Wireless Service Depends on Robust Wireline Networks

The Realities of Wireless Networks

Although wireless technology offers valuable economic and consumer benefits, wireless services would not—and will not—be able to exist without the support of a robust and reliable underlying <u>wireline</u> network.

Often the only wireless portions of wireless communications are from the wireless handset to the nearest cell tower and/or from the cell tower nearest to the wireless handset. Likewise, a mobile or fixed wireless broadband user attempting to watch a video on YouTube or check sports scores on a smartphone uses a wireless signal for only the smallest part of the transmission. Even femtocell technology—which many mobile broadband providers are using to boost the indoor capability of their devices through WiFi—has a range measured in feet and relies on wireline connections (such as DSL or cable modem service) in each premise to connect beyond the walls of the premise itself to the Internet. A robust wireline backbone network therefore ultimately provides the broadband bandwidth necessary to deliver data and video quickly and reliably.

Investing in an Efficient and Effective Broadband Infrastructure

The National Broadband Plan estimates that the nation's demand for bandwidth doubles every three years. As demand for wireless services expands beyond mobile voice, wireless networks will be pushed closer and closer to their capacity limits. Indeed, wireless providers themselves have cited such capacity constraints as the reason that they should be exempt from certain network management rules, and the FCC itself has recognized such limitations by subjecting wireless networks to a lesser standard of regulation.

In the end, only wireline networks will be able to accommodate the massive growth in data traffic driven by mobile data, video, and business applications. As the President and CEO of CTIA-The Wireless Association has written:

> *Due to the science and physics of spectrum use, there is only so much capacity that is available. This differs dramatically from landline and cable broadband service. One strand of fiber has more capacity than the entire electromagnetic spectrum. So even if we were able to get all the spectrum available in the U.S., we still wouldn't be able to have the same capacity as a single strand of fiber.*

Good engineering practices must ensure that broadband systems are designed to support future speed requirements. For example, the National Broadband Plan contemplates that service speeds should be re-evaluated every 3 to 5 years because broadband bandwidth requirements change frequently. It is therefore critical public policy that investments made today—including federal universal service support for broadband infrastructure—go toward a network that is as future-proof as is reasonably possible.

Fiber-optic cable represents that future-proof technology. Fiber has sufficient capacity to eliminate the need for costly upgrades in the near-term future. As the Association of Communications Engineers notes, "demand for copper cable has decreased, and the costs of manufacturing copper cable have increased. As a result, installation of fiber cable is generally a less expensive option compared to copper cable."

Promoting and Preserving Essential Wireline Networks

Wireline networks are efficient and effective, but they also require ongoing investments to accommodate ever-increasing traffic and innovative applications, particularly in the hardest-to-serve areas of the United States. A universal service funding regime that funds only wireless networks in some areas—or a revised support mechanism that otherwise diverts critical funding away from wireline networks in the most rural, hard-to-serve areas—will have tragic and long-lasting consequences for **both** wireless and wireline broadband access in rural America.

The Rural Associations therefore urge policy-makers to take the necessary steps to ensure that robust rural wireline networks can be maintained and upgraded on an ongoing basis so that they may continue to support wireless networks and their users.