

Southern Indiana Development Commission

STATE OF BROADBAND

APRIL 2018

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EXECUTIVE SUMMARY



The main objective of this report is to increase awareness of the state of broadband availability in the five-counties that are part of the Southern Indiana Development Commission (SIDC) region and its implications. A summary of the most popular broadband technologies is discussed as well as broadband deployment and/or upgrading models that could be considered.

Data for this report were obtained from the Federal Communications Commission (FCC) Form 477 as of December 2016 as well as from the 2012-2016 American Community Survey. While the dataset includes all providers regardless of technology and/or reported advertised speeds, the analysis included only those providers that met the minimum 25 Megabits per second (Mbps) download and 3 Mbps upload broadband threshold established by the FCC, or 25/3 for short¹. It is important to note that the cost of broadband service is not available, a key factor that can contribute to, or impede, broadband adoption.

Providers in the region were contacted via email² to verify accuracy of coverage and discuss challenges and barriers when expanding or upgrading their footprint in the region. Unfortunately, only a small number responded.

¹ https://transition.fcc.gov/Daily_Releases/Daily_Business/2018/db0202/FCC-18-10A1.pdf (speed benchmark is discussed on page 6)
² Majority of providers had a generic Contact Us form that did not allow to send maps of coverage we were seeking to validate.

The main findings of the report are outlined below. Potential next steps and policy recommendations are discussed in the concluding section on page 16:

- There were twenty-six residential and business providers in the SIDC region as of December 2016; however, only ten met the 25/3 broadband criteria. See Table 1.
- The majority of the residential 25/3 footprint in the region relied on one provider (see Figure 1) and cable, fixed wireless and, to a lesser degree, fiber optic technologies (see Figure 2).
- About 21 percent, or 33,440, of the region's population did not have access to residential 25/3 and about 44 percent had access to only one provider (see Table 2). Martin County had the highest share of population without access to 25/3 (see Table 3).
- While lack of population and household density was identified as an issue by providers in the region, there are high density areas not served by residential 25/3 (see Figures 3 & 4). It is clear other factors are at play, such as right of way fees or topological barriers limiting access to 25/3.
- About 45 percent of households with children (a strong predictor of broadband adoption) or almost 9,000 households in the SIDC region had no access or access to only one 25/3 residential provider (see Table 4 and Figure 5). This potentially widens the "homework gap" in the region.
- The SIDC region could see a potential economic benefit of \$218 million dollars over 15 years if **all** currently unserved households had access and subscribed to 25/3 service (see Table 5).
- All counties in the region had at least two 25/3 business providers (see Figure 6 and Table 6) and businesses in the region had access to mostly fixed wireless and fiber optic (see Figure 7).
- However, almost half of businesses in the region had no access to 25/3 broadband (see Table 7 and Figure 8). Moreover, the region as a whole lost about 10 percent of digital economy jobs between 2010 and 2016 (see Table 8).

INTRODUCTION



The main objective of this report is to increase awareness of the state of broadband infrastructure in the five counties that are part of the Southern Indiana Development Commission (SIDC) region. This increased awareness should lead to meaningful discussions regarding broadband in the region and ways to address identified gaps.

This report consists of multiple sections. The first section provides an overview of the most popular broadband technologies. While not meant to be technical, this overview should provide readers a basic understanding of the different broadband technologies available. The following section discusses, in very general terms, broadband deployment or updating models the SIDC region could pursue. These models were differentiated for purposes of discussion but, in reality, they overlap significantly.

Publicly available data were utilized to analyze the state of broadband in the region in the next section. Data for this report was obtained from the Federal Communications Commission (FCC) Form 477 as of December 2016 as well as from the 2012-2016 American Community Survey. While the dataset includes all providers regardless of technology and/or reported advertised speeds, the analysis included only those providers that met the minimum 25/3 FCC threshold.

Some providers were contacted (those whose direct contact information was obtained) via email to verify accuracy of coverage and discuss challenges and barriers when expanding or upgrading their footprint in the region. Unfortunately, only a handful responded and were willing to discuss their barriers and challenges. Lastly, a concluding section wraps-up this report where potential next steps and policy recommendations are discussed.

BROADBAND TECHNOLOGY



Broadband is defined by the Federal Communications Commission (FCC) as Internet access that is always on and faster than dial-up. Since different broadband connections offer different speeds, the current definition on what constitutes broadband is set by a speed benchmark of 25/3.

Broadband connections differ by technology³, of which the most popular are discussed below:

- **Digital Subscriber Line (DSL):** allows the transmission of data over traditional copper telephone lines. DSL consists of asymmetrical and symmetrical. Asymmetrical typically provides faster download speeds while providing slower upload speeds. Symmetrical provides the same speed, both for download and upload, and are usually available only for businesses.
- **Cable Modem:** allows the transmission of data over the coaxial cables used to deliver cable TV. The telecommunication standard used by this technology is called data over cable service interface specification or DOCSIS. Currently DOCSIS 3.0 provides the fastest speeds.
- **Fiber-optic:** transmits data by converting electrical signals to light and sending it through transparent glass fibers offering speeds significantly faster compared to all other broadband technologies. Fiber to the home or business indicate fiber ends in the end users' facility while fiber to the node or cabinet indicate fiber ends at the node or cabinet. End user is then connected via metallic wires to the node or cabinet.
- **Fixed Wireless:** transmits data using radio links between the end user and the service provider. This does not include mobile wireless. Service is offered from a fixed point requiring an external antenna and a direct line-of-sight. Speeds are comparable to DSL or cable.
- **Satellite:** transmits data by linking with a satellite in orbit. Satellite packages typically include data limits and depend on the end users' line of sight to the orbiting satellite and weather. Speeds are typically slower than those offered by DSL or cable.
- **Broadband over Power line (BPL):** transmits data over low and medium voltage electric power resulting in connections through existing electrical connections and outlets. This is an emerging technology available in limited areas. Speeds are comparable to DSL and cable.

³ <https://www.fcc.gov/general/types-broadband-connections>

BROADBAND DEPLOYMENT MODELS



While there is no one-size-fits-all model when deploying or upgrading broadband infrastructure, this section discusses the most common models. These models are discussed in general terms since the legal, financial, and political complexities of any model are beyond the scope of this report. As the SIDC region considers these models, it is important to balance risk, benefit, and control of assets as well as financial capabilities. These models should not be treated as either/or and although they have been differentiated for discussion purposes, overlaps exist.

- **Private sector:** this model calls for communities and residents in the region to reach out to private broadband providers, including wireless internet service providers (WISPs), to upgrade or expand their footprint. The region can work with federal and/or state agencies to design innovative public policies to help address the challenges of the providers. Examples of these public policies include utilizing public facilities to place broadband infrastructure, streamlining or eliminating right-of-way fees, and/or designing and implementing “dig once” policies. For example, as one provider from the region reported, current costs of right-of-way leases per year per mile add quickly to an already expensive investment due to lack of customer density. Local or state agencies can also provide grants to providers to build out broadband infrastructure in unserved or underserved areas. The downside of this model is that if the math simply does not work out for private providers, the region may remain unserved or underserved.
- **Public-private partnerships (P3):** P3 calls for innovative ways in which funding, operation, and control of broadband infrastructure is shared among partners. For example, local government entities can bear the capital cost of building the infrastructure through loans, grants, or bonds while providers agree to lease the infrastructure, operate and maintain it. A P3 can also work to providing access to existing fiber-optic infrastructure (also known as “dark fiber”) to private and other broadband providers. These two examples are also called open access models. Depending on the partnership, local government may end up owning the broadband infrastructure or, like in the private sector model, provide grants for providers to upgrade or deploy broadband infrastructure. The downside of this approach is the complexity of P3. Any P3 involves many moving pieces that requires legal and financial expertise.

- **Municipally owned model:** this model calls for the municipality and/or county to build and operate the network. Unlike the P3 model, municipalities offer a full retail broadband service, just like any other utility (water, sewer, etc.) While research on the success of this model is not definitive, case studies include successes and failures. The key lessons learned from this model is that the municipality or county need to take baby steps or what is called an “I-Net ‘n’ More” approach where the municipality or county begins by connecting community anchor institutions and then expands incrementally. A challenge is that political support must be in place for residents to support local government incurring in debt or loans to build the infrastructure. In addition, municipalities may not have the expertise in building and managing broadband networks and may face resistance from private incumbent carriers. In fact, the Institute for Local Self-Reliance has identified several states that have prohibited or made it extremely difficult for municipalities to run their own broadband.
- **Co-operative model:** this model calls for local government, businesses, or residents to reach out to electric or telephone co-operatives to encourage them to invest and provide broadband. Since co-ops do not seek profit, the lack of customer density is not necessarily an issue. This model proved highly successful when “electrifying” rural communities in the early to mid-20th century. The downside is that co-ops may not feel comfortable investing and managing a service they are not familiar with and resistance from existing private broadband providers.

Any of these models or combination thereof should be considered when deploying or upgrading broadband infrastructure. Important to not overlook is that any effort designed to expand broadband access should be coupled with an initiative to strengthen digital literacy and broadband adoption efforts. Some providers argue that even when broadband is available, customers do not subscribe as expected. Exposing customers to broadband’s benefits and increasing their digital knowledge is critical. This can be done by collaborating with Cooperative Extension, churches, libraries, nonprofits, and other groups with a strong network of people and “on the ground” capacity.

STATE OF BROADBAND IN THE SIDC REGION



Data for this analysis were obtained from the FCC Form 477. Internet providers are required to file their advertised speeds (download and upload) as well as the technologies available twice per year at the census block level. The dataset used in this analysis was the December 2016 v1 and includes fixed broadband only.⁴ Important to note is that the results of this analysis may *overestimate* actual broadband availability for three reasons. First, the data were self-reported from carriers and their accuracy was not validated by customers or by third-party entities.⁵ Second, geographic granularity is limited. For example, if a household or business has access to broadband within a block, the entire block is considered served. Lastly, speeds are maximum advertised speeds. However, especially with DSL, the actual speeds rarely achieve the maximum advertised speeds consistently, influenced by the time of day and the customer's distance from the broadband infrastructure.

Table 1 lists the residential and business fixed broadband providers identified from Form 477 December 2016 v1 dataset. The "Broadband 25/3" column lists providers whose advertised speeds met the current broadband speed requirement of 25/3. As seen in Table 1, twenty-six residential and business providers offer services in the SIDC region. Of these, six offer services to both residences and businesses while fourteen offer only to residences and six only to businesses. Note, however, that the number of providers for both residences and businesses are reduced to ten when listing only those that meet the 25/3 criteria. Three offer 25/3 services to both businesses and services while only three offer to businesses and four to residences only.

⁴ Fixed broadband does not include mobile wireless; includes DSL, Cable, Fiber, Fixed Wireless, Satellite and others

⁵ Most of the providers identified through form 477 were contacted. Only one provider responded with changes to their coverage area

Table 1. List of fixed broadband providers in the SIDC region as of December 2016

Provider Name	Residential	Business	Broadband 25/3
ALTIUS Communications LLC	Yes		
AT&T Inc.	Yes		Yes
Avenue Broadband Holdings, Inc.	Yes		Yes
Birch Communications, Inc.		Yes	
Blueriver Communications, Inc.	Yes		
CenturyLink, Inc.	Yes		
City of Scottsburg	Yes		
Comcast Corporation	Yes		Yes
Daviess-Martin County RTC	Yes	Yes	
dishNET Holding, LLC	Yes	Yes	
EarthLink Holdings Corp.		Yes	
Frontier Communications Corporation	Yes		
JAB Wireless, Inc.	Yes	Yes	Yes
Joink, LLC	Yes		
King Street Wireless, L.P.	Yes		
Level 3 Financing, Inc.		Yes	Yes
LocaLoop, Inc.	Yes		
Metronet Holdings, LLC	Yes	Yes	Yes
Smithville Holding Company, Inc.	Yes	Yes	Yes
Spectrotel, Inc.		Yes	Yes
Telecommunications Management LLC ⁶	Yes		Yes
Telephone and Data Systems, Inc.	Yes	Yes	
Verizon Communications Inc.		Yes	
ViaSat, Inc.	Yes		
VSAT Systems, LLC	Yes		
Windstream Holdings, Inc.		Yes	Yes

⁶ Includes provider NewWave

The geographic distribution of 25/3 broadband residential providers at the block level is shown on Figure 1. The majority of the 25/3 residential footprint in the SIDC region is served by one provider (light gray) while some areas have up to three providers (dark gray).

Figure 1. Number of 25/3 residential providers

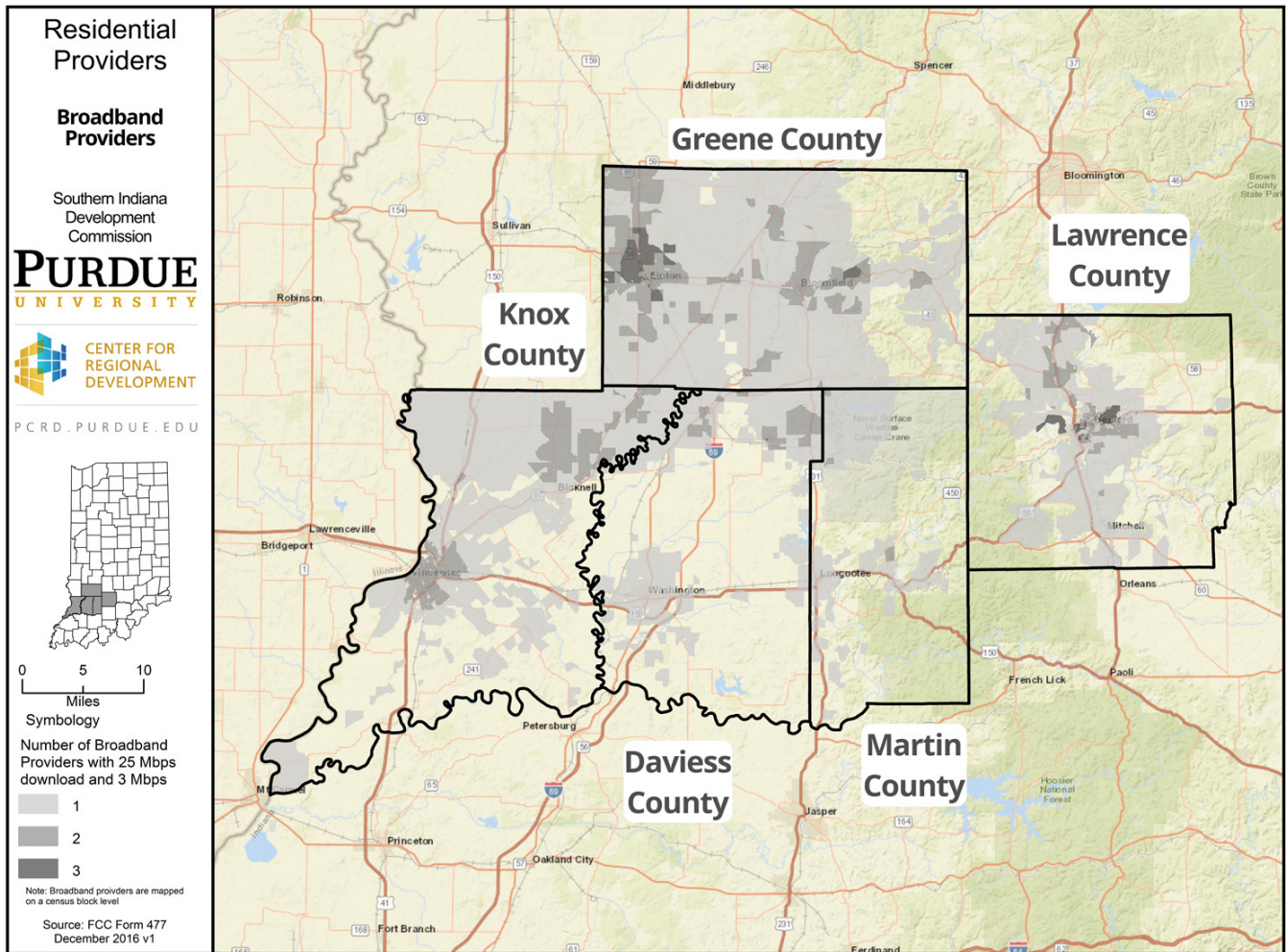


Table 2 shows that of the 159,721 residents in the SIDC region as of 2010⁷, about 33,440 residents, or 20.9 percent, did not have access to 25/3 versus 70,000, or 43.8 percent, served by one 25/3 residential, about 52,500, or 32.8 percent, by two providers and 3,700, or 2.3 percent, by three providers.

Table 2. 25/3 residential footprint & population

Number of Providers	2010 Population	2010 Percent Population Served
0 (No access)	33,444	20.9
1	70,007	43.8
2	52,524	32.8
3	3,746	2.3
Total Population	159,721	100

In addition, Table 3 shows the 25/3 residential footprint by SIDC counties. About 38 percent of the 2010 population in Daviess County did not have access to residential 25/3 as of 2016. However, Martin County had the highest share of population without access to 25/3 with almost 40 percent.

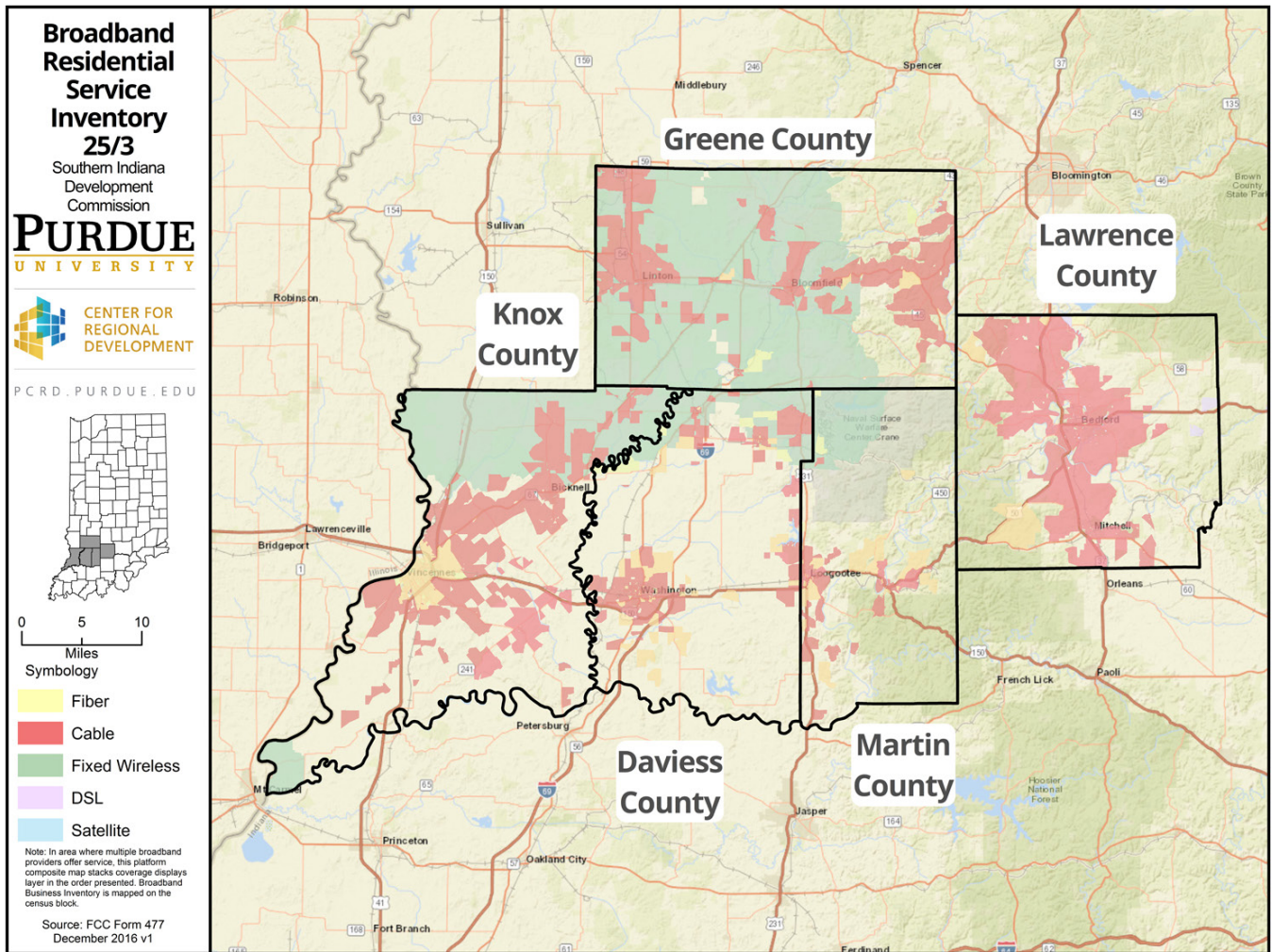
Table 3. Population with access to 25/3 by SIDC counties

County	Population	Population no access to 25/3	Percent population no access to 25/3
Daviess	31,648	11,617	36.7
Greene	33,165	4,474	13.5
Knox	38,440	3,202	8.3
Lawrence	46,134	10,060	21.8
Martin	10,334	4,091	39.6
SIDC	159,721	33,444	20.9

⁷ 2010 population figures are used because block level population figures are only available from the decennial census and FCC data is at the block level; however, the 25/3 broadband footprint is as of December 2016.

Regarding broadband technologies available to residences in the SIDC region, Figure 2 shows that cable (red) and fixed wireless (green) dominate the 25/3 footprint. Some pockets of fiber (yellow) are also available, though its footprint is much smaller than other broadband technologies.

Figure 2. 25/3 Broadband technologies available to residences



Figures 3 & 4 show the broadband 25/3 residential footprint meshed with population and household density per square mile. Some areas with a high population and household density (dark orange) did not have access to residential 25/3 (gray). Although lack of density was mentioned as an important barrier, other issues may impede providers to offer 25/3 to these high density areas, such as right of way fees or topological barriers.

Figure 3. Population density and 25/3 residential coverage

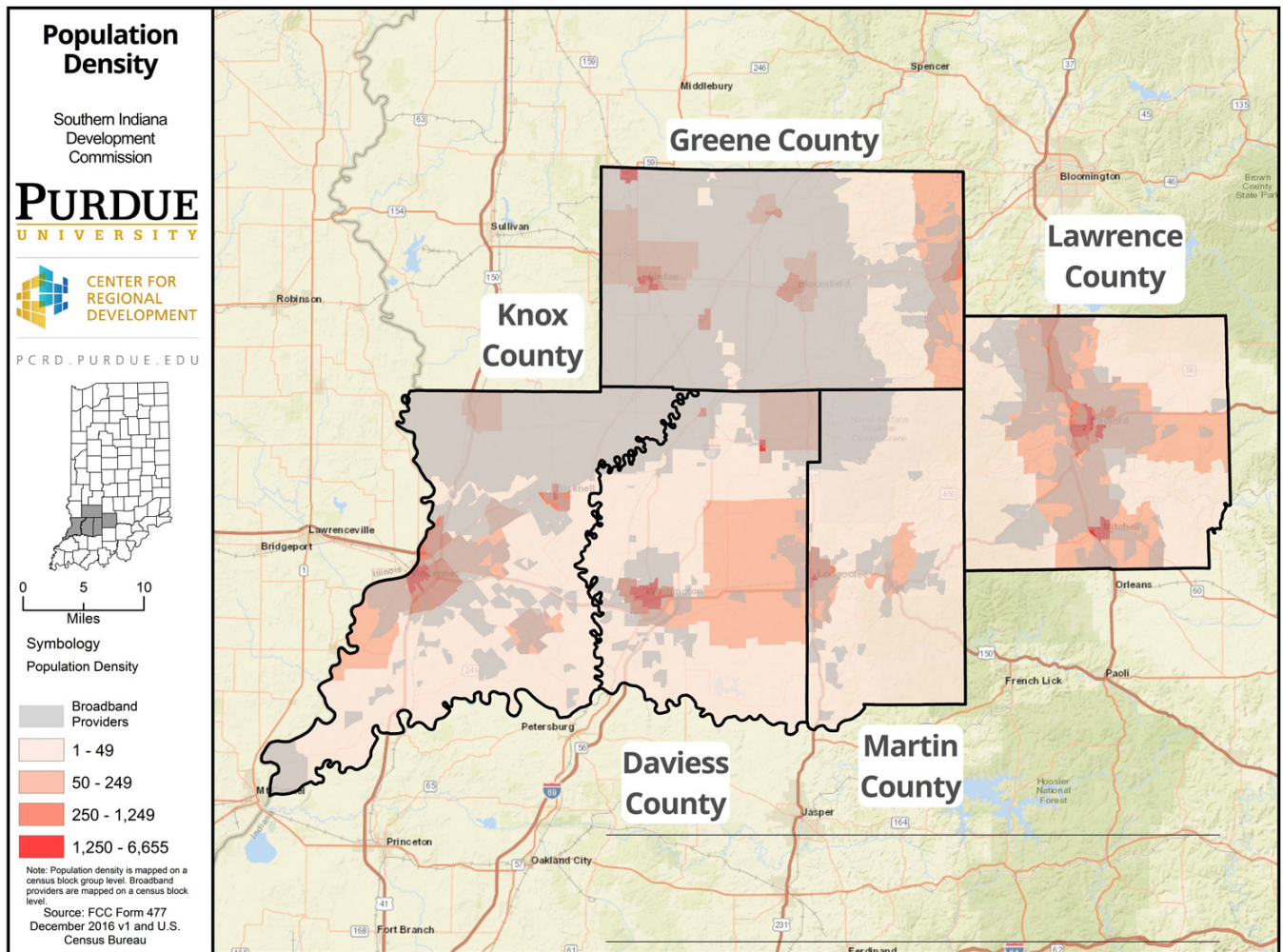
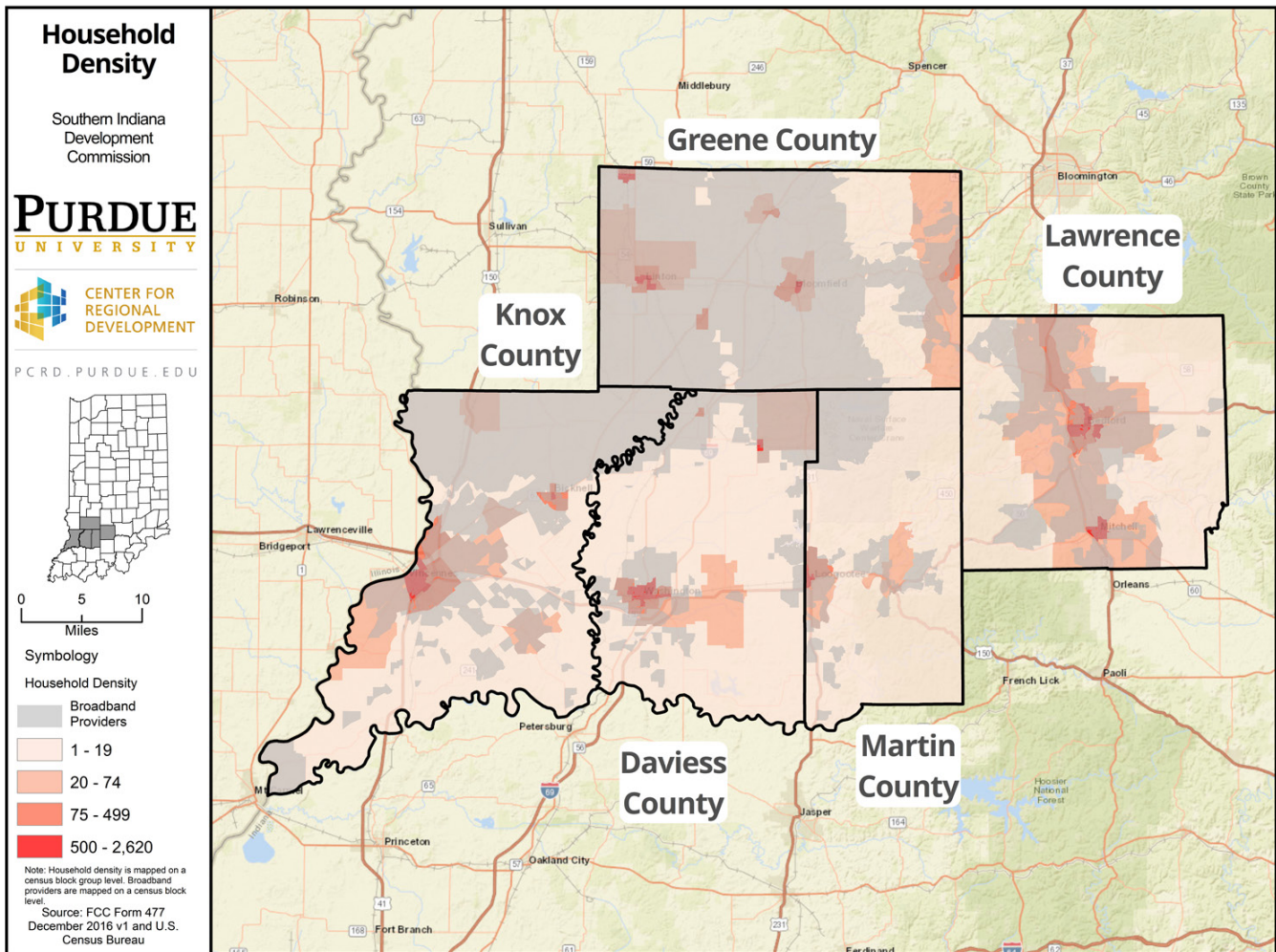
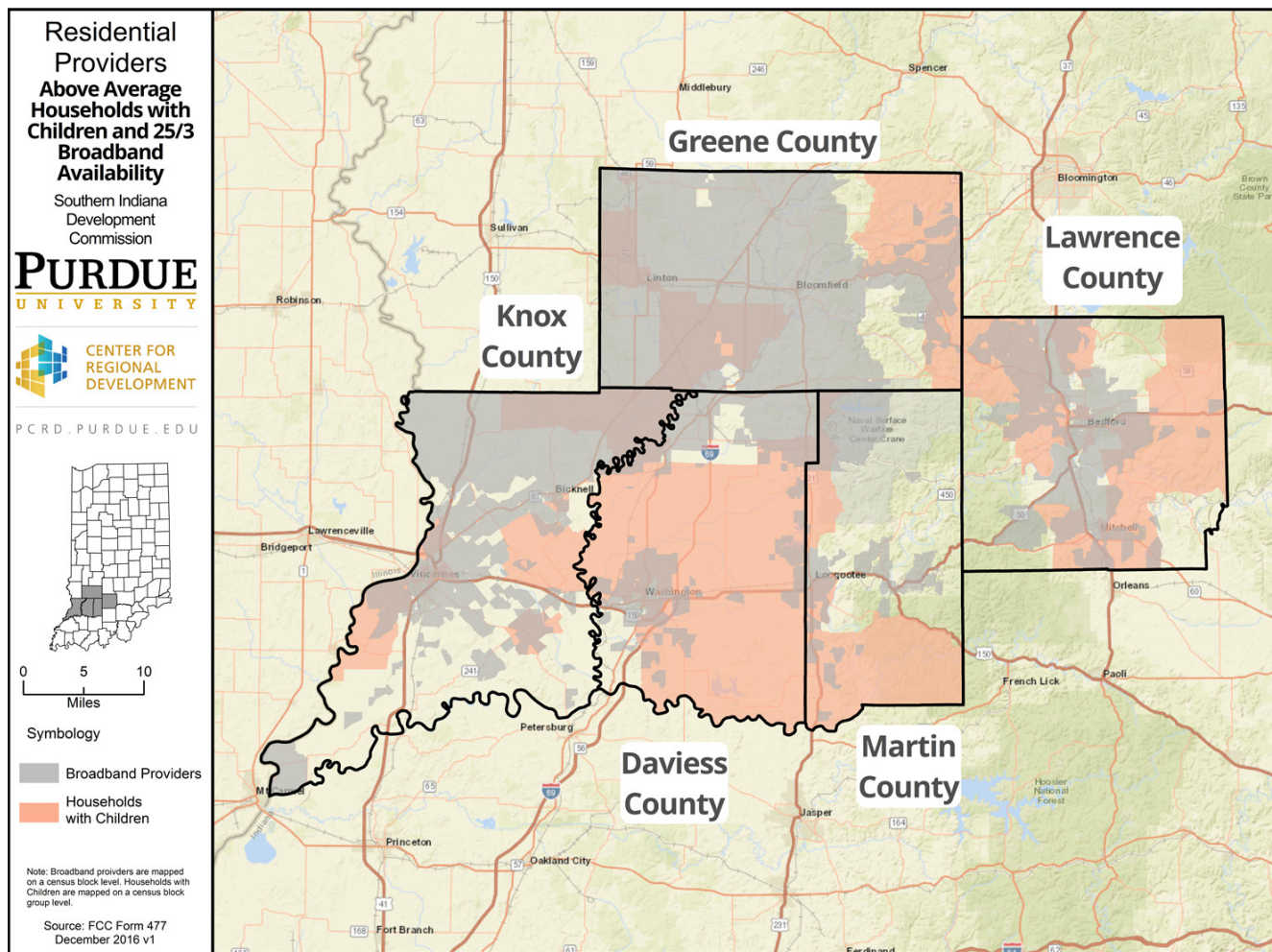


Figure 4. Household density and 25/3 residential coverage



Next, it is worth discussing the “homework gap”. The homework gap refers to children not having access to adequate Internet and/or digital devices to complete online homework assignments/activities at home. Figure 5 identifies block groups in the region with an above average percent of households with children (in orange, 31.4 percent or higher) and the 25/3 residential broadband footprint (gray). According to the 2012-2016 American Community survey, there were about 61,000 occupied households in the SIDC region of which 19,635, or 30.3 percent, had children.

Figure 5. Residential 25/3 footprint and percent of households with children



Note how a clear gap is visible, especially in Daviess County, where most of the block groups in the county had an above average share of households with children yet some areas lack access to residential 25/3. Northeastern Greene County as well as eastern Lawrence County are in a similar situation. Table 5 summarizes the households with children by 25/3 residential access.

It is possible that the majority of these households could be located in the limited areas where coverage is available within the block groups. Unfortunately, available data does not permit a more granular analysis. As shown in Table 4, about 45.5 percent of households, or 8,943, with children in the SIDC region had no access or access to only one 25/3 provider.

Table 4. 25/3 residential footprint & households with children

Number of 25/3 Residential Providers	2016 Households with Children	2016 Percent of Households with Children
0 (No access)	473	2.4
1	8,470	43.1
2	7,720	39.3
3	2,657	13.5
4	315	1.6
Total Households	19,635	100

Aside from the homework gap, households have much to gain and contribute if connected to adequate broadband. The University of Ohio estimated⁸ a conservative consumer surplus—what a consumer is willing to pay for a service compared to what they are actually paying—amount of \$1,850 per household per year when subscribing to broadband. Using this conservative figure allows us to estimate the potential economic benefit of households subscribing to broadband.

Since data regarding access to residential 25/3 is available only for population, population without access to fixed 25/3 was divided by the average household size to estimate the number of households without access to 25/3. As shown in table 5, the SIDC region would receive an economic benefit of approximately \$218 million dollars over 15 years if **all** current unserved households had access and subscribed to the service.

Table 5. Potential Economic Benefit of Currently Unserved Households Subscribing to Broadband

County	Population w/o access to 25/3	Average Household Size	Estimated households w/o access to 25/3	Potential 15-Year Economic Benefit ⁹
Daviess	11,617	2.84	3,601	\$64.9 million
Greene	4,474	2.57	1,643	\$29.6 million
Knox	3,202	2.59	1,212	\$21.8 million
Lawrence	10,060	2.48	3,986	\$71.8 million
Martin	4,091	2.42	1,691	\$30.4 million
SIDC	33,444	2.59	12,133	\$218.7 million

Without question, efforts to expand the residential 25/3 footprint are warranted. Low hanging fruit efforts can focus on those areas where an above average share of households with children exist that lack access to 25/3. Households with children tend to adopt the technology at higher rates. Likewise, expanding the footprint and driving up subscription rates through a digital inclusion strategy can have a significant economic impact in the region as shown in Table 5.

⁸ <https://aede.osu.edu/about-us/publications/connecting-dots-ohios-broadband-policy>

⁹ Utilizes a yearly 7% discount rate and assumes **ALL** unserved households subscribe to 25/3 service if available

Shifting gears, we now focus on businesses. Figure 6 shows the vast majority of 25/3 business coverage is also served by one provider (light gray). What is striking from Figure 6, however, is that Lawrence and Martin counties have almost no 25/3 coverage for businesses (considering the coverage in Martin includes only the naval base). Likewise, it is clear that the 25/3 business footprint is smaller compared to the residential footprint.

Figure 6. Number of 25/3 business providers

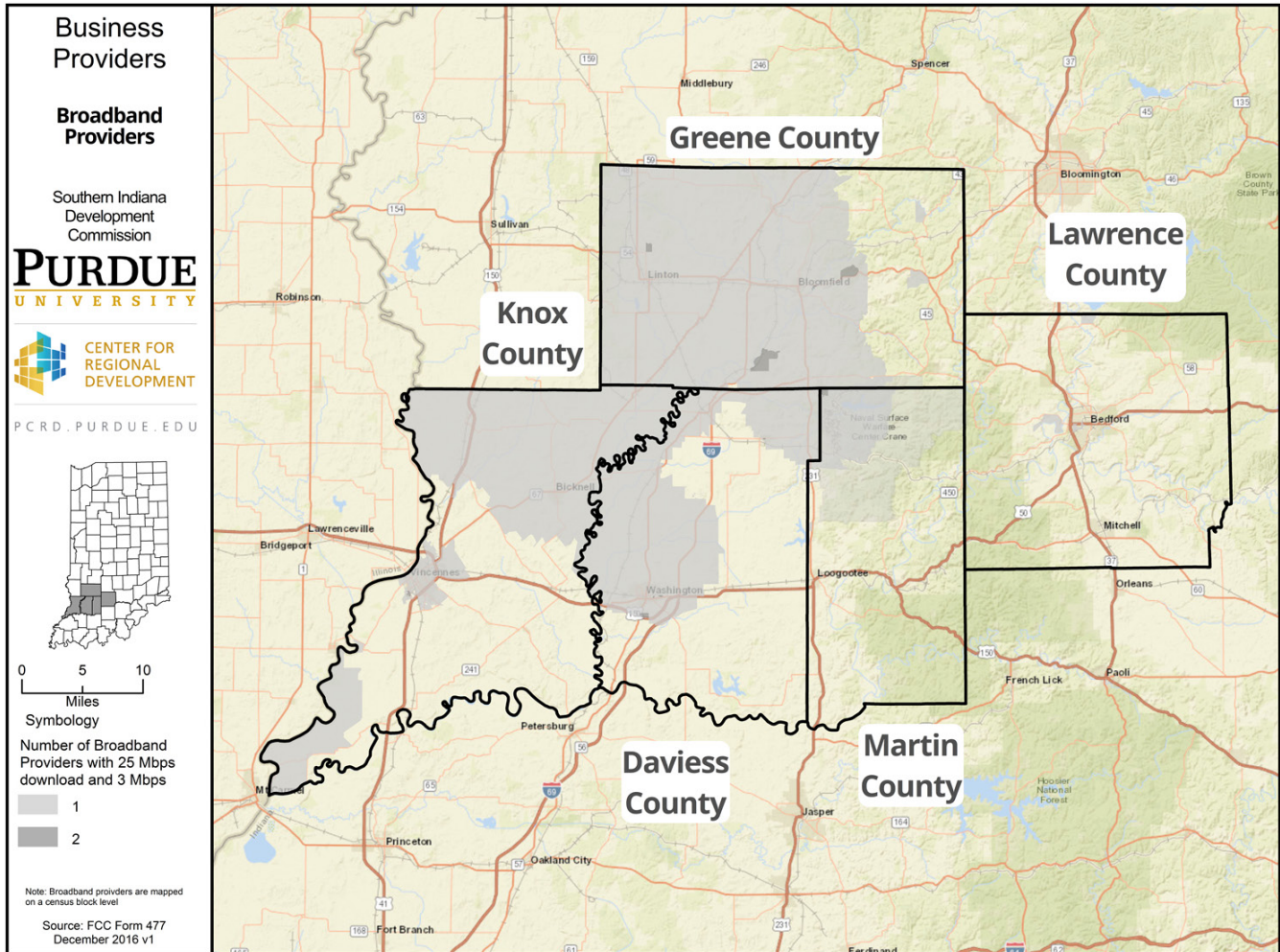


Table 6 shows the number of unique business 25/3 providers in the region. Daviess County had the highest number of unique 25/3 business broadband providers in the region with five, followed by Knox County with three. In the region overall, a total of 6 business providers operated as of December 2016.

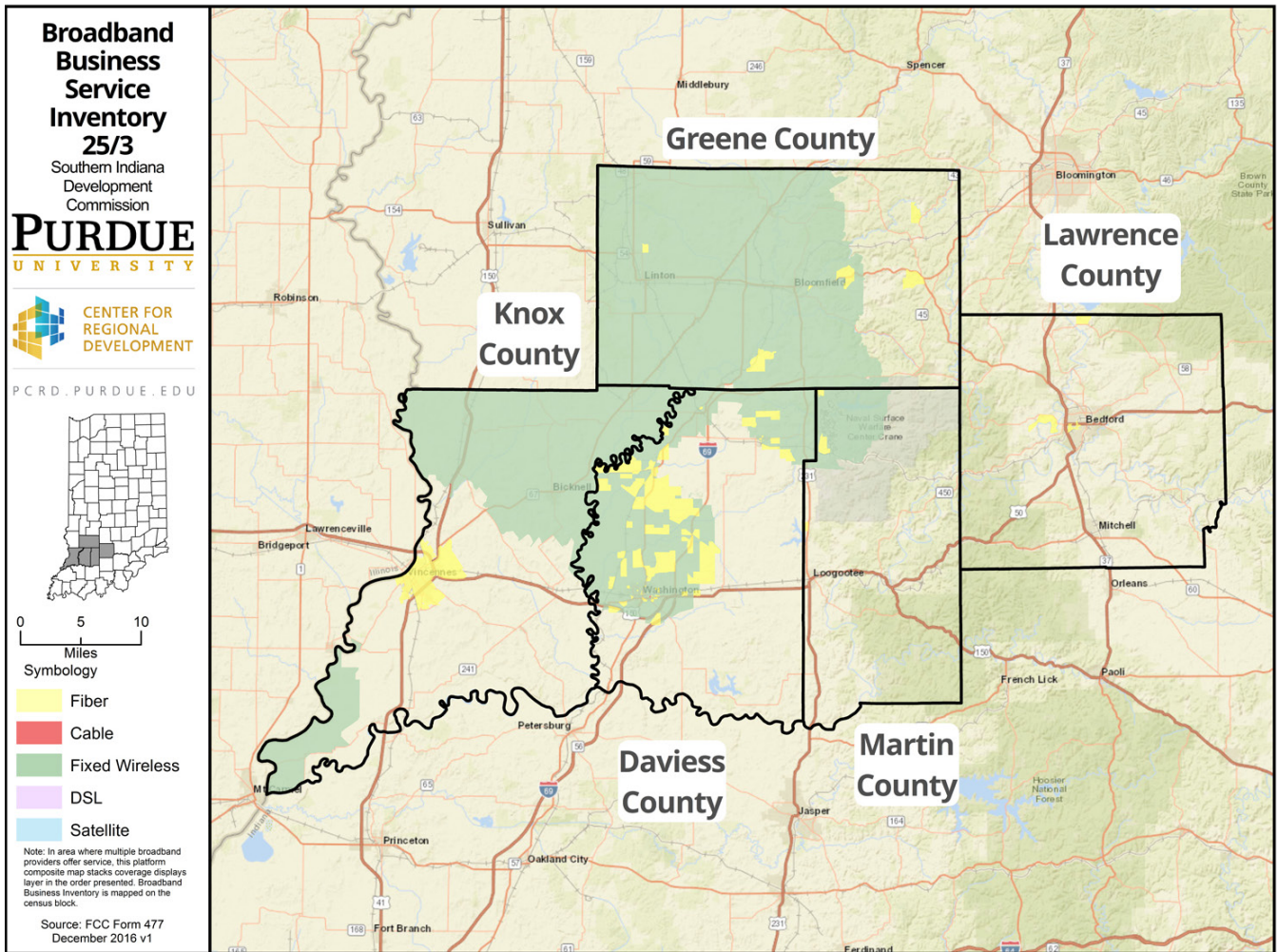
Table 6. 25/3 business footprint & establishments at the county level

County	25/3 Unique Business Broadband Providers
Daviess	5
Greene	2
Knox	3
Lawrence	2
Martin	2
SIDC	6

Regarding broadband technology available for businesses within the 25/3 footprint, Figure 7 shows that the 25/3 coverage relies mostly on fixed wireless, while some pockets of fiber optic are visible. Fiber optics for businesses is primarily available on the western part of Daviess and Knox counties.

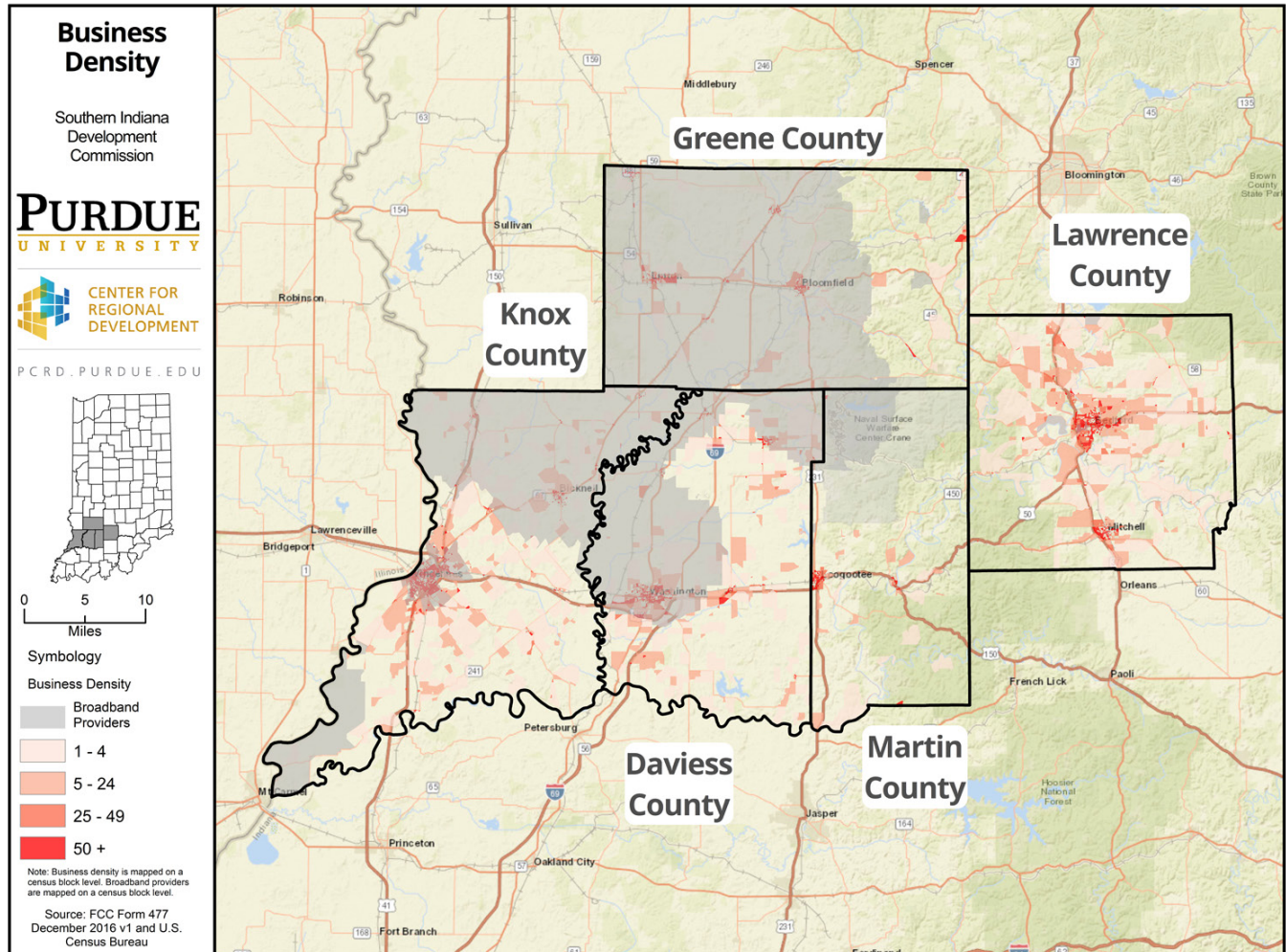
“ BROADBAND INFRASTRUCTURE, WITHOUT A DOUBT, IS THE EQUIVALENT OF A RAILROAD LINE OR A FOUR-LANE INTERSTATE HIGHWAY IN THIS CENTURY. ”

Figure 7. 25/3 Broadband technologies available to businesses



Utilizing 2012 (latest available) data from multiple sources¹⁰, a business density per square mile (orange) was calculated and meshed with the business 25/3 footprint (gray). As shown in Figure 8, areas with the highest business density (dark orange) are covered by the 25/3 business broadband footprint in Knox and Greene counties. However, there are areas of high business density that are not in the 25/3 footprint, more noticeable in Lawrence County and outside the city limits in Knox and Daviess counties.

Figure 8. Business Density per Square Mile



In other words, of the approximately 7,600 businesses mapped in the region, almost half were *not* in the business 25/3 broadband footprint (see Table 7). About 95 percent of businesses mapped in Lawrence County were *outside* the business broadband 25/3 footprint followed by 91 percent in Martin County. In contrast, about 90 percent of Greene County businesses were located inside the 25/3 footprint.

¹⁰ Multiple establishment level data sources were evaluated, such as Hoovers (Avention), ReferenceUSA, and National Establishment Time Series (NETS). The challenge was that each source had slightly different counts of establishments. A combination of these sources was utilized to geocode the establishment records, which were aggregated at the census block level.

Table 7. 25/3 business footprint & establishments at the county level

County	No. Businesses	In 25/3 footprint	Out of 25/3 footprint	Percent In 25/3 footprint	Percent Out of 25/3 footprint
Daviess	1,571	1,038	533	66.1	33.9
Greene	1,164	1,050	114	90.2	9.8
Knox	2,149	1,648	501	76.7	23.3
Lawrence	2,192	100	2,092	4.6	95.4
Martin	554	49	505	8.8	91.2
SIDC	7,630	3,885	3,745	50.9	49.1

With regard to broadband's impact on businesses, it is worth analyzing jobs related to the digital economy¹¹, which are growing faster than jobs overall¹² and pay twice the median national income¹³. Table 8 shows the change in digital economy jobs between 2010 and 2016 for selected geographies.

Table 8. Digital Economy Jobs

County	2010 Digital Economy Jobs	2016 Digital Economy Jobs	No. Change	Percent Change
Daviess	100	221	121	120.9
Greene	106	80	-26	-24.7
Knox	299	253	-46	-15.4
Lawrence	161	190	29	17.8
Martin	504	283	-220	-43.8
SIDC	1,169	1,026	-143	-12.3
Indiana	98,509	122,689	24,181	24.5
U.S.	6,190,730	7,311,954	1,121,224	18.1

Source: EMSI 2017 Q4

As shown in Table 8, the region as a whole lost 143 digital economy jobs between 2010 and 2016 while the state and nation gained. Daviess and Lawrence counties gained digital economy jobs while Greene, Knox and Martin lost these type of jobs during this period.

Daviess County had the largest number of business providers and the third lowest percentage of businesses without access to 25/3 as well as the largest increase in digital economy jobs. Adequate broadband is increasingly necessary to not only create and retain digital economy jobs but also allow residents to learn digital skills.

¹¹ This paper utilized 52 industries listed as related to the digital economy from four different sources: Bureau of Economic Analysis, Brookings Institution, Progressive Policy Institute and the Internet Association.

¹² <https://www.brookings.edu/research/americas-advanced-industries-new-trends/>

¹³ <https://blog.bea.gov/2018/03/15/initial-estimates-show-digital-economy-accounted-for-6-5-percent-of-gdp-in-2016/>

CONCLUSIONS



Broadband infrastructure, without a doubt, is the equivalent of a railroad line or a four-lane interstate highway in this century. Not having adequate broadband infrastructure and an effective digital inclusion strategy will further disadvantage communities in this 21st century global economy.

This report examined broadband infrastructure as reported by carriers and the FCC as of December 2016 in the counties that make up the Southern Indiana Development Commission (SIDC) region. While the region does indeed have 25/3 coverage, gaps exist that need to be addressed. Some opportunities to address these gaps include targeting block groups with a higher percent of households with children than the region's average (see Figure 5) lacking coverage as well as high population density block groups near the current 25/3 footprint.

On the business side, it is important to increase the 25/3 footprint, especially in Lawrence and Martin counties. Otherwise, entrepreneurs and small businesses located in the region are unable to leverage an online presence to increase sales, expand markets and become more competitive.

Although multiple carriers were contacted, only a few shared their challenges and barriers when upgrading or expanding their broadband footprint in the region. The most important challenge, not surprisingly, is lack of population density. Fewer and spread out customers require a more expensive investment. What could help is having right-of-way fees reduced or eliminated by INDOT. Otherwise, these fees result in greater costs to the providers, expenses that may be simply too great in light of the higher cost associated with the delivery of broadband to low density areas. Other providers argued that existence of municipally owned networks discourage them to further expand their broadband footprint.

Regardless of the broadband deployment model the region decides to pursue to expand and upgrade the current 25/3 footprint, it is important to consider the following:

- As shown above, focus on low hanging fruit to expand the 25/3 or higher footprint. Proceed incrementally afterwards to avoid potential financial and subscription pitfalls.
- Learn more about the broadband [bill](#) that was recently passed by the Indiana legislature since it may provide funding for unserved rural areas, albeit at lower speeds (10/1).
- Keep in mind however that some state and/or federal programs deem areas with speeds higher than 10/1 ineligible for funding. While this is a serious inconsistency, given that the FCC's broadband definition is 25/3, hopefully it will be resolved soon. In the meantime, keep this in mind when applying for broadband infrastructure funding.
- While a "dig once" [policy](#) is about to become federal law and applicable to many federally funded road projects, the region should make efforts to further strengthen this policy and implement a similar policy applicable to county and city roads.
- President Trump recently signed an [executive order](#) to streamline and expedite requests to locate broadband facilities in rural areas. This executive order may make it easier to leverage federal facilities to place broadband infrastructure in an effort to increase access. In addition, it is worthwhile to map assets in the region (water towers, utility poles, etc.) that could be used by providers to lower the cost and make it easier to expand their footprint.
- Microsoft [announced](#) a project to utilize TV white space (analog TV frequencies) to expand broadband in rural areas. Efforts should be made to promote the region for this project.
- The SIDC region should make efforts to get every community in the region "Broadband Ready" [certified](#). This certification may also provide access to additional funding.
- Lastly, the region should design and implement a digital inclusion strategy. At a minimum, this strategy should make efforts to continue to increase awareness of why broadband is important and collaborate with community anchor institutions, educational institutions and nonprofits to provide digital literacy trainings throughout the region, to both residents and businesses. Promoting adoption is both a complementary and necessary component to any effort to accelerate broadband access.



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