



Federal Reserve
Bank of Dallas

Immediate Broadband Solutions in Response to COVID-19: Strategies for Local Governments, School/Community College Districts and Community Stakeholders

(Based on a public webinar delivered on March 24, 2020)

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The COVID-19 pandemic clearly illustrates that broadband infrastructure is essential infrastructure necessary for building resilient communities that can effectively respond to such a public health emergency. This is a tipping point. Going forward it should be clear that lack of broadband infrastructure deployed throughout the community is a principle vulnerability that prevents the development of resilient cities and towns responsive to the public health, educational, and economic needs of all citizens. This is reflected in the thousands of articles and news stories regarding the digital divide and its detrimental impact on the unconnected that have appeared in local and national media outlets since the national emergency declaration. In this pandemic, it is also evident that lack of connectivity in low- and moderate-income communities affects everyone.

In light of the national emergency declaration, the Board of Governors of the Federal Reserve System (Federal Reserve), the Federal Deposit Insurance Corporation (FDIC), and the Office of the Comptroller of the Currency (OCC) issued a Joint Statement on Community Reinvestment Act (CRA) Consideration for Activities in Response to COVID-19, on March 19, 2020.

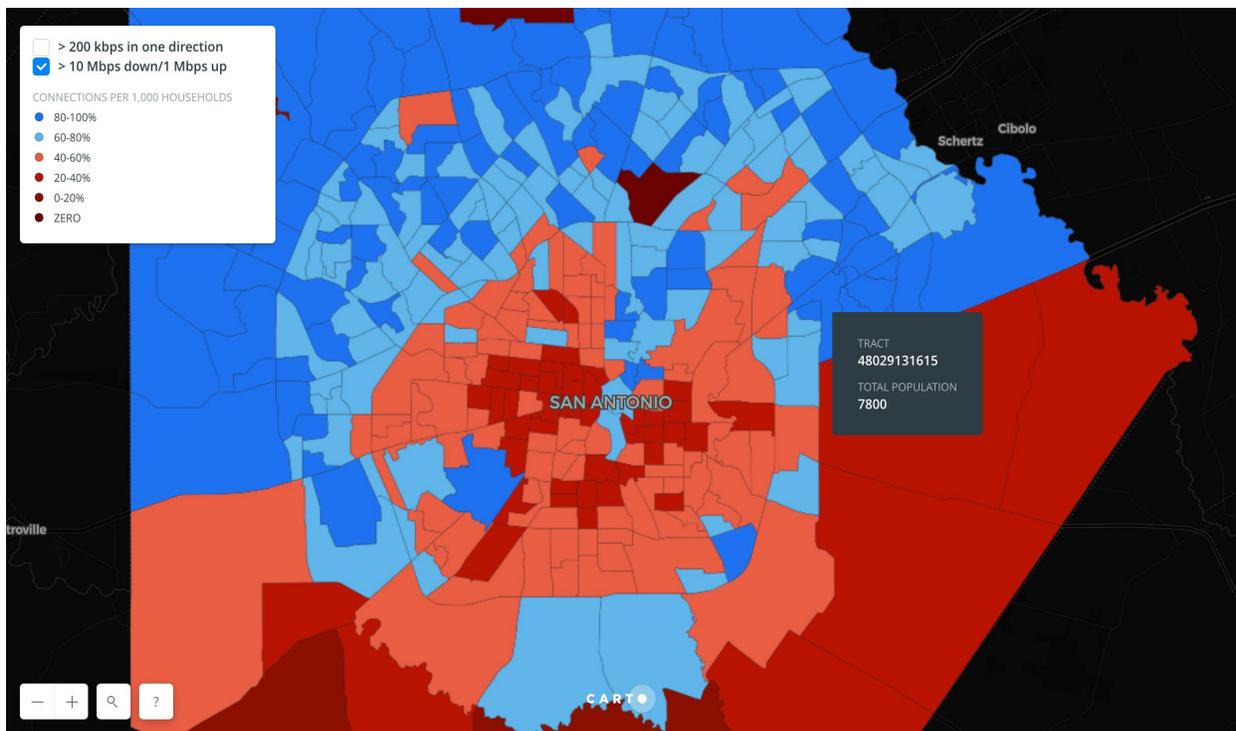
This latest guidance, at <https://www.federalreserve.gov/supervisionreg/caletters/CA%202020-4%20Attachment.pdf>, clarifies that financial institutions will receive CRA consideration for community development activities in response to the pandemic. Two of the critical activities the agencies enumerated in the COVID-19 guidance are, “*Loans, investments or services that support digital access for low- and moderate-income individuals or communities;*” and “*Loans, investments or services that support access to health care, particularly for low- and moderate-income individuals or communities.*”

This briefing document outlines the immediate actions that governmental entities, banks, and community stakeholders may take to narrow the digital divide during the current pandemic. To help low- and moderate-income residents, including students, abide by the directives for social distancing, it is necessary to quickly develop or expand connectivity projects that enable online learning and telemedicine, as well as remote work, access to financial services, e-commerce, and staying connected with loved ones.

The Digital Divide Precludes Resilient Communities

The Dallas Fed publication, “[Closing the Digital Divide: A Framework for Meeting CRA Obligations,](#)” highlighted the national scope of the digital divide and its impact on communities. To illustrate the impact of the digital divide on the City of San Antonio, the Digital Inclusion Alliance San Antonio provides an interactive map of the city, demonstrating that low-income zip codes have the least broadband connectivity. The correlation between broadband access and income level is common across American cities. The San Antonio interactive map overlays household internet subscriptions and income level by census tract. The map may be accessed at, <https://www.digitalinclusionsa.org>.

Map of Digital Divide in San Antonio and Bexar County



The homework gap, problematic under normal circumstances, is compounded when schools and colleges have to shut down and move to online learning platforms. In the U.S., in most urban areas, 30 percent of households earning less than \$50,000 a year do not have an internet subscription, according to the U.S. Census Bureau. Within the San Antonio Independent School District (which covers parts of the Westside, Central, Eastside, and Southside neighborhoods) 60 percent of high school students do not have access to the internet at home. Lanier High School, one of the schools in the heart of the Westside, has 75 percent of students without access. By comparison, in Northeast and Northside

Independent School Districts, nearly 90 percent of students have access at home (“Thousands of SAISD Students Lack Internet,” by J.J. Velasquez, *Rivard Report*, March 2, 2020, <https://therivardreport.com/thousands-of-saisd-students-lack-internet-heres-how-the-districts-tackling-the-digital-divide/>).

Federal and State public health officials called for health care offices and clinics to use telemedicine to replace office visits in order to provide care, expand access, and comply with social distancing and shelter-in-place directives. However, as the Dallas Fed has documented in [Telehealth Initiatives Highlight the Need to Close the Digital Divide](#) (2018), the digital divide limits the use of telemedicine in low-income communities since the platforms for telemedicine require broadband access. The publication also emphasizes the importance of telemedicine for national emergencies and disaster recovery.

Cities have an obligation to protect public health, grow the local economy, and manage public rights-of-way. Additionally, some cities control their own network infrastructure. This gives them the opportunity to close the digital divide alone or in partnership with other governmental entities and nonprofits. For instance, a partnership between a municipal government and a local school district or community college district is a powerful one because the two entities can come together to share broadband infrastructure to close the digital divide while providing the distance learning and the platform for telemedicine required to respond to a national emergency such as the coronavirus pandemic.

Immediate Solutions

The Dallas Fed has identified several immediate solutions within the control of municipalities and other local governmental entities, such as school districts and community college districts:

- Leverage public fiber network and vertical assets to support neighborhood wireless connectivity
- Redirect existing and new building WiFi hotspots outward to serve the public.
- Promote the free and low-income offerings of the internet service providers (ISPs)
- Incentivize wireless carriers and computer industry to donate connectivity devices
- Align bank CRA contributions with innovative local connectivity projects such as the types of efforts listed.

These solutions are described in more detail below.

I. Municipality and other governmental partners may leverage their own fiber infrastructure and vertical assets (towers, buildings, water towers) to support neighborhood-wide wireless hotspots

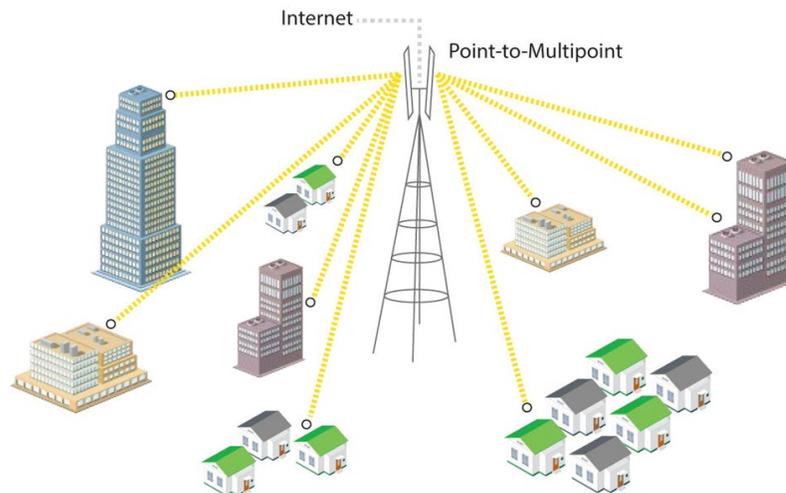
- Build single-to-multipoint neighborhood wireless network

These are the basic steps for building a single-to-multipoint wireless network to cover a neighborhood:

- Identify public vertical assets 150 feet high, with line of sight over the coverage area using 5GHz band (or 900 MHz w/o line-of-sight)
- Leverage public fiber if available for network connectivity to vertical assets.

- If public fiber is not available, use microwave technology for network connectivity to vertical assets.
- Each unit serves a neighborhood area of approximately 7x7 miles.
- Divide service area into four quadrants of several hundred housing units per quadrant.
- Install receiver devices at each home.
- Establish policies for connecting users to the network.
- Set policies to lessen the risk of network congestion.
- For large multi-family apartments, build WiFi hotspot covering the footprint of the complex with its own connection to the fiber infrastructure.

Single-to-Multi-Point Wireless Network Topology To Cover Neighborhood



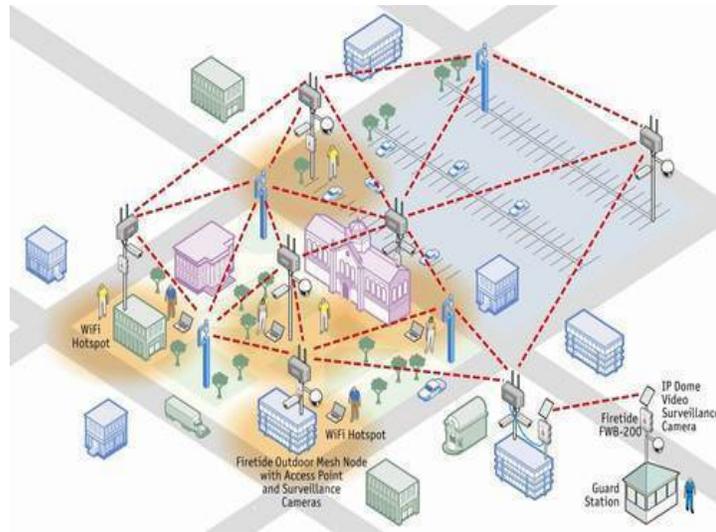
II. Redirect public building (libraries, schools, colleges) WiFi Hotspots Outward to Serve the Public

- Adjust antennas to transmit outside of building into parking lot area
- Leave on WiFi hotspot 24/7 or the hours deemed appropriate
- Establish policies for connecting users to the network
- Establish rules to practice safe social distancing within the parking lot area while accessing internet service, such as staying in the car.
- Set policies to lessen the risk of network congestion

For clarification regarding those school and library WiFi hotspots supported by E-Rate, the FCC's Wireline Competition Bureau confirmed, on March 23, 2020, that community use of E-Rate supported WiFi networks is permitted during school and library closures due to the COVID-19

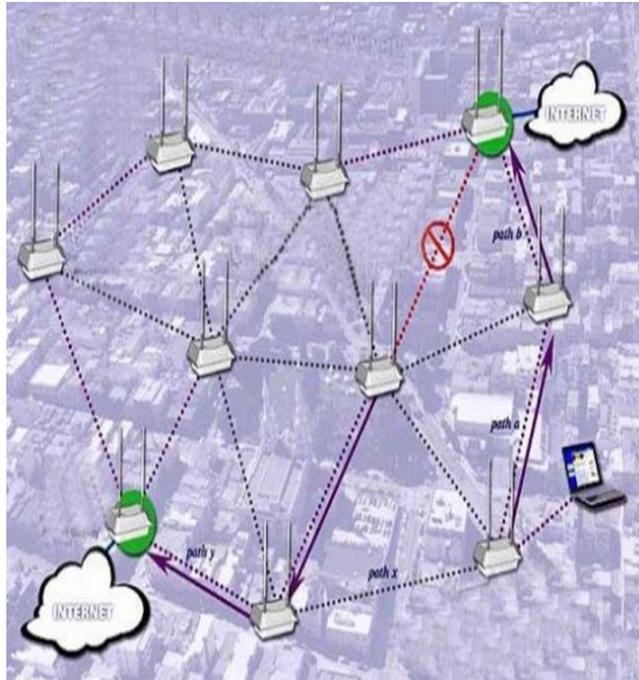
pandemic. In its order, the FCC stated, “We leave it to individual schools and libraries to establish their own policies regarding use of WiFi networks during closures, including hours of use. Here is a link to the order: <https://docs.fcc.gov/public/attachments/DA-20-324A1.pdf>.

WiFi Mesh Network Topology for Public Buildings Extending Into Parking Lots



- The Mesh Network topology illustrated above, can be applied to cover an entire neighborhood.

WiFi Mesh Network Topology Applied to Neighborhood



III. Promote the Expansion of Internet Service Providers' (ISPs) free and Low-Income Offerings to Respond to Pandemic Crisis

On March 13, 2020 in response to the pandemic the FCC issued the “Keep America Connected Pledge” asking broadband and telephone service providers to voluntarily agree to the following terms for 60 days: 1) Not terminate service to any residential or small business customers because of their inability to pay their bills due to the COVID-19 pandemic; 2) Waive any late fees that any residential or small business customers incur due to the pandemic; 3) Open their WiFi hotspots to the public.

Additionally, FCC Chairman Pai urged providers to increase eligibility and broadband speed of their low-income programs, relax data caps, and waive long-distance overage fees. He also urged broadband providers to work with schools and libraries on remote learning opportunities. Regarding all network operators, he advised them to prioritize the connectivity of hospitals and health care providers. Most providers nationwide have taken this pledge and incorporated some of the emergency measures.

To maximize the potential benefits of the “Keep American Connected Pledge” in individual communities, local leaders can:

- Work with ISPs to create a campaign to advertise their free low-income broadband service. This is important since ISP low-income products are undersubscribed.
- After the free period, the goal should be to keep people connected using a low-cost product.
- Work with ISPs to increase household utilization of Lifeline, the \$9.25 subsidy program for low-income households, or other subsidy programs that can be developed.

- Ask broadband providers to implement their free and low-income programs to all customers, irrespective of prior outstanding balances.
- Open existing WiFi hotspots to the public in low-income residential areas to provide free access.
- Banks can support schools and nonprofits that are working to connect LMI people to the free and low-cost programs.
- For details concerning specific low-income products, see the National Digital Inclusion Alliance Low-cost Internet Guide at: <https://www.digitalinclusion.org/free-low-cost-internet-plans/>

IV. Incentivize Wireless Carriers, Computer Industry, and Banks/Private Companies (through nonprofits) to Donate Connectivity Devices

- Work with wireless carriers (i.e., AT&T Wireless, Verizon, and T-Mobile/Sprint) to create or expand personal WiFi hotspot account programs with schools and other nonprofits.
- Partner with wireless carriers, computer industry and schools/nonprofits to expand programs to distribute WiFi enabled laptops, tablets, cell phones, and related connectivity devices.
- Partner with non-profits, such as Goodwill, Comp-U-Dopt, or PCs for People, to support their computer refurbishing and distribution programs
- Reach out to area financial institutions to support local efforts to contribute to these programs and initiatives under CRA.

Conclusion

The COVID-19 pandemic has revealed the extent to which the digital divide is a principle vulnerability that prevents the development of resilient communities with catastrophic public health, educational, and economic consequences to the entire nation. Local governmental entities are encouraged to leverage their fiber infrastructure and vertical assets in partnerships to bridge the digital divide in communities across the country. In particular, cities have an obligation to protect public health and can be a catalyst for these types of multi-government partnerships or public-private partnerships. The Dallas Fed will provide a detailed guide for local communities in the forthcoming publication, “Tipping Point: Broadband is Essential Infrastructure—A Guide for Local Governments,” by Jordana Barton and Gabriel Garcia, 2020.

Other Dallas Fed publications on broadband and digital equity:

- [Preparing Workers for the Expanding Digital Economy](#)
- [Telehealth Initiatives Highlight the Need to Close the Digital Divide](#)
- [Closing the Digital Divide: A Framework for Meeting CRA Obligations](#)