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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 20-09-001 (Filed August 6, 2021)

OPENING COMMENTS OF THE SAN DIEGO ASSOCIATION OF GOVERNMENTS (SANDAG) ON THE ASSIGNED COMMISSIONER'S RULING REGARDING BROADBAND INFRASTRUCTURE DEPLOYMENT

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I. Introduction

The San Diego Association of Governments (SANDAG) submits these opening comments on the Assigned Commissioner's Ruling Regarding Broadband Infrastructure Deployment and to Support Service Providers in the State of California (Rulemaking 20-09-001). On August 20, 2021, the Administrative Law Judge issued a ruling extending the deadline to provide opening comments to September 3, 2021. SANDAG serves as the Regional Transportation Planning Agency and the Metropolitan Planning Organization for the San Diego region. SANDAG is governed by leaders of 19 local jurisdictions including 18 cities and the County of San Diego, representing more than 3 million residents.

Bridging the digital divide and ensuring equitable access to broadband is a priority for SANDAG. Access to broadband is essential for modern life and enables access to opportunities including education, jobs, sustainability, public health, and safety. Broadband is also critical to the future of transportation. As the regional transportation planning agency, one of SANDAG's primary responsibilities is to develop a long-range transportation plan that serves as the blueprint for the transportation system. The Draft 2021 Regional Plan outlines a transformational vision for the San Diego region, harnessing advancements in technology to create a transportation

system that is faster, fairer, and cleaner. This visionary transportation system relies on digital infrastructure and broadband connectivity to integrate and orchestrate the transportation network, which is critical to meeting our goals.

In response to Governor Newsom's Executive Order N-73-20 in August 2020, the SANDAG Board of Directors adopted a Board Resolution in January 2021 recognizing the critical nexus between broadband access and the region's quality of life. The SANDAG Board committed to developing a Digital Equity Strategy and Action Plan[1] (Strategy) that leads to rapid broadband deployment and adoption in the San Diego region and that supports the goals of the California Broadband Action Plan. To help inform the development of the Strategy, SANDAG formed a Regional Digital Divide Taskforce comprised of representatives from public agencies, broadband providers, education, non-profit organizations, and other stakeholders actively working to bridge the digital divide. Concurrent to that effort, SANDAG began collaborating with a larger Southern California-wide initiative called Southern California Transformation to coordinate and align work efforts for Southern California's residents. This group is inclusive of each county within the Southern California Association of Governments (SCAG) and SANDAG regions, Internet Service Providers (ISPs), County Supervisors and other elected officials, in addition to the California Emerging Technology Fund and National CORE, an affordable housing developer throughout Southern California. SANDAG has also partnered with SCAG to develop consistent broadband friendly policies and a coordinated approach to rapid broadband deployment across Southern California. Working together, SANDAG and SCAG can address the digital divide for approximately 60% of the state's population.

In addition to developing the State Broadband Action Plan, the Governor's Executive Order tasked many state agencies to take specific actions to expand high-speed broadband statewide. Caltrans is one of the agencies identified to develop a "Dig Smart" policy that identifies corridors that serve as strategic opportunities to integrate the infrastructure needed to expand broadband services. Leveraging existing or planned public infrastructure projects to expand broadband infrastructure is a key strategy for SANDAG and our member agencies to support build out of the network. As a council of governments tasked with planning, designing and building transportation projects, SANDAG is well positioned to coordinate the integration of fiber into transportation projects in areas that are unserved. SANDAG has been coordinating

[1] https://www.sandag.org/index.asp?classid=13&projectid=614&fuseaction=projects.detail

closely with Caltrans District 11 to pursue Dig Smart or Dig Once opportunities in the region starting with a demonstration project that will add fiber to an 18-mile roadway rehabilitation project along State Route 67 [2] in San Diego County. Integrating conduit and fiber into the planned pavement work along the corridor that today lacks fiber infrastructure will enable the provision of broadband services to the 225,000 residents that live along the corridor. The SR 67 dig once demonstration is the first-of-its-kind in the state to demonstrate how public infrastructure projects can be coordinated with internet service providers (ISPs) to expand broadband service in areas that are hard to serve given geographic constraints or low demand. SANDAG is also coordinating with local jurisdictions, tribes, and utility provider San Diego Gas & Electric (SDG&E), to identify other key public works projects that could be leveraged to build out the network in areas where there are gaps. Lastly, SANDAG is in touch with the Southern Border Broadband Consortium to align work efforts and address middle mile gaps and infrastructure investments in both Imperial Valley and San Diego County, specifically along State Highway Routes 78 and 94-98.

II. Response to Comments

To support the expansion for broadband infrastructure in the region and state, SANDAG respectfully submits the following comments to the six issues identified in the assigned commissioner's ruling. Comments are consistent with SANDAG's Strategy to expand broadband access and adoption in the San Diego region and include:

- *Strategic and coordinated deployment*: Corridors proposed by the CPUC's "Anchor Build Fiber Highways" network omit key priority corridors in the San Diego region that could connect rural, tribal, and high-poverty underserved neighborhoods in urban and rural areas. Many regional and local governments have parallel broadband infrastructure planning and deployment efforts underway that should be integrated into the CPUC's proposed network. SANDAG urges CPUC to collaborate closely with state and regional stakeholders such as MPOs, tribal nations, Caltrans, local jurisdictions, and ISPs to refine the locations of the middle-mile network to prioritize public investment in areas of greatest need and complement last mile deployments.

[2] https://www.sandag.org/index.asp?newsid=1291&fuseaction=news.detail

- *Future-proof the network*: Modern society's reliance on information and communications technology is rapidly growing. SANDAG recommends that the CPUC deploy a resilient and integrated open access middle-mile network that can adequately meet future demands, beyond the State's 100/20 Mbps broadband standards.
- *Data-driven decision-making*: More granular, accurate data is necessary to inform the CPUC's decisions for the middle-mile network. As the state's regulatory agency, the CPUC is best position to acquire household-level and broadband infrastructure data from ISPs to inform decision-making and ensure that middle-mile network complements last mile deployments provide high-quality and affordable broadband to unserved and underserved areas.

A. Identifying Existing Middle-Mile Infrastructure

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

There are clear gaps in fiber infrastructure in the County of San Diego where public investment in the middle-mile network could fill. The CPUC should consider leveraging public infrastructure beyond the state highway system like County and tribal roads, transit and rail right of ways, and public utility right of way projects to maximize use of public funds in areas of greatest need. As proposed, the Commission's "Anchor Build Fiber Highways" omits the state's first dig once demonstration, SR 67 as well as several key corridors in San Diego County such as segments SR 78, SR 79, and SR 76 that could provide critical broadband connections to tribes and rural communities like the La Jolla Reservation, Los Coyotes Reservation and the communities of Warner Springs, Ranchita and Borrego Springs. As mentioned, SANDAG is currently working with Caltrans, County of San Diego and SDG&E to identify other local roads and utility projects that could be used to provide middle mile connections. The CPUC should consider leveraging local roads in addition to the state highway system, such as S1, that could also serve as strategic connections to the network. Making the final determination of the middle-mile network locations without adequate consultation with key stakeholders like Caltrans, County Transportation Commissions, County Schools and Libraries, Metropolitan Planning Organizations, Local Jurisdictions, Tribal governments, as well as the California State Parks is premature and may not produce a network that serves the areas that are most impacted by the

digital divide. SANDAG urges the Commission to provide ample opportunity, beyond this rulemaking, for communities and stakeholders to provide feedback on the location of the open access middle-mile network.

In addition, the middle-mile location identification process could be augmented with granular infrastructure data from ISPs to further refine the network locations. The CPUC should consider acquiring network location information from ISPs to design a middle-mile network that is open but not duplicative of existing networks where ISPs already provide affordable broadband service so public funding can be used to expand upon the broadband infrastructure that exists today. Ensuring that there are adequate connections to enable last mile deployment in areas that are unserved and underserved is a top priority for SANDAG; acquiring granular network location and mapping information via the Commission is critical and could benefit public agencies in planning, permitting, and implementing more rapid broadband deployment.

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?

More granular data around service availability, quality and affordability is lacking to make these determinations. An analysis of available data for San Diego County suggests that the end users experience in terms of service quality, reliability and affordability may be very different than what is shared and advertised to customers[3]. As mentioned earlier, SANDAG is working closely with Caltrans and other regional stakeholders to identify key corridors and routes that could serve as strategic opportunities to expand the middle-mile network. SANDAG urges the Commission to coordinate with agencies like SANDAG, Caltrans, County Transportation Commissions, Local Jurisdictions, Broadband Consortia, Tribal Governments, and ISPs to identify middle mile routes that may have sufficient capacity and may not be outlined in Attachment A. Employing a coordinated and strategic approach with other stakeholders will enable the Commission to leverage available infrastructure, coordinate construction to reduce cost, and allocate public funding to areas of greatest need.

In the context of these routes, what constitutes sufficient capacity and affordable rates?

In the context of these comments, SANDAG also recommends that the Commission develop middle mile infrastructure that well exceeds federal broadband standards. Today, the Federal Communications Commission (FCC) defines broadband as internet service that meets

[3] https://www.sandag.org/uploads/projectid/projectid_614_29513.pdf

download speeds of 25 Mbps and upload speeds of 3 Mbps, or 25/3 Mbps. These service standards are insufficient to complete essential daily tasks such as online learning, remote work, telehealth, especially when there are multiple devices in a household sharing bandwidth. While the state has established a new broadband threshold of 100 Mbps/20 Mbps, SANDAG encourages the CPUC to be forward-thinking and design a network that can meet current and future demand generated by the open access middle-mile network. At minimum, the network should be designed to provide 1 Gbps service to each household or 10 Gbps for larger services to businesses or public facilities like healthcare facilities, libraries, and schools. This is especially critical as many jurisdictions are undertaking "Smart City" initiatives that rely on technology to make municipal operations more efficient, sustainable, and in-turn allows cities to deliver digital services to residents. Additionally, a high-capacity and resilient network is critical for the future of transportation. An integrated network will enable transportation agencies like SANDAG and local jurisdictions to implement transportation technology solutions that support safety & mobility such as lane and detour management during major incidents, outages or evacuation management, real-time motorist information, smart intersections, real-time transit information, connected and autonomous vehicle communications, and curb or parking management.

Enabling the provision of high-quality, competitive and affordable broadband service via the open access middle-mile network is top of mind to ensure end users can realize the benefit of the network. Today, there are limited choices of providers in San Diego County. Most households in the region are served by at most two providers and rural communities and tribes have only one provider option. This lack of competition can lead to high costs for low quality plans. In rural parts of the County, the most affordable plan is $90 per month[4]. Additionally, a Census analysis[5] revealed that a high percentage of low-income households in communities across County do not have broadband at home. Most of the communities are concentrated in the southern urbanized areas of the County and the unincorporated communities in East County, which collectively have a median household income of $35,000. These are the same communities that have highest unemployment rates, face challenges with accessing transportation, education, and jobs. Providing affordable and competitive broadband offerings to

[4] https://www.sandag.org/uploads/meetingid/meetingid_5885_29423.pdf
[5] https://www.sandag.org/uploads/projectid/projectid_614_29513.pdf

these communities is paramount to their quality of lives. SANDAG urges the CPUC to design network routes with end user affordability and last mile deployment in mind. Additionally, household broadband subscription data, including the cost of service, is not shared by ISPs. SANDAG urges the Commission to acquire household level data maintained by ISPs to inform the establishment of affordable service rates.

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?

Capacity and affordability claims must be handled in an accountable and transparent manner. SANDAG recommends the CPUC acquire granular mapping and data from ISPs to ensure claims are adequately verified and inform decision-making.

B. Priority Areas

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?

As the state's regulatory agency, the CPUC is best positioned to acquire more robust, and transparent data from ISPs to inform decision-making. SANDAG recommends that the CPUC consider integrating public and private data from ISPs to ensure that the determination of unserved households is informed by accurate and reliable data.

San Diego County is a geographically diverse county and there are significant differences in broadband accessibility within the urban and rural areas. Data from FCC indicates that **94%** of the population in the County's urbanized area have access to fixed broadband that meets 25/3 Mbps, as compared to only **66%** in the County's rural areas.[6] In order to accurately acknowledge and meet the different needs experienced by urban and rural communities within the County, SANDAG also recommends that the Commission utilize a more granular geography such as census blocks to determine areas with insufficient middle-mile network access. Identifying current unserved and underserved populations should, at minimum, utilize the state's new broadband definition of 100/20 Mbps as opposed to 25/3 Mbps to ensure that populations have

[6] https://www.sandag.org/uploads/projectid/projectid_614_29513.pdf

access to adequate broadband services that will meet their needs for essential online tasks. This should also include other factors that may impact broadband adoption and affordability such as future network demands, poverty rates, median household income, and other demographic factors to ensure that the number of unserved households is reflective of the level of need.

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)?

SANDAG recommends the CPUC integrate public and private data to inform decision-making. In addition to broadband subscription data, existing network locations, and speed test information from ISPs, this could also include public data such as population density, proximity to anchor institutions or public facilities such as schools, hospitals, health clinics, public housing, and libraries. Other indicators that the CPUC may want to consider include communities with no middle mile network infrastructure and areas that lack adequate access to broadband service that meet the 100/20 Mbps thresholds, rural areas, tribal areas, areas with high poverty neighborhoods, senior populations (65+), at-risk youth/students, and areas with slow economic growth.

Many regional and local governments have parallel broadband infrastructure planning and deployment efforts underway that should be integrated to identify priority network locations such as the SR 67 dig once project, utility undergrounding efforts, other prospective dig once corridors, or the FCC's Rural Digital Opportunity Fund (RDOF). SANDAG encourages the CPUC to collaborate closely with state and regional stakeholders such as MPOs, tribes, Caltrans, local jurisdictions, and ISPs to refine the locations of the middle-mile network to prioritize public investment in areas of greatest need like rural communities and tribal areas.

C. Assessing the Affordability of Middle Mile Infrastructure

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

The cost of leasing middle mile from private middle-mile broadband providers is generally not available as published information. Some large wireless carriers lease middle-mile fiber from large fiber providers with nationwide agreements and rates that are not accessible to small last mile providers in small communities. There are no published prices available from

private providers, but leasing rates from public providers[7] indicate that public leasing offerings are significantly lower than those offered by private providers.

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

In determining the affordability of middle-mile network, the Commission should consider complementary investments in the middle-mile network that are being made by entities like SANDAG, local jurisdictions, transportation agencies, and other non-profit agencies like CENIC. With the significant amount of funding earmarked for broadband infrastructure from the state and federal government, SANDAG encourages the CPUC to work with state, regional, local, and private sector entities, to maximize the effective use of public funds to build out the open-access middle mile network and ensure that broadband services provided to the consumer are affordable.

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)?

In general, communities and tribes in the County's rural areas lack broadband communications infrastructure, have limited access to broadband service (if at all), and experience disproportionately high costs. SANDAG concurs that it is reasonable for cost of these services to change depending on the network location and strongly recommends that the CPUC take these factors in consideration when determining costs of these services. The CPUC should coordinate with last mile deployments to ensure that high-quality and affordable service options are fair, competitive and also provide affordable options for low-income households.

D. Leasing Existing 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?

In planning and designing the location for the open access middle-mile network, SANDAG recommends that the CPUC evaluate several business models or other alternative delivery models, that could support the rapid deployment of the network, prioritize areas of greatest need, and enable connections to last mile deployment that meets minimum service quality and affordability standards. This could include Indefeasible Rights of Use (IRUs) or other public – private partnership (P3) models. SANDAG urges the Commission to consider

[7] https://www.ctcnet.us/DarkFiberLease.pdf

evaluating these models using outcome-based performance measures or integrating concessions into these arrangements to ensure that network objectives and end-user benefits are ultimately realized.

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

Consistent with our previous comment, SANDAG recommends that the Commission consider all available delivery models to determine the most effective approach for routes along the middle-mile network. SANDAG urges the CPUC to acquire data from ISPs on existing network location information to determine availability and capacity of the existing network. The Commission should also consider existing and future demands to ensure sufficient network redundancies are incorporated and public investment is maximized and prioritized in areas that are hardest to reach and serve.

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?

At the pace that the technology revolution has grown, it is quite possible that broadband service of 100/20 Mbps, or 1 Gbps, may not be sufficient in a several years. Network delivery models pursued by the CPUC could integrate outcome-based performance measures to ensure that network performance objectives realized. This could also include terms that outline technology refresh cycles to ensure that service quality and capacity is satisfactorily being met, enable flexibility to scale or create redundancies in the network, and allow for the integration of new transmission technologies as the industry or demand changes. Designing a network for the future will ensure growing demands on broadband technology are met and provide cost savings by avoiding expensive retrenching in the future.

E. Interconnection

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

Publicly-led fiber network deployments could serve as strategic interconnection points to establish a resilient and integrated statewide network. This could include networks such as the South Bay Fiber Network, which is a dedicated fiber-optic network developed for the use of

South Bay Cities Council of Governments (SBCCOG) and its member cities[8] or the transportation fiber ring in San Diego County comprised of SANDAG, Caltrans, North County Transit District, and Metropolitan Transportation System. SANDAG recommends that the Commission continue to coordinate with public and private stakeholders such as Caltrans, County Transportation Commissions, Regional Metropolitan Organizations and Local Jurisdictions, broadband consortia, ISPs and other stakeholders to identify interconnection points are adequately planned for.

Additionally, several public or private agencies may be interested in making connections to the middle-mile network in the future but may not have the resources or the expertise to conduct a detailed technical analysis to provide meaningful input on network interconnection points at this stage. SANDAG urges the Commission to provide ample opportunity, beyond this rulemaking, for stakeholders to provide feedback on interconnection points, especially to ensure last mile deployments can be made and prioritized in areas of greatest needs.

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

Consistent with our comments above, SANDAG recommends that the Commission coordinate with public and private stakeholders to identify additional strategic exchange points. These locations should prioritize connections in areas of greatest need while also making high-band redundant connections to ensure system reliability and future capacity to support 1 Gbps or 10 Gbps are achieved.

F. Network Route Capacity

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

The deployment of fiber along the middle-mile network should be based on a standard approach for estimating future demand beyond today's 100/20 Mbps standard. The fiber strand count should be based on the total number of households and business services planned for the community being serviced and assume 1 Gbps service to each household or 10 Gbps for larger services to businesses. Additionally, consistent with the State's Dig Smart-Dig Once policy framework, SANDAG encourages the CPUC to consider providing empty conduit duct banks with the intent of partnering with an ISP who may like to pull their own fiber. This approach could help spur market competition by enabling smaller ISPs to enter the market in a more cost-

[8] https://www.southbaycities.org/programs/south-bay-fiber-network

effective approach. Based on our experience, SANDAG recommends that empty conduit banks be sized to account for the largest count fiber strand required to serve the communities and provide a minimum of four ducts of the same size, no smaller than 1.5-inch inner diameter.

SANDAG also encourages that the Commission remain flexible as fiber needs may vary based on current and projected demand along the middle-mile network based on the number of end-users, applications, or other uses for communications infrastructure.

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

As indicated earlier, SANDAG urges the Commission to develop a middle-mile network that meets today's demand as well as projected needs of 1 Gbps service to each household or 10 Gbps for larger services to businesses to meet the communication requirements needed to enable municipal operations, connect public facilities or anchor institutions (libraries, healthcare facilities, public safety stations). The Commission may also want to consider new demand generated by the open access middle-mile network such as new digital businesses that may be established as a result of the provision of service in currently underserved rural or tribal areas. Establishing demand based on bandwidth and quality of service (including upstream and low latency) may address evolving uses and applications of broadband. The Commission should also consider computing simultaneous aggregate bandwidth demand during the busy hour to ensure the middle mile does not become the bottleneck for delivery of last mile services.

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

SANDAG is partnering with Caltrans and the County of San Diego to integrate broadband infrastructure along 18 miles of the SR 67 corridor. SANDAG is currently conducting a competitive procurement to select a broadband provider that can leverage this infrastructure to enhance broadband service availability to communities along this corridor. As part of the project scope, the public agency partners are funding multiple conduits that can be used to pull fiber to serve Caltrans and County communication needs. This also includes the provision of extra empty conduits that can be leveraged by a public agency partner or ISP to pull fiber for broadband service to serve current and future needs. Consistent with our earlier response, SANDAG urges the Commission to employ a similar approach so that potential future expansions can be readily accommodated without a significant additional investment in public funding. Based on our

experience, SANDAG recommends that empty conduit banks be sized to account for the largest count fiber strand required to serve the communities and provide a minimum of four ducts of the same size, no smaller than 1.5-inch inner diameter. Providing additional conduit within each route would enable the Commission, ISPs, or other agencies to seamlessly connect to the middle-mile network, future-proof the system, and create resiliency in the network.

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

While population density and distance are important factors for the CPUC to consider, they should not be to sole determinants. As stated earlier, SANDAG recommends that the network be designed to provide 1 Gbps service to each household or 10 Gbps for larger services to businesses. This should also consider current and future demand driven by growth in population, jobs, or new demand induced by the open access middle-mile network.

III. Conclusions

SANDAG thanks the Commission for consideration of these comments and looks forward to the partnership with the Commission and other stakeholders to support the expansion of the open access middle-mile network. Building collaborative and transparent partnerships with public and private stakeholders is critical to the vision outlined in the State's Broadband Action Plan. SANDAG is committed to expanding broadband service to the region's unserved and unserved areas. We encourage the Commission to ensure there continue to be adequate opportunities for coordination with regional governments like SANDAG, broadband consortia, and local jurisdictions to maximize our public investments and meet mutual objectives to bridge the digital divide.

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Respectfully submitted,

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