SOUTH BAY CITIES
COUNCIL OF GOVERNMENTS

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SUBJECT: GOVERNOR'S EXECUTIVE ORDER N-73-20 STATE BROADBAND ACTION PLAN

The state's current broadband infrastructure strategy has been extremely successful with deployment reaching 97% of households with 88% adoption rate; plus, digital literacy training for almost 1 million residents.

Despite that exemplary success, challenges remain. More time and investments will be required to -- reach 100% deployment, increase adoption levels, increase service levels from 25/6 MB to 100/100 MB, improve household technology quality (computer, computer network cards, home routers and wifi), advance digital literacy – and track those dynamic success-metrics throughout the entire state.

Vision
The South Bay Cities Council of Governments (SBCCOG) proposes building on the state's successes and addressing the remaining challenges by advancing broadband-for-all by piloting a variation of the Middle Mile–Open Access deployment model through what could be considered Middle Mile-*Direct* Access.

The SBCCOG proposes advancing broadband-for-all by testing a deployment model that shifts emphasis from network infrastructure to network utilization with evaluation based on environment, economic and social outcomes rather than homes passed and percent of adoption. We propose to test this model in two low income neighborhoods in the South Bay sub-region of Los Angeles County.

The idea is to terminate the multi-gig fiber at a public, non-profit facility that is equipped with technology packages that address the needs and interests of neighborhood residents. Examples include hardware-software options like audio-video-photo production, officing (shared private stations, carrels, private offices, meeting rooms), gaming design and competition, neighborhood scale theatre, telemedicine diagnostics, and more. Priorities would be set by the neighborhood residents in a planning process which would also increase digital literacy.

This approach has the potential to:
- Build a shared digital culture that transcends but nurtures individual accomplishments
- Foster face-to-face relationships around a portal to e-commerce
- Focus on meaningful outcomes produced by broadband access and use
- Build community by offering opportunities for a number of neighborhood organizations and individuals to engage with the process of shaping the local digital infrastructure

This network access facility should be designed and equipped to address two broad needs:

Economics: Engage neighborhood residents in participating in the digital economy by providing the tools and related coaching to make valuable products – the traditional categories of information and services, but also things. Additive manufacturing (3D printing) is an example of producing things. Jewelry, hardware, toys, action figures, games, musical equipment are common products that can contribute to developing a neighborhood economy. There is also the potential to build the capacity for neighborhood *resilience*; for example, PPE-like face shields, clips for masks and even hands-free door handles could have been made in a network access facility in February to protect the neighborhood against the spread of COVID-19.

Transportation -- Access to virtual destinations: COVID-19 adaptations essentially brought remote destinations into the home because of the quarantine. The result has been institutional advancements in telework and telemedicine with distance education also implemented but encountering more difficulties related to the challenge of engaging young children, in particular, with mediated teaching and, of course, the inadequacy of digital infrastructure in many homes. A network access facility will provide the neighborhood infrastructure for continuing those innovations. The role of a network access facility during home quarantine is discussed in Attachment 1 under COVID-19.

This network access facility at the neighborhood scale would also advance the state priority for active transportation. Combining with a local zero emission micro-mobility initiative (the SBCCOG is completing design of Local Travel Network funded by Caltrans) will advance progress toward the EO regarding restricting sale of internal combustion vehicles by 2035. CARB could fund a demonstration program in low income neighborhoods in association with the network access facility

Precursors

Shared access to telecommunications networks has been well established by past policies including: Public, education and government (PEG) channels and production facilities during the period of municipal cable franchising in the 1970s and 80s; the National Science Foundation interactive video demonstrations in the early 1970s, especially Reading PA; the multi-site video network in the Irvine School District in the late 1970s; and all the way back to party lines on telephone service in the 1940s.

Proof of concept was established for this type of shared broadband network and access facility in 1995 in a demonstration funded by Los Angeles County Metropolitan Transportation Authority named the Blue line TeleVillage. This was a small scale project that added state-of-the-art computers, double screen video conferencing, desk top video conferencing, and kiosks in hallways to 2,500 square feet of vacant space in the Martin Luther King Transit Center owned by the City of Compton adjacent to the Compton stop on the Blue Line rail system. Network service was switched and delivered by multiple ISDN circuits provided by Pacific Bell under its Education First Initiative. The facility delivered digital literacy training, space for teleworking and live, interactive library services, distance education, small business development training and one-on-one entrepreneurial counseling. It was praised for its innovation by Clinton administration Secretary of Transportation Federico Peña.

This concept was labeled *Public Transit on the Digital Super Highway* in 1999 when it was recognized as a Best Practice in Telecommunications Policy by the National Association of Regulatory Utility Commissioners (NARUC). The branding as digital transit was adopted as a familiar term for a new concept to help market the innovation to policy makers and the public.

This new broadband deployment model was also used as the key structural element in visioning the city of the future, playing the central role formerly assigned to rail transit. It was the basis for the first-place award in the OCCOG 2003 competition to Design the Millennium City and received Honorable Mention in the "New Growth" category of the Great Valley Center's 1999 Smart Growth International Design.

Broadband in SBCCOG's GHG Emissions Reduction Strategy

The SBCCOG has been conducting a Research and Demonstration (R&D) program for over the past 18 years. Several early studies produced findings that were synthesized into the South Bay Sustainability Strategy (SBSS), adopted by the Board of Directors in 2010. The R&D program continued by adding more data and analyses that resulted in the Land Use and Transportation chapters of its sub-regional Climate Action Plan (LUTCAP) which was adopted by the Board in 2018. The LUTCAP broke the SBSS into implementation initiatives, quantified their GHG reduction potential and identified a number of co-benefits. One of those near-term initiatives was development of the South Bay Fiber Network (SBFN) – see Attachment 2 for details.

Implementing the Middle Mile-Direct Access Deployment Model

A statewide initiative of 12 to 15 such network access facilities and middle mile networks developed in different contexts would produce findings for assessing the cost-benefits of the Middle Mile – Direct Access deployment model. SBCCOG is prepared to extend its middle mile network and host 2 such facilities in its DAC areas. Multiple facilities in the same general area will be able to attract more institutional partners (such as community colleges, universities, medical centers) located in the same market area because the scale of service delivery will justify the institutional cost of innovation.

Building off the SBFN, the two proposed Network Access Facilities in the South Bay, if all partners operated expeditiously, could be operating by December 2021.

Major implementation tasks would include the following:

- Identifying and evaluating sites for the facilities. Under-utilized state, county or city properties surrounded by low income residential neighborhoods would be prime targets. Affordable commercial buildings would be considered if no government buildings were a good fit.
- Developing a plan for state agencies to partner with the SBCCOG and its lead local government, coordinated by the CBC This would include virtually all the departments serving on the CBC to provide their expertise and various services including site review, furniture acquisition, staffing recommendations, introductions to technology companies, internal physical design, technology design, program innovations, and more.
- Acquiring and assembling the necessary components; retaining staff to operate the facility
- Identifying community non-profit organizations and unaffiliated leaders; developing and executing a plan to engage them in the decision-making process.
- Establishing plans with external organizations to provide resources (programs, contents, virtual presence) to the facility.
- Developing an evaluation framework.

The start-up budget should cover 3 years of operations – enough time for each facility to develop a business plan to become self-sustaining. Based on the costs associated with the SBFN, the network costs would total about $240,000 with about $140,000 capital costs and $100,000 for 36 months of 10 gig service.

Other major cost categories include:

- Rent (varies according to size and whether public or commercial sites)
- Technology (varies according to how much is needed, which will be donated, and which will be subsidized)
- Furnishings (same variation as technology)
- Labor – about $1 million assuming 4 staff for 36 months (volunteers are likely)

A very approximate estimate would put the maximum cost per facility somewhere between $5 and $7 million for the initial 3-year period of operations. The total could be much less depending on the interest of private companies to participate in this high-profile broadband innovation.

In conclusion, the SBCCOG is prepared to empirically determine the personal and community outcomes that can be realized when low income families are given access to a robust range of digital tools and high speed networks in the context of a supportive environment – within walking distance of their homes.

Attachment 1: Relationship to CBC matrix and EO

COVID -19 vividly illustrated a future society based around broadband networks being used by institutions to manage the work force differently and deliver its products and services differently with the result that demand for household mobility dramatically declined.

Before the quarantine, changes of this nature – which have been widely discussed in the broadband applications community for years – were not thought possible in the short run due to institutional resistance. Some of the practices, like telework, were advancing but at a modest to slow pace.
Yet, the quarantine demonstrated benefits such as less traffic congestion, greenhouse gas emissions, criteria pollutants and mobility costs that can be realized by people staying in or close to home.

Network access facilities will aid the ability to adapt to COVID-19 and subsequent public health crises in three ways:

- When home quarantine becomes necessary, the access facility will be able to facilitate wifi connections in adjacent areas outside the facility so that internet access can proceed safely with masks and spacing – within walking distance from home. Appointments may be necessary for outside distance education coordinated with a mentor and coordinated with the local schools which should also be connected to the middle mile network.
- Relaxing home quarantine can occur geo-spatially by neighborhood rather than by business sector like personal services or retail shopping. In other words, if a large percentage of destinations are available in the neighborhood, a kind of neighborhood quarantine is possible depending on infection level.
- The facility will distribute medical information, monitor the transmission of the virus and, most importantly, quickly 3D print PPE like face shields.

<u>EO Issues Addressed</u>

2.a. A roadmap for demonstrating and evaluating the Middle Mile: Direct Access deployment model has been described in these comments. Much more detail can be provided.
3.d. The costs of deploying Middle Mile and its termination in a network access facility have been estimated
3.e. Information to support the local broadband infrastructure and digital equity plans has been provided
4. To be implemented, the plan provided would require collaboration with CDT, GO-Biz, DGS for information from private sector companies; plus CETF, State Librarian, Food and Agriculture, and CalSTA will need to participate as well. The Middle Mile – Direct Access model <u>is</u> an example of broadband innovation.
5.a. The SBFN demonstrated that transportation funding can legitimately be used since applications lead to virtual access, i.e, the trip not taken.
7. Sub-regional COGs can be partners with CalSTA and Caltrans promoting "dig-once" practices.
9. The DGS inventory of state property for broadband infrastructure should be expanded to include buildings that could be used as terminus for the middle mile network and sites suitable for a network access facility.
11. The CDFA should also be directed to facilitate broadband projects for suburban as well as rural areas
12. HCD could experiment with shared direct access in public housing communities.

13.c. State Library could coordinate with the deployment experiments, especially around staff for the network access facilities.
14. DOE could similarly coordinate with the deployment experiments using its expertise to advise regarding the technology component of the facilities.
15. Department of Aging could also coordinate with the deployment experiments as the facility planning will incorporate the needs and interests of all community segments, especially seniors.

Attachment 2 SBFN Economics and Route Map

The South Bay Fiber Network is a backbone ring network with connections to all 15 civic centers providing transmission speeds of 1, 2 or 10 gig/sec service capable of expanding to 100 gigs to access the Internet including the cloud and "edge" data centers (Equinix and Evoque) that offer access to a substantial e-commerce market place. Its laterals create a "middle-mile" network with the potential for expanding immediately into "direct access" and eventually into "open access" in order to facilitate final mile competition. The network is currently lit and in service. We recently discussed initial joint collaborative options with CENIC.

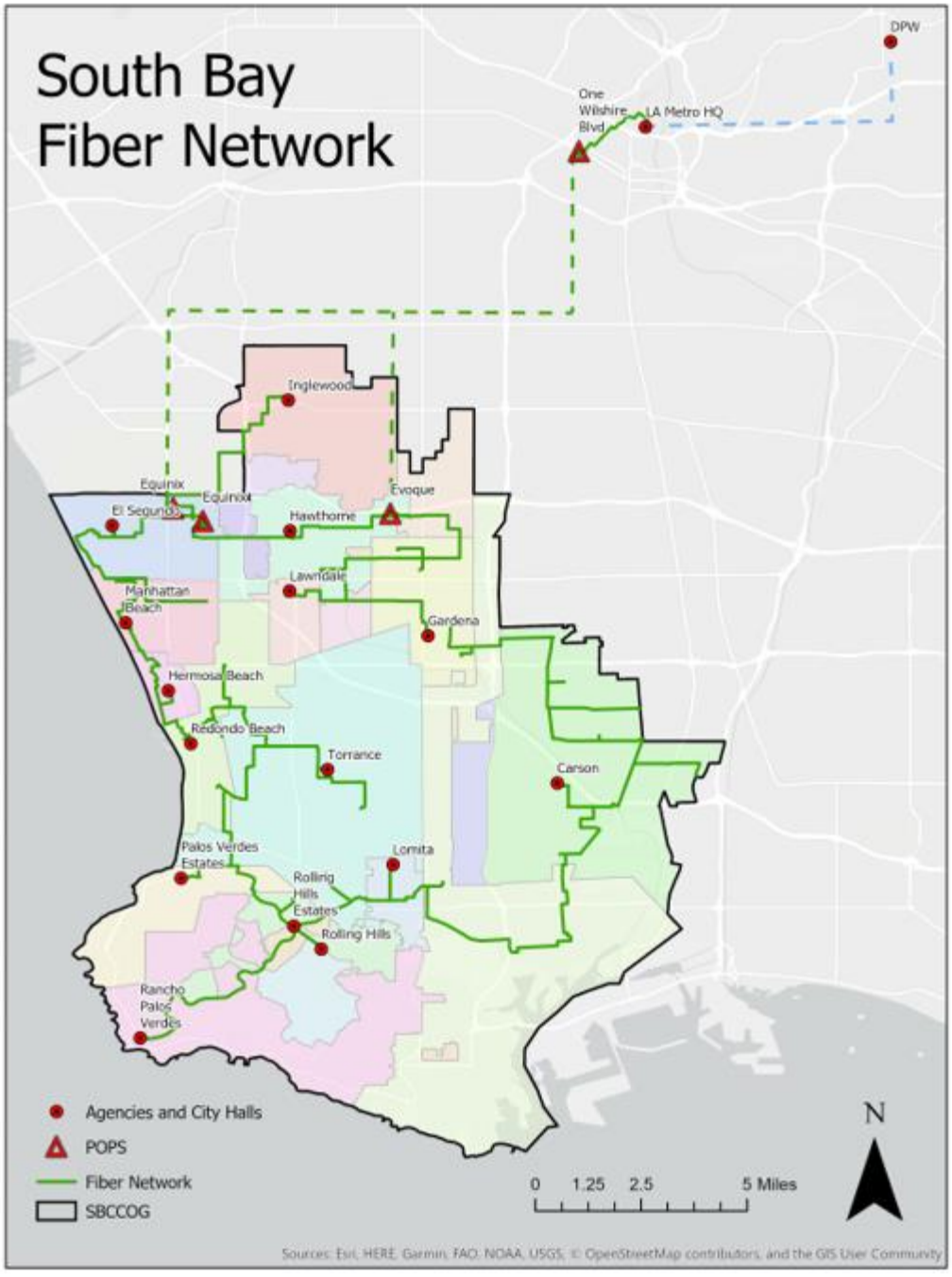
The decision to create the network was based on a feasibility study that determined our cities were paying too much and receiving too little. In other words, if the capital costs were paid externally, the monthly service fees could be paid by cities from the savings realized from lower costs VS existing contracts.

The ring backbone was assembled from Crown Castle segments and new construction on a few others. Construction began in January 2020 and became operational in August. Cities issued permits in a timely manner, despite working remotely because of COVID -19. Delays in permitting, when they came up, were caused by other parties.

Laterals that create the middle mile ranged in cost in three groups depending on distance and other factors -- $30,000, $50,000 and $100,000 per lateral. These capital costs were paid by the SBCCOG using the sub-regional portion of Measure M transportation sales tax funds, for a total cost of $6.9 million. Electronic equipment at each touch point cost $9,000.

The result is monthly cost of $1,000 for a 1 gig circuit and $2,750 for 10 gigs.

CLIC recently proposed a different model -- a publicly funded city-wide network providing the infrastructure for the private sector to use for delivering services. Cost is the obvious barrier for our cities. One South Bay city looked into building a fiber network to homes and businesses. The city is slightly more than 3 square miles in size, with about 15,000 households and 38,000 total population. The construction cost estimate was over $73 million. The city declined to pursue the initiative.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Equinix
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