EXHIBIT 2

ExteNet Appendix Exh. V

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF NEW YORK

ExteNet Systems, Inc. Plaintiff, vs. City of Rochester, New York Defendant.	)	Civil Action No.

DECLARATION OF PATRICIA D. KRAVTIN IN SUPPORT OF MOTION FOR SUMMARY JUDGMENT

I, Patricia Kravtin, declare and state as follows:

1. I am the Principal and owner of Patricia D. Kravtin Economic Consulting, a private practice consulting company based in Utah specializing in the provision of the analysis of communications and energy regulation and markets since 2000.

2. I was engaged by ExteNet Systems, Inc. ("ExteNet") to apply my experience and expertise as an expert witness in the above captioned case. The matters stated below are true of my own personal knowledge.

3. Attached hereto as Exhibit 1 is a copy of the expert report, and exhibits thereto, which I prepared for this case (the "Expert Report"). My Expert Report sets forth my opinions and identifies my expert qualifications related to my testimony in this case.

4. The Expert Report contains a complete statement of all my opinions in this matter and the basis and reasons for them.

5. The Expert Report contains or identifies the facts and data considered by me in forming my opinions in this matter.

6. The Expert Report includes any exhibits that will be used to summarize or support my opinions in this matter.

7. The Expert Report includes my qualifications as an expert witness in this matter.

8. The Expert Report includes a list of all the cases in which I testified as an expert at trial or by deposition during the four years preceding the date of the Expert Report.

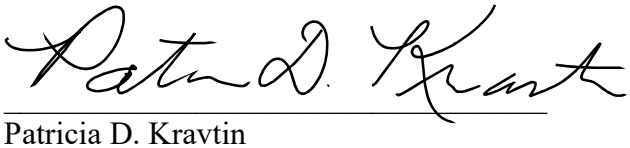
9. The Expert Report contains a statement of the compensation to be paid for my testimony in this case.

10. I have personal knowledge of and am competent to testify as to each matter stated in the Expert Report.

11. I hereby verify and reaffirm the expert opinions, as well as the supporting bases, reasons and data, contained in my Expert Report and adopt them as my testimony for purposes of Plaintiff's Motion for Summary Judgment.

12. If called upon to testify at trial as to the facts and opinions set forth in the Expert Report, I could and would competently do so.

I DECLARE UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.



Patricia D. Kravtin

Executed on October 28, 2021

Kravtin Exhibit 1

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF NEW YORK

ExteNet Systems, Inc. Plaintiff, vs. City of Rochester, New York Defendant.	)	Civil Action No. 6:20-cv-7129

EXPERT REPORT

OF

PATRICIA D. KRAVTIN

August 12, 2021

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I. EXPERIENCE AND QUALIFICATIONS

1. My name is Patricia D. Kravtin. I am principal and owner of Patricia D. Kravtin Economic Consulting, a private practice specializing in the analysis of communications and energy regulation and markets. My business address is 2100 Park Avenue, Unit 682316, Park City, Utah 84068.

2. I received a B.A. with Distinction in Economics from the George Washington University. I studied in the Ph.D. program in Economics under a National Science Foundation Fellowship at the Massachusetts Institute of Technology (M.I.T.), completing all course requirements for the Ph.D. degree and passing oral and written examinations in my chosen fields of study: government regulation of industry, industrial organization, and urban and regional economics. My professional background includes a wide range of consulting experiences in regulated industries. Between 1982 and 2000, I was a consultant at the national economic research and consulting firm of Economics and Technology, Inc. (ETI) in that firm's regulatory consulting group, where I held positions of increasing responsibility, including Senior Vice President/Senior Economist. Upon leaving ETI in September 2000, I began my own consulting practice specializing in telecommunications, cable, and energy regulation and markets.

3. During the forty years of my professional career, I have been actively involved in the field of public utility economics, policy, and regulation. I have worked extensively in the area of telecommunications economics and regulatory policy, focusing on such issues as industry structure, competition and market analysis, cost allocation, capital recovery, utility infrastructure, cost and demand studies, total factor productivity, and deployment of advanced broadband technologies. I have conducted numerous studies and authored a number of studies and papers pertaining to these issues among others.

4. I have testified or served as an expert on telecommunications and energy issues in proceedings before more than thirty state regulatory commissions, and also before a number of state legislative committees. I have also served as an expert in proceedings before the Federal Communications Commission ("FCC"), the Federal Energy Regulatory Commission, the Canadian Radio-television and Telecommunications Commission, and the Guam Public Utilities Commission. I have also served as advisor to a number of state regulatory agencies.

5. I have been qualified as an expert witness in antitrust litigation and various other telecommunications matters including those pursuant to the Telecommunications Act of 1996

and relating to pole, conduit, and right of ways before the following state and federal courts: the United States District Court: District of Maryland, Eastern District of New York, Northern District of New York Southern District of California, and Eastern District of Tennessee; the Chancery Court for Davidson County, Tennessee at Nashville; the Circuit Court of the Thirteenth Judicial Circuit in and for Hillsborough County, Florida; the General Court of Justice Superior Court Division, State of North Carolina, County of Rutherford and County of Rowan; and the Superior Court of the State of Washington for the County of Pacific. A detailed resume summarizing my training, previous experience, and prior testimony and reports is provided in Appendix A to this report.

6. I am being compensated for the time I spend on this matter at my standard rate of $485 per hour. I will also be reimbursed for any travel and miscellaneous out-of-pocket expenses incurred in connection with this litigation, I have been retained as an independent expert, and as such, my payment is not dependent on the outcome of this litigation.

II. ASSIGNMENT

7. I have been asked by counsel for ExteNet Systems, Inc. ("ExteNet") to apply my experience and expertise on subjects relating to this case to the review and analysis of the various fees charged to ExteNet, and other telecommunications services providers, by the City of Rochester ("City") under the City's Telecommunication Code pertaining to the installation of ExteNet's and others' facilities needed to provide telecommunications services, including facilities installed on City structures or poles, or in the public rights of way ("ROW"). As part of this assignment, I have been asked to render an opinion as to whether the various fees charged ExteNet, and other telecommunications services providers, by the City reflect the reasonable actual and direct costs incurred by the City that are specifically related to and caused by the deployment of facilities used to provide telecommunications services in ROW in the City.

8. In reaching my opinions, I have relied on my education, training, research, and experience in economic analysis, and my prior experience in the areas of telecommunications and utility regulation outlined above and further detailed in Appendix A to this report. I have reviewed or relied upon various data and information in forming my opinions, including materials provided by the City in response to discovery and in the deposition questioning of City witnesses, along with other publicly available documents and case pleadings. A listing of the data and information I reviewed or relied upon in forming my opinions is provided in Appendix

B. to this Report.

9. I respectively reserve the right to update my report and supplement or amend my opinions in response to any additional information provided by the City or that may become available.

III. SUMMARY OF OPINIONS

10. Based on my review and analysis of information available to me as described above, and the application of my extensive economic and regulatory experience and expertise on subjects relating to this matter, I reach the following opinions concerning the various fees charged ExteNet, and other telecommunications services providers, by the City for telecommunications facilities installed on City-owned facilities and in the public ROW:

a. The City has not demonstrated its fees are objectively determined consistent with well-established economic and cost-accounting principles, the overarching criteria for objectivity being the capability of the cost analysis to be replicated, verified, and independently corroborated.

b. To date, the evidence and documentation produced by the City would not allow me or any other cost expert to calculate the City's reasonable actual and direct costs incurred by the City that are specifically related to and caused by the deployment of facilities used to provide telecommunications services in public ROW in the City, or from which I could independently replicate and verify that the City's assertion that its costs are so great as to justify fees substantially higher than the presumptively reasonable amounts defined by the FCC.

c. What the City has produced and claims to represent its supporting ROW cost analysis is, at best, an ad hoc compilation of disparate, unsupported, inconsistent, unverified, and non-replicable numbers presented on two excel spreadsheets (the "City Cost Spreadsheet").[1]

d. Based on the testimony of the City's designated witness, the costs identified in the City Cost Spreadsheet are based on informal information from unidentified City employees, provided without clearly-defined, coherent, principled cost allocation guidelines and seemingly arbitrarily allocated between the "underground" and "non-

[1] *See generally* City of Rochester, *ROW Costs Spreadsheets*, COR000011 ("*City Cost Spreadsheet*" or "COR000011")

underground" fee categories.

e. The City has not demonstrated that its fees are limited to recovery of direct and actual costs caused by one or more telecommunications provider's deployment and not otherwise already recovered by the City in non-recurring, permitting fees charged by the City or other reimbursements or in-kind provisions of service.

f. The vast preponderance of costs identified in the City Cost Spreadsheet would exist regardless of the existence of ExteNet and other telecommunications providers in the public ROW.

g. Of the small subset of costs identified in the City Cost Spreadsheet that could possibly meet the standard of actual, direct cost, with one possible exception (i.e., invoicing work by the finance department), the costs are more than recovered in the City's one-time permitting fee of $2,000 per existing pole ($2,500 per replacement pole) levied on telecommunications providers.

h. Given that the fees charged ExteNet and other telecommunications providers by the City for installations on City-owned facilities and in the public ROW fail to even come close to satisfying economically principled cost identification and allocation standards, ExteNet should be subject to fees no higher than the FCC's presumptive levels for small wireless facilities and significantly lower recurring fees for the installation of wireline facilities in the ROW.

i. Even the presumptively reasonable fee levels set by the FCC for small wireless facilities are themselves much more than compensatory to the City compared to the City's actual, objectively determined economic costs caused by one or more telecommunications providers' deployment.

IV. CITY OF ROCHESTER RIGHT OF WAY FEES

A. Summary of Fees Charged by the City for Access to City ROW

ExteNet is subject to a myriad of annual recurring and non-recurring fees by the City applicable to new and existing underground and aerial installations.

11. To my understanding, ExteNet, as a provider of telecommunications services, is subject to myriad fees by the City as a condition of access to City-owned poles and the public ROW. The City's fee structure takes the form of an intricate mix of annual recurring fees and non-recurring fees on both wireless and wireline facilities. The fees also vary for both underground

and aerial installations during the first and subsequent years following installation, and for underground installations, the fees differ based on whether the initial installation involved open trenching or directional boring. For aerial installations, there are effectively separate fees for wireless facilities and fiber optic facilities, and separate fees apply for attachments to pole and for "strand-mounted" wireless equipment that is installed between poles. The myriad annual recurring fees to which ExteNet is subject are set forth in the City Code Article IV. Fees and Compensation §106.15 General B(1) and (B)(2) for underground and aerial installations, respectively, and also in a separate "Telecommunications Facility Fee Schedule" document (that at times appears to conflict with the Telecommunications Code). *See generally* ROCHESTER, N.Y., MUNICIPAL CODE ch. 106, art. IV, § 106-15 ("TELECOMMUNICATIONS CODE"); *see also* City of Rochester, *Telecommunications Facility Fee Schedule*, https://www.cityofrochester.gov/WorkArea/DownloadAsset.aspx?id=21474840795 ("*Telecommunications Fee Schedule*").

12. For underground telecommunications facilities installations in the first year of installation (*i.e.* new facilities) involving open trenching, a flat, fixed fee of $10,000 applies to installations up to 2,500 linear feet of telecommunications facilities per contiguous site[2] (or multiple conduits up to five inches total in diameter), with the following per linear foot fees applied to installations in excess of the 2,500 linear foot threshold: $1.50 per linear foot for installations between 2,500 and 12,500 linear feet, and $0.75 per linear foot for installation in excess of 12,500 linear feet. For installations in the first year involving directional boring, a fee of $500 for each site of excavation applies, along with the per linear foot fees applied to open trenching installations. TELECOMMUNICATIONS CODE § 106-15(B)(1)(a); *Telecommunications Fee Schedule* ¶ 3.

13. For underground installations in all years after the first year post-installation for open trenching, as well as for all installation in existing underground facilities (*i.e.* installation within an existing underground conduit), a flat, fixed annual recurring fee of $5,000 applies to

[2] While City Code clearly states the $10,000 open trenching fee charged in the first year applies "per contiguous site," the City's designated witness in a Rule 30(b)(6) deposition, Mr. Tobias, presented a different understanding. According to Mr. Tobias, the fee would be applied "not for each site [if] it's an installation of up to 2500 feet;" further expanding "since the number's below 2,500 feet, the number would simply be that singular number of 10,000." Also, according to Mr. Tobias, in the case of a "single mobile wireless provider…it will only be charged once." *See* Deposition of Louie J. Tobias, Cellco Partnership d/b/a Verizon Wireless, 6:19-cv-06583-EAW-MWP, 408-409, Feb. 19, 2021 (Cellco depositions span multiple dates including Feb. 9, 2021 and Feb. 10, 2021) ("Tobias Dep., Verizon").

installations up to 2,500 linear feet, with the following per linear foot fees applied to installations in excess of the 2,500 linear foot threshold: $1.00 per linear foot for installations between 2,500 and 12,500 linear feet, and $0.50 per linear foot for installation in excess of 12,500 linear feet. TELECOMMUNICATIONS CODE § 106-15(B)(1)(a), (b); *Telecommunications Fee Schedule* ¶ 2.

14. For underground installations involving directional boring, in the first year, a fee of $500 for each site of excavation applies, plus linear per foot fees of $1.50 for telecommunications facilities from 2,500 to 12,500 linear feet and $0.75 per linear feet thereafter. After the first year, the fees are $5,000 for up to 2,500 linear feet, $1.00 per linear foot for 2,500 to 12,000 linear feet, and $0.50 per linear foot thereafter. TELECOMMUNICATIONS CODE § 106-15(B)(1)(c); *Telecommunications Fee Schedule* ¶ 4.

15. For aerial installation of fiber or other telecommunications facilities and accessories, providers must pay the following fees in the first year: $10,000 for up to 2,500 linear feet; $1.50 per foot for 2,500 to 12,500 linear feet; and $0.75 per foot beyond 12,500 linear feet. Annually thereafter, providers must pay fees of $5,000 for up to 2,500 linear feet, $1.00 per foot for 2,500 to 12,5000 linear feet and $0.50 for all linear feet beyond 12,500. Telecommunications Code § 106-15(B)(2); *Telecommunications Fee Schedule* ¶ 2-3.

16. Providers are also required to pay annual recurring fees per pole attachment for small wireless facilities (although the City's Code does not explicitly refer to small wireless facilities it is my understanding that was the City's intent). For each standard City-owned pole, or standard pole purchased and replaced by the provider, the fee is $1,500 per pole. The fee is $1000 per pole for "smart poles" installed and replaced by the provider. Where a pole is replaced by the provider, the new pole then becomes the property of the City, further reducing the City's costs on the replaced pole. Neither the Telecommunications Code nor the City's Telecommunications Facility Fee Schedule specify a fee for smart poles installed by the City. Rather these fees are set forth in a master license agreement to which providers must agree to for access to the ROW. TELECOMMUNICATIONS CODE § 106-15(B)(4); *Telecommunications Fee Schedule* ¶ 5.

17. In addition to the recurring fees described above, it is my understanding ExteNet is also subject to one-time permit fees for work within the City public ROW. This includes permit fees of $2,000 per existing pole and $2,500 per replacement pole. *See* City of Rochester, *Permit Fees for Work Within the City Public Right-of-Way*, 3 ¶ 11, https://www.cityofrochester.gov/WorkArea/DownloadAsset.aspx?id=21474840798 ("*Permit Fee*

Schedule"). Providers are further subject to a host of other one-time upfront or non-recurring fees or payments to the City as set forth in numerous provisions in the City Code sections 106 and 104 including:

a. §106-15 (E): "the actual costs, including, but not limited to the legal and engineering fees, of any expert consultant the City may reasonably require for review of applications;" TELECOMMUNICATIONS CODE § 106-15(E).

b. §106-15(F): "other applicable fees, including but not limited to permit fees, registration costs, or other costs established;" TELECOMMUNICATIONS CODE § 106-15(F).

c. §106-15, §106-16: "in the City's sole discretion," alternative payments to the City in the form of in-kind telecommunications services or facilities; TELECOMMUNICATIONS CODE § 106-15(I); *id.* § 106-16(A).

d. §106-32: "This chapter is not intended to be the exclusive means of regulating the installation and operation of facilities in the right-of-way, and nothing herein is intended to waive any other applicable City requirements, including but not limited to building permit requirements, stormwater runoff; requirements, business license requirements, and undergrounding regulations;" TELECOMMUNICATIONS CODE art. V, § 106-32.

e. §104-13: right-of-way opening or pavement cuts; ROCHESTER, N.Y., MUNICIPAL CODE ch. 104, art. I, § 104-13 ("RIGHT-OF-WAY CODE").

f. §104-20: extended maintenance fees for excavations in newly reconstructed or newly resurfaced pavements; RIGHT-OF-WAY CODE § 104-20.

g. §104-57(H): fees for excavation in the ROW; ROCHESTER, N.Y., MUNICIPAL CODE ch. 104, art. III, § 104-57(H) ("FEE CODE").

h. §104-57(B): annual maintenance fee for all work other than excavation related; FEE CODE § 104-57(B).

i. Re-inspection fees per visit. *Permit Fee Schedule* at 3 ¶ 16.

B. Standards and Guidelines Applicable to City Fees Pursuant to Section 253 of the Communications Act, as Set Forth in the FCC's 2018 Broadband Deployment Order

18. Citing its commitment "to help ensure the United States wins the global race to 5G to the benefit of all Americans," in September 2018, the FCC released a landmark declaratory ruling in which it clarified the standards applicable to state and local governments in their regulation of

telecommunications providers under Sections 253[3] and 332(c)(7)[4] of the Communications Act.[5] The FCC explained that the standards of the Act were designed to "remove regulatory barriers that would unlawfully inhibit the deployment of infrastructure necessary to support these new services," including, but not limited to more highly densified networks using small wireless facility deployments.[6]

19. One of the issues directly addressed by the FCC in the *Broadband Deployment Order* was the application of Section 253 of the Act[7] to local government fees for occupation of the public ROW. The FCC found that by proscribing the fees that state and local governments can permissibly charge providers under Section 253 of the Communications Act to amounts supported by economic principles as described below, the FCC's actions stand to "eliminate around $2-billion in unnecessary costs, which would stimulate around $2.4-billion of additional buildouts"[8] and achieve a host of other public interest objectives, as well as limit the likelihood of litigation.[9]

20. In the *Broadband Deployment Order*, the FCC held that under Section 253, a local government's fees for use of the public ROW must be cost based. Specifically, the FCC held that local fees must satisfy a two-prong economic standard: (1) the fees are a reasonable approximation of the state or local government's actual and direct costs that are specifically related to and caused by the deployment of telecommunications facilities in the public ROW; and

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[3] 47 U.S.C. § 253.

[4] 47 U.S.C. § 332(c)(7).

[5] *See In the Matter of Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment; Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, Declaratory Ruling and Third Report and Order, 33 FCC Rcd. 9088, ¶¶ 1-7 (2018) ("*Broadband Deployment Order*"), *aff'd in relevant part*, *City of Portland v. U.S.*, 969 F.3d 1020 (9th Cir. 2020), *cert. denied*, No. 20-1354, 2021 WL 2637868 (U.S. June 28, 2021).

[6] *Broadband Deployment Order* ¶ 1, 3; *see also id.* ¶¶ 4-11.

[7] 47 U.S.C. § 253.

[8] *Broadband Deployment Order* ¶ 7.

[9] *Id.* ¶ 80. To be clear, my discussion of what the FCC stated and how I interpret the FCC's statements consistent with established economic and regulatory cost accounting and financial standards is not an interpretation of the legal standard set by the statute or explicated by the FCC. Rather, I am articulating how the FCC's discussion is properly understood in the context of accounting, finance, and economics given my expertise and experience, particularly in applying cost-based standards articulated by the FCC and other regulatory bodies.

(2) only *objectively reasonable* costs are factored into those fees.[10] As elaborated on below, by tying its discussion to an "objectively" determined economic metric, the FCC's discussion takes on a very specific meaning and context and builds upon a well-established body of economic and regulatory cost allocation literature, including the FCC's own prior rulings.

21. As discussed further below, the objectively determined economic cost standard articulated by the FCC is inextricably tied to the economic principle of cost causation. Adherence to that principle dictates a definition of costs proscribed to the actual, and direct costs incurred by the locality, with a strong, demonstrable causal connection to a provider's deployment in the ROW. Language repeated throughout the FCC's Order makes clear that was the FCC's understanding and intention.

The FCC's Limitation of Fees to the Recovery of the Direct, Actual Costs Caused by Telecommunications Deployment Align with the Economic Principles of Cost Causation and Efficient, Socially Beneficial Pricing

22. In articulating its two-prong test, *i.e.*, demonstration that the imposed fee be a "*reasonable approximation of cost that itself is objectively reasonable,"*[11] the FCC provided very specific guidance as to the definition of costs it intended be used. Namely, the FCC firmly established in its *Broadband Deployment Order* that costs permissibly recoverable through fees charged by state and local authorities were to be defined as, and recovery limited to, the actual, direct costs incurred by the local authority that were caused by the deployment of telecommunications facilities:

a. At ¶ 55: "We interpret Section 253(c)'s "fair and reasonable compensation provision to refer to fees that represent a reasonable approximation of *actual and direct costs* . . . where the costs being passed on are themselves objectively reasonable" (emphasis added);

b. At ¶ 56 "localities do not impose an unreasonable barrier to entry when they merely require providers to bear the *direct* and reasonable costs caused by their decision to enter the market" (emphasis added);

[10] *Id*. ¶¶ 50, n.131, 55-56, 75-76. The FCC also held that Section 253 imposed a third condition prohibiting non-discrimination in fees charged "similarly-situated competitors in similar situations." *Id.* ¶ 50.

[11] *Id*. ¶ 79, 79 n.233.

c. At ¶ 75 "local governments incur a variety of *direct and actual costs* in connection with Small Wireless Facilities . . . ." (emphasis added); and

d. At ¶ 50, note 131: "By costs, we mean those *costs specifically related to and caused by deployment*. These include, for instance, the costs of processing applications or permits, maintaining the ROW, and maintaining a structure within the ROW," (citing *Puerto Rico Tel. Co. Municipality of Guayanill*a, 354 F. Supp. 2d 107, 114 (D.P.R. 2005), *aff'd*, 450 F.3d 9 (1st Cir. 2006) (stating "fees charged by a municipality need to be *related to the degree of actual use of the public rights-of way"* to constitute fair and reasonable compensation under Section 253(c)" (emphasis added)).

23. The FCC's action to limit cost recovery in ROW fees to the *direct and actual costs specifically caused by the deployment* is consistent with the fundamental economic principles of cost causation that similarly have as their objective the goals of maximizing market entry, effective competition, and the availability of services. As well-established in the economic literature, these performance goals are associated with the ideal competitive market outcome, where there are numerous buyers and sellers, no one of which large enough to influence prices. Under these conditions, no seller would be able to extract monopoly rents (*i.e.*, producer surplus or profit over and above the direct and actual costs of providing the service) or in any other way limit access to essential inputs (in this case, City-owned facilities and ROW) under the control of the supplier that are needed by another firm to provide its service. Prices would be bid down to the marginal costs of production.

24. While economists may disagree on many things, there is perhaps one central tenet of economics upon which there is solid agreement. That is the notion that socially desirable performance attributes associated with a competitive market are best achieved when prices are set at efficient levels close to marginal (or incremental) costs, i.e., costs that would not exist "but for" the presence of the new entrants.[12] Rates, or in this case fees, that recover the marginal costs of production (but not more) are economically efficient in that they best achieve allocative and productive efficiencies in both intermediate (input) and final service markets (in this case the market for telecommunications services). Moreover, and key from a public policy perspective,

[12] *See, e.g.*, Paul A. Samuelson, *Economics: Tenth Edition* 462-63 (McGraw-Hill Book Co., 1976); Bridger M. Mitchell, *Costs and Subsidies in Telecommunications*, *in* THE CHANGING NATURE OF TELECOMMUNICATIONS INFRASTRUCTURE 159 (1995); *Alabama Power Co. v. FCC*, 311 F. 3d 1357, 1369-70 (11th Cir. 2002).

rates or fees set based on marginal costs are subsidy free.

25. The economic concept of marginal cost is thus directly tied to the economic principle of cost causation. Under the cost causation principle, costs are assigned to the entities deemed causally responsible—*i.e.*, the entities "but for" whose existence or action *a cost could have been avoided*. In accordance with this principle, the entity or activity causing the cost to be incurred is charged a price to reflect only those costs *directly caused* by or very strongly linked to its presence.

26. The divergence between the high ROW fees currently demanded by the City from ExteNet and other telecommunications providers and those that would result from more efficient, marginal cost fees is not just a theoretical problem. As the FCC correctly recognized, the City's fees carry serious real-world consequences. There are significant harms not only to ExteNet and other providers but to the consuming public and overall societal welfare when the costs of access to City facilities, a critical input to service deployment, substantially deviate from socially optimal and efficient levels as defined in accordance with established, objective economic principles. On the demand side, these harms include substantial foregone consumer value welfare losses that derive from the benefits of a high-speed quality broadband telecommunications connectivity, and on the supply side, lower rates of investment in telecommunications, slower deployment of infrastructure, and the delayed roll out of higher quality service offerings. Such harms would be exacerbated if additional cities apply the same rational as the City of Rochester to calculate their own fees.

27. In the real-world context, the FCC's limitation of permissible fees charged telecommunications providers to recovery of the *direct and actual costs specifically related to and caused by deployment* is clearly designed to preclude local and state governments such as Rochester from allocating to ROW fees a wide array of *the costs of public City functions that would exist for the City even in the absence of the telecommunications provider* merely because telecommunications facilities exist in the public ROW. Yet, as described below, the vast preponderance of costs allocated to providers in the City Cost Spreadsheet (which spreadsheets appear to have been created *ex post facto* to justify the City's high fees) fall into the category of costs that would exist for the City even in the absence of the telecommunications provider. Roads, sidewalks, and bridges are generally transportation infrastructure, and capital and operating expenses incurred by the City relating to their construction and maintenance are

triggered by the City function to provide for the vehicular and pedestrian transportation of its residents and businesses and for which the City receives considerable state and federal reimbursement. The City is already incurring, and would continue to incur the capital and operating costs related to the construction and maintenance of roads, sidewalks, and bridges absent the presence of telecommunications facilities in the ROW.

28. The FCC's two-pronged standard makes it clear that ROW fees *cannot* be a vehicle for cities to recoup capital and operating costs incurred by the City to provide for transportation within the city, e.g. street paving and other roadway improvements, necessary to enable the safe and efficient movement of people and commerce within the City and for which the public city function of transportation is the cost driver --not the marginal presence of telecommunications providers.

29. Similarly, the FCC's articulation of the limitation of permissible fees to the "*direct and actual costs specifically related to the deployment*" appears clearly designed to preclude local governments from allocating to ROW fees the costs incurred by the local government related to other ROW occupants,[13] especially the water, gas, and electric utilities that are ubiquitous throughout the City and whose activities and amount of facilities in the ROW typically dwarfs those of telecommunications providers, such as ExteNet. As with the public city functions, the costs incurred by the City related to the incumbent utilities are *costs that would exist for the City even in the absence of the telecommunications provider* and are not appropriately shifted onto telecommunications providers from an economic perspective, as articulated by the FCC. Yet, the City does not appear to have identified the portion of costs incurred by the City caused by other occupants of the ROW, including the large, ubiquitous utilities.[14]

30. Aside from the inappropriateness from a cost allocation standpoint of assigning costs to telecommunications providers that are directly attributable to, and hence properly directly assignable to, incumbent utilities, there is the further matter of whether the City is even subjecting incumbent utilities to the same fees as applied to telecommunications providers (or

[13] Mr. Tobias refers to multiple providers in the City's ROW, including what he refers to as "legacy providers." *See* Deposition of Louie J. Tobias, Crown Caste Fiber LLC v. City of Rochester, et al., 6:20-cv-06866-EAW-MWP, 145 Apr. 30, 2021 ("Tobias Dep., Crown Castle"); *see also* Deposition of Louie J. Tobias, ExteNet Systems Inc., v. City of Rochester, 6:20-cv-7129-EAW-MWP, 43-46, June 3, 2021 ("Tobias Dep., ExteNet").

[14] *See* Tobias Dep., ExteNet at 60-61.

any).[15]

The FCC Has Substantial Experience in Applying Fundamental Economic Cost Causation Principles That Informs The FCC's Discussion Of Costs In The Broadband Deployment Order

31. Regulators, including the FCC over the years, have developed economic cost allocation tools for translating the theoretical marginal cost standard into practical, implementable regulatory cost allocation practices; building on a rich body of public utility regulation literature, and those prior actions by the FCC helps inform what the FCC intended in the *Broadband Deployment Order*. The most prominent of these tools is the concept described above as the economic principle of "cost causation." As well articulated by the FCC:

> That is to say, prices based on cost causation principles enable an allocation or mix of goods to be produced that buyers desire and are willing to pay for and so are socially efficient and enable an efficient firm to recover its costs.[16] [I]f a customer is causally responsible for the incurrence of a cost, then that customer—the cost causer—pays a rate that covers this cost.[17]

32. For example, the principle of cost causation has played a key role in the FCC's implementation of Section 224 of the Pole Attachment Act of 1978,[18] which gives the FCC authority to regulate the fees that utility pole owners may charge telecommunications providers and cable operators to attach to utility poles. In applying the cost causation standard to other terms and conditions of access, such as make-ready work relating to rearrangement or replacement of facilities, Section 224(i) establishes that a third-party attacher to a pole "shall not be required to bear any of the costs" in connection with an activity "sought by any other entity (including the owner of such pole, duct, conduit, or right-of-way)." 47 U.S.C. § 224(i). I view the FCC's well developed cost causation principles in the pole attachment context of Section 224 as highly informative in understanding the costs that the FCC intended for cities to be able to

[15] *See* Tobias Dep., ExteNet at 58-60, 200-201 (stating that he does not know if other utilities in the rights-of-way pay fees under the City Code section 106 for pole attachments and other work in the right-of-way).

[16] *See Implementation of Section 224 of the Act; A National Broadband Plan for Our Future*, Report and Order; Order on Reconsideration, 26 FCC Rcd 5240 ¶ 143 n.425 (2011) ("*2011 Pole Attachment Order*")

[17] *See id*.

[18] 47 U.S.C. § 224.

recover in their ROW fees.[19]

33. As applied in the Section 224 pole attachments context, but also applicable here in the context of access to City poles and ROW, the cost causation principle requires identification of costs having a strong, direct causal linkage to the third party's actual use of the facility in question, to be distinguished from those costs whose principal driver is the provision of the facility owner's core service. In the Section 224 context, those core services are most typically an electric utility's distribution service. In the context discussed by the FCC in the *Broadband Deployment Order*, it is the City's public city functions, such as transportation and public safety.

34. Under the principle of cost causation applied over the years by the FCC in the pole attachment context, any costs that are necessary and unavoidable in the provision of the core electric service have been found to be properly borne by the utility or its ratepayers. This process recognizes the fundamental point that the utility's network was primarily built and maintained to provide the core utility service, and the cost structure of that service is in many respects separate and distinct from the utility's role as a pole attachment space provider. Rates that allow the core utility service activities to shift onto pole attachment activities an inefficiently high proportionate share of cost responsibility will produce detrimental, market distorting impacts in the downstream broadband and electricity retail markets.

35. In its *Broadband Deployment Order*, the FCC applies these same concepts to the fees cities may charge for access to City-owned facilities and the public ROW both by establishing presumptive fees at levels the FCC found to be commensurate with the likely direct and actual costs incurred by state and local governments (albeit acknowledged by the FCC in many cases to be likely in excess of) and while allowing for the possibility of fees in rare occasions above those levels, further conditioning those fees on the municipality's satisfaction of a two-pronged standard linked to the same objective economic cost causation principles.

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[19] These concepts have also been relied on by the FCC in other regulatory contexts, including its Part 64 rules governing the allocation of costs between regulated and non-regulated activities of the utility. These rules were specifically designed to prevent the cross-subsidization of non-regulated activities, but have general applicability, and have been frequently applied to a wide range of regulatory cost applications. Pursuant to the Part 64 rules, carriers are instructed to assign costs directly to the originator or cost causing unit whenever possible. Carriers are further instructed to allocate indirect costs or common costs that cannot be directly assigned "based upon an indirect, cost causative linkage to another cost category . . . for which a direct assignment or allocation is available." 47 C.F.R. § 64.901(b)(3)(ii). These well-established cost allocation guidelines as applied by the Commission are designed to produce efficient, subsidy-free rates. To this end, they expressly prohibit the inclusion of costs directly attributable to another such entity or activity.

The FCC's Presumptively Reasonable Fee Levels For Small Wireless Facilities.

36. In the *Broadband Deployment Order*, the FCC provided specific guidance for applying the cost-based requirement to the level of fees (recurring and non-recurring) for small wireless facilities in the ROW presumed to be lawful under Section 253. Specifically, the FCC held that the levels it defined "do not constitute an effective prohibition under Section 253(a) or Section 332(c)(7), and are presumed to be 'fair and reasonable compensation' under Section 253(c).'"[20] Citing its review of the Commission's over four-decade old pole attachment rental formula used to set just and reasonable recurring pole attachment rental rates "as well as small cell legislation in twenty states, local legislation from certain municipalities in states that have not passed small call legislation, and comments in the record," the FCC established the following set of presumptively reasonable amounts for local fees imposed on small wireless facilities: (a) $500 for non-recurring fees, including a single up-front application that includes up to five Small Wireless Facilities, with an additional $100 for each Small Wireless Facility beyond five, or $1,000 for non-recurring fees for a new pole (i.e., not a collocation) intended to support one or more Small Wireless Facilities; and (b) $270 per Small Wireless Facility per year for all recurring fees, including any possible ROW access fee or fee for attachment to municipally-owned structures in the ROW.[21]

37. The FCC found fees set at this level, or below, not only met the legal test set forth in Section 253 but also would best promote the vitally important public interest objective of facilitating the deployment of critical infrastructure.[22] The FCC did allow for the possibility that state and local authorities could charge fees above these levels, but set a very high economic bar that state and local authorities must satisfy to justify charging fees higher than the presumptive values by showing that it met the cost-based standards discussed above.

The FCC's Presumptively Reasonable Fees Apply Except in "Only Very Limited Circumstances"

38. Based on its review of an extensive record including information "on the many small cell bills passed to date," the FCC stated its expectation and belief that "there should be only very limited circumstances in which localities can charge higher fees consistent with the requirements

[20] *Broadband Deployment Order* ¶ 78-79.

[21] *Id*. ¶ 79.

[22] *Id*. ¶ 78.

of Section 253."[23] The FCC's consideration of the very limited possibility of permissible fees higher than its presumptive levels was in a specific context of local variation in *costs,*[24] such that is clear from a plain reading of the Order that the FCC was not opening the door for localities to charge fees based on non-cost based criteria (*e.g.*, revenue enhancement to the City, value or benefit to the provider) or the inclusion of a wide array of costs related to public City functions (*e.g.*, the costs of road improvements or general city functions that may be related to the ROW) that did not strictly adhere to its two-prong objectively reasonable economic cost standard.[25]

39. Moreover, even in recognizing the possibility of local variation in costs, the FCC diminished such variation's economic relevance by observing that fees similar to its presumptive fee levels are being charged across "a diversity of population densities and costs of living" and also that its fees were higher than those charged in the majority of applicable state legislation.[26] In the case of the City of Rochester, there is no *a priori* economic reason to expect the actual economic costs the City incurs in connection with deployment on City facilities and in its ROW would be higher than average, and the City has made no such showing that I am aware of.

40. Further, the FCC expressly noted its expectation that its presumptive fee limits were *in excess of* fair and reasonable compensation to cities and towns in many situations.[27]

The FCC's Presumptively Reasonable Fees Take in Account the Densification and Proliferation of Telecommunications Facilities, Extraterritorial Impacts, and Other Dynamic Public Interest Considerations

41. In tying both its presumptive fees and two-pronged standard for permissible rates to economic cost causation principles, the FCC appropriately took into account a variety of public interest considerations. Among the most salient of these considerations were the densification and proliferation of facilities needed to provide service today, the effects of ROW fees on providers beyond the immediate locality, and the very significant positive externalities associated with access to high-speed high-quality service.

42. In regard to the densification and deployment of facilities, the FCC appropriately

[23] *Broadband Deployment Order* ¶ 79.

[24] *Id.* ¶ 80.

[25] *Id.* ¶ 73.

[26] *Id.* ¶ 79 n.233.

[27] *Id.*

recognized the impediments to entry and investment associated with inefficiently high fees (*i.e.*, those in excess of the direct and actual costs specifically caused by deployment). Notably, the FCC recognized that the impediments to deployment and provision of service due to local governments' ownership and control of essential facilities needed to provide service are substantially larger today than in the past owing to changes in technology since the passage of the Telecommunications Act of 1996. As explicitly noted by the FCC:

> The many-fold increase in Small Wireless Facilities will magnify per-facility fees charged to providers. Per facility fees that once may have been tolerable when providers built macro towers several miles apart now act as effective prohibitions when multiplied by the each of the many Small Wireless Facilities to be deployed. Thus, a per-facility fee may affect a prohibition on 5G service or the densification needed to continue 4G service even if that same per-facility fee did not effectively prohibit previous generations of wireless service.[28]

43. In taking into consideration the impacts of "changing technology and its interactions with regulations created for a previous generation of service" in its findings, the FCC's determination of presumptive fees and the high bar for fees in excess of those levels reflects an economically appropriate understanding on the part of the FCC of the very dynamic nature of the telecommunications industry.

44. Another factor related to the densification and proliferation of facilities needed to provide service today also taken into account by the FCC is the extraterritorial impact of those fees. By extraterritorial impact, I am referring to what the FCC describes as "the *cumulative* effect of future similar municipal [fee ordinances]" across a broad geographic area when evaluating the effect of particular fee in the context of Section 253(a)." Similar to the densification and proliferation of facilities, the extraterritorial impact of excessive fees on the prohibition of service reflects the FCC's consideration of dynamic factors influencing the degree to which fees result in an effective prohibition of service from an economic and public policy perspective. But in this context, it is a geographically dynamic perspective on the provider's ability to provide service that the FCC has considered.

45. As well explained by the FCC:

> [T]he record reveals that fees above a reasonable approximation of cost,

[28] *Broadband Deployment Order* ¶ 48.

> even when they may not be perceived as excessive or likely to prohibit service in isolation, will have the effect of prohibiting wireless service when the aggregate effects are considered, particularly given the nature and volume of anticipated Small Wireless Facility Deployment . . . . In some cases, the fees in a particular jurisdiction will lead to reduced or entirely foregone deployment of Small Wireless Facilities in the near term for that jurisdiction. In other cases, where it is essential for a provider to deploy in a given area, the fees charged in that geographic area can deprive providers of capital needed to deploy elsewhere, and lead to reduced or foregone near-term deployment of Small Wireless Facilities in other geographic areas. In both of those scenarios the bottom-line outcome on national development of 5G networks is the same – diminished deployment.[29]

46. The FCC's reasoning is economically sound, both from a theoretical and real-world viewpoint.

47. Another dynamic consideration front and central to the FCC's actions in the *Broadband Deployment Order* is the recognition of the growing importance to overall societal welfare of high-speed high-quality telecommunications and broadband, and conversely the substantial and ever-growing harm to the public interest of delayed or foregone deployment. In the twenty-five years since the passage of the Telecommunications Act of 1996 (which enacted Section 253), access to high quality telecommunications and broadband service has become an increasingly integral component of our lives, and essential in providing our citizenry with access to education, health, commerce, government, and public safety, and the means to earn a livelihood. The FCC's discussion of local government fees is further supported by the adverse impacts on consumers and the public interest

48. By establishing fees dramatically higher than those established by the FCC as fair and reasonable compensation for small wireless facilities and dramatically higher than justified by the City's direct, actual costs caused by telecommunications providers, the City imperils the economic and social well-being of its households and businesses, and is a poster child for the "outlier conduct" by state and local jurisdictions cited by the FCC as "materially impeding that deployment [of 5G and other next-gen infrastructure.]"[30]

When the FCC held that fees must be based on actual direct, reasonable costs objectively

[29] *Broadband Deployment Order* ¶ 65.

[30] *Broadband Deployment Order* ¶ 25.

determined, it did so with an understanding that economic and cost-accounting principles provide criteria that the local government must meet.

49. By tying its discussion of the costs that local governments may recover to *objectively* determined costs, the FCC made clear the importance that local governments be held to a meaningful compliance with the FCC's cost directives. Given its decades of experience in the design and implementation of cost-based regulation, the FCC's repeated use of the word "objective" drives home the point that costs assigned without clear adherence to some underlying economic philosophy or criteria and well-documented support could be arbitrary and lend themselves to results-oriented manipulations. Otherwise, as recognized by the FCC in other regulatory contexts, there would be no assurance that the costs determined by the study process would be reasonable, given the natural self-interests of the firm or organization (City government in this context).

50. Moreover, there is a substantive distinction between actual costs from a budgetary accounting perspective and actual costs from an objective economic cost allocation perspective. The latter requires demonstrated, non-arbitrary cost causative linkages related to the *cause or origin of the cost* - not merely the expenditure of funds on activities that in some generic sense is related to a cost center. This is a critical distinction, particularly in light of what appears to be the City's argument in this case. In the case of the direct and actual reasonable costs attributable to a telecommunications provider in connection with its use of City facilities and ROW, as explained above, this requires a showing that "but for" the provider's use of the public ROW, the cost would not exist for the City—not merely that the cost exists in some connection with the City facility or ROW and the telecommunications provider has a presence on the facility or in the ROW.

51. The following are a list of key criteria based on established economic and regulatory cost accounting principles that a local government must meet to demonstrate that its fees satisfy a standard of direct and actual costs *objectively* determined. In addition to being established economic and cost accounting principles, these principles have been relied on by the FCC over the course of the past several decades in its regulation of telecommunications and cable pole

attachment rates,[31] and are inherent to a showing that costs assigned to telecommunications providers are objectively determined.

52. **First**, the costs and inputs that underlie a local government claim that its fees are supported by direct, reasonable costs *must be capable of being replicated and verified, supported by sources that are well documented, and capable of independent validation*. Anything less would nullify the requirement that the fees be limited to direct, actual, reasonable costs objectively determined. Broad brush estimates based on little more than personal beliefs and back of the envelope calculations, with no consistent methodology or objectively verifiable data to support them would be no better than accepting the local government saying "trust us." Moreover, actual, verifiable, and documented costs is not an unreasonable standard for local governments to be required to meet. Their annual budget process, alone, demonstrates they are capable of tracking their costs consistent with such replication and validation criteria, and they regularly do.[32]

53. **Second**, objectively determined actual costs will be developed in a transparent and consistent manner across cost activities or departments, readily explained and understood. Objectivity in cost analysis is achieved through the application of systematic, consistently-applied cost logic and the application of clearly understood and agreed upon definitions of cost and rules by which those costs are assigned or allocated among cost activity centers. While the FCC did not establish or require localities "use any specific accounting method to document costs they may incur," in recognition "that direct and actual costs may vary by location, scope, and extent of providers' planned deployment," as discussed above, it did require localities to adhere to criteria inherent to an objective identification of those costs.[33] While some discretion and flexibility in the cost methodology and process is inevitable and practically necessary, when the cost allocation methodology and process is inherently ad hoc and discretion-based, there is a vacuum that lends itself to internal inconsistencies, the fallback to individual subjective

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[31] *See*, *e.g.*, *2011 Pole Attachment Order*. ⁋ 190, 190 n.583; *In the Matter of Amendment of Rules and Policies Governing Pole Attachments*, Report and Order, 15 FCC Rcd 6453, ¶ 92 (2000); *see also Capital Cities Cable, Inc. v. Mountain States Telephone & Telegraph Co.*, 56 RR 2d 393, ¶ 22 (1984).

[32] *See generally City of Rochester 2020-2021 Budget* (2020), https://www.cityofrochester.gov/WorkArea/DownloadAsset.aspx?id=21474846286 (the City submitted this document in discovery as COR000012-000622).

[33] *See Broadband Deployment Order* ¶¶ 75-76.

judgments, and the ability to manipulate the data to achieve desired results.

54. **Third**, there can be no excess or double recovery of costs through the recovery of costs already covered through other fees, reimbursements, or the in-kind provision of services. More specifically this would exclude: (a) costs included in a recurring annual fee being otherwise recovered in another type of recurring fee or in one-time, direct user fees or in-kind services; (b) costs associated with aerial facilities being assigned to underground facilities and vice versa; (c) the costs reflecting those activities self-provisioned by the telecommunications provider or incurred by the provider pursuant to City ordinance requirements and/or ROW Use Agreements; and (d) the costs for which the City receives other payments or reimbursements (e.g., federal/state funding or grants) that directly offset costs sought by City.

55. While the FCC did not prescribe specific rules as to the recovery of costs as between different types of fees (e.g., as between recurring fees for access to the ROW and attachment to facilities), it did bind localities to the recovery of no more than actual total costs incurred by the locality and to the criteria inherent to an objective approximation of those costs. This would exclude excess or double recovery, consistent with prior FCC rulings.[34]

56. **Fourth**, there can be no recovery of costs beyond those causally related in an objective economic sense to actual direct costs incurred by the City (in this case, those caused by ExteNet's occupancy and actual use of the City ROW), which are costs that would not exist for the City "but for" the attacher's occupancy in the City ROW. In addition to excluding costs causally related to public city functions of the City or incumbent utilities as described earlier, true economic cost drivers, objectively determined, would specifically *not* include alleged "benefits" or "value" to the telecommunications provider. Nor would true economic cost drivers include general fund revenue enhancement or "profits" for the City as facility owner.[35]

57. As will be shown in the next section of this Report, the City's exorbitantly high fees, which are only loosely supported by ad hoc, ex post facto-created worksheets do not come close

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[34] *See*, *e.g.*, *In the Matter of Amendment of Rules and Policies Governing the Attachment of Cable Television Hardware to Utility Poles*, Report and Order, 2 FCC Rcd. 4387, ¶ 74 (Jul. 23, 1987); *id.* ⁋ 38 ("We are concerned, however, that there may be a double recovery by some utilities for amounts paid for such expenses as application processing, inspections, and certain make-ready work.").

[35] A description of costs that would not meet the standard of fair, direct and reasonable causally related costs properly recoverable in fees charged telecommunications providers, specifically identified by the FCC in its 2018 Order, would be "excessive and arbitrary consulting fees or other costs . . . that are not a function of the provider's 'use' of the public ROW." *See Broadband Deployment Order* ¶ 76.

to meeting the criteria and principles enumerated above.

C. The City's Fees Are Not A Reasonable Approximation of The City's Objectively Reasonable Costs Caused By Telecommunications Facilities Deployment, in Accordance with Established Economic Principles

The City has not demonstrated its fees are objectively determined.

58. As described above, there are several hallmark criteria well established in the field of economic and regulatory cost allocation for demonstrating the *objectivity* of costs. To recap, these criteria include: transparency in the cost allocation process applicable to all underlying inputs and assumptions used in the process; the capability to replicate and verify the cost derivation process and final results of the process; and the ability to independently validate data sources and other supporting documentation for their reasonableness, authenticity, and internal consistency. By these basic, economic and commonsense criteria, the City's ROW cost development is the polar opposite of objectivity.

59. In my over forty years of experience in regulatory cost study and cost allocation development, rarely have I seen such an undocumented, unsupported, non-transparent, and internally inconsistent compilation of cost figures as presented in the City Cost Spreadsheet[36] provided in this litigation. And certainly, never in the context where the applicable standard to be met, along with the public interest rationale for the standard, are so clearly set forth as they are in the FCC's *Broadband Deployment Order*, as the earlier sections of my Report explain.

60. What the City has produced and claims to represent as its supporting ROW cost analysis is, at best, an ad hoc compilation of disparate, unsupported, inconsistent, unverified, and non-replicable numbers presented on two tabs of in the City Cost Spreadsheet: the first labelled "Input Data (ug)," and the second labelled "Input Data."[37] Even the creator and sponsor of the City's cost analysis, City Director of Telecommunications, Mr. Louie Tobias, could not well articulate the definition of costs assigned to the two spreadsheets over the course of multiple depositions by different counsel, or what the two types of distinct costs he was trying to

[36] *See generally City Cost Spreadsheet* (This document is referred to frequently throughout each deposition. In Tobias Dep., ExteNet, it is referred to as COR 000011 or Exhibit 5, in Tobias Dep., Verizon, it is referred to as Exhibits 9, 10 or 14, and in Tobias Dep. Crown Castle, as Exhibit 3.)

[37] *Id.*

approximate actually represent.[38]

61. From what I can best discern, the City Cost Spreadsheet tab labeled "Input Data" is intended to capture staffing related costs loosely associated with the installation of small wireless facilities (sometimes called small cells) in Mr. Tobias' judgement, whereas the City Cost Spreadsheet tab labeled "Input Data (ug)" is intended to capture a combination of staffing related costs and capital expenditures loosely associated with "the things that were not necessarily [small cell]" in Mr. Tobias' judgement.[39] The costs reflected in the "Input Data" City Cost Spreadsheet tab intended to apply to a mix of fiber backhaul facilities associated with aerial installations, underground installations, as well as existing telecommunications facilities already in the ground.[40] That said, by his own admission, Mr. Tobias did not expect his department personnel to be able to distinguish with any particular degree of accuracy the actual cost incurrence associated with the two designated "input data" categories.[41] This lack of a coherent definition of the two cost categories or consistent criteria for City personnel to apply to the allocation or association of their time spent as between the two created a large void to be filled by Tobias's subjective judgement.

62. All that Mr. Tobias appears to believe is important is that the sum of costs that he

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[38] I understand that the City's Fees are being challenged in three separate lawsuits, one by Verizon, one by Crown Castle, and the case by ExteNet. I have been provided copies of the deposition transcripts of Mr. Tobias' deposition in each of the three cases, all addressing the same City fees and the same spreadsheets purporting to identify the City's costs. *See* Tobias Dep., Verizon at 306:6-307:7 ("Q: I see there are two tabs. One says, 'input data UG' and the other says 'input data.' Is input data UG a reflection of our Exhibit 10 that relates to what I call the backhaul? A: I believe that to be the case. Q: What does underground stand for? A: I just used UG as underground. Q: Does anything on this –tab of this spreadsheet reflected as UG relate to cost analysis with respect to aerial installations or does it only relate to underground? A: Well, I have to look at that just to make sure. When I used the word UG, underground, it was to recognize the things that were not necessarily small cell. So there are – I would say that more than likely, the answer to that is yes. It probably should have been labelled "input data non-small cell" but I think I put UG because it was just easier.")

[39] *See* Tobias Dep., ExteNet at 90:5-93:9, 135:23-136:4.

[40] *See* Tobias Dep., ExteNet at 93:5-9 (stating "if you're going to ask me whether or not a portion of underground activities are not included in Input Data and vice versa, I'll say that there's some bleed-over in the two. They're not exact, no").

[41] *See* Tobias Dep., Crown Castle at 153:12-154:10 ("A: Well, I did not say to my surveyors, Tell me, you know, how much time you spend on small cells and how much time you spend on non-small cells. I said, Tell me what you're out there doing and, and you know, what does that entail. And so there—you know, I'm doing poles. I'm—you know, I'm doing sextant readings, dada, dada, dada. I spend X number of hours doings stuff that is not associated with that. And so—I think I said this a little earlier. If you're looking for an exact decimal point to the, you know fifth significant digit of that surveyor's time which goes to the small cell, which goes to the –you know the per foot fee, that level of detail in not included on either of these charts."); Tobias Dep., ExteNet at 131:4-132:20, 137:1-23, 138:11-140:8 (stating employees did not document their time).

assigned to either the "small cell" (Input Data) or "non-small cell" (Input Data (ug)) spreadsheet tabs totaled up to 100% of the assigned costs.[42] The simple mathematical check that the sum of the two parts equaled the whole, however, has no inherent economic meaning on its own if (1) the totality of costs being assigned was not objectively reasonable or (2) the apportionment of the total costs between cost categories was not objectively reasonable. An objective analysis would require all three, with the latter two having the most substantive economic meaning.

63. Mr. Tobias' deposition responses gave repeated indicators that the City Cost Spreadsheet reflects a lack of detail and diligence.[43] The lack of objective discipline in the cost allocation process is perhaps best exemplified by the lack of criteria Mr. Tobias provided departmental staff he relied on for his input data as the basis for attributing costs between the two types of costs (UG, and for Mr. Tobias' lack of a better term, "non-UG"), each supposedly designed—notably after the fact[44]— to support the City's pre-existing two-tier rate fee structure, *i.e.*, fee per linear foot of ROW and fee per pole, respectively.[45]

64. Similarly, Mr. Tobias did not appear to take the relevant frame of the cost data into account,[46] in adherence with another fundamental principle of objectivity, the matching principle

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[42] *See* Tobias Dep., Verizon at 312:8-18 ("Q: What does Column W on the input data sheet reflect? There's no heading there. A: Yeah, let me make sure that I—that reflects the time –I want to validate this because I want to make sure. If you add Column F that is on the input data UG sheet to Column F that is on the input data small cell sheet, you will get the total of Column W. Column W is the amount of time that was given that particular activity, and then it was split. If they are identical activities performed, it is split between the two tabs. If you add those tabs together, you're going to get to Column W."), *see also id.* at 313:3-314:15.

[43] *See*, *e.g.*, Tobias Dep, Crown Castle at 153; *see also* Tobias Dep., Extenet at 130:3-132:20 (stating that the City did not engage in of detailed analysis, drawing comparison to quantum physics), 156:5-157:9 (offering to send the "City's budget" in response to a questions regarding the calculation of certain data), 173:7-14 (noting that one data point was merely a "conservative estimate" by Mr. Tobias based on "ask[ing] other folks . . . which of these relate to telecom?"), 178:1-180:17 (responding to a question regarding whether the city had specific data it used to calculate the amount of a cost related to telecom stating merely that "[w]e have – we have data that supports that"), 183:4-184:22 (again Mr. Tobias responds to questions about whether the City used specific data to determine the amount that some cost is attributable to telecommunications by stating "Okay, I don't know how many different ways I can answer that. And – and we've already established that there isn't an exact accounting, okay?" further, Mr. Tobias analogized the City's cost analysis to the "Heisenberg uncertainty principle" stating that "[y]ou can know one thing and not the other, or you can know the other thing and not know one.")

[44] *See* Tobias Dep., Verizon at 143:13-144:11.

[45] *See* Tobias Dep., Verizon at 313:17-314:20; *see also* Tobias Dep., ExteNet at 176:15-177:5 (despite stating that the Assistant City Engineer would be the best person to speak to about the cost of construction projects attributable to telecommunications, Mr. Tobias notes that he ultimately made the decision anyway).

[46] *See* Tobias Dep., Crown Castle at 100:14-101:9 ("Q: I want to talk a little bit about the time periods that you were using or that you were asking for information about. Do you recall whether you had a specific set of time periods that you would ask individual departments for? So their cost data, where you asking for one year of cost data, two years, three years, some additional time? A: I do know that we got data going back to, like, 2009 from some departments. We got –other departments gave us, you know, the last two or three years. …..So I think it was a

-- further compounding the non-objectivity of the City's cost approximations. The matching principle requires the matching of units, costs, and time frame for the particular cost object being measured. Without matching, the measured cost object lacks any coherent economic meaning. While an important principle to follow in all cost analysis, the diligent application of the matching principle is especially critical when the costs in question are intended to be expressed on a per unit basis, and further, as is the case here, used to justify the charging of *per unit fees further differentiated as between first year and subsequent year cost.*

65. No such diligence was evident in the City's analysis. To the contrary, costs captured on the *City Cost Spreadsheet* reflect a mismash of existing installations (of which the "Input Data" spreadsheet tab notes only 88 to date), installations in the permitting stage, and a projected future number of 1800 installations covering a multi-year span of past, present, and future.[47] Mr. Tobias describes what he did as a "snapshot in time."[48] The term he used is an oxymoron in this context; the term "snapshot," as used in the analytic sense, refers to data frozen at a particular given moment in time. Accordingly, the per unit costs that Mr. Tobias derived on the basis of his amalgamation of costs and time frames simply makes no objective economic sense (or common sense for that matter).

66. In addition to the significance of matching units, costs, and time frame for purposes of developing economically meaningful estimates of recurring costs as described above, there is another fatal problem in terms of cost objectivity that arises due to Mr. Tobias' failure to properly take the time frame into account. Without proper tracking or matching of the time frame of the alleged cost incurrence, it is impossible to objectively separate and account for ongoing recurring costs attributable to a telecommunications deployment that are properly recoverable in recurring fees from one-time non-recurring costs associated with a telecommunications deployment at the front-end that are properly recoverable in *non-recurring*

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function of what those departments had available to them that they supplied to us."); *see also* Tobias Dep., ExteNet, at 83:2-89:2 (noting the lack of clarity regarding the year of the data was accumulated or the cost document was created).

[47] *See* Tobias Dep., Verizon at 256:1-257:22 ("Q: So when you performed your cost analysis, did you do anything to account there would be certain activities that would occur in the first year but not subsequent years? A: But what we also understand is that the analysis that you have in our Exhibits 9 and 10 is a snapshot in time deals with installations that already exist, installations that are going through the process that have been permitted are now being built out, installations that are going to occur in the future when people are making application, and that is a rolling scenario that there will be facilities in three phases at any given time.").

[48] *See* Tobias Dep., Verizon at 257:10-14.

permit/applications fees (which are also being charged telecom providers by the City). Where both recurring and non-recurring fees are charged, as is the case here, the failure to properly track costs according to the timing of their incurrence (e.g., first year around the time of installation versus subsequent years) [49] creates the opportunity, indeed the inevitability, of double recovery of the same set of costs in recurring fees that were already recovered in existing non-recurring fees. As discussed further below, the City's failure to systematically distinguish between time frame and its nexus to the underlying nature of the cost (i.e., recurring versus non-recurring), is a significant failure in the City's analysis because the vast preponderance of actual direct costs incurred by the City that were caused by telecommunications deployment are *non-recurring in nature* and accordingly *already recovered* through the City's substantial one-time permit application fees (which also are not justified by the City's costs).

67. In plain language, the City cannot accurately assume that the costs it incurs one time, at the initial application and installation stage, are an appropriate basis for recurring annual fees nor can it recover them both in one-time application fees and in recurring annual fees. Yet, that is what it has done. In other words, the City has taken the one-time costs associated with initial installation, recovered, if not over-recovered them, in application fees and then re-imposed the same costs as if the same level of costs would be incurred every year thereafter, even though Mr. Tobias acknowledges that once the facilities are deployed there is radically less cost to the City. [50]

68. Another critical failure in objectivity is the lack of any supporting documentation for either the total departmental costs being assigned to telecommunications installations or the specific allocation percentages of staffing used to apportion these costs as between the two spreadsheet tab categories of UG and non-UG. The same holds true for the percentages of capital assigned to telecommunications installations in the UG spreadsheet tab. Mr. Tobias readily admitted in deposition that he did not keep the records necessary to substantiate, document, verify, or explain what the costs actually incurred by the City in connection with the small cell aerial and associated fiber backhaul installations or underground installations that the City Cost

[49] *See* Tobias Dep., Verizon at 259:14-260:10 ("Q: Perhaps we should address the question I asked by department, because I think it may vary. The question is, what percentage of those activities are first year versus subsequent year activities? A: I don't have a number for that. I would have to go through and pull that. What I will stipulate is that the first-year activities are going to be significantly more—will be the lion's share, more than half, as compared to the out-year activities. But to put a number on it, I'd have to actually sit down and do the calculation. Q: But that's not something you did for purposes of this analysis already, correct? A. Not to my recollection.").

[50] *See* Tobias Dep., ExteNet at 208:10-210:9.

Spreadsheet purport to measure.[51] According to Mr. Tobias, the input data he relied upon was primarily, if not totally, based on undocumented telephone conversations he allegedly had with various departmental heads and allegedly "dozens"[52] of other unidentified City personnel across the various City departments for which he kept no records.[53]

69. Finally, although I will not go into every way in which the City Cost Spreadsheets are inaccurate, it is also important to note that the spreadsheets include unsupportable and flawed assumptions in their calculations. For example, the spreadsheets assign the same level of salary and overhead cost to every single employee. Thus, even if the collection of data had been objective, additional errors are embedded in the numbers and outcomes.

The City has failed to demonstrate its fees are limited to recovery of direct and actual costs related to telecommunications deployment.

70. For the City's fees to be specifically related to and caused by the deployment of facilities used to provide telecommunications services in public ROW, they must be limited to the *marginal or incremental* costs incurred by the City that *but for" the presence of the telecomunications providers in the City ROW would otherwise not exist.*

71. It is not sufficient demonstration of an objectively-reasonable actual direct or incremental cost to the City that telecommunications providers simply have a physical presence in the ROW where City public activities and functions occur for some portion of those costs to be assigned to them. Nor does Mr. Tobias' subjective opinion that there is some undefined additional amount

[51] *See* Tobias Dep., ExteNet at 72:4-76:8.

[52] *See* Tobias Dep., Verizon, at 19:19-22.

[53] *See* Tobias Dep., Crown Castle, at 156:7-157:1 ("Q: And how did you collect and memorialize those conversations? Did you take notes? A: I did. But it – yeah. The answer is yeah, I took notes. Q: Did you save those notes? A: No, It's—you know, do I have, just today, I probably scribbled down all kinds of things on the back of a pad. At some point in time it will go in a document, and maybe it will last a few months. And then when I clean my office, it will get thrown away. So, you know, yes and – yes, I took notes. And do I still have the –you know, the pads? Maybe I have some of them. But, you know, once I entered in into digital format, I didn't necessarily keep that stuff."); *see also* Tobias Dep., Verizon, at 126:13-127:11 (" Q: Okay. Did you keep notes of these interviews or records of these interviews and the information provided? A: I will say that there's somewhere that maybe I wrote on a piece of paper or in a a pad or on an earlier version of the spreadsheet that may I got that said, hey da, da, da, da, da. But did I – if you come to my office, you will see that I have much more paper than I need. Q: Okay. A: So once I actually memorialize some issue, once someone told me, okay, on any given day I made five visits to that, I didn't you know, I may have written it on a piece of paper. But you know, that might have been Version 4 of a document that may have ended up with 54 versions or some ridiculous number like that."), 143, 197; *see also* Tobias Dep., ExteNet at 73:5-75:23.

of "stress" on the City facilities or on the ROW that he believes is attributable to the presence of telecommunications facilities satisfy the definition of an actual, incremental cost by objective economic and regulatory accounting principles.[54]

72. Mr. Tobias' use of the term "incremental" in his deposition is at odds with the accepted economic and regulatory definition. When asked about the term, Mr. Tobias responded in the context of his providing cost data at a disaggregated, elemental or specific level, i.e., for "individual departments and individuals working in those departments and individual functions within those departments;" he further elaborates this having "meant that I was showing you a break down, so maybe I used the wrong word, but a specific break down instead of a summary."[55] His subjective definition of incremental costs in place of the objective well-established definition of incremental cost is reflective of the subjectivity in the City ROW analysis from the very earliest stages of Mr. Tobias' outreach to City personnel for their help in identifying costs he could assign to telecom providers in support of the City's fee levels.

73. Mr. Tobias also appears to assert a definition of an "objectively reasonable" actual cost that is inherently subjective, and apparently would include any actual or projected cost number that does not in his subjective opinion "seem[] outrageous"[56] for the particular duty being performed. Mr. Tobias further asserts that the application of his "common sense reasonable smell test"[57] supporting his assertion that something is an objectively reasonable cost, again without making any connection between his "smell test" as applied to the departmental expenditures provided by the people he reached out to, and the well-established definition of incremental costs applied in economic and regulatory cost accounting literature.[58]

74. In the absence of any well documented, supporting departmental data demonstrating actual *direct* cost relationships, the departmental-based ROW costs assigned by Mr. Tobias to telecommunications providers in his "UG" and "non-UG" spreadsheet tabs, and as further elaborated upon in his deposition answers, at best might be considered *indirect or common costs* incurred by the City in regard to the multiple users (the most predominant use being the City's

[54] *See* Tobias Dep., Verizon at 363:16-22, 36515-367:6; *see also* Tobias Dep., ExteNet at 208:20-210:10.

[55] *See* Tobias Dep., Verizon at 122:24-123:4, 124:6-9; *see also* Tobias Dep., ExteNet at 95:18-96:9.

[56] See Tobias Dep., Verizon at 327:13-17, 389:25-390:13.

[57] *Id*. at 327:24-328:2.

[58] *See id.* at 327:8-328:2.

public functions) of the ROW, such as might be included in a fully allocated type cost methodology. However, a fully allocated cost standard, by definition and design, is not limited to "but for" costs caused by an entity or activity, but includes a wide range of costs that may have some plausible association or linkage to the entity or activity but that would exist for the City even in the absence of the provider (or in this case category of providers).

75. The fully allocated cost standard would appear to more closely describe the approach taken by Mr. Tobias, based on his recognition that the department level budget costs apportioned to small cell and fiber backhaul included in his spreadsheets would exist even in the absence of any such deployment.[59] (Although even the fully allocated standard would require adherence to the objectivity principles described above, which the City has not done, as Mr. Tobias' approach is inherently subjective in nature.) But a fully allocated cost methodology is an entirely different cost standard than a standard asking whether the City's fees are limited to direct "*costs specifically related to and caused by*" telecommunications facilities.

76. Mr. Tobias' departmental cost assignments, as memorialized in the City Cost Spreadsheet, appear to be based solely on what is equivalent to anecdotal evidence gleaned through his undocumented interviews with unidentified departmental personnel, which he admittedly did not keep track of.[60] The City provides no concrete supporting data demonstrating the direct cost relationships alleged in the spreadsheet allocations of labor and capital expenditures for the various City Departments. Mr. Tobias' allocations to telecommunications, as between the "UG" and "non-UG" cost spreadsheet categories, are inherently subjective.

77. From his deposition testimony, it appears Mr. Tobias's process was designed in such a way as to encourage departmental employees to identify all costs incurred by the City that in some generic or all-encompassing way might relate to the ROW in the aggregate, not necessarily tied to their actual time spent on either small cell facilities or wireline installations. In fact, he describes what he did as "exactly the opposite" of tying actual time spent to specific telecommunications installations.[61] The lack of clarity on these core costing concepts resulted in

[59] *See* Tobias Dep., Verizon at 130, 133; *see* Tobias Dep., ExteNet at 97:18-99:18.

[60] *See* Tobias Dep., Verizon. at 136; *see also* Tobias Dep., ExteNet at 174:18-175:2, 175:17-24.

[61] *See* Tobias Dep., Verizon at 124; *see also* Tobias Dep., Crown Castle at 89 ("Q: You left it to the discretion of the individual department head to sort of respond and say, These are the costs that we have in our department? A: I asked them to be as comprehensive as they possibly, could yes."); *see also* Tobias Dep., ExteNet at 67:14-76:24

allocations of staffing input for the various departments that could not possibly provide an objectively reasonably approximation to the actual, direct costs incurred by the City as a result of the use of the ROW by telecommunications providers.

78. Indeed, the earliest requests to City departmental personnel for staffing input on behalf of Mr. Tobias and his team of Department of Environmental Services ("DES") staff were exceedingly vague, lacking any objective definition of the costs to be considered, let alone the actual direct costs incurred by the City in relation to telecommunications providers' use of the ROW.[62] The request was sufficiently vague that it appeared to engender a significant amount of confusion among the departmental employees ostensibly responsible for the source data that Mr. Tobias relied on in creation of the City Cost Spreadsheet as to costs to be included and the time frame of the data.[63] Moreover, the emphasis appeared more on the stated purpose of the "exercise," that being "to justify our costs incurred for telecommunications rental fees as prescribed in the new ordinance – so we are trying to capture ALL our costs as expensed/budgeted."[64] As the earlier email correspondence with departmental personnel demonstrate,[65] the origin of the costs included in Mr. Tobias' City Cost Spreadsheet relate to total budgeted departmental costs to be incurred by the City in the course of providing public City services that have some undefined relationship to the ROW.

79. There is a critical economic distinction between the costs incurred by the City in direct relation to telecommunications providers' use of the ROW, and the costs incurred by the various City departments in relation to the various activities or uses of the ROW associated with primary public functions provided by the City to its citizens in its role as local governmental authority (or use by legacy incumbent utilities). Yet, the City Cost Spreadsheet fails to consider this distinction in the departmental expenditure numbers used to populate the spreadsheets.

(explaining the analysis the City performed in determining the costs associated with telecommunications equipment in the ROW. In sum, the analysis amounted to informal meetings with unidentifiable City staff.).

[62] *See*, *e.g.*, COR000694, COR0000704 (back and forth e-mail correspondence showing the lack of direction or clear guidance regarding the information DES was seeking).

[63] *See*, *e.g.*, COR 000694 ("I guess my biggest question then is what we are considering our costs when talking ROW. Some examples are provided below where I am not clear on what would count. Our engineering division designs Capital projects for main renewal. The capital cost is obviously in the ROW, Is the operating cost to pay the engineers who did the design counted? Meter reads drive on the ROW to collect meter reads, but the meters are not in the ROW –much like refuse, so would that area count?").

[64] *See id.* (emphasis added).

[65] *See id.*

80. In a modern civilized society, governmental authorities provide a number of important functions to the general public. These governmental functions encompass a wide range of "public" or "social" goods, services, and infrastructure including public transportation, water, sewer, and sanitation; public health, safety and welfare; crime prevention and law enforcement; fire prevention and control; emergency response and medical care; public education and library, civics/ general government and fiscal administration, economic development, recreational and cultural, environmental and natural resource conservation and beautification, and the like. These wide-ranging governmental functions play an important and highly valued role in the quality of life of its citizens – one that all citizens collectively derive benefit. It is a well-established tenet of economics that the costs of such public goods and services are most efficiently and equitably financed through the system of general tax revenues the government has been granted powers to collect.

81. Many if not most of these city departmental functions or public goods are provided on, around, or in some direct or indirect way make use of the public ROW. The City's analysis ignores the economic reality that the overwhelming predominant users or uses of ROW are those associated with public sector entities or the provision of city functions and activities. The second largest users are incumbent electric, gas, water and sewer utilities.

82. In its City Cost Spreadsheet, the City does not appear to have made any attempt to identify and distinguish the costs directly attributable to telecommunications providers from those directly attributable to the primary public functions or uses of the ROW. This includes ROW-related expenditures for the most significant of such uses, namely transportation—and not surprisingly for which the largest amount of related total departmental expenditures is assigned to telecommunications providers in the City ROW analysis taking into account both labor related and capital related expenditures. Of the total $5,285,908 in total UG expenditures assigned to telecommunications providers, half ($2,630,734) is attributable to the capital expenses[66] that, from a cost-causal perspective, are directly linked to the public city function of transportation—in other words, they are costs that would exist in the absence of telecom providers in the ROW.

83. By the objective criteria described earlier in this report, the City has not demonstrated any of the alleged recurring departmental costs assigned to telecommunications providers in the

[66] *See* COR000011, Input Data (ug) at M166.

City Cost Spreadsheet would actually be avoided in the absence of telecommunications provider facilities in its ROW, a point Mr. Tobias concedes on numerous occasions.[67] While the percentage of total City budget costs assigned by Mr. Tobias to telecommunications providers may be relatively small, the absolute dollar amount and impact on telecommunications providers is substantial.

84. As further detailed, and summarized in Tables 1A and 1B below, the City Cost Spreadsheet identifies the following distinct City departments (or grouping of departments) for which Mr. Tobias has made apportionments of alleged department-level function expenditures of labor—and capital in the case of the "UG" category—to telecommunications providers: Architectural/ Engineering Permits; Construction; Street Lighting; Maps/Surveying; Street Design; Executive Direction/Admin/Teleco/Special Projects; Operations; Equipment; Water; Hazard/Emergency Response/Fire/Police/Dispatch; and Administration consisting of IT, Finance and Law.

85. While the costs identified in the spreadsheets may be costs incurred by these respective departments that likely, in some way, relate to a cost-generating activity in, on, or around the ROW, contrary to Mr. Tobias's subjective belief, for all but a limited exception, this does not make a portion of those costs properly classified from a cost allocation perspective as an actual, direct recurring cost specifically related to and caused by deployment by telecommunications providers in the ROW.[68]

86. Given their public city function, in the absence of well-supported documentation linking the assigned department level function expenditure to a specific cause by telecommunications providers in the ROW, which neither Mr. Tobias nor the City has been able to provide, there is no objective basis in accordance with accepted economic and regulatory costing principles to assume that any measurable amount of recurring costs for these City departments (again with a limited exception) would be avoided in the absence of telecommunications providers in the ROW.

87. As the follow discussion shows, Mr. Tobias' deposition testimony provides further anecdotal support for why costs for these departmental categories are properly classified, from an

[67] *See*, *e.g.*, Tobias Dep., Verizon at 283:22-284:284:2; *see also* Tobias Dep., ExteNet at 97:18-99:18.

[68] Also, as noted above, the City Cost Spreadsheets also contain fundamental other errors in addition to the allocation issues.

economic perspective, as costs directly attributable to the various city functions for which purpose they are incurred—not to telecommunications providers:

88. Engineering Permits; Construction; Street Lighting; Maps/Surveying; Street Design: The potential primary nexus between the recurring expenses for these four departments and telecommunications providers involve the functions of ongoing periodic inspections, monitoring, and oversight of the ROW. Yet, to my knowledge, the City has not provided documentation of an actual incident of where an ongoing inspection activity, or a re-inspection after the initial installation process, occurred in connection with a specific pole attachment or backhaul facility.[69] The situations cited by Mr. Tobias where telecommunications facilities are periodically "checked on" were not in an economic sense caused by the telecommunications facility, but arose in situations where the City crews were in the area in connection with their work in relation to public city functions, for example, "checking to make sure that the streetlight is operational;" or doing a "check after particular difficult storms ,weather events, and things of that sort" by "folks that are out there . . . regardless;"[70] or in connection with a downed pole caused by a motor vehicle accident.[71]

89. The common economic theme here is the direct, incremental cost-causal linkage between the departmental staffing costs and the underlying public city function. Other than the functions of ongoing periodic inspections, monitoring, and oversight of the ROW, the other costs incurred by these departments that have been apportioned to telecommunications providers in the City Cost Spreadsheet do not have even a potential direct recurring cost nexus to small cells or wireline facilities. For example, in the case of Street Lighting, the other identified functions for which assignments of costs were made to telecommunications providers of repair, replacement and emergency response and system design, are entirely cost driven (again, under the applicable incremental cost standard, not a fully allocated one) by the public city functions of transportation and public safety not the presence of telecom providers in the ROW. Mr. Tobias acknowledged that in many safety-related incidents involving poles (e.g., a car running into a pole, a weather event impacting a pole, or some other reasons a pole becomes damaged) "whether or not there's . . . a small cell attachment, on the pole, the City would potentially have to deploy . . . potentially

[69] *See*, *e.g.*, Tobias Dep., Verizon, at 104:12-105.:12; *see also* Tobias Dep., ExteNet at 170:12-19.

[70] *See* Tobias Dep. Verizon, at 102:14-103:14.

[71] *See* Tobias Dep. Verizon, at 97; *see also* Tobias Dep., ExteNet at 140:9-142:18.

the fire department, the electric street department, and the light department to address the situation."[72] The same is true for the maps/surveying and street design department functions; their ongoing costs are entirely cost driven by the public city functions of transportation, with the possible exception of street design costs specifically identified as relating to utility coordination, which if documented, may be directly attributable to the incumbent legacy utilities present in the ROW, but in any event, not to competitive telecommunications providers with relatively minor presence in the ROW as compared with the ubiquitous legacy utilities.

90. That is not to say that the City does not incur actual, direct *non-recurring costs* associated with these department level functions that could be objectively identified. But any such economically valid costs incurred in connection with non-recurring activities or functions provided at the time of installation, or in the period immediately preceding or following, are properly included in the one-time, upfront permit and application fees in accordance with objective economic and cost accounting principles of cost causation and matching.[73] As described below, many of the identified cost functions for these departments have been identified by the City as non-recurring in nature and already recovered in the City's upfront permit and application fees and should not be included in any calculation of recurring fees.[74]

91. Operations/Equipment/Water: The recurring expenses for these three departments that have been apportioned to telecommunications providers involve the functions of ROW maintenance and construction. While these departments clearly have significant activity going on in, on, and around the ROW, that does not equate to an economically cost causal relationship with the presence of telecommunications provider facilities. Maintenance and construction upgrades in the ROW are performed and entirely cost driven by the core city governmental responsibilities to maintain and construct vital public ROW facilities for its citizenry public city function of transportation, and not the presence of telecommunications providers in the ROW. The City has provided no well supported document that would identify any measurable incremental costs directly attributable to the deployment of facilities by telecommunications

[72] Tobias Dep., Verizon at 221:9-16; *see also* Tobias Dep., ExteNet at 140:9-142:18.

[73] As noted above, the City has not demonstrated that its one-time application fees, which are also above the FCC presumptive level, are justified by the City's reasonable, actual and direct costs.

[74] *See* Comments of City of Rochester, WC Docket No. 17-84; WT Docket No. 17-79, (filed Sept. 18, 2018), https://ecfsapi.fcc.gov/file/10918434917028/DOC091818-09182018151537.pdf, ("Rochester Letter to FCC").

providers. Moreover, these are functional cost areas that the telecommunications provider would likely be responsible for as part of its own construction and equipment related installation activities and self-incur those costs, in which case it would be objectively unreasonable for the City to apportion its own costs.[75]

92. With respect to the stake-out function identified for the water department as a function with costs apportioned to telecommunications providers in addition to basic maintenance and construction activities, Mr. Tobias buttressed the fact that the City could not document any measurable incremental cost to the City with his acknowledgment that that the stake-out activity "would happen whether or not there was small cell attachments or not."[76]

93. Hazard/Emergency Response/Fire/Police/Dispatch: By reasonable, objective economic standards, these types of costs (i.e., those relating to firefighters, police, and emergency dispatch personnel) have no reasonable cost causative linkages to the costs incurred by the City caused by the deployment of telecommunications providers in the ROW. Rather, they are costs relating strictly or predominantly to the City's own direct use of ROW in providing basic public city functions and/or activities relating to public health and safety. While there may be the possibility, as with other departmental functions serving a vitally important public city function, there could be very limited expenses causally linked to deployment by telecommunications providers, those would be rare and incident-driven. As noted earlier, Mr. Tobias acknowledged that in many safety-related incidents involving poles (e.g., a car running into a pole, a weather event impacting a pole, or some other reasons a pole becomes damaged) "whether or not there's …a small cell attachment, on the pole, the City would potentially have to deploy . . . potentially the fire department, the electric street department, and the light department to address the

[75] *See*, *e.g.*, TELECOMMUNICATIONS CODE § 106-14 (requiring permitees to cure all violations of applicable laws before renewing the Master Licensing Agreement required by the City); *see also* City of Rochester, N.Y., Municipal Code, ch. 104, art. I, §§ 104-16(B) ("The City Engineer may perform or cause to be performed such restoration at the expense of the permittee, with an additional 15% for administrative costs and 10% for inspection costs, on five days' written notice served by ordinary mail, or without notice if an emergency situation exists."); *see also* Right-of-Way Agreement between City of Rochester and ExteNet Systems, Inc., ¶¶ 10 (executed on Nov. 5, 2015) (requiring providers to be "responsible for any damage to City [ROWs] due to [their] installation, maintenance, repair or removal of [their] facilities in ROW, and [must] repair, replace, and restore according to current standard and specifications, any such damage *at [their] sole expense.* Furthermore, "[s]ubject to the additional requirements of Chapter 104-16, if Provider does not repair the site to its original condition, then the City shall have the option . . . to perform or cause to be performed such reasonable and necessary work . . . and to charge Provider for the actual cost incurred by the City . . . at the City's standard rates plus 15%.").

[76] *See* Tobias Dep., Verizon, at 28-2843:22-284:2.

situation."[77]

94. In order to apportion any costs to telecommunications providers would require the City to identify the specific unit costs associated with those specific incidents or events, e.g., the time spent in connection with the dispatch of safety patrol or traffic detail assigned to construction sites or downed poles involving work specifically caused by telecommunications provider occupancy - as opposed to generic fire/police and emergency response activities located in, around, or near the ROW in service of the public. Demonstration would also be required to show the City had not otherwise directly billed the telecommunications provider for the deployed services.

95. In this regard, Mr. Tobias testified that he does not know how many times the city departments would actually have to deploy resources to address a pole with a telecommunications deployment on it.[78] Nor did Mr. Tobias know if certain key departments such as Police and Fire can directly bill telecommunications providers for any work performed that were specifically caused by a telecommunications facility.[79]

96. Administration (Executive Direction/Admin/Teleco/Special Projects): This set of department functions, by definition of its functional task areas, is categorized as indirect or common costs of operation not directly attributable to any particular cost center or object, but shared among the various cost centers of the organization. The City provides no detail as to the specific tasks being performed by the apportioned labor, or documentation to support these overhead personnel costs, including close to half of two employees' total labor hours would be avoided "but for" the presence of telecommunications. In any event, it is more plausible that any actual, direct costs that could reasonably and objectively be casually linked to these administrative staff functions would be of a non-recurring nature incurred at the time of permitting and installation, such as delineated in the City's 2018 Comments.[80]

97. Finance: Notwithstanding the lack of supporting documentation required to demonstrate an objectively determined, actual cost causal linkage, this is the one City departmental for which a direct cost causal linkage of a recurring (as opposed to non-recurring) cost could potentially be

[77] *See id.* at 221:9-16; *see also* Tobias Dep., ExteNet at 140:9-142:23.

[78] *See* Tobias Dep., Verizon, at 219:6-221:24.

[79] *See* Tobias Deposition, Verizon, at 213-215; *see also* Tobias Dep., ExteNet at 181:1-183:1.

[80] *See* Rochester Letter to FCC, supra note 74.

demonstrated for certain department level functions than the others. That would be the Finance Department's ongoing functions of accounting and invoicing. These are two functions for which a "but for" recurring cost could be more objectively approximated using an approach such as utilized in the City Cost Spreadsheet, i.e., determining a full-time equivalent ("FTE") direct labor hour estimate of the time spend tracking billing units and invoicing telecommunications providers and multiplying that by the applicable average wage of that labor. That is not to say that the numbers included in the City Cost Spreadsheet for this department are accurate. As explained above, they suffer significant problems.

98. Capital Related Expenditures (including Architecture & Engineering, Maintenance & Repair Equipment Lighting, GIS Upgrade, ROW Maintenance): As a general economic proposition, the City would not reasonably be expected to incur any objectively direct, out of pocket actual capital related expenditures in relation to a telecommunications provider's presence in its ROW that the City would not otherwise seek total reimbursement for. Cities routinely seek such capital contributions from private entities where those entities are causally responsible for the City's outlay of capital, as is fiscally responsible. It is clear that the types of major capital projects included in this set of expenditures, encompassing major road, bridge, ramp, street lighting and GIS upgrades, are incurred by the City in order to provide basic City functions, and have no direct causal connection to telecommunications providers' presence in the ROW. As such, no portion of those expenditures should be apportioned to telecommunications providers.

99. Moreover, as noted earlier, the inclusion of these capital expenditures has a substantial inflating effect on the results of Mr. Tobias's UG analysis. The costs associated with this set of capital expenditures represent $4.3 million of the total $5.3 million in total UG costs apportioned to telecommunications providers.[81] Of the $4.3-million, over half ($2.6-million) is associated with one category of expenditures, namely the A&E category, which even Mr. Tobias acknowledges for the most part, both as a general proposition and in connection with a specific curved ramp project, "the City would undertake and the costs associated with irrespective of whether small cell facilities or other telecom facilities exist at all in the City."[82] He goes on to

[81] *See* City Cost Spreadsheet COR000011.

[82] *See* Tobias Dep., Verizon, at 401:20-402:4, 403:9-15.

allege that some of the capital projects, such as those "that talk about utility stakeouts, the ones that talk about dig-safe requests, the ones that talk about GIS capability upgrades" are driven "by the increased number of telecom providers in the right-of-way," but he fails to make any valid objective cost causal connection.[83] The extent to which a project might "talk about" an activity that might somehow involve a telecommunications facility in the ROW has nothing to do with whether there is a cost causal linkage between the telecommunications provider's presence and the incurrence of the cost by the City. To demonstrate the telecommunications provider was the true cost driver of the capital expenditure would require evidence that demonstrates that "but for" the telecommunications facilities, the City would not have incurred the capital expenditure. And if truly a "but for" cost, it would also raise the question as to why the City would incur such a large capital expenditure and not seek direct reimbursement of the capital outlay.

100. As summarized in Tables 1A and 1 B below, the City Cost Spreadsheet analysis provides no supporting documentation or evidence such as would be necessary to demonstrate any direct, recurring cost causal linkages to telecommunications providers for most of the City's departmental costs assigned in the City Cost Spreadsheet to telecommunications providers – other than for the one exception for Finance as described above. While there is a plausible measurable direct cost linkage for an apportionment of costs for a few other of the department-level functions, specifically the labor related expenditures for the identified functions under Architecture & Engineering/Permits, Construction, Street Lighting (in the case of Small Cell), and Admin, Teleco, Special Proj, and Administration (incorporating IT, Finance, and Law), these are cost-causally aligned with one-time incremental cost generating activities occurring at the time of installation or in the periods closely preceding or following, and therefore, those costs are already captured in the non-recurring "application" or permitting fees charged by the City as recognized in the Rochester letter to the FCC.[84] Those department level functions clearly fall within the "comprehensive services and activities" identified in the Mayor's letter to the FCC as being recovered in the City's non-recurring permit fee of $2,000 per City Code 104- Article II:

> We looked at the comprehensive services required for each application, including clerical time for accepting and processing an application, engineering review of the application, plans and drawings, site inspections as described above,

[83] *See* Tobias Dep., ExteNet at 41:12-45:15.

[84] *See* Rochester Letter to FCC *supra* note 74.

attendance at public meetings, pre-construction meetings with contractors, review of as built documents, and follow up inspections of installed facilities, and concluded that actual costs to the City are approximately $2,000.[85]

[85] *Id*. at 3.

Table 1A – Comparison of City Assigned Costs and Objective Actual Direct Recurring Costs for "Underground" Installations

City Department	Activity	Direct Economic Cost Linkage to Telecom Provider	Recurring Cost Assigned by City to Telecom Provider	Objective Actual Direct Recurring Cost
I. "Staffing Inputs" Expenditures Assigned to Telecommunications Providers				
Architectural/ Engineering Permits	Enforcement/ Inspections	Non-Recurring Cost at Time of Permit Application/ Install	$27,919	$0
Construction	Network Operations/ Inspection	Non-Recurring Cost at Time of Permit Application/Install	$25,211	$0
Street Lighting	Inspection/ Procurement/ Oversight/ Replacement	None Objectively Demonstrated	$17,181	$0
Maps/ Surveying	Survey/ Inspection	None Objectively Demonstrated	$46,036	$0
Street Design	Review, Approval/ Inspection/ Design/Utilities	None Objectively Demonstrated	$176,654	$0
Exec. Direction Admin./Teleco/ Special Proj.	Operational Oversight, GIS, Maintenance/ Comm. Rel.	Non-Recurring Cost at Time of Permit Application/ Install	$116,081	$0
Operations	ROW Maint./Upgrades DRE & IRE	None Objectively Demonstrated	$228,801	$0
Equipment	ROW Maint. & Construction/ Equipment Service	None Objectively Demonstrated	$31,718	$0
Water	Stakeout, ROW Maintenance & Construction	None Objectively Demonstrated	$193,835	$0
Hazard/Emergency Fire/Police/ Dispatch	Safety, Dispatch, Emergency Response	None Objectively Demonstrated	$25,375	$0
Sub-total Staffing			$888,811	$0
II. Administration "Related Indirect Expenditures" Assigned to Telecommunications Providers				
IT	Software Licenses, GIS, System Sup. Data Security & Storage, Rcds Mgt	None Objectively Demonstrated	$54,846	$0
Finance	Accounting/ Invoicing	Possible Recurring Cost	$4,075	$4,075
Law	MLA Compliance/ Legislation	None Objectively Demonstrated	$6,388	$0
Sub-total Admin.			$65,309	$4,075
III. Capital Related Expenditures Assigned to Telecommunications Providers				
Maintenance & Repair/Equip. Lighting		None Objectively Demonstrated	$72,102	$0

City Department	Activity	Direct Economic Cost Linkage to Telecom Provider	Recurring Cost Assigned by City to Telecom Provider	Objective Actual Direct Recurring Cost
GIS Upgrade		None Objectively Demonstrated	$40,179	$0
Professional Services		None Objectively Demonstrated	$7,917	$0
Rental Storage		None Objectively Demonstrated	$3,911	$0
ROW Maintenance Op Div.		None Objectively Demonstrated	$1,199,583	$0
ROW Maintenance ESD		None Objectively Demonstrated	$105,016	$0
ROW Maintenance Water		None Objectively Demonstrated	$272,338	$0
A&E Ongoing		None Objectively Demonstrated	$2,630,734	$0
Sub-total Admin.			$4,331,780	$0
TOTAL EXPENDITURES ASSIGNED			$5,285,908	$4,075
IV. Fiber Backhaul Per Foot Cost Assigned to Telecommunications Provider				
Conduit Feet "Under Management"		431,566.800		
Fiber Feet "Under Management"		431,252.609		
TOTAL FEET "UNDER MGMT."		862,819.409	$6.13/ft ($32,366/mi)	$0.0047/ft[86] ($24.82/mi)

[86] As explained above, the data presented by the City is not objective and is not reliable. This calculation is made assuming we accept for purposes of this discussion the City's data for this category.

Table 1B – Comparison of City Assigned Costs and Objective Actual Direct Recurring Costs for "Aerial" Installations

City Department	Activity	Direct Economic Cost Linkage to Telecom Provider	Recurring Cost Assigned by City to Telecom Provider	Objective Actual Direct Recurring Cost[87]
I. "Staffing Inputs" Expenditures Assigned to Telecommunications Providers				
Architectural/ Engineering Permits	Enforcement/ Inspections	Non-Recurring Cost at Time of Permit Application/ Install	$83,756	$0
Construction	Network Operations/ Inspection	Non-Recurring Cost at Time of Permit Application/ Install	$75,662	$0
Street Lighting	Inspection/ Procurement/ Oversight/ Replacement	Possible Non-Recurring Cost at Time of Application/Install	$76,983	$0
Maps/ Surveying	Survey/ Inspection	None Objectively Demonstrated	$50,661	$0
Street Design	Review, Approval/ Inspection/ Design/Utilities	None Objectively Demonstrated	$122,689	$0
Exec. Direction Admin./Teleco/ Special Proj.	Operational Oversight, GIS, Maintenance/ Comm. Rel.	Non-Recurring Cost at Time of Permit Application/ Install	$190,531	$0
Operations	ROW Maint./Upgrades DRE & IRE	None Objectively Demonstrated	$295,430	$0
Equipment	ROW Maint. & Construction/ Equipment Service	None Objectively Demonstrated	$39,648	$0
Water	Stakeout, ROW Maintenance & Construction	None Objectively Demonstrated	$121,147	$0
Hazard/Emergency Fire/Police/ Dispatch	Safety, Dispatch, Emergency Response	None Objectively Demonstrated	$99,120	$0
Sub-total Staffing			$1,155,627	$0

[87] As explained above, the data presented by the City is not objective and is not reliable. This calculation is made assuming we accept for purposes of this discussion the City's data for this category.

City Department	Activity	Direct Economic Cost Linkage to Telecom Provider	Recurring Cost Assigned by City to Telecom Provider	Objective Actual Direct Recurring Cost[87]
II. Administration "Related Indirect Expenditures" Assigned to Telecommunications Providers				
IT	Software Licenses, GIS, System Sup. Data Security & Storage, Rcds Mgt	None Objectively Demonstrated	$103,967	$0
Finance	Accounting/ Invoicing	Possible Recurring Cost	$16,300	$16,300
Law	MLA Compliance/ Legislation	None Objectively Demonstrated	$38,326	$0
Sub-total Admin.			$158,592	$16,300
TOTAL EXPENDITURES ASSIGNED			$1,314,218	$16,300
III. Per Pole Cost Assigned to Telecommunications Provider				
City Estimated Total Number of New Telecom Installations, 2020-2025		1,800		
City Estimated Average Annual No. of New Telecom Installations		300		
Assigned Cost Per Pole = Total Expenditures / Avg Ann # Install.			$4,381.00	$54.33
Source for City Assigned Costs: COR 000011 "City Cost Spreadsheet, "Input Data" Tab				

The City has failed to demonstrate that costs included for recovery in recurring fees are not non-recurring costs already recovered in one-time permitting fees charged by the City or otherwise reimbursed to the City.

101. As discussed above, while the preponderance of costs included in the City's ROW cost analysis for apportionment to telecommunications providers are not properly considered actual direct recurring costs, a subset of those costs could be reasonably considered as direct costs of a *non-recurring* nature. Moreover, as pointed out above, the City has acknowledged in correspondence to the FCC that the identified department functions potentially classified as direct non-recurring costs are already recovered by the City through the one-time permit fees charged telecommunications providers by the City – fees as shown in Table 2 below.

102. To apportion any of these non-recurring costs to telecommunications providers as recurring costs would produce an excess and double recovery of such costs by the City. In

addition, the recovery of upfront, non-recurring costs through ongoing, recurring rates does not properly match costs with the time frame and manner in which the costs are incurred and violates the objective cost principles underlying the applicable FCC standard – the import of which Mr. Tobias did not appear to appreciate.[88]

V. CONCLUSION

103. The City has not demonstrated that its fees on telecommunications providers reflect the reasonable actual and direct costs incurred by the City that are specifically related to and caused by the deployment of facilities used to provide telecommunications services in public rights of way in the City.

104. As shown in Table 2 below, the presumptively reasonable fees set by the FCC in its 2018 *Broadband Deployment Order* for small wireless facilities more than fully compensate the City when appropriately compared to the proper economic cost standard of actual, direct costs incurred by the City as a result of telecommunications facilities.

105. Even using the City's inaccurate and deeply flawed cost data, a cost-based fee for wireline facilities based on objective, reliable data would be radically lower than what the City imposes.

[88] *See* Tobias Dep., Verizon at 160:1-166:6

Table 2 – Comparison of City Fees, FCC Presumptive Fees, and Fees Based on Objective Actual, Direct Costs Applicable to Telecommunications Providers

City of Rochester	City Fees	FCC Presumptive Fees	Fees Based on Objective Actual Direct Costs[89]
I. Recurring Fees Applicable to Telecommunications Providers[90/]			
Per Pole:			
Standard Pole	$1,500	$270	$54.33
Smart Pole	$1,000	$270	$54.33
Per Ft Underground (UG) Install/ Aerial Install Fiber/ Install in Existing Facilities			
UG Install w/Open Trenching/Aerial Install Fiber:	Varies from:		
1st Year – Up to first 2,500 Ft	$10,000 to $4.00	n/a	$0.0047/ft ($24.82/mi)
1st Year – 2,500' & Over	$1.50 to $0.75	n/a	$0.0047/ft ($24.82/mi)
After 1st Year – Up to 2,500 Ft	$5,000 to $2.00	n/a	$0.0047/ft ($24.82/mi)
After 1st Year – 2,500' & Over	$1.00 to $0.50	n/a	$0.0047/ft ($24.82/mi)
UG Install w/Directional Boring:	Varies from:	n/a	$0.0047/ft ($24.82/mi)
1st Year – Up to first 2,500 Ft	$500/ site	n/a	$0.0047/ft ($24.82/mi)
1st Year – 2,500' & Over	$500/site + $1.50 to $0.75/ft	n/a	$0.0047/ft ($24.82/mi)
After 1st Year – Up to 2,500 Ft	$5,000 to $2.00	n/a	$0.0047/ft ($24.82/mi)
After 1st Year – 2,500' & Over	$1.00 to $0.50	n/a	$0.0047/ft ($24.82/mi)
UG Install in Existing Facilities:	Varies from:	n/a	$0.0047/ft ($24.82/mi)
Up to first 2,500 Ft	$5,000 to $2.00	n/a	$0.0047/ft ($24.82/mi)
2,500' & Over	$1.00 to $0.50	n/a	$0.0047/ft ($24.82/mi)
Relocated Aerial Installations:	50% UG Install	n/a	$0.0047/ft ($24.82/mi)
II. Non-Recurring Fees Applicable to Telecommunications (Other City Fees May Apply)[91/]			
Permit/Application:			
Up to first 5 Facilities	$2,000	$500	No data
5 Facilities & Over	$2,000	$100	No data
Facilities on New Pole	$2,500	$1,000	No data

[89] As noted above, although the City's cost data is unreliable, these calculations are presented to demonstrate that even using the City's unreliable data, the costs would not justify the City's fees.

[90/] For City Fees, *see* TELECOMMUNICATIONS CODE § 106-15; *see also* City of Rochester, *Telecommunications Fee Schedule*; for FCC fees, *Broadband Deployment Order* ¶ 79; for Objective Cost Based Fees, *see* Kravtin Table 1A, 1B, *infra* at 40, 42.

[91/] For City Fees, *see Permit Fee Schedule at* 3 ¶ 11; for FCC Fees, *see Broadband Deployment Order* ¶ 79.

106. Although the City has not provided objective, reliable data that would allow me or any expert to calculate the City's reasonable actual and direct costs incurred by the City that are specifically related to and caused by the deployment of facilities used to provide telecommunications services in public rights of way, even if we accept the City's data for purposes of discussion, the fees charged by the City exceed the City's reasonable actual and direct costs caused by the deployment of telecommunications facilities.

107. The documents presented by the City and the rationale articulated by its witness in deposition as allegedly supporting the cost basis for the City's fees do not provide transparency in the cost allocation process applicable to all underlying inputs and assumptions used in the process; the capability to replicate and verify the cost derivation process and final results of the process; and the ability to independently validate data sources and other supporting documentation for their reasonableness, authenticity, and internal consistency.

108. In conclusion, for the reasons described in this Report, the City has not demonstrated actual, direct costs, objectively determined, that would warrant charging telecom providers its current fee levels. As Table 2 shows, the City's current fee levels are dramatically higher than the presumptive compensation levels set by the FCC. And the City has not demonstrated that its fees are not dramatically higher than the City's objectively reasonable, actual and direct costs specifically related to and caused by the deployment of facilities used to provide telecommunications services.

Executed on this 12th day of August, 2021, at Park City, Utah.

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Patricia D. Kravtin

Appendix A – Curriculum Vitae

Patricia D. Kravtin

pdkravtin@comcast.net

Summary

Consulting economist with specialization in telecommunications, cable, and energy markets. Extensive knowledge of complex economic, policy and technical issues facing incumbents, new entrants, regulators, investors, and consumers in rapidly changing telecommunications, cable, and energy markets.

Experience

CONSULTING ECONOMIST

2000– Principal and Owner, PDK Economic Consulting, Park City, UT

- Providing expert witness services and full range of economic, policy, and technical advisory services in the fields of telecommunications, cable, and energy.

SENIOR VICE PRESIDENT/SENIOR ECONOMIST

1982–2000 Economics and Technology, Inc., Boston, MA

- Active participant in regulatory proceedings in over thirty state jurisdictions, before the Federal Communications Commission, Federal Energy Regulatory Commission, Canadian Radio-Television and Telecommunications Commission, Ontario Energy Board, and other international regulatory authorities on telecommunications, cable, and energy matters.

- Provided expert witness and technical advisory services in connection with litigation and arbitration proceedings before state and federal regulatory agencies, and before U.S. district court, on behalf of diverse set of pubic and private sector clients (see Record of Prior Testimony).

- Extensive cable television regulation expertise in connection with implementation of the Cable Act of 1992 and the Telecommunications Act of 1996 by the Federal Communications Commission and local franchising authorities.

- Led analysis of wide range of issues related to: rates and rate policies; cost methodologies and allocations; productivity; cost benchmarking; business case studies for entry into cable, telephony, and broadband markets; development of competition; electric industry restructuring; incentive or performance based regulation; universal service; access charges; deployment of advanced services and broadband technologies; access to pole attachments, conduit, and other rights-of-way.

- Served as advisor to state regulatory agencies, assisting in negotiations with utilities, non-partial review of record evidence, deliberations and drafting of final decisions.

- Author of industry reports and papers on topics including market structure, competition, alternative forms of regulation, patterns of investment, telecommunications modernization, and broadband deployment.

- Invited speaker before various national organizations, state legislative committees and participant in industry symposiums.

- Grant Reviewer for the Broadband Technology Opportunities Program (BTOP) administered by National Telecommunications and Information Administration (NTIA), Fall 2009.

RESEARCH/POLICY ANALYST

1978–1980 Various Federal Agencies, Washington, DC

- Prepared economic impact analyses concerning allocation of frequency spectrum (Federal Communications Commission).

- Performed financial and statistical analysis concerning the effect of securities regulations on the acquisition of high-technology firms (Securities and Exchange Commission).

- Prepared analyses and recommendations on national economic policy issues including capital recovery. (U.S. Dept. of Commerce).

Education

1980–1982 Massachusetts Institute of Technology, Boston, MA

- Graduate Study in the Ph.D. program in Economics (Abd). General Examinations passed in fields of Government Regulation of Industry, Industrial Organization, and Urban and Regional Economics.

- National Science Foundation Fellow.

1976–1980 George Washington University, Washington, DC

- B.A. with Distinction in Economics.

- Phi Beta Kappa, Omicron Delta Epsilon in recognition of high scholastic achievement in field of Economics. Recipient of four-year honor scholarship.

Prof. Affiliation

American Economic Association

Reports and Studies (authored and co-authored)

"Pole Policy and the Public Interest: Cost Effective Policy Measures for Achieving Full Broadband Access in the Commonwealth of Kentucky," July 22, 2021, underwritten by Charter Communications and submitted to the Kentucky Public Service Commission in *Regulations Regarding Access and Attachments to Utility Pole and Facilities*; 807 KAR 5:015.

"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 Now in Light of the Pressing Need to Close the Digital Divide," dated September 2, 2020, underwritten Charter Communications, Inc. and submitted to the Federal Communications Commission in WC Docket No. 17-84.

"An Analysis of Just and Reasonable Pole Attachment Rates for Bandera Electric Cooperative Pursuant to Senate Bill 14," prepared on behalf of Guadalupe Valley Telephone Cooperative, Inc., Preliminary Report dated December 6, 2019.

Report on the Ohio Municipal Electric Association Pole Attachment Rate Study, prepared for the Ohio Cable Telecommunications Association, November 9, 2012.

Report on the Financial Viability of the Proposed Greenfield Overbuild in the City of Lincoln, California, prepared for Starstream Communications, August 12, 2003.

"Assessing SBC/Pacific's Progress in Eliminating Barriers to Entry, The Local Market in California is Not Yet 'Fully and Irreversibly Open," prepared for CALTEL, August 2000.

"Final Report on the Qualifications of Wide Open West-Texas, LLC For a Cable Television Franchise in the City of Dallas," prepared for the City of Dallas, July 31, 2000.

"Final Report on the Qualifications of Western Integrated Networks of Texas Operating L.P. For a Cable Television Franchise in the City of Dallas," prepared for the City of Dallas, July 31, 2000.

"Price Cap Plan for USWC: Establishing Appropriate Price and Service Quality Incentives in Utah" prepared for The Division of Public Utilities, March, 2000.

"Building a Broadband America: The Competitive Keys to the Future of the Internet," prepared for The Competitive Broadband Coalition, May 1999.

"Broken Promises: A Review of Bell Atlantic-Pennsylvania's Performance Under Chapter 30," prepared for AT&T and MCI Telecommunications, June 1998.

"Analysis of Opportunities for Cross Subsidies Between GTA and GTA Cellular," prepared for Guam Cellular and Paging, submitted to the Guam Public Utilities Commission, July 11, 1997.

"Reply to Incumbent LEC Claims to Special Revenue Recovery Mechanisms," submitted in the Matter of Access Charge Reform in CC Docket 96-262, February 14, 1997.

"Assessing Incumbent LEC Claims to Special Revenue Recovery Mechanisms: Revenue opportunities, market assessments, and further empirical analysis of the 'Gap' between embedded and forward-looking costs," FCC CC Docket 96-262, January 29, 1997.

"Analysis of Incumbent LEC Embedded Investment: An Empirical Perspective on the 'Gap' between Historical Costs and Forward-looking TSLRIC," Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, FCC CC 96-98, May 30, 1996.

"Reply to X-Factor Proposals for the FCC Long-Term LEC Price Cap Plan," prepared for the Ad Hoc Telecommunications User Committee, submitted in FCC CC Docket 94-1, March 1, 1996.

"Establishing the X-Factor for the FCC Long-Terms LEC Price Cap Plan," prepared for the Ad Hoc Telecommunications User Committee, submitted in FCC CC Docket 94-1, December 1995.

"The Economic Viability of Stentor's 'Beacon Initiative,' Exploring the Extent of its Financial Dependency upon Revenues from Services in the Utility Segment," prepared for Unitel, submitted before the Canadian Radio-television and Telecommunications Commission, March 1995.

"Fostering a Competitive Local Exchange Market in New Jersey: Blueprint for Development of a Fair Playing Field," prepared for the New Jersey Cable Television Association, January 1995.

"The Enduring Local Bottleneck: Monopoly Power and the Local Exchange Carriers," Feb. 1994.

"A Note on Facilitating Local Exchange Competition," prepared for E.P.G., Nov. 1991.

"Testing for Effective Competition in the Local Exchange," prepared for the E.P.G., October 1991.

"A Public Good/Private Good Framework for Identifying Pots Objectives for the Public Switched Network" prepared for the National Regulatory Research Institute, October 1991.

"Report on the Status of Telecommunications Regulation, Legislation, and modernization in the states of Arkansas, Kansas, Missouri, Nebraska, Oklahoma and Texas," prepared for the Mid-America Cable-TV Association, December 13, 1990.

"The U S Telecommunications Infrastructure and Economic Development," presented at the 18th Annual Telecommunications Policy Research Conference, Airlie, Virginia, October 1990.

"An Analysis of Outside Plant Provisioning and Utilization Practices of US West Communications in the State of Washington," prepared for the Washington Utilities and Transportation Commission, March 1990.

"Sustainability of Competition in Light of New Technologies," presented at the Twentieth Annual Williamsburg Conference of the Institute of Public Utilities, Williamsburg, VA, December 1988.

"Telecommunications Modernization: Who Pays?," prepared for the National Regulatory Research Institute, September 1988.

"Industry Structure and Competition in Telecommunications Markets: An Empirical Analysis," presented at the Seventh International Conference of the International Telecommunications Society at MIT, July 1988.

"Market Structure and Competition in the Michigan Telecommunications Industry," prepared for the Michigan Divestiture Research Fund Board, April 1988.

"Impact of Interstate Switched Access Charges on Information Service Providers - Analysis of Initial Comments," submitted in FCC CC Docket No. 87-215, October 26, 1987.

"An Economic Analysis of the Impact of Interstate Switched Access Charge Treatment on Information Service Providers," submitted in FCC CC Docket No. 87-215, September 24, 1987.

"Regulation and Technological Change: Assessment of the Nature and Extent of Competition from a Natural Industry Structure Perspective and Implications for Regulatory Policy Options," prepared for the State of New York in collaboration with the City of New York, February 1987.

"BOC Market Power and MFJ Restrictions: A Critical Analysis of the 'Competitive Market' Assumption," submitted to the Department of Justice, July 1986.

"Long-Run Regulation of AT&T: A Key Element of a Competitive Telecommunications Policy," *Telematics*, August 1984.

"Economic and Policy Considerations Supporting Continued Regulation of AT&T," submitted in FCC CC Docket No. 83-1147, June 1984.

"Multi-product Transportation Cost Functions," MIT Working Paper, September 1982.

Testimony in trial or deposition in last four years

2020

Before the **Georgia Public Service Commission**, *In Re: Generic Proceeding to Implement House Bill 244*, Docket No. 43453, Pre-filed Direct Testimony submitted October 23, 2020, Rebuttal Testimony submitted November 9, 2020, Cross-examination, November 19, 2020.

Before the **Public Utilities Commission of the State of California,** in *Southern California Edison 2021 General Rate Case (U 338-E), Docket No. A. 19-08-013 (Filed August 30, 2019),* Pre-filed Direct Testimony submitted May 5, 2020.

2019

Before the **Public Utilities Commission of Ohio,** *In the Matter of the Application of the Filing by Ohio Edison Company, The Cleveland Electric Illuminating Company, and the Toledo Edison Company, of a Grid Modernization Plan, of an Application for Approval of a Distribution Platform Modernization Plan, to Implement Matters Relating to the Tax Cuts and Jobs Act of 2017, and for Approval of a Tariff Change,* Case Nos. 16-481-EL-UNC, Case No. 17-2436-EL-UNC, Case No.18-1604-EL-UNC, and Case No. 18-1656-EL-ATA, adopted and accepted into evidence, February 6, 2019.

2018

Before the **Public Utilities Commission of the State of California,** in *California Cable & Telecommunications Association, Complainant v. San Diego Gas & Electric Company (U902E) Defendant, Case No. C.17-11-002 (Filed November 6, 2017),* Pre-filed Direct Testimony submitted November 21, 2018, Rebuttal submitted December 28, 2018, Cross-examination January 8, 2019.

Before the **Public Utilities Commission of Ohio,** *In the Matter of the Application of the Commission's Investigation of the Financial Impact of the Tax Cuts and Jobs Act of 2017 on Regulated Ohio Utility Companies,* Case No. 18-47-AU-COI, filed June 29, 2018.

Before the **Louisiana Public Service Commission**, in *Re: Complaint and Petition for Declaratory Ruling on Proper Formula for the Pole Attachment Rental Rate Under Louisiana Public Service Commission Order Dated September 4, 2014*, Docket No. U-34688, Affidavit submitted March 27, 2018.

Before the **Connecticut Department of Public Utility Control,** in *Re: In the Matter of the Application of The Connecticut Light and Power Company d/b/a Eversource Energy, to Amend its Rate Schedule*, Dkt. No. 17-10-46, Direct Prefiled January 26, 2018.

2017

Before the **North Carolina Public Utility Commission,** in *Blue Ridge Electric Membership Corporation, Complainant v. Charter Communications Properties LLC, Respondent,* Docket No. EC-23, SUB 50, Responsive Pre-filed October 30, 2017; Cross-examination November 8, 2017, December 18, 2017.

Before the **Kentucky Public Service Commission**, *In the Matter of: Electronic Application of Kentucky Power Company for (1) A General Adjustment of its Rates for Electric Service: (2) An Order Approving its 2017 Environmental Compliance Plan; (3) An Order Approving its Tariffs and Riders; (4) An Order Approving Accounting Practices to Establish Regulatory Assets and Liabilities, and (5) An Order Granting All Other Required Approvals and Relief*, Case No. 2017-00179, Direct Testimony submitted on behalf of The Kentucky Cable Telecommunications Association, October 3, 2017.

Before the **North Carolina Public Utility Commission,** in *Re: In the Matter of Time Warner Cable Southeast LLC, Complainant v. Carteret-Craven Electric Membership Corporation, Respondent,* Docket No. EC-55, SUB 70, Direct Pre-filed May 30, 2017; Rebuttal Pre-filed June 15, 2017; Cross-examination June 20, 2017.

Appendix A

Before the **North Carolina Public Utility Commission,** in *Re: In the Matter of Time Warner Cable Southeast LLC, Complainant v. Jones-Onslow Electric Membership Corporation, Respondent,* Docket No. EC-43, SUB 88, Direct Pre-filed May 30, 2017; Rebuttal Pre-filed June 15, 2017; Cross-examination June 20, 2017.

Before the **North Carolina Public Utility Commission,** in *Re: In the Matter of Time Warner Cable Southeast LLC, Complainant v. Surry-Yadkin Electric Membership Corporation, Respondent,* Docket No. EC-49, SUB 55, Direct Pre-filed May 30, 2017; Rebuttal Pre-filed June 15, 2017; Cross-examination June 20, 2017.

Before the **North Carolina Public Utility Commission,** in *Re: In the Matter of Union Electric Membership Corporation, Complainant v. Time Warner Cable Southeast LLC, Respondent,* Docket No. EC-39, SUB 44, Responsive Pre-filed June 15, 2017; Cross-examination June 20, 2017.

Appendix **B**

List of Documents Considered in Preparation of Expert Report

Description

- City Responses to Interrogatory Requests
- City Production of Documents documents bates numbered COR000001 through COR000720, and COR 894
- Depositions of Louis J, Tobias and Kamal Crues
- City Telecommunications Code Chapter 106
- City Telecommunications Fee Schedule
- ExteNet's Complaint in this case
- City Answer to ExteNet Complaint
- Economic and Regulatory Literature – Texts, articles, and decisions as cited in footnotes