POLE ATTACHMENT POLICIES AND BROADBAND EXPANSION IN THE STATE OF TEXAS

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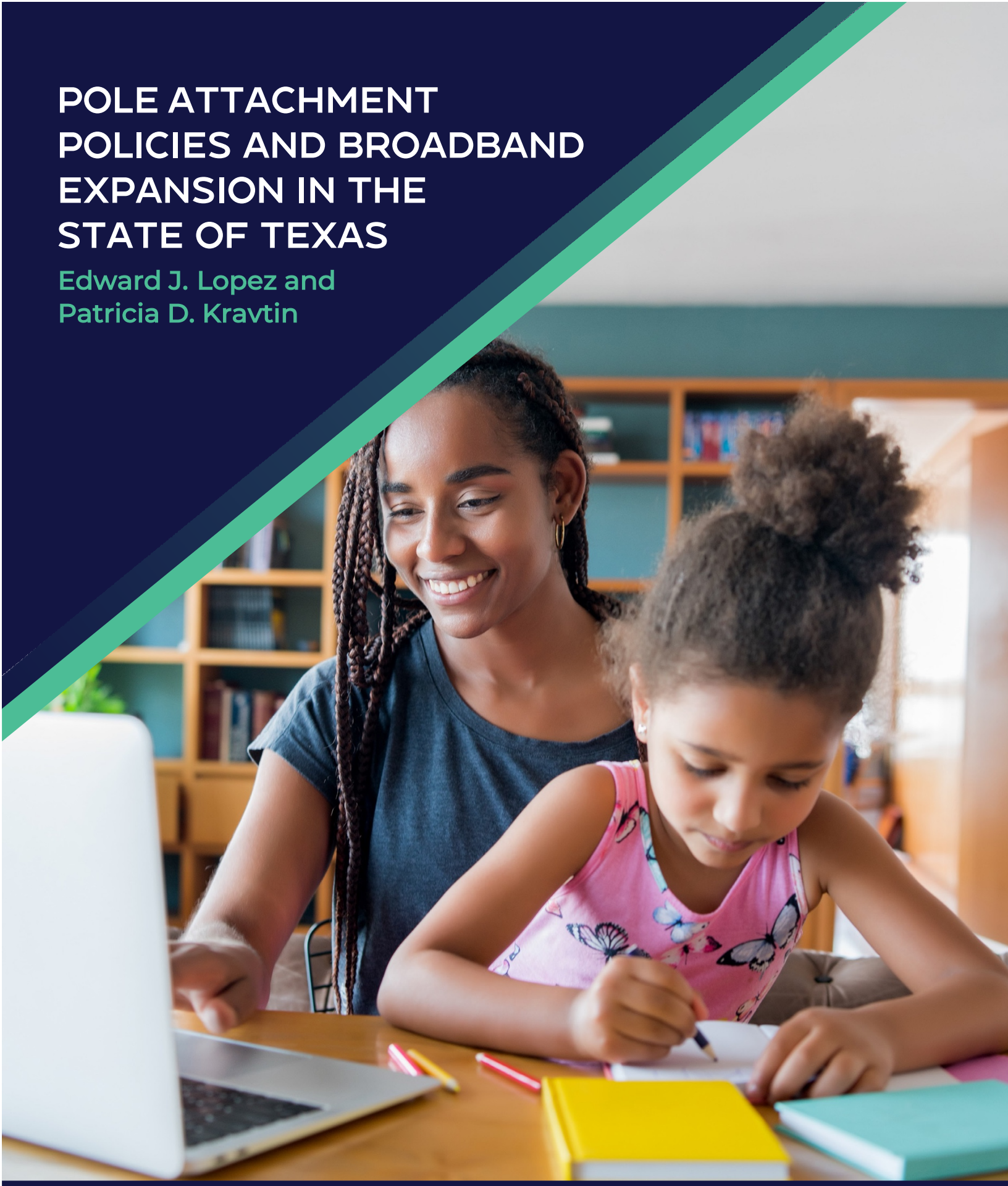

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EXECUTIVE SUMMARY

Between 1.23 million and 4.37 million Texans currently lack access to high-speed broadband. In this study, we estimate that expanding broadband access to this unserved population would create anywhere from $4.94 billion up to $28.88 billion of new economic gains to Texas's homes and small businesses (the amount varying based on the database of unserved locations used to quantify). This estimated economic gain represents the social return on new public and private sector investments, namely the productive, commercial, educational, health, and other benefits that stand to be realized by achieving full broadband expansion in Texas.

Today, that broadband deployment is being inhibited due to utility pole infrastructure access issues and problematic behavior of certain utility pole owners. Specifically, pole owners frequently deny or delay broadband providers pole attachment access, or impose economically unfeasible rates, terms, and conditions that impose excessive costs on broadband providers associated with pole replacement and upkeep. In the study of economics, this is known as the ***hold up problem***,[1] an inefficient concentration of market power that harms the public interest.

When pole owners hold up the process, the result is foregone economic gains to Texans. In this study, we estimate that every month of delayed expansion due to pole owner hold up costs Texas between $29.2 and $170.7 million.

Utility poles represent a critical input in broadband deployment, as attachment to existing pole networks is the most efficient means to expand high-speed broadband access to currently unserved areas of the country. Policymakers should initiate measures to recapture this economic value by revising and modifying pole policies and pole owner behavior to facilitate broadband deployment.

> Pole Owner
> Hold Up
> Costs Texas
> **$29.2M – $170.7M**
> ***every month***
> it delays expansion.

CURRENT BROADBAND INITIATIVES IN TEXAS

Depending on the basis of measurement, the total number of Texans lacking access to high-speed broadband is reported in the range of 1.23 million to 4.37 million, representing approximately one in ten of the total estimated unserved population in the United States.[2] The pandemic has vividly highlighted the problems associated with unequal broadband access and the heightened need for broadband services. The problem has been recognized as particularly acute given its impact on the school age population in Texas. According to a 2020 article, an estimated 30% of the state's 5.5 million public school students don't have the right technology for online learning.[3] Based on a survey of state educators, a reported one of every six public school students in Texas does not have access to high-speed internet.

Legislators in the state have taken steps to study and address the problem, with the establishment in 2019 of a Governor's Broadband Development Council ("GBDC"),[4] followed by the establishment in 2021 of a Broadband Development Office ("BDO") in HB 5 (87R). Per its charter, the GBDC is required to monitor the progress of broadband development in unserved areas; identify barriers to residential and commercial broadband deployment in unserved areas; and to study and analyze how statewide access to broadband would benefit economic development, the delivery of educational opportunities in higher education and public education; state and local law enforcement; state emergency preparedness; and the delivery of health care services.

The BDO is tasked with creating a broadband map indicating areas of financial assistance, setting thresholds for broadband speed in unserved areas at 25/3 Mbps, creating and updating a state broadband plan, doing outreach to communities regarding the expansion and adoption of broadband service and the programs administered by the BDO, and serving as the state's subject matter expert for federal funding to help local governments.

Lawmakers in the state further stepped up in the spring of this year with the enactment of HB 1505, which established a Broadband Pole Replacement Fund ("BPF") with an initial appropriation of $75 million to help underwrite the cost of pole replacements required as part of the deployment of broadband facilities in areas served by cooperatively owned utilities. As noted in Lopez & Kravtin 2021, pole replacement costs can serve as a major cost impediment to broadband expansion into unserved rural areas of the state. Under the BPF, the state comptroller is authorized to reimburse the lesser of $5,000 or 50 percent of the total amount paid by a broadband provider or cooperative pole owner for an eligible pole replacement, plus administrative costs associated with the grant application process up to 5% of the replacement cost, to accommodate broadband facilities used to deploy retail broadband service at speeds of 25/3 Mbps or faster to areas that currently lack such service or are subject to another state or federal grant program.

These state initiatives are in addition to the $363 million in broadband grant funding

awarded to providers in the state through the FCC Rural Digital Opportunity Fund ("RDOF") auction program – a program that will expand broadband access to currently 310,962 unserved homes and small businesses across Texas. Moreover, the state's broadband expansion funding effort also has access to $500.4 million from the ARPA Coronavirus Capital Projects Fund, and while not specifically allocated to broadband, some $15.8 billion in total ARPA state level fiscal funding awarded to Texas.[5] The Infrastructure Investment and Jobs Act of 2021 ("IIJA"), recently enacted by Congress on a bipartisan basis, includes an additional $42 billion commitment to broadband buildout across all 50 states. When combined with federal and state funding already in the pipeline as part of the recent COVID-19 relief packages, the government funding commitment to invest in the state's broadband infrastructure, as across the other 49 states, is unprecedented.

Texas policymakers recently extended its regulation of recurring pole rental rates to apply to cooperatively owned utilities in the state. Previously, pole rate regulation in Texas was limited to municipally owned utilities only, leaving investor-owned utility ("IOU") rate regulation to the FCC pursuant to federal Section 224 regulation and pole rates charged by cooperative utilities unregulated. However, unlike the pole rate regulations applied to municipal utilities, the new regulations governing pole rates charged broadband providers by cooperatives do not establish a specific cost-based formula, only a general standard of just, reasonable, and nondiscriminatory rates.[6]

EXISTING HOLD UP POWER OF MUNICIPALITY & COOPERATIVELY OWNED ELECTRIC UTILITIES OVER TEXAS BROADBAND EXPANSION

Despite existing regulations and substantial funding mechanisms from the state and federal government, the public's return on current broadband investment in the state remains substantially vulnerable to the leverage and market power that pole owners enjoy over broadband service providers seeking to attach broadband infrastructure to poles. This leverage has intensified in recent years due to a variety of factors including: the increased urgency of policymakers to get broadband out to unserved areas of the state, the pole owner's information advantage as to where unserved customers – the target recipients of broadband grant awards and build out commitments - are located thereby raising the currency of the pole owners' gatekeeper status, the greater number of poles needed to reach those customers in outlying hard to reach rural areas of the state, and the increasing desire among pole owners to enter and compete in the broadband marketplace against broadband attachers.[7]

The power to impede others' ongoing investment plans is classified in economics as a "***hold up problem***." A hold up problem is an example of the inefficient concentration of market power that harms the public interest and results in market failure absent adoption

of public policies to prevent the exercise of the hold up power at its source.

In the case of pole attachments needed for broadband deployment, hold up power emanates from the charging of inefficiently high costs and imposing of delays on pole attachers at the upfront end of their planned broadband buildout as part of the "make-ready" process, although excessive recurring charges (rental rates for space on the pole) are not an insignificant factor. These high make-ready costs and delays are especially pronounced in connection with the change-out or replacement of existing poles. Absent effective regulation, pole owners routinely seek to push the entire cost of pole replacement on to attaching entities, including broadband providers, thereby sharply, unpredictably, and inequitably increasing the cost of attachment.

In Texas, recently adopted HB 1505 represents a positive step forward that buttresses the state's application of recurring pole attachment rental rate regulation to extend to cooperatives, which previously the state had only applied to municipally owned utilities. Although helpful, as noted above, the new pole rate regulation as applied to cooperatives provides more discretion in setting rates to the pole owner than the regulations applied by the state to municipal utilities. Similarly, under the new make-ready process, including the apportionment of costs between the pole owner and the broadband provider, pole owners retain substantial discretion in determining the costs to be borne by the provider. This provides an opportunity (and incentive) for the cooperatives to continue to exercise hold up power over broadband providers in unserved, rural areas of the state, and thwart the public interest objectives of Texas' broadband expansion goals. For example, by not specifying a cost allocation methodology, the opportunity remains for the pole owner to seek to shift a disproportionately high percentage of the true economic cost of pole replacement to the broadband provider, regardless of the betterment value of the new poles to the utility and/or the remaining net book value of the existing pole.[8]

Remaining inefficiencies in make-ready charges are compounded by the high recurring annual rental rates charged by the more lightly regulated cooperatively owned utilities. Inefficiently high recurring charges also impede broadband expansion by raising the ongoing costs of attaching to a pole. A 2019 study examining pole rates nationwide found rates charged by cooperative utilities in the state of Texas (pre regulation) to exceed those charged by municipal utilities in the state by over 20% and to exceed those charged by IOUs by over 80%.[9]

MEASURING THE ECONOMIC HARMS OF POLE OWNER HOLD UP POWER IN THE STATE OF TEXAS

Our analysis measures the economic harms to Texas residents and small businesses of the hold up power of pole owners. These harms are measured in the form of foregone consumer value, known in economics as ***deadweight loss*** (DWL).[10] The methodology employed applies well established metrics on consumer ***willingness to pay*** (WTP) from the economic literature (in lay terms, the highest price a household would pay for improved broadband).[11] We apply these WTP metrics to reported data on the number of unserved locations awarded grant funding in the state in the FCC's RDOF auction program. Under the RDOF program alone, third-party providers have committed to expand high-quality broadband access to as many as 310,962 currently unserved homes and small businesses across the state of Texas, the majority in rural areas.

We have expanded our prior analysis to include the total number of unserved locations in the state identified in the FCC's most recent Broadband Deployment Report, as well as information on unserved locations from an independent data base of unserved Texans compiled by a national data aggregation company, BroadbandNow.[12] Given the substantial private investment and government funding mechanisms being deployed to reach all unserved locations in the state, including the IIJA's massive commitment to broadband infrastructure, this broader analysis is appropriate. The FCC Broadband Report database of unserved population indicates a total number of 1.53 million unserved locations across the state based on the average 2.86 persons per household in Texas.[13] Similarly, the BroadbandNow data base, the number of Texans without broadband access is 4,396,820, translating into 1.53 million unserved locations in the state – over 3.5 times the identified number of unserved locations identified by the FCC of 430,070.[14]

In Tables 1 and 2 below, we present our main findings applied to the state of Texas. Table 1 reports aggregate economic gains for three speed and latency thresholds under three sets of assumptions. The selected speed (measured in megabits of data) and latency thresholds (measured in milliseconds) are comparable to existing broadband service plan offerings rolling out at the time of this writing. The estimates in Table 1 represent a range of possibilities. For example, if all currently unserved locations assigned for deployment under RDOF get connected at 1000/100 Mbps and <10 Ms, this would create $5.84 billion of new economic gains statewide. But if all currently unserved persons estimated by the FCC to lack broadband get similarly connected, that gain would be $8.08 billion. And connecting all unserved persons as estimated by BroadbandNow would yield $28.88 billion.

Moving to Table 2 below, this same computation methodology demonstrate the foregone economic gains, known in economics as deadweight loss (DWL), due to delayed or denied broadband expansion under the pole

TX TABLE #1:

ECONOMIC GAINS IF ALL CURRENTLY UNSERVED POPULATION GAINS BROADBAND ACCESS

	All Assigned RDOF Locations Gain Access	All FCC Unserved Population Gains Access	All BroadbandNow Unserved Population Gains Access
150/25 Mbps at <10 Ms	**$ 4.94B**	**$6.84B**	**$24.43B**
300/100 Mbps at <10 Ms	**$5.47B**	**$7.57B**	**$27.06B**
1000/100 Mbps at <10 Ms	**$5.84B**	**$8.08B**	**$28.88B**

Note: Table entries equal net present value of annualized gains over 25 years at 5% discount rate. See Appendix D of the companion Federal paper for explanation of methodology and modeling assumptions.

owner hold up problem. As our previous analysis demonstrated, the identified losses in the form of potential foregone consumer value welfare from the delay or unavailability in broadband access, are also quite substantial. As shown in Table 2, we compute the magnitude of DWL to be in the range of $29.22 million to $170.77 million per month, at speed thresholds of 1000/100 Mbps and <10Ms latency.

We emphasize that these Texas estimates, as with our nationwide estimates, are conservative in magnitude because the underlying WTP estimates do not reflect higher broadband demand since COVID-19 or the high speeds being deployed in current expansion plans. For these reasons, the true economic gain to Texas of full broadband expansion may likely exceeds the estimates shown in Table 1 above.

TX TABLE #2:

ESTIMATES OF FOREGONE ECONOMIC GAINS DUE TO POLE ATTACHMENT HOLD UP

	All RDOF Locations Gain Access	All FCC Estimated Population Gains Access	All BroadbandNow Estimated Population Gains Access
150/25 Mbps at <10 Ms	**$29.22M**	**$40.41M**	**$144.46M**
300/100 Mbps at <10 Ms	**$32.37M**	**$44.76M**	**$160.02M**
1000/100 Mbps at <10 Ms	**$34.54M**	**$47.78M**	**$170.77M**

Note: Table entries are monthly aggregate foregone economic gains.

CONCLUSION: POLICY RECOMMENDATIONS TO PROMOTE FULL BROADBAND ACCESS IN TEXAS

The efforts undertaken in the state of Texas to date including the new make-ready rules and recurring rate regulations applicable to cooperatively owned utilities represent an initial step toward addressing the hold up power of municipal and cooperative pole owners and their ability to deter rapid deployment of broadband infrastructure throughout Texas' unserved areas. However, for the reasons described above, and especially as it applies to the charges for pole replacement imposed by pole owners on third party broadband providers, they do not go far enough in reducing the cost impediments facing broadband providers due to the behavior of pole owners.

This study demonstrates that the economic stakes at risk are high. Necessary electric utility pole infrastructure investments and pole reforms that address nonregulated cooperatively owned utilities to help speed broadband infrastructure deployment should include: adoption of efficient pole replacement cost allocation standards based on the net book value of the poles to be replaced (taking into account the inevitable replacement of those poles and the betterment value to the pole owner from their earlier replacement), along with other economically fair, just and reasonable rates, terms, and conditions of access to utility poles for broadband providers as delineated in Appendix A to the national study that accompanies this state study.

Given the substantial demonstrated consumers gains of full broadband expansion in Texas, a compelling public interest exists for policymakers to act now to adopt more of these key reforms.

APPENDIX A: ELEMENTS OF A MODEL POLE POLICY

Two foundational principles necessary for the success of broadband deployment in unserved areas are: 1) changing the cost equation for the intermediate pole input in order to encourage infrastructure investment in hard-to-reach areas of the country; and 2) the removal of other regulatory or market impediments to the vital pole input that might jeopardize the cost-efficient nature of that infrastructure investment and deployment. These two principles are at the forefront of the effort to achieve full broadband access in unserved rural areas of our country. The first policy priority is being addressed by federal and state programs that seek to support the cost-efficient deployment of broadband in hard to serve areas of the country; however, the second priority requires additional policies, including policies to ensure an economically efficient and fair cost allocation of pole costs that would help to moderate a pole owners' ability to exercise anti-competitive, anti-consumer market power in an otherwise competitive ecosystem.

Key elements of urgently needed broadband deployment promoting policies include:

- Creation of a pole replacement fund or grant program to promote the efficient use of available state and federal infrastructure funding dollars in support of the buildout of utility pole infrastructure into unserved areas, and in conjunction, ensure pole owners provide nondiscriminatory, just and reasonable non-recurring and recurring rates, terms, and conditions of access to broadband providers (consistent with those detailed below);
- Definitions for make-ready related pole replacements that distinguish make-ready pole replacements from those related to the utility's own inevitable electric (or broadband related) infrastructure upgrade costs;
- Terms that require the pole owner to pay the entire cost of pole replacement when due to safety or reliability as a result of normal wear and tear or other natural causes; or the pole has recorded conditions or defects that would reasonably be expected to endanger human life or property and which should be promptly corrected (whether or not officially "red tagged" for replacement;
- Terms that provide for the economically efficient and equitable sharing of costs of pole replacements tied to the age and/or net book value of the utility poles to be replaced that would preclude, as precondition of access, new attachers from having to bear the full cost of replacing aging poles. This would preclude the utility seeking from attachers the full recovery of poles that the utility would have to replace at its own cost in the near future in the absence of the new attachment or overlash;
- Terms that prevent the utility from seeking any cost recovery from attachers associated with pole replacements unrelated to the need to accommodate a new attachment;
- Terms that facilitate the efficient use of federal and state grant funding;

- Detailed make-ready related invoices;
- Specify workable time frames for pole permit application, survey timeframes, pre- and post-construction requirements;
- Shorter timelines for make-ready work;
- Longer timelines for assessing new attacher One Touch Make-Ready ("OTMR") requests versus existing attachers whose facilities are slated for OTMR;
- Audit process and costs;
- Reasonable notice-only policy for overlashing;
- Terms that preclude, as precondition of access prior to overlashing, a requirement for permitting or fixing of preexisting violations;
- Expedited dispute resolution under the auspices of the state utility commission or through the courts subject to applicable law;
- Charges for non-recurring charges, including pole replacement, must be based on actual, reasonable costs, objectively determined (i.e., based on accepted economic cost allocation criteria); and
- Recurring rental rates set based on the widely used FCC cable rate formula.

END NOTES

[1] The hold up problem is the power to impede others' ongoing investments. In general, hold up problems arise in scenarios where Entity A makes an initial investment that is called "relationship-specific" because its return depends on Entity A subsequently contracting with Entity B. In these scenarios, if Entity B has information about A's investment, then B has market power to extract rents from A's investment and thereby destroy economic value by requiring a high selling price (high, specifically, relative to what the selling price would be in absence of this market power). Hold up problems are classified in economics terms as one example of inefficient concentration of market power that harms the public interest.

[2] See https://broadbandnow.com/research/fcc-broadband-overreporting-by-state.

[3] See https://www.texastribune.org/2020/08/14/texas-schools-remote-internet-access/.

[4] See https://gov.texas.gov/business/page/governors-broadband-development-council.

[5] https://www.fiercetelecom.com/special-report/u-s-broadband-funding-state-by-state.

[6] See Tex. Util. Code 252 (cooperatives)., Tex. Util. Code Ann. Section 54.204 (municipal).

[7] See e.g., https://taylorelectric.com/residential-fiber-2/, https://www.greenbeltelectric.coop/content/twn-high-speed-internet, https://victoriaelectric.coop/content/internet, https://www.geus.org/35/Internet-Cable-TV.

[8] See "The Economic Case for a More Cost Causative Approach to Make ready Charges Associated with Pole Replacement in Unserved/Rural Areas: Long Overdue, But Particularly Critical in Light of the Pressing Need to Close the Digital Divide," September 2, FCC WC Docket No. 17-84, in the Matter of Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment., September 2021.

[9] See Michelle Connelly, *The Economic Impact of Section 224 Exemption of Municipal and Cooperative Poles,* July 12, 2019, submitted before the FCC Broadband Deployment Advisory Committee, GN Docket No. 17-83, Wireline Infrastructure, WC Docket No. 17-84, Wireless Infrastructure, WT Docket No. 17-79, July 22, 2019, Tables A4.

[10] Deadweight Loss (or, DWL) is a standard textbook measure of foregone economic gains created by end-users lacking access to goods and services, including broadband access. In Appendix D of the national study that accompanies this state study, we explain the economic methodology used to generate these estimates. See also Appendix B of the national study for a Glossary of Technical Terms used in this study.

[11] Willingness-to-Pay (or, WTP) is a standard textbook measure of economic gains created by end-users having access to goods and services, including broadband access. In Appendix A of the national study that accompanies this state study, we explain the economic methodology used to generate these estimates. See also Appendix C of the national study for a Glossary of Technical Terms used here.

[12] See http://BroadbandNow.com.

[13] See FCC Fourteenth Broadband Deployment Report, rel. January 19, 2021, FCC 21-18, Appendix A.

[14] More precisely, the BroadbandNow data base identifies unserved population to which state-specific ratios of the average number of persons to households can be applied to derive a number of locations comparable to those identified in the RDOF data base, 2.86 in the case of Texas. The discrepancy in unserved locations between the FCC and BroadbandNow databases is largely attributable to the FCC's methodology which only included unserved households in fully unserved census blocks, whereas the BroadbandNow drilled down below the census block level. See https://broadbandnow.com/research/fcc-broadband-overreporting-by-state.