

**Testimony of Robert Whitman, Corning Incorporated, June 27, 2002
Before the U.S. Department of Agriculture Rural Utilities Service**

**Views on the Administration of the Broadband Loan Programs
of the Farm Security and Rural Investment Act of 2002.**

Good afternoon, Administrator Legg and distinguished guests. My name is Bob Whitman, and I am an employee of Corning Incorporated and a Board member to the Fiber-to-the-Home Council. The Fiber-to-the-Home (FTTH) Council is an association of companies working to accelerate the deployment of advanced broadband networks throughout America. The Council currently has 66 member companies consisting of equipment suppliers, service providers, engineering firms and content providers whose stated mission is to educate, promote, and accelerate optical fiber deployments to the home and the resulting quality-of-life enhancements. I am very pleased to be here to provide you with my comments.

I. Principles and Criteria for Administration of Broadband Loans.

We believe that the Farm Act's broadband loan programs could play a very significant role in bringing robust broadband services to rural America. In administering these programs, we suggest that the RUS apply two overarching principles: 1) technology neutrality, and 2) highest level of service.

- 1) Technology neutrality. We believe strongly that the federal government should not pick winners and losers among broadband technologies. Where different technologies compete for limited federal monies, decisions should be determined by considering which technology offers the greatest public benefit as well as adequate "future proofing."
- 2) Highest level of service. Clearly, when taxpayer money is involved there is an obligation to use that money to provide the highest possible level of service, and thereby to obtain the greatest public benefit. To ensure the highest level of service, we believe the RUS should follow five criteria in administering broadband loans.
 - Bandwidth provided;
 - Ability to provide multiple services;
 - Ability to scale bandwidth in the future;

- Reliability of the infrastructure; and
- Security of the network.

I would like to take a moment to discuss each of these criteria and why they are important.

Bandwidth provided. The Farm Act leaves it up to the RUS to determine the definition of broadband, but indicates Congressional intent that broadband be defined in a manner that allows the transmission and receipt of “high-quality voice, data, graphics, and video.” We would submit to you that the Service’s current definition of 200 kilobits per second (kbps) does not meet this requirement. As a real world example of the inadequacy of 200-kbps-standard, consider the recent statement by video-on-demand company Intertainer, Inc in a letter to the Federal Communications Commission indicating that 500 kbps per second is the absolute minimum necessary to view streaming video:

Our experience in delivering these digital products, however, indicates that a very large percentage of current-generation broadband subscribers lack the ability to receive digital products in quality fashion. Specifically, roughly half of broadband users who try to download a movie from Intertainer are unable to do so because their DSL or cable modem connection is too slow, delivering less than the minimum 500 kilobits-per-second of sustained speed, which we require in order to receive our movies in a quality fashion.

Letter from Jonathan Taplin, Chief Executive Officer of Intertainer, Inc. to the Federal Communications Commission, May 22, 2002. (Attached.)

Clearly, if anything short of a 500 kbps connection is too slow to receive high-quality video, then a 200 kbps connection fails to meet the statutory standard. When one considers the multiple simultaneous applications that the typical family will use – e.g., children watching different televisions, one parent engaging in a distance learning class via videoconference, another parent downloading files from the office -- we believe that “true” broadband should be defined in terms of several megabits per second. We urge you to keep in mind that emerging applications are often very data intensive, such as DVD-quality video, which typically requires 4 Mbps, and HDTV, which requires at least 6 Mbps per channel. Whatever definition of broadband you adopt, we suggest that loan applications for broadband networks should be

prioritized based on the bandwidth to be provided by the proposed system. For example, a proposal for a 10 Mbps network should receive priority over a proposal for a 1.0 Mbps network. The greater the bandwidth the more life-enriching applications which can be provided to the public, including telemedicine, e-learning, telework, videoconferencing, file/photo sharing, research, entertainment video and others. It is important to note that there is increasing support in Congress for the principle that greater bandwidth should receive greater governmental support. Specifically, the Broadband Internet Access Act (S. 88/H.R. 267) provides a 10 percent tax credit for “current generation” broadband deployments (1.5 Mbps or higher) and a 20% tax credit for “next generation” broadband deployments (22 Mbps or higher). This legislation has huge support in Congress, with 65 cosponsors in the Senate and 197 in the House of Representatives. A modified version of the legislation, with a slightly lower 1.0 Mbps definition for “current generation broadband,” passed the Senate Finance Committee last year and is expected to be included in that panel’s small business tax package later this year.

Ability to provide multiple services. Again, following the requirements of the statute, RUS broadband loans should be used only for infrastructure that supports high-quality voice, data, graphics and video. We believe Congress demonstrated great wisdom with this requirement, because a robust infrastructure must be capable of providing these four essential services in order to meet the needs of rural communities. Once a rural community builds a broadband network, there will be no overbuild in the near term. Therefore only those projects which provide a robust infrastructure supporting multiple services should be considered.

The ability to scale bandwidth in the future to meet increasing demand- Creating an infrastructure that can support not only the current services but also future services provides great public benefit. Several studies from organizations such as RHK, AT&T, BCG, OVUM and McKinsey conservatively indicate that bandwidth demand grows on average 60-80% per year. If we were to reject the experience of Intertainer, Inc., as discussed above, and assume that the current RUS standard of 200 kbps is sufficient to meet bandwidth needs of residents and business in rural communities today, then in the next 10 years their bandwidth needs will be between 10-40 Mbps and growing exponentially from there. While many technologies can meet 200 kbps today, few can scale to meet the needs of tomorrow. Therefore, it

is essential to give priority to infrastructure that can increase in scale as bandwidth demand increases.

Reliability. A robust infrastructure that requires minimal maintenance, is cost effective and can withstand the test of time, weather and natural disasters should receive priority.

Security. One of the most comforting aspects of rural America is the security of community. The recent events of September 11th remind us of the value to be placed on security. Security should not be an afterthought it should be built into the network to prevent costly repair add-ons later.

II. The Role of Fiber-To-The-Home in Rural America.

Many believe that FTTH will become a reality only in the distant future, and that when it happens it will happen only in urban areas. But in fact, FTTH is already happening, and much of it is happening in rural areas.

Attached to my testimony is a list of rural FTTH communities already existing in the United States today, followed by a list of those under construction. This list, compiled by the FTTH Council, reflects the fact that 50% of all existing FTTH networks in the United States have been built **in rural America** by rural local exchange carriers, cooperatives, and municipalities. I believe this is happening for three reasons.

- There has been little incentive for the large incumbent telephone and cable companies to build broadband networks in rural America. The most logical place for the large service providers to start building broadband networks is in locations where they have a large customer base and infrastructure that can support broadband. The result is that rural America has often been denied broadband, and is now starting to build its own FTTH networks. In fact, according to information gathered by the FTTH Council, only 15% of FTTH networks have occurred where broadband already existed.
- Rural America wants a future-proof solution. As with any utility service, it is far better to make a large broadband investment once, rather than multiple large investments as requirements increase. The ability to make incremental additions or improvements is not an option. New networks must be built to support the demands of the

future. Optical fiber has a useful life of over 40 years, supports any imaginable data rate, doesn't corrode, and is immune to external noise and electrical signals. One large incumbent telephone company has stated that in a FTTH architecture "optical fiber provides a first installed cost savings of \$150/subscriber as a net present value for 10 years over copper". Optical fiber is the medium of choice when considering the topics of reliability and security. As a result, rural America has been choosing FTTH as fast as the rest of the country.

- Rural America is more concerned with the long-term social, educational, and economic benefits that "true" broadband networks bring to a community. Economic growth and the ability to compete with larger cities have driven small communities to build their own networks to attract and retain professionals and businesses while providing their communities with new life enhancing applications over the network.

As an example of the benefits of FTTH to rural communities, I would like to share with you some information about a community in Washington State that has embraced FTTH as a solution to their network needs. (See attached letter.) Grant County is a community of 89,000 people, 37,000 homes/businesses. With a population density of 12 people per square mile, they are too small to attract advanced service offerings from providers - they even have three areas that have no telephone service at all. Concern for their small businesses and children's education prompted them to build out a FTTH network. Prior to the build out, feasibility studies indicated that if 15% of the subscribers passed by the network signed up for service it would be a huge success. They have signed up more than 35% in the first six months. Grant County cites pent up demand from residents with 60-80% of the residents expressing interest in signing up for fiber to their home. With 7,000 homes now passed with fiber, the county is starting to realize concrete benefits, including:

- Five new businesses have been attracted to the county and 96 new jobs have been created, generating roughly \$8 million in economic development;
- A chemical plant with headquarters in Sweden have cut their visits to headquarters by 80% through the use of videoconferencing;
- The schools have access to educational programs and interactive learning. The local community college is involved in a distance learning program with one of the local high schools. Two other

high schools are tied into a program with the University of Washington;

- Hospitals are sending digital x-ray images they would normally fax, saving time and improving the clarity of the image.
- Real estate appears to be positively affected. As an anecdote, two near identical homes in the same neighborhood were for sale. The one wired with fiber received multiple competing bids, while the other house receive none;
- Farmers are using the Internet to track markets for their products and stay on top of the latest livestock and crop research as well as monitoring local weather reports;
- Gas stations found the network cuts down credit card processing time significantly.

Grant County is one of a number of rural communities discovering the benefits that a robust broadband infrastructure brings to a community. Communities in Kansas served by Larry Sevier and Rural Telephone are similarly situated, attracting business, creating jobs, and improving educational and health care services. The opportunities, applications and ideas are endless. Fiber to the home will prove to be a major economic development driver for the communities that deploy it. Five years from now, when other communities are regretting the fact that they invested in old technology, FTTH communities will be glad they chose a cutting-edge alternative.

Madame Administrator, because of the important role FTTH will play in allowing rural America to enjoy the most advanced applications information technology has to offer, we urge you to look favorably upon FTTH projects as you consider applications under the new broadband loan programs.

I thank the RUS for the opportunity to be here today, and I would be happy to answer any questions you might have.