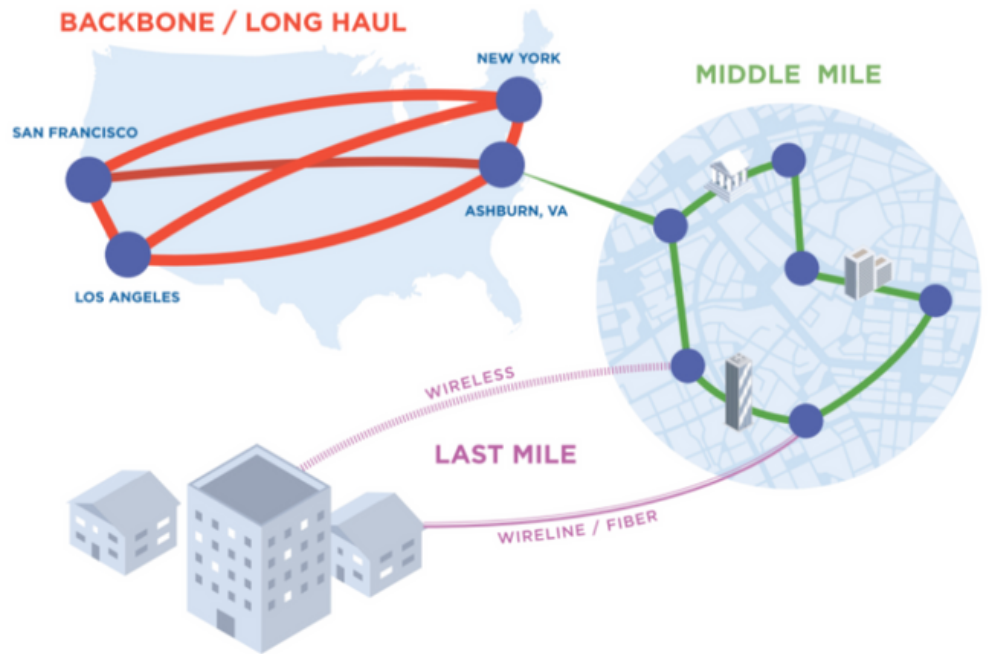


Broadband 101

The Basics of Broadband Infrastructure

Broadband is shorthand for the physical infrastructure of the internet. Like other utilities (water and electricity) there are several layers of infrastructure required to deliver service to households and businesses.

Simplified, broadband relies on backbone, middle mile, and last mile infrastructure:



- **Backbone/Long Haul** - massive networks with national and major regional reach. The networks run to buildings that act as exchange points, where data is passed between and across regional and local networks and providers.
- **Middle Mile** - high-capacity fiber-optic cables that traverse long distances (e.g., 10s-100s of miles) to connect communities to the Internet backbone.
- **Last Mile** - cables or wireless bandwidth that connect individual addresses to the nearest utility poles or towers, which connect communities to the middle mile.

Broadband can be “wired” or “wireless,” with several types in each category:

Wired

- DSL - oldest, slowest, least reliable
- Cable - most common, can be fast + reliable
- Fiber - newest, fastest, highest capacity and most reliable

Wireless

- Fixed - stationary connection between two relatively close towers
- Mobile - connection through cellular towers
- Satellite - low-Earth orbit satellites that connect to fiber-optic middle-mile infrastructure

Note that both "wired" and "wireless" broadband depends on fiber infrastructure. Fun fact: cellular towers work by connecting to some of the same middle mile and backbone infrastructure that allows wired connection to your home!



Broadband 101: Fast Facts

Fact #1: Fiber or (fiber-optic) is the newest, fastest, and most reliable broadband, but it is not equitably available.

A UC Berkeley Haas Institute study found that AT&T's "initial fiber-to-the-home deployment is disproportionately focused on high-income communities" in California. They found some of the greatest disparities in investments in Los Angeles County. This is an artifact of digital redlining.

Fact #2: According to a California Emerging Technology Fund survey, 16% of California households and 19% of LA County households are unconnected or under-connected.

Primarily due to affordability, 1 in 10 households in LA County have no broadband access, and nearly another 1 in 10 are "under-connected" with access only via a cell phone.

Fact #3: According to the Federal Communications Commission, for internet access to qualify as "broadband", the minimum broadband speed threshold is 25 megabits per second for downloading files, and 3 megabits per second for uploading.

Broadband Now states that "internet speeds in the 100–200 Mbps range are ideal for most households since they can handle common activities like streaming and video chat for 2-5 users at once", and the FCC is in the process of raising the minimum standards.

Fact #4: Historic investments in broadband infrastructure are underway at the local, state, and federal levels. If they are invested in support of publicly-accountable projects to ensure equitable access to fast, reliable, and affordable internet, the digital divide could be closed.

The LA County Board of Supervisors passed the Investments to Accelerate Digital Equity motion, initiating a municipal community broadband network that will offer free broadband to the County's least served residents and beginning the planning process for county-driven broadband fiber-to-the-home network.

In 2021 the state budget allocating \$3.25 billion to build, operate and maintain a statewide public middle mile network and \$2 billion for last mile infrastructure. More than \$100 million is allocated to last mile projects in LA County. Planning for how those dollars will be spent is underway now.

Cities across Los Angeles County, including the City of Los Angeles, are engaged in studies and planning for how they can take an active role in ensuring public dollars are spent to create public assets that meaningfully and systematically deliver fast, reliable, and affordable internet for all.

TAKE ACTION FOR DIGITAL EQUITY

- **Support** publicly accountable internet infrastructure and internet solutions
- **Support** municipal, public agency, and nonprofit efforts to accurately and equitably map broadband access in Los Angeles
- **Demand** equal access and anti-discrimination requirements in city, county, and agency contracts with Internet Service Providers (ISPs.) DON't let public dollars support ongoing redlining.

