

**The ConnectME Authority**

**DRAFT**

**Detailed 2016-2018 Strategic Plan  
for Broadband Service in Maine**

January 19, 2016



## Table of Contents

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The ABCs of Broadband.....	1
Maine Goals and the Triennial Plan.....	3
Current Status of Broadband in Maine .....	6
Vision and Objectives .....	14
Strategies .....	15

# The ABCs of Broadband

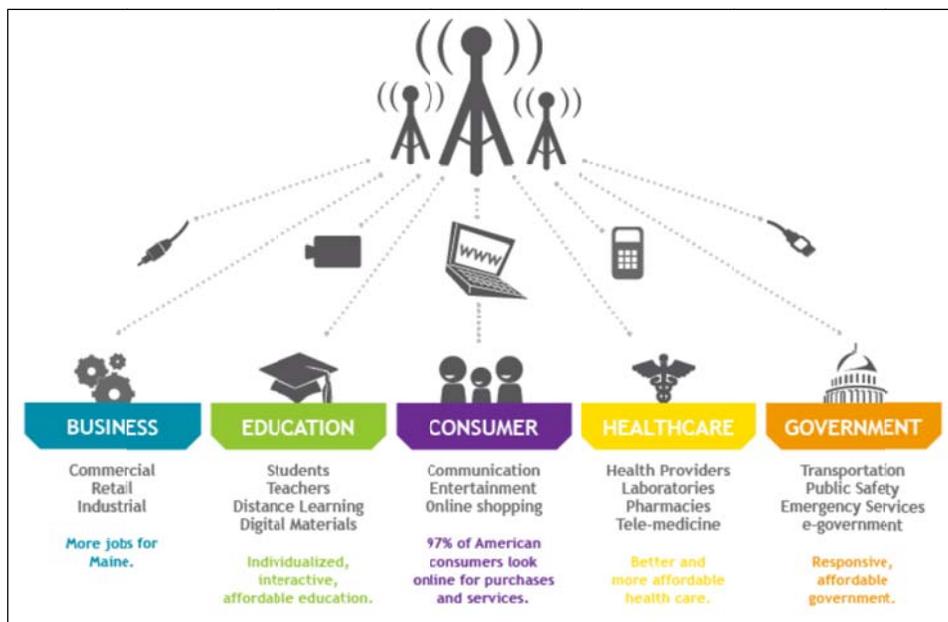
In its simplest terms, “broadband” is a fast connection to the internet that is always on.

A more technical definition is provided by the Federal Communications Commission (FCC): *The term “broadband” refers to advanced communications systems capable of providing high-speed transmission of services such as data, voice, and video over the Internet and other networks.*<sup>1</sup>



Broadband communication comes to people through wires, satellites, cell towers – often in combination – on a sometimes long journey from the source to your computer, cell phone, or tablet.

Broadband is revolutionizing the way people all over the world shop; conduct business; read; communicate; become educated; receive health care; and provide government services.



The Governor’s Broadband Capacity Building Task Force identified how a more aggressive use of broadband in all of the above areas could generate 11,000 new jobs in Maine over the next decade, and \$485 million in income.<sup>2</sup>

<sup>1</sup> See <https://www.fcc.gov/encyclopedia/strategic-plan-fcc>

<sup>2</sup> See <http://www.maine.gov/connectme/grants/ntia/capacity-building.shtml>

Different uses of broadband require different speeds of service. Speed is measured in kilobits of information per second (kbps) or megabits per second (Mbps) that a broadband connection can pull *down* (the user getting information from the internet) or send *up* (the user sending information to the internet). Often services pull down more than they send up.

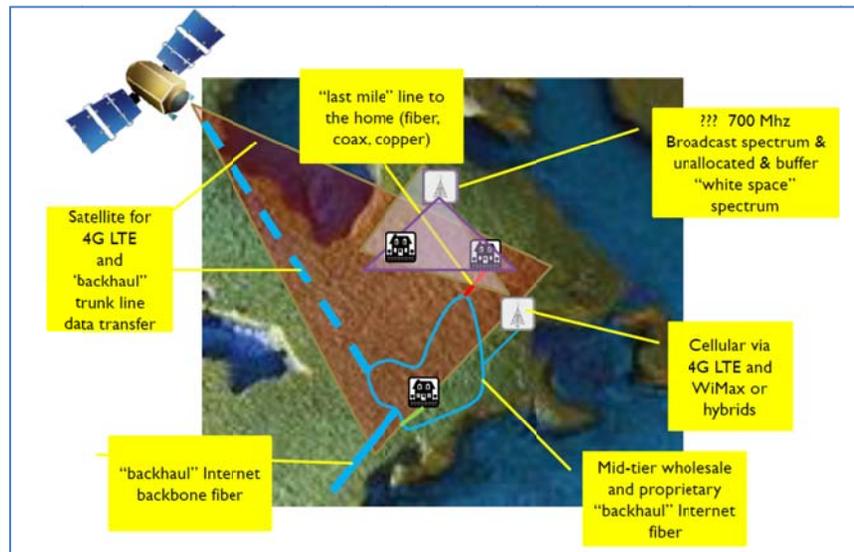
**Table 1: Download and Upload Speeds required**

	Consumer	Business	Hospital
Basic Email, internet browsing	500 kbps to 1 Mbps		
Email with large attachments, streaming music, web browsing to more complex sites	1 Mbps to 5 Mbps		
E commerce		10-15 Mbps	
Videoconferencing	10-100 Mbps		
Telemedicine			10 to 100 Mbps

Beyond speed itself, there are other factors affecting broadband performance and adoption. These include:

- Consistency – the ability of service to maintain promised speeds at periods of peak use;
- Reliability – the ability to maintain service in the case of storms or system breakdowns; and
- Affordability – the ability to provide service at a cost that consumers can pay

Broadband can be delivered to the home in many ways – and most information travels on multiple pathways. Fiber provides the most reliable service to the home, but is the most expensive.



## A Note on the Data Sources used in this report

The narrative which follows uses three different data sources, each with subtle differences. The Federal Communications Commission (FCC) receives data from broadband providers every year, and issues annual reports that describe in detail the levels of service available within the US and individual states. The strength of the information is its detail, annual updating, and consistency over the entire country. The weakness is that the “access” is measured in block groups; therefore, if five households within a block group of 500 households is eligible for broadband service, the entire block group is considered to have “access.”

The American Community Survey (ACS) gets information from a sample of 17,000 to 18,000 Maine households. The strength of this data is the size of the survey, and the fact that it measures actual use as opposed to availability. A weakness of the data is that it doesn't measure speed, just the type of internet service one receives.

The ConnectME Authority has contracted with the Sewall Company to get a variety of information on broadband availability and use in Maine. In 2011 and 2013, Sewall surveyed about a thousand Maine households and businesses to obtain information on use. Every year, Sewall reviews provider reports to the FCC and updates its Maine map. The strength of the ConnectME data is its accuracy and transparency. The weakness is that it cannot be compared easily to data from other states.

**Table 2: Measurements of Broadband**

	<b>Broadband defined</b>	<b>Access defined</b>	<b>Unit of measurement</b>	<b>Data source</b>	<b>Update frequency</b>
<b>Federal Communications Commission (FCC)</b>	<i>Service of at least 768k/200k</i>	Availability	Anywhere within a block group (average 500 households)	Reports from providers	Annual
<b>American Community Services (ACS)</b>	Service from DSL, cable, fiberoptic, mobile broadband, satellite, or fixed wireless subscription	Actual usage	Household	Survey of 3-4% of Maine households each year (17,000 to 18,000 surveys)	Annual
<b>ConnectME Authority</b>	Service at a 10Kbps/10Kbps level	Availability	Road segment or street address	Reports from providers	Annual

## Maine Goals and the Triennial Plan

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The Maine Legislature has adopted the following goals related to broadband:<sup>3</sup>

- A. Broadband service be universally available in this State, including to all residential and business locations and community anchor institutions;
- B. There be secure, reliable, competitive and sustainable forward-looking infrastructure that can meet future broadband needs; and
- C. All residents, businesses and institutions in the State be able to take full advantage of the economic opportunities available through broadband service.

The major policy tool for achieving these goals is the ConnectME Authority, established as an independent state agency in 2006. The funding mechanism for the ConnectME Authority is a 0.25% surcharge on all communications, video and internet service bills which generates approximately \$1.1 million per year.

Over the past 8 years, the ConnectME Authority has awarded about \$10 million in grants to 122 projects, increasing access to broadband to 37,000 Maine households (no data is available on how many of these households has actually subscribed to broadband).

**Table 2: ConnectME Authority Grants**

Grant Round/Year	# of Grants	Grant Range In Thousands	Total Grants	Total Project Amount In Millions	Household Broadband Availability <sup>4</sup>	Increased Broadband Availability <sup>5</sup>
Jan-07	6	\$38 - \$370	\$739 K	\$1.53	13,836	2.50%
Feb-08	5	\$45 - \$533	\$1.19 MM	\$3.89	8,678	1.60%
Mar-09	8	\$43 - \$232	\$610 K	\$1.23	4,227	0.70%
Apr-10	22	\$23 - \$114	\$788 K	\$1.51	2,957	0.50%
May-10	12	\$7- \$191	\$1.09 MM	\$1.66	1,545	0.60%
Jun-11	23	\$5 - \$242	\$1.55 MM	\$2.34	2,296	0.40%
Jul-12	23	\$23 - \$284	\$2.08 MM	\$3.16	2,049	0.30%
Aug-13	15	\$6 - \$144	\$1.02 MM	\$1.69	1,034	0.20%
Sep-14	8	\$12 - \$186	\$749 K	\$1.43	975	0.20%
<b>Total</b>	<b>122</b>	<b>\$5 - \$533</b>	<b>\$9.82 MM</b>	<b>\$18.44</b>	<b>37,597</b>	<b>7.00%</b>

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<sup>3</sup> Sec. 3. 35-A MRS §9202-A, State broadband policy

<sup>4</sup> Household broadband availability is defined as those houses offered the option of acquiring broadband services from a provider and is also referred to as houses passed.

<sup>5</sup> Based on the 2010 Census for estimates of population and number of households in Maine, obtained from the State Planning Office. Total est. occupied housing units = 562,873, population = 1.328 MM, 2.36 = average household size.

The ConnectME Authority is directed to prepare “a detailed, triennial strategic plan for broadband service ... to further the goals and policies in section 9202-A.” The Legislature directs the ConnectME Authority to serve as the chief monitor of the state’s progress in meeting these goals and to set “objectives, targets, measures of performance, implementation strategies, timelines.”

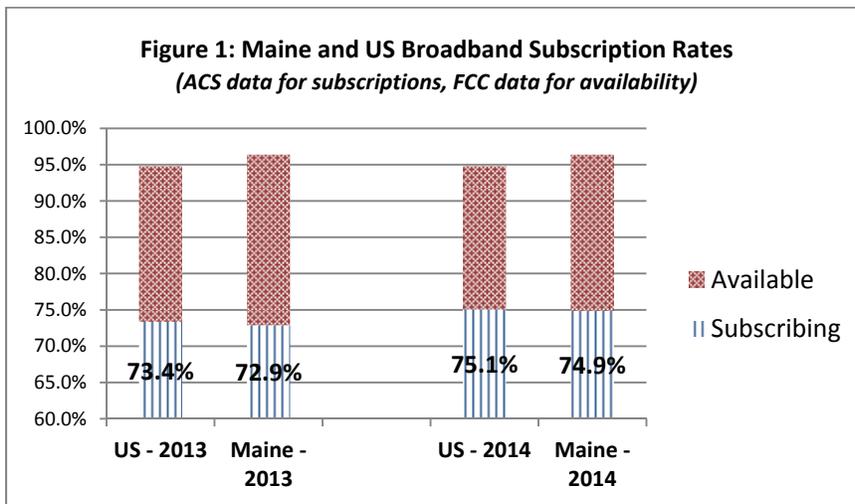
# Current Status of Broadband in Maine

Given Maine’s ambitious broadband goals, how are we doing? Not as badly as some think, but not as well as we need to do.

## 1. The “take rate” of Maine households is below the national average.

The “take rate” refers to the percentage of potential users who subscribe to broadband services where it is available.

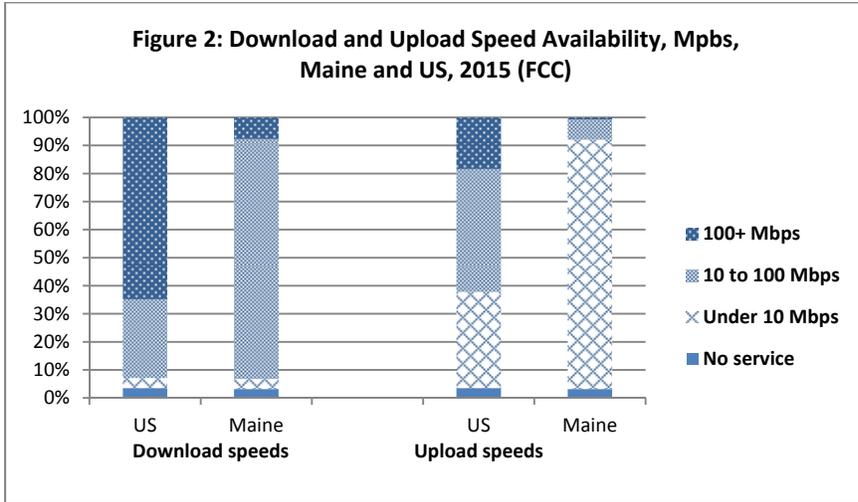
According to the FCC, Maine households have slightly better access to broadband than the rest of the nation (see Figure 1, top bar on graph). According to the American Community Survey, Maine households have a slightly lower probability of actually subscribing to broadband (see striped bar on graph and percentages in Figure 1). Putting the two pieces of information together, it means that Maine households have a lower "take rate" -- tendency to subscribe to available services -- than the rest of the nation. In actual numbers, 77.7% of Maine households subscribe to service when it is available, compared to 79.2% for the nation.



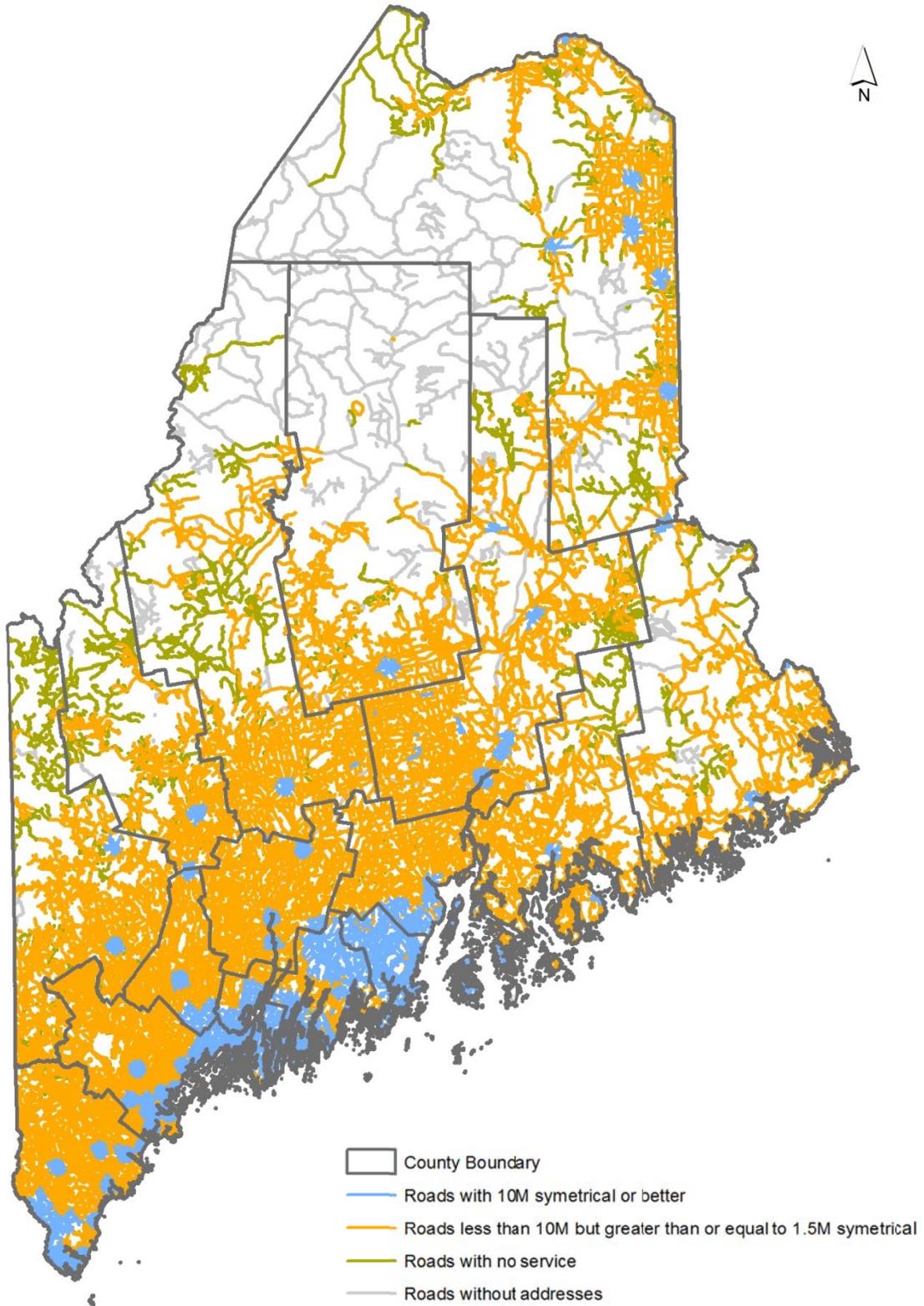
## 2. When it comes to access to critical higher speeds, Maine lags behind the nation.

Higher speed broadband is needed for commerce, for certain aspects of telemedicine, for video production and editing, and for research and applications in the growing “big data” sector. Maine lags when it comes to this capacity. According to ConnectME Authority data, approximately 12% of Maine households and businesses (or street addresses) have access to at least 10Mbps down and 10Mbps up. The map on the next page shows the areas of Maine unserved and underserved by broadband at 10 Mbps/10 Mbps. 10/10 is the current standard which applications must meet to qualify for ConnectME Authority infrastructure grants.

National data indicates that as of December of 2015, less than 10% of Maine households had access to service with 100Mbps down, compared to 65% nationally; and only 8% of Maine households had access to speeds of 10 Mbps up, compared to 62% nationally.

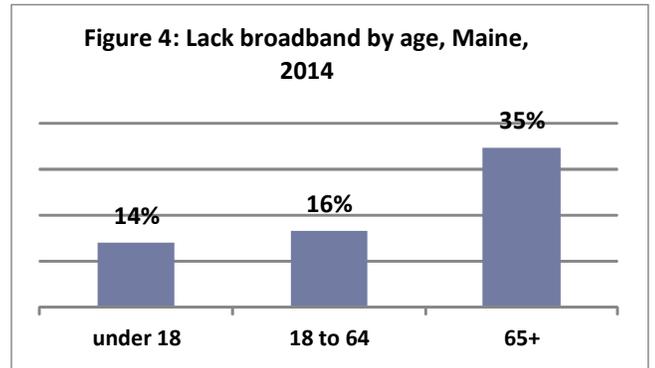
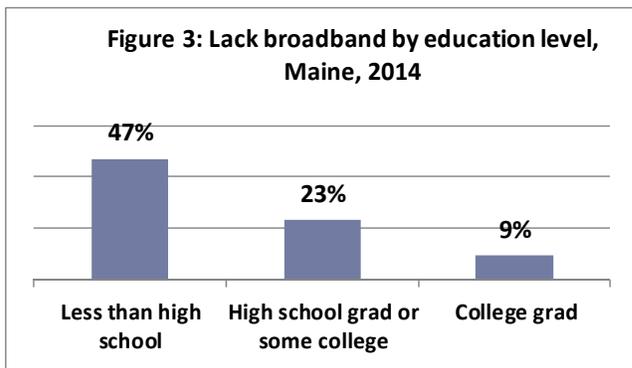


## Broadband Availability in Maine (10 Mbps/10 Mbps)

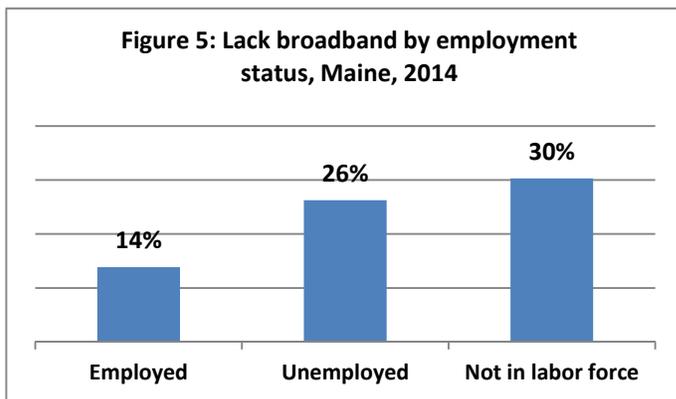


### 3. There is a socioeconomic digital divide in Maine.

Maine citizens who are older, lower income, and unemployed, are less likely to have access to broadband. Lifelong learning is a major goal of our workforce system. But those who would have the most to benefit from online learning – those with less than a high school degree (see Figure 3) – are least likely to have a broadband connection.



Similarly, telemedicine and virtual in-home care are major cost and life-saving trends in health care, but a third of seniors are not able to take advantage of this due to lack of broadband connections (Figure 4). Finally, those who are most in need of broadband in order to find jobs, and most in need of computer skills in order to land jobs, are the least likely to have broadband services (Figure 5).



#### 4. Maine has a growing business sector and a relatively strong competition in broadband.

Over the past three years, the number of businesses in the broadband sector in Maine has increased by 27% and their employment has increased by 18%, both rates far exceeding the Maine’s average of 0.2% for businesses and 0.3% for employment<sup>6</sup>. The number of firms in the telecommunications sector increased from 295 to 374 between 2010 and 2013.

This has translated into benefits for Maine consumers. As of June 2014, Maine broadband consumers<sup>7</sup> had more choices among broadband providers than the national average. 55% of Maine broadband users have access to 4 or more providers, compared to 19% nationally.

**Table 3: Employment Growth**

NAICS code	Sector	2010		2013		Change			
		Employees	Businesses	Employees	Businesses	Employees	Businesses	Employees	Businesses
517	Telecommunications	4,217	224	4,607	292	390	68	9.2%	30.4%
518	Data processing, hosting and related services	1,064	52	1,628	58	564	6	53.0%	11.5%
51913	Internet publishing and broadcasting and web search portals	127	19	136	24	9	5	7.1%	26.3%
	<b>Total of broadband-related businesses</b>	<b>5,408</b>	<b>295</b>	<b>6,371</b>	<b>374</b>	<b>963</b>	<b>79</b>	<b>17.8%</b>	<b>26.8%</b>
	Total of all Maine businesses	480,932	40,571	487,313	40,257	1,536	90	0.3%	0.2%

Sources: County Business Patterns

#### 5. Maine businesses are still not taking full advantage of internet marketing.

Ninety-seven percent (97%) of American consumers look online for goods and services. Yet as of 2013, 55% of Maine businesses did not have a website<sup>8</sup>.

Maine is at the end of the line geographically, but the internet puts businesses right into the middle of a global market. The Governor’s Capacity Building Task Force estimated that sales of Maine’s small businesses could increase by \$50 million/year if those businesses increased use of the internet to national averages. The ConnectME Authority has conducted workshops for small businesses in the use of social media, but the grant supporting this activity has ended.

<sup>6</sup> The telecommunications sector is defined as NAICS Codes 517, Telecommunications, 518, Data processing, hosting and related services, and 519130, Internet publishing and web search portals.

<sup>7</sup> FCC <http://www.broadbandmap.gov/summarize/state/maine>.

<sup>8</sup> ConnectME Authority Baseline Update, 3/28/14, Sewall Company.

## **6. The cost of high speed internet service is an issue**

Comprehensive data on the cost and affordability of broadband service is not available in Maine. A global study has found that “Most Asian and European cities provide broadband service in the 25 to 50 megabits per second (Mbps) speed range at a better value on average than North American cities (with a few key exceptions).”<sup>9</sup> At the public meetings held by the ConnectME Authority, citizens reported that the cost of a higher level of service is a problem; on the other side of the coin, providers reported that a low “take rate” on higher levels of service is a deterrent to private investment.

These concerns were reflected in a recent study<sup>10</sup> for an upgraded service in Rockport that found that only 14% of households in the affected area are initially interested in signing up for a \$75+/month service that provided 10 to 100 times faster service than they currently have. As the proposed investment requires 65% to 70% of potential customers to sign up in order to break even, this projected low take rate presents an obstacle to the investment. As broadband becomes more important in future years, and as costs increase, affordability is expected to become a more significant issue.

## **7. Available funds for Maine public broadband investment are declining**

Over the past nine years, the ConnectME Authority has awarded 122 grants totaling \$9.8 million.

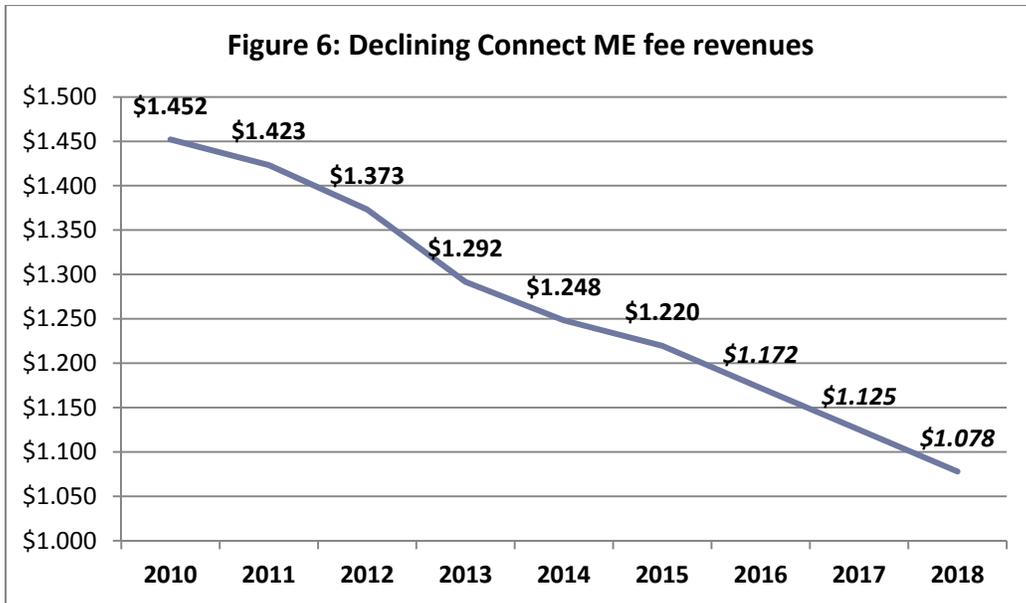
But the funds for these investments are drying up. The federal stimulus funding, which helped build the 3-ring binder, is finished. The Maine Broadband Sustainability Fee<sup>11</sup> ended on October 15, 2015; it had provided up to \$20,000 a month for private providers to expand broadband. Finally, the ConnectME fee, the primary support for the organization, which depends in part on landline telephone use, has been declining and will continue to decline steadily as more and more Maine consumers drop land-line service. That fee must support the ConnectME Authority staff, infrastructure grants, and as of this year, planning grants.

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<sup>9</sup> *The Cost of Connectivity*, 2014. See <https://www.newamerica.org/oti/the-cost-of-connectivity-2014/>

<sup>10</sup> *Rockland, Rockport and Owl’s Head Broadband Plan and Network Designs*, Tilson, September 2015

<sup>11</sup> A state surcharge on the federally funded 3 Ring Binder



*Source: Connect ME Authority (note: 2016-2019 are projections and are in italics)*

## 8. Maine people are frustrated that progress is not fast enough.

In the fall of 2015, the Connect ME Authority held public meetings as part of the strategic planning process. Here are some of the themes that emerged.

Many people commented on the difficulty they experienced in operating a home-based business, or in telecommuting, and the loss of income and jobs that a lack of broadband causes.

*I am a documentary editor who works from home in the town of Liberty, in Waldo County. I'm losing jobs. More and more people I want to work with are telling me that my internet upload speed isn't fast enough. They won't even consider me. I am not the only business or person who works in town and needs a faster internet.*

Others talked about how the lack of broadband put their children behind others in their classes, because they couldn't do homework in their homes; or hurt their ability to get higher education degrees.

*In order to pursue higher education, I have to move closer to my university or I need a better Internet connection for online classes. In order for me to effectively work in my field, I need internet connection or I need to move. If I move, all the education and experience I've gained, move with me. It is hard enough keeping people in rural Maine. I want to stay but find I am being forced to leave for education and work.*

Some testified that they couldn't sell their houses because of a lack of broadband. Finally, one person made an eloquent statement about the importance of broadband to rural Maine:

*People living in rural coastal and island communities across Maine hope to have the same opportunities as the rest of the country: to make a living, to raise a family, to access healthcare, to educate their children and themselves, and to share their experiences with others. If we expect to*

*sustain the quality of life in Maine, then we need to connect the state with the rest of the country and provide innovative ways for Mainers to make a living, access healthcare and education, and reach businesses and customers. Slow or unreliable internet connection is no longer an option if we want to sustain Maine's rural communities. It's imperative that rural Maine can access and afford broadband. Think about where blueberries, broccoli, potatoes, timber, mussels, clams and lobster come from. Adding to that tourism, our rural communities significantly contribute to the economic wellbeing of this state. Most of Maine's island and remote coastal communities have incredibly slow and unreliable internet access. They cannot rely on only their neighbors as their customers or as their second employers. Broadband opens up so many possibilities for a second household income, for 21st century education and healthcare, and to reach markets beyond individual communities or states.*

This is the challenge.

## Vision and Objectives

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The vision of the ConnectME Authority Board for the State of Maine is that:

*Every Maine citizen, business, and institution will have access to and take advantage of high-quality broadband network services.*

**High-quality broadband network services are defined, for the purposes of this Triennial Plan, as 10/10 -- 10 megabits down and 10 megabits up.** Those who have access to some broadband service, but not as robust as 10/10, are considered underserved. Those who have access to no broadband service are considered unserved.

The objectives of the Plan for the State of Maine are:

- 1. To achieve universal broadband access by 2018; i.e., access to basic broadband service increase in Maine, as measured by the Federal Communications Commission, increase from 97% in 2015 to 100% in 2018.*
- 2. To increase the percentage of street locations fully served by robust broadband to 50% by 2018; i.e., access to broadband service with a 10 Mbps upload speed (necessary for 10/10 overall speed) increase from 5% in 2015, as measured by the ConnectME Authority, to 50% by 2018.*
- 3. To achieve nearly universal broadband subscriptions by 2018; i.e., the proportion of Maine households that actually subscribe to broadband (via cable, cell, or other means) increase from 76% in 2014 to 95% in 2018, as measured by the American Community Survey. This requires addresses all aspects of digital inclusion: Affordable Internet, Affordable Equipment, Digital Literacy Training, and Public Computer Access.*
- 4. To fully engage Maine business with the internet; i.e., the proportion of Maine businesses that carry out marketing and sales activities through their own website increase from 45% in 2013, as measured by a ConnectME Authority survey of Maine businesses, to 80% in 2018.*

It is the policy of the Connect ME Authority to be neutral about the technological means to achieve these goals – not to favor one technology over another in its planning or grant provision.

These objectives cannot be achieved without robust leadership, investment, and activity. The approach which follows recommends a partnership between Maine’s private and public sectors to achieve these objectives.

## Strategies

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The adopted policies<sup>12</sup> of the State related to broadband service include:

- *Maximize sustainable investment in broadband infrastructure in the State;*
- *Maximize federal and private resources to support the deployment of broadband infrastructure in unserved and underserved areas of the State;*
- *Leverage existing infrastructure to extend broadband service*
- *Prioritize the use of state resources to assist deployment of infrastructure to provide broadband service in unserved and underserved areas of the State;*
- *Promote adoption of broadband service by residents, businesses and institutions.*

The following actions are intended to strengthen Maine's broadband ecosystem, expand its broadband network, drive public demand, and measure progress.

### Implementation Strategy 1: Support Broadband Infrastructure Deployment

**Action 1A. Continue to target areas where no broadband service currently exists with the ConnectME Authority broadband infrastructure grant program.**

Maintain a clear priority for helping those currently not served by 10 MBPS down/10 MBPS up. Use needs-based program criteria for ConnectME infrastructure grants.

*Measures of performance:* Service to number of homes or businesses currently not being served

*Target:* Service to 500 homes or businesses per year

*Timelines:* Implementation in 2016

**Action 1B. Determine the effectiveness and impacts of broadband infrastructure grants.** Develop standard criteria to evaluate infrastructure grants, including both households served and adoption rates. Gather and analyze data from past and current grant recipients.

*Measures of performance:* A report that helps ConnectME Authority Board members to fine tune programs

*Target:* Production of two annual reports by the ConnectME Authority.

*Timelines:* First report issued in January of 2017, second in January of 2018.

**Action 1C. Implement a local broadband planning grant program.** Encourage applicants to first approach the local provider(s) ("provider of first resort") to explore

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<sup>12</sup> Sec. 3. 35-A MRSA §9202-A, State broadband policy

broadband expansion, prior to applying for planning grant funds. Incentivize regional approaches.

*Measures of performance:* Number of local and regional efforts supported

*Target:* 5 planning grants per year.

*Timelines:* Implementation in 2016

**Action 1D. Create a working partnership with FairPoint for the implementation of its \$80 million “CAF-2” program<sup>13</sup> in Maine.** FairPoint is committed to assisting thousands of households in rural Maine to obtain broadband assistance in Maine in the next four years. The ConnectME Authority needs to closely coordinate with FairPoint so that local communities can link in to the effort whenever possible. The ConnectME Authority will serve as the conduit to local officials in targeted geographies when there are upcoming projects and opportunities related to CAF-2.

*Measures of performance:* Meetings between ConnectME Authority staff, FairPoint staff, and municipal and regional entities

*Target:* Quarterly coordination

*Timelines:* Starting in February of 2016.

## Implementation Strategy 2: Support Increased Broadband Use

**Action 2A. Support innovative efforts to increase consumer and business use of broadband applications and devices.** Not all Maine residents realize the value of broadband or have the necessary digital skills. The ConnectME Authority should work with the Maine Department of Education, the Maine Department of Economic and Community Development, and other agencies and organizations to continue and expand digital literacy and digital inclusion programs for specific populations, for example, seniors and health care providers. The ConnectME Authority should also work with Maine academic institutions and entrepreneurs to identify and highlight best practices among businesses and organizations. Finally, digital literacy should be a component of ConnectME Authority community planning grants.

*Measures of performance:* Households using high-speed broadband. Businesses and organizations with websites

*Target:* Increased actual median household use. Increased % of Maine business with a website

*Timelines:* Implementation in 2016

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<sup>1313</sup> Fairpoint has accepted federal Connect America Phase II funds for broadband expansion into FCC defined rural areas. A map of the 35,500 eligible locations in Maine, those colored dark green, is available on the Federal Communication Commission’s website, <https://www.fcc.gov/maps/fcc-connect-america-fund-phase-ii-initial-eligible-areas-map>

**Action 2B. Consolidate consumer advice and assistance regarding broadband service in the Office of the Public Advocate (OPA).** The Office of Public Advocate has dedicated staff and experience in handling consumer inquiries and complaints regarding utility services. Therefore, the Office of Public Advocate should provide consumer advice and assistance relative to broadband service. OPA should report to the ConnectME Authority Board annually on emerging consumer broadband issues.

*Measures of performance:* OPA report on call information to the ConnectME Authority

*Target:* Quarterly report

*Timelines:* Implementation in 2016

### Implementation Strategy 3: Demonstrate Leadership

**Action 3A. Issue an annual *Maine Broadband Indicators Report*,** which benchmarks where the state stands with regard to broadband access, affordability, and quality. A goal of the report is to collect data that allows for comparisons with national data sets and is specific enough to measure progress in detail. The report should use publicly available information from the FCC, the American Community Survey, and Maine broadband mapping projects, as well as information from grant recipients.

*Measures of performance:* A report that is useful to policy-makers and citizens

*Target:* Production of two annual reports by the ConnectME Authority

*Timeline:* First report issued in January of 2017, second in January of 2018

**Action 2B. Serve as a broadband information resource to Maine communities, aggregating and sharing experiences and encouraging collaboration.** The ConnectME Authority should be a resource for local communities, including guidance on how to initiate a local planning process, a list of broadband planning vendors, the availability of data, the range of models available for broadband expansion, the financing sources available, and contact information for community assistance personnel at private providers.

*Measures of performance:* Guidance documents and resource library

*Target:* Information available

*Timelines:* Implementation in 2016

**Action 3C. Conduct a needs analysis to determine the level of investment necessary to make high-speed broadband available to all Maine residents and businesses.** The analysis should also calculate the opportunity cost of not making the investment. Many ideas for funding large investment in Maine's broadband infrastructure have been proposed. What is first needed is a comprehensive and current

view of overall broadband investment needs over the next five years. From this, possible mechanisms for funding those investments can be developed.

*Measures of performance:* Needs analysis

*Target:* Complete analysis

*Timelines:* By December 2016

**Action 3D. Take a leadership role to seize broadband opportunities across state agencies,** such as encouraging MDOT to implement "dig once" policies, leveraging collective state government broadband purchasing power, and identifying policy barriers to broadband expansion.

*Measures of performance:* Outreach and communication with state agency leadership

*Target:* Quarterly review at ConnectME Authority Board meetings

*Timelines:* Implemented in 2016