

Municipal Fiber Backgrounder

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What Is Municipal Broadband?

Municipal broadband deployments are broadband Internet access services provided either fully or partially by local governments.^[1] Common connection technologies include unlicensed wireless (Wi-Fi, wireless mesh networks), licensed wireless (such as WiMAX), and fiber optic cable. Although many cities previously deployed Wi-Fi based solutions, municipal fiber-to-the-home networks are becoming more prominent because of increased demand for modern audio and video applications, which are increasing bandwidth requirements by 40% per year.^[2] [From Wikipedia https://en.wikipedia.org/wiki/Municipal_broadband]

Why Fiber Over Technologies Such as 5G/WiMax/?

Fiber has several advantages over 5G.

- 1) Relatively cheap to deploy and maintain using existing public right of way via telephone poles
- 2) Provides symmetric (up and down) 1Gbps with no bandwidth caps today, will be 10Gbps in 5 years
- 3) Energy efficient. Light transmission takes very little energy to deliver to all homse. A single 5G antenna can consume 800W when the 5G is transmitting high volume traffic.
- 4) No large antenna needed on telephone poles
- 5) No additional fire hazards on telephone poles (e.g. 5G antennas, power supply, battery backup, meter, etc., see also recent fire in Forest Knolls)
- 6) If 5G antennas are top mounted, 5G crews will be dealing with high voltage power lines (something they don't do now).
- 7) Works even if the power goes out. As long as there is power in the central office (like old style POTS phones) the light signal continues to be sent even if power goes out to a neighborhood.
- 8) Fire safety. Fiber is better than 5G in a fire scenario where power to a section (or all of) the city or county has gone down for an extended time. Only need a single generator at the head end rather than generators at all 5G antennas.

Other advantages, disadvantages and legal issues can be found on Wikipedia.

How Does It Work?

There are three options for bringing fiber to a community - private, public, or a public/private partnership.

1) 100% private

Wait for the incumbents to do it using cable, fiber or 5G. Comcast, AT&T, Verizon, etc.

This is the wait and hope strategy. 5G is just now rolling out to four cities, and no timetable for nationwide deployment.

Pricing for 5G with 300Mbps will be \$50-\$70/month. The \$50/month price is only available if you are also a Verizon cell phone customer.

2) 100% public

Float a bond measure to do it fully publicly. Owned and operated by the city/county. Also absorbing all the risk.

There are currently 55 municipal networks serving 108 communities with a fully publicly owned Fiber network. 76 communities with a publicly owned cable network.

197 communities with some publicly owned fiber service available to parts of the community (often a business district).

More than 130 communities in 27 states offering at least 1Gbps service.

See Community Networks website at <https://muninetworks.org/communitymap>

3) Public/private partnership

Find a private partner who will do the build out, and then operate it, including operational items such as tech support. The partner absorbs all risk. Partner owns the network at the end of the contract.

Typically funded via a utility tax. Contract for 7-10 years, then the system reverts to the private partner. After the tax obligation ends, consumers are free to subscribe or not, or put forward another bulk purchase ballot measure tied to upgrades in performance, lower costs, policies, etc. (Becomes an opportunity for the city/county to make money?)

Utility tax would be put on the ballot - only requires a 50% pass rate(?). Can also use a Mello-Roos district but that requires 2/3 vote to pass.

How Much

A utility tax of ~\$40/month per household for 7-10 years would provide enough for:

A) Build out via overhead public right of ways (i.e. telephone poles).

B) Installation and equipment for every household (fiber -> house -> ethernet inside the house + 8 hour battery).

C) No additional monthly fees. Each user gets 1Gbps service for the length of the contract from the \$40/month utility tax.

D) Free and faster service to city/county offices, police/fire departments, libraries, and schools can be part of the contract.