

## Broadband USA Applications Database

**Applicant Name:** Tye River Farms, Inc

**Project Title:** SCS Rural WISP

**Project Type:** Last Mile Remote

---

### Executive Summary

---

easyGrant: 2264 - SCS Rural WISP Tye River Farms, Inc., doing business as Stewart Computer Services (SCS), designed and began to build a rural Wireless Internet Services Provider (WISP) network in 2006. In the past three years, the company has been able to complete twenty percent of the backhaul system, and thus provide quality high speed wireless internet services to those who could afford the current costs. Nelson County is a rural territory of 472 square miles with an average of 30 people per square mile, and a total of 5,900 households and 442 non-farm businesses. The median average household income is \$46,000. The 18 communities of Shipman, Arrington, Gladstone, Norwood, Wingina, Colleen, Lovingson, Roseland, Piney River, Alma, Afton, Greenview, Avon, Woods Mill, Jonesboro, Massies Mill, Tyro, and Popular Flats are on the design plan for our wireless broadband service. Some of these are currently being served by SCS, or have backhaul in a testing phase. We also service 20 square miles of northern Amherst County. The demographics, geography and geology of Nelson and Amherst Counties make it extremely difficult to provide broadband services to homes and businesses. Two studies done in the last three years concluded that 90% of households are still using dial-up. Fiber and DSL technologies are available only in the county seat village of Lovingson and the Winter Green resort area. The cost to provide high speed services to most parts of the county has been prohibitive due to the many water tributaries and the foot hills of the Blue Ridge Mountain chain. SCS performed an analysis in 2006 and determined that wireless broadband was feasible for most of the county, and then set out on a course to design and build such a service system. Our existing beta WISP network covers a 100 plus square mile region. This is proof that a WISP can work in Nelson and Amherst Counties. The only constraint to providing this service to the rest of the service area is the cost per installation of quality wireless equipment, and the cost of backbone development and servicing. SCS's goal to provide wireless broadband as an option for the service area's households is at risk due to lack of funding. A second goal is to provide these services at affordable tier rates and installation costs. One aspect of this particular goal is to offer end users a wide choice of internet access plans by allowing them to select what speed, time and cost of service they desire. These planned "pay-as-you-go" accounts would allow, for example, low income households to select 40 hours of 1.5Mbps speed from a login webpage, at an estimated cost of \$15.00. This would allow all end users the choice of selecting only what they need for internet access; up to 3Mbps and higher for dedicated transmissions. This plan will greatly expand internet access and use throughout the region. The SCS Rural WISP project already serves educational interests by providing free access for our local community center, The Heritage Foundation, which provides a classroom of networked computers for community use. The county's Sewer and Water Authority also enjoy free broadband access from SCS. as we domanted free broadband for the Obama election headquarters in

2008. Proof of our commitment to assist educational endeavors and public support systems as we grow a for-profit business. We also have a special plan for churches, allowing Pastors free broadband. Ninety-five percent of the children in the region are exposed to broadband only for a short hour or two a day during school periods, our client's children have up broadband speed for their studies 24 hours per day. We are making an important impact on our neighbor's lives already, but only to a small portion of our region. In order to complete the original plan to build a WISP that serves nearly 500 square miles, financial assistance is required. Tye River Farms has devoted much energy and sacrificed profits for three years to make this plan become reality. Counting labor, infrastructure and supporting facilities, half a million dollars has been put forth in this effort to date. Currently, SCS provides one tier pricing, up to 1.5Mbps, at a cost of \$50 per month, with a reduced installation cost of \$298. SCS recently signed a contract to add up to 1Gbps of fiber, currently scheduled for activation in October. We will then offer a three tier product line, 1.5Mbps, 2Mbps and 3Mbps. We are also scheduled to rollout out dedicated tunnel transmissions at speeds up to 10Mbps for businesses. All of this has already been contracted and is being done outside of this grant request. This grant will allow SCS to serve unserved areas by allowing lower rates for end users. Most households cannot afford \$50 a month for broadband in this region or then \$298 installation costs. Federal assistance will be used to reduce this cost to the end user through the previously mentioned "pay-as-you-go" service and reduced installation charges. The grant will also be used for building the remaining backhaul infrastructure and upgrade support systems. SCS provides broadband services in a non-discriminatory fashion. Our policy is available on our website at [www.stewartcomputerservices.com/policy](http://www.stewartcomputerservices.com/policy). Our current bandwidth control is non-discriminatory, allowing up to 200MBs of transfer within each hour. When 200MB is transferred, a user is slowed to 756kbps, and then reset to full speed at the top of the hour. This policy will be greatly enhanced with the coming bandwidth this fall. We do not have monthly limitations. The network designed and partially built is a Tree Network topology with plans to grow it into a Fully Connected network. We transmit tower to tower, with up to three repeater segments in the Tree topology scheme. Once the network reaches a particular size geographically, we will be able to start connecting each transmission tower to all future towers, morphing it into a fully connected network, where each tower will have multiple paths to the backhaul for redundancy. We currently use a selection of low-cost public frequencies to support our infrastructure; 900 MHz, 2.4 GHz and 5.8 GHz. In rural areas, these frequencies are very clear, making them very cost effective. We envision moving to the new 700 MHz spectrum once that industry is more settled and prices are more competitive for the licensing and equipment. Due to heavy foliage in this area, most end users have 900 MHz systems. We use Trango radio equipment for this purpose. We also install high hot spots for 5.8 MHz and 2.4 MHz for communities as small as 5 homes or more. The total estimate for the SCS Rural WISP infrastructure is 1.4 million dollars. Of this amount, SCS has already provided a half million dollars. This leaves a shortfall of \$900 thousand dollars to complete the original project laid out in 2006. It is this amount that we are requesting, to enable SCS to meet its goal of providing wireless broadband to Nelson County and northern Amherst County. This projects goal is to provide broadband to 30% of the county's unserved households at the end of the second year of the grant. This is based on our experience over the last three years of preparation for this expansion. A crew of 5 installers can handle an average of 3 installs a day. At the end of the first 240 working days, we would expect 720 installations and by year 2, an additional 753, totaling 30% of the households. With the income from these installations, crews can increase the number of installations during the third

through fifth years ending with an estimated growth to 2,274 households, or 47%. With the existing additional fiber available under our data center on Route 29, and with additional county support in Lovingston, we will easily be able to keep up with the growing demand for bandwidth. SCS will employ additional installers, network support and customer support personnel directly and indirectly as a result of any federal assistance. These people will come from our local communities, hard hit by the current economic environment. By year three, SCS support staff will have increased by a minimum of ten people. The impact on the local community is hard to assess, but we have already proven the impact on jobs and business functions by providing our current broadband services. Businesses such as Nelson Homes, Mays Farmer Services, Saunders Construction and Harmony Hill Enterprises all have been upgraded from dial-up, BBPL, or Satellite, and have better business support via wireless internet broadband. The housing market here is greatly affected as well, as homes with our broadband services sell easier and faster. In summary, Tye River Farms through Stewart Computer Services (SCS) has proven their commitment to bringing wireless broadband to Nelson and Amherst Counties with three years of persistent hard work and investment prior to this grant. The current recession has greatly affected the progress of SCS's goal to provide wireless broadband across the region, by reducing revenues and cash flows in other areas of our business. These funds were being used to finance our infrastructure growth. We at SCS have intimate knowledge of this territory and the expertise to fulfill the SCS Rural WISP project goals. We hope that our grant request will be awarded, so we may work together with our state and county to enrich the lives of our neighbors, and for small businesses like our own. In 1993, our company, Ideation Inc. in Amherst, VA, brought the first local dial-up internet service to hundreds of people and businesses that had no internet access at all. We met that challenge for 7 years. Today the challenge is reminiscent of that effort. We are, and will continue to make a difference in our community and to individual's lives. Together, "Yes we can"! Clayton Stewart CEO, Tye River Farms, Inc., DBA Stewart Computer Services