BROADBAND
Charlotte · Collier · Lee

Southwest Florida Comprehensive
BROADBAND PLAN

2013

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Southwest Florida Regional Planning Council

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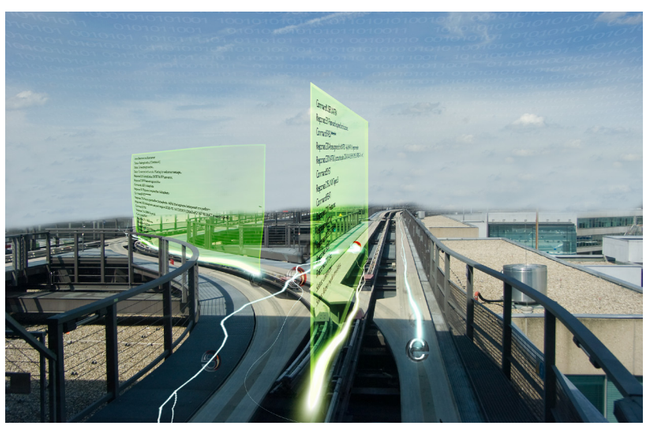

Partners

The Southwest Florida Regional Planning Council (SWFRPC) entered into a collaborative effort with Tampa Bay Regional Planning Council (TBRPC), the Central Florida Regional Planning Council (CFRPC) and the Florida Department of Management Services (DMS) on behalf of this Broadband project.

Central Florida Regional Planning Council

Central Florida Regional Planning Council's mission is to provide support to the citizens and counties of our region and to seek ways to improve the quality of life of the citizens of the Heartland.

www.cfrpc.org

Southwest Florida Regional Planning Council

Southwest Florida Regional Planning Council's mission is to work together across neighboring communities to consistently protect and improve the unique and relatively unspoiled character of the physical, economic and social worlds we share for the benefit of our future generations.

www.swfrpc.org

Tampa Bay Regional Planning Council

Tampa Bay Regional Planning Council's mission is to serve our citizens and member governments by providing a forum to foster communication, coordination, and collaboration in identifying and addressing issues and needs regionally.

www.tbrpc.org

The Florida Legislature designated the Department of Management Services in Statute 364.0135 to apply for grants and lead broadband planning and development efforts in Florida. The Florida Department of Management Services (DMS) was awarded a grant of $8.8M from the National Telecommunications and Information Administration (NTIA) to conduct broadband data inventory, mapping, technical assistance and planning in the State of Florida.

Magellan Advisors is a leading broadband and telecommunications consulting firm with over 100 public and private clients nationwide. Magellan's services provide the unique combination of broadband planning, developed specifically for public organizations, with industry tested business strategies that ensure a successful marriage of public sector master planning and private sector optimization. Magellan helps communities nationwide utilize public assets and well-crafted policy to develop broadband strategies that are financially sustainable, operationally achievable and funding ready. Magellan's deep background in the telecommunications industry allows our clients to benefit from the real world operational experience necessary to bring advanced broadband technologies and communications into their communities. Visit Magellan Advisors at http://magellan-advisors.com.

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Vision

The Council's Mission is to Southwest Florida Regional Planning Council's mission is to work together across neighboring communities to consistently protect and improve the unique and relatively unspoiled character of the physical, economic and social worlds we share for the benefit of our future generations.

Economic Development Administration Mission

To lead the federal economic development agenda by promoting innovation and competitiveness, preparing American regions for growth and success in the worldwide economy.

Department of Management Services

We pledge to successfully deliver quality products, services and support, allowing all levels of government to better serve the citizens of Florida.

Department of Economic Opportunity Vision

Florida will have the nation's top performing economy and be recognized as the world's best place to live, learn, work and do business.

Local Broadband Advisory Committee (LBAC) Broadband Plan Vision Statement

Southwest Florida will have the nation's fastest high-speed broadband network and will be recognized as the world's best place to live, learn, work and do business with technology

Economic Development District CEDS Vision Statement

Southwest Florida's economy shall grow and diversify through expansion of existing business and attraction of new businesses that embrace and advance the region's attributes of high quality environment, education, and culture.

Executive Summary

Recently, broadband infrastructure has emerged as one of the primary forces driving economic development. With the rise of the global digital marketplace and the increasing availability of broadband, the importance of having scalable, high-speed broadband networks is critical to a region's long term economic sustainability. In order to ensure that Southwest Florida and its businesses, organizations, and residents are not left out of this new digital opportunity, community leaders need to identify and enhance the regional broadband infrastructures to bring value to the community and ensure the region is able to compete on a global scale.

The Southwest Florida Regional Planning Council's (SWFRPC) Comprehensive Broadband Plan is an important step to ensuring the long term economic success of the region in the new emerging digital economy. Realizing that now is the time to examine the broadband inventories and opportunities that exist within the region, the SWFRPC's leadership commissioned the Comprehensive Broadband Plan to:

- Create a regional Broadband Vision with strategies, objectives, and action items
- Survey the current providers and services available
- Identify existing broadband network resources
- Identify planned expansions to existing broadband infrastructures
- Identify planned new networks and public networks
- Identify funding opportunities to expand and interconnect existing networks
- Identify funding opportunities to build new networks
- Identify opportunities for intra-regional collaboration to expand broadband accessibility and availability including public-private partnerships
- Identify key stakeholders with regard to regional broadband

By ensuring regional stakeholders work collaboratively and collectively towards a single set of goals, the region's broadband infrastructure can be managed and designed to support both current and emerging technologies and business needs. By following the framework presented in this plan, the region will identify broadband stakeholders in diverse verticals and encourage them to work together to reach the region's broadband goals. Instead of working towards singular interests, the SWFRPC would like to achieve a consensus on how the region's broadband networks will interconnect and develop to power the region into the future and ensure its long term relevancy.

The SWFRPC conducted workshops to gain stakeholder input and in turn, convert that input into strategies, objectives, and action items that can be leveraged to increase our broadband presence. It cannot be overstated that this is the community's broadband plan and not the plan of any single entity; this plan is designed to gather the community's needs and engage the proper stakeholders to make those needs a reality. This Comprehensive Broadband Plan will give the residents, businesses, and organizations in Southwest Florida a voice in how broadband is deployed and adopted region-wide and allow the community to control its long-term fate with regard to broadband and the new digital economy.

Southwest Florida is currently in a very advantageous position and will benefit greatly from the strategies and objectives developed in this Comprehensive Broadband Plan. By building a collaborative environment and diverse teams of stakeholders, the region will create a broadband vision and be able to take the strategic and tactical steps necessary to ensure the long term broadband needs of the region are fulfilled. The Southwest Florida Regional Planning Council's Comprehensive Broadband Plan is one of the first essential steps to ensuring our community remains relevant and economically viable well into the foreseeable future.

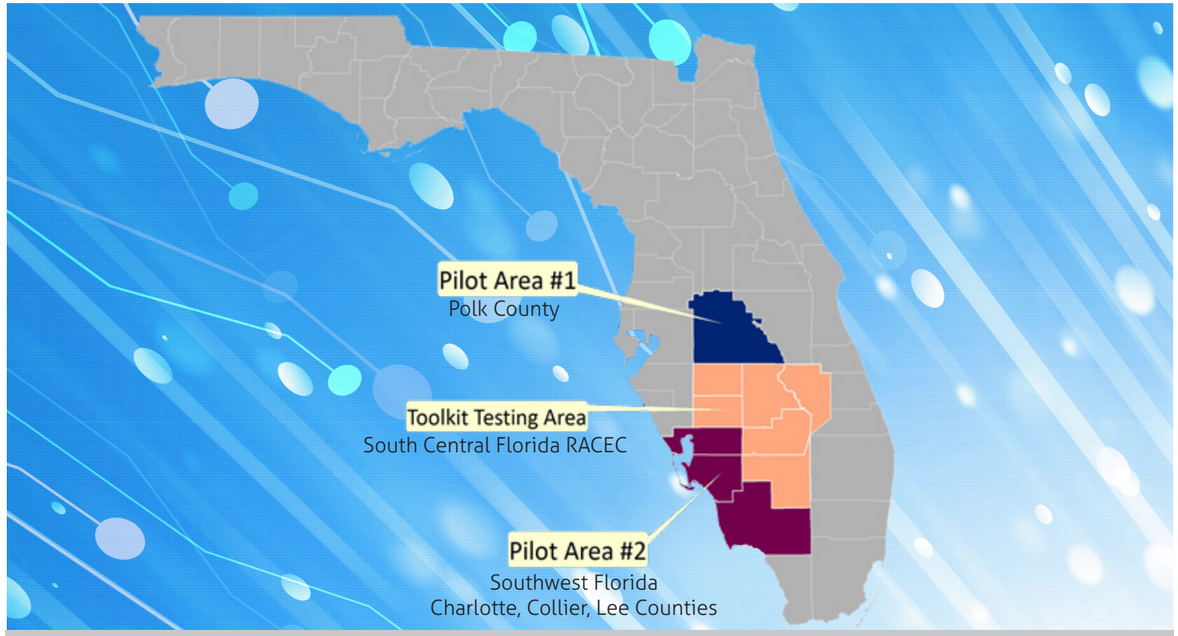
The SWFRPC

Planning Organization History & Management

The SWFRPC was created by an Interlocal Agreement dated November 8, 1973, amended October 28, 1980, between Charlotte, Collier, Glades, Hendry, Lee and Sarasota Counties, and by Chapter 186.505, Florida Statutes. In accordance with Florida Statutes, the agency is directed by a Council (currently 36 members) composed of 25 county commissioners and municipal elected officials, 7 gubernatorial appointees from all counties within the region including an elected school board member, and five ex-officio (non-voting) gubernatorial appointees representing the Florida Department of Transportation, the Florida Department of Environmental Protection, statewide economic development interests, and water management districts.

The Council is designated Regional District 9 and serves as a regional information clearinghouse. The Council works within the six-county region to develop and maintain area-wide goals, strategies, and actions, and assists in implementing a variety of local, state and federal programs. The Council serves as an advocate for the region with State and Federal agencies, including the Legislature and Congress. In addition, the Council works with its members and partners to develop and maintain region-wide goals, objectives and policies and assists in implementing local , state and federal programs.

"Planning should make the most of changes in technology and technological changes in our society"



Introduction & Background

> *The art of building a resilient and integrated community asset such as broadband infrastructure begins with a well thought out plan. - Gina Reynolds*

Southwest Florida Regional Planning Council began work on developing a Broadband Comprehensive Plan for Charlotte, Collier, and Lee Counties in August 2011. This effort was supported through a partnership with the Central Florida Regional Planning Council and the Tampa Bay Regional Planning Council.

The Broadband Planning Project will enable the region to build upon planning efforts that have been undertaken independently to establish an innovative new approach to envisioning Southwest Florida's future through a Broadband Plan.

Project Background

Southwest Florida's Broadband initiative is a collaborative broadband planning effort involving Southwest Florida citizens, business leaders, local governments, civic organizations, non-profits, educational institutions, economic development professionals, high tech experts, and key representatives from various segments of the local economy. Facilitated by the Southwest Florida Regional Planning Council; the Southwest Florida Local Broadband Advisory Committee and Technical Task Force have worked to raise awareness of the importance of robust broadband infrastructure in the 21st century economy and to develop a Comprehensive Broadband Plan to address the current and future broadband needs of Southwest Florida. The plan's time horizon is the year 2020.

In collaboration with the Tampa Bay Regional Planning Council (TBRPC) and the Central Florida Regional Planning Council (CFRPC), SWFRPC has developed a structured, comprehensive process for a regional broadband plan. The regional planning councils have applied for and been awarded grant funding from the National Telecommunications and Information Administration's Broadband Technology Opportunities Program (BTOP). Grant funding was used to help cover the costs associated with developing a comprehensive regional broadband plan, including creating a regional broadband asset inventory, assessing the region's current and future broadband needs, engaging the region's business and community leaders and private citizens in the planning process, and developing tools and training materials for subsequent broadband planning efforts. This project is administered by the State of Florida as part of the Broadband Florida Initiative.

Based on the results of the market analysis, this study will identify potential opportunities that Southwest Florida can capture to enhance and expand broadband services throughout its communities via use of broadband networks. It will define both short and long-term strategies and action items that the region may implement to become a true "smart community," with a foundation of advanced broadband services, attractive to both residents and businesses. The SWFRPC will collaboratively forge strategies to enhance the region's image of a business-friendly community through strong, advanced broadband networks. This broadband "foundation" will seek to magnify Southwest Florida's position as an innovative community that is attractive to target and emerging industries.

The Broadband data collected and strategies developed in this plan will be applicable to the entire region and can be utilized to enhance broadband accessibility throughout. This plan provides strategies that regional counties, cities, and broadband providers can utilize to expand their broadband networks beyond their current footprints. In doing so, the Southwest Florida region will be able to capture more opportunities to implement enhanced broadband services and deliver them to local businesses, community anchors, government organizations, and residents. This regional approach to broadband planning is essential to ensure all regional broadband assets are utilized to their full extent and that networks are not overbuilt.

Definition of Broadband (What is Broadband)

Broadband is not a system or a technology, but rather refers to speed and capacity (bandwidth) of a network connection. Broadband in this context refers to high-speed Internet connections that are always connected (no dial-up) to very high-speed networks, enabling super-fast downloads and uploads. Broadband networks have the potential to dramatically change, enhance, and transform the types of applications and services currently available through today's narrowband Internet. A broadband network can provide customers with a choice of service providers and services.

Why Broadband is Important

Broadband has far-reaching applications for improving the quality of life for Floridians. Broadband is vital for economic growth, both by fostering new industries and expanding opportunities for existing businesses. Broadband also reaches many facets of everyday life by improving the delivery of healthcare services, enriching the educational experiences of children and adults, helping with the management and conservation of energy resources, assisting public safety personnel in the performance of their duties, and facilitating citizen interaction with government agencies.

Throughout history, infrastructure networks have served to connect people, places, ideas and products. The development of every great infrastructure network has facilitated American innovation, progress and prosperity. Before the 1800s, port cities were the world's economic and educational hubs. In the 19th century, the transcontinental railroad system allowed people, goods and ideas to branch out into new territories, creating new opportunities and encouraging entrepreneurship and prosperity. The 20th century saw the development of large scale electric grids and the interstate highway system—innovations that, once again, allowed Americans to be more productive, mobile and opportunistic. Similarly, communications infrastructure—telephony, radio and television—also transformed the American economy and culture. In many ways, the development of the internet at the end of the 20th century represented the culmination of these communication technologies.

As stated by Julius Genachowski, Chairman of the Federal Communications Commission, "Broadband is the indispensable infrastructure of our 21st century economy." Communities and regions that develop their broadband infrastructure will have better, faster access to new ideas, innovations, and technologies. Being connected means having more and better jobs, a stronger educational system, a more efficient government, more effective public safety and health care providers, and a higher quality of life. Planning now to ensure that Southwest Florida's future broadband infrastructure needs will be met is essential for sustainable economic development and prosperity within the region.

Why Broadband Planning is Important for Southwest Florida

The Southwest Florida Regional Planning Council's main goal in this study is to explore and identify all opportunities to enhance the regional broadband infrastructure to bring additional value to the region's businesses, organizations, and residents. This study analyzes both public and private broadband infrastructure in an effort to gain a comprehensive understanding of how to maximize the networks to better service the community's needs both now and in the future. Opportunities for collaboration between public and private organizations are highly encouraged and are critical to the region achieving its broadband goals. Regional stakeholders must work collaboratively to identify ways the region can better utilize existing infrastructures and plan efficient development and construction of new or enhanced broadband networks to support region-wide economic development goals.

Southwest Florida has developed with a precarious economic foundation of agriculture, construction and tourism. This "three legged stool" was successful for much of the 20th century. However, since the turn of the century, the people and businesses of our region have been reeling from the consequences of suburban sprawl, housing market volatility, and economic downturn, along with climate change and storm hazard vulnerability.

The global recession that began in 2008, produced a general shift in employment in the United States away from goods-producing industries toward service-providing industries. As employment continues to shift toward industries that require more advanced technological skills and more con-

nectivity, an up-to-date broadband network will be essential for securing economic opportunities and preserving quality of life in the region. Additionally, industries that traditionally have not utilized broadband are becoming more dependent on it. For example, in the citrus industry, mobile devices with broadband connections are used for purposes such as logging worker hours and tracking vehicle locations.

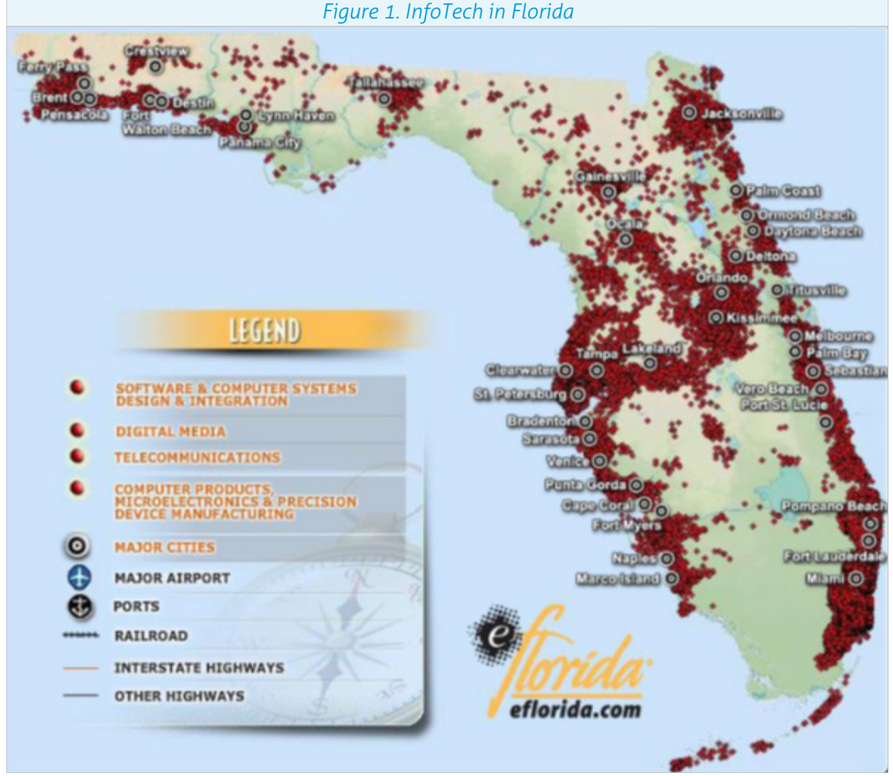
The Southwest Florida region has a total area (land and water) of 6,663 square miles, of which 5,986 square miles is land. Planning is essential for any region with such a wide variety of development patterns, in order to ensure that all populations—rural, suburban, and urban—have equitable access to infrastructure and services. In addition, planning is important for any region with a large number of jurisdictions, in order to encourage cooperation and collaboration between them.

The Counties that make up this Region are all coastal counties, and the ecosystems along the coast are very delicate, including the Charlotte Harbor National Estuary which includes 1,230 linear miles of shoreline in Charlotte and Lee Counties, and the Rookery Bay National Estuarine Research Reserve comprised of 110,000 acres of land and water in Collier County.
Unlike other counties in Florida, Southwest Florida has experienced steady population growth even through the recent recession. From 2007 to 2010, Southwest Florida's population grew by 3.3 percent. This pattern of growth is projected to continue in Southwest Florida, which is flanked by fast-growing major metropolitan areas such as Tampa, Orlando and Miami. When such rapid growth occurs, sound planning—including broadband planning—is essential for preserving quality of life and opportunities for all people.

There are several institutions of higher education in Southwest Florida, granting undergraduate and graduate degrees: Florida Gulf Coast University, New College of Florida, Edison State College, Ave Maria University, Hodges University, Keiser University, Rasmussen College, and Southwest Florida College. Education is critical to quality of life, and broadband is critical to education. Broadband planning is necessary to ensure that the educational institutions in the region (not only the colleges and universities, but also K-12 schools) have access to the best bandwidth possible.

The region has considerable potential to become a place with a vibrant economy and a world-class quality of life. However, sound infrastructure planning is necessary for the county to live up to this potential, adapt to economic changes, and keep up with the anticipated growth. For more information on Figure 1, visit http://www.eflorida.com.

Figure 1. InfoTech in Florida



Key Stakeholders

- Broadband providers
- Businesses
- Citizens of Southwest Florida
- Colleges and universities
- Economic development organizations
- Healthcare facilities
- Libraries
- Local governments
- Public safety departments (police and fire)
- Schools (K-12, public and private, vocational)
- Utility companies

Project Timeline

The Southwest Florida Broadband project began in 2011 with a coordinated effort between three Regional Planning Councils (Central Florida RPC, Tampa Bay RPC and Southwest Florida RPC). The first step to develop a comprehensive plan was to establish a Local Broadband Advisory Committee (LBAC) and a Technical Task Force (TTF). This committee involvement has been instrumental throughout the entire project. Public workshops were held in August 2012 where multiple stakeholders were engaged in the planning process. Information gathered at various meetings and workshops assisted with the development of the comprehensive plan, toolbox and training manual. The final products will be published by June 30th 2013. Figure 2 shows the project timeline.

Figure 2. Southwest Florida Broaband Project Timeline

2013 Council Members

The SWFRPC is directed by a thirty-six member Council composed of local elected officials and gubernatorial appointees. Five individuals who represent State interests provide assistance as Ex-Officio members. Of the 24 elected officials who represent local governments, about 40% work full time in their elected posts and 60% work part time in their elected posts.

Karson Turner, Chair
Hendry County

Teresa Heitmann, Vice-Chair
Collier County

Tom Jones, Secretary
Sarasota County

Bob Mulhere, Treasurer
Collier County

CHARLOTTE COUNTY
Commissioner Tricia Duffy
Commissioner Chris Constance
Councilwoman Rachel Keesling

COLLIER COUNTY
Commissioner Tim Nance
Commissioner Tom Henning
Councilwoman Teresa Heitmann
Mr. Robert "Bob" Mulhere
Mr. Alan D. Reynolds

GLADES COUNTY
Commissioner Dennis Griffin
Commissioner Tim Stanley
Councilwoman Pat Lucas
Mr. Thomas C. Perry

HENDRY COUNTY
Commissioner Karson Turner
Commissioner Don Davis
Mayor Phillip Roland
Commissioner Daniel Akin
Mr. Mel Karau

LEE COUNTY
Commissioner Frank Mann
Commissioner Tammy Hall
Councilman Chris Chulakes-Leetz
Vice Mayor Doug Congress
Councilman Forrest Banks
Councilman Joe Kosinski
Councilwoman Martha Simons
Ms. Laura Holquist
Mr. Paul Pass

SARASOTA COUNTY
Commissioner Carolyn Mason
Commissioner Charles Hines
Commissioner Tom Jones
Councilman Kit McKeon
Commissioner Willie Shaw
Mr. Felipe Colón

EX-OFFICIO MEMBERS
Phil Flood, SFWMD
Jon Iglehart, FDEP
Melissa Dickens, SWFWMD
Lawrence Massey, FDOT

"Access to broadband connectivity allows our local businesses to compete on a global basis in their area of commerce. These businesses have competitors on that level and need a level playing field to survive. "

-Tom Jones, North Port Commissioner

"Broadband is absolutely key in terms of necessary infrastructure to attract and to grow businesses in any community. In this environment which is increasingly dependent upon technology, Broadband is not a luxury but rather a necessity. "

-Robert Mulhere, CEO Mulhere and Associates, LLC

Community Organization & Stakeholders

Local Broadband Advisory Committee (LBAC):
Represents the community organization aspect necessary for successful plan development. Table 1 lists LBAC members and their respective organization affiliation.

Broadband Technical Task Force (TTF):
Facilitates communication between and within each of the project participant groups and produces the products necessary to develop the broadband planning framework. Table 2 lists TTF members and their respective organization affiliation.

Table 1. Southwest Florida Local Broadband Advisory Committee Members

First Name	*Last Name*	*Organization*
Jimmy	Barfield	City of Fort Myers
Warren	Baucom	Lee County Economic Development Office
Patricia	Bell	CenturyLink
Brian	Bernard	Lee County Clerk of Courts
Mike	Berrios	Collier County BOCC
Toni	Bleiweiss	Lee County Clerk's Office
Michael	Bosi	Collier County Comprehensive Planning Section
Terry	Cerullo	Florida DEP
Chance	Craig	City of Sarasota
William	Culver	City of Sarasota
Fidel	Deforte	City of Cape Coral
Ray	Desjardins	Charlotte County
Jim	Desjarlais	Lee County Administration
Jose	Duran	City of Bonita Springs
Gregory	Fallacara	CenturyLink
Debrah	Forester	Charlotte County Economic Development Office
Anthony	Galluzzo	Windstream
Ed	Gardner	Value Management Services, LLC
Stephen	Gerard	Windstream
Brian	Hamman	CenturyLink
Sally	Jackson	Lee Memorial Health System
Doug	James	Level 3 Communications
Sheldon	Kaye	Lee County Library System
Audie	Lewis	Cape Coral Economic Development Office
Ike	Lichtenstein	Willett Business Management, Inc.
Ellen	Lindblad	Lee County Port Authority
Frank	Mambuca	U.S. Metropolitan Telecom
Dale	McKeag	Comcast
Craig	McLean	20th Judicial Circuit Florida

Elizabeth	Meneely	City of Punta Gorda
Dalton	Moraes	Atos Origin, Inc
Kathi	Murray	Lee County Sheriff's Office
Tracey	Petrone	SWFL College
Dan	Regelski	FGCU Sm. Bus. Dev. Center
Gina	Reynolds	FHREDI
Hudson	Rogers	FGCU
Christine	Ross	Bonita Springs Chamber
Sonny	Saunders	Naples Free-Net (NFN)
Bert	Smith	City of Sanibel
Guy	Smith	Office of the State Attorney 20th Circuit
Suzanne	Specht	SBDC
Denise	Spence	DHS Academy for Tech
Scott	Tonarelli	US Metro
Kay	Tracy	Charlotte County Economic Development Business Development
Caprice	Woodburn	FLRS
Janusz	Zalewski	Florida Gulf Coast University

> *"Without broadband we cannot recruit 21st Century businesses. Everything in today's world requires computers and technology. People cannot even buy a burger at a fast food restaurant without technology. We cannot keep our youth in Florida without offering them high tech jobs and those jobs require broadband. Without the provision of broadband infrastructure, Florida will not be competitive in the world market place. One word sums it all up ... productivity. - **Sharon Fumei, Research Analyst C.C** Economic Development"*

Table 2. Southwest Florida Technical Task Force Members

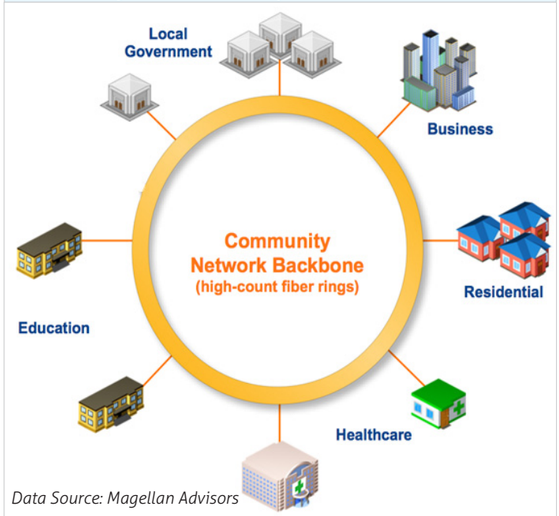
First Name	*Last Name*	*Organization*
Ray	Desjardins	Charlotte County
Elizabeth	Meneely	City of Punta Gorda
Mike	Berrios	Collier County BOCC
Jimmy	Barfield	City of Fort Myers
Guy	Smith	Office of the State Attorney 20th Circuit
Fidel	Deforte	City of Cape Coral
Brian	Bernard	Lee County Clerk of Courts
Bert	Smith	City of Sanibel
Dalton	Moraes	Atos Origin, Inc
Craig	McLean	20th Judicial Circuit Florida
Jose	Duran	City of Bonita Springs
Warren	Baucom	Lee County Economic Development Office
William	Culver	City of Sarasota
Chance	Craig	City of Sarasota

Community Network Model

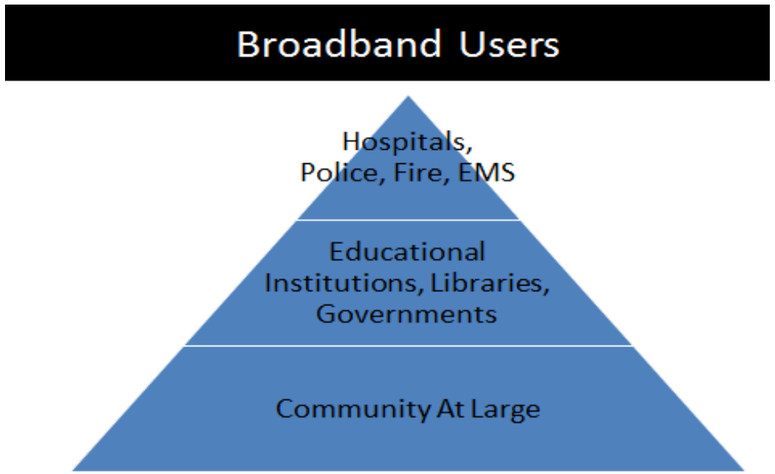
It simply cannot be overstated how important broadband is to our community's future. If you think of broadband as the interstate highway system that digital commerce traverses, it is easier to see just how this digital roadway will bring our community together and transport us into the new digital economy. Just as the roads were instrumental in growing the nation's economy over the past century, advanced broadband and telecommunications infrastructure will enable economic growth and prosperity going forward.

Broadband networks unite communities and give them a presence on the global stage. Advanced broadband applications enable institutions of higher learning to share research and technology with others; they allow doctors to consult with remote physicians and healthcare institutions; they allow businesses to transact business directly with their customers; they allow local governments to deliver services to citizens efficiently and transparently. Broadband is the mechanism that connects the community while enabling cutting edge technologies, seamless communications, and will deliver Southwest Florida into the new digital economy. Broadband is the backbone of the community.

Figure 3. Community Network Backbone



Data Source: Magellan Advisors



Community Engagement

*"Imagine a connected, high-performance Southwest Florida... a more dynamic, efficient and attractive region in which **affordable**, high-speed internet access is **always** available...everywhere, and to everyone." -**PSA***

The process of creating the comprehensive plan required a planning process developed with a broad-based and diverse public-private sector participation effort.

A total of 4 meetings were held with approximately 63 attendees. The format for the public workshops included a meeting in each of the respective Counties and one regional meeting.

All the results from the Broadband public workshops are posted on the website: http://www.swflregionalvision.com/bb.html

At each of the county meetings, strategy discussions were facilitated to help build a foundation of why broadband is important to Southwest Florida. Hearing many of the same issues and ideas, an analysis was prepared to understand what areas boiled up. Table 3 depicts the same ideas and issues discussed at each of the public workshops. Table 4 depicts the strategy areas developed by the TTF and the LBAC.

Table 3. Public Outreach Strategy Exercise

LEE COUNTY	Jobs	Infrastructure	Funding	Workforce Training	Tele-Working	Government Support	Global Competitivness	Education System	Underserved Areas	New Consumer Services	Implementation	Public/ Private Partnerships	Quality of Life
COLLIER COUNTY	Jobs	Infrastructure	Funding	Better Communities (High Speed)	Tele-Working	Government Support	Customer Service	Wireless Communities	Underserved Areas	Disaster Relief Efforts	Business Expansion	Future of Broadband	
CHARLOTTE COUNTY	Jobs	Infrastructure	Funding	Workforce Training	Common Language	Productivity	Global Competitivness	Education	Benefits	Medical Records	Video Conferencing	Elderly Population	Advertising Campaign

Table 4. Strategy Envelope Exercise By Each Committee

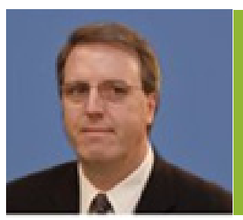
CIVIC	Affordability	Bandwidth	Capacity	Accessibility	Private Sector					
EDUCATION	Affordability	Bandwidth	Capacity	Virtual	Continuing Education	Remote	Training Programs	Jobs	STEM	
ECONOMIC DEVELOPMENT	Affordability	Bandwidth	Workforce	Public Infrastructure	Collaboration	Funding	Education	Marketplace	LambdaRail	Regionalism
ENVIRONMENT	Affordability	Bandwidth	Capacity	Solar Power	Sell the Power Back to Grid	Remote	Green Technologies	Transportation	Redundant Power	Public Access
GOVERNMENT	Affordability	Bandwidth	Opportunity	Adoption	Digital Roadway	Partnerships	Education			
HEALTH CARE	Affordability	Bandwidth	Digital Records	Virtual	Skilled Workforce					
PUBLIC SAFETY	Affordability	Bandwidth	Capacity	Fire	EMS	Police	Limitations			

Regional Outreach

In addition to the community anchor institutions, Regional Planning Councils reach a consortium of agencies that are influential in terms of funding strategies. It is important to identify partners that will be instrumental with implementation of strategies developed. Below is a partnership map that identifies potential project partners.

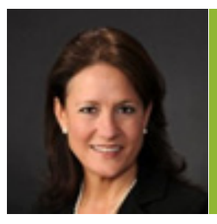
"From the public utility perspective, broadband is very important for transparent government and promotion of communication in real time for citizens and businesses. Critical components are the same as water/sewer and other utility service issues. Broadband services will be very important during disasters and recoveries caused by hurricanes."
-Kris Van Lengen, Planning Manager, Collier County

Figure 4. Regional Planning Council Partnerships



"Internet access through a broadband connection constitutes the ability to expand ones capabilities to compete and ultimately succeed in the world today. "
-Scott Tonarelli, SVP Business Operations US Metropolitan Telecom LLC

"Florida is known globally. In order to be competitive in a global market place, we must keep pace with technology. Our quality of life and economic development will depend on our commitment to maintaining a competitive advantage in our broadband strategies."
- Marion Briggs, President Realtor Association of Greater Fort Myers Beach



"Broadband is critical to our ability to compete for students, jobs, and provide for the growth of health care and higher education. If we hope to be able to compete in the global market place, we need to have the vision to correct the current deficit of broadband services within the region."
-Christine Ross, Executive Director Bonita Springs Estero EDC

Pictures from the public workshops in Charlotte, Lee and Collier Counties. This project integrated social media platforms that helped market ongoing efforts.

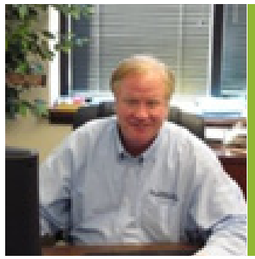
Toolbox and Training Manual

The LBAC and the TTF assisted with the development of the tools to help build the comprehensive plan.

The toolbox is organized into three categories (drawers). They are the Community Organization drawer, the Demand Planning drawer, and the Website Development drawer. Within those drawers are the individual tools. Each tool has a short description associated with it.

The Broadband Planning Training Manual is a document designed to familiarize the layperson with broadband and broadband planning.

Website: http://www.swflregionalvision.com/bb.html



"From a workforce development point of view, broadband availability is important in two categories: 1) the ability to deliver training programs to job seekers and more importantly employed worker training programs for employers to upgrade the skills of their existing workers; and 2) In order to provide more high-skilled/high-wage jobs and to remain competitive in the global economy, business owners need to be able to access high speed internet. This access will allow for more customers and will result in more demand, more jobs, higher payrolls, and larger tax streams."
– James Wall, SWFL Workforce Development Board

Figure 5. Broadband Toolbox

Data Source: Southwest Florida Regional Planning Council, Rebekah Harp

Planning Process

In general terms, comprehensive planning is an all-inclusive effort to guide the long-range future of a community, with a focus on physical development. A comprehensive plan typically consists of a study of existing conditions and a discussion of future trends, goals, and objectives, covering elements such as land use, housing, roadways and other infrastructure, population growth, economic development, and conservation. In addition to having a comprehensive plan, many communities have separate plans for specific elements (for example, many cities have transportation plans). In Florida, state legislation has required all local governments to develop and adopt comprehensive plans since the 1980s. The comprehensive planning process is the set of actions that are performed in order to complete the plan; this typically includes data collection, data analysis, goal setting, citizen and stakeholder participation, writing the final plan, and evaluation of the effort in retrospect.

The Southwest Florida Broadband Plan was developed following a planning process that was established as part of the Local/Regional Broadband Planning Toolkit and Training Manual. The process has four major steps: Identification of community champions, data collection, needs analysis, and plan creation. The steps are described in detail in this section.

1. Identify Community Champion(s)

a. Utilize an existing community organization *or*
b. Form a broadband committee *or*
c. Both

A community or regional broadband planning effort will require the dedication of an organization or group of individuals who are committed to the effort of planning for their region's future broadband needs. These people will be the "Champions" of the effort. An existing community organization may be utilized or a committee of broadband experts and influential community leaders may be formed. In some cases it may be appropriate to utilize both a community organization and a broadband committee. The goal is to bring together a diverse group of individuals, from both the public and the private sector, who care about broadband planning and have sufficient time and expertise to commit to the project.

Figure 6. A Collaborative Effort

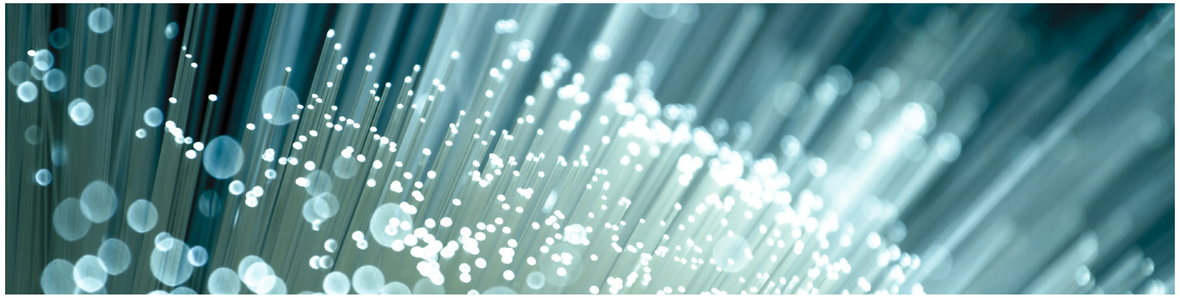
2. Data Collection

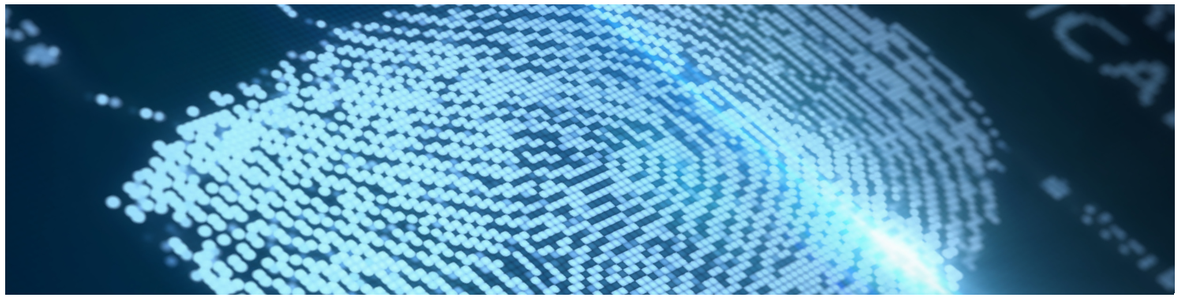
a. Community profile
b. Assets analysis
c. Broadband utilization/penetration
   i. Surveys
   ii. Discussion Guides
   iii. Interviews
   iv. Federal Communication Commission broadband data
d. Projections
   i. Population
   ii. Employment

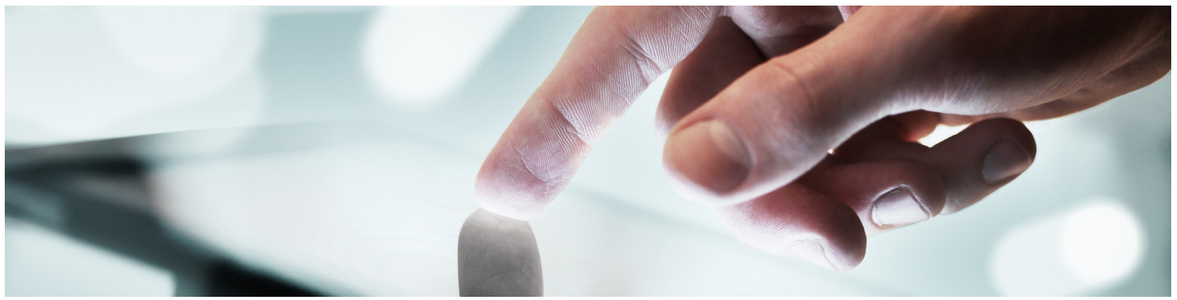
The data collection step involves acquiring the data necessary for broadband planning. This includes not only broadband coverage data, but also a community profile containing background data regarding the demographic, economic, and social characteristics of the region. Such data are generally available from federal sources such as the U.S. Census Bureau and from state sources such as the Department of Economic Opportunity. GIS data are available from the Florida Geographic Data Library (www.fgdl.org), and from local jurisdictions, various state agencies, and federal sources. Table 5 outlines the basic data necessary for broadband demand planning, where to find it, and how it will be utilized.

Table 5. Data for Broadband Planning

Data	Source	Data Utilization
Socioeconomic data (age, race, income, education, employment)	• U.S. Census Bureau • Bureau of Labor Statistics • Bureau of Economic and Business Research	Data will be used to gain an understanding of the general socioeconomic characteristics of the region in order to provide background for the broadband planning project.
Business and population growth projections	• Local/regional planning agencies/departments • Bureau of Economic and Business Research	Projected future business and population growth will be a factor in estimating future broadband needs.
Future Land Use	• Local governments • Regional Planning Councils	Used to project future broadband needs; can be included in a land-use-based broadband demand model.
Community anchor institutions, employment clusters, and target industries	• Local/regional planning agencies/departments • Economic development organizations • Regional Planning Councils	Community anchor institutions, employment clusters, and target industries are the region's main large-scale current and future broadband users. Identifying them will be helpful for the assessment of current and future broadband needs.
Broadband assets inventory (wireline, wireless, vertical assets, providers, public-owned spectrums, policies and regulations, funding opportunities)	• Broadband Florida • National Broadband Map project • Local broadband providers • Local government entities (school boards, etc.)	The region's existing broadband assets form the core network on which to build future broadband infrastructure. Reviewing these assets is an important step in defining broadband planning resources and strategies.
Broadband utilization/penetration data (residential and non-residential) (speeds, applications, cost) Future broadband needs (residential and non-residential)	• Surveys • Focused discussions/interviews • Public workshops • Economic development groups • Federal Communication Commission	Current utilization and penetration data and projections of future utilization will be used to identify appropriate strategies for the planning project.







3. Needs Analysis

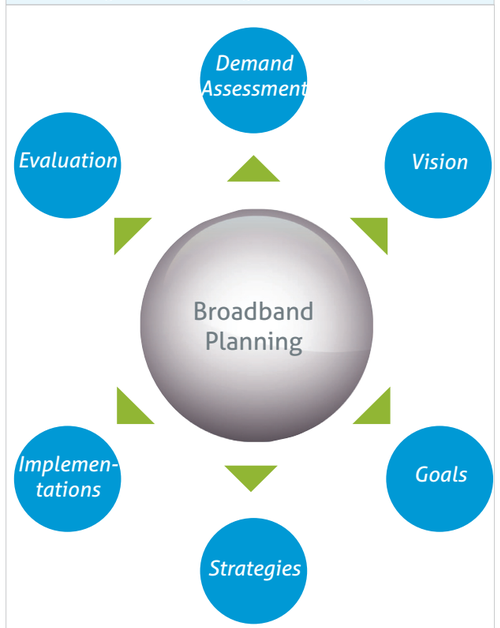
a. Gap identification
   i. Current gaps
   ii. Future gaps

The Needs Analysis identifies gaps between broadband supply and demand—in other words, areas within a community or region where the current broadband availability does not meet current needs, or is anticipated not to meet future needs. The information collected in the Needs Analysis should be analyzed to determine where broadband infrastructure will be required within the planning period (10 years is suggested). Geographic areas of need can be identified using the following parameters:

- Projected population growth
- Projected employment growth
- Future land use (land-use-based broadband demand model)
- Known locations with current or predicted future broadband deficiencies
- Broadband adoption (use) data

Additionally, analysis should be conducted to identify need within employment sectors, industries and people groups. For example, it may be noted from the data that the health care industry is projected to grow tremendously within the planning area. As a heavy user of broadband infrastructure, this growth must be accommodated in the broadband plan. As another example, it may be noted from the surveys that people with household incomes below the poverty level typically do not utilize broadband in the home. Therefore, the plan may outline some strategies to increase broadband usage within that demographic.

Figure 7. Planning Process Diagram



4. Plan Creation

a. Vision
b. Goals
c. Strategies
d. Implementation
e. Evaluation

The basic framework of the strategic broadband plan is similar to that of plans for other types of infrastructure. The Vision is the framework for the community/region and its development and utilization of broadband. Goals are developed to guide the community/region in the direction of its Vision. Strategies are specific methods to achieve the identified Goals. Implementation means putting the strategies into effect (the action phase of the plan). Evaluation is concerned with looking back at what strategies were effective and what strategies were not. The Evaluation is used to identify failed efforts and eliminate or modify them to make the plan more effective over time.

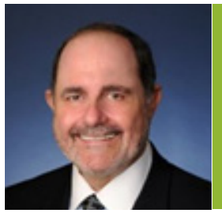
Public-Private Partnerships

Public-private partnerships are indispensable to the future of broadband in Southwest Florida. In most communities and regions, government (federal, state, or local) is generally responsible for overseeing and regulating infrastructure, while broadband service is mostly provided by private companies in competition with one another. It is vital for government and the private sector to cooperate and collaborate with each other in order for new and improved broadband infrastructure to be put in place.

Avoiding Conflict Between Public- and Private-Sector Providers

Municipal broadband networks have the potential to provide high-quality, affordable broadband service to homes, businesses, and anchor institutions. Municipal broadband has been endorsed by the FCC as a "best practice." However, Florida's regulations of municipal broadband are highly restrictive. A number of municipalities in Florida currently provide broadband service, and rather than "crowding out" private investment, the reality has shown that where municipalities invest in broadband, there are more private providers of broadband services. Municipalities frequently sell services to private communications firms, resulting in a symbiotic environment that benefits both consumers and the private sector. In addition, municipal broadband networks generally do not rely on tax exemptions or subsidies to any greater extent than private providers, and their tax burden is similar to that of private telecom firms. Generally speaking, broadband deployment by any entity—public or private—should be encouraged in order to spur economic development, expand educational opportunities, and provide all the other benefits that come with broadband access.

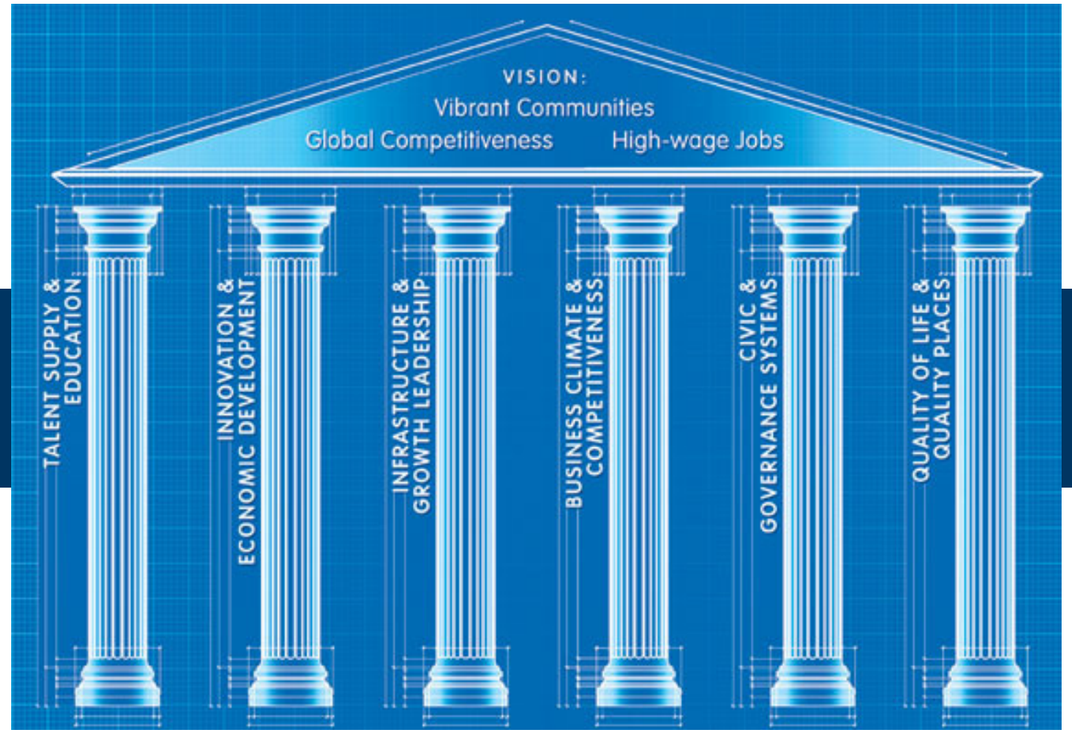
The keys to avoiding conflict between public- and private-sector providers are communication and cooperation. When properly coordinated, public and private broadband investment can exist side-by-side, benefitting one another, and the community at large.



"In the future, who will want to live here without an adequate connectivity structure? If we do not develop a regional approach to broadband system we will continually be behind. We need the political powers to come together on this issue."
- Ike Lichtensen, City of Bonita Springs Technology Advisory Board

Six Pillars

Everything we know about Florida has changed, and a new framework, known as the Six Pillars of Florida's Future Economy, emerged to serve as a blueprint for moving Florida forward. LBAC adopted the Six Pillars into the Broadband Project Strategies on June 2012.



Vision, Goals, Strategies & Action Items

"Failing to plan is planning to fail." - Alan Lakein

Broadband brings opportunity for future collaboration among the human services, non-profit providers. Technology promotes growth and growth can be sustainable through stronger infrastructure, education and collaboration.
- Michael Overway, HMIS Administrator Charlotte County Homeless Coalition.

At the start of the planning process, it is important to establish a vision that describes what the plan is intended to accomplish, and goals that state specific things to be achieved. Normally, the visions should be broad and qualitative, while the goals should be specific and quantitatively measurable. This section contains the vision and goals of the Southwest Florida Broadband Plan.

In a typical planning process, the goals that are set will require significant amounts of time and resources to achieve. Therefore, creative and strategic thinking is necessary in order to devise ways to achieve challenging goals while making optimal use of resources. To guide the implementation of goals, it is helpful to develop strategies. The strategies are accompanied by specific action items that will be undertaken by those who will implement the plan, in order to close identified current and future gaps in broadband coverage and to fulfill the vision and goals of the plan.

Vision

Southwest Florida's vision is to have the nation's fastest high-speed broadband network and to be recognized as the world's best place to live, learn, work and do business with technology.

Community broadband networks have a significant economic impact on communities. A strong broadband foundation is a tool that economic development can utilize to attract and retain businesses, develop new high-tech industries, and allow local business communities to compete in the global market. The connection between available broadband in a region and its impact on business and economic development, in particular smaller, more rural communities, is irrefutable. There is a direct positive correlation between productivity in terms of job growth and the right price/availability mix of broadband. Small businesses, in particular, rely more heavily on broadband services as a core component of their business strategy.

Economic activity and broadband availability are positively correlated. An economic study conducted on Lake County, Florida's community broadband network (constructed and operated by the City of Leesburg) found a significant increase in economic activity in the County when compared against other Florida counties with similar attributes. The degree to which broadband influenced economic activity varied based on geographic and demographic features but in nearly every case, broadband positively influenced economic activity in the local area.

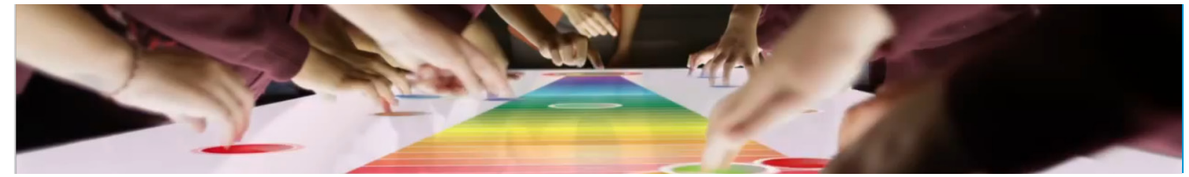
In Southwest Florida, broadband will play an essential role in ensuring the economic viability of our community in the future. As such, this approach to regional broadband planning is necessary to identify specific areas of opportunities to enhance our broadband presence and ensure the community is competitive in the new global market.

There are several factors that make this region ideal for a coordinated regional broadband planning effort:

- Areas with a high density of business organizations in a relatively compact geographic area
- A large health care presence contributing to a significant number of power users
- A large number of small businesses that generally are willing to be early adopters of new technologies
- Relatively low penetration of existing broadband services
- Availability of existing fiber conduits in some regions major highways and thoroughfares
- Availability of existing facilities and land (both public and private) for broadband co-location facilities
- A regional willingness to work collaboratively on improving the region's economic development opportunities through enhanced broadband

Goals

This Broadband Strategic Plan is critical to our efforts to coordinate and direct the expansion of our regional broadband infrastructures. To support our regional broadband vision, Southwest Florida has developed the following six goals:



- Identify the long-term broadband needs of our citizens, businesses and anchor institutions
- Document our region's broadband environment and identify supply and demand issues
- Collaborate with local and regional organizations to facilitate comprehensive broadband planning
- Work with communications service providers to help ensure long-term broadband needs are met
- Develop strategic broadband initiatives that target long-term industry development
- Increase broadband adoption throughout Southwest Florida
- Creating an environment where public-private partnerships can thrive to enable the efficient growth of our broadband infrastructure
- Providing strong marketing and outreach materials to educate businesses and residents of the broadband resources available to them and the importance of broadband to the region
- Identifying cost effective strategies to build out networks (both public and private) to provide services to a greater portion of the region
- Marketing the Southwest Florida Region as a "Broadband Rich" area capable of supporting the needs of new, technology based businesses and industries

Objectives

In support of the six goals, the Southwest Florida Broadband Plan has developed specific objectives. These objectives seek to identify and leverage the broadband assets in the region in an effort to maximize the benefits of high-speed broadband connectivity available to the region. In a region that suffers from a lack of high-speed broadband, it is imperative that we identify all broadband resources available to the region to provide the best return on investment in regards to cost and capabilities. By coordinating efforts across the region, we can extend the reach of broadband and provide significant value with regard to economic development across the region and focus on enabling new, broadband based technologies and services to local businesses, community anchors, government organizations, and residents. This plan will assist us in identifying and evaluating the opportunities and present options to the Southwest Florida region on how to enhance and leverage both current and future broadband assets.

Objectives will be focused on:

- Developing strategic broadband initiatives that target long-term industry development
- Developing a long-term resource for the Southwest Florida region that will provide advanced broadband services and collaborative opportunities while maintaining a reasonable cost structure across the region
- Improving access to broadband services in areas that traditionally suffer from poor access by collaboratively extending network infrastructure
- Providing a foundation of broadband services in areas targeted for economic development by using our broadband infrastructure as a catalyst to attract and retain businesses
- Building an inventory of advanced broadband assets in the region that will be key to the delivery of these new advanced broadband services

Strategies and Action Items

The Southwest Florida Regional Planning Council has adopted the Florida Chamber Foundation's "Six Pillars" framework as a mechanism to organize the strategies and action items included in this broadband plan. This framework provides for consistency in the parameters regarding the discussion of regional broadband planning although the discussion will vary from county to county and city to city.

EDUCATION
Pillar: Talent Supply & Education

Currently, the Southwest Florida region and the State as a whole faces a talent gap with regard to providing the highly trained and skilled workforce that will be required by businesses powered by the new broadband infrastructures we are looking to create. These businesses will create new technologically advanced products and services that will require a highly educated and savvy workforce to support. It is imperative to the region that we establish a strong program to create a base of highly skilled knowledge workers that understand the basic fundamentals and benefits that broadband can bring to the region and the economic and educational opportunities such broadband networks would bring.

The following action items have been developed to support broadband education and develop talent in the region:

1. Define broadband requirements to support the functional needs of educational institutions and promote the use of online education and training activities.
2. Maximize network accessibility to improve the region's talent supply and workforce training opportunities.
3. Provide technical educational opportunities to the workforce in order to increase the adoption and use of broadband services.
4. Promote network openness and universal access through-

out the region to stimulate collaboration efforts and information sharing.

ECONOMIC OPPORTUNITIES
Pillar: Innovation & Economic Development

With greater broadband accessibility will come greater innovation and economic development opportunities to the Southwest Florida region. The long term prosperity of the region will be based on technology, knowledge, and innovation which will transform current businesses and attract new high-tech businesses to our community. Broadband is a key driver of economic development and innovation and thus, critical to our growth and emergence in the highly competitive global digital marketplace.

The following action items have been developed to support broadband as a driver of innovation and economic development:

1. Promote and maximize the availability of affordable broadband services throughout the region, focusing on retaining existing businesses and attracting new businesses.
2. Identify and recruit target industries that depend on reliable, high performance broadband services. Align resources of economic development organizations, chambers of commerce, and State and Federal agencies to incentivize the desired industry clusters and secure their location in the region.
3. Enable new "technology friendly" jobs that support the growth of advanced broadband services. Implement business "micro-tech" incubator programs to stimulate the region's high-tech employment opportunities.
4. Foster the development of a knowledge-based workforce through advanced broadband training programs, internships and placement services with regional high-tech businesses.

ENERGY & ENVIRONMENT
Pillar: Infrastructure & Growth Leadership

Broadband is a critical infrastructure component. In order for the Southwest Florida region to be competitive and relevant in the global digital marketplace, it must invest in enhancing its current broadband networks and investigate efficient and effective methods of building new networks though public-private partnerships. If the regions broadband infrastructure is allowed to grow stagnant, the region will have no prospect of competing for new broadband based opportunities that will emerge in the near term future.

The following action items have been developed to support the development of broadband infrastructure and growth leadership:

1. Develop collaborative broadband strategies between local government organizations in the region to share infrastructure in order to improve capabilities and efficiencies.
2. Attract green and high-tech industries to the region utilizing incentive programs that include affordable, advanced broadband systems.
3. Work with public institutions and private sector providers to align broadband infrastructure placement so that it maximizes use and needs of interface within the community.
4. Develop environmentally aligned broadband systems that are minimally invasive to the region's ecosystem. Develop policies to plan for and utilize infrastructure that maximizes efficiency and minimizes environmental impact.
5. Provides a robust broadband infrastructure to allow regional businesses to compete in the global economy.

HEALTH CARE
Pillar: Quality of Life & Quality Places

Quality healthcare facilities and practitioners are essential to developing and maintaining a high quality of life in the Southwest Florida region. Broadband is transforming healthcare by allowing greater communication and collaboration among doctors, hospitals, and patients, thereby enabling better outcomes while lowering overall healthcare costs. Our community must enable high-tech healthcare in our region by bolstering the current broadband networks to facilitate the adoption of new healthcare technologies such as Electronic Health Records and Remote Monitoring Technologies. Without a robust broadband network to serve this region, the quality of healthcare and the quality of life in the region will decline.

The following action items have been developed to support the development of healthcare and quality of life initiatives:

1. Work with regional healthcare institutions to develop a "regional healthcare exchange" that promotes electronic health and patient care via broadband.
2. Provide guidance, education and training to healthcare institutions on broadband services and availability in the region.
3. Work with regional broadband service providers and local governments to ensure adequate bandwidth is available for healthcare needs.

PUBLIC SAFETY
Pillar: Quality of Life & Quality Places

Broadband networks are critical to ensuring first responders have the tools and information they need to save lives. Broadband networks enable first responders to access medical records, criminal records, site information, video data, and other databases required in an emergency response. They also facilitate communication between public safety organizations and are critical during emergency operations and other disaster response situations.

The following action items have been developed to support the development of public safety broadband needs:

1. Collaborate with public safety institutions to define and promote long-term goals for communications that require advanced broadband.
2. Work with the NTIA in support of developing local FirstNet network requirements.
3. Provide broadband access to improve business interaction and incentives.

CIVIC & GOVERNMENT
Pillar: Civic & Governance Systems

Local government organizations rely on quality broadband networks to enable e-government solutions. E-government applications allow local governments to transact business with their constituents more efficiently, reduce cost, and create greater transparency. Without adequate regional broadband availability, attempts to implement e-government solutions would be wasted and unproductive. Southwest Florida must ensure both service providers and local governments are working together to expand broadband in the region.

The following action items have been developed to support the enhancement of civic and government systems:

1. Support e-government initiatives through transparent interaction and collaboration that promote communications between governmental agencies, citizens groups and private businesses.
2. Utilize community outreach programs to educate citizens and businesses about the availability and affordability of broadband.
3. Develop open-access, neutral interconnection, and nondiscrimination policies for the regional broadband system. Identify where these policies may be most effectively implemented.

Goals and strategy development are the result of a collective effort by the Southwest Florida Local Broadband Advisory Committee, the Technical Task Force, the Southwest Florida Regional Planning Council staff, and the public. Participants provided input using an electronic response system where goals and strategies could be voted on for prioritization.

Figure 8. Vision, Obectives, Goals & Strategies for the Regional Broadband Plan

***At-A-Glance:* Strategies & Objectives for the Regional Broadband Plan**

BROADBAND Charlotte • Collier • Lee

Vision
- Southwest Florida will have the nation's fastest high-speed broadband network and will be recognized as the world's best place to live, learn, work and do business with technology

Objectives
- Raise public awareness and provide education relating as to the importance of broadband in the region
- Develop strategic broadband initiatives that target long-term industry development

Goals
- Identify the long-term broadband needs of our citizens, businesses and anchor institutions
- Document our region's broadband environment and identify supply and demand issues
- Collaborate with local and regional organizations to facilitate comprehensive broadband planning
- Work with communications service providers to help ensure long-term broadband needs are met
- Develop strategic broadband initiatives that target long-term industry development
- Increase broadband adoption throughout Southwest Florida

Southwest Florida Regional Broadband Plan Core Components At-A-Glance

Community Anchors:	Education	Economic Opportunities	Energy & Environment	Health Care	Public Safety	Civic & Government
Strategies:	1. Define broadband requirements to support the functional needs of educational institutions and promote the use of online education and training activities. 2. Maximize network accessibility to improve the region's talent supply and workforce training opportunities. 3. Provide technical educational opportunities to the workforce in order to increase the adoption and use of broadband services. 4. Promote network openness and universal access throughout the region to stimulate collaboration efforts and information sharing.	1. Promote and maximize the availability of affordable broadband services throughout the region, focusing on retaining existing businesses and attracting new businesses. 2. Identify and recruit target industries that depend on reliable, high-performance broadband services. Align resources of economic development organizations, chambers of commerce, and State and Federal agencies to incentivize the desired industry clusters and secure their location in the region. 3. Enable new "technology friendly" jobs that support the growth of advanced broadband services. Implement business "micro-tech" incubator programs to stimulate the region's high-tech employment opportunities. 4. Foster the development of a knowledge-based workforce through advanced broadband training programs, internships and placement services with regional high-tech businesses. 5. Promote tele-work programs for appropriate workplaces in order to attract and retain a quality workforce.	1. Develop collaborative broadband strategies between local government organizations in the region to share infrastructure in order to improve capabilities and efficiencies. 2.Attract green and high-tech industries to the region utilizing incentive programs that include affordable, advanced broadband systems. 3. Work with public institutions and private sector providers to align broadband infrastructure placement so that it maximizes use and need interface within the community. 4. Develop environmentally aligned broadband systems that are minimally invasive to the region's ecosystem. Develop policies to plan for and utilize infrastructure that maximizes efficiency and minimizes environmental impact. 5. Provides a robust broadband infrastructure to allow regional businesses to compete in the global economy.	1. Work with regional healthcare institutions to develop a "regional healthcare exchange" that promotes electronic health and patient care via broadband infrastructure. 2. Provide guidance, education and training to healthcare institutions on broadband services and availability in the region.	1. Collaborate with public safety institutions to define and promote long-term goals for communications that require advanced broadband. 2. Provide broadband access to improve business interaction and incentives.	1. Support e-government initiatives through transparent interaction and collaboration that promote communications between governmental agencies, citizens groups and private businesses. 2. Utilize community outreach programs to educate citizens and businesses about the availability and affordability of broadband. 3. Develop open-access, neutral interconnection, and nondiscrimination policies for the regional broadband system. Identify where these policies may be most effectively implemented.
Six Pillars:	**Talent Supply & Education**	**Innovation & Economic Development**	**Infrastructure & Growth Leadership**	**Quality of Life & Quality Places**	**Quality of Life & Quality Places**	**Civic & Governance Systems**

Six Pillars: The regional plan will be created integrating the Six Pillars of Florida's Future Economy framework which is focused on critical factors determining Florida's future: (1) Talent Supply & Education, (2) Innovation & Economic Development, (3) Infrastructure & Growth Leadership, (4) Business Climate & Competitiveness, (5) Civic & Governance Systems and (6) Quality of Life & Quality Places. The Broadband Comprehensive Plan will be consistent with the State DEO Five Year Strategic Plan, the Six Pillars framework and the 2012 Comprehensive Economic Development Strategy.

Survey Results

Broadband Utilization Survey Results

To gather data regarding broadband usage and needs in Southwest Florida, two surveys were conducted. First, a telephone survey was conducted by a consulting firm in May 2012 in which 248 businesses and 249 residents responded. Second, two online surveys – one for businesses and one for residents – were made available through an online polling site. The online surveys were widely advertised throughout the public outreach stage of the planning process. From June 2012 to January 2013, 453 residential online surveys and 127 business surveys were completed. This section contains an analysis of the survey results, combining the results of the telephone and online surveys.

Methodology

Population definition: All businesses and households in Polk, Charlotte, Lee, Collier, DeSoto, Glades, Hardee, Highlands, and Okeechobee counties. Person most knowledgeable about business or home internet use

Sampling frame: All working business and residential telephone numbers (landline & cell)

Sample size: 750 in total study, 250 in Polk County, 250 in Charlotte, Lee, Collier counties, 250 in DeSoto, Glades, Hardee, Highlands, and Okeechobee counties

Sampling error (given a 95% confidence interval): 3.6% points in total study, 6.2% points in Polk County, 6.2% points in Charlotte, Lee, Collier counties, 6.2% points in DeSoto, Glades, Hardee, Highlands, and Okeechobee counties

Data collection: Telephone interviews conducted from Kerr & Downs Research's office using CATI system. Conducted in May 2012

Residential Survey Findings

Of 250 residents surveyed for Charlotte, Collier, and Lee:

- 86 percent have internet service and 14 percent do not.
- 89 percent have high speed internet.
- 75 percent have a wireless router in their home, 21 percent do not have a wireless router, and 4 percent are not sure.
- 29 percent pay $30-49/month, 20 percent pay $50-74/month and 14 percent pay $20-29/month for internet service.
- 50 percent have an internet bundled service and 46 percent pay for internet only.

Business Survey Findings

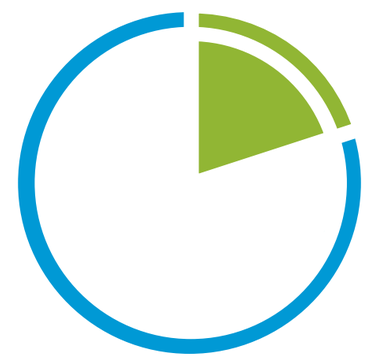
Of 250 businesses surveyedor Charlotte, Collier, and Lee:

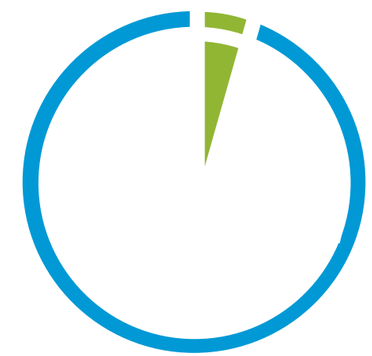
- 90 percent have internet connections, 10 percent do not.
- 73 percent believe it is critical to have a fast internet connection to maintain competitiveness, 15 percent disagree, and 12 percent are not sure.
- 71 percent have a Wi-Fi connection, 24 percent do not, and 5 percent are not sure.
- 75 percent of businesses use the internet for research.
- 75 percent do not know the download and upload speeds of their internet connection, 12 percent knows the speeds, and 13 percent are not sure.

Residential Survey

Survey Question: Do you have internet service in your home?

Charlotte	Collier	Lee
76% Yes	93% Yes	86% Yes
24% No	7% No	14% No

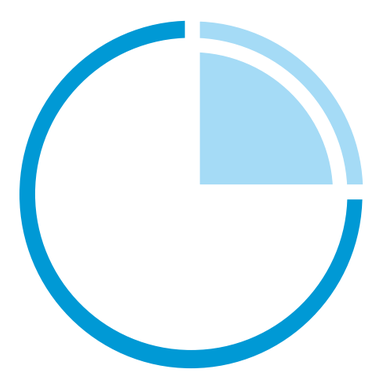


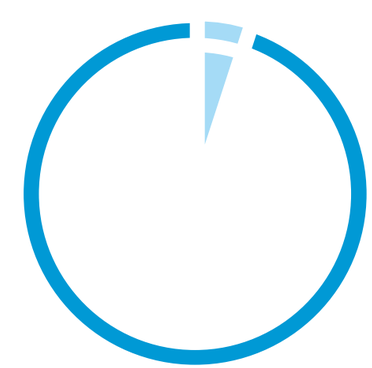


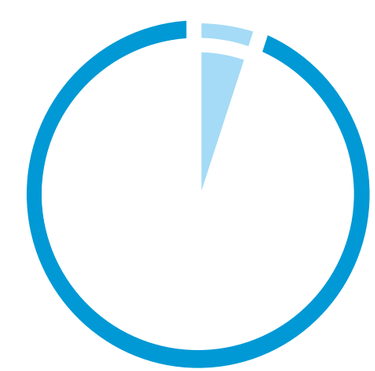
Business Survey

Survey Question: Does your organization have internet service?

Charlotte	Collier	Lee
81% Yes	95% Yes	90% Yes
19% No	5% No	10% No







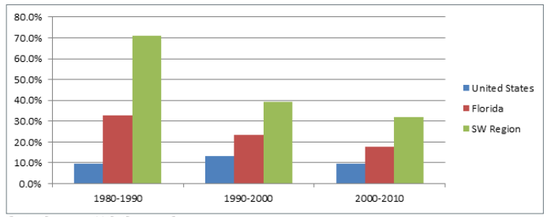
Existing Conditions

Demographics of Southwest Florida (Charlotte, Collier, Lee)

Southwest Florida's Broadband region, consisting of Charlotte, Collier and Lee Counties, is located along the Gulf Coast of Florida with a total land area of 3,463 square miles. Southwest Florida contains areas that are urban, suburban, and rural in nature. The largest city is Cape Coral (population 154,305 as of the 2010 Census).

Population Growth Rates, 1980 - 2010

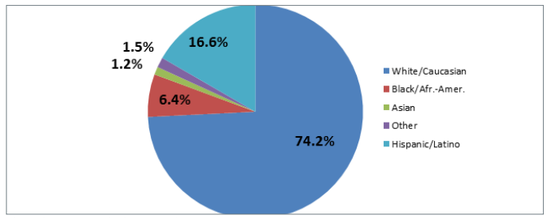
According to 2010 Census Bureau estimates, Southwest Florida's population is 1,100,252. Like much of Florida, the Southwest Florida Region has experienced considerable population growth in the last few decades. Population growth has been consistently higher than the national growth rate, and from 2000 to 2010, the region's population grew at a higher rate than that of Florida as a whole.



Data Source: U.S. Census Bureau

Race and Ethnicity, 2010

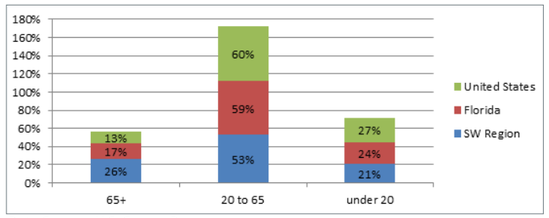
As of 2010, the region's population was 74.2 percent White; 6.4 percent Black; 1.2 percent Asian; and 1.5 percent Other. Hispanic or Latino of any race were 16.6 percent of the population.



Data Source: U.S. Census Bureau

Age Distribution, 2010

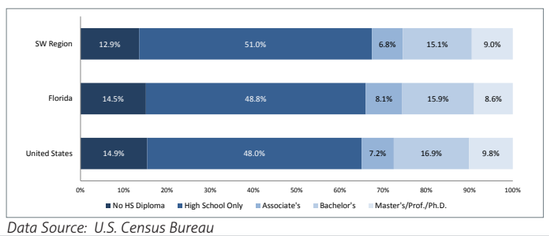
As of the 2010 Census, 26 percent of Southwest Florida's population was over age 65, 53 percent was ages 20 to 65 and 21 percent was under age 20. Measured in these categories, Southwest Florida has proportionally a larger senior population than Florida and the United States.



Data Source: U.S. Census Bureau

Educational Attainment for Persons Aged 25 and Older, 2011

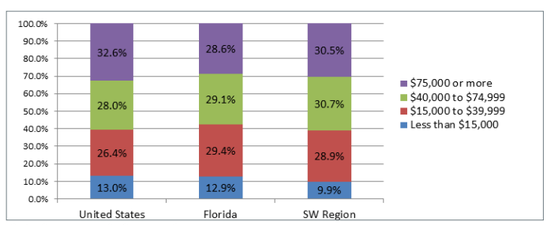
According to the Census Bureau's 2009 three-year American Community Survey estimates, 12.9 percent of adults age 25 and older lacks a high school diploma, and 15.1 percent have a bachelor's degree or higher degree. Compared to the state and the nation, the SW Region has a lower percentage of residents with post-secondary degrees and a higher percentage that have a high school diploma.



Data Source: U.S. Census Bureau

Median Household Income, 2010

According to 2005-2009 three-year Census estimates, the median household income in SW Florida was $51,045. There are 9.9 percent of households with annual incomes below $15,000, while 30.5 percent have incomes of $75,000 or more. The poverty threshold, defined by the Census Bureau, varies depending on household size and other factors. In 2010, the threshold for a family of four, with two children, was $22,113.



Data Source: U.S. Census Bureau

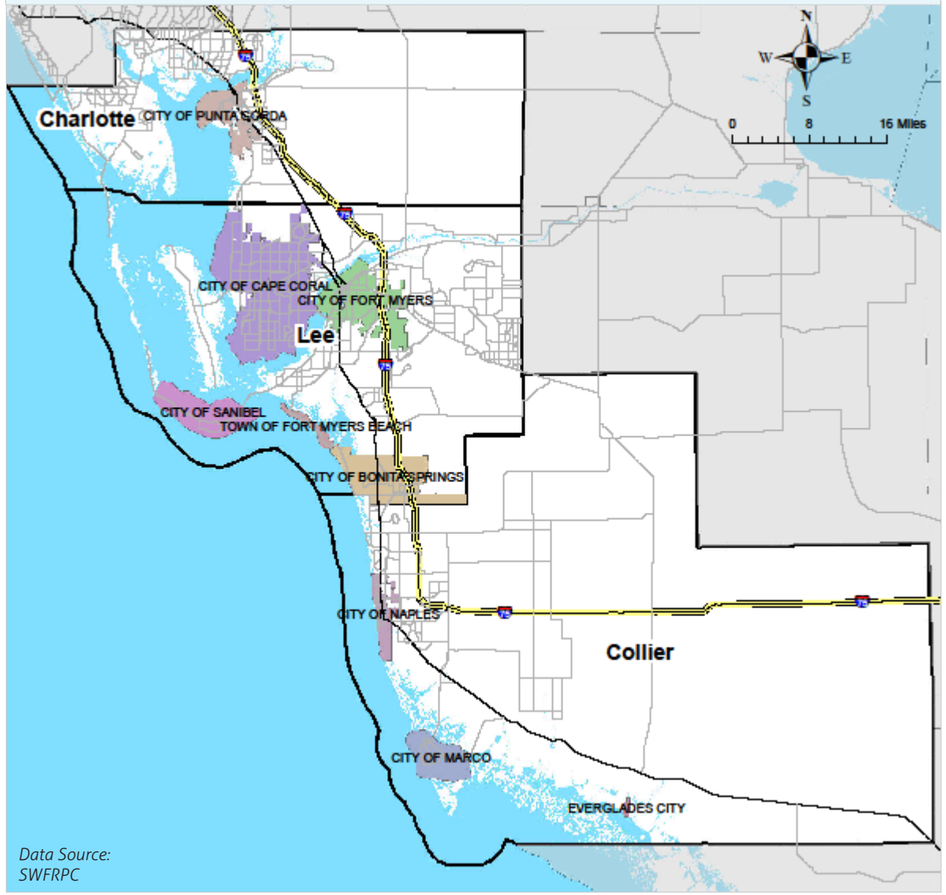
Populations of Municipalities in Southwest Florida, 2010

Southwest Florida for this project area is comprised of 9 incorporated municipalities. The municipalities and their populations as of the 2010 Census. Figure 9 depicts municipalities in Charlotte, Lee and Collier Counties.

Charlotte County	159,978	***Lee County***	618,754
Punta Gorda	16,641	*Bonita Springs*	43,914
Unincorporated	143,337	*Cape Coral*	154,305
Collier County	321,520	*Ft. Myers*	62,298
Everglades	400	*Ft. Myers Beach*	6,277
Marco Island	16,413	*Sanibel*	6,469
Naples	19,537	*Unincorporated*	345,491
Unincorporated	285,170		

Data Source: U.S. Census Bureau

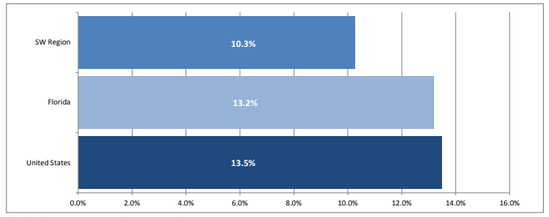
Figure 9. Municipalities in Southwest Florida



Data Source: SWFRPC

Percent of the Population Living Below the Poverty Threshold, 2010

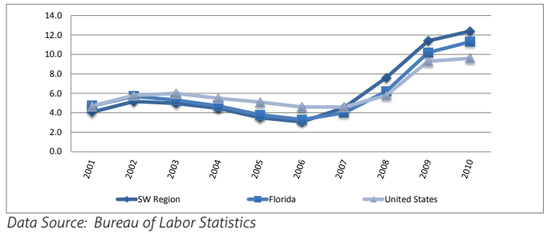
The percentage of population living in poverty is at 10.3 percent, according to the same estimates. Southwest Florida has lower poverty rates than Florida or the United States.



Data Source: U.S. Census Bureau

Unemployment Rate

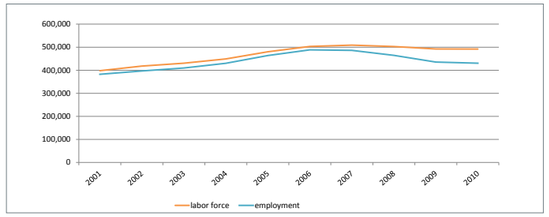
During the last decade, the pattern of unemployment in the SW Region has been similar to Fl. and for the United States as a whole; unemployment rates were lowest in 2005 and 2006 and increased in 2007 thru 2009. However, in this regard, the SW Region was more strongly affected by the economic downtown than the U.S. or Fl. In 2008, 2009 and 2010, the county's unemployment rate was higher than that of Fl., which in turn was higher than the national rate. Annual unemployment for 2010 was 12.4 percent.



Data Source: Bureau of Labor Statistics

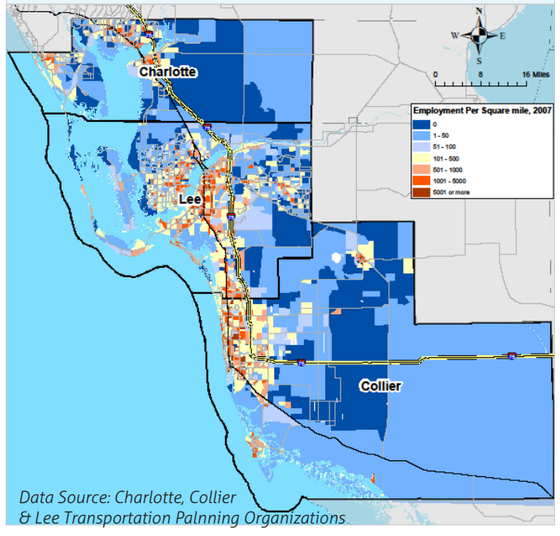
Labor Force & Employment in the SW Region

Since 2008, there has been a widening gap between the number of people in the labor force (those working or seeking work) and the total number of people employed in the SW Region. While the labor force has remained at a fairly constant level since 2008, the employment level (the number of people working) has dropped, resulting in higher unemployment rates. This effect is illustrated in the graph to the right.



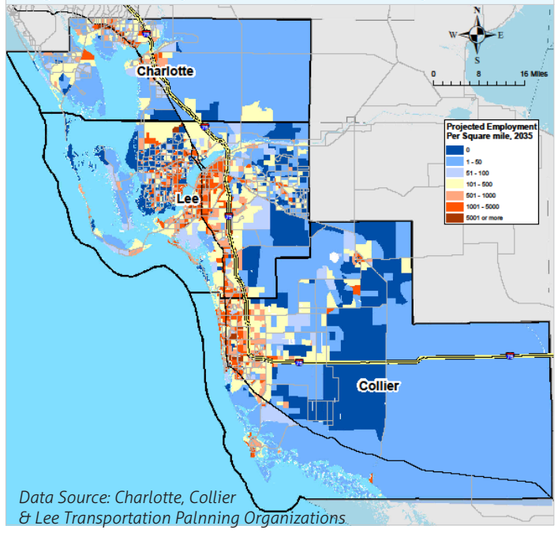
Data Source: Bureau of Labor Statistics

Figure 10. Employment Per Square Mile, 2007



Data Source: Charlotte, Collier & Lee Transportation Palnning Organizations

Figure 11. Employment Per Square Mile, Projected 2035

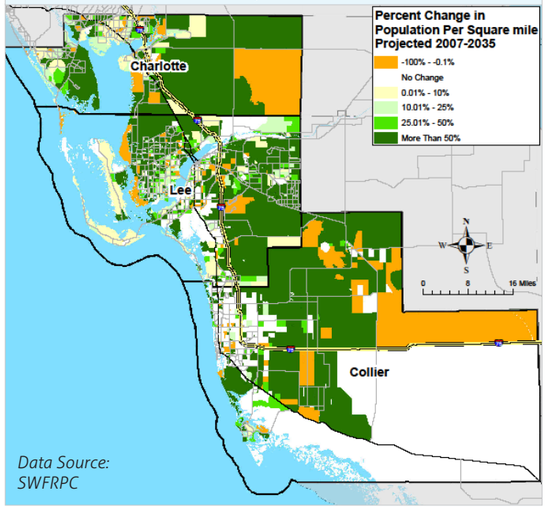


Data Source: Charlotte, Collier & Lee Transportation Palnning Organizations

Projected percent change in population per square mile by TAZ, 2010-2020

The Southwest Florida Transportation Planning Organization (TPO) predicts future population and employment levels at the Traffic Analysis Zone (TAZ) level. TAZs are defined by the Census Bureau. Figure 12 shows the projected percent change in population per square mile for each TAZ in Southwest Florida from 2010 to 2035.

Figure 12. Projected Percent Change In Population Per Square Mile by TAZ, 2010-2035



Data Source: SWFRPC

> *"Broadband access equals the future equals funding equals knowledge."*
> ***-Shawn Reeve, Intelli Choice***

Employment Growth and Industry Clusters

The Florida Department of Economic Opportunity projects that in 2019, there will be 244,900 persons employed in Southwest Florida, a 13.2 percent increase from 2011. Table 6 lists the 20 occupations with the greatest projected absolute growth (that is, the occupations that are expected to add the greatest total number of jobs in Southwest Florida).

Table 6. Occupations with the Greatest Projected Absolute Growth

	2012 Employment (Actual)	2020 Employment (Projected)	Absolute Growth, 2012-2020
Construction Laborers	4,592	6,239	1,647
Carpenters	4,523	5,837	1,314
First-Line Superv. of Construction and Extraction Workers	2,565	3,530	965
Painters, Construction and Maintenance	2,841	3,763	922
Heating, A.C., and Refrigeration Mechanics and Installers	1,869	2,589	720
Construction Managers	2,446	3,126	680
Home Health Aides	1,751	2,301	550
Electricians	1,942	2,465	523
Insurance Sales Agents	1,802	2,258	456
Cement Masons and Concrete Finishers	977	1,431	454
Management Analysts	1,671	2,104	433
Plumbers, Pipefitters, and Steamfitters	1,687	2,119	432
Operating Engineers/Construction Equipment Operators	946	1,305	359
Loan Officers	1,004	1,350	346
Cost Estimators	653	966	313
Roofers	957	1,249	292
Paralegals and Legal Assistants	774	1,051	277
Nonfarm Animal Caretakers	803	1,061	258
Sheet Metal Workers	699	953	254
Personal and Home Care Aides	912	1,162	250

Data Source: Florida Department of Economic Opportunity

Table 7. Occupations with the Greatest Projected Relative Growth	2012 Employment (Actual)	2020 Employment (Projected)	Relative Growth, 2012-2020
Brickmasons and Blockmasons	482	729	51%
Glaziers	346	512	48%
Cost Estimators	653	966	48%
Cement Masons and Concrete Finishers	977	1,431	46%
Drywall and Ceiling Tile Installers	412	597	45%
Plasterers and Stucco Masons	255	362	42%
Heating, A.C., and Refrigeration Mechanics and Installers	1,869	2,589	39%
Operating Engineers/Construction Equipment Operators	946	1,305	38%
First-Line Superv. of Construction and Extraction Workers	2,565	3,530	38%
Sheet Metal Workers	699	953	36%
Market Research Analysts and Marketing Specialists	317	432	36%
Construction Laborers	4,592	6,239	36%
Paralegals and Legal Assistants	774	1,051	36%
Welders, Cutters, Solderers, and Brazers	659	894	36%
Tile and Marble Setters	529	712	35%
Loan Officers	1,004	1,350	34%
Diagnostic Medical Sonographers	277	371	34%
Security and Fire Alarm Systems Installers	402	533	33%
Painters, Construction and Maintenance	2,841	3,763	32%
Industrial Machinery Mechanics	402	532	32%

Data Source: Florida Department of Economic Opportunity

Table 8 lists the 9 industries with the greatest projected absolute growth, and Table 9 lists the 10 industries with the greatest projected relative growth.

> *"Broadband is the most important means of communication and information gathering within our community."*
> ***- Bill Kearny, Local Citizen***

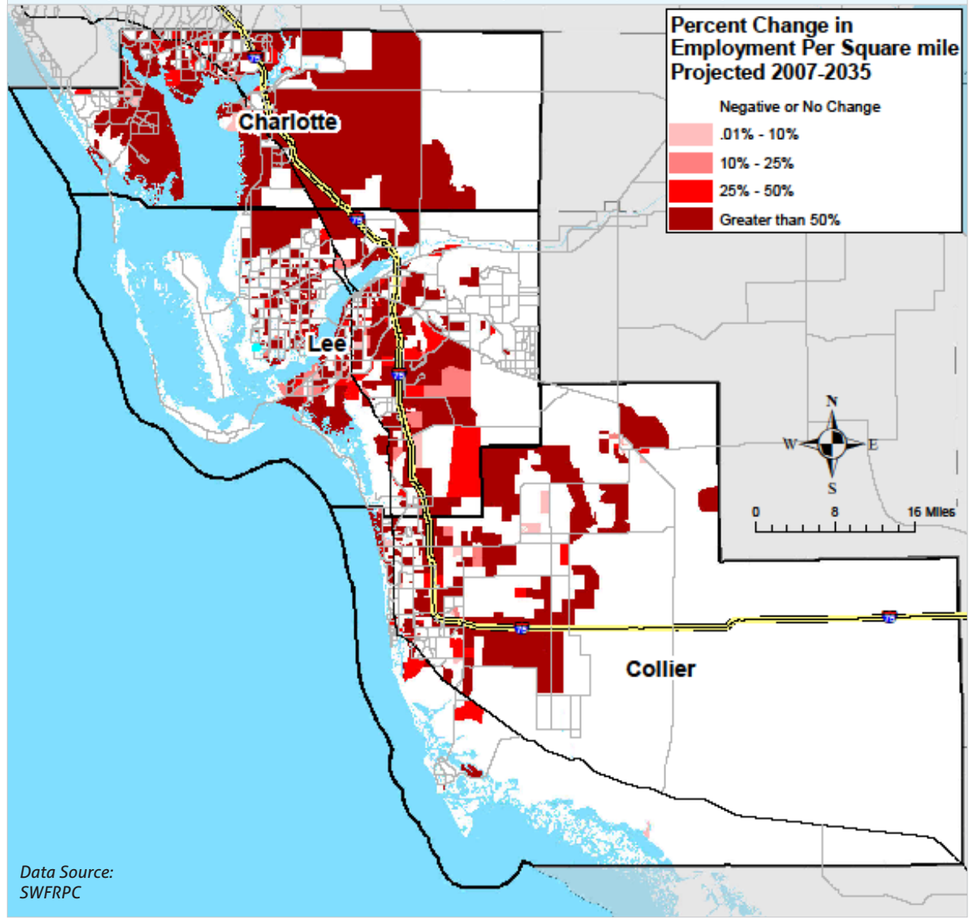
Table 8. Industries with the Greatest Projected Absolute Growth	2012 Employment (Actual)	2020 Employment (Projected)	Absolute Growth, 2012-2020
Specialty Trade Contractors	20,552	28,982	8,430
Administrative and Support Services	23,303	29,186	5,883
Ambulatory Health Care Services	23,042	28,317	5,275
Professional, Scientific, and Technical Services	17,685	21,453	3,768
Nursing and Residential Care Facilities	11,879	14,672	2,793
General Merchandise Stores	12,629	15,229	2,600
Construction of Buildings	4,851	7,192	2,341
Accommodation	8,948	10,851	1,903
Motor Vehicle and Parts Dealers	6,885	8,639	1,754
Clothing and Clothing Accessories Stores	7,380	9,078	1,698

Data Source: Florida Department of Economic Opportunity

Table 9. Industries with the Greatest Projected Relative Growth	2012 Employment (Actual)	2020 Employment (Projected)	Relative Growth, 2012-2020
Heavy and Civil Engineering Construction	3,160	4,701	49%
Construction of Buildings	4,851	7,192	48%
Specialty Trade Contractors	20,552	28,982	41%
Furniture and Home Furnishings Stores	2,663	3,614	36%
Personal and Laundry Services	4,495	5,878	31%
Wholesale Electronic Markets and Agents and Brokers	1,254	1,608	28%
Motor Vehicle and Parts Dealers	6,885	8,639	25%
Administrative and Support Services	23,303	29,186	25%
Air Transportation	524	654	25%
Truck Transportation	1,167	1,446	24%

Data Source: Florida Department of Economic Opportunity

Figure 13. Projected Percent Change In Employment Per Square Mile By TAZ, 2007-2035



Data Source: SWFRPC

Broadband Assets

This section provides an inventory of significant broadband assets in the three-county region. These assets are categorized as wireline, wireless, vertical assets (such as towers) and government-owned broadband assets. Although each type of asset may not be directly related in the provision of broadband services in Southwest Florida currently, this Plan identifies all potential assets that may be utilized in development of future broadband services in the three-county area as well as government-owned assets, which may assist in collaboration between public organizations in the area around technology and communications services. For example, this section identifies vertical assets such as tower infrastructure to determine what vertical assets are available to be used for mobile broadband services, such as (LTE), WiMax and microwave-based wireless services. Similarly, government-owned broadband assets are currently utilized only by local government organizations in the region to provide broadband services to their organizations and other public affiliates.

Wireline

Wireline broadband services are generally classified as any service that utilizes a physical transmission medium to provide telecommunications services, including copper-based systems, such as DSL and cable, and optical-based systems, such as fiber-to-the-home and fiber-to-the-business services. Wireline broadband services provide high-speed communications services to end users over which Internet, voice and other end user services may be transported.

For households and businesses, broadband connections via fiber, cable, and DSL are commercially available throughout much of the three-county area. Service providers maintain extensive copper and coaxial plants throughout the region. However, fiber-optic services are much less prevalent throughout the region. Service providers have backbone fiber segments transiting through much of the region but limited fiber distribution services for residents and business is reported in the data.

Figure 14 shows commercial wireline coverage by service type. Fiber, cable, and DSL coverage overlap in many areas. The map shows areas where service types overlap with the color of the fastest service type on top (i.e., fiber, followed by cable, then DSL).

Figure 14. Commercial Wireline Broadband Coverage by Service Type

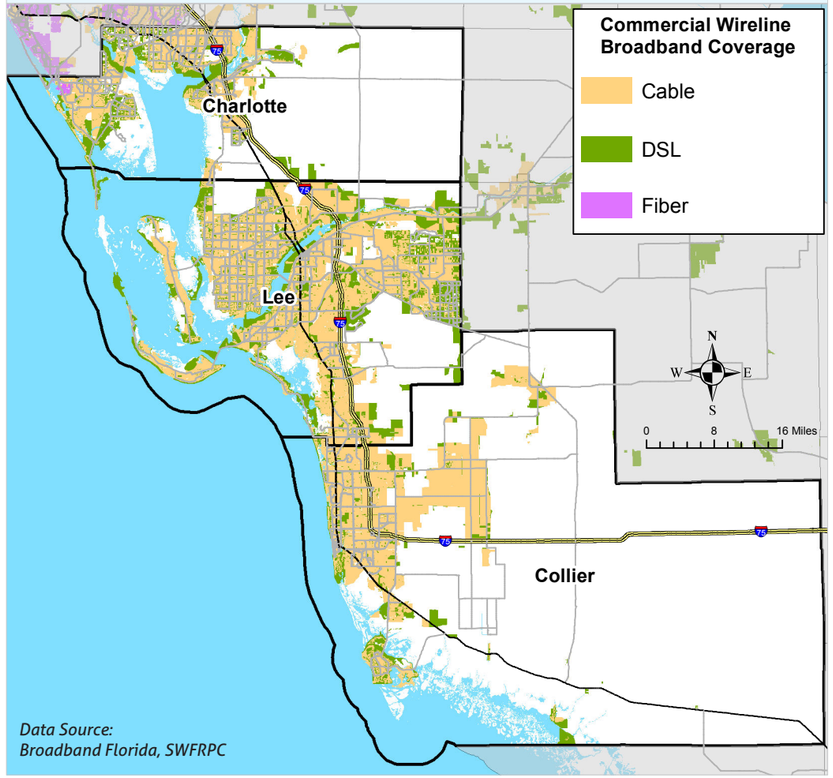


Figure 15 shows the maximum advertised download speeds available from commercial wireline broadband providers. Table 10 lists the typical download speed ranges required for a variety of broadband applications. Cable and DSL services are generally known to be asymmetrical services, meaning that these services provide different bandwidth for downstream and upstream transmission. In most implementations of DSL and Cable broadband services, downstream bandwidth is greater than upstream bandwidth. For example, a DSL or Cable provider may offer a 10/2 package, which means a maximum of 10Mbps (megabits per second) downstream or "download" and 2Mbps upstream or "upload." Speeds illustrated in Figure 15 show the maximum advertised download speeds for wireline broadband services in the three county area.

Fiber-optic wireline broadband connections have the capability to provide higher speed services beyond those of DSL and Cable services. Fiber-optic services are generally more prevalent in larger business and government organizations that require high-bandwidth, high-availability services. These services also are significantly more costly than DSL and Cable services and as a result, are less prevalent in the residential and business markets.

Figure 15. Commercial Wireline Broadband Coverage Maximum Advertised Speeds

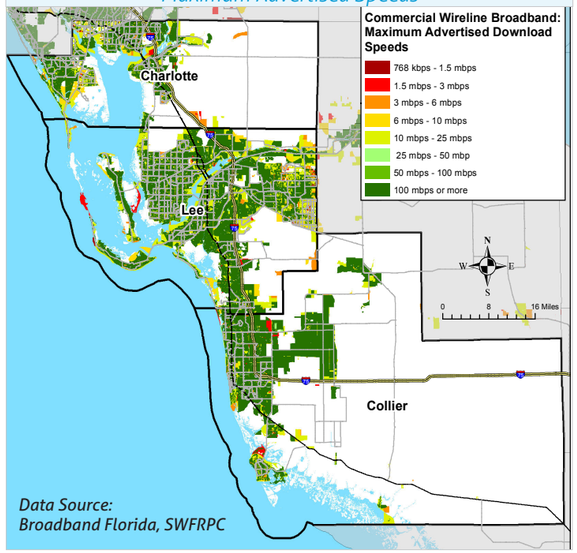


Table 10. Broadband Applications with Typical Speed Ranges Required[1]

Text Messaging (SMS)	500 kbps - 1 mbps
Audio Streaming Email (Basic) Video (Low Definition/YouTube) Voice Over Internet Protocol (VOIP)	500 kbps - 1.5 mbps
Web Browsing (Basic)	500 kbps - 4 mbps
Music streaming	500 kbps - 5 mbps
Email (Large Attachments) IPTV (Standard Definition, 1-3 Channels) Remote Surveillance (Basic) Telecommuting (Basic) Web Browsing (Complex Sites)	1 mbps - 5 mbps
File sharing (Small/Medium Files)	1 mbps - 6 mbps
Video (Enhanced Definition)	3 mbps - 6 mbps
Building Control & Management File sharing (HD Videos) File sharing (Large Files) IPTV (Standard Definition, 4+ Channels) Medical File Sharing (Basic) Remote Diagnosis (Basic) Telecommuting (Converged Services) Telepresence (Low Quality)	5 mbps - 10 mbps
Video (Standard Definition) Video Conferencing (Basic) Gaming (Basic)	5 mbps - 14 mbps
Remote Education / Online Classes	5 mbps - 100 mbps
Gaming (Complex) IPTV (High Definition) Remote Surveillance (HD) Smart/Intelligent Building Control Telecommuting (High Quality Video) Telemedicine (Basic) Telepresence (High Quality)	10 mbps - 100 mbps
Smart/Intelligent Bldg. Control	25 mbps - 100 mbps
Video Conferencing (Multiple Users)	50 mbps - 100 mbps
Gaming (Immersion) IPTV (Full Channel Support) Multiple Educational Services Real-Time Data Collection Remote Server Services for Telecommuting Telemedicine (HD) Video (High Definition)	100 mbps - 1 gbps
Remote Supercomputing	50 mbps - 10 gbps
Research Applications	100 mbps - 10 gbps
File sharing (Terabyte Datasets) Interactive Remote Visualization and Virtual Reality Live Event Digital Cinema Streaming Remote Control of Scientific/Medical Instruments Telepresence (Using Uncompressed HD Video Streams)	1 gbps - 10 gbps

[1]*Sources: Brookings Institution. "An International Look at High-Speed Broadband" by Darrell M. West, Feb. 2010.* ***http://www.brookings.edu/reports/2010/0223_broadband_west.aspx*** *; Missouri Broadband Now. "Broadband Speeds."* ***http://mobroadbandnow.com/broadband-101/broadband-speeds/***
State of New Hampshire Broadband Action Plan, Appendix. ***http://www.nheconomy.com/uploads/Broadband-Action-Plan-Appendices.pdf***
State of Washington Department of Information Services. "Creating Opportunities for Washington: A Report on Broadband in Washington State." ***http://broadband.wa.gov/sites/default/files/docs/WashingtonStateBroadbandReport.pdf***

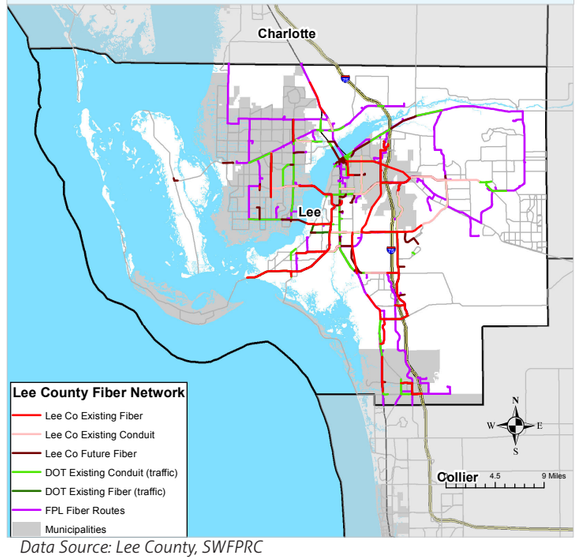
Government-Owned Broadband Assets

In Southwest Florida, Lee and Charlotte counties own and operate fiber optic networks serving almost exclusively government facilities. These networks provide direct fiber-optic connectivity between government facilities within the counties. In general, these networks provide site-to-site connectivity between government, public safety, utilities, constitutionals and other public organizations, termed CAIs, or "Community Anchor Institutions." CAIs consist of all public community organizations and may include in some cases, non-profit organizations, community support organizations and healthcare organizations. Figure 16 illustrates main government-owned fiber-optic networks throughout the Charlotte and Lee County areas.

Wireless Broadband and Vertical Assets

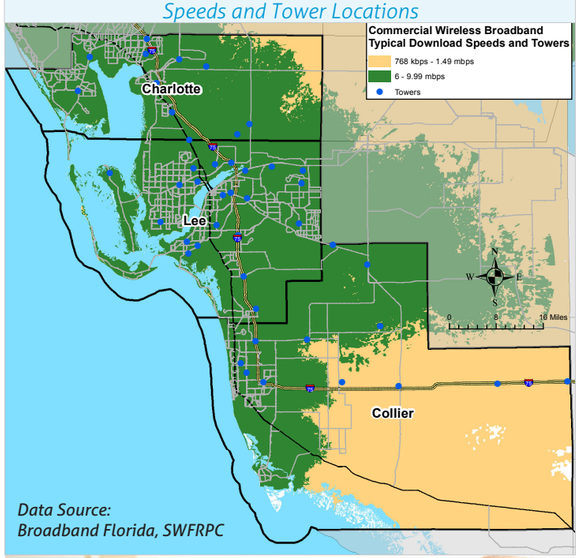
According to Broadband Florida data, the entire county is covered by mobile wireless broadband service (the type of service that is accessed by smart phones, tablet computers, and other mobile devices typically using 3G or 4G networks). There are 42 active wireless broadband towers in Southwest Florida. Figure 17 shows typical wireless broadband download speeds, according to data from Broadband Florida, as well as the locations of wireless network towers.

Figure 16. Municipal Fiber Networks

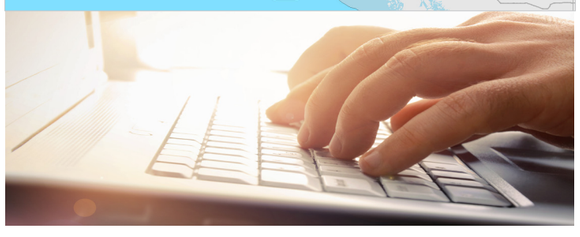


Data Source: Lee County, SWFPRC

Figure 17. Commercial Wireless Broadband: Typical Download Speeds and Tower Locations



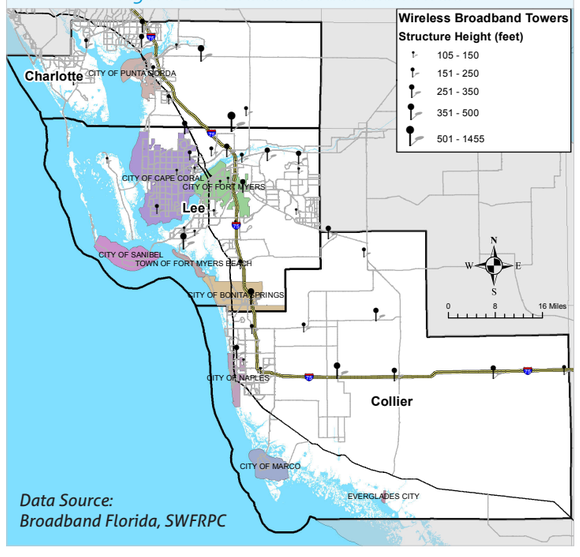
Data Source: Broadband Florida, SWFRPC



Vertical Assets

Figure 18 shows the locations of the towers, with tower height indicated by the markers. Towers in Southwest Florida are primarily owned and operated by tower operating companies, telecommunications carriers, local government organizations and private owners.

Figure 18. Wireless Broadband Towers



Data Source: Broadband Florida, SWFRPC

Spectrum Availability for Mobile Broadband

In the bands below 3.7 GHz, 547 megahertz is currently licensed as flexible use spectrum that can be used for mobile broadband.[2] The 2010 National Broadband Plan calls for making an additional 500 megahertz available for broadband use by 2020, of which 300 megahertz between 225 MHz and 3.7 GHz should be made newly available for mobile use by 2015.[3] Within the past 6 months, the Commission acted to free 40 megahertz of spectrum in AWS-4 and 20 megahertz in WCS for mobile broadband. An additional 55 megahertz of licensed spectrum is in the pipeline within the next three years. In addition, efforts are already underway that could free up significantly more spectrum, including forthcoming incentive auctions of broadcast television spectrum. The U.S. also has made spectrum available for mobile broadband on a non-exclusive basis. Over 700 megahertz of unlicensed spectrum suitable for wireless broadband is currently available at or below the 5 GHz region of the spectrum, with the Commission most recently freeing up additional unlicensed spectrum through the use of dynamic sharing. And just last week, the Commission initiated action to make available up to 195 megahertz of unlicensed 5 GHz spectrum that is suitable for "gigabit" Wi-Fi.[4]

Broadband Policies and Regulations

There are several State and Federal policies and statutes that affect broadband development in Southwest Florida.

FCC Notice of Inquiry 11-51

FCC Notice of Inquiry 11-51, released in April 2011, seeks to work with "stakeholders including state and local governments, other federal agencies, Tribal governments, consumer advocates, and the private sector to identify means of improving rights of way policies and wireless facilities siting requirements." The notice is a response to a congressional directive requiring the FCC to work to remove barriers to broadband-related infrastructure investment.

Counties and municipalities may also have policies and regulations that affect the construction and/or operation of broadband infrastructure and broadband services. Such regulations may be present in zoning codes, in comprehensive plans, in land development codes, or in right of way policies.

FCC Policy Statement on Network Neutrality FCC 05-151

FCC Policy Statement on Network Neutrality FCC 05-151 seeks to ensure that broadband networks are widely deployed, open, affordable and accessible to all consumers. The main objectives of this policy include:

- To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet, consumers are entitled to access the lawful Internet content of their choice.
- To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet, consumers are entitled to run applications and use services of their choice, subject to the needs of law enforcement.
- To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet, consumers are entitled to connect their choice of legal devices that do not harm the network.
- To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet, consumers are entitled to competition among network providers, application and service providers, and content providers.

Important Legislative Actions in Florida

Florida House Bill 355/Senate Bill 756: Representative Gayle Harrell and Senator Denise Grimsley have filed HB 355/SB 756, requiring the Florida Department of Transportation (FDOT) to adopt rules governing use of the department's unused capacity in the communication networks for non-transportation purpose, in accordance with U.S.C. Title 23, Section 1.23 (c) and the most recent policy guidelines released by the FHA.

Background: The Intelligent Traffic System (ITS) Network is comprised of two separate components: 1) the "Statewide ITS Wide Area Network (WAN)" managed by the FDOT is the fiber backbone along major corridors (interstate highways and Florida Turnpike and 2) the local ITS fiber and equipment managed by City/County Traffic Engineering Departments – this portion of the ITS network is installed along the local secondary roads.

For several years, the South Florida Shared Fiber Initiative has attempted to more fully utilize ITS fiber to expand the reach of local government's networks. Efforts were previously thwarted by FDOT's previous interpretation that current law prohibits non-transportation related uses of the ITS network, which has since been revisited.

Benefits:

- Broadband networks are an essential resource for public sector organizations and programs and provide critical support for public safety, government operations and education.
- The United States lags far behind most developed countries in broadband network deployment.
- Access to unused capacity, on a statewide level, represents a dramatic opportunity to fully utilize critical infrastructure (already paid for by primarily federal dollars) at great taxpayer relief, while at the same time presenting an opportunity for FDOT to potentially gain access to local fiber optic networks, increasing efficiency.
- The Florida Association of Counties, Florida League of Cities and other local governments, such as Martin and Palm Beach counties, strongly support this legislation.
- Access to the available network capacity on a statewide level would save the taxpayers millions.
- Shared uses of government networks will foster innovation, enabling community-serving entities to do their work more effectively for the benefit of the community as a whole while reducing telecommunication costs.

[2] *Federal Communications Commission. National Broadband Plan, p. 84.* ***http://download.broadband.gov/plan/national-broadband-plan-chapter-5-spectrum.pdf;*** [3] *National Broadband Plan, p. 75.;* [4] *FCC "Official FCC Blog."* ***http://www.fcc.gov/blog/spectrum-available-mobile-broadband-how-us-stacks-and-challenges-ahead;*** [5] *FCC. "Notice of Inquiry."* ***http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-51A1.pdf,*** *Policy Statement on Network Neutrality FCC 05-151.* ***http://www.publicknowledge.org/node/423,*** *Accessed June 2013. FCC Connet America Fund.* ***http://www.fcc.gov/encyclopedia/connecting-america#read,*** *Accessed June, 2013. Florida House of Representatives. HB 355.* ***http://www.myfloridahouse.gov/Sections/Bills/billsdetail.aspx?BillId=49540***

Funding Opportunities

The Florida Department of Management Services provides community anchor institutions with assistance in securing grant funding to improve broadband access, including funding opportunity updates, grant writing resources and training, project management, and partnership development support. The American Recovery and Reinvestment Act of 2009 made over $7 billion available for expanding broadband availability. All ARRA broadband funds have now been awarded; $8,877,028 was awarded to the state of Florida.

The Universal Service Administrative Company (USAC) offers several programs that could be leveraged as a funding source within our region. USAC is an independent, not-for-profit corporation that was formed to collect universal service contributions from service providers and distribute them through their various programs. USAC carries out its responsibilities under the oversight of the Federal Communications Commission (FCC). USAC programs that could provide funding in the Southwest Florida region include:

- The Schools and Libraries Program – USAC's Schools and Libraries Program, also known as E-Rate, establishes funding to provide discounts on telecom, Internet access, and internal connections to eligible schools and libraries. E-Rate provides discounts ranging from 20% to 90% and must be applied for on an annual basis.
- The High Cost Program – USAC's High Cost Program, also known as the Connect America Fund, is designed to support telecommunications companies and serve customers in hard to reach rural areas. Funding is provided to expand both Fixed and Mobile broadband in regions that are not adequately served.
- The Rural Health Care Program – Formerly known as the Pilot Program, USAC's Rural Health Care Program provides two funding opportunities. The Healthcare Connect Fund will provide a 65% discount on eligible expense related to extending broadband connectivity to individual rural health care providers (HCPs) and consortiums. The Telecommunications Program, formerly known as the Primary Program, provides discounts for telecommunications and Internet access for eligible health care providers.

The United States Department of Agriculture's (USDA) Rural Utilities Service (RUS) Farm Bill Loan Program is designed to provide loans for funding construction, improvement, and acquisition of facilities and equipment to provide broadband services to eligible rural communities. In order for an organization to qualify for a USDA RUS Farm Bill Loan, the applicant must:

- Be either a nonprofit or for-profit Corporation, Limited Liability Company, Cooperative or mutual organization, Federally recognized Indian tribe or tribal organization, or a State or local government
- Demonstrate that at least 25% of the households in their service area are underserved (only have one broadband service provider).
- Demonstrate that the service area is completely contained within the rural area
- Demonstrate that no part of the service area has three or more incumbent providers
- Demonstrate that no part of the funded service area overlaps with the service area of current RUS borrowers or grantees, and
- Demonstrate that no part of the funded service area is included in a pending application before RUS seeking funds to provide broadband services

With the enactment of The Middle Class Tax Relief and Job Creation Act of 2012, Congress passed legislation that contained provisions to create a nationwide interoperable broadband network to aid police, firefighters, emergency medical services professionals, and other public safety officials remain safe and perform their duties at a high level. This new First Responder Network Authority established a new authority within the National Telecommunications and Information Administration (NTIA) charged with taking "all actions necessary" to build, deploy, and operate a dedicated public safety broadband network in consultation with Federal, State, tribal and local public safety entities and other key stakeholders. This new broadband network is known as FirstNet.

The Act provides $7 billion in funding towards deployment of FirstNet, as well as $135 million for a new State and Local Implementation Grant Program administered by NTIA to support State, regional, tribal and local jurisdictions' efforts to plan and work with FirstNet to ensure the network meets their wireless public safety communications needs.

Recently, the NTIA announced $121.5 million in funding would be made available through the State and Local Implementation Grant Program (SLIGP) as a part of FirstNet to assist State, regional, tribal, and local jurisdictions with identifying, planning, and implementing the most efficient and effective means to use and integrate the infrastructure, equipment, and other architecture associated with the nationwide public safety broadband network to satisfy the wireless broadband and data services needs of their jurisdictions. Although funding is only open to States and territories, the local governments may receive grant funds as a sub-grant at the discretion of the State's designated officer for the grant.

SLIGP allowable costs include categories that support FirstNet implementation such as:

- Personnel costs
- Costs associated with planning meetings with statewide stakeholders
- Travel costs for state, local, and tribal representatives to attend planning meetings
- Costs to develop, modify, or enhance statewide plans and governance structures
- Costs for communications, education, and outreach activities with state, local, tribal, and regional stakeholders
- Costs to develop standardized Memoranda of Agreement and other types of agreements to facilitate access to and use of existing infrastructure
- Costs to identify potential public safety users for the public safety broadband network
- Administrative services costs, equipment costs, and supplies necessary to manage the grant program; and
- Reasonable proposal expenses, which include costs related to preparing an application and pre-award costs to attend FirstNet technical assistance workshops, if they are incurred after the publication date of the Federal Funding Opportunity and prior to the date of the issuance of the grant award from NTIA.

Non-allowable SLIGP costs include activities related to:

- Site preparation
- Broadband deployment
- Installation
- Construction
- Lobbying costs
- Contingency fees, or
- Acquisition of equipment used to provide wireless broadband services

Potential Local/Regional Broadband Funding Strategies for Broadband Resource Planning and Implementation

Over the past few years, there has been a renewed interest and investment in the United States' broadband presence and infrastructure. In conjunction with this renewed interest in expanding the Country's broadband presence, there are opportunities at the Federal level to fund broadband and broadband related initiatives.

This document identifies potential Federal funding sources, both grant and loan based, to fund various types of broadband related projects. This is not intended to be a comprehensive list of all available broadband funding sources. The Federal grant and loan opportunities listed can be used to fund various types of projects ranging from construction to outreach to discounts. Each identified funding source can potentially provide specialized funding to meet the needs of various agencies that partner with the Southwest Florida Regional Planning Council.

Of the Federal programs currently available, the United States Department of Agriculture (USDA) provides the greatest variety of programs. The Rural Utilities Service division of the USDA provides grant and loan programs that can be utilized to build out broadband infrastructure to rural and underserved areas, make improvements to existing telecommunications infrastructures, establish community centers to offer free public broadband access, and improve regional distance learning and telemedicine opportunities. Based on our initial research, there are a number of organizations within the Southwest Florida Regional Planning Council's jurisdiction that could potentially take advantage of these grant and loan opportunities.

The Federal Communications Commission (FCC), Universal Service Program is another Federal program that is financially supported by service providers and offers funding to ensure universal access to telecommunications services. The Universal Service High Cost Program/Connect America Fund/Broadband Fund can be utilized to make broadband available to homes, businesses, and community anchor institutions that otherwise would not have access to broadband. The Schools and Libraries program provides significant "discounts" to eligible schools and libraries on their Internet, telecommunications, and telecommunications equipment related expenses.

The Department of Commerce, Economic Development Administration provides grant funding to support the construction or rehabilitation of essential public infrastructure and facilities necessary to generate or retain private sector jobs, investments, attract private sector capital, and promote regional competitiveness, innovation, and entrepreneurship, including investments that expand and upgrade infrastructure to attract new industry, support technology-led development, accelerate new business development, and enhance the ability of regions to capitalize on opportunities presented by free trade. Although the majority of these grants have been utility and infrastructure related, several broadband initiatives have successfully secured funding.

The Institute of Museums and Library Services provides project funds for a wide range of library services including installation of fiber and wireless networks that increase access to library resources and services. This fund is administered by the Florida Department of State, Division of Library and Information Services.

As mentioned previously, this is not intended to be a comprehensive list of all available grant and loan opportunities. As funding opportunities become available, Magellan Advisors will present to the SWFRPC those specific grant opportunities that align well with the identified funding needs. This document is meant as a starting point for the Southwest Regional Planning Council to utilize in its awareness and training efforts.

United States Department of Agriculture, Rural Utilities Service

The United States Department of Agriculture (USDA) Rural Utilities Service (RUS) has several grant and loan programs for eligible rural agencies and organizations seeking to develop their broadband and telecommunications infrastructure.

Farm Bill Loan Program

This program is designed to provide loans for funding, on a technology neutral basis, for the costs of construction, improvement, and acquisition of facilities and equipment to provide broadband service to eligible rural communities.

More Information
http://www.rurdev.usda.gov/utp_farmbill.html
Ken Kuchno: kenneth.kuchno@wdc.usda.gov
(202) 690-4673

Telecommunications Infrastructure Loan Program

The Telecommunications Infrastructure Loan Program makes Long-term direct and guaranteed loans to qualified organizations for the purpose of financing the improvement, expansion, construction, acquisition, and operation of telephone lines, facilities, or systems to furnish and improve Telecommunications service in rural areas. All facilities financed must be capable of supporting broadband services. "Rural area" is defined as any area of the United States, its territories and insular possessions (including any areas within the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau) not included within the boundaries of any incorporated or unincorporated city, village, or borough having a population exceeding 5,000 inhabitants. The population figure is obtained from the Bureau of Census.
Eligibility

More Information
http://www.rurdev.usda.gov/utp_infrastructure.html
(202) 720-0800

Community Connect Grant Program

The Community Connect program serves rural communities where broadband service is least likely to be available, but where it can make a tremendous difference in the quality of life for citizens. The projects funded by these grants will help rural residents tap into the enormous potential of the Internet.

More Information
http://www.rurdev.usda.gov/utp_commconnect.html
community.connect@wdc.usda.gov
(202) 690-4673

Distance Learning and Telemedicine Program (DLT)

The Distance Learning and Telemedicine Program (DLT) is designed specifically to meet the educational and health care needs of rural America. Through loans, grants and loan/grant combinations, advanced telecommunications technologies provide enhanced learning and health care opportunities for rural residents.

More Information
www.rurdev.usda.gov/UTP_DLT.html
Sam Morgan: sam.morgan@wdc.usda.gov
(202) 720-0665

Federal Communications Commission (FCC), Universal Service Program

The United States Federal Communications Commission (FCC) Universal Service Program has two broadband grant opportunities for eligible agencies and organizations.

Universal Service High Cost Program/Connect America Fund Broadband Fund

The CAF will help make broadband available to homes, businesses, and community anchor institutions in areas that do not, or would not otherwise, have broadband, including mobile voice and broadband networks in areas that do not, or would not otherwise, have mobile service, and broadband in the most remote areas of the nation. The CAF will also help facilitate our intercarrier compensation (ICC) reforms. The CAF will rely on incentive-based, market-driven policies, including competitive bidding, to distribute universal service funds as efficiently and effectively as possible.

More Information
http://www.usac.org/hc/
http://www.fcc.gov/encyclopedia/connecting-america

Universal Service Schools and Libraries Program

The Schools and Libraries Program of the Universal Service Fund makes discounts available to eligible schools and libraries for telecommunication services, Internet access, and internal connections. The program is intended to ensure that schools and libraries have access to affordable telecommunications and information services.

The Schools and Libraries Program of the Universal Service Fund, commonly known as "E-Rate," is administered by the Universal Service Administrative Company (USAC) under the direction of the Federal Communications Commission (FCC), and provides discounts to assist most schools and libraries in the United States to obtain affordable telecommunications and Internet access. It is one of four support programs funded through a Universal Service fee charged to companies that provide interstate and/or international telecommunications services.

More Information
http://www.usac.org/sl/ (800) 229-5476

Universal Service Rural Health Care Program

The Rural Health Care program provides funding to eligible health care providers for telecommunications services, including broadband, necessary for the provision of health care. The goal of the program is to improve the quality of health care available to patients in rural communities by ensuring that eligible health care providers have access to affordable telecommunications services.

The program provides discounts on the purchase of telecommunications services by eligible rural health care providers. Paid for by the Universal Service Fund, these discounts result in rates for service that are nearly the same as those in urban areas, where telecommunications rates typically are lower. Funding is capped at $400 million annually.

To provide broadband networks in rural areas where service is lacking, the Commission launched the Rural Health Care Pilot Program, which provides funding for up to 85 percent of the costs associated with: (1) the construction of a state or regional broadband network and the advanced telecommunications and information services provided over that network; (2) connecting to Internet 2 or National LambdaRail (NLR); and (3) connecting to the public Internet.

The Commission issued a Notice of Proposed Rulemaking on July 15, 2010, regarding reforms to the Rural Health Care Support Mechanism. See 2010 NPRM Frequently Asked Questions (FAQs).

More Information
http://transition.fcc.gov/wcb/tapd/rural-health/

Department of Commerce, Economic Development Administration

The Department of Commerce, Economic Development Administration provides project grants for construction of infrastructure in areas that are not attractive to private investment. Most funding is for water and sewer infrastructure but some has been designated for communications projects.

Economic Development Facilities and Public Works

Public Works grants support the construction or rehabilitation of essential public infrastructure and facilities necessary to generate or retain private sector jobs and investments, attract private sector capital, and promote regional competitiveness, innovation, and entrepreneurship, including investments that expand and upgrade infrastructure to attract new industry, support technology-led development, accelerate new business development, and enhance the ability of regions to capitalize on opportunities presented by free trade.

More Information
http://www.eda.gov

Contact
Jonathan Corso
Georgia and Florida Economic Development Representative
U.S. Economic Development Administration
401 West Peachtree St., NW, Suite 1820
Atlanta, GA 30308
(o) 404-730-3023
(f) 404-730-3025
(404) 730-3017

Institute of Museum and Library Services

The Federal Institute of Museum and Library Services provide project funds for a wide range of library services including installation of fiber and wireless networks that provide access to library resources and services. In the state of Florida, this grant is administered by the Florida Department of State, Division of Library and Information Services.

Library Services and Technology Act Grants (LTSA)

The Florida Department of State, Division of Library and Information Services is the state library administrative agency officially designated to receive and administer federal grant funds from the Institute of Museum and Library Services.

The Library Services and Technology Act (LSTA), the major federal grant program for libraries, was amended on December 22, 2010. Administered by the Institute of Museum and Library Services, LSTA:

- Is a state-based program.
- Has purposes which focus on information access through technology and information empowerment through special services.
- Emphasizes public libraries, but encourages interlibrary cooperation and partnerships among all types of libraries.
- Increases emphasis on accountability and evaluation.
- Is authorized under 20 United States Code 9101 et seq, as amended. The general administrative requirements may be found in 45 Code of Federal Regulations Part 1183, incorporated herein by reference.

Florida's grant program is based on the purposes of LSTA and the needs of Florida residents and libraries. It is developed from the goals and outcomes provided in Florida's Library Services and Technology Act long-range plan, incorporated herein by reference. Grant projects must clearly fit in with both the purposes and priorities of LSTA as listed in Section VII, and Florida's long-range plan.

More Information
http://dlis.dos.state.fl.us/bld/grants/Lsta/LSTA.html
http://www.imls.gov/programs/

Community Anchors

Economic Opportunity

Broadband enables American businesses, workers and communities to think big and grow bigger. By investing in broadband, we'll introduce markets to new opportunities and customers to new products.

Education

Broadband investment will help America lead the world in educational innovation by supporting 21st century teaching and learning both in the classroom and outside of it.

Health Care

Broadband and health IT will transform health care in America, creating better outcomes and lowering costs.

Energy & Environment

Next-generation energy solutions require investment in broadband to modernize electric power grid, unleash energy innovation in homes, and enable more efficient transportation in the future.

Government Performance

From city hall to the U.S. Capitol, government can better serve the American people by relying more on broadband.

Civic Engagement

Broadband can increase public access to government information and provide new ways for citizens to participate in their democracy and community.

Public Safety

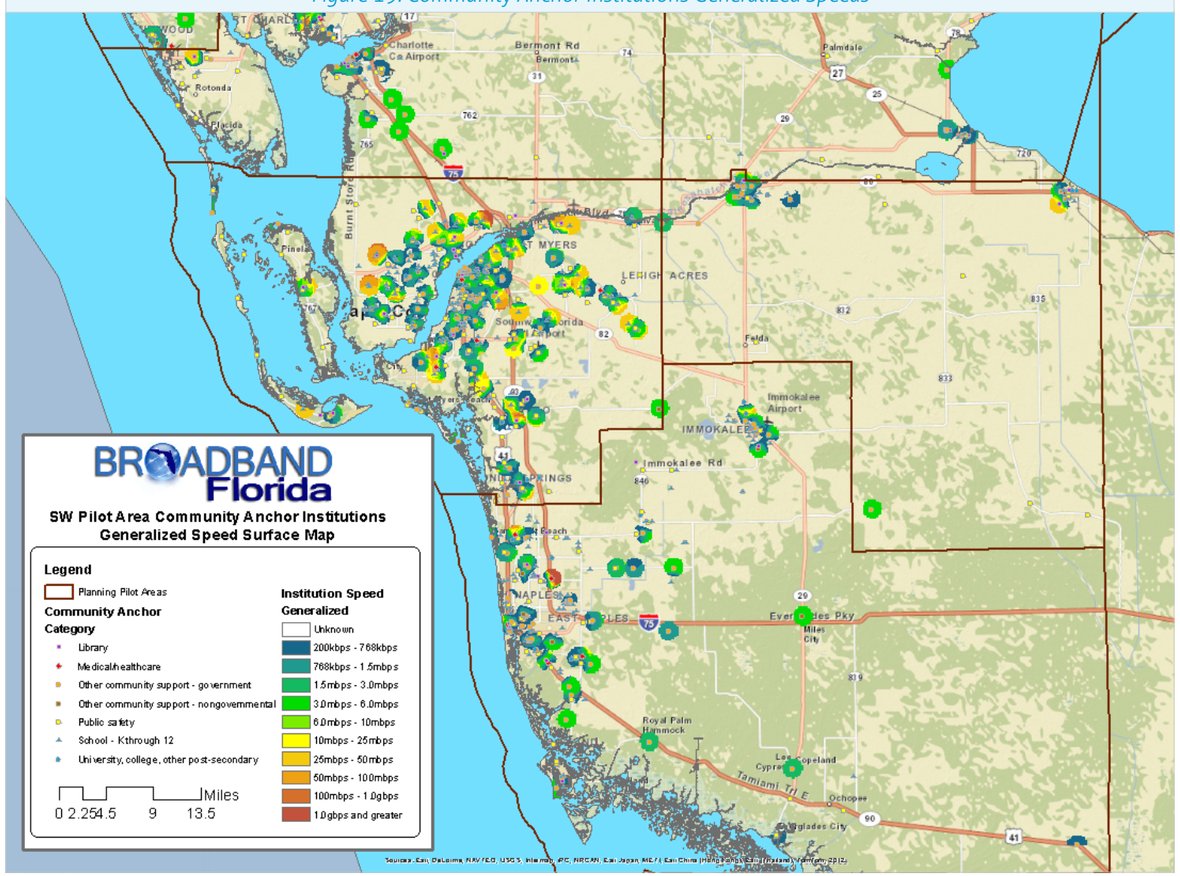
With a nationwide public safety broadband wireless network, first responders will be able to send and receive video and data in moments, improving their ability to communicate with each other and the public.

Community Anchors

Community Anchor Institutions are defined by the NTIA as "schools, libraries, medical and healthcare providers, public safety, community colleges and other institutions of higher education, and any other community support organizations and entities that facilitate greater use of broadband services."[33]

> *"Just like electricity, water and sewer, telecommunications is now a key infrastructure in our society"*

Figure 19. Community Anchor Institutions Generalized Speeds



Data Source:
Broadband Florida, SWFRPC

[33] Department of Management Services. "Grants Assistance for Community Anchor Institutions."
http://www.dms.myflorida.com/suncom/broadband_florida_initiative/broadband_grants_assistance_team

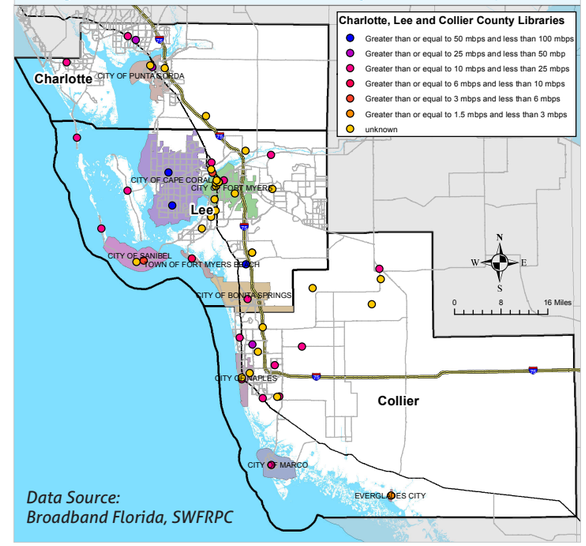
Libraries

Figure 20 shows the connection speeds within Charlotte, Lee and Collier County libraries. There are 29 public libraries that provide public internet access. Internet access at libraries is an essential service for many residents of the counties who have no internet access at home. Broadband is also important for the overall function of all modern library systems.

Schools

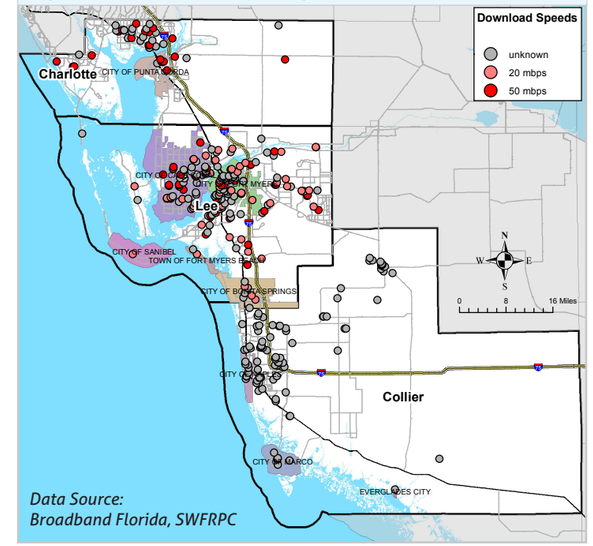
Figure 21 shows the locations of Charlotte, Lee and Collier County schools, with the school connection speed. In recent years, broadband has become important for all levels of education. In K-12 schools, it provides students, teachers, administrators, and parents with a wide range of opportunities for interactive and hybrid learning. It can also help today's students to acquire the technological skills that will be necessary for success as they come of age in an increasingly globalized and networked economy and culture.

Figure 20 Southwest Florida Library Connection Speeds



Data Source:
Broadband Florida, SWFRPC

Figure 21. Connection Speeds for Southwest Florida Schools



Data Source:
Broadband Florida, SWFRPC

Colleges and Universities

Figure 22 shows the locations of the colleges and universities in Charlotte, Collier and Lee Counties.

Broadband is an essential component of any college or university campus environment. In higher education, broadband provides access to databases, online books, articles, and many other research materials. Broadband is also essential for the wide range of applications used in distance learning, such as video conferencing, webinars, and online class interfaces. Increasing numbers of colleges and universities are now offering classes and even entire degree programs online. This provides students with increased flexibility, and opens up new opportunities to people who wish to pursue higher education but cannot relocate or leave their jobs in order to do so.

Government

Figure 23 shows the locations of county government facilities for which broadband connection speeds have been reported, with facility type indicated by symbol shape and connection speed indicated by color. County facilities use a variety of broadband resources, including county-owned fiber, leased fiber, commercial cable, and relay towers. Broadband allows the different departments of local government to coordinate with one another and provides shared access to databases, emergency management systems, global positioning systems for vehicles, and many other resources.

Healthcare

Figure 24 shows the locations of hospitals and healthcare facilities in Charlotte, Lee and Collier Counties. Broadband is important in the healthcare industry for applications such as telemedicine, remote diagnosis, and the transfer of medical records (especially when records include detailed images, such as MRI scans).

Figure 24. Southwest Florida Hospitals & Healthcare Facility Locations

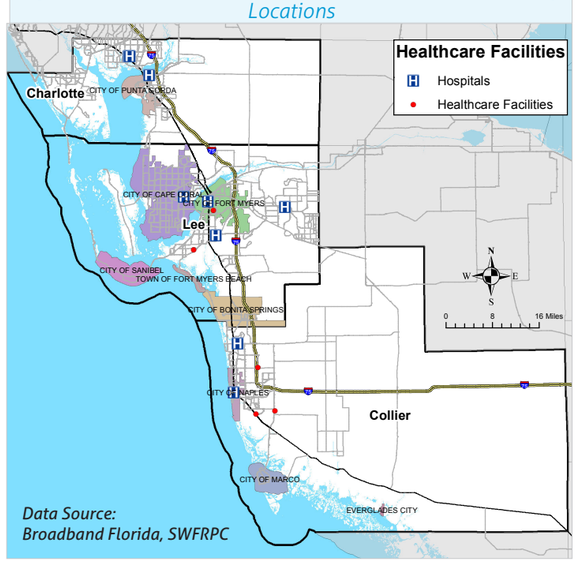


Figure 22. Locations of Colleges & Universities in Southwest Florida

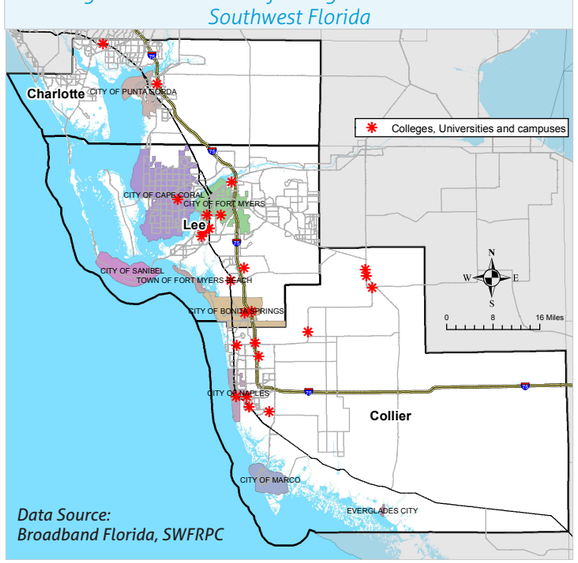
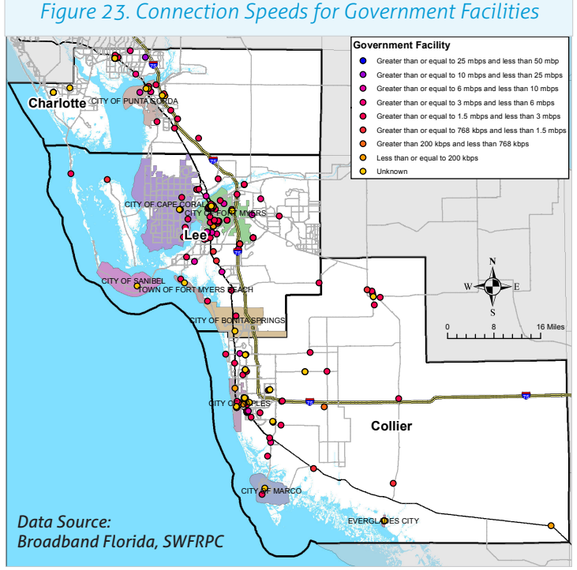


Figure 23. Connection Speeds for Government Facilities



Projection of Future Demand

Although some methodologies for projecting broadband demand have been developed in the past, no existing methodology was considered appropriate for applying to the Southwest Florida Broadband planning effort to project future demand. This was due in part to the unique characteristics of Southwest Florida, in part to the limitations of existing methodologies (for example, some methodologies were designed for use in other countries, and some are based on outdated broadband technology such as DSL), and in part to the limitations of available data. Therefore, after a thorough literature review of broadband demand modeling methodology was conducted, an innovative spatial model was produced to project future broadband demand in Southwest Florida.

This model projects broadband demand in the year 2035 by producing a weighted broadband demand score for all of Southwest Florida. The weighted score is a number between 0 and 5, where 0 indicates the lowest broadband demand and 5 indicates the highest demand. The model inputs are Future Land Use, projections of population and employment, and estimates of current broadband penetration.

The smallest geographic units of measurement are land parcels. The model could also be aggregated to the level of census blocks, block groups, or tracts.

The model equation is as follows:
B = E + P + F + C

Where:
B is the broadband demand score (a number between 0 and 5).

E is the percentile rank of projected employment per square mile in 2035 for each TAZ. There are over 2,100 TAZs in the SW Region. This model ranks them according to their projected employment density in 2035, then assigns a percentile value (i.e. a number between 0 and 1) to each TAZ. The TAZs projected to have the highest employment density are in the 99th percentile, and thus receive a score of 0.99.

P is the percentile rank of projected population per square mile in 2035 for each TAZ, calculated in the same manner as E.

F is a Future Land Use score intended to give greater weight to Future Land Uses that are considered likely to have more intensive broadband needs. This score is either 0, 1, or 2. The SW Region and the municipalities therein have nearly 200 different Future Land Use categories in total; these have been generalized, using a methodology previously developed by the Southwest Florida Regional Planning Council and based on the State of Florida's generalized Future Land Use categories, to produce a geographic dataset depicting 17 generalized Future Land Use categories for the SW Region. The Future Land Use scores assigned are listed in Table 11.

Table 11. Generalized Future Land Use Scores

Generalized Future Land Use	Score	Generalized Future Land Use	Score
Agriculture	0	Residential, Low Density	0
Commercial/Office	2	Residential, Medium Density	0
Conservation	0	Residential, Unknown Density	0
Industrial	1	Residential, Very High Density	1
Institutional/Public	2	Residential, Very Low Density	0
Mining/Extractive	0	Transportation	0
Mixed Use	1	Unknown	0
Recreation/Open Space	0	Water Body	0
Residential, High Density	1		

Scores of F = 0 do not indicate that the area has zero projected broadband demand, because the other variables are still included in the broadband demand score. The Future Land Use categories expected to require the greatest overall bandwidth, Commercial/Office and Institutional/Public, are assigned a score of 2. Industrial, Mixed Use, and High/Very High Density Residential are assigned a score of 1. Other categories are assigned a score of 0.

C is the estimated percentage of fixed broadband connections per 1,000 households. These data are collected at the census tract level by the FCC and are available at http://transition.fcc.gov/wcb/iatd/comp.html, listed under "Form 477 Filers by State." For the current iteration of this model, estimates as of June 30, 2011 were used. Connections per 1,000 households are scored as shown in Table 12.

Table 12. FCC data values for variable "C"

Value of C	Connections per 1,000 Households
0	Zero
0.2	Zero < x <= 200
0.4	200 < x <=400
0.6	400 < x <=600
0.8	600 < x <=800
1	800 < x

Weighted Broadband Demand Score

Finally, in order to produce a weighted score for a given county or region, a percentile ranking is generated for the original broadband demand scores (B) of all the geographic units. This percentile ranking is the final Weighted Broadband Demand Score.

GIS Analysis Procedure

The following geographic datasets were used:

- Southwest Florida Traffic Analysis Zones, with projections of population and employment for 2035, and percentile ranks of each TAZ's population and employment (percentile ranks were produced in Excel and joined to the existing TAZ feature class)
- Southwest Florida Generalized Future Land Use (created by the Southwest Florida Regional Planning Council, joined to the Future Land Use score (table 11)
- Census tracts joined to FCC broadband coverage data

The following steps were taken to produce the final Weighted Broadband Demand Score dataset:

In ESRI ArcGIS, perform a spatial join with the parcel layer as the target feature class and TAZs as the join feature class. The join operation is "Join one to one" and the match option is "Closest." All target features are retained. No search radius is specified.

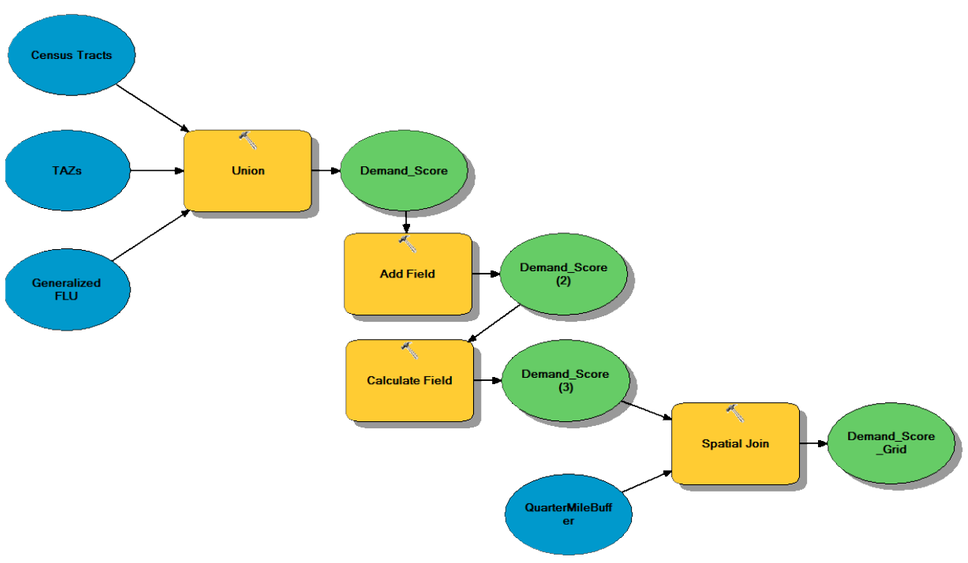
1. Union the resulting dataset to the Generalized Future Land Use feature class, using an XY tolerance of 10 feet to avoid producing very small features.
2. Union the resulting dataset to a census tract level dataset indicating the number of fixed broadband connections per 1000 households (FCC data available at http://transition.fcc.gov/wcb/iatd/comp.html, listed under "Form 477 Filers by State"). Use an XY tolerance of 10 feet.
3. Clip the dataset to the boundaries of the parcel layer to produce a clean parcel-level dataset.
4. Dissolve the resulting dataset at the level of the Parcel ID field, so that there is one record per parcel.
5. Clean up dataset as necessary (there may be extraneous fields).
6. Add and calculate a new field B = E + P + F + C in the resulting dataset.
7. The percentile ranking can be calculated and displayed in the final map.

Most operations were performed in a GIS ModelBuilder model that is shown in Figure 25. The final outcome is shown in Figure 26.

Generalized Future Land Use Methodology

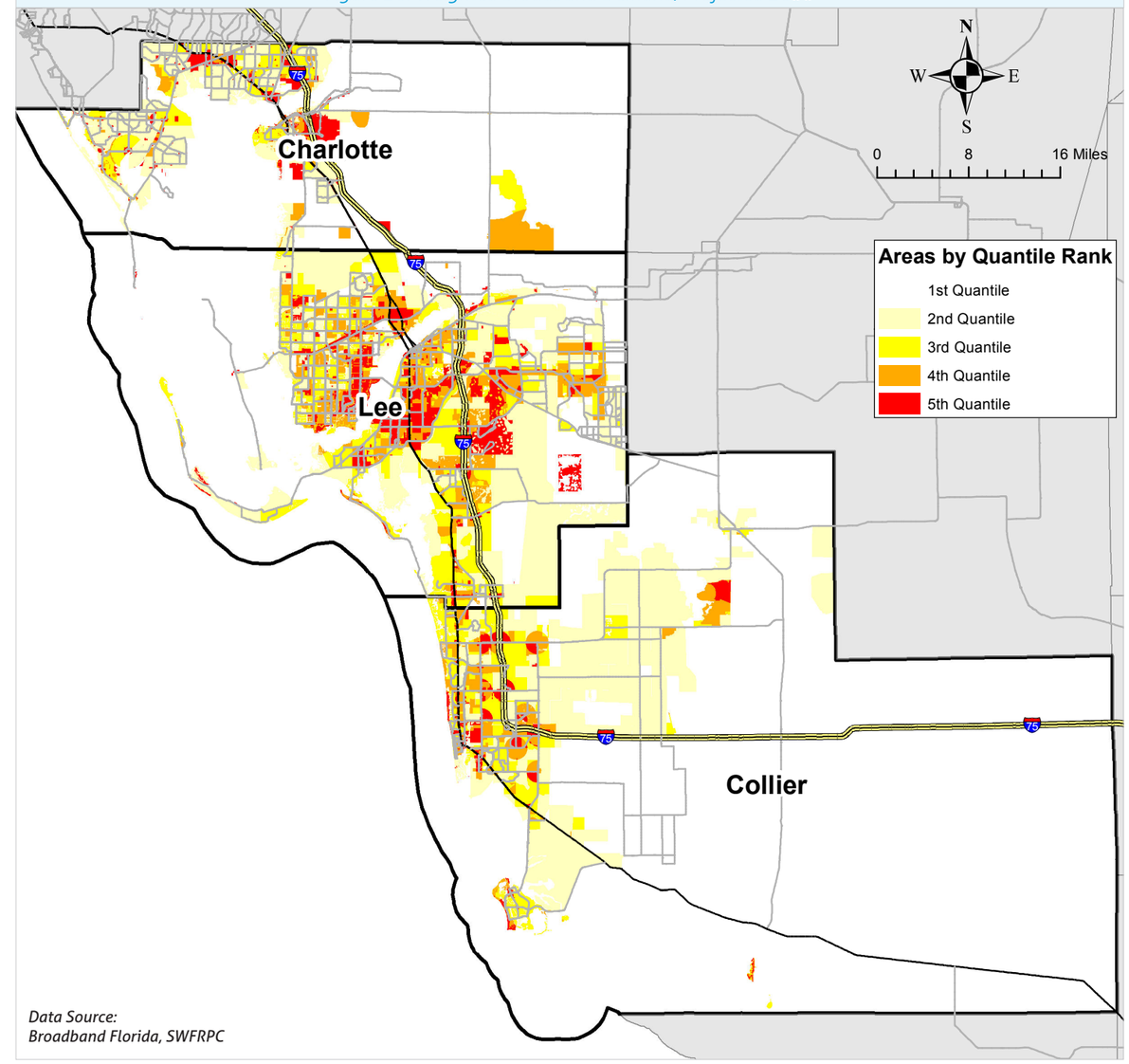
The following methodology was adapted from South Florida Water Management District Generalized Future Land Use (FLU) Methodology (developed in 2010), which was in turn developed from a Southwest Florida Water Management District methodology that was itself built from the State of Florida's generalized Future Land Use categories.

Figure 25. GIS data model used in ESRI ArcGIS ModelBuilder



Data Source: Central Florida Regional Planning Council

Figure 26. Weighted Broadband Demand, Projected 2035



Data Source:
Broadband Florida, SWFRPC

Future Land Use Maps and FLU Goals, Objectives, and Policies were obtained for each jurisdiction. Regional planning councils should have generally up-to-date information in this regard, as should FDOT districts and local governments. Electronic GIS files are preferred, but hardcopy maps may be digitized if no other format is available.

The Goals, Objectives, and Policies in each Comprehensive Plan Future Land Use Element should be reviewed to determine which original FLU categories are used for each jurisdiction. Concurrently, a crosswalk table (Excel spreadsheet) should be developed showing to which generalized FLU category each original FLU category corresponds. This crosswalk table will preserve the original FLU data from the local government, including density limitations.

Standardized tables should be created based upon the fields FLU data acquired. Once table standardization is complete, the generalized FLU categories need to be applied.

The Statewide Generalized Categories and Definitions are listed below. The categories within each generalized land use are to be used when classifying the land uses. It is imperative that the jurisdictional definition be reviewed to determine the correct Generalized Land Use as some jurisdictions may have the same name for a land use but the types of uses included may vary, thus determining which generalized land use it will fall under.

In the crosswalk table, each original FLU category receives a generalized FLU category. In some cases, a FLU category not found in a municipal comprehensive plan will actually be a county FLU category for a recently annexed area – in these cases, a generalized FLU can be obtained from the county.

* Residential classifications should be determined individually for each local government to ensure the best fit with the generalized categories. For example,

- If City X has categories for 1 – 3 dwelling units per acre, 3+ - 9 units per acre, and 9+ - 22 units per acre, these would be classified as Low Density Residential, Medium Density Residential, and High Density Residential.
- If City Y has categories for 1 – 4 dwelling units per acre, 4.0+ - 7 units per acre, and 7+ – 12 units per acre, these would be classified as Low Density Residential, Medium Density Residential, and Medium Density Residential – there would be no High Density Residential for this city.

Note that each jurisdiction may include various land uses in one category. For example, one may have Central Business District in which the land uses are professional and commercial, which would be classified as Commercial. Another may include residential uses in the Central Business District, therefore causing this jurisdiction's CBD to be classified as Mixed Use.

A review of boundaries was performed. All Future Land Use datasets were restricted to their jurisdictional boundaries to ensure that no duplication or overlaps would occur that would otherwise distort results. A final general review and quality control check of sample areas was performed.

Conclusion & Recommendations

This Comprehensive Broadband Plan represents the needs and desires of Southwest Florida's diverse communities for broadband services throughout the region. This plan lays the groundwork for implementation of many strategies that will help Southwest Florida thrive in the digital economy. The success of this Comprehensive Broadband Plan rests on the strategies that are implemented to enhance broadband development in our region, providing positive impact to the overall quality of life in our communities. This Plan must produce actionable initiatives that drive its purpose forward and measure success along the way. To do so, the Plan identifies key short-term and long-term initiatives that will reinforce its goals and continue to foster broadband development in Southwest Florida. Critical to this process is an organizational structure that will carry the Plan forward and work to implement its goals. This organization will be tasked with implementation of the Plan's strategies, revising and refining its focus, measuring the success of its implementation and making adjustments to strategies and tactics in the process. The following action items define the key next steps that have been identified as critical to the implementation of the Plan over the next several years.

Action Item 1: Establishment of a Southwest Florida Digital Coalition

Purpose: The Coalition will be a collaboration of community stakeholders organized throughout Southwest Florida that share the common goals of promoting the development of technology and broadband services for the benefit of our region. The Coalition will be tasked with implementation of long-term strategies and monitoring of tactical implementation of the Comprehensive Broadband Plan. Membership in the Coalition will be voluntary, composed of representatives from government, healthcare, education, public safety, community support, businesses and residents. Key goals of the Coalition include:

- Consolidate the demand for broadband services in Southwest Florida by uniting stakeholders among community anchors, businesses and residents within the region.
- Utilize collaborative approaches between government, non-profit and private sector resources to promote state and local policies that encourage broadband development.
- Identify potential federal, state and local funding opportunities that promote broadband development in the region, in collaboration between government, non-profit and for-profit organizations.
- Engage telecommunications providers in the broadband development process by coordinating key resources between planning organizations, economic development groups, chambers of commerce and local governments in the region.
- Provide a broadband education and community outreach resource to Southwest Florida intended to improve digital literacy and drive additional adoption of broadband in the region.

Action Item 2: Prioritization of Activities and Assignment of Key Roles

Purpose: The Coalition will review and prioritize strategies detailed in the Comprehensive Broadband Plan and assign roles and responsibilities to individuals who will lead these initiatives. It will be tasked with the management of timelines associated with key initiatives and tracking progress toward these milestones.

Action Item 3: Development of Programs to Promote Digital Literacy and Broadband Adoption

Purpose: In conjunction with educational and community support organizations, the Coalition will implement programs within the region to foster digital literacy, inclusion and broadband adoption. The Coalition will engage resources available from federal, state and local levels to organize and conduct training and education among various population groups within Southwest Florida.

Action Item 4: Collaboration between public organizations in the Region

Purpose: The Coalition will promote collaboration between public organizations among local government, education, public safety and community support with the objectives of expanding the use and availability of publicly owned infrastructure within the region.

Action Item 5: Designate a Service Provider Liaison

Purpose: Critical to the success of the Comprehensive Broadband Plan is the inclusion of and collaboration with Southwest Florida's telecommunication providers. Organized through the Coalition, the Service Provider Liaison will seek to include relevant service providers in the activities of the Coalition, ensuring that service providers are informed of key broadband needs, issues and opportunities in Southwest Florida.

Action Item 6: Garnering Support and Monitoring Broadband Public Policy

Purpose: The Coalition will monitor key public policy issues at federal, state and local levels that promote the expansion of broadband. This includes advocating for "broadband friendly" policies in Southwest Florida through political and social channels.

Appendix

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Glossary of Terms

3G – Third Generation	The third generation of mobile broadband technology, used by smart phones, tablets, and other mobile devices to access the web.
4G – Fourth Generation	The fourth generation of mobile broadband technology, used by smart phones, tablets, and other mobile devices to access the web.
ADSL	Asymmetric Digital Subscriber Line: DSL service with a larger portion of the capacity devoted to downstream communications, less to upstream. Typically thought of as a residential service.
ATM	Asynchronous Transfer Mode: A data service offering by ANSI, that can be used for interconnection of customer's LAN. ATM provides service from 1 Mbps to 145 Mbps utilizing Cell Relay Packets.
Bandwidth	The amount of data transmitted in a given amount of time; usually measured in bits per second, kilobits per second (kbps), megabits per second (mbps) and gigabits per second (gbps).
Bit	A single unit of data, either a one or a zero. In the world of broadband, bits are used to refer to the amount of transmitted data. A kilobit (Kb) is approximately 1,000 bits. A megabit (Mb) is approximately 1,000,000 bits. There are 8 bits in a byte (which is the unit used to measure hard disk storage space), therefore a 1 mbps connection takes about 8 seconds to transfer 1 megabyte of data.
BPL – Broadband Over Powerline	A theoretical technology that would provide broadband service over existing electrical power lines.
BPON – Broadband Passive Optical Network	BPON is a point-to-multipoint fiber-lean architecture network system which uses passive splitters to deliver signals to multiple users. Instead of running a separate strand of fiber from the CO to every customer, BPON uses a single strand of fiber to serve up to 32 subscribers.
Broadband	A descriptive term for evolving digital technologies that provide consumers with integrated access to voice, high-speed data service, video-demand services, and interactive delivery services (e.g. DSL, Cable Internet).
CAP – Competitive Access Provider	(or "Bypass Carrier") A Company that provides network links between the customer and the Inter-Exchange Carrier or even directly to the Internet Service Provider. CAPs operate private networks independent of Local Exchange Carriers.
Cellular	A mobile communications system that uses a combination of radio transmission and conventional telephone switching to permit telephone communications to and from mobile users within a specified area.

CLEC – Competitive Local Exchange Carrier	Wireline service provider that is authorized under state and federal rules to compete with ILECs to provide local telephone service. CLECs provide telephone services in one of three ways or a combination thereof: a) by building or rebuilding telecommunication facilities of their own, b) by leasing capacity from another local telephone company (typically an ILEC) and reselling it, and c) by leasing discrete parts of the ILEC network referred to as UNEs.
CO – Central Office	A circuit switch where the phone lines in a geographical area come together, usually housed in a small building.
Coaxial Cable	A type of cable that is used for transmission of high-frequency audio, video, computer network and other signals. Cable TV and cable modem service both utilize this technology.
CWDM – Coarse Wavelength Division Multiplexing (WDM)	Coarse Wavelength Division Multiplexing is generally held to be WDM with less than 8 active wavelengths per fiber.
Dial-Up	A technology that provides customers with access to the Internet over an existing telephone line.
DLEC – Data Local Exchange Carrier	DLECs deliver high-speed access to the Internet, not voice. DLECs include Covad, Northpoint and Rhythms.
Downstream	Data flowing from the Internet to a computer (surfing the net, getting E-mail, downloading a file).
DSL – Digital Subscriber Line	The use of a copper telephone line to deliver "always on" broadband Internet service.
DSLAM – Digital Subscriber Line Access Multiplier	A piece of technology installed at a telephone company's CO and connects the carrier to the subscriber loop (and ultimately the customer's PC).
DWDM - Dense Wavelength Division Multiplexing (WDM)	Dense Wavelength Division Multiplexing (WDM): A SONET term which is the means of increasing the capacity of SONET fiber-optic transmission systems.
E-Rate	A Federal program that provides subsidy for voice and data lines to qualified schools, hospitals, CBOs, and other qualified institutions. The subsidy is based on a percentage designated by the FCC. CTF benefits are calculated net of the E-rate subsidy.
EON – Ethernet Optical Network	The use of Ethernet LAN packets running over a fiber network.
EvDO – Evolution Data Only	EvDO is a new wireless technology that provides data connections that are 10 times as fast as a regular modem.
FCC – Federal Communications Commission	A Federal regulatory agency that is responsible, among other things, for regulating VoIP.
FTTN – Fiber To The Neighborhood	A hybrid network architecture involving optical fiber from the carrier network, terminating in a neighborhood cabinet which converts the signal from optical to electrical.

FTTP – Fiber To The Premise (Or FTTB – Fiber To The Building)	A fiber optic system that connects directly from the carrier network to the user premises.
GPON - Gigabit-Capable Passive Optical Network	GPON uses a different, faster approach (up to 2.5 Gbit/s in current products) than BPON.
GPS – Global Positioning System	A system using satellite technology that allows an equipped user to know exactly where he/she is anywhere on earth.
GSM – Global System for Mobile Communications	This is the current radio/telephone standard in Europe and many other countries except Japan and the United States.
HFC – Hybrid Fiber Coaxial Network	An outside plant distribution cabling concept employing both fiber optic and coaxial cable.
IEEE	Institute of Electrical and Electronics Engineers
ILEC – Incumbent Local Exchange Carrier	The traditional wireline telephone service providers within defined geographic areas. Prior to 1996, ILECs operated as monopolies having the exclusive right and responsibility for providing local and local toll telephone service within LATAs.
IP-VPN – Internet Protocol -Virtual Private Network	A software-defined network offering the appearance, functionality and usefulness of a dedicated private network.
ISDN – Integrated Services Digital Network	An alternative method to simultaneously carry voice, data and other traffic, using the switched telephone network.
ISP – Internet Service Provider	A company providing Internet access to consumers and businesses, acting as a bridge between customer (end-user) and infrastructure owners for dial-up, cable modem and DSL services.
Kbps – Kilobits per second	1,000 bits per second. A measure of how fast data can be transmitted.
LAN – Local Area Network	A geographically localized network consisting of both hardware and software. The network can link workstations within a building or multiple computers with a single wireless Internet connection.
LATA – Local Access and Transport Areas	A geographic area within a divested Regional Bell Operating Company is permitted to offer exchange telecommunications and exchange access service. Calls between LATAs are often thought of as long distance service. Calls within a LATA (IntraLATA) typically include local toll services.
Local Loop	A generic term for the connection between the customer's premises (home, office, etc.) and the provider's serving central office. Historically, this has been a wire connection; however, wireless options are increasingly available for local loop capacity.
MAN – Metropolitan Area Network	A high-speed intra-city network that links multiple locations with a campus, city or LATA. A MAN typically extends as far as 30 miles.

Mbps – Megabits per second	1,000,000 bits per second. A measure of how fast data can be transmitted.
Overbuilding	Building excess capacity. In this context, it involves investment in additional infrastructure projects to provide competition.
OVS – Open Video Systems	OVS is a new option for those looking to offer cable television service outside the current framework of traditional regulation. It would allow more flexibility in providing service by reducing the build out requirements of new carriers.
PON – Passive Optical Network	A Passive Optical Network consists of an optical line terminator located at the Central Office and a set of associated optical network terminals located at the customer's premise. Between them lies the optical distribution network comprised of fibers and passive splitters or couplers. In a PON network, a single piece of fiber can be run from the serving exchange out to a subdivision or office park, and then individual fiber strands to each building or serving equipment can be split from the main fiber using passive splitters / couplers. This allows for an expensive piece of fiber cable from the exchange to the customer to be shared amongst many customers, thereby dramatically lowering the overall costs of deployment for fiber to the business (FTTB) or fiber to the home (FTTH) applications.
Right-of-Way	A legal right of passage over land owned by another. Carriers and service providers must obtain right-of-way to dig trenches or plant poles for cable systems, and to place wireless antennae.
RPR – Resilient Packet Ring	RPR uses Ethernet switching and a dual counter-rotating ring topology to provide SONET-like network resiliency and optimized bandwidth usage, while delivering multi-point Ethernet/IP services.
RUS – Rural Utility Service	A division of the United States Department of Agriculture, it promotes universal service in unserved and underserved areas of the country with grants, loans, and financing.
SONET – Synchronous Optical Network	A family of fiber-optic transmission rates.
Streaming	A Netscape innovation that downloads low bit text data first, then the higher bit graphics. This allows users to read the text of an Internet document first, rather than wait for the entire file to load.
Subscribership	Subscribership is how many customers have subscribed for a particular telecommunications service.
Switched Network	A domestic telecommunications network usually accessed by telephone, key telephone systems, private branch exchange trunks, and data arrangements.
T-1 – Trunk Level 1	A digital transmission link with a total signaling speed of 1.544 Mbps. It is a standard for digital transmission in North America.
T-3 - Trunk Level 3	Trunk Level 3: 28 T1 lines or 44.736 Mbps.

UNE	Unbundled Network Elements: Leased portions of a carrier's (typically an ILEC's) network used by another carrier to provide service to customers.
Universal Service	The idea of providing every home in the United States with basic telephone service.
Upstream	Data flowing from your computer to the Internet (sending E-mail, uploading a file).
VDSL – Very High Data Rate Digital Subscriber Line	A developing technology that employs an asymmetric form of ADSL, with projected speeds of up to 155 Mbps.
Video On Demand	A service that allows users to remotely choose a movie from a digital library and be able to pause, fast-forward, or even rewind their selection.
VLAN	Virtual Local Area Network: A logical grouping of two or more nodes which are not necessarily on the same physical network segment but which share the same IP network number.
VoIP	Voice Over Internet Protocol: A new technology that employs a data network (such as a broadband connection) to transmit voice conversations.
VPN – Virtual Private Network	VPN is a network that is constructed by using public wires to connect nodes. For example, there are a number of systems that enable you to create networks using the Internet as the medium for transporting data. These systems use encryption and other security mechanisms to ensure that only authorized users can access the network and that the data cannot be intercepted.
WiMax	WiMax is a wireless technology that provides high-throughput broadband connections over long distances. WiMax can be used for a number of applications, including "last mile" broadband connections, hotspot and cellular backhaul, and high speed enterprise connectivity for businesses.
Wireless	Telephone service transmitted via cellular, PCS, satellite, or other technologies that do not require the telephone to be connected to a land-based line.
Wireless Internet	1) Internet applications and access using mobile devices such as cell phones and palm devices. 2) Broadband Internet service provided via wireless connection, such as satellite or tower transmitters.
Wireline	Service based on infrastructure on or near the ground, such as copper telephone wires or coaxial cable underground or on telephone poles.

Data Sources

General/Sociodemographic Data:
U.S. Census Bureau – http://www.census.gov
Data.gov – http://www.data.gov
Bureau of Labor Statistics – http://www.bls.gov
General Geographic Data (Florida):
Florida Geographic Data Library - http://www.fgdl.org/metadataexplorer/about.html
Broadband Geographic Data
National Broadband Map - http://www.broadbandmap.gov/
NTIA broadband coverage data

Local Data
Central Florida Development Council - http://www.cfdc.org/
Florida's Heartland Regional Economic Development Initiative - http://www.flaheartland.com/
Broadband Subscribership Data
Federal Communications Commission – http://www.fcc.gov
Pew Research Center – Internet and American Life Project – http://pewinternet.org
Benton Foundation – http://benton.org

Reports, Publications, and Resources
Broadband Planning Programs
National Broadband Plan - http://www.broadband.gov/plan/
Alabama Broadband Program - http://www.connectingalabama.gov/ca/default.aspx
Alaska Broadband Task Force - http://www.alaska.edu/oit/bbtaskforce/homepage.html
Colorado Broadband Program - http://www.colorado.gov/cs/Satellite/OIT-StateInitiatives/CBON/1251575390656
Georgia Broadband Excellence: http://www.georgiabroadband.net/
Hawaii Broadband Task Force- http://www.hbtf.org/
Idaho Broadband Initiative - http://www.linkidaho.org/lid/Default.aspx
Michigan Broadband Program - http://www.connectmi.org/
Missouri Broadband Plan - http://mobroadbandnow.com/
Montana Broadband Program - http://broadband.mt.gov/
Nebraska Broadband - http://broadband.nebraska.gov/home
New Hampshire Broadband Plan - http://www.nheconomy.com/uploads/Final-Report-082808.pdf
North Carolina Broadband Program - http://ncbroadband.gov/
Oregon Broadband Plan - http://oregonbroadbandplanning.org/About-the-Project/
Portland Broadband Program- http://www.portlandonline.com/cable/index.cfm?c=54013
South Dakota Broadband Program - http://broadband.sd.gov/
Washington State Broadband Plan - http://broadband.wa.gov/
Wisconsin Broadband Plan - http://www.link.wisconsin.gov/lwi/default.aspx

Glossaries of Broadband Terms
Broadband Wireless Exchange Magazine - http://www.bbwexchange.com/glossary/
Connect Kentucky Broadband Glossary: http://www.connectkentucky.org/_documents/10_GLOSSARYOFBROADBANDTERMS.pdf
Get online broadband - http://www.getonlinebroadband.com/glossary.html
Gyre Technology - http://www.gyre.co.uk/help/broadband/glossary.php
Mendocino County - http://mendocinobroadband.net/?page_id=66
Oregon Broadband Mapping Project - http://www.oregon.gov/broadband/glossary_of_terms.shtml
State of California - http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/46428_D0505013_BBReport_Appendix_C.PDF
Wrexham County - http://www.wrexham.gov.uk/english/council/broadband/glossary.htm

Broadband Applications and Associated Speeds
Missouri, State of. "Broadband Speeds." MoBroadbandNow Initiative. http://mobroadbandnow.com/broadband-101/broadband-speeds/ (updated May 9, 2012).

New Hampshire, State of. "Broadband Action Plan," Appendix. http://www.nheconomy.com/uploads/Broadband-Action-Plan-Appendices.pdf (updated May 9, 2012).

Washington State Broadband Office. "2011 Annual Report on Broadband in Washington." http://www.commerce.wa.gov/Documents/Broadband%20WA%20Office%202011%20report.pdf (updated November 27, 2012).

West, Darrell M. (2010). "An International Look at High-Speed Broadband." Brookings Institution. http://www.brookings.edu/reports/2010/0223_broadband_west.aspx (updated May 9, 2012).

Broadband Demand Modeling
Atasoy, Hilal (2011). "The Effects of Broadband Internet Expansion on Labor Market Outcomes." University of Illinois at Urbana Champaign Job Market Paper. http://www.economics.illinois.edu/people/candidates/documents/Atasoy_Broadband.pdf (updated May 9, 2012).
Analyzes the effects of the expansion of broadband internet access from 1999 to 2007 on labor market outcomes throughout the United States. Finds that gaining access to broadband services in a county is associated with about a 1.8% increase in the percent of the population that is employed, with larger effects in rural and isolated areas.
Federal Communications Commission (2010). "Broadband Assessment Model (BAM): Model Documentation." http://download.broadband.gov/plan/fcc-omnibus-broadband-initiative-(obi)-working-reports-series-technical-paper-bam-documentation.pdf (updated May 9, 2012).
Identifies, at the census block level for the entire United States, the locations where broadband access is lacking, the best network facilities to provide affordable access, the cost of deploying those new networks, and the revenue to be gained from operating those networks.
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Review of models of broadband penetration based on demand and cost factors.
Hjelkrem, Carlo, Kjell Stordahl, and Johannes Bøe (2004). "Forecasting residential broadband demand with limited information: A long-term supply and demand model." Telektronikk, 4.2004. http://www.telektronikk.com/volumes/pdf/4.2004/Page_043-049.pdf (updated May 9, 2012).
Model for forecasting residential broadband demand in Norway based on population density.
Horrigan, John. "Broadband Adoption and Use in America." OBI Working Paper Series No. 1. http://online.wsj.com/public/resources/documents/FCCSurvey.pdf (updated November 27, 2012).
Reports findings from the Federal Communications Commission's October-November 2009 survey of home broadband use by American adults.
Stordahl, Kjell, and Lars Rand (1999). "Long term forecasts for broadband demand." Telektronikk 2/3. http://www.telektronikk.com/volumes/pdf/2_3.1999/Page_034-044.pdf (updated May 9, 2012).
Model for forecasting broadband demand based on bandwidth, household income, cost, and other factors.
Rappaport, Paul "Residential Demand for Access to the Internet" http://www.colorado.edu/engineering/alleman/print_files/broadband_demand_PNR-Taylor-etcVol_II.PDF (updated November 27, 2012).
Residential Internet demand modeling for DSL and cable modem technologies.

Broadband Toolkits and Resources
Blandin Foundation: Blandin Community Broadband Program http://broadband.blandinfoundation.org/toolkit/
Broadband.Gov: "Workshop: State and Local Governments: Toolkits and Best Practices" http://www.broadband.gov/ws_state_and_local.html
Broadband Strategies Toolkit http://broadbandtoolkit.org/en/home
Broadband USA – Connecting America's Communities: "Recipient Toolkit: Community Outreach Tools and Tips Version 2.0" http://www2.ntia.doc.gov/files/btop_tookit_2_122110_final.pdf
Connect Arkansas http://www.connect-arkansas.org/toolkit/broadband-basics
Digital W2 Inclusion Forum: Broadband Adoption Toolkit http://broadbandadoptiontoolkit.com/broadband_adoption_toolkit
EmpowerNet California – Community Broadband Access "High Speed Internet for Low-Income, Under-Served Communities." http://empowernetcalifornia.org/programs/toolkit/community-broadband-access
Florida Rural Broadband Alliance Resources http://frba.ii.fsu.edu/resources.html
International Telecommunication Union (ITU): "e-Accessibility Policy Toolkit for Persons with Disabilities." http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/broadband_services and http://www.wid.org/publications/broadband-a-

vital-communications-link-for-people-with-disabilities
North Florida Broadband Authority http://nfba.ii.fsu.edu/resources.html
NPH: The Voice of Affordable Housing. "Providing Internet Access to Affordable Housing Residents." http://www.nonprofithousing.org/bbtoolkit/index.html
Pew Research Center: "Internet Use and Home Broadband Connections" http://www.pewinternet.org/Infographics/2012/Internet-Use-and-Home-Broadband-Connections.aspx
San Joaquin Valley Blueprint Planners Toolkit http://toolkit.valleyblueprint.org/tool/broadband-sustainable-communities
State of Virginia: Office of Telework Promotion & Broadband Assistance http://www.wired.virginia.gov/broadband_toolkit.shtml
State of Washington, Department of Commerce – Community Toolkit http://www.commerce.wa.gov/Programs/Infrastructure/Broadband/Pages/CommunityToolkit.aspx http://www.ruraltelecon.org/pages/Portals/0/Content_files/Community%20Toolkit%20Rough%20Outline%20%20REV%201.pdf
Technologies Across Nebraska http://www.nitc.nebraska.gov/toolkit/telecom.htm
USTELECOM The Broadband Association: Broadband Infrastructure http://www.ustelecom.org/issues/broadband-infrastructure
Vermont Community Broadband Project http://e4vt.org/programs/e-vermont/toolkit
West Virginia Broadband Deployment Council http://www.broadband.wv.gov/research/Pages/StrategiesTools.aspx

Quick Links

SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL BROADBAND PORTAL & SURVEY
- www.swflregionalvision.com/BB.html
- https://www.surveymonkey.com/s/residentialbroadband

SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL
- www.swfrpc.org

BROADBAND POLK
- http://polkvision.com/areas-of-focus/infrastructure/broadband/

DEPARTMENT OF MANAGEMENT SERVICES – BROADBAND FLORIDA INITIATIVE
- www.dms.myflorida.com/suncom/broadband_florida_initiative

BROADBAND USA – STATE BROADBAND INITIATIVE
- http://www2.ntia.doc.gov/SBDD

NATIONAL BROADBAND PLAN
- www.broadband.gov

BROADBAND SPEED TEST
- www.broadband.gov/qualitytest/about/#qualitytest

SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL ECONOMIC DEVELOPMENT
- www.swfrpc.org/eco_dev.html

SIX PILLARS
- www.flchamber.com/six-pillars/overview

BROADBAND
Charlotte · Collier · Lee

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