that carrier-reported data (the source of the FCC report) has inaccuracies. We are making the assumption that this potential shortcoming in carrier-reported availability is, in essence, not markedly different from state to state.

Additionally, SNG's survey among state respondents asked about the state's own mapping and availability metrics – giving a slight bonus in the score if states were taking initiative themselves.

Availability of broadband counted as **27.5%** of the **overall** state ranking, which comes after each one of the five dimensions are reported.

1. Hawaii
1. Nevada
3. California
3. Oregon
5. Delaware
5. New York
7. Massachusetts
8. Utah
9. Washington
10. Connecticut
11. North Dakota
12. New Hampshire
12. Wisconsin
14. Michigan
14. Minnesota
14. Pennsylvania
17. Colorado
18. Illinois
19. North Carolina
20. Oklahoma
21. Florida
21. Maryland
23. Virginia
24. Ohio
25. Maine
26. South Carolina
27. Tennessee
28. Georgia
28. Indiana
30. Iowa
31. New Mexico
32. Nebraska
33. South Dakota
34. Arizona
35. Kansas
36. Wyoming
37. Alabama
38. Alaska
39. Louisiana
39. Missouri
41. Kentucky
41. Mississippi
43. Texas
44. West Virginia
45. Idaho
46. Arkansas
47. Vermont
48. Montana

2.2 Adoption

To measure adoption we used the FCC's numbers for adoption, which they define as the percent of households for which service is available and that subscribe to broadband.

We also collected state-specific data within SNG's survey to measure whether each state was supporting Internet adoption, providing additional bonus points if a state is undertaking efforts to measure and foster adoption.

Adoption counted as **12.5%** of the overall ranking.

1. New Hampshire
2. Hawaii
3. Oregon
4. Vermont
5. Connecticut
6. Wyoming
7. California
8. Utah
9. Maine
10. Wisconsin
11. Pennsylvania
12. Iowa
13. Delaware
14. Ohio
15. Massachusetts
16. Michigan
17. North Carolina
18. Colorado
19. Virginia
20. West Virginia
21. South Carolina
22. North Dakota
23. Minnesota
24. Nebraska
25. Idaho
26. Montana
27. Kentucky
28. Washington
29. New York
30. Nevada
31. Illinois
32. Alaska
33. Mississippi
34. Kansas
35. Florida
36. New Mexico
37. South Dakota
38. Maryland
39. Texas
40. Tennessee
41. Oklahoma
42. Louisiana
43. Georgia
44. Arizona
45. Missouri
46. Indiana
47. Arkansas
48. Alabama

2.3 Driving Meaningful Use

Often people understand that broadband is "good" but they don't know how to put it into practice for their specific needs. Driving meaningful use by individual businesses, organizations and households through raising awareness and training is a critical component to actually realizing the benefits of broadband's potential to enable economic development and improve quality of life.

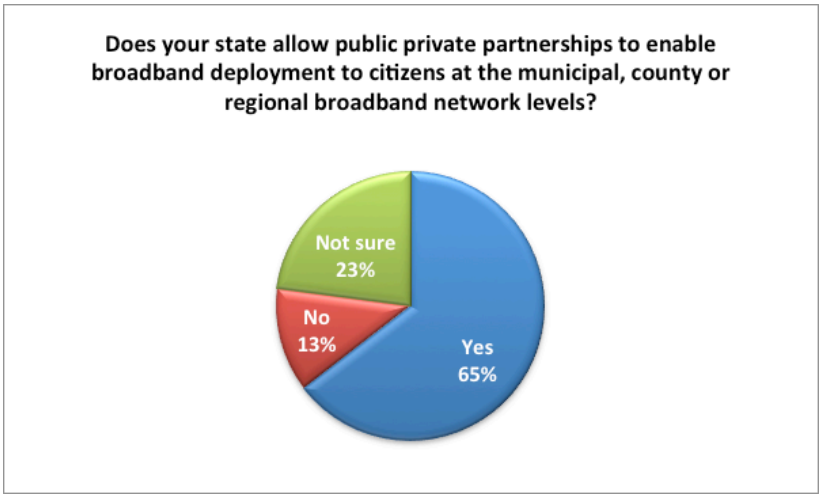
Within our state survey, SNG asked state representatives questions regarding training / education programs that may exist, whether there is training for businesses, small and rural businesses, seniors, and households. Additionally, we asked whether states track, measure, or estimate the social and economic benefits of broadband.

States' answers resulted in a score for "driving meaningful use," counting as **15%** of the overall ranking.

1. Ohio
2. Vermont
2. West Virginia
4. Iowa
5. Montana
6. Nebraska
7. Michigan
7. Mississippi
9. Illinois
9. Pennsylvania
9. Washington
12. Colorado
13. Minnesota
13. New Mexico
15. New Hampshire
15. Wisconsin
17. Kentucky
18. New York
19. Maine
19. Oklahoma
19. Oregon
19. Virginia
23. Missouri
23. North Carolina
25. Kansas
25. Wyoming
27. Delaware
28. Massachusetts
29. Louisiana
30. Connecticut
30. Hawaii
32. Georgia
33. Arkansas
34. California
34. Florida
34. Nevada
34. North Dakota
34. South Carolina
39. Alabama
39. Alaska
41. Idaho
41. South Dakota
41. Texas
41. Utah
45. Arizona
45. Indiana
45. Maryland
45. Tennessee

2.4 Growth Investment

The state survey asked quite a few questions regarding each state's ongoing investment in broadband. A critical component within this dimension was whether or not a state has in place a statewide broadband office dedicated to increasing broadband access and use. Additional metrics within this category included whether there are funds dedicated to support broadband initiatives, the amount, and the investment dedicated per capita. Additionally, the survey tracked whether there are rural broadband programs in place and whether investment on broadband initiatives is expected to increase, stay the same, or decrease.



One popular mechanism to drive investment towards broadband infrastructure is through public/private partnerships – which are permitted by two-thirds of states surveyed.

States' answers resulted in a score for "growth investment," counting as **30%** of the overall ranking.

1. New York
2. Nevada
2. North Carolina
4. New Mexico
4. Virginia
6. Kentucky
7. Maine
7. Wisconsin
9. Minnesota
10. Connecticut
11. Wyoming
12. Utah
13. Massachusetts
14. Vermont
15. Ohio
16. New Hampshire
16. Arkansas
18. Delaware
18. Colorado
20. Alabama
21. Iowa
22. Mississippi
23. Pennsylvania
23. Arizona
25. California
26. Nebraska
27. Tennessee
28. Kansas
29. Oregon
29. Illinois
29. Idaho
32. Montana
33. Hawaii
33. Oklahoma
33. South Carolina
36. Washington
36. North Dakota
36. Louisiana
39. Alaska
40. Maryland
40. South Dakota
40. Michigan
40. Texas
44. West Virginia
44. Georgia
44. Missouri
44. Florida
44. Indiana

2.5 Regulation

SNG looked at the regulatory environment in each state as a factor in the overall ranking. By itself, the presence of laws that place restrictions or conditions on the municipal (or other) ownership or operation of networks does not necessarily indicate a lack of availability, adoption, driving meaningful use, or investment. However, it is important to consider the potential impacts of restrictions and regulations on each of the other four dimensions.

There are two tiers of metrics within this dimension and they include:

- Whether a state has restrictions limiting municipal (or other) ownership or operations of a broadband network; and
- If regulations are in place do they:
    - Require a ballot initiative to overcome the limitation; and/or
    - Does the regulation either explicitly or by effect – constitute a total or partial ban on municipal (or other) ownership or operations of a broadband network?

The evaluation of regulations does not consider whether one state's laws are more or less restrictive than another other than providing deductions for the categories listed above. Scores for "regulation" counted as **15%** of the overall ranking.

No regulation in place
Alaska
Arizona
Connecticut
Delaware
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Maine
Maryland
Massachusetts
Mississippi
New Hampshire
New Jersey
New Mexico
New York
North Dakota
Ohio
Oklahoma
Oregon
Rhode Island
South Dakota
Vermont
West Virginia
Wyoming

Regulation in Place
Alabama*
Arkansas**
California
Colorado*
Florida
Louisiana*
Michigan**
Minnesota*
Missouri**
Montana**
Nebraska**
Nevada**
North Carolina*
Pennsylvania
South Carolina
Tennessee
Texas**
Utah
Virginia**
Washington
Wisconsin

*Regulation requires a Referendum
** Regulation either explicitly or by effect – constitutes a total or partial ban on municipal (or other) ownership or operations of a broadband network.

3 Overall Ranking

SNG consolidated and weighted five dimensions of broadband into one overall score for each participating state. The dimensions and weighting are:

- Availability – 27.5%
- Adoption – 12.5%
- Driving Meaningful Use – 15%
- Growth Investment – 30%
- Regulation – 15%

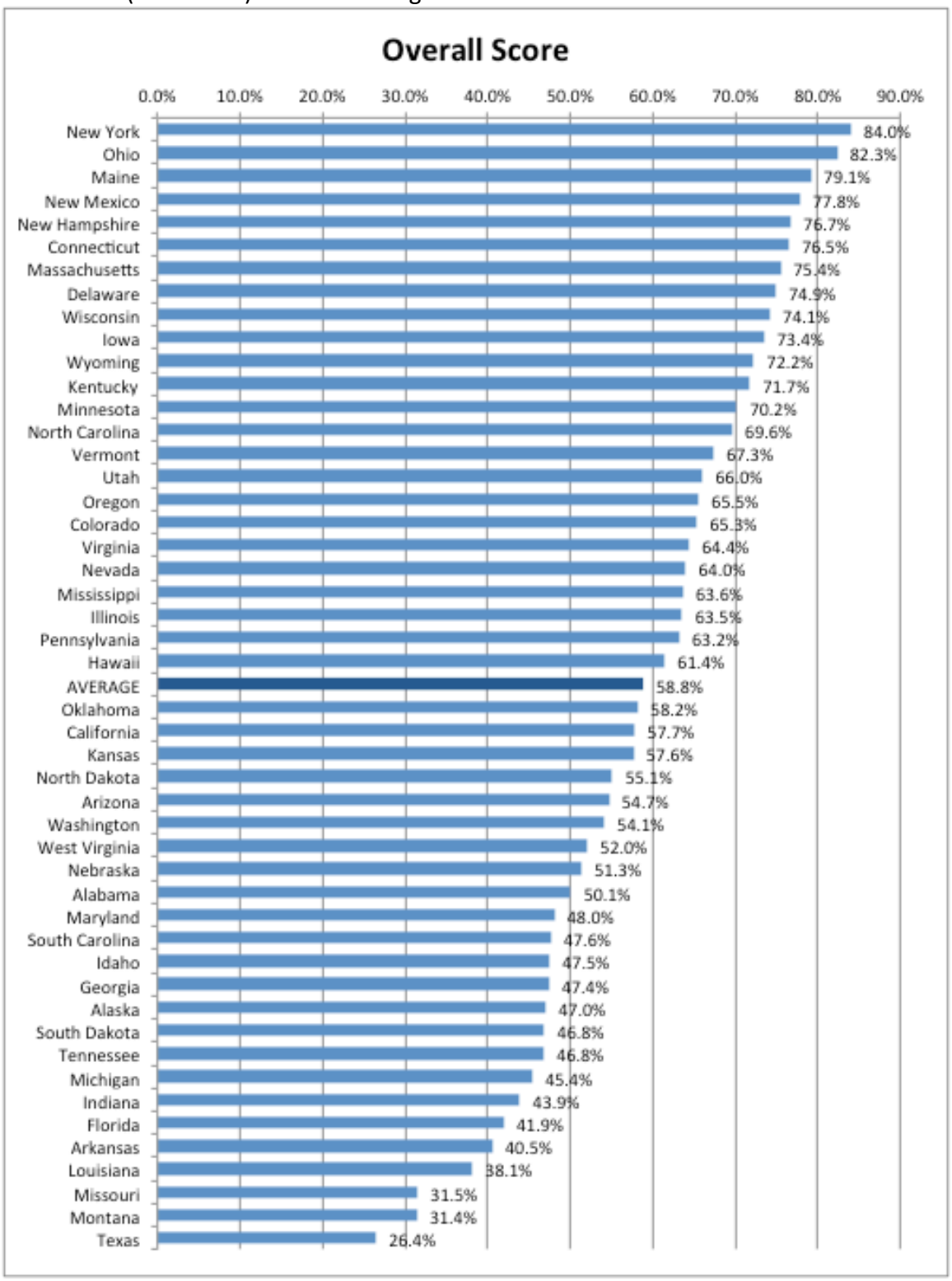
As a research team, we had a great deal of discussion covering which dimensions should carry what weight. Availability was given a great deal of consideration, as it is the foundation for all broadband activity. As the FCC reported adoption and driving meaningful use was a dimension formed from the survey, we wanted these two related dimensions together to equal availability. Growth investment was originally considered at a slightly higher level at the expense of regulation. Ultimately, we decided that regulation can and does stop broadband progress and that needs to be recognized. Additionally, ranking investment too high could unfairly punish states that made significant investments in the past but are not currently investing.

1. New York*
2. Ohio*
3. Maine*
4. New Mexico*
5. New Hampshire*
6. Connecticut*
7. Massachusetts*
8. Delaware*
9. Wisconsin*
10. Iowa*
11. Wyoming*
12. Kentucky*
13. Minnesota*
14. North Carolina*
15. Vermont*
16. Utah*
17. Oregon
18. Colorado*
19. Virginia*
20. Nevada*
21. Mississippi*
22. Illinois
23. Pennsylvania*
24. Hawaii
25. Oklahoma
26. California
27. Kansas
28. North Dakota
29. Arizona*
30. Washington
31. West Virginia
32. Nebraska
33. Alabama*
34. Maryland
35. South Carolina
36. Idaho*
37. Georgia
38. Alaska
39. South Dakota
40. Tennessee
41. Michigan
42. Indiana
43. Florida
44. Arkansas*
45. Louisiana
46. Missouri
47. Montana
48. Texas

*Have a State Broadband Office

3.1 Overall Score

More specifically, each data point was assigned a score to determine ranking and a cumulative (out of 100) score was assigned. Each state's score is below:



3.2 Open Ended Feedback

As the survey concluded states were asked: "Are there any additional activities, comments or suggestions you would like to share?" Some highlights follow:

New York (#1)
As part of Governor Cuomo's New NY Broadband Program, New York State is investing an additional $500 million in funding for high-speed Internet access to unserved and underserved areas across the state. Program criteria for the New NY Broadband program include:

- Access to broadband at speeds of at least 100 Mbps; 25 Mbps in the most remote areas of the state,
- Public-private partnership with a 50 percent match in private sector investment targeted across the program
- High priority for unserved areas, libraries and educational opportunity centers

New Mexico (#4)
The NTIA funded SBI (State Broadband Initiatives) Grants were incredibly successful and an efficient use of public funds to enhance broadband programs throughout the nation and territories. Totally assisted New Mexico in moving forward. When the grant cycle ended there was a large amount of momentum lost, not to mention viable projects in the important realm of digital literacy, direct relationships with providers, significant engagement of rural communities, and so on. To not continue funding the SBI even on a very limited basis, say 1/4 of the original grant ($250K annually for NM), was a limited vision. Be great to reconsider that support as part of the Broadband USA function.

Virginia (#19)
Connectivity means everything to rural communities in terms of them being able to attract new business and investors, and to help strengthen and grow their communities. New funding sources and programs would be of great assistance as we try to assist those communities.

Pennsylvania (#23)
Pennsylvania leadership recognizes the importance of broadband to Pennsylvania's future economy and is actively seeking ways in which to advance this very important topic through strategic partnerships with various stakeholders.

South Carolina (#35)
We're working hard to get some state funding for broadband initiatives in SC. Since Federal SBI funding concluded in January 2015, it's been very difficult to provide a lot of services of work with communities directly.

4 Looking Ahead

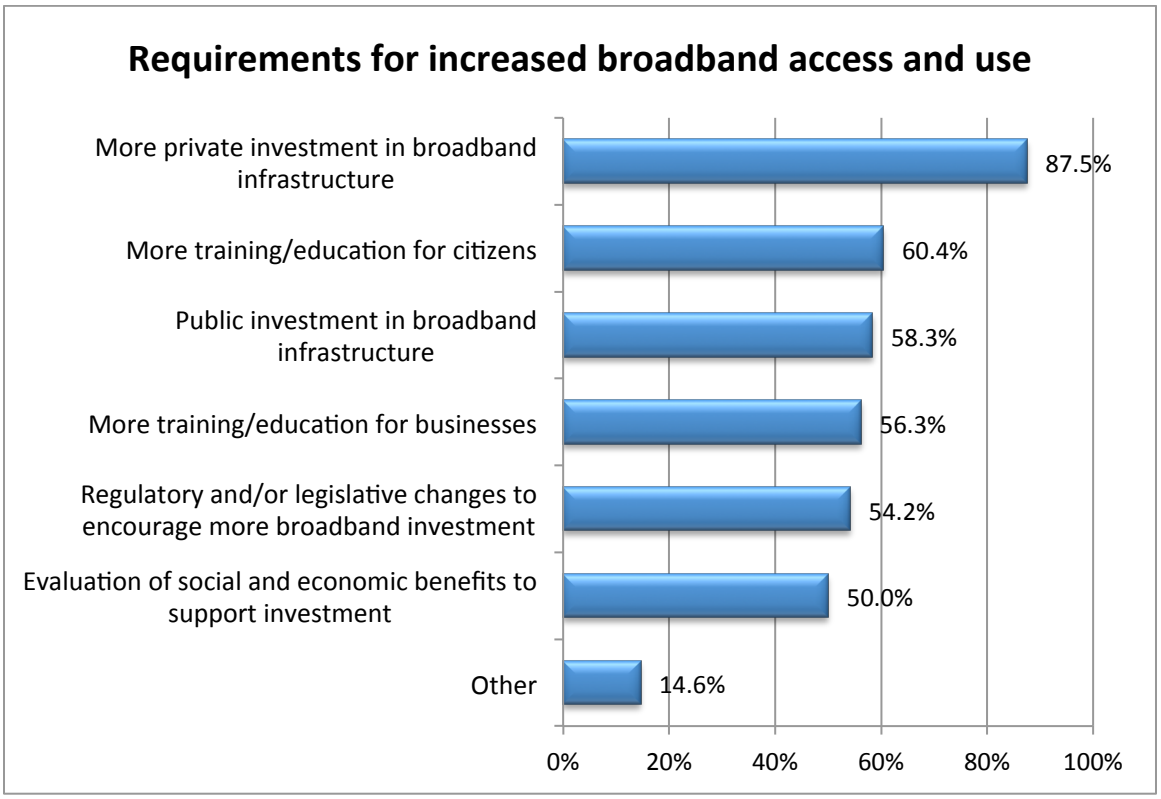
SNG will continue to analyze the findings and will share recommendations in a full report. SNG will conduct this survey on a regular basis, no less than once a year, to track changes and outcomes.

States and survey participants will receive the full report and a review of the key findings in a special webinar that will be scheduled in May, 2016 with the States who participated in this research.

For more information you can email states@sngroup.com or visit sngroup.com/states.

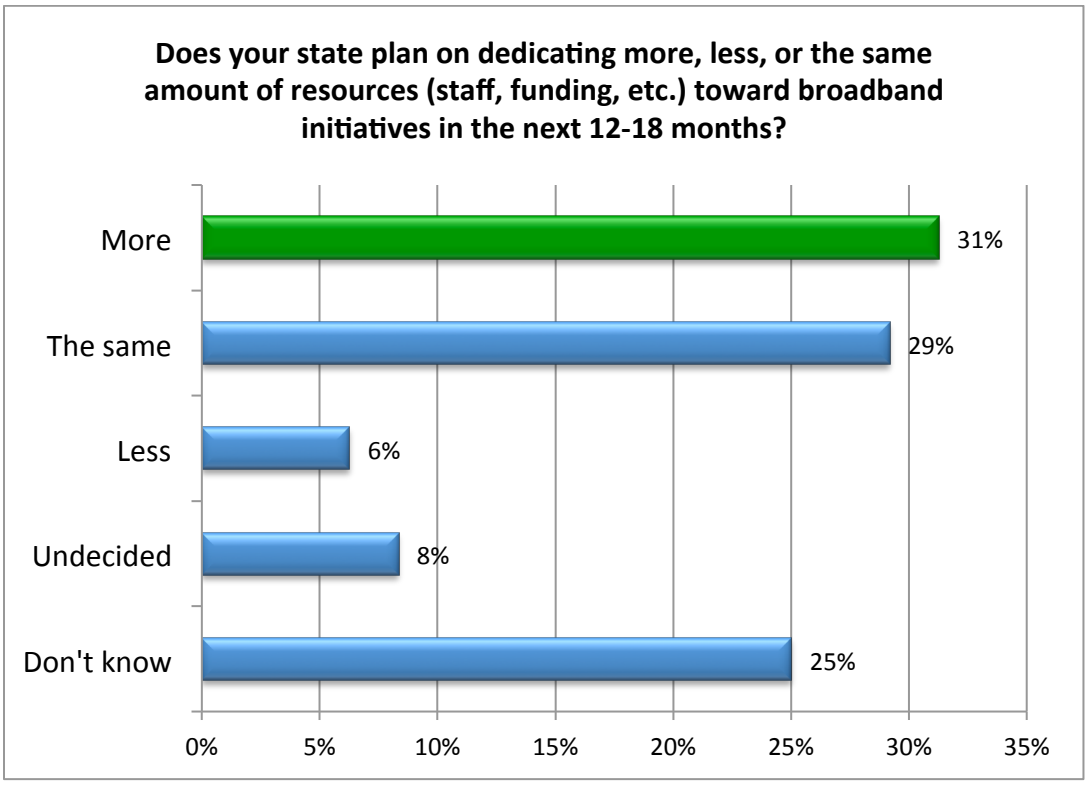
4.1 Requirements Going Forward

Regarding what states said they want now, two-thirds of surveyed states reported that new private investment is the most critical component for broadband growth. Training and public investment are also seen as critical components.



4.2 Future Investment in Broadband

Moving forward over the next 12-18 months nearly a third (31%) of states surveyed see more, not less (6%) investment in broadband. Three in five (60%) of states are at the very least remaining flat with broadband spending.



5 Project Team

The following individuals contributed to this extensive effort.

Doug Adams
VP Communications, Strategic Networks Group Inc.

Doug Adams oversees SNG's Communications efforts and oversees numerous state-level and nationwide efforts for SNG.

With over 20 years technology marketing experience, Doug is uniquely qualified to help products and services move across the technology adoption lifecycle and "cross the chasm" to become widely adopted.

Located in Boulder, CO, Doug's broadband experience includes OneCommunity, the Knight Center of Digital Excellence, and Gigabit Squared. His research background includes serving online research pioneer InsightExpress, Walker Research, and Direct Opinions. Doug received his M.B.A. in marketing from the University of Connecticut and holds a bachelor's degree in communication from DePauw University.

Michael Curri
Founder and President, Strategic Networks Group Inc.

Michael Curri founded Strategic Network Group, Inc. (SNG) in 1998 and as President he leads a group of broadband economists who develop strategies for most effectively leveraging broadband investments. We look to help make the most broad-reaching and transformational impacts that broadband can bring enable businesses, communities and regions. SNG helps states and regions utilize broadband for economic development, social advancement, increased productivity, and competitiveness.

SNG's approach is based on our research that shows that for broadband to be effective and transformational, it is critical to make sure that it is being utilized – driven by compelling and powerful e-solutions. Michael has a Master's in Economics from the University of Waterloo, Canada. He is based in Ottawa.

Lori Sherwood
Director of Broadband Development, Vantage Point Solutions

Lori Sherwood has actively worked in broadband and telecommunications in the municipal space for more than 13 years. She is also an attorney who served as Of Counsel with the Denver law firm Kissinger & Fellman, P.C, where she specialized in local governments, information technology, telecommunications, community broadband networks, legislation, lobbying and federal affairs. She is a nationally recognized leader in telecommunications and broadband policy and recently served on the board of directors for NATOA) – an association representing local government interests in telecommunications. Sherwood has a BA in anthropology from American University and is an honors graduate of the University of Baltimore School of Law.

Gary Dunmore
VP, Client Services, Strategic Networks Group Inc.

Gary Dunmore is an electrical engineer and business analyst with over 20 years experience in the telecommunications industry and a proven track record in helping service providers define new business opportunities for service deployment. He has proven leadership skills in project planning, team management and project management developing successful business cases for a wide variety of telecom and internet operators across North America.

Since 1994, Mr. Dunmore has worked on telecommunications services and service deployment planning with telecom service providers. For a variety of clients, from established incumbent providers to new start-up operators, he has developed project plans, written proposals, mobilized internal and external resources and engaged clients to develop practical solutions for new service deployment with a focus on business goals and vision. To assist decision-making, he has helped clients identify new opportunities for growth, market and revenue potential; develop the best solution for their network; and construct solid business cases and risk analysis for investment decisions.

Gary has experience in voice telecommunications networks and emerging IP-based services in North America and international markets. He has an Electrical Engineering degree from the University of British Columbia.

Monica Babine
Senior Associate, Washington State University

Monica Babine is a Senior Associate at Washington State University (WSU) Extension's Division of Governmental Studies and Services where she leads the Program for Digital Initiatives. She works with business, government, economic and community development organizations on promotion, research and technical assistance to increase broadband awareness, access and adoption. Monica is on the Washington OneNet team providing outreach and engagement regarding FirstNet in the state. She was an active member of the Washington State Broadband Advisory Council and provided ARRA funded technical assistance to regional broadband planning efforts across the state. She currently serves on the Washington State Library Digital Literacy Advisory Team, Affiliated Tribes of Northwest Indians Energy and Telecommunications Committee, Inland Northwest Partners, WSU 530 Mudslide and Wildfire Recovery teams and the Rural Telecommunications Congress board.

Prior to joining WSU, Monica led a consulting firm that provided presentations, consultation and training on telework, compressed workweeks, flextime as well as community and economic development for public, private and non-profit organizations. She was at a major telecommunications company in Washington for fourteen years working in operator services, accounting, marketing and public affairs.

Maria Alvarez-Stroud
Director, Broadband & E-Commerce Education Center, University of Wisconsin Extension

Maria Alvarez Stroud is the director of University of Wisconsin-Extensions' Broadband & E-Commerce Education Center.

From 2010-'13 she successfully led the NTIA federally funded endeavors of UWEX, a $45 million effort bringing additional fiber to Wisconsin for community anchor institutions along with a community education and outreach effort to encourage broadband adoption.

She is a seasoned executive with over 25 years of experience in creating new service streams and seeking out new ways of reaching underserved audiences. Maria has done this work in a variety of settings, from the nonprofit sector to public broadcasting and higher education. She is experienced in change management, strategic partnership advancement, and fund development, having created numerous tools recognized nationally.

She holds a Bachelor of Science in Psychology and Communications and a Masters in Public Policy and Administration from University of Wisconsin-Madison.