

# REPORT TO THE COMMUNITY

2023

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Fiber-to-the-Home



DUOBROADBAND



DUO Broadband's Engineering Manager Bryce Bailey (right) reviews fiber routing plans with consultant Steve Reed.

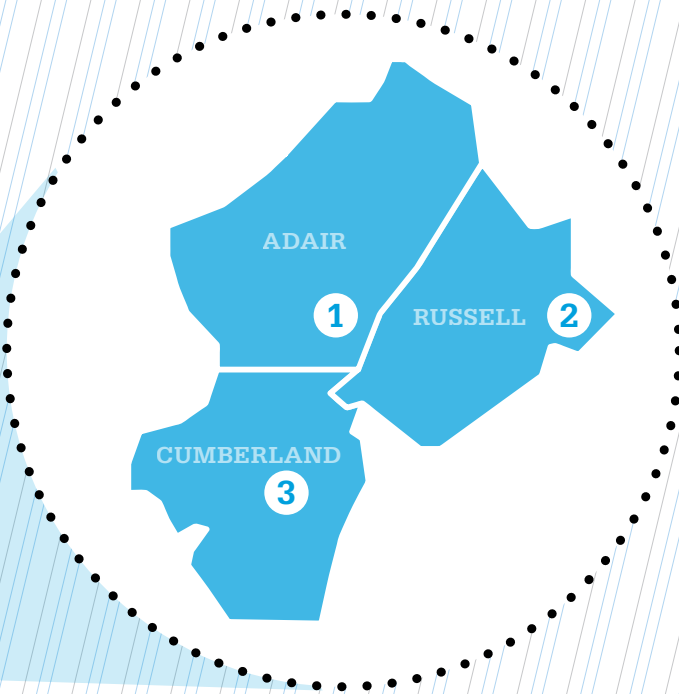


Brendan Carr (left), one of the Federal Communications Commissioners, visited Adair County earlier this year to see first-hand how DUO Broadband is helping to build out high-speed fiber optic broadband to rural America.



While a fiber project is being drafted on CAD, field engineers create and submit permits to the appropriate agencies for approval to place fiber on or near facilities. These permits involve other utilities, local, state, and federal agencies and can take two weeks to six months to get approvals.

## DUO BROADBAND FIBER PROJECTS CURRENTLY UNDER CONSTRUCTION



# COPPER TO FIBER

Earlier this year a Federal Communications Commissioner visited one of our fiber optic installation work sites. It's important for decision makers in Washington, DC and Frankfort to get down in the dirt and see the progress, hard work, and resources that go into laying fiber.

Bringing broadband to underserved rural areas is a complex undertaking that spans years and involves collaboration between multiple private and public entities.

There are still a number of isolated areas in our four-county cooperative area that have very limited

internet access because of much older technology.

Our goal is to replace all of this copper wiring with advanced fiber optic technology. To that end we are working to secure more grants and combine those with our investments to make fiber optic broadband available in rural communities that would not otherwise justify the tremendous expense of extending these lines to sparsely populated areas.

In this year's Community Report we endeavor to provide you, our cooperative members, a glimpse of what it takes for DUO Broadband to extend fiber optic coverage to our rural communities.

**Thomas E. Preston**  
Chief Executive Officer

### EXAMPLES OF PROJECTS UNDER CONSTRUCTION

- 1** The Fairplay exchange area in Adair County is currently under construction or in the testing or cutover phase. DUO Broadband is using an \$18.7 million USDA ReConnect 1 Grant to deploy a fiber-to-the-premises network in rural Adair and Cumberland counties.
- 2** A new fiber expansion will bring high-speed internet to over 850 households in the Jabez community. Funding for this project came from a \$3.4 million dollar grant from the Commonwealth of Kentucky, a matching investment from DUO, and financial support from Russell County Fiscal Court.
- 3** Currently DUO is finishing the buildout of fiber optic lines in the Ernest Anderson area of Cumberland County. It was partially funded by a USDA ReConnect 1 Grant. The service areas include almost 3,650 households spread over 45 square miles in Adair and Cumberland counties.



Tom Preston, DUO Broadband's Chief Executive Officer, stands beside one of hundreds of spools of fiber optic cable inventory. DUO procures fiber cable months or years in advance to ensure that construction can move forward once all engineering has been finalized and all easements have been secured.



ADAIR COUNTY, KENTUCKY


# RURAL vs URBAN

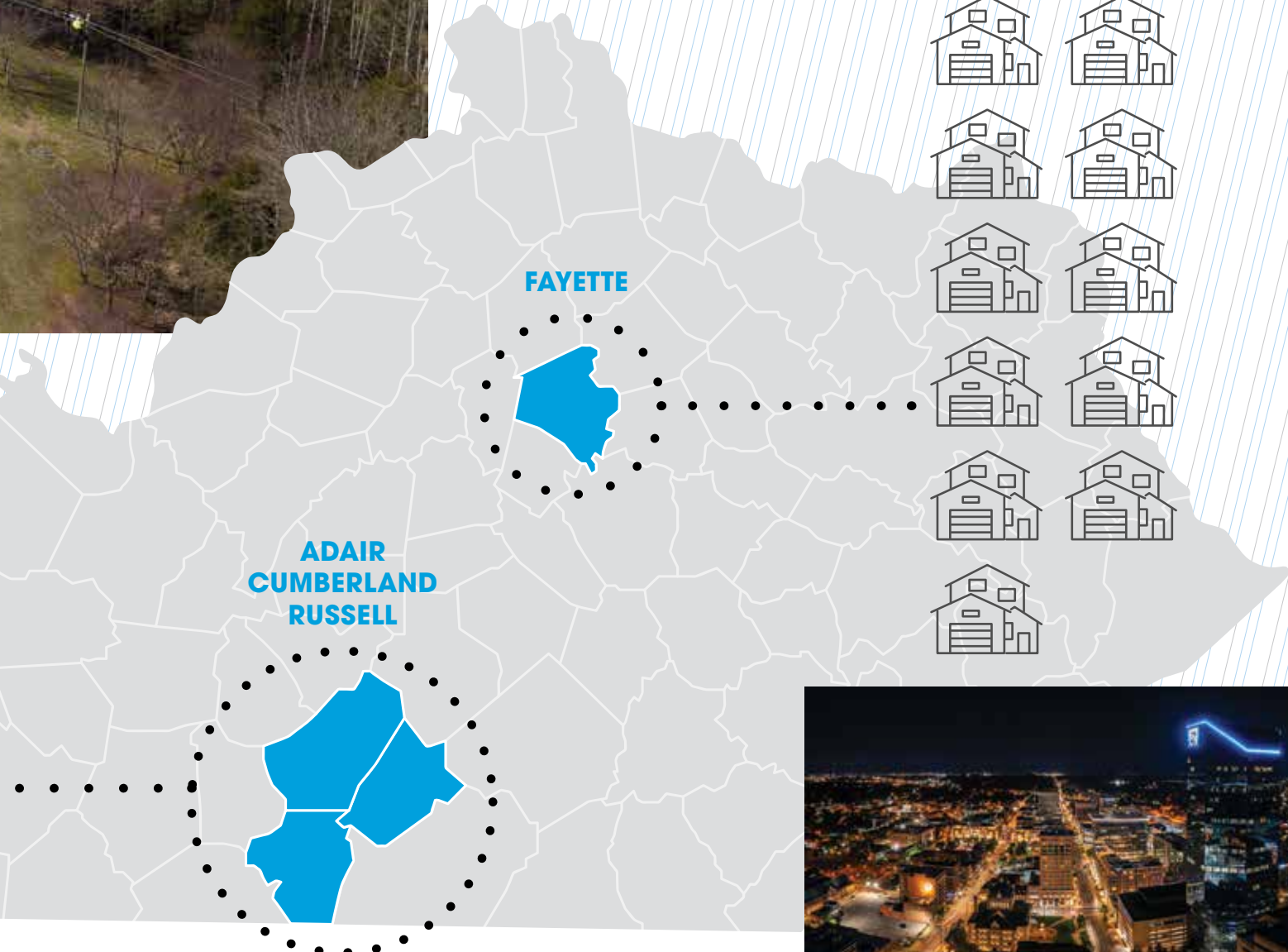
**The time it takes to bring fiber optic broadband to homes in our rural service area is complicated by how few households there are per square mile to support the cost.** In densely populated Fayette County there are 135,160 housing units (homes, apartments, duplexes). That works out to 473 per square mile so costs per fiber location drop go down. In our rural counties of Adair, Casey, Cumberland, and Russell the average number of housing units is only 25 per square mile, so costs per location increase dramatically.



Hooking up service at the home.



 **KEY**  
= 25 Housing Units  
PER SQUARE MILE



FAYETTE COUNTY, KENTUCKY

IN URBAN AREAS FIBER CONSTRUCTION COSTS RANGE FROM \$700 TO \$1,500 PER HOUSEHOLD PASSED. COSTS IN OUR RURAL AREA RANGE FROM \$3,000 TO \$9,000.



# ABOVE & BELOW

The rural terrain in Adair, Casey, Cumberland, and Russell counties is a critical factor that impacts the costs of stringing or laying fiber optic cable. Aerial fiber construction costs include pole attachment expenses, fiber materials, installation, and splicing. Additionally, a significant component of aerial fiber network construction expenditures are the “make ready costs” which involve engineering and rearrangement of cables to prepare utility or telephone poles for the attachment of new fiber optic cable.

The field engineers who stake for a buried fiber project attempt to identify all rocky or swampy areas while staking. However, it is impossible to simply look and see the bedrock depths. The USDA’s Rural Utilities Service construction guidelines require 36”- 42” minimum installation depths. Often unanticipated shallow bedrock is encountered and forces our outside contractor to change a simple plow path to either dig and bust rock or perform a rock bore. This can drive fiber optic project costs up drastically from the estimated amounts.

## OTHER COST FACTORS

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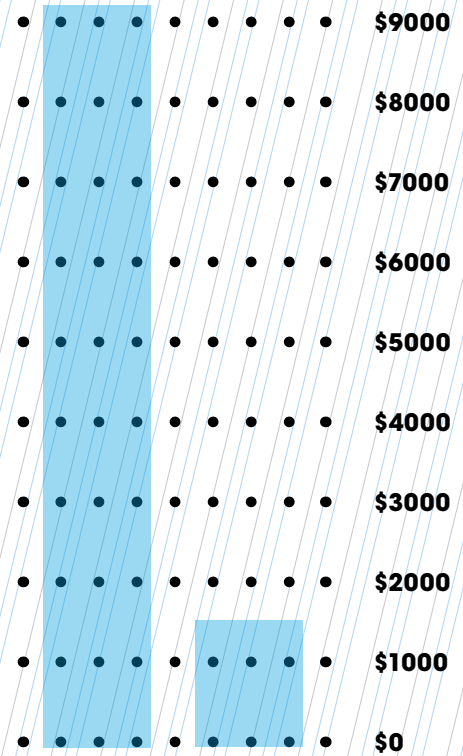
### MAKE-READY & PERMITTING

Make-ready costs are expenses associated with securing rights of way, franchises, conduit leases, property leases, and pole attachments. Permitting costs are related to municipal and other governmental permits, licenses, and authorizations required to be obtained prior to starting construction.





**COMPARISON OF COST PER HOUSEHOLD PASSED**  
**RURAL vs URBAN**



**MATERIALS**

In the current industry, materials delays are a major issue. Supply chain lead times have stretched out to as far as 6-12 months for essential construction materials such as fiber optic cable and housing units. This supply and demand lead-time issue can force providers like DUO to accept much higher materials costs.

**LABOR**

Like other industries, finding the work force to perform the work can be an issue in fiber optic construction. An outside plant contract requires a small army in order to run smoothly. Turnover is high in the construction industry. This causes contractors to offer higher hourly rates to plow or aerial crews which is then reflected in overall pricing for construction contracts.





# DUOBROADBAND

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