

FY19 Research and Development - Last Mile Broadband Staff Summaries and Recommendations June 2019

The R&D Committee met in January 2019 and directed Staff to issue a Call for Proposals for up to \$5 million of new Last Mile Broadband (LMB) funding. In March the Commission received sixteen proposals seeking more than \$8 million of project funding. The R&D Committee met May 20th in Bedford to hear presentations from the sixteen applicants in the current round. At the request of the Committee, those requests are broken out below between the Southwest versus Southern regions. Executive Summaries are provided, and brief Staff Comments and Recommendations are made in accordance with the Committee's direction to earmark \$5 million of its available balance for this funding round. A revised summary chart, split by regions, will be provided separately. The Committee is scheduled to meet on June 5th at 2:30 in Danville to act on these requests, along with Other Business that includes extension requests for two R&D research grants that are described at the end of this report:

Req #	Organization	Project Title	Request Amount	Staff Rec
Southwest Region Requests				
3535	Carroll County IDA	The Wired Road/Carroll County Last Mile Neighborhood Pole Project	\$200,000	\$200,000
3531	Cumberland Plateau Company	Cleveland Broadband Expansion Project	\$544,137	\$544,137
3522	IDA of Dickenson County	Honey Camp Last Mile Broadband	\$65,000	\$65,000
3530	Grayson County	Connect Grayson	\$325,000	\$325,000
3527	The IDA of Russell County	North Central Russell / South Buchanan Counties Broadband Expansion Project	\$1,900,000	\$0
3519	Scott County Telephone Cooperative	Weber City Broadband Fiber-to-the-Home Initiative	\$1,500,000	\$750,000
3525	Tazewell County IDA	Tazewell County Wireless Service Authority Broadband Expansion - Phase III	\$150,000	\$150,000
<i>Sub-total - 7 Southwest Requests/6 Recommendations</i>			<i>\$4,684,137</i>	<i>\$2,034,137</i>
Southern Region Requests				
3532	Appomattox County	Pamplin Area Fiber Broadband Project	\$600,000	\$600,000
3521	Bedford, County of	Bedford County Broadband Project	\$670,500	\$670,500
3528	Brunswick County	Brunswick County/BIT FTTH Project	\$80,124	\$0

Cumberland Plateau Company
Cleveland Broadband Expansion Project (#3531)
\$544,137.00 Requested

Executive Summary Provided by Applicant: Sunset Digital’s “Cleveland” project will expand our existing fiberoptic backbone infrastructure and deploy affordable broadband, at 25 Mbps/3Mbps, to the Cleveland PFSA or higher, an area where broadband is currently unavailable. The “Cleveland” project will provide broadband connection availability to at least 690 homes and businesses. The Cleveland area supports a diverse economic environment including coal mining, agriculture, a power plant, railroads and the Clinch River Nature Preserve. The Gateway to the Clinch River runs through the Town of Cleveland. The Clinch River has one of the world's largest collections of rare and endangered fresh water species. The residents and government leaders are working hard to transition their community into a tourism destination centered on the natural resources and beauty. Broadband expansion is a key component in allowing visitors to enjoy the natural beauty of the area whilst also staying connected to the outside world.

Staff Comments and Recommendation: This project was unsuccessful in competing for USDA Community Connect funding in 2018. It would offer fiber connectivity to 696 premises at a cost of \$782 per premise, making it an efficient fiber to the premise solution with significant outcomes. Sunset Digital, now known as Point Broadband, is offering nearly \$888k of matching funds.

Staff recommends a grant award of \$544,137.

Industrial Development Authority of Dickenson County
Honey Camp Last Mile Broadband (#3522)
\$65,000.00 Requested

Executive Summary Provided by Applicant: The Honey Camp community of Dickenson County is located off of Rte. 72, southeast of Clintwood, VA. This project will bring reliable broadband service to roughly 40 households with speeds of at least 25Mbps download and 3Mbps upload. The area is presently only served by unreliable DSL or satellite service. The Industrial Development Authority (IDA) of Dickenson County is partnering with Hillcom, Inc. on this very important project. Hillcom is a Dickenson County based internet service provider that is currently serving approximately 640 customers in Dickenson and Wise counties. This project will serve the Honey Camp community via fixed wireless technology from a new tower to be installed on property owned by the Dickenson County Board of Supervisors adjacent to a former landfill.

Staff Comments and Recommendation: This modest request proposes a hybrid fiber+wireless solution to a small valley community isolated by mountains. A new wireless tower would be constructed on a former school site, and fiber backhaul would be provided by Scott County Telephone. The application indicates 62 premises passed at a cost to TRRC of \$1,048 per premise making this an efficient hybrid solution. While this is a relatively high cost for a wireless solution, the per premise cost is driven somewhat higher by the cost to construct and equip a 180 foot tower. The Co-Applicant Hillcom proposes \$86k of matching funds.

Staff recommends a grant award of \$65,000.

Grayson County
Connect Grayson (#3530)
\$325,000.00 Requested

Executive Summary Provided by Applicant: Grayson County is located in Southwest Virginia in the heart of Appalachia. With a population of roughly 16,000 people it is home to some of the most vibrant and tight knit communities in the Blue Ridge Mountains. Along with this sense of community, Grayson County is home to the two highest peaks in Virginia, White Top and Mount Rogers, several miles of the New River, 100s of acres of national forest, and Grayson Highlands, one of Virginia's most popular State Parks. These unparalleled natural assets have proven to be a major driver for a budding sense of entrepreneurship toward the establishment of a thriving tourism industry in the County. Internet access is important to support tourism and the public's safety while they enjoy all the natural beauty of Grayson County. The establishment of broadband connectivity is a critical foundation for vast growth of the economy of Grayson County.

Staff Comments and Recommendation: This proposal has an ambitious goal to serve 5,182 premises across the entire county with wireless services provided by Co-Applicant Gigabeam Networks. As submitted, the cost per premise to TRRC is \$63. However, it was submitted prior to the May 15th announcement that Appalachian Power will seek SCC approval to construct a robust mesh network of "middle-mile" fiber throughout Grayson to connect its facilities and offer space for broadband deployment. Based on comments by project leaders at the May 20th meeting, this pilot would be a 240 mile fiber build, allowing fiber to the premise with gigabit service for 70% of premises, and wireless service to the remaining 30% of premises. Recent communication indicates initial phases serving 1,437 premises at a cost of \$2.5 million, though it's not yet known where APCo will initiate its fiber build, and specifically how TRRC funds would be utilized. This potential partnership with APCo would presumably have a significantly positive but as-yet undetermined effect on the project budget, matching funds, timeline and outcomes. As such, and despite details which are currently being worked on by the Applicant, Co-Applicant and APCo, Staff supports funding at the requested level to initiate last mile service delivery in the initial phases.

Staff recommends a grant award of up to \$325,000, contingent on approval by the Executive Director of a revised project budget and outcomes.

Russell County Industrial Development Authority
North Central Russell / South Buchanan Counties Broadband Expansion
Project (#3527)
\$1,900,000.00 Requested

Executive Summary Provided by Applicant: The South Buchanan/North Central Russell Counties Broadband Expansion Project proposes to bring broadband services to homes and businesses, which will in turn increase opportunities for employment, education and services along these extreme rural communities located in Buchanan and Russell Counties, Virginia. The project calls for a fiber-optic buildout of 65.56 total miles from end-to-end. This project would bring fiber close to 1126 structures which are comprised of households, businesses and community facilities. This project area covers some of the most extremely unserved rural areas in Buchanan and Russell Counties. Areas as remote as proposed, would not be possible for any local company to finance and

adsorb. A buildout of this magnitude could only be achieved with grant opportunities to serve these citizens. There are no existing terrestrial broadband services offered within the project area.

Staff Comments and Recommendation: A larger version of this project area (from Finney to Cleveland) was submitted to the initial LMB funding round as a \$3M request in 2018 and was passed by. The current request estimates fiber service to 450 premises in the Finney area of north central Russell County, with \$3.45M of matching funds coming from the Co-Applicant iGo Technologies (\$450k) and a \$3M USDA Community Connect grant awarded in late-2017 to provide service to 676 premises in a contiguous project area in south Buchanan County. While that federal funding is for a distinct project area that is arguably related to the Russell project area (as an extension of the Buchanan construction), this effectively means that TRRC is being asked to fund 100% of the Russell project, which will serve 450 premises at a cost to TRRC of \$4,222 per premise. Staff suggests that using matching funds from a distinct and separate project area is a poor precedent, when other applicants are complying with guidelines that call for at least 50% matching funds by providing at least equal match in the TRRC-served project area. Staff would suggest an option could be to offer 50% support for the Russell project area (\$950k), that would still involve a per premise cost to the Commission of \$2,111, and would push the total funding recommendations far beyond the \$5 million earmarked for this funding cycle. Staff also suggests this area and others could benefit from a future investment by APCo as is being seen in Grayson County, which would enable a more cost-effective request to the Commission in a future funding cycle.

Staff recommends no award.

Scott County Telephone Cooperative

Weber City Broadband Fiber-to-the-Home Initiative (#3519)

\$1,500,000.00 Requested

Executive Summary Provided by Applicant: Scott County Telephone Cooperative (SCTC) is proposing to provide Fiber-to-the-Home Broadband services in Scott County, Virginia. The projects will serve 578 customers in Weber City, Virginia and 574 customers in Nickelsville, Virginia. These projects will have the ability to deliver up to one (1) gig of bandwidth to each location along with voice, video, and security services. The fiber backbone for both projects are in-place and most of the right-of-ways have been obtained making these projects more cost effective.

Staff Comments and Recommendation: SCTC has been a frequent and exemplary grantee in the Commission's early days of broadband deployment, having been granted more than \$7 million dating back to 2005. SCTC's \$3M proposal for the Big Ridge community in Dickenson/Russell was tabled in the initial round of TRRC LMB funding. This current request to serve Weber City is matched with \$420k of SCTC funds and \$3 million of federal Community Connect funding which was awarded in late-2018 to serve 574 premises in the non-contiguous Nickelsville community. However, that funding is for a distinct project area that is unrelated to the Weber City project area. That effectively means that TRRC is being asked to fund 100% of the Weber City project, which will serve 578 premises at a cost to TRRC of \$2,595 per premise. Staff suggests that using matching funds from an unrelated project area is a poor precedent, when other applicants are complying with guidelines that call for at least 50% matching funds by providing at least equal match in the TRRC-served project area. Staff therefore suggests that a 50% award for the Weber City project area, bringing the TRRC cost per premise down to \$1,297, is a more appropriate solution to bring fiber service to a significant number of premises. Staff also suggests that an APCo investment similar to

the Grayson pilot could substantially assist with SCTC's fiber deployment in this and other project areas.

Staff recommends a grant award of \$750,000 for no more than 50% of the cost to serve premises in the proposed Weber City project area.

Tazewell County Industrial Development Authority
Tazewell County Wireless Service Authority Broadband Expansion- Phase III
(#3525)
\$150,000.00 Requested

Executive Summary Provided by Applicant: This project will expand wireless broadband service into the Thompson Valley and Cove communities of Tazewell County, Virginia. The project will use 18 microsite deployments to provide service into unserved areas at minimal expense. Access points will be placed on the main backhaul tower in addition to microsites. Microsites are small sites situated on utility poles to relay coverage. Microsites pick up signal from the master site at Morris Knob to extend service, which is the main tower that currently serves customers in the Tannersville community of Tazewell County, Virginia. This project is capable of extending wireless broadband service to hundreds of homes in the Thompson Valley and Cove communities.

Staff Comments and Recommendation: The County and its Co-Applicant Gigabeam Networks propose to offer wireless service to 285 premises at a TRRC cost of \$526 per premise. The need to extend fiber by 40 miles to enable backhaul between the 18 proposed "microsites" is the apparent factor in driving the higher-than-normal per premise cost for a wireless connectivity project.

Staff recommends a grant award of \$150,000.

SOUTHERN REGION REQUESTS

Appomattox County
Pamplin Area Fiber Broadband Project (#3532)
\$600,000.00 Requested

Executive Summary Provided by Applicant: The Pamplin Area Fiber Broadband Project will extend the CVEC fiber network to provide service to almost 600 homes and businesses in the proposed project area that extends across portions of three southside Virginia counties: Appomattox, Buckingham and Prince Edward. The project includes 83 miles of overhead fiber optic cable plus 6 miles of underground cable as well as a communications hut with headend electronics. The system will make reliable broadband internet service available at affordable rates and delivered at world class gigabit level speed at each location. The Pamplin service area also includes Holliday Lake State Park which presently does not have any broadband internet service options. The project will be transformative for this very rural area, and will be the next step to extending gigabit speed broadband internet service further into southside Virginia in future years.

Staff Comments and Recommendation: This represents a second request to fund the CVEC's Firefly broadband network, which was awarded \$979,850 in the initial LMB funding round in March

2018, and is successfully building out that project and offering services. This phase reaches portions of three counties and will enable future expansions. CVEC is offering nearly \$2 million of matching funds on this project. Passing 591 premises at a cost to TRRC of \$1,015 per premise, this is an efficient fiber to the premises deployment that is highly-leveraged with the Co-Applicant's funds.

Staff recommends a grant award of \$600,000.

County of Bedford

Bedford County Broadband Project (#3521)

\$670,500.00 Requested

Executive Summary Provided by Applicant: The project consists of a network of towers to provide affordable fixed wireless internet access to underserved residents and businesses. Bedford County comprises very diverse topography including hilly and mountainous terrain as well as valleys, forests, farmland, and vast stretches of undeveloped land. These factors make it necessary to enlist multiple internet access technologies to reach all residents. The project will utilize multiple fixed wireless internet service providers and technologies. The towers in the network will not only provide last mile services to residences and businesses but will also serve as the tieback to the internet (backhaul). As it is cost prohibitive to provide wired access (cable or fiber) to all residences and businesses throughout the County, Bedford is pursuing a wireless strategy to minimize costs and time to service. TRRC funds will be used to build 3 towers in the most underserved regions of the County.

Staff Comments and Recommendation: Originally submitted for \$1,045,580, the County has reduced this request after having recently been awarded \$1.04 million from DHCD's VATI program. This request would address fifty percent of the cost to construct and equip three towers to offer wireless service to 2,217 premises in the northern end of the County that were not funded by VATI. Bedford County is matching both the VATI grant amount, as well as the TRRC request, making this one of the highest leveraged projects and largest local commitment of funds seen to date. The cost to TRRC is \$302 per premise passed.

Staff recommends a grant award of \$670,500.

Brunswick County

Brunswick County/BIT FTTH Project (#3528)

\$80,123.90 Requested

Executive Summary Provided by Applicant: Brunswick County and Buggs Island Telephone Cooperative (BIT) proposes to construct a Fiber to the Premise (FTTP) GPON broadband network with the capability of providing up to 1 Gigabit of Broadband and Voice to every premise in the Proposed Project area. The Proposed Project area is a rural, sparsely populated, residential area located along the Lake Gaston in Brunswick County in southern Virginia just north of the North Carolina border. This project would involve 3.23 miles of new underground fiber construction, passing approximately 31 households, all who are considered un-served according to the TRRC definition. This area is presently served with BIT's DSL and due to the remote location beyond 2 miles from any equipment location, the residents are unable to receive Broadband (10Mbps/1Mbps) speeds. This improved broadband service will be a great economic benefit to this long-neglected community and help promote much needed development.

Staff Comments and Recommendation: While a modest request in terms of the dollar amount, this project also has a high per premise cost to TRRC (\$2,585) and modest outcomes (31 households served). It appears to be a project that could be privately financed by BIT without assuming substantial debt.

Staff recommends no award.

Campbell County

Campbell County 2019 Last Mile Broadband Southeast Project (#3524)

\$156,313.00 Requested

Executive Summary Provided by Applicant: Campbell County was an indirect recipient of a Halifax TRRC when AcelaNet installed equipment on the downtown Brookneal Water Tower to assist the Halifax network. Brookneal sits on a hill overlooking Halifax northern territory with line of site to Pittsylvania towers AcelaNet operates and has fiber back haul. This request is to take advantage of the current situation of having an active tower network in Campbell expanding into areas lacking Internet access above 10Mbps. AcelaNet Broadband is deploying wireless broadband to Campbell County. In general, service will be provided to unserved or underserved residents in rural areas of Campbell. AcelaNet Broadband has already started deploying rural residents of Pittsylvania, Halifax and Campbell County with remarkable success, allowing citizens to move fully into the cyber economy of the 21st century with well above the 10Mbps minimum speeds, currently up to 50Mbps in published plans and more for custom plans.

Staff Comments and Recommendation: Campbell has already benefitted from a wireless tower equipped by SCS in the Town of Brookneal with a portion of a TRRC grant awarded in the first round to Halifax, and this request would extend the service at school and airport sites owned by the County, as well as from commercial towers. The project would serve an estimated 1,495 premises at a TRRC cost of \$105 per premise.

Staff recommends a grant award of \$156,313.

Franklin County

Franklin County Broadband Authority Fiber Extension Project (#3529)

\$650,000.00 Requested

Executive Summary Provided by Applicant: The Franklin County Broadband Authority is proposing to partner with Shentel to provide last mile fiber to four (4) residential areas that currently are unserved with broadband. These extensions are expected to make service available to at least 458 homes. Customers will be able to choose their service level which ranges from 50 Mbps to 1 Gbps download speeds. The Franklin County Broadband Authority is proposing to install approximately 21,500 feet of fiber conduit (bundle of 4) and 144 strand fiber in Summit View Business Park to provide broadband access for business and community services as well as along Brick Church Road and Grassy Hill Road in conjunction with a Western Virginia Water Authority waterline extension project. These installations are expected to make service available to at least 195 homes and 20 businesses.

Staff Comments and Recommendation: This project would serve five sub-areas in the County, with a total of 686 premises passed at a cost to TRRC of \$948 per premise, an efficient fiber to the

premises deployment that would also serve the Summit View business park that has been a focus of County and TRRC economic development funding. Co-Applicant Shentel is reportedly offering \$819k of the \$924k matching funds to serve these areas.

Staff recommends a grant award of \$650,000.

Halifax County

Halifax County Broadband Initiative - Phase 2 (#3534)

\$334,396.00 Requested

Executive Summary Provided by Applicant: The Halifax County Broadband Initiative – Phase 2 is a multi-jurisdictional effort in that residents and businesses in Pittsylvania County, Campbell County, Charlotte and Mecklenburg County will be able to access affordable and high-speed broadband. In general, service will be provided to unserved residents in these rural areas. Over the course of a couple of years, rural unserved residents of Halifax County will be able to move fully into the cyber economy of the 21st century. Through the installation of wireless internet, areas that previously could not be served cost effectively will have affordable service. Unlike high-cost fiber or corporate IT companies focused on short-term profit only, regional wireless internet run by a Virginia company will bridge the digital divide.

Staff Comments and Recommendation: Halifax received \$206,202 for Phase 1 wireless deployment in the initial LMB round. While the application's outcomes indicate 2,784 premises passed at a cost to TRRC of \$120 per premise, those outcomes appear to cover both phases 1 and 2.

Staff recommends a grant award of \$334,396 contingent on approval by the Executive Director of a budget that clearly delineates costs, matching funds and outcomes between the two phases.

Lunenburg County

Lunenburg County and Kinex Telecom Fiber Project (#3547)

\$439,068.84 Requested

Executive Summary Provided by Applicant: Lunenburg County and Kinex Telecom plan to undertake a 41 mile fiber project (41 miles includes all last mile installs) to link 11 businesses and 392 residences between Victoria and Kenbridge to the Internet using the latest Gigabit Passive Optical Network (GPON) technology. Through this technology all who subscribe to the service will be able to receive up to 1Gb of Internet service. Fiber was selected as the method of delivery because today's fiber can be upgraded with 10Gb devices bringing subscribers up to 10Gb of Internet. Kinex was selected as a partner because they have been deploying broadband in rural Virginia for over 15 years, first through wireless and over the last 10 years utilizing fiber.

Staff Comments and Recommendation: This request would fund 50% of a three-phase project by Kinex, a Southside-based company. Phase 1 would offer service to an area between Kenbridge and Victoria, with later phases branching out from those towns. At a cost to TRRC of \$1,090 per premise to serve 403 premises, this is an efficient fiber to the premise project.

Staff recommends a grant award of \$439,068.84.

Mecklenburg County
Mecklenburg County/BIT FTTH Project (#3526)
\$106,914.86 Requested

Executive Summary Provided by Applicant: Mecklenburg County and Buggs Island Telephone Cooperative (BIT) proposes to construct a Fiber to the Premise (FTTP) GPON broadband network with the capability of providing up to 1 Gigabit of Broadband and Voice to every premise in the Proposed Project area. The Proposed Project area is a rural, sparsely populated, residential area located along the Roanoke River in Mecklenburg County in southern Virginia just north of the North Carolina border. This project would involve 2.67 miles of new underground fiber construction, passing approximately 50 households, all who are considered un-served according to the TRRC definition. This area is presently served with BIT's DSL and due to the remote location beyond 2 miles from any equipment location, the residents are unable to receive Broadband (10Mbps/1Mbps) speeds. This improved broadband service will be a great economic benefit to this long neglected community and help promote much needed development.

Staff Comments and Recommendation: Much like BIT's Brunswick proposal, while this is a modest request in terms of the dollar amount, this project also has a high per premise cost to TRRC (\$2,138) and modest outcomes (50 households served). It appears to be a project that could be privately financed by BIT without assuming substantial debt.

Staff recommends no award.

Pittsylvania County
Pittsylvania County - Mecklenburg Electric Cooperative Backbone Fiber Extension (#3533)
\$375,549.00 Requested

Executive Summary Provided by Applicant: The proposed project will provide Ultra High Speed broadband services to households and businesses that are currently unserved. These broadband services will create the potential for increased business growth, public services, public safety, and quality of life for the residents in the proposed service area. The project includes the construction of a Fiber-to-the-Home (FTTH) outside plant and electronics network infrastructure. The FTTH network architecture would provide the customers of the proposed project access to broadband data services, voice and multimedia over one unified access network. The scope of this application includes the fiber build of 9.2 miles of mainline fiber cable, new substation FTTH electronics, optical network terminals at the customer locations and fiber mainframe equipment for fiber management. The proposed project will pass 174 locations, including 6 anchor institutions. The total cost for these items, along with the associated labor, installation costs and engineering is estimated at \$758,061.

Staff Comments and Recommendation: Mecklenburg Electric received the second largest grant in the initial LMB round (\$2.6 million) which it continues to deploy across several Southside counties as it connects its substations with backbone fiber. This project would serve 174 premises within 1,000 feet of a road from Mt. Airy to Grit in northeastern Pittsylvania at a cost to the Commission of \$2,158 per premise. Matching funds would come from MEC's cost to build fiber to connect its Mt. Airy and Grit substations. Staff cites the Committee discussion on May 20th regarding potential overlapping with the countywide wireless deployment plan that was partially

funded in the first LMB round with a grant of \$491,000, and suggest MEC and SCS (the wireless provider) discuss a potential jointly-developed hybrid fiber+wireless project in a subsequent funding round that would extend service beyond the 1,000 foot MEC limit.

Staff recommends no award.

OTHER BUSINESS

Region 2000 Research Institute

5th Generation Nanoseptic Surfaces (#2980)

Request for 5th Year Extension and Approval of Revised Budget

Staff Summary & Comments: This \$2,000,000 R&D grant was approved in May 2015. To date \$1,203,949 of grant funds have been disbursed. There remains a balance of \$796,051 on the TRRC project account and a \$68,000 advance is outstanding, resulting in \$864,051 total grant funds remaining. In October 2018 a fourth year extension was approved by the Commission's executive director, allowing for disbursement of grant funds for approved capital costs (~ \$360,396 invested in the 5,000 sq. ft. building owned by the private beneficiary). This extension required a line-item detailed budget to be submitted for approval, clarifying the specific planned uses of the remaining grant funds that would be for operating and equipping costs. Staff has had ongoing challenges in getting details on the intended use of the funds during administration of this grant award; and specifically, where the two principals are not named in the budget plans but ultimately are receiving the personnel funding. Aside from the investment in the building, a majority of funds disbursed have been for salary payments to the two owners of the company. No new positions have been filled since the grant was awarded (the grant proposal indicated 12 new jobs in the research phase and 37 at commercialization). Grant funds were paid for the salaries for the two principals, for a family member of one of the principals who has since retired, and for one employee who was employed by Nanotouch prior to the TRRC grant. The Commission reimbursed 50% of salary payments to the owners during the original three year grant period, which is the maximum for start-up costs allowed under the Commission's funding policies. On April 18, 2019, Commission staff received a detailed budget for the use of remaining grant funds. This request allocated an additional \$264,000 of grant funds for a Personnel line item without staffing names that is identified as "market research, product development and production staff", which staff interpreted to be more funding for the company principals. Staff again advised against this given that it was contrary to Commission's funding policies and the grantee provided an updated budget at the end of May 2019. This latest budget moves the principal payments to Match and increases TRRC funding to \$554,000 to support costs for up to six new positions, over a two year period--- four inside sales positions targeted to each of the four major markets, and one or two production positions. The revised budget also allocates funds for interest payments on the building loan which staff views as more appropriate to be paid from Match. Staff notes following recent site visits that the NanoTouch building is largely empty - mostly empty offices and a majority of the manufacturing/production floor space is not being utilized. Staff questions if the original economic development outcomes for which this grant was awarded are achievable given the current progress and lack of hiring. Nanotouch did complete an assessment with Genedge which resulted in a refining of the target markets. The proposed budget does allocate resources towards increasing the sales and marketing staff. Staff does not support the requested use of additional grant funds for payments to the principal owners of the company, as this is contrary to the Commission's funding policies.

Staff recommends approval of a fifth year extension to May 21, 2020; and approval of the revised proposed budget contingent on grant funds for personnel being limited to only new employees (excluding payments to the company principals), and excluding interest payments on the building loan (which can be counted as Match).

**Southwest Virginia Higher Education Center Foundation
WireTough Phase 2 (#2982)
Request for Two Year Extension**

Wiretough Phase 2 was approved for \$2,000,000 in May 2015 and has a current remaining balance of balance of \$664,612. A two year extension has been requested for this project to allow for additional product development and to continue progress to full scale commercialization through increased attention to marketing and sales opportunities. The project received a phase one grant of \$521k in 2010 which was critical in securing a USDOE grant of \$2 million in mid-2014 that served as the majority of the required matching funds for this current grant. The DOE project, one of two awarded nationally for this type of research, was extremely successful and resulted in the second parallel project by another entity being eliminated early due to the impressive progress being shown by Wiretough. The DOE project focused on tanks for compressed hydrogen while the TRRC funded research has been focused on compressed natural gas. The next phase of research, to be conducted over the next two years, will continue development of lighter and safer tanks for storing both hydrogen and natural gas. Currently, Wiretough's tanks are approved for stationary gas storage. This design can be adapted for transport tanks, however approval is required from the Department of Transportation. An application for this approval is planned which, if granted, will greatly increase the market for Wiretough's products. This company participated in the Genedge assessment provided by TRRC during 2018-early 2019. The close-out presentation was held in March and was very positive. It appears that the project is well poised to undertake more aggressive marketing and sales activities and it is expected to be reflected in the use of funds during the extension period. Staff would like to see the results of these efforts reflected in increasing revenues during the next year to document that the proposed strategies have proven effective. Wiretough also continues to pursue additional grant opportunities.

Staff recommends approval of an extension through May 2021 with approval of the second year contingent upon the achievement of sales milestones to be agreed upon by TRRC Staff and Wiretough leadership.