

# **Broadband Economic Feasibility Analysis** for

OZARKFOOTMLLSRPC



What would happen to the Ozark Foothills Region IF it turned from

# a Broadband Desert into a Broadband Oasis?

July 2027



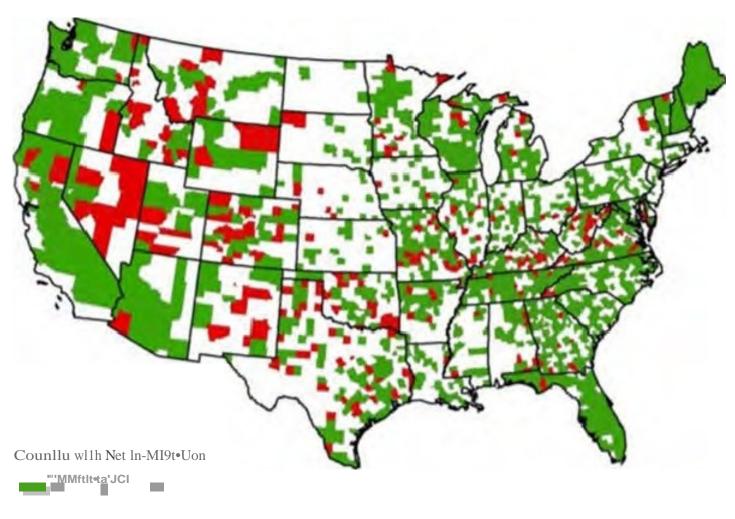
#### THANKS and ACKNOWLEDGEMENT

Keith and Abner of AgriExperts would like to thank all those who participated in the broadband survey including residents, businesses, city and county officers, internet service providers and the Ozark Foothills RPC staff. We especially wish to thank:

- Crystal Jones, Hannah Barnett, and staff of Ozark Foothills RPC
- Lonnie Thompson, retired superintendent of schools
- MOREnet staff for their data on schools and dark fiber
- Mike McCormack of McCormack Telecom
- GEO Partners for the speed test survey data
- GoSEMO, the ISP for SEMO electric
- Pemiscot Dunklin Fiber, the ISP for Pemiscot Dunklin electric
- GoBec, the ISP for Barry Electric
- University of Missouri, DEEDP
- Rebecca Parks

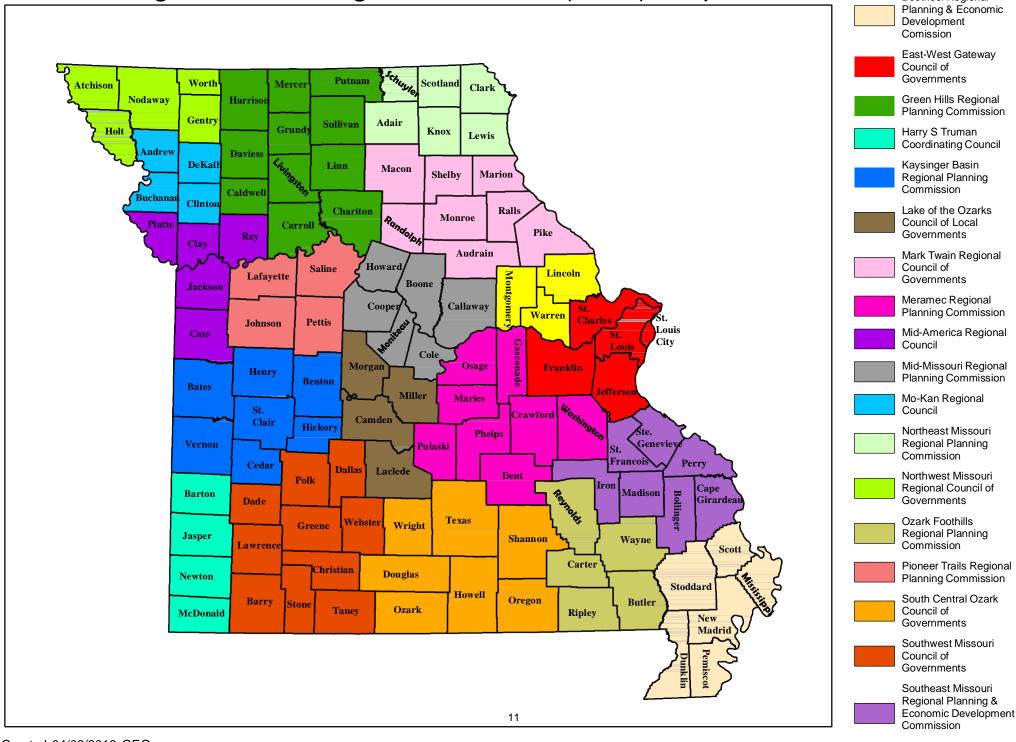
We gratefully acknowledge the work of Crystal Jones and Hannah Barnett for their diligence in gathering data and their encouragement of participation from leaders in the communities of the Ozark Foothills RPC region. This participation by community leaders and citizens was essential to our report.

FIGURE 1.U.S. Counties with Net In-Migration, 2000-2006



Sour= U.S. Cemus """""

# Regional Planning Commission (RPC) Map





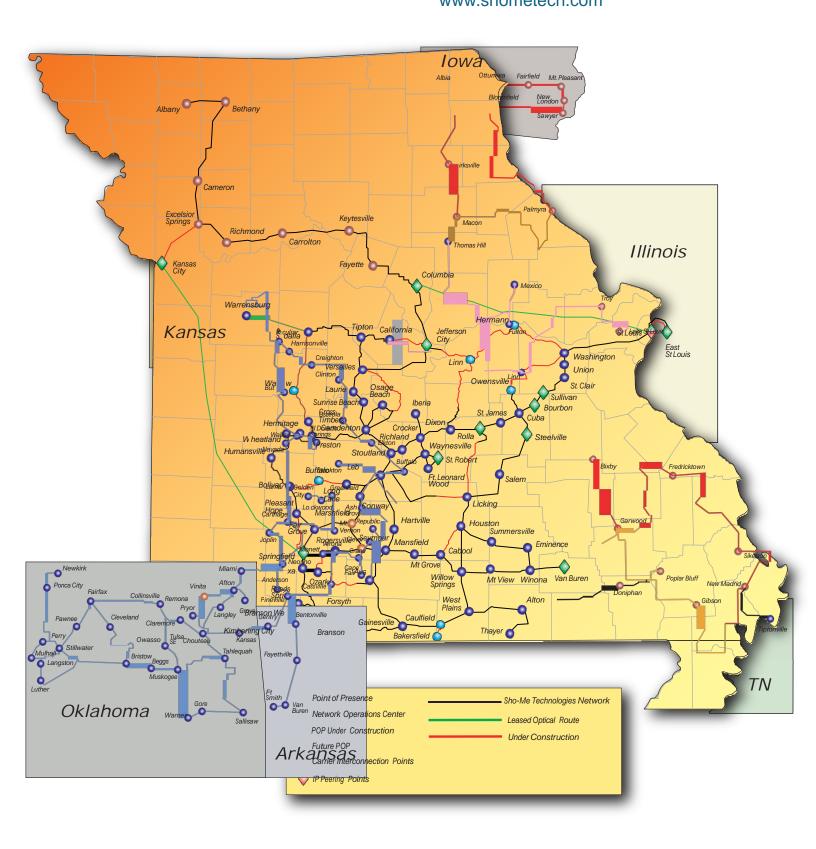
### **BROADBAND**

## MIDDLE MILE MAPS

Note: Middle Mile Maps have not been updated by MOBroadband, since 2014.

AgriExperts provides an Update to the areas for Dark Fiber in a separate map.









# UPDATED LOCATIONS

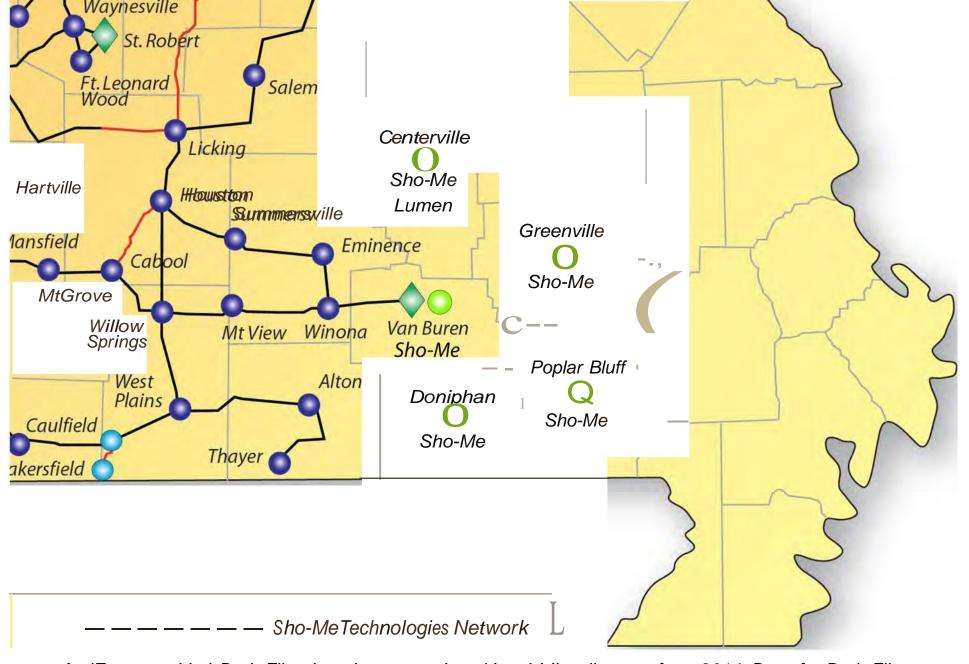
# **OF**

# DARK FIBER

## For

# MIDDLE MILE

# **PROVIDERS**



AgriExperts added Dark Fiber locations to update tl;!e middle mile map from 2014. Data for Dark Fiber was collected from schools that use fiber from MOREnet for counties in the Ozark Foothills RPC region. July 2021

# PHOTOS AND IMAGES

# VARIOUS TYPES OF BROADBAND EQUIPMENT

- •FIXED WIRELESS
- •SATELLITE DISH

#### **IMAGES OF:**

- Fixed Wireless map showing antennas in a service area of Ozark Foothills RPC region
- Fixed Wireless systems mounted for reception and for transferring signals
- Satellite dish mounted to a house



Fixed Wireless Repeater sending to homes and other antennas





Satellite Dish mounted to a house for internet and TV reception

#### NTIA Interactive Map Released date: June 2021

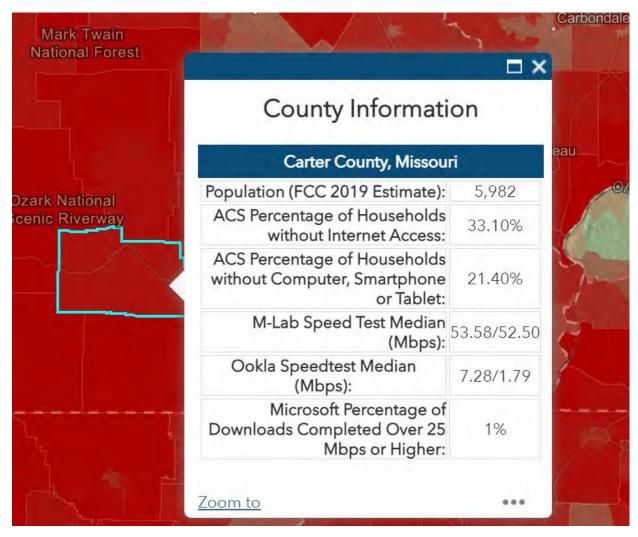
# FCC CURRENT BROADBAND AVAILABILITY AND SPEEDS BY COUNTY 2021 DATA OZARK FOOTHILLS RPC COUNTIES

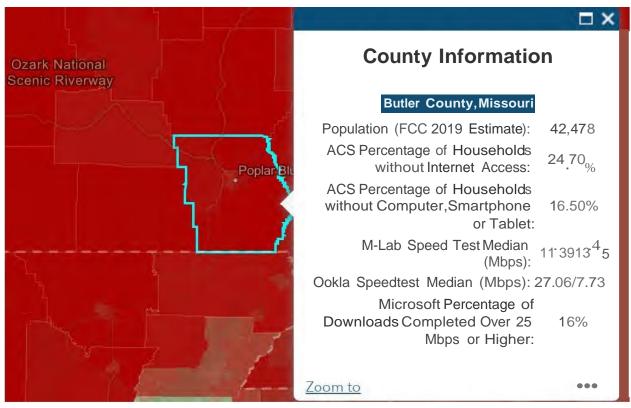
Source: Indicators of Broadband Need / U.S. Department of Commerce's National Telecommunications and Information Administration (NTIA)

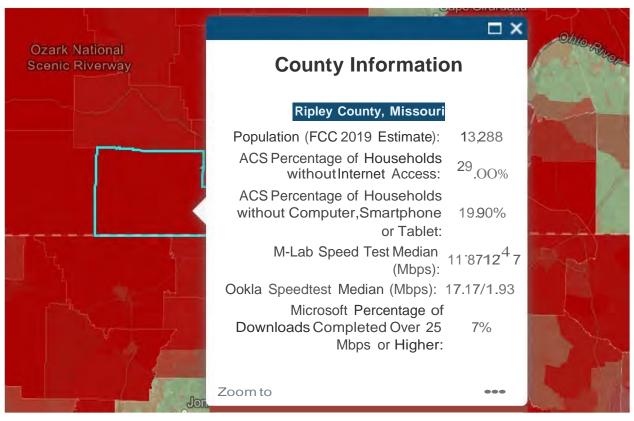
AgriExperts Note: Our research indicates there is a greater need than the data presented from NTIA

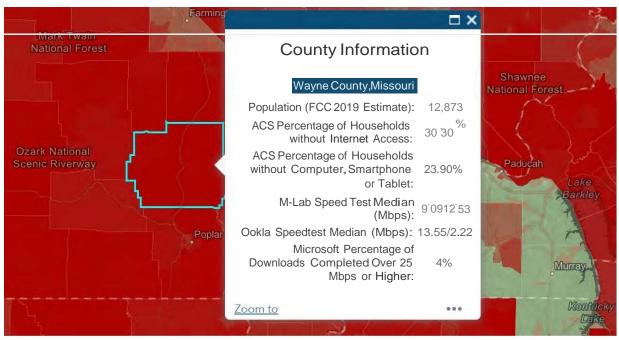
Our research goes into greater detail at the local level than the NTIA study which is too broad and inconclusive at the micro-level scale.

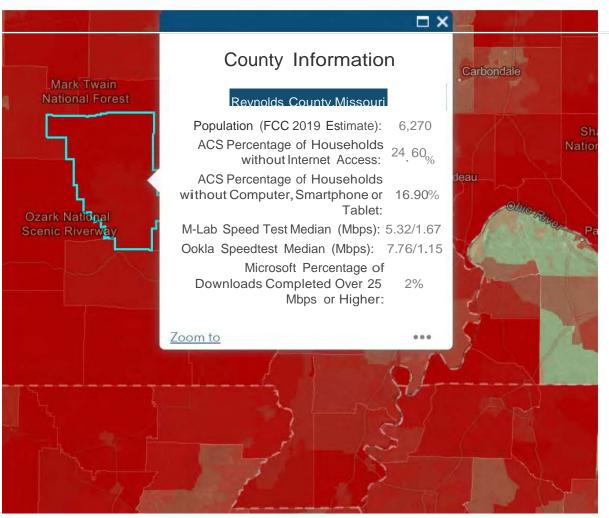
 $\frac{https://broadbandusa.maps.arcgis.com/apps/webappviewer/index.html?id=ba2dcd585f5e43cba41b7c1ebf2a43d0}{2a43d0}$ 











## MAPS BY COUNTY

# GEO PARTNERS SPEED TEST DATA

# CURRENT BROADBAND COVERAGE AND SPEED FOR EACH COUNTY

Note: GEO Partners did their best, however not enough people participated

Note: Not granular enough to capture actual situation at the micro / local level

**GEO Partners Data Collected: June 2021** 

#### **Butler County**

Households	19,731
Population	42,794
Test locations	28
Total Tests	36
Percent participation	0.14%
Participation goal (10%)	1,973

#### **Download**

No Service 1 3.6%
 0-10 Mbps 10 35.7%
 10-25 Mbps 5 17.9%
 25-150 Mbps 10 35.7%
 150+ Mbps 2 7.1%

#### **Upload**

No Service 1 3.6% <3 Mbps 15 53.6% 3-10 Mbps 4 14.3% 10-25 Mbps 4 14.3% 25-150 Mbps 4 14.3% > 150 Mbps 0 0.0%

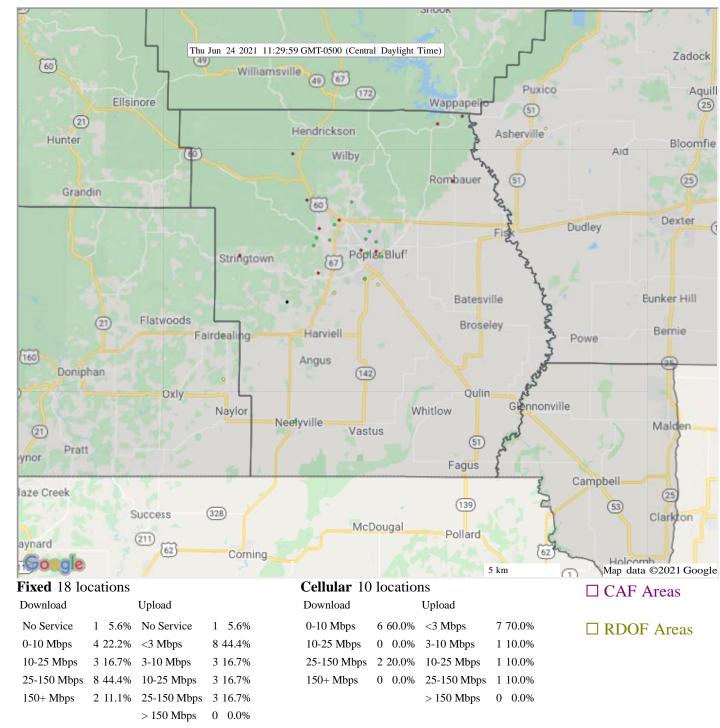
#### Min Max Med Mbps

**Download** 0.16 202.94 26.33 **Upload** 0.26 92.63 2.59

No service reasons: may total>100%

Not Available 100.00%

Prominent ISPs	6 of 10
CABLE ONE, INC.	9 32.14%
Cellco Partnership DBA Verizon W	5 17.86%
Boycom Cablevision	3 10.71%
AT&T Mobility LLC	3 10.71%
AT&T Services	2 7.14%
Windstream Communications LLC	2 7.14%



#### **Wayne County**

Households	8,083
Population	13,521
Test locations	16
Total Tests	21
Percent participation	0.20%
Participation goal (10%)	808

#### **Download**

No Service 0 0.0%
0-10 Mbps 9 56.3%
10-25 Mbps 4 25.0%
25-150 Mbps 3 18.8%
150+ Mbps 0 0.0%

#### Upload

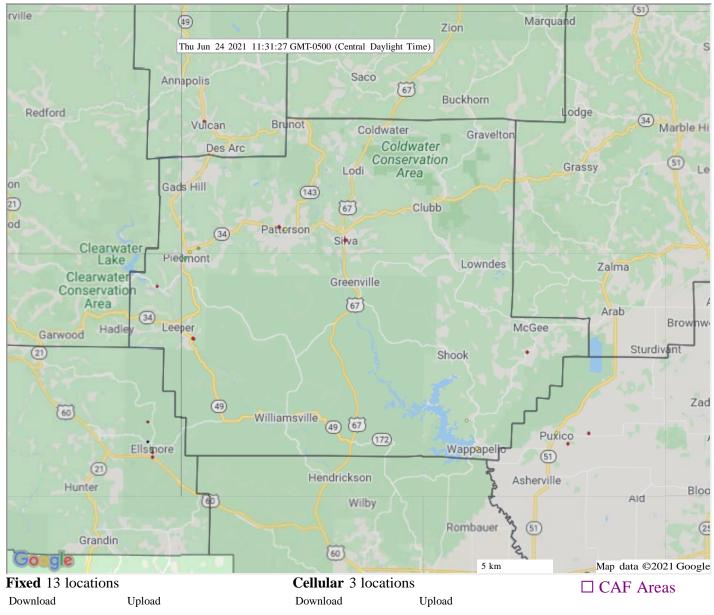
No Service 0 0.0% <3 Mbps 12 75.0% 3-10 Mbps 1 6.3% 10-25 Mbps 1 6.3% 25-150 Mbps 2 12.5% > 150 Mbps 0 0.0%

#### Min Max Med Mbps

**Download** 0.54 129.81 12.58 **Upload** 0.14 44.86 1.83

No service reasons: may total>100%

Prominent ISPs	6 of 6
Windstream Communications LLC	8 50.00%
Hughes Network Systems	2 12.50%
Cellco Partnership DBA Verizon W	2 12.50%
Boycom Cablevision	2 12.50%
Amazon.com, Inc.	1 6.25%
T-Mobile USA, Inc.	1 6.25%



Download		Upload	
No Service	0.0%	No Service	0 0.0%
0-10 Mbps	6 46.2%	<3 Mbps	10 76.9%
10-25 Mbps	4 30.8%	3-10 Mbps	0 0.0%
25-150 Mbps	3 23 1%	10-25 Mbps	1 7 7%

150+ Mbps

0 0.0% 25-150 Mbps

> 150 Mbps 0 0.0%

Download			Upload		
0-10 Mbps	3 1	00.0%	<3 Mbps	2	66.7%
10-25 Mbps	0	0.0%	3-10 Mbps	1	33.3%
25-150 Mbps	0	0.0%	10-25 Mbps	0	0.0%
150+ Mbps	0	0.0%	25-150 Mbps	0	0.0%
			> 150 Mbps	0	0.0%

☐ RDOF Areas

2 15.4%

# SURVEY DATA: ISP PACKAGES **AVAILABLE And** ACTUAL SPEEDS RECEIVED

In the OZARK FOOTHILLS Region

	A	В	С	D	Е	F	G	Н	I	J	K	L	M
1													
2			Δ	rril	Ехр	ort	2						
3			776		-^		2		COLOR CO	DES BROA	DBAND PRO	OVIDERS:	
4									Green=Fib	per Optic: 1	nigh speed pr	oviders	
5	OZARK FOOTH	HILLS RPC EC	ONOMIC	FEASIBI	LITY REPO	ORT				high speed	for relatively	low price	
6	A. BROADBAN	ND PROVIDER	PACKAGI	ES OZAF	RK FOOTH	IILLS RPC	AI	REA	Yellow= Sa	tellite/Fixed	Wireless/Co	pper Cable	
7										slow speed	for relatively	high price	
	B. SURVEY DA	TA BROADBAN	D COST	S & SPEI	EDS ACTU	JALLY RE	CEI	VED					
9										EY AVERAGE			
10					AL PACKA						LY RECEIVED		
11	COMPANY	BROADBAND	_		Internet			Survey	Survey	Survey	Survey	Survey	Available
12		TYPE	LOAD	LOAD	COST	Costs		_		Customer		Average	Locations
13			Mbps	Mbps	Per Mo.				Ave. Actua			Residential	of ISP's
14						Per Mo.			Download	I.	Upload	Internet Bill	
15			DOWN		\$	\$		_ • •		Paying For		Per Month	
16	A TOTAL DO LA	,	Mbps	<u>Mbps</u>	Per Mo.			<u>Mbps</u>	<u>Mbps</u>	<u>Mbps</u>	<u>Mbps</u>	<u>\$</u>	Bunker / Centerville
17	ATT Packages	* *	8		\$80	\$17		20	0	2	0.72	Φ.62	Doniphan/ Ellington
18 19		Cable	12		\$130	\$17		30	8	3	0.73	\$63	Ellsinore / Fisk
20			50		\$200	\$17		•					Grandin/Greenville
21			100		\$300	\$17		_					Naylor/Neelyville
22	Boycom	Cable	10	1	\$40	\$11		_					Poplar Bluff
23	Packages	Cable	20	1	\$50	\$11		_					Piedmont/Doniphan
24	1 ackages		50	5	\$70	\$11		30	20	3	2.91	\$60	Patterson/Van Buren
25			100	3	\$100	\$11		30	20	3	2.71	ΨΟΟ	Mill Springs
26			100		Ψ100	Ψ11		_					Wappapello
27								_					парраропо
28	Century Link	Copper	5		\$50	<u> </u>		5	1.12	1	0.22	\$50	Regional area
29		11	10		\$50							,	5
30								-					
31	Ozark	Fixed Wireless	3	1	\$50			10	7	1	0.5	\$49	Van Buren
32	Country		6	1	\$65								
33			9	3	\$80								

	A	В	С	D	Е	F	G	Н	I	J	K	L	M
34													
35	BPS	Fixed Wireless	1.5		\$45			5	1.75	5	0.32	\$68	Wappapello
36		and DSL Cable	2										
37													
38	Viaset	Satellite	12		\$85								Regional
39			25		\$120								
40			30		\$170								
41													
42	Hughes	Satellite	10		\$60								
43			20		\$70								
44			30		\$100			25	3	5	2.11	\$125	Regional
45			50		\$150								
46													
47	Verizon Cell	Cell phone	5	N/A	\$200			N/A	5.32	N/A	0.11	\$200	Regional
48	for Internet												
49													
50	Windstream	Copper/Cable	50		\$70								Ripley County
51	Windstream	Copper/Cable	100		\$80			22	11	8	3.48	\$84	Wayne County
52													
53	Windstream	Fiber Tel Pole	15		\$45								Doniphan
54	Windstream	Fiber Tel Pole	25		\$75								
55													
56	Sparklight /	Cable DSL	100	10	\$55								
57	Cable One		200	20	\$65								
58			300	30	\$80			300	137	44	22	\$97	Poplar Bluff
59			1000	50	\$125								
60			(1 Gbps)										
61													
62	McCormack	Copper /	5	1	\$50								Carter County
63	Telecom	Cable	10	1	\$70			9	4	1	0.87	\$54	Reynolds County
64			20	1	\$90								
65													
66													

	A	В	С	D	Е	F	G	Н	I	J	K	L	M
67													
68	McCormack	Fiber	5	1	\$50								
69	Telecom		10	1	\$70								Carter County
70			25	5	\$100			25	25	5	5	\$100	Reynolds County
71			50	5	\$125								
72			100	5	\$150								
73													
74	McCormack	Fiber Plus	5	5	\$70								
	Telecom		10	10	\$100								Carter County
76			25	25	\$130			25	25	25	25	\$130	Reynolds County
77			50	50	\$160			McCormack	"overprov	ision" on fit	er to ensure	full speeds	
78			100	100	\$195								
79													
	Big River	Fixed Wireless		0.005	\$50								
81			10	1	\$70			10	8	1		\$70	Poplar Bluff
	Poplar Bluff o	nly	10	1.5	\$100								
83													
	Big River	Fiber	300		\$50	\$8							
85			500		\$60	\$5	_						Poplar Bluff
86			1000		\$80	-0-							
	Popular Bluff	only	(1 Gbps)	)									
88								4.0.0				40	
	GoSEMO	Fiber	100	100	\$50			100	110	100	110	\$50	Expanding
	(SEMO		1000	1000	\$80			1000		1000 ovision		\$80	
	Electric Coop	)	(1 Gbps)	(1Gbps)				GoSE	MO "overpi	to e	nsure full s	eeds	
92	D .	P.1	100	100	Φ.5.0								T
	Pemiscot	Fiber	100	100	\$50								Expanding
-	Dunklin		1000	1000	\$80								
95	Electric Coop		(1 Gbps)	(1Gbps)									

# **SURVEY DATA from**

CITIES: ISP

COST of

**SERVICES** 

And

# SPEEDS PAYING FOR TO ISP

Note: All Cities are coded **Yellow** since each of the cities are receiving slow speeds

	A	В	С	D	Е	F	G	Н	I
1									
2			AariE	Expert	S				
3			3 .9						
4									
5	OZARK FOOTHI	LLS RPC ECON	IOMIC FEASIBLIT	Y REPORT				PROVIDERS:	
6					Green= Fi	ber Optic :	: high spee	ed providers	
7		<u>CITIES</u>				• •		vely low price	
8	IN THE OZARK	FOOTHILLS RPC	REGION		Yellow= Sa			ss/Copper Cabl	
9						slow spee	ed for relat	ively high price	,
10	<u>CITIES BROADE</u>	BAND PROVIDER	PACKAGES / SF	PEEDS, /COSTS					
11				DD 0 1 DD 1 2 2 2	GROUP PA				
12			BROADBAND NAME	BROADBAND		DOW	N	UP	Internet CONTACT
13	COUNTY	CITY	PROVIDER	TYPE	LOAD	LOAD	COST	TITLE	
13	COUNTI	CITI	FROVIDER	TIFE	Mbps	Mbps	Per Mo.	ITTLE	
15					Mobs	wiops	i ci wio.		
16					DOWN	UP	\$		
17					Mbps	Mbps	Per Mo.		
18					1110 50	1110   1	10111101		
	BUTLER	Fisk	Element	Fixed Wireless	30	10	\$70	City Clerk	Melinda Ratley
20			Wireless						
21			locally based in	i Fisk					
22									
23	Carter	Ellsinore	Century Link	Copper/ Cable	10	1	\$90	City Clerk	Stacy Hampton
24									
25					'	,			
26	Carter	Van Buren	Ozark Coutnry	Fixed Wireless	10	1	\$50	City Clerk	Tammy Orchard
27				Speed Test	8.63	0.42			
28									
	Reynolds	Centerville	Century Link	Copper/Cable	anno a se a	TUDES.	\$60	City Clerk	Linda Miller
30				NO SI	PEEDS PRO	VIDED			
31	Darmal II	Ellin ata ::	McCommi	Common (Calal	10	1	ф <i>е</i> г	Cite Classia	A M = = ::=
	Reynolds	Ellington	McCormack McCormack	Copper / Cable	10	1	\$55	City Clerk	Amy Moore
33				Speed Test	2.8	1			

	A	В	С	D	Е	F	G	Н	I
34									
35	Ripley	Doniphan	Windstream	Cable	50	10	\$57	City Clerk	Connie Teslow
36									
37		Upgrade 3/21	Windstream	Cable					
38			Enhanced Inter	net Bundle			\$150		
39			After Upgrade	Speed test	96	77			
40									
41	Ripley	Naylor	Windstream	Cable			\$100	City Clerk	Teresa Cline
42				NO SI	PEEDS PRO	VIDED			
43									
44	Wayne	Mill Spring	Windstream	Copper/ Cable			\$183	City Clerk	Ashley Santhuss
45				Speed Test	2.37	0.62			
46									
47	Wayne	Butler	Blue Mule	Fixed Wireless	10	1		City Clerk	Carley Decker
48									
49									
50	Wayne	Mill Spring	Windstream	Copper / Cable			\$183	City Clerk	Ashley Santhuss
51				Speed Test	2.37	0.62			
52									
53	Wayne	Piedmont	Windstream	Copper / Cable			\$95	City Clerk	Tammy Thurman
54				NO SI	PEEDS PRO	VIDED			

# SURVEY DATA from COURTHOUSES: ISP COST of SERVICES

And

# SPEEDS PAYING FOR TO ISP

In the Ozark Foothills Region

	A	В	С	D	Е	F	G	Н	I	J
1										
2			Aari	Expe	rts					
3			2.9.1							
4							COLOR	CODES E	BROADBAND PR	OVIDERS:
5							Green=	Fiber Opt	ic: high speed p	roviders
6	OZARK FOOTH	IILLS RPC ECC	DNOMIC FEAS	SIBLITY REPOR	RT			high spe	ed for relatively l	ow price
7							Yellow=	Satellite/	Fixed Wireless/C	opper Cable
8		COURTHOUSE	S					slow spe	ed for relatively l	high price
9										
10		OZARK FOOTH	ILLS RPC ARI	EA COURTHO	USE BROAD	BAND PRO	OVIDER 1	PACKAG	ES / SPEEDS, /C	OSTS
11										
12					GROUP PAG					
		Location			DOWN	UP	Internet		CONTACT TITLE	NAME
	COUNTY	CITY	PROVIDER	TYPE	LOAD	LOAD	COST	Costs		
15					Mbps	Mbps	Per Mo.			
16								Per Mo.		
17					DOWN	UP	\$	\$		
18					<u>Mbps</u>	<u>Mbps</u>	Per Mo.	Addl.		
19	BUTLER	D1 D1C6	C	Cable DSL	50-150	5-15	\$800		C Cl1-	T N-41
20	BUILER	_	Sparklight / Cable One	Cable DSL	30-130	5-15	\$800		County Clerk	Tonya Natasha
22			multistate							
23			based compa	nv						
24			- cased compa							
25	CARTER	Van Buren	SMARTLINK	Copper /	50	15	\$868		County Clerk	Leona Stephens
26			based in	Cable						1
27			Poplar Bluff							
28										
29										
30	REYNOLDS	Centerville	McCormack	Fiber optic	100	100	\$900		County Clerk	Mike Harper
31			Telecom							
32			based in							
33			Ellington							

	A	В	С	D	Е	F	G	Н	I	J
34										
35	RIPLEY	Doniphan	Windstream	Cable	500	40	\$450		Presiding	Jesse Roy
36			Actual speed received		47	29			Commissioner	
37			Date speed te	st June 30/21						
38										
39										
40	WAYNE	Greenville	Windstream	Cable	100	100	\$1,400		County Clerk	Kent Sisco
41									plus IT Staff	

# SURVEY DATA from SCHOOLS:

ISP COST of SERVICES

And

SPEEDS PAYING for to ISP
And

DARK FIBER PROVIDERS
To SCHOOLS

In the Ozark Foothills Region

# AgriExperts

	A	В	С	D	Е	F	G	Н	I	J	K	L
1												
2	SCHOOLS	S SURVEY BRO	ADBANDAgriExpe	ts Feasibilty o	of Broadbar	d Expansio	on for OFH	RPC				
3										Company	Cost to	
4	MOREne	t Added Data							Circuit	MoreNet	Morenet	less E-rate
5	<b>MOREne</b>	t Added Data	School Disctrict	Internet	Internet	Internet	Internet	Internet	Capacity	is Leasing	Of Internet	(MRC)
6	COUNTY	CITY		ISP Name	\$ / Mo.	Download	Upload	ISP Type	(Mbps)	Internet	Lease	(MKC)
7						Mbps	Mbps			From	(MRC)	
8	Butler	<b>M</b> Poplar Bluf	Poplar Bluff R-I	MOREnet	\$3,333.67	4750	4750	fiber	10000	Sho-Me Technologie	\$328.73	
9	Butler	Meelyville	Neelyville	Big River	\$1,799.00	250	250	fiber				
10	Butler	<b>M</b> Broseley	Twin Rivers R-X									
11	Carter	Van Buren	Van Buren									
12	Carter	Ellisnore	East Carter CO R-II	MOREnet		500	500	fiber	1000	Lumen/CenturyLink	\$2,784.52	-\$2,227.62
13	Reynolds	Bunker	Bunker R-III	MOREnet		250	250	fiber	500	Lumen/CenturyLink	\$2,142.00	-\$1,713.60
14	Reynolds	Centerville	Centerville R-I	MOREnet	\$403.00	20	20	fiber	50	Lumen/CenturyLink	\$567.72	-\$454.18
15	Reynolds Lesterville		Lesterville R-IV	MOREnet		80	80	fiber	100	Lumen/CenturyLink	\$1,078.30	-\$862.64
16		Ellington	S. Reynolds COR-II	McCormack	\$2,000.00	500	500	fiber				
17	Ripley	Doniphan	Doniphan R-I	Windstream	\$1,771.00	1000	1000	fiber		Sho-Me Technologie	\$285.00	
18	Ripley	Doniphan	Ripley Co R IV									
19	Ripley	Naylor	Naylor R-II					fiber		Lumen/CenturyLink	\$452.00	-\$361.60
20	Ripley	Gatewood	Ripley Co R-III	Windstream	\$330.00		50	fiber				
21	Wayne	<b>M</b> Greenville	Greenville R-II	MOREnet		375	375	fiber	1000	Sho-Me Technologie	\$225.00	\$0.00
22												
23	Wayne	<b>W</b> illiamsvill	Greenville R-II	MOREnet		1000	1000	fiber	1000	Sho-Me Technologie	\$240.00	
24	Wayne	<b>II</b> Piedmont	Clearwater R-I									



# SOCIAL AND ECONOMIC

## IMPACT OF BROADBAND

# **SURVEY RESPONDENT**

# **COMMENTS**

**OZARK FOOTHILLS RPC REGION** 



#### SURVEY RESPONDENTS NEED FOR HIGHER SPEED INTERNET

POSITIVE RESPONSE %

		V 102 / V
•	Recently moved into a community to receive high speed internet	<mark>9.52</mark> %
•	Recently moved out of a community because could not receive high speed internet	-0.00%
•	Considering a move to another community that has high speed	14.29%
	<mark>internet available</mark>	
•	Recently started a business that needs high speed internet	<mark>9.52%</mark>
•	Could work remotely for employer but lack adequate internet	<b>38.10%</b>

# COMMENTS OF SURVEY RESPONDENTS IN DESPERATE NEED OF ADEQUATE INTERNET

- Desperately need it for college, my kids for schooling and for employment
  - Children completing virtual school desperately need internet. Using cell phone connection for internet "hotspot" before Covid and during Covid
  - Must travel 20 miles or less to a local business McDonalds for "hotspot" to complete homework for children in home.
- Must have High Speed Broadband for phone connection. Landline cable abandoned by Century Link
- Living Outside city limits. Recently moved into a community to receive high speed internet
- Using cell phone as a "hotspot" for internet connection because the internet in the area is too slow for too high of a price. We canceled the internet and use our cell phone instead.
  - Travel over 40 miles to a Library for internet "hotspot" in addition to cell phone.
- Rural area outside city limits. Could work remotely from home but lack adequate internet
- According to Wayne County Clerk, Kent Sisco the local rural area has Windstream fixed wireless and claims it is a slow, horrible service. His home sits on a hill top and still gets slow speed internet even though on a hill top.
  - Fixed wireless requires line of site. Trees and valleys block the coverage. Hill tops typically get the best coverage from wireless.

#### TRAVELING DISTANCE TO OBTAIN A "HOTSPOT" FOR INTERNET CONNECTION

#### SURVEY RESPONDENTS DISTANCE TRAVELED AND LOCATION "HOTSPOT"

• 10 Miles or less McDonalds

• 20 Miles or less undisclosed business hotspot

• 40 Miles or greater Library

SURVEY OUESTIONS



# SOCIAL AND ECONOMIC IMPACT OF BROADBAND

# AS SEEN BY LOCAL

# INTERNET PROVIDER

- QUOTE: "IF YOU BUILD IT, THEY WILL COME
- SAW A HUGE IMPACT ON DEMAND FOR FIBER WITH COVID PANDEMIC—RESULTS IN EXPANSION PLANS
- SEEING THE DEMAND, PLANS FOR EXPANSION OF FIBER TO EVERY HOME IN THEIR TERRITORY
- INDICATES SOCIAL AND ECONOMIC IMPACT OF
  FIBER HAS A POSITIVE EFFECT FOR IN-MIGRATION
- KNOWLEDGE OF \$ MILLION DOLLARS HOMES IN
  RURAL SPRINGFIELD THAT ARE NOT SELLING
  BECAUSE THEY DO NOT HAVE FIBER BROADBAND



Date: July 1, 2021

#### **OZARK FOOTHILLS LOCAL ISP**

Comments of Mike McCormack, McCormack Telecom on the Social & Economic Impact of Fiber

- SawahugeimpactondemandforbroadbandwiththeCovid Pandemic
- Quote: "Builditandtheywillcome" as in building fiber high speed broadband
- Confirmsinhisterritory, peoplearemoving into areas of fiber and leaving areas of lowspeed wireless
- Agreesthatthesocialandeconomicimpactoffiberisimportantto bringpeople intoruralAmerica
- Company planstobuildoutentireserviceareawithfibertothehome(FTTH.
- ServiceareaisinCarterandReynoldscounties in the Ozark Foothills RPC
- Planstoexpandtoadditionalareas
  - Does not see the trend reversing, only moving forward with greater demand for fiber
- SeesadirectcorrelationwithIn-Migrationtoareaswithfiber
  - o CEO had a recentconversationwithrealestateagentinSpringfield selling million-dollarhomesoutsideSpringfieldinaruralarea.First questionasked bycustomers:DoesithaveFTTH. Theruralareawith themillion-dollar homesdoesnothavefiber.Thehomeshavenotsold becausethecustomers wanttoworkfromhomeanddemandfiberoptic internet.

0

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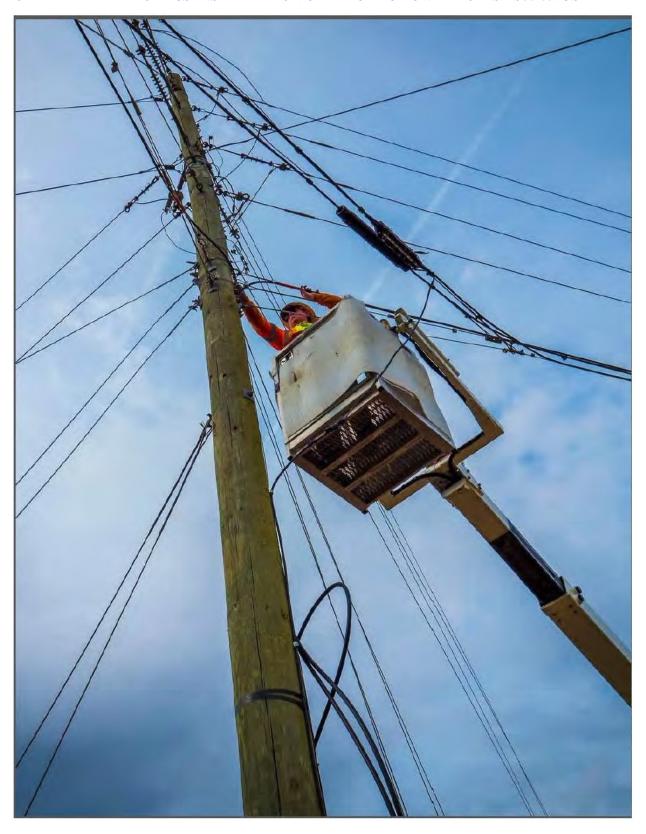
# PHOTOS AND IMAGES

# FIBER OPTIC BROADBAND EQUIPMENT INSTALLED

#### **IMAGES OF:**

- Fiber Optic cable installation Above ground on electric light poles
- Fiber Optic cable installation Under ground
- Fiber Optic cable installation to the house (FTTH)
- Fiber Optic cable at the junction box
- Fiber Optic cable being spliced in the field

OVERHEAD FIBER OPTICS INSTALLATION ON ELECTRIC POWER POLES Source: USDA







Above Left Photo: Splicing Fiber Optic at Home Installation



Above Right Photo: Protected Fiber Optic Cable inside the house

# RANGE FOR COST OF LAYING FIBER OPTIC BROADBAND

- Above Ground on poles
- Below ground in dirt with no rock outcrops
- Below ground in dirt with rock outcrops

AgriExperts	
AVERAGE COST RANGE OF LAYING FIBER UNDERGROUND	
AND, ON ELECTRIC POWER LINES IN MISSOURI	
Based Upon Data Collected from Seven Electric Coops	
and additional Telephone Coops in Missouri	
AVERAGE COST OF LAYING FIBER WITH VARIOUS TERRAIN CON	NDITIONS
Base Cost per Mile Overhead on Electric Power Lines	\$20,000. to \$25,000.
(Costs are higher for leased poles)	
Base Cost per Mile Underground in Dirt No Rocks Varies with Terrain	\$30,000. to \$40,000.
Base Cost per Mile Underground in major Rock outcroppings	\$60,000. to \$65,000.



# ISP PACKAGES PROVIDERS BORDERING OZFH And TWO WITH SIMILAR TERRAIN



## INTERNET SERVICE PROVIDERS BORDERING OZARK FOOTHILLS REGION AND

#### TWO OF WHICH ARE SIMILAR IN TERRAIN TO THE OZARK FOOTHILLS

#### **GoSEMO / SEMO Electric** Coop (internet costs via fiber)

Winner in CAF II with coop association (RECC) Provides Fiber optics FTTH

		•	
	<u>Download</u>	Upload	Costs
•	100 Mbps	100 Mbps	\$50 / mo.
•	1 Gbps (Gigabit)	1 Gbps (Gigabit)	\$80 / mo.
	(1000 Mbps)	(1000 Mbps	•

#### GoBEC / BARRY Electric Coop (internet costs via fiber)

Winner in CAF II (not in the RECC) Provides Fiber optics FTTH

<u>Download</u>	Upload	Costs
250 Mbps	250 Mbps	\$50 / mo.
500 Mbps	500 Mbps	\$75 / mo.
1 Gbps (Gigabit)	1 Gbps (Gigabit)	\$100 / mo.
(1000 Mbps)	(1000 Mbp	os)

# PEMISCOT DUNKLIN FIBER / PEMISCOT DUNKLIN Electric Coop (internet costs via fiber)

Blocked from bidding in CAF II Auction Provides Fiber optics FTTH

	<u>Download</u>	<u>Upload</u>	Costs
•	100 Mbps	100 Mbps	\$50 / mo.
•	1 Gbps (Gigabit)	1 Gbps (Gigabit)	\$80 / mo.
	(1000 Mbps)	(1000 Mbps	s)

#### Co-Mo Connect / Co-Mo Electric Coop (internet costs via fiber)

Winner in CAF II with coop association (RECC)Provides Fiber optics FTTH

	<u>Download</u>	<u>Upload</u>	Costs
•	100 Mbps	100 Mbps	\$50 /mo.
•	250 Mbps	250 Mbps	\$60 /mo.
•	1 Gbps (Gigabit)	1 Gbps (Gigabit	) \$100 /mo.
	(1000 Mbps)	(1000 Mbps	



#### SOCIAL AND ECONOMIC IMPACT OF BROADBAND

### **SURVEY COMMENTS**

## FROM AREAS BORDERING

## And

## SIMILAR IN TERRAIN

TO THE

**OZARK FOOTHILLS RPC REGION** 

#### CAFNRBROADBANDSURVEYS ARY

This survey, by the College of Agriculture Food and Natural Resources (CAFNR) at the University of Missouri beginning in 2018, was conducted to detennine the likely rural econonlic and social consequences associated \Vith tiber broadband providers that received *FCC* fimding in the open bidding process in 2018. Seven Electric COOPs in Missouri received federal support funding and represent the survey base- 2 in northern Mo., 2 in Mid Mo and 3 in Southen MO.



Survey results indicates that fiber broadband providers with service of 1000 Mbps download and 1000 upload speeds at rates to consumers 1nuch lo\ver than other co1npetitors is likely to be one of the n ajor reasons for finally reversing the outflow ofbusinesses and individuals fronrural areas.



An overvie\v of the study includes:

- Two schools in southern MO aved \$42,000 per year
- One Cotton Gin saved \$4,000 per 1nonth
- New homes in North East MO increased in value \$7000 with fiber
- Tete- Ied minimi:;;ed in- home-health care cost
- Increases in start-up businesses, business expansion and recruitment
- Reduction in out-migration and migration increases
- Enhances home employment and remote employment
- Co1nmunity SUJ!POrt via streaming church services and social events

EXAMPLES-	-ECO	NOMIC DEVELOPMENT RESULTI	NG FROM FIBER BRO	ADBAND IN RURAL	MISSOURI		
RESEARCH OF MISSOURIUNIVERSITY / CAFNR, DEEDP (DYNAMIC ECONOMETRIC ECONOMIC DEVELOPMENT PROGRAM) WOMACK / EISBERG 2020							
SERVICE		IN-HOME BUSINESS	EXTEND SEASONAL	BRICK & MORTAR	REMOTE	RealEstate	COMMUNITY
PROVIDER		ENTREPRENEURS VA	CATIONS	EXPAND ON-LINE	EMPLOYMENT	Home Developers	Support & Household
		1	1	1	1	-{.71	1
	>	In Migration	Seasonal	Briick & Mortar	Friday Workdays	Fiber high speed	Fiber needed
		Internet Business	subscribers	small businesses	from Home and b	roadband attracts	to create new
_	2_	Bought Home in	stay longer	difficuIty paying	Farm because	buyers	Invention Scouts
		high speed Fiber area	at lake of Ozarks	building expenses	fiber is better than	Realtors confirm	introducing
		relocated from Chicago	because they	01;1ted for on-line	office's slower speeds	home and business	Scouts to cutting-edge
		Digital Entrepreneur	can work remotely	sales and are	Friday Workdays	values increase	technology to foster
CO-MO		working remotely in digital	from vacation home	even exQanding	at home used to	when Fiber available.	interest for inventing
CONNECT		marketing_Search for	BUSINESS NAME	<b>BUSINESS NAME</b>	u12load large	One of the top items	and marketing.
COOP		cheapest place to live, quality	Co-Mo Connect	Co-Mo Connect	media files on	requested just as much	
	>	of life vrith Gigabit speeds	Market Research	Market Research	fiber-faster than	as school districts.	BUSINESS NAME
		at low cost of internet.			in the office.		Invention Scouts
		BUSINESS NAME	2		BUSINESS NAME	BUSINESS NAME	Great Rivers Council
	∎au	ra Cabrera and fiance	Some are taking		ARC Media	Realtors and Home	
	∎ak	e Ozarks	partial reti rement		Jefferson City	Developers	l
		reIocated from Chicago	ra <b>t</b> her than				
			full retirement		2		
CO-MO		2	because they		Employees of both Co	-Mo	
CONNECT		Entrepreneur	can work		Electric and Connect		
COOP		work from home	remotely		Fiber at residence allow	WS	
		on computers and	BUSINESS NAME		free time and work for		
		internet with Gigabit	Co-Mo Connect		IT/Tech employees		
		s12eeds from fiber	Market Research		and other employees		
		BUSINESS NAME			waiting at home for		
СО-МО		Neal & Elisha Gist			repairman & other		
CONNECT		Gravois Mills			BUSINESS NAME		
COOP					CO-MO Electric		

SERVICE	IN-HOME BUSINESS	EXTEND SEASONAL			RealEstate	COMMUNITY
PROV∎ DER	ENTREPRENEURS	VACATIONS	EXPAND ON-LINE	EMPLOYMENT	Home Developers	Support & Household
GoSemo	Reliable Fiber Connection			Fortune 100	2 1 M	Online Payments
	Earns Promotion for	t		company Employee	$KI_{J}$	Business Owner
	home-based Hotline Counselor			lnetwork engineer	110	Huge improvement w/
<del>-</del>	internet Saving ;22,000Ll::r.			plus wife's business	In Migration	continuous internet
	hotline service counselor		2	Two remote workers	Internet Business	allowing for no issues
	greatly improved her ability			Improved work	Bought Home in	for credit card
	previously had hotspot			Hugh difference in	high speed Fiber area	online payments.
	It did not have the capacity			internet speed and	Moved SQecificall:	Benefits included——
	to handle the phone system			keliability with Fiber.	for high SQeed fiber.	rel iability, price and
	for her hotline counseling.			Previously \$250/mo.	Internet based	paying less for better
GoSemo	Changing to high-speed fiber			wo different	business trouble-	service at lower price.
	she can counsel more ca llers.			vice providers that	shooting computers	BUSINESS NAME
	■ with more callers she got		r	offered minimal	and other technology	Roger Slinkard
	the 12romotion which 12rovided		1	bandwidth.Now	for bands and	Business Owner
m	ore income for her famill::.			receiving high-speed		
	BUSINESS NAME			1 Gig for \$80 / month		Church/School/Sport
	Sally Schatte			Saving over \$2000/yr.	gig fiber-fast internet	<del>IT Director — — — — — — — — — — — — — — — — — — —</del>
	Hotline Counselor			BUSINESS NAME	will change his life	Advance Baptist Ch
				Rob Bryant,	and business model	Church offering free
GoSemo	Cloud BasedTech Business			Network Engineer	!significantly.	WiFito community.
	requires high speed fiber				Believes Fiber makes	Giving internet to
	Prior to fiber. had slow s12eed			1000 Times Faster!	[southeast Missouri	those who never had
	internet allowed one email			Remote worker	a more attractive	access to internet.
	taking a long time to send.		_	Fiber 12roviding her	place to live & work	Hi∨estream services
	fBusiness has developed due			capabi lity to increase	JBUSINESS NAME	seamlessly with Fiber.
	to high speed fiber.			_increase _product <b>i</b> vity of work	Mike Cooper	Advance Schools
	BUSINESS NAME			1000 times faster	¹1nternet-based	sports broadcaster
	PumpTrakr			than previous provider		livestream the games
GoSemo	Nathan Holmes		<del>'</del>	Seen improvement		Schoolofferingfree
		4		in call logs, internet		WiFito community.
		+ -	+	speed & reliability.		Paying less for WiFi
				BUSINESS NAME		BUSINESS NAME
				Mrs. Lantz		Eric Shrum
GoSemo				Remote worker		IT Di rector Advance



#### **OUT-MIGRATION GRAPH CENSUS**

#### **DATA of Ozark Foothills Counties PLUS**

#### **ANALYSIS and CONFIRMATION of OUT-MIGRATION**

#### **FROM**

#### The OZARK FOOTHILLS RPC COUNTIES

**Date: July 2021** 

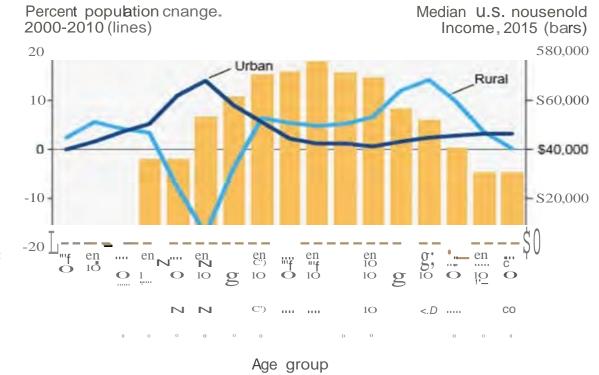
# CAFNR DEEDP Question: How can rural Missouristop the out-migration of our younger generation?

CAFNR DEEDP Question: Can high speed broadband be an answer to stop out migration?

CAFNR DEEDP
Question:
C<m the Midwest
compete with

the East Coast/ West Coast to stop outmigration?

## Rural/urban population change from net migration and U.S. median household income



Source: Net migration estimates from the University of Wisconsin-Madison and income from the Current Population Survey.

MU CIIFNR's Dynamic Econometrii c Development Program (DEEDP) Eisberg!Womack 2019

# HOW MUCH INVESTED IN THE 20-22 YEAR OLDSTHAT MIGRATE TO OTHER STATES?

BY AGE 22 \$500,000/child

Cost of raising a child to age 18 \$14,000/yr/child \$252,000.

• Federal/State/ Local \$ spent K-12 \$ 12,500/yr/child \$ 162,000.

• Total Money Invested to Age 18 \$400,000.

\$500,000.

Add 4 Yr College Federal Money \$5,000/yr/child

Add 4 Yrfamily\$ cost College \$20,000/yr/child

With College Total Money Invested to Age 22

HUMAN EQUITY LOST TO OUT-MIGRATION: \$400,000. to \$500,000 / person

	I de la company			
	AariE	vnarte		
	Ayıı	Aperts		
	O=1- F	41- i11 - C	D-4-	
	Ozark F	oothills Census	s Data	
	encus Taken I	By County n April of Each	Vear	
	2010	2019	Tear	
	Population	Population	Change	Percent
Butler	42,792	42,478	-314	-0.7
	·			
Carter	6,265	5,982	-283	-4.5
Reynolds	6,696	6,270	-426	-6.3
		10.00	0.1.5	- 0
Ripley	14,100	13,288	-812	-5.8
Wayna	12 521	12 927	-684	4.0
Wayne	13,521	12,837	-004	-4.9
United States	308,745,538	328,239,523	19,493,985	+6.3
	233,7.12,223	223,223,228	13,130,300	10.0
Median House	ehold Income	(in 2019 Dollar	rs), 2015-2019	
Butler		\$ 39,915		
Carter		\$ 39,530		
D 11		Φ 40.224		
Reynolds		\$ 40,324		
Ripley		\$ 34,971		
Ripicy		Ψ 57,7/1		
Wayne		\$ 34,316		
,		. 7-		
<b>United States</b>		\$ 62,843		

	Median Value	of Owner-Oc	cupi	ed Housin	g Units, 2015-	2019
	D. 41		Ф	112 500		
	Butler		\$	113,500		
	Carter		\$	101,500		
	Reynolds		\$	96,000		
	Ripley		\$	83,800		
	Wayne		\$	85,100		
	wayne		Ψ	03,100		
	United States		\$	217,500		
	West Coast		\$	602,000		
	West Coast		φ	002,000		
1	Analyzing the Ce occurred over the				O .	
	to the rest of the					Compared
2	Further analysis		-		-	
	Ozark Foothills the rest of the U					impared to
		7 1 7				
3	The quality of life				* *	
	the people from	ing right in their				
	opportunity for t					
	for connunities to					
	which is high-spe	eed broadband. (	Our f	easiblity rep	ort confirms thes	se facts.
	Th. O 1 F. 13	1	<b>C</b> :	111	lead de d'artis	- 10 alv - f
4	The Ozark Foohil high-speed broad					
	economic condit				_	
		esultant out-mig				

# AgriExperts

Assume all out migration from each county were high school graduates. Using Federal cost per student data:

County	out migration	cost per student	total loss
• Butler	314	\$400,000	\$1.256 mil
• Carter	283	\$400,000	\$1.132 mil
<ul> <li>Reynolds</li> </ul>	426	\$400,000	\$1.704 mil
<ul><li>Ripley</li></ul>	812	\$400,000	\$3.248 mil
<ul><li>Wayne</li></ul>	684	\$400,000	\$2.736 mil
		<b>TOTAL</b>	\$10.076 mil
		50% of total	\$5.038 mil
		10% of total	\$1.007 mil
		1% of total	\$100,760

# AgriExperts

#### ADDITIONAL SCENARIOS

Assume all leaving the counties were a family of 4 making \$38,000. per year \$38,000 is the average income for the 5 counties

A total of 2,519 individual left the region in the last 10 years

Assuming a family of 4 im lies that 630 families left the region

Over the 10-year period, 630 X \$38,000 eguals a loss of \$23,940,000.

If only 50°/o (315) left the region, the loss would be around \$11,970,000.

If only 25°/o (158) left the region, the loss would be around \$5,985,000.

Comnare these numbers to the cost of investing in high-speed fiber for the counties to stop out-migration.

# FCC ISSUES REGARDING MODIFICATION OF FCC FUNDING FORMULAS AND SIGNIFICANT **FACTORS** AFFECTING BROADBAND **DEPLOYMENT**

#### PERFORMANCE TIERS AND WEIGHT FORMULAS CAF II and RDOF USED BY FCC

FCC FOUR PERFORMANCE TIERS CAF II

\$2. Billion

Source: FCC 18-6 Feb.1, 2018

Performance Tier	Speed	Monthly Usage Allowance	Weight
!\11nimum	≥10/1 Mbpsi5	$\geq$ 150 gigabytes (GB)	65
Baseline	≥ 25/3 Mbps	≥ 150GB or U.S. median, vvb.ichever is higher	45
Above Baseline	$\geq 100/20 \text{ JVIbps}$	$\geq$ ? terabytes (TB)	15
Gigabit	≥ 1 Gbps/500 Mbps	> 2 TB	O

FCC PERFO&VIA.. CE TIERS RDOF S20. Billion over 10 years

Source: FCC Statements RDOF 19-126, CAF 10-90, FCC 19-77 August 2019 https://www.fce.gov/doctmlentlfec proposes-204-billion-mral-digital opportunity-ftu1d 0

•••••••••••••••••••••••••••••		1	:
Baseline	≥ 25/3 Mbps	≥ 150GB or U.S. median, whichever is higher	50
Above Baseline	≥ 100/20 Mbps	>2 TB or U.S. median, whichever is hi her	25
Gigabit	≥ 1 Gbps/500 Mbps	≥2 TB or'U.S. median, whichever is higher	0

1.7w · er · s ir v · of liss o w · iJC · ;JUD.yn a Dllc Econom en · ic Econom ic De · e lopm · en t Progla m (DEEDP) v · o m a c k I E is b er v 2020

	OMPA.RISON OF FUNDS AILOCATED TO WIREIESS VERSES FIBER									
						72 C	L 201	0	<u> </u> :	
					AuctionSummeJ 2018					
	CAf!lf!l mir Eronometrir Eronomic De'	elopm	_	•					+	
					l https:	://www	Jcc.go	o"/auction/903		
	FCCs CAf II AUCTION (:903) RURAL8ROADB	AND	Fı	ınds- 10 Vears						
			M	lissouri CAF\$	locatio	<b>E</b> idder	idder No. Service Provid		der	Ty
auction	bidder	state	F	Per Provider	assagne	%MO	State	Fixed Wireless		Frber
903	Air Unit Rural Broadband, LLC	MO	\$	11,371A3	8 232.1	4%	1			1L371_,438
9n3	ArisWave Consortium	MO	\$	31001,545	788	1%	5	\$ 3,001,545		
903	Barry Efedric Cooperative	M_O	\$	61103,454	2308	2%	1		S	6,103_,454
903	Chariton Valley Communications Corporation	MO	\$	4,179;,665	847	2%	1		\$	4.,119,565
903	FideHty Communications Company	MO	\$	241367	.9	00JJ	2	Defaurted		
9{)3	Mark Twain Communications Com any	MO	\$	3,0531355	676	1%	1	Wireless U-sing F	i00r	for backbone
903	Mercury Witeles.s	MO	\$	1,641,845	1954-	1%	5	\$ 154L845		
903	M d-States ServicesLLC / Grundy Electr Coop	MO	\$	1,868 060	3 8	1%	1			1,868))6fl
9'03	Rura I Electric Cooperative Consortium (RECC)	) MO	\$	46,569,4rJ7	17214	18%	8			46,569.,407
903	TotalHighsped 11C	MO	1\$	640,560	326	0%	1	Defaulted		
903	Wisper ISP_ Inc	MO	S	176,319A0'9	68259	69%	6	\$ 175,319.;409		
	Total Assigned Winning Bids Missourres S'	ng Bids Missourr•s S'hare \$254,773Jl1B				100%				
	Total CAF \$to Providers in MO by Service Type						\$180,962,7519	\$	70,002, 5	

# FCC RDOF 904 Auction

# **Performance Tiers and Weighting**

**AUGUST 2020** 

Performance Tier	Speed	Monthly Usage Allowance	Weights
Minimum	≥ 25/3 Mbps	≥ 250 GB or U.S. ave, whichever is higher	50
Baseline ≥ 50/5 Mbps		≥ 250 GB or U.S. ave, whichever is higher	35
Above Baseline	≥ 100/20 Mbps	≥ 2 TB	20
Gigabit	≥ 1 Gbps/500 Mbps	≥ 2 TB	0

Performance Tier	Latency	Weights
Low Latency	≤ 100 ms	0
High Latency	≤ 750 ms & MOS ≥ 4	40

# AgriExperts

	FCC Approves \$346 Million for Rural Broadband in Missouri							
	FCC Maintains that 85% of Winning Bidders Can Provide Gigabit Service *							
		RDOF RESULTS	YEAR 2020 - 202	21				
#\$	<u>State</u>	<u>Company</u>	<u>Type Service</u>		Bid Awards	<b>Locations</b>		
1	Missouri	LTD Broadband LLC	Fixed Wireless & Fiber	\$	158,793,688.30	52,812		
2	Missouri	Rural Electric Cooperative Consortium	Fiber	\$	88,238,706.80	44,910		
3	Missouri	CCO Holdings, LLC	Cable	\$	48,392,327.90	61,524		
4	Missouri	Aptitude Internet LLC	Fixed Wireless	\$	24,655,295.20	13,535		
5	Missouri	Chariton Valley Communications	Fiber	\$	8,070,272.00	5,002		
6	Missouri	Rural American Broadband Consortium	Fixed Wireless & Fiber	\$	4,525,266.00	1,410		
7	Missouri	Mercury Wireless, Inc.	Fixed Wireless	\$	4,254,918.50	14,094		
8	Missouri	Windstream Services, LLC	Fixed Wireless	\$	3,078,402.40	1,342		
9	Missouri	NexTier Consortium	Cable	\$	2,108,576.90	2,011		
10	Missouri	NRTC Phase I RDOF Consortium	Fiber	\$	1,682,587.60	644		
11	Missouri	Wisper-CABP 904 Consortium	Fixed Wireless & Cable	\$	1,159,205.80	857		
12	Missouri	Worldwide Technologies, Inc.	Cloud, Satellite	\$	700,874.20	496		
13	Missouri	Century Link, Inc.	Cable	\$	275,208.00	38		
14	Missouri	Socket Telecom, LLC	Fiber	\$	232,768.80	393		
		Northeast Missouri Rural Telephone	Cable	\$	60,126.00	7		
16	Missouri	Yondoo Broadband LLC	Cable & Fiber	\$	54,833.80	110		
17	Missouri	Barry Technology Services, LLC	Fiber	\$	14,502.00	26		
				TOTAL \$	346,297,560.20	199,211		
	th FIGG. 1				1.0	<u> </u>		
	* FCC does not require providers to show Proof of Service Capability in advance of auction and for 3 years post auction							



## \$20.48 Rural Opportunity Fund

• \$168 Phase 1

#### Auction Results - Headlines

```
180 winning bidders in the auction
$9.23 billion awarded with 10-year support
5,220,833 locations in 49 states and one territory
61,766 eligible census block groups
-99% of the locations are covered by winning bids
850/o of awards at Gigabit Tier
99.7°/o of awards at 100Mbps Tier
```



3

# RDOF Top Bidders-Fiber complemented with Lower Level Services – Winning Combination

## Top 5 Bidders



Top Recipients:	<b>Total Amount</b>	Locations	States	Technology
LTD Broadband	\$1,320,920,718.60	528,088	15	Fiber, Fixed Wireless
Charter Comm	\$1,222,613,870.10	1,057,695	24	Fiber, Cable
Rural Electric Coop	\$1,104,395,953.00	618,476	22	Fiber
Space Exploration	\$885,509,638.40	642,925	35	LEO Satellites
Windstream	\$522,888,779.80	192,567	18	xDSL, Fiber, FWA



# ANOTHER EXAMPLE OF A FLOW OF FEDERAL FUNDING COMING AVAILABLE FOR BROADBAND EXPANSION

#### EXPECT AND BE PREPARED FOR MORE FUNDING FOR RURAL BROADBAND EXPANSION FROM FEDERAL GOVERNMENT PROGRAMS

# \$7.1 BILLION FOR SCHOOLS FOR BROADBAND EXPANSION

#### ADDITIONAL SOURCE OF FEDERAL FUNDS FOR BROADBAND EXPANSION

(ECF) Emergency Connectivity Fund \$7.1 Billion in the American Rescue Plan

Passed by US Congress in March 2021

Date of Notice to Ozark Foothills RPC: early JULY 2021

In early July, AgriExperts provided the information and source documentation of the Federal ECF funding program to the staff of the Ozark Foothills. Since that time, the RPC staff has been notifying schools and local ISPs that work with schools of this one-time funding opportunity.

Funds may also be used for providing broadband to individual student homes when there is NO commercially available internet service to the student's home.

#### SEE DETAILS IN THIS ECONOMIC FEASIBILITY REPORT

# FCC ISSUES REGARDING MODIFICATION OF FCC FUNDING FORMULAS AND SIGNIFICANT **FACTORS** AFFECTING BROADBAND **DEPLOYMENT**

#### SIGNIFICANT FACTORS FOR BROADBAND FUNDING---- FCC CAF II ISSUES FOR FURTHER VISITATION

Missouri University, CAFNR's Dynamic Econometric Economic Development Program (DEEDP) Womack / Eisberg 2020

- 1. Lack of Verification before awards and, lack of Due Diligence continually 24/7—1st Report to FCC occurs in year 3
- 2. Need for modification of FCC mathematical Formulas--Broadband Speed Performance Tier Weight Formulas
  - a. Weighting differential spread in scoring is designed to cover more area—greater the area gets higher weight
  - b. Largest Area Weight Formula—One Size Shoe Fits All
  - c. For farm program, FAPRI uses the Representative Farm model to solve the issue of one size shoe fits all
- 3. Rate Differential and Urban Rate Formula--Fiber providers do not have a footprint in FCC formulas
  - a. No FCC representation of weights above 1 Gbps other than continuation of -0- weight
  - b. Lack of transparency of how formulas work and expected consequences of rates / weights formulas
- 4. MO Fiber consortium lost over \$100 million in CAF II resulting from inadequate representation in FCC formulas according to SEMO CEO Sean Vanslyke
- 5. Territorial—10 years blocks out competition of receiving federal funds limiting areas for better service at low costs
- 6. Lookback of 3 years formula constrains fiber providers that made investments prior to the period of FCC funds
- 7. Cherry picking small areas of higher population within a region of a fiber provider without providing to remote areas
- 8. Due Diligence Required—associated with dynamic econometric analysis—similar to FAPRI 24/7 to Congress
  - a. Economic development—a measured amount of economic and social growth associated with broadband service and costs in real time
  - b. Timely information—Real Time information compliments policy decision makers associated with allocation of funding formulas
- 9. Why should we be concerned? Outmigration rates for rural America



What would happen to the Ozark Foothills Region

IF it turned from

a Broadband Desert into a Broadband Oasis?

Can High-speed Broadband be an answer to stop Out-migration?

Solution: A pilot project could answer these questions

CAFNR DEEDP
Question;
How can rural
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out-m1gratoon of
our younger
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CAFNR DEEDP
Que tlon.
Can high speed
broadband be an
answer to stop
out-migration?

CAFNR DEEDP

Question:
Can the Midwest

compete with the East Coast / West Coast to stop outmigration?

## Rura urban population change from net migration and U.S. median household income



MU CAFNR's Dynamic Econometric Development Program (DEEDP) Eisberg / Womack 2019

# HOW MUCH INVESTED IN THE 20 - 22 YEAR OLDS THAT MIGRATE TO OTHER STATES? BY AGE 22 \$500,000/child

Cost of raising a child to age 18 \$14,000/yr/child \$252,000.

Federal/State/ Local \$spent K-12 \$12,500/yr/child \$162,000.

• Total Money Invested to Age 18 \$400,000.

Add 4 Yr College Federal Money \$5,000/yr/child

Add 4 Yr family\$ cost College \$20,000/yr/child

With College Total Money Invested to Age 22 \$500,000.

• HUMAN EQUITY IOST TO OUT-MIGRATION: \$400,000. to \$500,000 / person

# DATA From SURVEY **INDICATORS** OF OUT-MIGRATION

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	Ozark F	oothills Censu	ıs Data	
		By County		
С	ensus Taken I	n April of Each	Year	
	2010	2019		
	Population	Population	Change	Percent
Butler	42,792	42,478	-314	-0.7
Carter	6,265	5,982	-283	-4.5
				1
Reynolds	6,696	6,270	-426	-6.3
Ripley	14,100	13,288	-812	-5.8
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Wayne	13,521	12,837	-684	-4.9
United States	200 745 520	229 220 522	19,493,985	+6.3
Officed States	300,743,336	328,239,523	19,493,965	1 +0.5
Median House	ehold Income	(in 2019 Dolla	rs),2015-2019	
Woodannood		(117 20 10 20114	10),2010 2010	
Butler		\$ 39,915		
Carter		\$ 39,530		
Reynolds		\$ 40,324		
Ripley		\$ 34,971		
Wayne		\$ 34,316		
_				
United States		\$ 62,843		

Median Value	of Owner-Occ	cup	ied Housin	g Units,20	15-20	19
Butler		\$	113,500			
Carter		\$	101,500			
Reynolds		\$	96,000			
Ripley		\$	83,800			
Wayne		\$	85,100			
United States		\$	217,500			
West Coast		\$	602,000			
1 Analyzing the Celloccurred over the to the rest of the	e past 10 years I	n the	Ozark Foot	hills countie		
2 Further analysis of Ozark Foothills w		•		•	•	
the rest of the US			•		as com	pared to
3 The quality of life for family campir					• •	
the people from opportunity for the	cities resulting fro	om 1	the Covid Pa	andemic mak	ce for th	ne perfe
for connunities to which Is high-spe						
4 The Ozark Foohill high-speed broad	dband existence	in th	e Ozark Foo	thills has cre	eated d	esperate
economic conditi desert" and its re			-			dband



Assume all out migration from each county were high school graduates. Using Federal cost per student data:

County	out migration	cost per student	total loss
• Butler	314	\$400,000	\$1.256 mil
<ul> <li>Carter</li> </ul>	283	\$400,000	\$1.132 mil
<ul> <li>Reynolds</li> </ul>	426	\$400,000	\$1.704 mil
<ul><li>Ripley</li></ul>	812	\$400,000	\$3.248 mil
<ul><li>Wayne</li></ul>	684	\$400,000	\$2.736 mil
		TOTAIJ	\$10.076 mil
		50% of total	\$5.038 mil
		10% of total	\$1.007 mil
		1% of total	\$100,760



#### ADDITIONAL SCENARIOS

Assume all leaving the counties were a family of 4 making \$38,000. per year \$38,000 is the average income for the 5 counties

A total of 2,519 individual left the region in the last 10 years

Assuming a family of 4 im lies that 630 families left the region

Over the 10-year period, 630 X \$38,000 e <u>uals</u> a loss of \$23,940,000.

If only 50°/o (315) left the region, the loss would be around \$11,970,000.

If only 25°/o (158) left the region, the loss would be around \$5,985,000.

Compare these numbers to the cost of investing in high-speed fiber for the counties to stop out-migration.



#### **OUT-MIGRATION AND CENSUS DATA**

Viewing the decrease in population from each county over the past 10 years as compared to the national average growth of 6.3%, it is quite evident that the Ozark Foothills counties have had significant Out-Migration.

There are trends that show reasons for out-migration yet also provide opportunities for In-migration.

With the right type of local infrastructure, the Ozark Foothills region is prime for in-migration.

**High-speed fiber at Schools** 

- a. Schools have fiber internet connections at their physical buildings
- b. Students when they go home do not have fiber connections in the majority of the Ozark Foothills RPC region. This trend will have an impact on Out-Migration.

National trends for out-migration from rural areas.

- How can rural Missouri stop the out-migration of our younger generation?
- Can high-speed broadband be an answer to stop outmigration?

A larger question remains as to how much human equity is lost to out-migration in the Ozark Foothills region.



Analyzingtheeconomicdataatthenationallevelcomparedtothefivecounties of the OzarkFoothillstherearetrendsthatshowreasonsforout-migrationyetalso provide opportunitiesforIn-migration. The clear lakes, forests, clear streams and beautiful areas for camping combined with a low cost of living are reasons areas will draw populations to the Ozark Foothills region, yet it lacks high-speed broadband which is essential for living a quality life in the 21<sup>st</sup> Century Withthe righttypeoflocal infrastructure,theOzarkFoothillsregionisprimeforin- migration.

The trends and questions raised in the national out-migration graph are also relevantquestionsthatareapplicable to the OzarkFoothillsout-migrationissue:

- Howcanrural Missouristop the out-migration of our younger generation?
- Canhigh-speedbroadbandbeananswertostopout-migration?
- CantheMidwestcompetewiththeEastCoast/WestCoasttostopout-migration?

With the currenteconomicfeasibilityanalysisfortheOzarkFoothillsRPC,wecan sayan affirmativeyesforthosequestions.

- 1. From the analysis of our survey and respondents, there are indicatorsthat out-migrationisoccurringinareasofyellow--in our table of internet service providers. The yellowcoded areas stand for slowspeedbroadbandata relativelyhighprice compared to the speeds and reliability being provided.
- 2. From the analysis of our survey and respondents, there are indicatorsthatin-migration is occurring in the areasofgreen in our table of internet service providers. The green coded areas stand for high-speedfiberbroadbandata relativelylowprice compared to the speeds and reliability being offered.
- 3. From our analysis and survey, there are indicatorsthatInternetService Providersdeliveringhigh-speedfiber internet are seeingIn-migration patterns into the areas of fiber broadband expansion.
- 4. From our analysis and survey, real estate agents claim that their million-dollar homes in rural Missouri are not selling in 2021 because the houses do not have high-speed fiber internet.
- 5. From our analysis and survey, claimsmadebyInternetServiceProviders that during and after the Covid Pandemic, a greater number of peopleare



- demandinghigh-speedfiber in their homes because their officenowallows themtoworkfromhome.
- 6. From our analysis and survey of schools and residential survey respondents we have learned that many people in the OzarkFoothillsdonothaveenough internetspeeds at their homes fortheir childrentodotheirhomework.
- 7. From our analysis and survey of school and from the residential survey we learned that children atschoolhavefiber optics and are now seeingthe differenceinopportunitieswhenhigh-speed fiber is available.
- 8. From our analysis and survey, there are indicators that people are moving into areas of high-speed internet and leavingareasofslowspeedinternet
- 9. From our analysis and survey, comments were made by respondents that if people in the region hadhigh-speedbroadbandtheircompany would allow themtoworkfromhome saving them travel time, money and quality time with their families.
- 10. From our analysis and survey, we have found that people in neighboring counties that have high-speed fiberare working from home and claim greater efficiency for work and all the other benefits that come from working at home.
- 11. Fromouranalysistherearesomecomparativeadvantagesof qualityoflife, living expenses and the median value of homes in the Ozark Foothills region that could be a drawing card for In-migration when high-speed fiber optic internet is a vailable.
- 12. Federaldollarsintheamountof\$7.1Billionarenowavailablefor broadbandvia schools through the Emergency Connectivity Fund, in the American Rescue Plan passed by the US Congress in March 2021. Working with forward-thinking internet service providers (ISPs) these funds could be used for broadband expansion in the Ozark Foothills region. AgriExperts and the Ozark Foothills RPC have made knowledge of this program to schools and their respective ISPs working with the schools to take advantage of this one-time opportunity for broadband expansion.
  - a. Schoolscanbeakeytoeconomicdevelopmentandbroadband expansion for reasons laid out later in our report on schools and their broadband connectivity.
  - b. Schoolshavefiberinternet connections at their physical buildings c. Studentswhentheygohomedonothavefiberconnections in the majority of the Ozark Foothills RPC region. Thistrendwillhavean impactonOut-Migration.

#### **COMPLIMENTARY COMBINATIONS**

#### CONCLUDING COMMENTS

- 1. The overall objective-results from this feasibility report is to find the balance for this region where fiber broadband can be brought in to complement the current low level fixed wireless services
- 2. In our research project (conducted two years ago) with seven electric coop fiber providers who have similar geographic terrain, all have experienced substantial economic and social gains.
- 3. During this feasibility study, we learned that electric coops in neighboring regions are expressing interest in providing fiber services to Ozark Foothills region, <u>IF</u> federal funding formulas were adequately modified.
- 4. Additionally, local provider McCormack has plans to expand from their current fixed wireless to higher level fiber service, building out fiber to every home in their territory.
  - a. During Covid, McCormack saw a greater demand for fiber
- 5. Resulting from public pressure on broadband systems associated with Covid, lead to RDOF modifications that significantly changed the formula bidding process. The lower-level services began to react to the slight modifications by merging with higher level services in the bidding process.
- 6. Based on this AgriExperts feasibility report the following identified conditions should be given serious consideration by the FCC before the allocation of federal funding that is guided by their mathematical formulas.
  - a. The AgriExperts feasibility analysis found the majority of providers are low level fixed wireless providers in the Ozark Foothills region.
  - b. The feasibility analysis found that out-migration occurred
  - c. The feasibility analysis indicates trends for out-migration that could be reversed with higher levels of broadband based on McCormack data.
  - d. The current formulas of the FCC are designed for "one size shoe fits all". Are there better alternatives?
  - e. Rural areas are disadvantage given the FCC arbitrary funding weights which are based on the urban survey proxy data
  - f. Critical that survey reports and maps are updated
  - g. Critical that formulas allocating the FCC funding modified is based on economic and social results

- h. High level fiber providers are disadvantaged and basically left standing on the side-line during the bidding rounds
- i. Are there regions where the longer run social and economic gains favor lower-level providers even though the costs to consumer are relatively higher?
- j. The FCC in CAF II funding and again in RDOF funding leaned toward fixed wireless providers due to the mathematical formulas for funding that allows for the "greatest amount of coverage for the least amount of federal dollars and, where one size shoe fits all"
- k. The FCC formulas can be modified to follow the trail of measured and projected economic and social gains created after each previous round of the FCC funding allocations.
- 7. There would be value in creating pilot projects for the Ozark Foothills region whenever federal funds may come available. The pilot projects would be developed around measuring (in/out-migration) social and economic (growth) of higher-level services verses low level service areas. Greater amounts of data will be required to conduct such a pilot project. Currently this region experiences low level service which is not easily remedied with fixed wireless due to the terrain of hills and valleys.
  - a. Data collection: Measure economic and social consequences associated with current levels of broadband services. An example of how this analysis could be conducted is associated with the AgriExperts example of the potential cost of measuring outmigration of families and students. (refer to section in this AgriExperts feasibility report).
  - b. Model (econometric) development designed to measure longer run economic and social growth in the region
  - c. The utilization of the econometric model could be used to address whether the longer run social and Economic gains of higher-level service outweigh the differential Government cost of areas serviced by higher level service.
- 8. This same system (a,b,c) of analyses can also be applied to other regions measuring similar economic social consequences of FCC funding.



# THANK YOU

AgriExperts
Broadband Economic
Feasibility Analysis
for the Ozark Foothills RPC