BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Broadband Infrastructure Deployment and to Support Service Providers in the State of California.	R. 20-09-001 (Filed September 10, 2020)

JOINT OPENING COMMENTS OF THE #OAKLANDUNDIVIDED COALITION AND THE GREENLINING INSTITUTE ON THE RULING ORDERING ADDITIONAL COMMENTS AS PART OF MIDDLE-MILE DATA COLLECTION

Vinhcent Le, Legal Counsel
Drew Martin, Legal Extern
The Greenlining Institute
360 14th Street, 2nd Floor
Oakland, CA 94612
Tel: 510-898-2053
vinhcentl@greenlining.org

Patrick Messac,
Project Manager
#OaklandUndivided Coalition
1 Frank H. Ogawa Plaza
Oakland, CA 94612
Tel: 518-542-8105
pmessac@oaklandca.gov

Dated: September 30, 2021

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I. INTRODUCTION

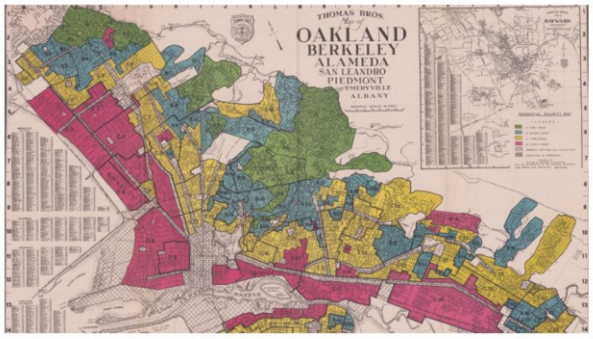
The #OaklandUndivided Coalition (#OUC) and The Greenlining Institute respectfully submit these comments ("Opening Comments") on September 9, 2021 E-Mail Ruling Ordering additional Comments As Part of Middle-Mile Data Collection ("Ruling").

The onset of the COVID-19 pandemic exposed the enormous disparities between those with access to the internet and those without. As schools closed, only 12% of students in Oakland from low-income backgrounds, the majority of whom are Latinx or African-American, had home access to a computer and reliable broadband internet.[1] #OUC, a diverse coalition of elected representatives, government agencies, community based organizations, families, and educators was founded in response to this crisis and mobilized quickly in the early days of the pandemic to ensure that every Oakland public school student would have access to three fundamental components of digital access: a computer, internet connection, and technology support in their home.

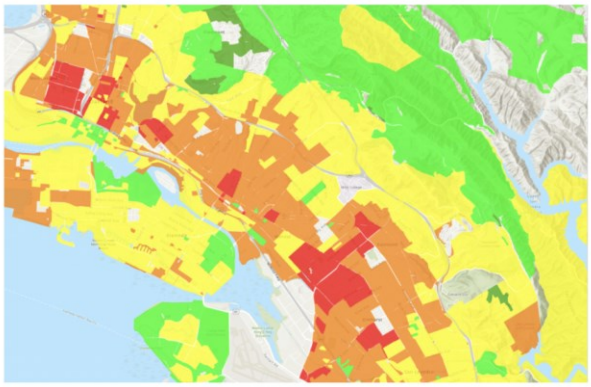
[1] Kollars, D. (2021, September 1). Advancing California Broadband On The Front Lines. CAFWD. https://cafwd.org/news/advancing-california-broadband-on-the-front-lines/

In the first phase of the work, the #OUC raised $12.5M dollars to support the purchase of 25,000 computers and 10,000 hotpots that were distributed to Oakland students.[2] While the data enabled hotspots have been a good stopgap solution to meet the immediate connectivity needs for thousands of Oakland households, spending philanthropic dollars on one wireless technology, alone, fails to rectify the underlying cause of the digital divide - decades of underinvestment in historically marginalized communities.

Today in Oakland, over 94,000 Oakland residents are without devices or internet access .[3] Geographically, Oakland residents who lack access to the internet are not spread evenly throughout the city but are generally concentrated in the flatlands, spanning from West Oakland to deep East Oakland. In a report released last year, the Greenlining Institute found a startling correlation between East Bay neighborhoods lacking broadband access and neighborhoods that had been redlined beginning in the 1930s.[4]



A historical redlining map of the City of Oakland and neighboring towns.


A heat map of the City of Oakland's Digital Divide in 2020.

Lack of access to internet services is threatening to become the new face of inequality. In addition to education, having a functional computer with an internet connection allows someone living in Oakland to enroll in city funded programs, participate in workforce development training, find a job, receive legal assistance, find housing, food, and access mutual assistance efforts in their neighborhoods and communities. The Commission has the potential to alter the digital landscape in this rulemaking, spurring investment that connects our students to

[2] Fernandez, L. (2020, July 29). 25K Laptops headed to Oakland students by late August, after school starts: OUSD. FOX KTVU. https://www.ktvu.com/news/25k-laptops-headed-to-oakland-students-by-late-august-after-school-starts-ousd.

[3] Tech Exchange. (2020, January 30). The Bay Area Digital Divide. https://www.techexchange.org/bay-area-access.html

[4] Greenlining Institute. (2020, June 2). On the Wrong Side of the Digital Divide. Technology Equity. https://greenlining.org/publications/online-resources/2020/on-the-wrong-side-of-the-digital-divide/

telelearning, our families to 21st century necessities (e.g., telehealth, telebanking, telework, public benefit etc.), and small businesses to economic opportunity.

As we move into the next phase of this work, the focus of the #OUC coalition has expanded to: (1) sustain and expand digital access for all Oakland public school students, and (2) advocate for broadband infrastructure investment that enables affordable, reliable, high speed, broadband access to all who want it in Oakland's under connected communities. In support of this work, The Greenlining Institute (Greenlining) is working with #OUC to advocate for broadband infrastructure investment in Oakland and in other communities of color facing barriers to equitable broadband access.

II. DISCUSSION

In considering issues 2-5 from the ruling regarding additional criteria for determining middle mile locations as well as how to make a statewide middle-mile network useful for ISPs, consumers, and last mile providers/public broadband networks #OUC and Greenlining provide the following comments.

A. "Overbuild" for Underserved: Middle Mile in Oakland's Flatlands

#OUC and Greenlining seek to amplify the voices of our constituents by calling for a more inclusive definition of unserved - one that not only considers availability of service, but also adoption rates within geographic areas. The disparity in connectivity is not - as some would suggest - solely a last mile availability issue and the Staff Report must also consider adoption rates in addition to other factors mentioned in the ruling, such as, affordability,[5] redlining, route redundancy and other economic development benefits, when determining where to build the statewide middle-mile network

Commercial internet service providers (ISPs) must consider the costs of construction relative to the potential revenue generated within a potential market. In Oakland's flatlands, residential units average lower incomes and there are fewer commercial units compared to surrounding communities, limiting last mile profitability, especially those to sell products at

[5] The Commission should use the affordability metrics developed in R.18-07-006 when assessing broadband affordability in census tracts potentially served by California's open access middle mile network. The metrics affordability metrics, Affordability Ratio (AR) and Socioeconomic Vulnerability Index (SEVI), track the weighted cost of broadband for a household and underlying social stress a household faces respectively. Urban census tracts that have both comparatively high unaffordability and social stress compared to others should be prioritized.

higher average revenue per unit (ARPU). With fewer lucrative last mile opportunities, commercial ISPs have less incentive to make the initial capital infrastructure investment in reliable, high-capacity middle mile fiber, constraining the number of competitors willing to enter Oakland's marginalized markets. Most publicly traded service providers expect a return on investment within about three to five years - an unlikely proposition in communities with lower incomes. The one or two companies that install fiber or rely on outdated DSL infrastructure function as a monopoly or duopoly. They have even less incentive to make their middle mile affordable and open access as they are influenced neither by (1) the market forces that drive innovation in a competitive market, nor (2) the regulatory environment that facilitates widespread adoption in other utility markets.[6]

Public private partnerships with new players will therefore be critical to bridge the digital divide and address the competition problem in Oakland's marginalized markets. Through a collaboration with TMobile, #OaklandUndivided helped connect thousands of Oakland students to remote learning. Targeting middle mile infrastructure investment towards communities with low levels of broadband adoption, will lower the cost of last mile interconnections, foster competition and innovation in the communities that need it most and invite new providers as well as public private partnerships that can provide the diversity of services needed to meet our constituents' unique needs. Decreasing the barriers to entry for the City, community-based providers, local companies, wireless providers, and innovative startups will encourage competition and more internet options, keeping California as the global leader in innovative technology.

State investment in middle mile fiber will pay dividends for decades to come, as fiber infrastructure is widely considered one of the few future-proof technologies in the Broadband sector. Not only does fiber provide scalable capacity exceeding thousands of gigabits per second; it is also impervious to interference and can support multiple users. The limits of fiber's durability haven't even been determined, as neither use nor time seems to produce any degradation in fiber infrastructure.[7] Older commercial copper and coaxial cable infrastructure is

[6] Shara, T. (2021, June 28). The broadband gap's dirty secret: Redlining still exists in digital form. CNET. https://www.cnet.com/features/the-broadband-gaps-dirty-secret-redlining-still-exists-in-digital-form/

[7] Mayor's Office of Chief Technology Officer (MOCTO). (2020, January). New York City Internet Master Plan. https://www1.nyc.gov/assets/cto/downloads/internet-master-plan/NYC_IMP_1.7.20_FINAL-2.pdf.

rapidly becoming obsolete as it is unable to support the ever-increasing capacity demands of our rapidly evolving technological landscape.

Oakland has launched several pilots in recent years to increase at-home access, but the availability of affordable, high-capacity fiber has been the limiting factor preventing the City from transitioning from pilot to permanence. Emblematic of our current dilemma, Oakland launched OakWiFi, an ambitious project intended to expand wireless coverage in public spaces throughout West Oakland, through Downtown and along International Boulevard into East Oakland in November of 2020. The demand was immediate - tens of thousands of unique users connected to the free service. Given Oakland's limited fiber assets, the most cost-effective fiber backhaul was repurposed Department of Transportation strands, ones designed not to close the digital divide, but to operate traffic signals. Unlike the infrastructure that the State could install under SB 156, Oakland's fiber (1) lacked field nodes, regular access points, and integration for resiliency (e.g., redundant rings), and (2) was microtrenched. When the line was accidentally cut in June of 2021, over half of the zones lost signal.

Undeterred, Oakland continues to explore innovative Public Private Partnerships to expand access. BlocPower, a community-owned tech firm, has planned and developed three pilots in West Oakland, East Oakland and the Fruitvale District, which would reach over 30,000 residents through a community-owned hybrid private LTE (PLTE) network; and EducationSuperHighway, has developed an innovative broadband service model that provides free services to apartment residents via a network of Wi-Fi routers and broadband wiring affordably installed within each building. In these pilots too, however, the limiting factor continues to be the availability of affordable, open-access, high-capacity fiber.

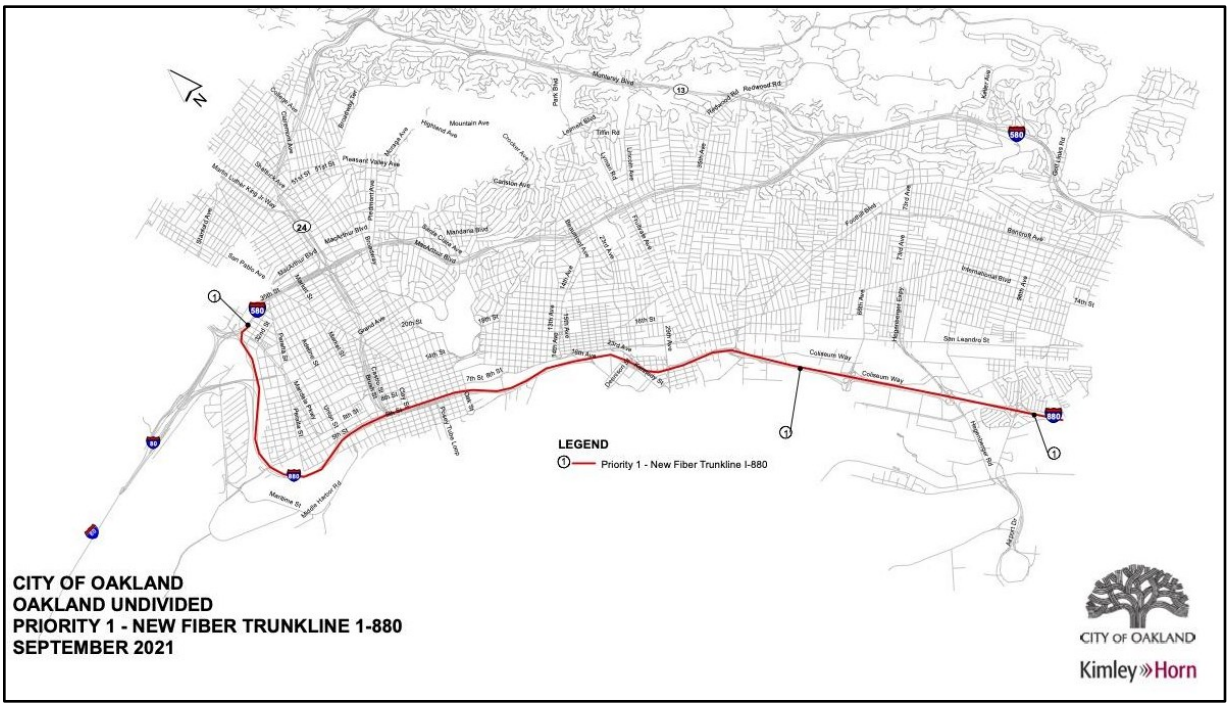
Withholding this critical infrastructure from West, East, and deep East Oakland, threatens to leave Oakland's most vulnerable populations behind and perpetuate long established patterns of State divestment in marginalized communities. Therefore, the Commission should consider the locations and routes discussed below when developing the Staff Report. The time for Broadband for All is now.

B. #OUC Prioritized Middle Mile Fiber Proposed Segments

Oakland will continue to leverage the fiber assets that it already has to service our under connected communities, but there remain significant gaps in stable and redundant fiber infrastructure that a public investment in the middle-mile network would help fill. SB 156 - perhaps the greatest investment in digital infrastructure in our state's history - could provide the foundation for ubiquitous municipal broadband in Oakland, but only if the CPUC locates middle mile fiber adjacent to our most under-connected communities. #OUC seeks to support the CPUC in identifying the areas within Alameda County that, if connected, would move California closer to SB 156's stated aim of providing broadband access to no less than 98% of California households.

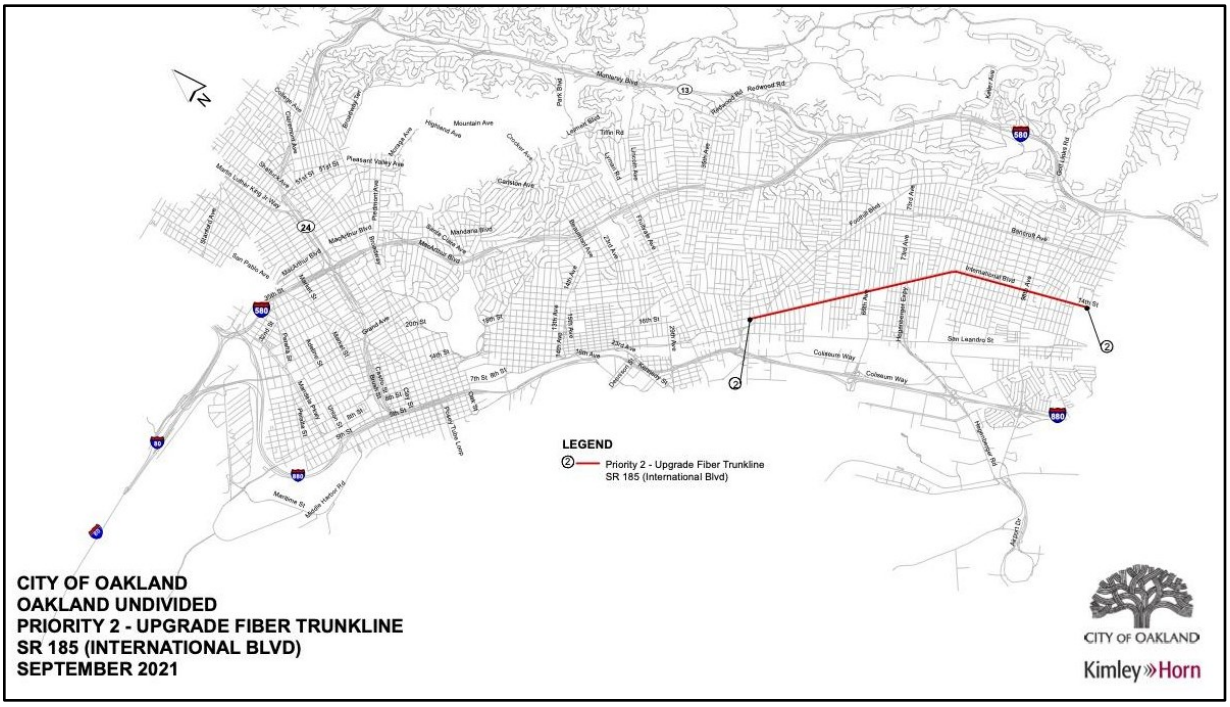
In consultation with the City of Oakland's Department of Information Technology as well as Diablo Engineering and Kimley Horn, who helped develop both the City's 2019 Fiber Master Plan and the roll out of OakWIFI, the #OUC recommends prioritizing the following middle mile fiber routes to facilitate reliable, high speed broadband internet access to all who want it in Oakland's flatlands:

Priority #1: New Fiber Built Along I-880



#OUC's top priority for middle mile fiber is the I-880 corridor. Originating at the I-880 & I-580 interchange, this fiber segment then extends through West Oakland, into East and deep East Oakland before it ends in San Leandro. This is the most equitable path. Proximity to open-access middle mile fiber makes affordable, reliable last mile connection possible. It runs adjacent to all three of Oakland's historically redlined communities: West Oakland, East Oakland, and Deep East Oakland. Further, it can be used to connect City facilities, a key objective outlined in Oakland's 2019 Master Fiber Optic Plan.[8] The commission should include neighborhood access nodes to allow for easy access by last-mile providers. City of Oakland fiber along the corridor could be utilized to provide a redundant loop with existing municipal fiber along International Boulevard and to integrate with existing telecom hubs in Downtown Oakland.

Priority #2: Upgrade Fiber on SR 185 (International Blvd)

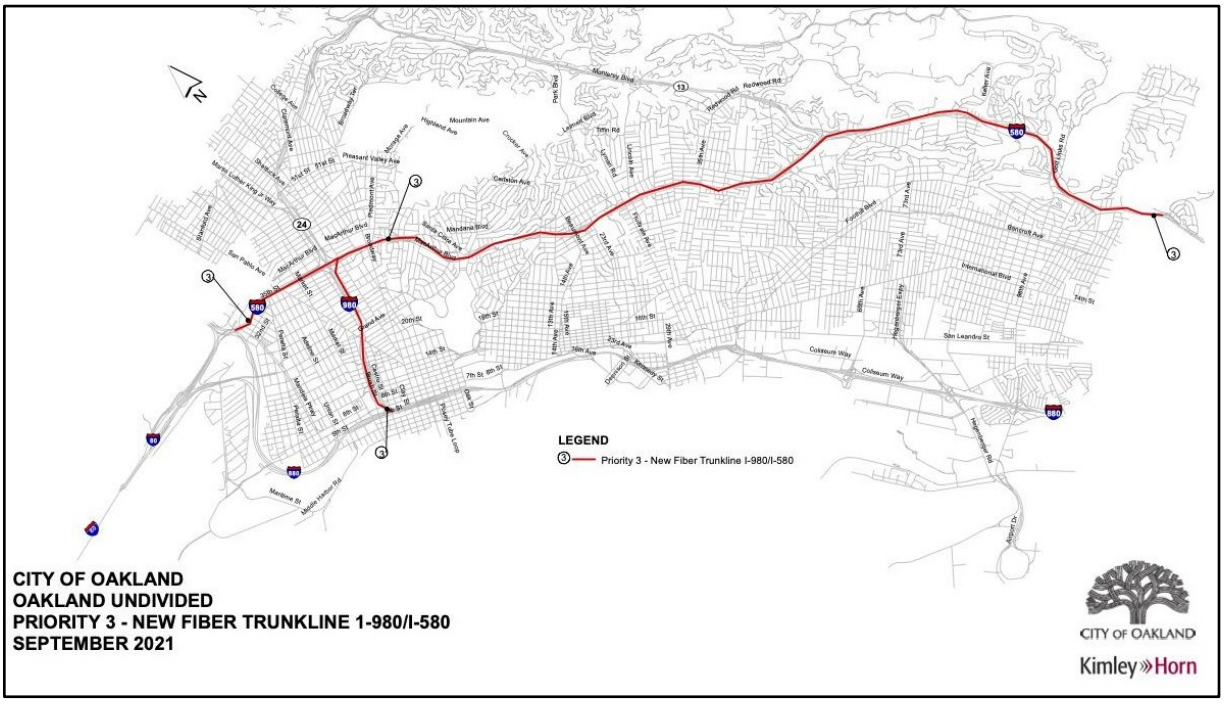


#OUC's second equity-based priority is upgrading the fiber on SR 185. This route bisects our neighborhoods most in need, and would provide neighborhood access to last-mile providers. While the City of Oakland already has fiber along this route, there have been issues with adapting this existing fiber infrastructure to provide access for a residential network. 1) The

[8] City of Oakland. (2019, June). City of Oakland Fiber-Optic Network Master Plan Update. https://cao-94612.s3.amazonaws.com/documents/Oakland-Fiber-Master-Plan-Update-FINAL_June2019.pdf

existing City fiber has been installed in micro-trenches making it vulnerable to frequent severing, and it cannot be easily expanded with additional access points and neighborhood access nodes. 2) Oakland's existing fiber-optic network was designed for traffic signals. As such, the placement of pull boxes and cable slack does not necessarily match what is needed for residential access. In this case, City fiber could be used for redundancy or to provide access to internet nodes Downtown.

Priority 3: New Fiber Built Along I-980/I-580



The Commission should still install middle mile fiber along the segments proposed in the current iteration of the CPUC map, most notably along the I-980 and the I-580. The I-980 is critical for connecting middle mile infrastructure to telecom hubs in Downtown Oakland. This segment also runs the eastern border of one of Oakland's most underserved communities - West Oakland. Neighborhood access nodes should allow for easy access by last-mile providers penetrating these areas. The I-580 also offers several benefits. While it does not bisect Oakland neighborhoods most in need, wireless base stations placed on Oakland hills may be a cost-effective way to provide internet access for East Oakland. Mobile connectivity is a vital tool to help bridget the digital divide.

For all priorities, installation should be guided by two principles: future-proofing and maximum flexibility. Since the majority of the cost of fiber projects is incurred during excavation, the CPUC should add additional conduit for future expansions, and pull at least 488 count to start. The conduit design should support future network scenarios by adding splice points and handholes at every major intersection or other likely future hub locations.

Combined, middle mile fiber along all three priority routes could integrate with Oakland's existing municipal fiber to (1) provide reliable, robust, and equitable access to Oakland's under-resourced communities, and (2) help connect municipal facilities, improving city services, and achieving the goals articulated in the 2019 Oakland Master Fiber Plan.

III. CONCLUSION

The testimony offered in this letter and the maps readily available to the Commission reinforce the plain and simple truth: the digital divide is in Oakland's flatlands communities of West Oakland, East Oakland, and deep East Oakland. By failing to center these communities who have endured decades of underinvestment, we avoid confronting our collective obligation to reverse it. The time is now to make meaningful investments that address persistent inequities in infrastructure and broadband access. Absent Commission action, the digital divide could grow to be a chasm so wide, so deeply entrenched over the next decade that it would be practically impossible to bridge.

Oakland knows Oakland. We have the technical skill and community will to connect our City, drive innovation, create new markets and new opportunities, and serve as a national model for equitable resource distribution. All this is possible, if the Commission installs middle mile fiber along Oaklands top three priority segments: (1) the I-880 corridor, (2) SR 185, and (3) the I-980/I-880 corridor.

Respectfully submitted,

/s/ Patrick Messac

Patrick Messac
#OaklandUndivided Project Manager
1 Frank H. Ogawa Plaza
Oakland, CA 94612
518-542-8105
pmessac@oaklandca.gov

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