**The Planning and Development Committee**
**Public Hearing, March 11, 2016**

**Raised S.B. No. 331**
***An Act Establishing A High-Speed Internet Service Pilot Program***

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We are North West Connect (NWCONNect), a community organization composed of elected officials and private citizens working to realize universal fiber optic communications in the northwest corner of Connecticut.

We believe there are compelling reasons to upgrade *all* homes in Connecticut to Fiber Optic cabling sooner rather than later. We further believe that the subject legislation has the potential of accelerating this upgrade to the benefit of the state, its citizens, and its economy.

Our telecommunications build out since the end of regulated monopolies in 1984 has relied upon market forces rather than community or general economic requirements external to the telecommunications market itself. Market forces to date have done admirably well—CATV passes as many as 95% of homes in Connecticut with data rates for subscribers now at 50 mbps, and telephone companies have moved fiber so close to many homes that their their U-Verse product competes favorably with CATV for comparable data rates.

However, natural market forces have stalled relative to the next generation network. In a world where some industrial countries have connected almost everyone with fiber lines through public funding, America can count less than 15% of its homes now with fiber optic lines, and the major supplier of those lines, Verizon, terminated new community builds in 2011. The reason is not hard to find. There are insufficient incremental revenues to justify the considerable costs of fiber to the home—$2400 or more per home for an incumbent with some existing fiber infrastructure, a figure ranging from $3000 to $4500 per home for all new infrastructure (assuming aerial wiring—the figure rockets upward for underground cabling). Meanwhile, competition forces pricing down for telephone and television even as fees for television rights spiral out of control, the reason deals are offered everywhere. Unhappily, no new applications with broad appeal appear on the horizon with the power to move aggregate revenues up. Thus CATV companies upgrade their existing network through DOCSIS 3.0 and 3.1 modems, and incumbent telephone companies compete with Fiber to the Curb, using the last little bit of twisted-pair wiring to realize rates as high as 100 mbps, even 1 gigabit with G.Fast modems, each for selected customers willing to pay higher prices.

No one can seriously doubt that Fiber to the Home will be the only communications network to every home in Connecticut thirty or forty years from now. The question is whether the state and its citizens can wait for natural market forces to get us there, or

must communities take some measure of control over their own network capacities. We believe communities must take control, particularly rural communities already abandoned by CATV and telephone companies for series network upgrades. But we believe urban communities face the same problem. The argument cannot rest on a single issue—there is not one spotlight reason demanding Fiber to the Home sooner rather than later. But the accumulation of several issues pushes the question over the edge. We must move sooner rather than later. Moving sooner means some form of community funding.

First, Fiber to the Home does things no CATV or U-Verse network can provide. It offers data rates to the home at 100 gbps, now, a rare need but examples for home medical businesses are on record using just this speed. Data rates are symmetric, the upstream rate equal to the downstream rate. Many new applications profit from this feature, and some important new applications such as video sharing depend upon it. Fiber networks have lower latency (signal delay) then copper networks, with better capacities to control latency, a feature soon to be required for the Internet of Things and telemedicine, not to mention the possibility of $100 terminals using remote computing resources to realize the capacities of a workstation (they are called "zero clients" and are now commonplace in large corporations because of their low initial costs and much lower maintenance profiles, but they are easily imagined on every school desk and municipal workplace). If we hope to court IT programmers to Connecticut who work from home but access a corporate data center, the zero client solution will either be mandatory or extremely attractive. Finally, fiber networks are inherently more reliable and cheaper to maintain than modern copper networks, largely because passive fiber networks have no embedded electronics, the most common source of failure in copper networks. As we become increasingly dependent upon networks for safety and education, network reliability will grow in importance. Even poles will last a lot longer if relieved of the huge weight of copper lines.

Second, rural mobile communications are terrible, and we believe the pressure on urban mobile communications will also cause severe pressures on large cell antennas. We need Distributed Antenna Systems (ODAS) to augment towers in our rural areas now, and almost certainly in urban areas in the near future. These antennas need fiber optic connections. CATV companies are not in this business and therefore will not install them nor are they likely to let communities use their lines for community mobile antennas. Our major telephone company is also not in the mobile network business. Those in the mobile business cannot afford both the antennas and the fiber cabling just for their users. On the other hand, a community-funded venture, with anyone, can carry this mandate as a condition of business, and render our mobile infrastructure an educational, safety, and economic asset instead of a disaster in the making.

The third reason is time. We are surrounded by states spending tens of millions of public money on rural broadband precisely to increase their competitiveness. The loss will be ours. If we can accelerate widespread gigabit broadband, we establish ourselves as a credible location for information technologies of all sorts. The promise alone will be magnetic. (This is really the story of Chattanooga, the poster child for fiber networks. They attracted new business by looking like a forward-looking city, even if the new businesses did not need Fiber to the Home facilities.)

The fourth reason concerns universal access. Universal access has always been considered an essential public good, one fulfilled by previously regulated telephone companies. It has been expensed at the altar of competition. Our incumbents are not required to connect everyone, and therefore they do not. Only municipal funding with a suitable mandate will restore it. We blame no one for this problem. But it is a problem, one only solved by vigorous community action.

Finally, we believe for our rural communities, and in some ways for the state as a whole, that economic development based on high technology businesses will require certain facilities from fiber networks which are not necessarily, or even likely, to be supplied by CATV companies. Very low latency access to local data centers number among them. NWCONNect considers it a duty to craft an economic development map which comprehends these needs and then finds a way to fulfill them. Municipal funding, in whole or in part, is the only way to realize them in a timely and successful fashion.

The present legislation offers some communities in Connecticut to start such projects before asking for municipal money, a process in our state which will be difficult and time consuming, even if in the end it will be necessary (we know the state in its present financial condition can do little more than the funding suggested in this legislation). Furthermore, it would empower the Office of Consumer Counsel to craft real proposals for all communities around real histories with real success in Connecticut rather than pull stories from communities in other states with sometimes questionable relevance to our own situation.

We urge passage of this legislation and we urge that OPM follow with expeditious application rules and application processing.