

My name is Jack McCoy, and I am the Chief Information Officer (CIO) from the Town of Manchester.

I am submitting this testimony in support of S.B. 331, AN ACT ESTABLISHING A HIGH-SPEED INTERNET SERVICE PILOT PROGRAM.

**Legislative Subcommittee 3 minute summary from written submission attached below**

- **Deliver gigabit Internet service at prices comparable to other gigabit fiber communities across the nation**
- **State's communication providers are stalemated at deployment of copper cable-limited Internet Access**
- **\$30million to \$150 million for each Competitor using the municipality's rights-of-way and Utility infrastructure.**
- **to create a municipality's Detailed FTTP Specifications within a Feasibility Study as an incentive for one or more of the carriers or their competitors**
- **– most importantly, a Detailed Specification need only be done once for all competitors use if the municipality's building infrastructure is part of the Spec!**
- **the Municipal FTTP Spec would be for an "Open Access" network**
- **significant outcry from the current infrastructure providers that the populace is not asking for this**
- **The providers are supplying 10 Million bits per second (Mbps) at about \$50 per month instead of \$15 with Fiber and custom 100Mbps at \$2,000/month removes high speed from most peoples consideration when 1 Billion bits per second, the typical speed of a resident's new PC, costs about \$50 per month in Fiber To The Premise networks. This pricing disparity between the status quo and new technology pricing is a different view of why providers are not building FTTP in Connecticut .**
- **Why build more to charge less?**
- **10 billion bits per second and above ranges – the IEEE performance standard for a pair of fiber optic cables connected to an Ethernet switch.**
- **a Gig Internet effort raises for discussion the missing 5 billion dollar infrastructure of fiber optic networking among the premises of the State**
- **coverage ideas determine whether the Gig Internet aids only privileged or targeted parts of communities**
- **Evidence It Can Be Done Successfully**
- **The Manchester project was Designed-Bid-Built on time, under budget and with fully functional connections for every location in the Manchester FiberNet "Cloud" as then-Mayor Cassano came to refer to it.**
- **The connected society of the 21<sup>st</sup> century, at least in Connecticut cities, can rely on a Fiber Optic infrastructure underpinning the FTTP Gig Internet if policy-makers choose to ask for its creation. It can be done!**

### Pilot outcomes

– **Feasibility Study.** This involves using the Professional Services of experts to examine the feasibility of a municipality successfully encouraging a new public infrastructure– the FTTP Gig Internet;

with

– **Detail Specifications.** This involves the creation of very detailed specifications for the creation of a unique and technically complex network vehicle that must generate revenue for the municipality, generate revenue for the network operating companies and establish opportunities for a wide range of conventional, new and yet-to-be discovered data communications products and services.

Specifications such as this with plans to the residents homes can cost, according to statements from the Gig Internet municipal meetings, about \$250,000 for a municipality – most importantly, a Detailed Specification need only be done once for all competitors to use if the municipality's building infrastructure is part of the Spec!

## Supporting Text For Legislative Policy Makers

from Longer document on Manchester Gig Internet

From Broadband Communities magazine "Gigabits Across Connecticut" – William Vallee

The goals of the Gig Internet effort:

- Create a world-leading, gigabit capable network in targeted commercial corridors – as well as in residential areas with demonstrated demand – to foster innovation, drive job creation and stimulate economic growth.
- Provide free or heavily discounted Internet service at 10 Mbps – 100 Mbps (minimum) over a wired or wireless network to underserved and disadvantaged residential areas.
- **Deliver gigabit Internet service at prices comparable to other gigabit fiber communities across the nation.**

## Municipal Analysis

Concept: Proposals were reviewed by the Municipal Policy Makers and their analysts in various communities (New Haven, Hartford, Bridgeport, Manchester, etc.). The need for encouraging increasing broadband throughput for the state's Internet at affordable prices surfaced as an economic development factor in the 21<sup>st</sup> Century.

A common economic concept also surfaced that the State's **communication providers are stalemated at deployment of copper cable-limited Internet Access** – essentially 10 million bits per second at around \$50 per month per subscriber. Reaching the home or premise with current day fiber optic cabling is the simply stated stalemate breaker.

None of the major competitors have acknowledged plans for accomplishing fiber to the premise (FTTP) – most likely because none is in a position to gain 100% FTTP market place subscription penetration on their individual fiber cabled network to cover capital costs. In any one community the cost of building such a network is on the order of **\$30million to \$150 million for each Competitor using the municipality's rights-of-way and Utility infrastructure.**

One simple objective of supporting the Pilot request is to **create a municipality's Detailed FTTP Specifications within a Feasibility Study as an incentive for one or more of the carriers or their competitors** to address the stalemated FTTP. Any provider could then move forward in planning competitive use of the municipality's utility right of way. Specifications such as this

with plans to the residents homes can cost, according to statements from the Gig Internet municipal meetings, about \$250,000 for a municipality – **most importantly, a Detailed Specification need only be done once for all competitors use if the municipality's building infrastructure is part of the Spec!**

Additionally, and probably most importantly, **the Municipal FTTP Spec would be for an "Open Access" network** where all competitors data communications packets could be accommodated because of the broadband capacity of fiber optic cabling and today's relatively inexpensive electronics.

### **Public Internet Access**

The most crucial demand from a political point of view is simply the municipal resident's benefits from Fiber To The Premise (FTTP) Internet Access - a 10 fold increase in Internet speed and decrease in the cost of previous levels of service.

There is **significant outcry from the current infrastructure providers that the populace is not asking for this** and that this is why they, the providers, have not provided it in Connecticut.

The providers are supplying 10 Million bits per second (Mbps) at about \$50 per month instead of \$15 with Fiber. Custom 100Mbps at \$2,000/month removes high speed from most peoples consideration. The unavailable 1 Billion bits per second, the typical speed of a resident's new PC Ethernet port, costs about \$50 per month in Fiber To The Premise networks. **This pricing disparity between the status quo and new technology pricing is a different view of why providers are not building FTTP in Connecticut.**

### **Inside vs Outside**

Inside our buildings – in hospitals, in industrial plants and in schools the multi-gig fiber optic infrastructure has taken hold. The situation where the major providers outside do not provide a superior infrastructure when the "pole" space is occupied by an inferior but profitable outdated one is a hard problem for them to fix. Thus the no-demand arguments are put forth.

The problem for the provider industry is not only new space for FiberNets. Inside our buildings the networks have gotten cheaper as well as faster. The copper networks outside have not followed this cheaper-faster model – they do not cost less and do not carry more

than their inside-the-premise counterparts. The Communications Provider industry knows this and thus chooses, quite rationally, to not build. Why build more to charge less?

Outside providers are not convinced, believing their own arguments, that they will sell more, despite the ever-growing demand coming from the PC's, cell phones, personal wrist instruments, smart TVs, etc. New consumer products are generating and using ever growing volumes of data and the carrier copper infrastructure is creaking under the load – as evidence, check your smart TV picture at 6:00pm for pixelating distortion!

## Education

### - Digital Divide in Education

A student who uses a computing and communications device that can get that student to educational resources over the Internet is educable by 21<sup>st</sup> century standards – be that student the most advanced “A” level performer from the most stable affluent family or the most disabled, disadvantaged student targeted by social systems for resolving our society’s problems. A common denominator, among those that are common, in the division between these two populations is communications. Not just any communications, it is that communications which is just emerging in today’s Internet.

It is not emerging in the 3 to 10 million bits per second Broadband of current copper cables connecting our State’s premises – it is emerging in the very conventional, inexpensive 1 billion bits per second fiber optic delivered connectivity of the newest local area networks inside our State’s buildings. The current common local area network (LAN) speeds of our networks in buildings is 1 Gig. A function of ever cheaper and faster Local Area Network Switches.

Our State problem is that this emerging technology that connects people interacting, learning and supporting each other with data and video inside our buildings does not have the fiber optic infrastructure equivalent outside. It simply does not exist throughout the communities of the State at a level that is affordable by everyone – thus a huge factor in the solution of the Digital Divide is missing here in Connecticut.

The State’s interest in a FTTP Gig Internet effort raises for discussion the missing 5 billion dollar infrastructure of fiber optic networking among the premises of the State.

### Municipal Pilot

**Feasibility Study.** This involves using the Professional Services of experts to examine the feasibility of a municipality successfully encouraging a new public infrastructure– the FTTP Gig Internet;

and

A community's geographic information maps, showing the paths of the Gig Internet to the doorsteps of the premises of our residents, should be a deliverable. This despite the **difficulty of and labor to create this one-time effort**. The financial "spreadsheet models" detailing fiber cable connectivity and electronic Ethernet switches to the **municipal structures (Schools, police/fire, and municipal buildings) which are part way to the municipal neighborhoods**, must be a minimum set of metrics for feasibility assessment.

**A full mapping and costing to the end resident premise is a significantly large effort but a significant risk reducer in uncovering hidden difficulties and their costs.**

### The Policy Decision

This level of detail also sheds light on the cost components and opens the political discussion on Ubiquitous Coverage of the Gig Internet vs Cherry-picking Coverage strategies. These two **coverage ideas determine whether the Gig Internet aids only privileged or targeted parts of communities** and ultimately establishes the scope of costs in total.

Some communities may want to see, as part of Feasibility, a specification completely laid out to the premises to be connected. This is possible. It reduces the risks of the Build-out of the Fiber and Data Switching to the Premise; leaving only the inside-the-premise electronics to a feasibility estimate. This might be finalized in a municipal bidding process for hundreds of thousands or millions of individual end-FiberNet connections . In this part of the Pilot case, the Inside-the-premise Feasibility scope estimate might be simply to state the market place unit cost for a resident to go to the electronic store to buy the type of meg, gig or 10-gig Ethernet Switch they want.

Therefore, in the Inter-Local-Agreements of the participating municipalities there is needed resolution to choose how far to take their project into the risk-reducing detail of the Feasibility Study's Network Specification. Recognizing the value to and impact on individual

communities is Policy work and deciding on how far to invest in the details of a very-reusable Network Specification is a Policy Decision and the point of the Pilot.

### **Evidence It Can Be Done Successfully**

Manchester, in its ultimate test of Municipal Gain rights – the building of a city-wide fiber optic network inter-connecting every single municipal, school and public safety building, deliberately chose to develop detailed specifications for Connecticut's first Municipal FiberNet. To fail to fully understand the risks and to have the project fail because of this, would have stood as proof that municipalities might have been able to build fiber optic networks inside their buildings, but outside networks could only be built by TelCo's and CableCo's who were simply not going to provide this product.

Manchester invested in developing specifications down to the nuts, bolts and cable to every inch of the 44 miles covered and electronics to every one of the 34 schools, municipal buildings and public safety locations connected. **The Manchester project was Designed-Bid-Built on time, under budget and with fully functional connections for every location in the FiberNet "Cloud" as then-Mayor Cassano came to refer to it.**

The dollar effect has been millions of dollars in telecom costs avoided over the decade. Plus, this communications resource was the fundamental technological underpinnings to a city named a nationally ranked "Digital City" six years running.

The dispersion of technological benefits and municipal efficiency was stunning to those who appreciate this somewhat arcane area. More importantly, however, Manchester's technology and the Manchester FiberNet were effective tools used by the municipal employees, teachers and public safety participants, both professional and private volunteers, who helped the city get through the Two Storms, the Recession and now are facing, like city staffs everywhere, the madness of cyber-terrorists and physical terror concerns.

**The connected society of the 21<sup>st</sup> century, at least in Connecticut cities, can rely on a Fiber Optic infrastructure underpinning the FTTP Gig Internet if policy-makers choose to ask for its creation. It can be done!**