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	Rulemaking No. 20-09-001

COMMENTS OF THE CENTRAL COAST BROADBAND CONSORTIUM IN RESPONSE TO THE ASSIGNED COMMISSIONER RULING SEEKING COMMENTS ON MIDDLE MILE DEPLOYMENT POLICY ISSUED AUGUST 6, 2021

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I. Introduction

Per California Public Utilities Commission (CPUC) Resolution T-17529, the Central Coast Broadband Consortium (CCBC) is the California Advanced Services Fund (CASF) consortia grant recipient representing Monterey, San Benito and Santa Cruz Counties. The CCBC is a party to Rulemaking 20-09-001 and respectfully submits these comments in response to the Assigned Commissioner's Ruling, dated 6 August 2021, regarding middle mile network policy and to the questions therein.

II. General Response to Middle-Mile Network

The CCBC is in favor of the plan to build an open-access middle-mile network throughout the State of California. On the Central Coast we have already experienced a successful deployment of a middle-mile network from Santa Cruz to Soledad (also referred to as the “Sunesys fiber network”). Further extension of this Sunesys network as well as expansion to areas that are not currently covered by its reach are essential to providing broadband access to underserved and unserved parts of our community.

Our three counties (Monterey, Santa Cruz and San Benito) vary widely in terms of geography as well as demographics. Very affluent areas (such as Pebble Beach on the Monterey Peninsula) have excellent connectivity at very high speeds whereas rural areas such as Pajaro Valley, San Ardo and Big Sur have poor and unaffordable service. It is CCBC's goal to enable broadband service at minimum speeds of 100 Mbps download / 20 Mbps upload to all residents in our region. In addition, we believe that additional last-mile providers in the market will enhance service and bring costs down for the end user. We have an interest in affordable and high quality options to our communities.

One of the key factors for success in a statewide middle-mile network is open access. Middle-mile routes are currently available in our region as well as other regions, but privately owned fiber is not leased to all Internet Service Providers (ISPs). These private middle-mile networks can potentially be leveraged to serve areas of the state; the State will need to negotiate appropriate rates for dark fiber leasing from these private entities as an element of the overall plan.

Another important requirement for successful implementation of this network is continual input from regional consortia, municipalities and service providers. This network is not a "one size fits all" facility, and considerations must be made for each county's geographic and demographic idiosyncrasies. Ongoing partnerships with regional entities will enable the State to maximize its investment in infrastructure for the future.

III. Response to Current Proposed Middle-Mile Map

With respect to the map referenced in this ruling, CCBC wishes to respond with some guiding principles to which more detail will be provided in answer to the Commissioner's specific questions below.

Comprehensive coverage: Broadband service has become a necessity for all in our state. We have discovered the effects of poor connectivity during our recent experiences with fires in the region – in the midst of the CZU Lightning Fires in Santa Cruz County in 2020, many residents could not be notified of evacuation orders due to lack of cellular service as well as broadband access. Public safety requires ubiquitous and thorough coverage for all, particularly in times of emergency. Mapping middle-mile fiber purely to the highway system will not cover all of the areas in our region; additional spurs off this main framework are required. Our consortium will offer design guidance during this process.

Path resiliency: As mentioned above, though some sections of the state already have middle-mile fiber built in, we believe that additional diverse paths of fiber in neighboring areas will provide resilient coverage if one network is down. Since this is a lifeline service and anchor institutions must be covered under all circumstances, investment in a resilient network is warranted.

Dark fiber only: We believe that the most effective method of managing this open-access network is to offer leasing of dark fiber at competitive rates.

Leverage existing assets: We also feel strongly that the state should work with existing data centers through cities and counties for further economies. A continued dialogue/partnership with each region will enable appropriate sourcing of these assets.

True open access: CCBC cannot emphasize enough that the statewide network must be available to all and not favor any individual service provider. Only through an equitable process for middle-mile fiber access available can we achieve our broadband coverage goals.

Method of construction: During the planning process we strongly urge the state to specify standards and preferred methods of construction to streamline processes. Simplified permit-

ting, such as the use of master permits specifying standardized construction techniques across a defined area or jurisdiction, is another practice which will also reduce excessively long wait times for construction.

IV. Issues for Public Comment

In response to specific questions posed by the Commission in this ruling, CCBC offers the following comments.

1. Identifying Existing Middle Mile Infrastructure:

- *What routes, if any, should be modified, removed from consideration, or revised? Provide an explanation for these suggestions.*

Though some areas are less densely populated in our region, they must still be considered when planning an overall middle-mile fiber plan. Some areas are not addressed in the current plan, such as Big Sur. We strongly encourage a connection between coastal and inland paths. One example is the extension of the proposed Prunedale spur to Castroville, which would be hugely valuable to the region.

For purposes of path resiliency in the northern area of our region, we recommend replacing the proposed State Route 17 path from Los Gatos to Santa Cruz with a path from Los Gatos, through Saratoga, over State Route 9 through Boulder Creek, Ben Lomond, Felton and Bonny Doon, through the Santa Cruz Mountains, and over to Davenport. This would provide a back-up for the existing Crown Castle open access network path.

There is also the possibility to use the rail right of way from Santa Cruz to Watsonville, avoiding duplication of the existing Crown Castle open access network path.

These are but a few examples of modifications to the existing plan. As mentioned above it is imperative to continue a dialogue with each region to ensure that its specific needs are met.

- *Are there existing middle mile routes that are open access, with sufficient capacity, and at affordable rates on the county highway routes listed in Attachment A?*

We feel it is important to secure a commitment from middle-mile owners to maintain open access and reasonable pricing for the fiber paths that will be built with state funds. Existing fiber providers, including Crown Castle should also be included in discussion about potential fiber leasing to maintain the value of their networks. Using open access, reasonably priced existing middle-mile resources will enable the state budget to cover more ground.

- *In the context of these comments, what is sufficient capacity and affordable rates?*

In all instances we feel that a very high strand count should be planned for this network, to ensure its utility long into the future. The cost of installing high capacity cables during construction is negligible whereas adding additional strands once the network is up and running may be cost prohibitive. In high density areas we recommend a minimum of 288 strands of dark fiber; in rural areas a minimum of 144 strands is recommended for spurs coming from the main network. However, strong consideration should always be given to higher strand counts.

We consider affordable rates to be approximately $1,000 per strand per mile for a 20 year Indefeasible Right to Use (IRU). Subsidies beyond this pricing standard may be required based on the application involved, on served vs. unserved target areas, on the remoteness of an area or particular construction challenges (such as rocky terrain), and on economic and demographic factors. Operational and maintenance costs would be in addition to the lease rate above.

• *For routes that are identified as being open access, with sufficient capacity, and at affordable rates, how should the Commission verify these claims (e.g., should Communications Division send a data request for service term sheets, rates, approximate dark fiber, lit fiber, and conduit capacity, etc.)? Are there any other criteria that should be used to verify these claims?*

Requests for term sheets and rates will make it easy to verify if providers are compliant with the above guidelines. The Communications Division should request rate sheets with explicit detailed costs for dark fiber leasing service (not lit fiber) with set costs for a specified period of time. Penalties should be imposed for failing to deliver service within a set timeframe at the promised price. Since dark fiber assets increase in value over time, there is no need to lock in rates for a full 20 years, but rates should remain the same for a set number of years. A commitment to these rates from existing providers of middle mile access will be required as well.

1. **Priority Areas: Federal funding must be encumbered and spent in a limited time period. Additionally, unserved and underserved areas of the state are in substantial need of broadband infrastructure investment.**

• *Is it reasonable to assume counties with a disproportionately high number of unserved households (e.g., 50% or more unserved at 100 Mbps download) are areas with insufficient middle-mile network access?*

In general, this can be a standard measure, but each situation is different and when defining an area as unserved consideration should always be given to price, particularly for consumer service. The 50%+ unserved population at 100 Mbps is a very small fraction of the California's

population. In remote areas, the cost of last-mile infrastructure can be an obstacle to coverage even if there is middle-mile infrastructure readily available; this is often due to challenging geography and low population density.

- *What other indicators, if any, should the Commission use to identify priority statewide open-access middle-mile broadband network locations (i.e., built expeditiously, areas with no known middle-mile network access, regions underserved by middle-mile networks, regions without sufficient capacity to meet future middle-mile needs)?*

Input from regional broadband consortia is needed. The Commission should also encourage increased competition from last-mile providers. In areas of insufficient cellular coverage, the Commission should explore which providers are willing to invest in augmenting their networks.

1. **Assessing the Affordability of Middle Mile Infrastructure: A key consideration is determining the cost of various middle mile services. Through identifying the costs of these services in California, as well as across the country and globe the Commission can identify a threshold whereby services can be considered reasonably affordable.**

- *What are existing providers paying or charging for middle mile services?*

The main purpose of this network is to cover the areas that don't present a solid business case at current competitive rates. We strongly caution against using assumptions of existing pricing to this new network. If there were a compelling ROI for many of these areas for middle-mile fiber, existing companies would have already built out in these areas. We believe the $1,000 per

strand per mile for a 20 year IRU is a reasonable target, excluding operational costs and maintenance costs.

- *Are there other factors or sources of information the Commission should consider for determining whether these services are affordable?*

Input from primary customers of this network (ISPs and cellular providers) is vital to determine if the proposed pricing would entice them into building last-mile projects leveraging this infrastructure. We urge the Commission to obtain commitments from these companies prior to building to ensure that they will leverage the new infrastructure as soon as it is available.

- *Is it reasonable for the costs of these services to change depending on the location where the service is provided (i.e., rural vs urban)?*

Generally, yes. Some remote locations may be harder to access, and these rates may be higher. We also request that subsidies or discounts apply for serving unserved, underserved, and low income census blocks. Operational and maintenance costs would be in addition to the IRU rate above.

2. **Leasing Existing Infrastructure: Indefeasible Rights of Use (IRUs) are long term leases (generally 20 to 30 years) for unrestricted, legal capacity on a communications network for a specified period of time. These contracts generally obligate the purchaser to pay a portion of the operating costs, and the costs of maintaining the infrastructure.**

• *If there is existing open access communications infrastructure with sufficient capacity to meet the state's needs, should the state purchase IRUs from that network?*

No, ideally the State would secure commitments from existing providers to offer access to the existing network at preferential rates similar to rates for state-owned infrastructure. The State need not be involved in existing middle-mile infrastructure; the ISPs can negotiate with them on their own.

• *Is there any value in the state purchasing an IRU from the network if capacity is already available?*

In some areas this may make sense, but it wastes an opportunity to build resiliency and potentially double the coverage of a network by building a parallel and separate path. This is a trade-off between making the available funds go further and building valuable infrastructure that will provide significant opportunities for widespread coverage over the next 50+ years. Many communities cannot be reached with existing infrastructure.

• *If the state relies on IRUs for the development of the statewide network, will the generational investment that this funding provides be diminished when the IRU leases end 20 to 30 years later? Will existing networks run out of spare capacity?*

This depends on how existing providers are integrated. If private dark fiber service providers are incorporated as critical path elements then yes, the generational investment value is diminished. If they are integrated as alternate path solutions for expanded coverage they will increase the overall value and attractiveness of the network to end-user serving operators.

3. Interconnection: The statewide network will need to connect with other networks in order to deliver services.

• *At what points should the statewide network interconnect (e.g., to other networks, servers, etc.)?*

Ideal interconnections are at carrier neutral data centers – hardened facilities with redundant power that host major ISPs and have facilities to host interconnection equipment. Examples are 1 Wilshire in Los Angeles, 1380 Kifer Rd in Sunnyvale, and 529 Bryant St in Palo Alto. City, county and other municipality data center locations may be included. Independent ISPs, educational institutions and other large entities could be viable partners for this too.

• *Are additional exchange points necessary or strategic, and if so, where?*

This is largely dependent on network layout and route selection but almost certainly yes, additional regeneration or interconnect nodes will be required, likely in the form of fiber huts, which may include prebuilt towers for wireless ISPs.

4. **Network Route Capacity: The state will need to determine the amount of capacity to build into the network to meet existing and future demand.**

• *How many strands of fiber should the network deploy for each route?*

As many strands as is feasible should be deployed. 144 strands should be considered an absolute minimum for rural areas; 288 strands or higher is preferred. The overall cost for increasing fiber strand count is such a small fractions of the cost of the project that it makes it worthwhile to build in higher capacity at the start.

• *Are there other requirements or standards the Commission needs to consider to determine sufficient capacity?*

Physical space at middle-mile terminations is a key consideration. Strand count may be high enough to serve all interested customers but without interconnect locations and physical space to deploy electronics this may be challenging. Depending on topography it will be useful in some locations to build antenna towers as a shared resource for wireless ISPs.

• *Should the network also deploy additional conduit within each route for potential future expansion?*

Secondary and even tertiary conduit should be considered standard on all underground paths, both for future use as well as for rapid repair or replacement of damaged segments. Three 1.25 inch conduits pulled through a single bore is an industry standard which we support.

• *Should these factors change based on the population density and distance from the core network?*

Only down to a capacity floor. That floor should consider future expansion. What is a rural area today may be tomorrow's future hub of technology or the site of a large residential expansion.

V. Closing

The CCBC greatly appreciates the work that Commissioner Guzman Aceves, Administrative Law Judge Glegola and other CPUC Staff have put into this proceeding. We respectfully request consideration of the above comments.

Date: 27 August 2021

Respectfully Submitted,

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