Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Unbundled Access to Network Elements	)	WC Docket No. 04-313
	)	
Review of the Section 251 Unbundling	)	
Obligations of Incumbent Local Exchange	)	CC Docket No. 01-338
Carriers	)	
	)	

COMMENTS OF T-MOBILE USA, INC.

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COMMENTS OF T-MOBILE USA, INC.

T-Mobile USA, Inc. ("T-Mobile") submits these comments in response to the Order and Notice of Proposed Rulemaking issued by the Federal Communications Commission ("FCC" or "Commission") in the above-captioned proceedings.[1]

I. INTRODUCTION AND SUMMARY

T-Mobile is one of the country's fastest growing providers of nationwide wireless service, offering a variety of services, including voice, text messaging and high-speed wireless data services. With over fifteen million subscribers, T-Mobile is one of the largest independent wireless carriers, unaffiliated with any incumbent local exchange carrier ("LEC").

Although wireless service historically has complemented wireline telephone service, T-Mobile is now poised to become an important alternative to wireline residential service. In fact, one of T-Mobile's key corporate objectives is to compete aggressively against LECs for residential local exchange customers. Because of its potential as a viable alternative to

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[1] *Unbundled Access to Network Elements*, Order and Notice of Proposed Rulemaking, 19 FCC Rcd 16783 (2004) (FCC 04-179) ("*2004 UNE NPRM*").

incumbent LECs, T-Mobile can play a leading role in fostering the development of facilities-based, intermodal competition – a cornerstone of the new competitive paradigm envisaged by the Commission.[2] Indeed, the FCC has observed that CMRS providers like T-Mobile are exactly the types of carriers that were meant to benefit from access to cost-based unbundled network elements ("UNEs").[3] CMRS providers, however, have been denied access to the bottleneck facilities they need on an unbundled basis, even though CMRS service is poised to offer residential consumers a competitive alternative to the incumbent LECs' local services.

Despite investing heavily in the deployment of their wireless infrastructure, CMRS providers still must rely on incumbent LEC facilities to provide the connections that link their base stations to their mobile switching centers, particularly the facilities connecting their base stations to incumbent LEC central offices. Currently, incumbent LECs provide over 95% of those wireline circuits to T-Mobile.[4]

As the attached diagrams show,[5] T-Mobile depends on the incumbent LECs for three high-capacity links to interconnect T-Mobile's facilities and create an integrated wireless

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2 *See, e.g., Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, 18 FCC Rcd 16978, *as modified by* Errata, 18 FCC Rcd 19020, ¶¶ 1, 5-6, 140 (2003) ("*UNE Triennial Review Order*" or "*UNE TRO*"), *quoting Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 15 FCC Rcd 3696, ¶ 2 (1999) ("*UNE Remand Order*"); *see also Digital Broadband Migration*, Press Conference, Michael K. Powell (Oct. 23, 2001), *available at*: <http://www.fcc.gov/commissioners/powell/mkp_speeches_2001.html>.

3 *UNE TRO* ¶ 70 & n.233 (discussing the benefits of facilities-based competition and expressing a preference for facilities-based competitors); *see also id.* ¶ 140 (finding that CMRS providers qualify for access to UNEs); *id.* ¶ 198 (singling CMRS and cable out as the two most notable "intermodal platforms.")

4 *See* Declaration of Tim R. Wong, ¶ 5 ("Wong Declaration"), appended as Attachment A.

5 *See* Attachment B, Network Diagrams.

network. The first component is the "last mile" link between the base station or cell site[6] and the incumbent LEC central office serving that location. T-Mobile typically purchases these links as DS1 "channel terminations" under the terms and conditions of incumbent LEC special access tariffs filed with the FCC. The second component is the interoffice transport connecting incumbent LEC central offices. T-Mobile typically purchases these lines from the incumbent LECs as DS1 or DS3 special access "channel mileage" services. Under the *UNE TRO*, T-Mobile was entitled to obtain these links as unbundled transport.[7] The third component is the link between T-Mobile's mobile switching center ("MSC") and the incumbent LEC wire center serving the MSC (*i.e.*, entrance facilities).

As explained below, each of these links that connect CMRS providers' base stations to their MSCs is a network element. The Commission therefore must conduct separate impairment analyses for each of the links, focusing on the actual deployment of competitive facilities, to determine whether the Communications Act of 1934, as amended (the "Act"), and the FCC's implementing rules require incumbent LECs to provide competitors unbundled access to those elements at cost-based rates.

As demonstrated in the discussion below, and in the attached declaration:

- Base Station-to-Central Office Links: Because virtually no competitive alternatives are available for the base station-to-central office link in any geographic market, the FCC should make a nationwide finding that requesting carriers are impaired without access to this link on an unbundled basis.
- Interoffice Transport Links: Competitors have deployed interoffice facilities interconnecting incumbent LEC central offices on some routes, but most routes remain non-competitive. The FCC should therefore conduct a route-by-route impairment

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[6] For purposes of these comments, T-Mobile will refer to base stations and cell sites collectively as base stations.

[7] *UNE TRO* ¶¶ 386, 390. The Commission provided for state review of the routes on which unbundled transport must be made available. *See id.* ¶¶ 398-418.

analysis and find that carriers are impaired on any route on which there are insufficient competitive alternatives to the incumbent LECs.

- Serving Wire Center-to-MSC Links: T-Mobile has deployed its network in a manner that allows it to use very high capacity entrance facilities (usually SONET facilities of OC-12 or higher capacity) for which competitive alternatives are often available. The Commission, however, must nonetheless conduct an impairment analysis to determine whether carriers that require lower capacity circuits for these links would be impaired without access to those elements on an unbundled basis.

The FCC also should ensure that any architectural requirements that limit access to unbundled network element loop and transport combinations ("enhanced extended links" or "EELs") are compatible with CMRS network configurations. Further, the Commission should remove any other obstacles – such as commingling prohibitions – that may impede CMRS providers' ability to use those unbundled network elements to provide telecommunications services. The concerns that led the FCC to adopt these restrictions do not apply to CMRS providers.

II. BACKGROUND

T-Mobile is the largest independent wireless company that has a principal focus on serving residential customers, and therefore is uniquely situated to attack the wireline local exchange market. Chairman Powell has described a future in which there are three platforms serving the home – incumbent wireline, cable telephony, and wireless.[8] If the Chairman's vision for a wireless platform is to be realized, it will be accomplished by an independent wireless carrier, not one affiliated with an incumbent LEC concerned with cannibalizing its fixed-line revenue stream. In addition, T-Mobile has focused on serving the mass consumer market, typically offering the largest buckets of minutes at the most popular price points, with

[8] *Digital Broadband Migration*, Press Conference, Michael K. Powell (Oct. 23, 2001), *available at*: <http://www.fcc.gov/commissioners/powell/mkp_speeches_2001.html>.

attractively-priced family calling plans and data packages, innovative handsets and exclusive reliance on one-year (rather than two-year) service contracts. Today, T-Mobile's subscribers average 850 minutes per month, while the industry average is just over 550 minutes per month.[9] T-Mobile's subscriber base skews young, and those subscribers are precisely the ones that are most likely to "cut the cord" and substitute wireless for wireline phone service. Thus, in a variety of respects, T-Mobile is uniquely situated, having both the incentive and the right package of services and customer base to attack the wireline market.

T-Mobile's long-term goal is to do precisely that – attack wireline, and offer a service that becomes the subscriber's only phone service. T-Mobile would like that to be a near-term goal as well, but that requires substantial investment in the additional spectrum, cell sites, and backhaul facilities needed to improve the quality of T-Mobile's service to make it comparable to existing wireline service. Although T-Mobile's subscribers have high average usage for CMRS subscribers, 850 minutes per month is still substantially lower than average wireline usage.[10] In order to serve customers that no longer use wireline phones at home, T-Mobile's network would have to be augmented to carry the additional traffic. That capacity expansion generally involves splitting cell sites and building additional cell sites, as well as leasing transmission facilities to connect those new cell sites to an incumbent LEC central office. A business plan to induce additional wireless customers to "cut the cord," will only result in increased reliance on

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[9] *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 04-111, Ninth Report, Appendix A at A-12, Table 11 (rel. Sept. 28, 2004) (FCC 04-216) ("Ninth Report").

[10] One measure of wireline usage is dial equipment minutes ("DEMs"). In 2001, the last year for which DEMs statistics are available, usage averaged 71 DEMs per local loop per day. *See* Trends in Telephone Service at 10-4, Table 10.2 (Aug. 2003), *available at*: <http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/trend803.pdf>. This translates into 2160 minutes of use per wireline loop per month ((71x365)/12).

incumbent LEC facilities to connect T-Mobile's base stations to its MSCs. The availability of these incumbent LEC facilities as unbundled network elements is essential to allowing T-Mobile, as well as other CMRS carriers, to realize their full potential as alternatives to incumbent LECs' local wireline services.

III. DISCUSSION

A. The FCC Should Conduct a Separate Impairment Analysis for Each Network Element Used to Connect CMRS Providers' Base Stations to Their MSCs

In the *UNE TRO,* the FCC revised its impairment standard to address issues raised by the *USTA I* court.[11] Specifically, the Commission found that a carrier is impaired when "lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers, that are likely to make entry into a market uneconomic."[12] The *USTA II* court did not reverse or modify this standard, but questioned the FCC's application of the standard in particular circumstances.[13] As a result, the Commission must now apply its impairment standard to individual network elements in a manner that responds to the specific concerns raised by the *USTA II* court.

In applying its impairment standard to the three links identified above – base station-to-central office, central office-to-central office, and serving wire center-to-mobile switching center – the FCC should recognize that each link constitutes a network element and accordingly,

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11 *See UNE TRO* ¶¶ 68, 85-91, 106, 108, 112-170; *United States Telecom Ass'n v. FCC*, 290 F.3d 415 (D.C. Cir. 2002) ("*USTA I*").

12 *UNE TRO* ¶ 84.

13 *United States Telecom Ass'n v. FCC*, 359 F.3d 554, 572 (D.C. Cir. 2004) ("*USTA II*") (declining to overturn the FCC's impairment standard and stating that "this is not the occasion for any review of the Commission's impairment standard as a general matter; it finds concrete meaning only in its application").

conduct a separate impairment analysis for each link. Because the availability of competitive alternatives is quite different for each of the three links, that analysis should focus on the actual deployment of competitive alternatives to that link in the relevant geographic market.

B. CMRS Providers Are Impaired on a Nationwide Basis Without Unbundled Access to the Network Element that Connects a CMRS Provider's Base Station to an Incumbent LEC's Central Office

1. Classification of the base station-to-central office link

The circuit that carries CMRS traffic between a base station and an incumbent LEC central office clearly is "a facility . . . used in the provision of a telecommunications service" and, thus, meets the statutory definition of a network element.[14] Pursuant to section 251 of the Act,[15] the Commission therefore must conduct an "impairment" analysis for this link and require incumbent LECs to provide unbundled access to the link at cost-based rates in any relevant market in which CMRS providers would be impaired without access to the link as a UNE.

In the *UNE TRO*, the Commission did not perform an impairment analysis of this network element, because it concluded that connections from incumbent LEC central offices to CMRS base stations were "inter-network facilities for which no unbundling is required."[16] The *USTA II* court, however, flatly rejected the FCC's reasoning regarding entrance facilities on the grounds that it had "little or no footing in the statutory definition."[17]

On remand, the Commission must conduct an impairment analysis of the base station-to-central office element and must do so separately from its assessment of entrance facilities. The

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14 47 U.S.C. § 153(29); 47 C.F.R. § 51.5.

15 47 U.S.C. § 251.

16 *UNE TRO* ¶ 646 n.1956; *id.* ¶ 368; *see also id.* ¶ 366 (finding that the dedicated transport network element "includes only those transmission facilities *within* an incumbent LEC's transport network").

17 *USTA II*, 359 F.3d at 586.

differences between base station-to-central office links and traditional entrance facilities are substantial and bear directly on the ability of a requesting carrier to obtain access to competitive alternatives.[18] As noted above, for example, the entrance facilities that link T-Mobile's MSC to an incumbent LEC's network almost always consist of very high capacity (typically OCn) SONET rings that carry traffic from several central offices. A base station-to-central office link, by contrast, almost always consists of a relatively low capacity DS1 or T1 connection between a single site and an incumbent LEC central office.[19] Base station-to-central office links therefore do not provide the same opportunities for aggregating traffic and achieving scale economies as entrance facilities and, hence, are far less likely to be deployed by competitors.[20] Moreover, because T-Mobile targets mass market customers, a large number of its base stations tend to be in two sets of locations: (1) where people live (suburban and rural areas); and (2) where people travel (along roads and highways). Competitive carriers are far less likely to serve these suburban and rural locations than they are to build fiber rings in core urban areas.

Because the base station-to-central office link is plainly a network element under the statute and the Commission's rules and does not neatly fit within the FCC's existing definitions of network elements, the Commission could simply establish it as a new network element, one

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18 *See* Declaration of Michael A. Williams, appended as Attachment C, at ¶ 14 ("Williams Declaration") (explaining that the FCC's attempt to equate the links that connect base stations to central offices with traditional entrance facilities is "inapt").

19 *See* Attachment B.

20 *See, e.g., UNE TRO* ¶ 207 ("Unlike transport facilities, loops generally do not aggregate multiple customers' traffic."); *id.* at ¶ 330; *see also id.* ¶¶ 361 and 370-371 (noting that carriers generally use interoffice transport as a means to aggregate traffic and achieve economies of scale.)

not part of the typical wireline network.[21] If, however, the Commission wished to classify these transmission links within one of its existing elements, the wireline element that it most closely resembles is the loop.[22] As T-Mobile has explained, the base station serves a function similar to that of a traditional PBX, terminating traffic received from the incumbent LEC's wireline network and assigning each call to the proper wireless channel.[23] In addition, T-Mobile currently purchases the base station-to-central office connection from incumbent LECs as a special access channel termination service – the same service that wireline carriers purchase in lieu of UNE loops.[24] Under this approach, the FCC could revise the second sentence of 47 C.F.R. § 51.319(a) to read as follows: "The local loop network element is defined as a transmission facility between a distribution frame (or its equivalent) in an incumbent LEC central office and **(1)** the loop demarcation point at an end-user customer premise **or (2) a CMRS carrier's base station or cell site."** (new language indicated in bold)

As a third alternative, the FCC may opt to classify the base station-to-central office link as a subloop. In certain respects, the base station-to-central office link resembles the feeder

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21 *See, e.g.,* letter from Jay Bennett, SBC, to Magalie Roman Salas, FCC, CC Docket No. 96-98 (July 10, 2001) (discussing "the fundamental differences between mobile and landline services"); Petition for Reconsideration of T-Mobile USA, Inc., CC Docket No. 01-338, at 9-10 (Oct. 2, 2003).

22 *See, e.g.,* Williams Declaration ¶ 10 (noting that the transmission link between a cell site and an incumbent LEC central offices has the economic characteristics of a loop).

23 *See* Comments of VoiceStream Wireless Corporation, CC Docket No. 01-338, at 11 n.33 (Apr. 5, 2002) (describing the functionality of a base station) ("T-Mobile Comments"); *see also* AT&T Wireless Services, Inc., Petition for Clarification or Reconsideration, CC Docket No. 01-338, at 6-11 (Oct. 2, 2003) (arguing that the "cell site link" "is in many ways analogous to, a wireline local loop"); *accord* Petition for Reconsideration or Clarification of the Cellular Telecommunications & Internet Association, CC Docket No. 01-338, at 4-6 (Oct. 2, 2003); Nextel Communications, Inc. Petition for Reconsideration or Clarification, CC Docket No. 01-338, at 8-10 (Oct. 2, 2003).

24 T-Mobile Comments at 9; *UNE TRO* ¶ 593 & n.1825 (drawing an analogy between a special access channel termination and a UNE loop).

portion of an end-to-end wireline loop, with the wireless link between the base station and the end user resembling the distribution portion of a traditional wireline loop.[25] The broadband considerations that influenced the FCC's decision not to require incumbent LECs to provide unbundled access to subloops in the *UNE TRO* do not apply here, as CMRS providers use these links primarily to provide narrowband voice services.[26] The FCC, therefore, could accommodate the base station-to-central office link by reinstating the definition of a subloop that was eliminated as part of the *UNE TRO*. Specifically, the FCC could re-adopt the definition it developed in the *UNE Remand* proceeding, and define the subloop as "any portion of the loop that is technically feasible to access at terminals in the incumbent LEC's outside plant."[27] Any concerns about the impact of subloop unbundling on broadband deployment could be addressed by a rule that either (1) stipulates that unbundled subloops may be used only for purposes of providing CMRS service, or (2) imposes service eligibility requirements designed to ensure that such subloops are used for predominantly narrowband traffic.

The FCC could also adopt a new definition of "dedicated transport" and make it clear that base station-to-central office links are included within the definition. No matter what definition the FCC uses, however, it is imperative that it recognize that the base station-to-central office link is a network element subject to the unbundling obligations of section 251(c)(3) of the Act.

2. Impairment analysis for the base station-to-central office link

Regardless of the precise classification assigned to the base station-to-central office link, section 251 requires incumbent LECs to provide CMRS carriers with unbundled access to those

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25 *See UNE TRO* ¶ 216.

26 *See* Reply of T-Mobile USA, Inc., CC Docket No. 01-338, at 4-5 (Nov. 17, 2003); *UNE TRO* ¶¶ 285-297 (discussing hybrid loops).

27 *See UNE Remand Order* ¶ 206 (defining subloops).

links at cost-based rates in any geographic market in which CMRS providers would be impaired without such access. In the overwhelming majority of cases, CMRS providers have no alternatives to the incumbent LECs for the DS1 circuits connecting their base stations to incumbent LEC central offices.[28]

Indeed, these links are subject to barriers to entry that make it uneconomic for CMRS providers to self-provision these links or obtain them from third-parties in competition with the incumbent LECs.[29] For example, DS1 links, including base station-to-central office links are characterized by high fixed costs that also are sunk.[30] The incumbent LECs also enjoy a first mover advantage in providing these facilities,[31] as well as absolute cost advantages.[32] In

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[28] *See UNE TRO* ¶ 325 (DS1 loops); ¶ 391 (DS1 transport). As a practical matter, T-Mobile would be unlikely to use a competitive carrier for the base station-to-central office link unless that carrier could also provide interoffice transport from the incumbent LEC's central office to T-Mobile's MSC or the fiber ring serving that MSC. *See* Wong Declaration ¶ 7.

[29] *See UNE TRO* ¶¶ 84, 87-90 (discussing the types of barriers to entry that are relevant to the FCC's impairment analysis); *see also UNE TRO* ¶ 325 (discussing factors that make it "economically infeasible for competitive LECs to deploy DS1 loops").

[30] *See* Williams Declaration ¶ 10; *see also UNE TRO* ¶ 88; *id.* ¶ 303 & n.884 (noting the high fixed and sunk costs of deploying loops and explaining that loop construction costs do not vary by the capacity of the loop); *id.* ¶ 325 (explaining that the record shows that requesting carriers face "extremely high economic and operational barriers in deploying DS1 loops"); *id.* ¶ 312 (explaining that loops generally involve "substantial fixed and sunk costs"). The FCC has previously concluded that it is not efficient for competitive carriers to duplicate these types of facilities where they are already available from the ILEC. *See, e.g., UNE TRO* ¶¶ 205, 236, 313; *see also* Letter from Robert H. Bork to Chairman Powell, attached to Letter from C. Frederick Beckner, III, to Marlene H. Dortch, CC Docket No. 01-338, at 2 (Jan. 10, 2003) (explaining that it can be wasteful to have two carriers duplicate facilities where the entire demand can be met by a single set of facilities), citing Alfred Kahn, II The Economics of Regulation 121-22 (1970) ("Bork Letter").

[31] *See UNE TRO* ¶ 89; *see also id.* ¶¶ 303-306, 312 (describing barriers to deployment of alternative loop facilities, such as the inability to obtain timely access to the customer's premises and difficulties in obtaining permission to use rights-of-way, that incumbent LECs do not face as a result of their first mover advantage); Williams Declaration ¶ 11.

[32] *See, e.g.,* Williams Declaration ¶ 11.

addition, only the incumbent LECs have ubiquitous networks that lower the incremental costs of deploying additional facilities and the large base of embedded customers needed to make deployment of base station-to-central office connections and other last mile DS1 circuits economic.[33]

Often, only a small portion of the circuits that carry traffic to and from CMRS providers' base stations are dedicated solely to carrying the CMRS provider's traffic. In many cases, the incumbent LECs use the feeder portion of the circuits to carry the traffic of other customers.[34] Only incumbent LECs have the large customer base needed to aggregate traffic on all or part of these feeder facilities and achieve the economies of scale necessary to make the deployment economically viable. The incumbent LECs' ubiquitous networks and large embedded base of customers also allow them to add capacity to existing circuits, or add new circuits, incrementally, at costs lower than those competitors would have to incur to provide the same service.[35]

The economic advantages that the incumbent LECs enjoy are not the product of their "superior skill, foresight and industry,"[36] but the result of government-sanctioned monopolies that allowed the incumbent LECs to obtain the necessary rights-of-way and virtually guaranteed

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33 *See UNE TRO* ¶ 237 (noting that new entrants "do not enjoy a large guaranteed subscriber base that would provide a predictable source of funding to offset their local loop deployment costs."); *see also id.* ¶ 87 (discussing scale economies); Williams Declaration ¶ 11.

34 *See, e.g., UNE TRO* ¶ 205 n.646 (noting that the feeder portion of a loop may serve multiple customers), *id.* ¶ 216.

35 Williams Declaration ¶ 11 (noting that incumbent LECs can take advantage of their existing networks to provide base station-to-central office links at lower costs than a competitive provider would incur to self-provision the link); Bork Letter at 4 (discussing the advantages incumbent LECs enjoy due to their large base of existing customers and their ubiquitous networks capable of meeting both existing and future demand).

36 *See United States v. Aluminum Co. of America*, 148 F.2d 416, 430 (2d Cir. 1945).

them a profit on any facilities they deployed.[37] The FCC should fulfill the goals of the Act by requiring incumbent LECs to share with other providers the benefits of scale, scope and ubiquity they presently enjoy as the result of this history.[38] Accordingly, the FCC should make a nationwide finding that CMRS providers will be impaired if they are denied access to DS1 links between CMRS base stations and incumbent LEC central offices.[39] Such a finding, and the accompanying decision to require incumbent LECs to provide CMRS providers with unbundled access to the base station-to-central office link, would be an important step toward implementing Congress's plan for introducing competition for local exchange and exchange access services.[40]

Ensuring that CMRS providers have unbundled access to critically important last-mile facilities also would be consistent with the FCC's commitment to the promotion of intermodal competition. In the *UNE TRO,* the FCC reaffirmed the importance of intermodal competition and sought to promote competition between wireline providers and providers of services on other platforms, such as wireless and cable.[41] As the FCC observed, CMRS providers offer services that are used to compete against "telecommunications services that have been traditionally within

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37 *See UNE Remand Order* ¶ 86.

38 *Id.*

39 To the extent that FCC believes the results of the impairment analysis are likely to change before the next time the FCC revisits the UNE rules, the FCC can specify the showing that an incumbent LEC must make if it wishes to attempt to show lack of impairment for a specific base station-to-central office route. *See, e.g., UNE TRO* ¶¶ 332, 337.

40 In accordance with the directive of the *USTA II* court, T-Mobile explains below and in the attached Williams Declaration why the availability of special access service has no material effect on this impairment finding.

41 *UNE TRO* ¶¶ 5-6, 97 (explaining the role that intermodal alternatives – including wireless technologies – play in the FCC's impairment analysis); *see also* 47 C.F.R. § 51.5 (defining "qualifying service" and "intermodal").

the exclusive or primary domain of incumbent LECs."[42] If CMRS providers are to realize their potential as intermodal competitors to the incumbent LECs, they must have unbundled access to base station-to-central office links at cost-based rates.

Requiring incumbent LECs to provide base station-to-central office links as UNEs also would promote the FCC's well-established policy of technological neutrality.[43] Conversely, denying CMRS providers access to these links as UNEs, while providing wireline carriers access to UNE loops and transport, would violate the principal of technological neutrality by favoring one mode of entry (wireline) over another (wireless). There is nothing in the Act, either in its express terms governing UNEs and interconnection, or its underlying pro-competitive policies, that would support this type of different treatment of two competing platforms.

C. The FCC Should Require Incumbent LECs To Provide CMRS Carriers Unbundled Access to DS1 and DS3 Transport On Any Route On Which The FCC Determines Insufficient Competitive Alternatives Exist

The Commission consistently has classified transmission facilities between incumbent LEC central offices or interoffice transport as network elements.[44] In the *UNE TRO*, the Commission properly recognized that because the relevant geographic market for interoffice

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42 *UNE TRO* ¶ 140 (finding that CMRS providers qualify for access to UNEs); *see also* T-Mobile Comments at 5 (quoting Chairman Powell's Oct. 23, 2001 statement that CMRS carriers present the "best hope" for bringing local exchange competition to residential consumers).

43 *See, e.g., UNE TRO* ¶ 97 ("the Act expresses no preference for the technology that carriers should use to compete with the incumbent LECs"); *see also id.* ¶ 369 (finding that a "technology-neutral approach best comports with the statute [and] suits the development of intermodal competition"); *id.* ¶ 368 (permitting "all telecommunications carriers, including CMRS carriers" to access transport facilities within the ILEC's network and to interconnect for the transmission and routing of telephone exchange service and exchange access); *UNE Remand Order* ¶¶ 233-234 (modifying the definition of a NID to be more technology neutral).

44 *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, First Report and Order, 11 FCC Rcd 15499, ¶¶ 439-440, (1996); *UNE Remand Order* ¶¶ 322-323, 332; *UNE TRO* ¶¶ 359, 365.

transport is a specific point-to-point route, impairment for interoffice transport likewise must be determined on a route-by-route basis.[45] The Commission further concluded that a determination of impairment therefore should be made on the basis of data provided by the incumbent LECs and competitive transport providers. Although the *USTA II* Court vacated the delegation of impairment determinations to state commissions pursuant to federal standards, the Court did not reverse the Commission's conclusion that a route-specific approach was the appropriate standard by which to determine impairment. Therefore, a point-to-point route continues to be the relevant geographic market in which to analyze competitive substitutes for the incumbent LECs' facilities and determine whether impairment exists.[46] A route-by-route analysis may lead the FCC to conclude that the record supports a nationwide finding of impairment regarding access to DS1 and DS3 transport.[47]

Even in markets where there are a number of competitive transport providers, T-Mobile may still be impaired without access to UNE transport if the competitive transport providers are unable to provide the links T-Mobile needs to connect its base stations to the incumbent LECs'

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[45] *See* Williams Declaration ¶¶ 38-40;*UNE TRO* ¶¶ 400-401 (adopting impairment "triggers" that "evaluate transport on a route-specific basis"); *see also See Regulatory Treatment of LEC Provision of Interexchange Services Originating in the LEC's Local Exchange Area*, Second Report and Order in CC Dkt. No. 96-149, 12 FCC Rcd 15756, ¶¶ 64-65 (1997) (determining that the relevant geographic market for interstate, domestic, long distance services is a point-to-point market).

[46] Several states have devoted significant resources to examining impairment for interoffice transport and have developed extensive records regarding which transport routes are subject to competition. *2004 UNE NPRM* ¶ 15; *see also, e.g., On the Commission's Own Motion to Facilitate the Implementation of the Federal Communications Commission's Triennial Review Determinations in Michigan*, Case No U-13796, Notice of Proposal for Decision (MI PSC May 10, 2004). The FCC can and should rely on these records wherever they are available, particularly for routes for which a state commission has already made a determination regarding the existence of alternative providers.

[47] The FCC has followed such an approach in the past. *See, e.g., UNE TRO* ¶¶ 198, 248 (making a national impairment determination for copper loops).

central offices. As noted previously, T-Mobile strongly prefers to have a single carrier provide both the link between the base stations and the incumbent LEC central offices and the interoffice transport link between central offices.[48] Having different carriers provide each link can cause significant operational difficulties. For example, if T-Mobile relied on several different carriers and a transmission problem arose between a T-Mobile mobile switching center and one of its base stations, it would be difficult for T-Mobile to identify in a timely manner the carrier responsible for the problem. Any delay that took place while T-Mobile identified the source of the problem would increase the length of the outage or other customer-affecting problem.[49] These types of operational difficulties may cause T-Mobile and other similarly situated providers to be impaired even on those routes where a competitive alternative exists for the connection between incumbent LEC central offices, unless the competitive transport provider can also provide a link between the central office and the CMRS carrier's base station.[50]

D. The Availability of Special Access Should Have No Material Impact on the FCC's Impairment Findings Concerning CMRS Access to Base Station-to-Central Office Links and Interoffice Transport

The *USTA II* court directed the FCC to consider the availability of tariffed special access services as part of its analysis of whether competing service providers would be impaired if

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48 Wong Declaration ¶ 7.

49 *Id.*

50 *See, e.g., UNE TRO* ¶ 77 (stressing the need to consider "[o]perational barriers, which may not directly affect the long-term potential costs and revenues of the firm but could significantly delay or reduce the quality of the services an entrant is attempting to offer"); *id.* ¶ 84 (defining the impairment standard to include both "operational and economic barriers"); *id.* ¶¶ 477-478 (finding that operational factors, such as lack of collocation space and poor incumbent LEC provisioning of cross-connections between the facilities of two competitive LECs, may give rise to impairment in the absence of unbundled local circuit switching).

denied access to particular unbundled network elements.[51] The court, however, did not hold that the availability of special access precluded a finding of impairment. And, as demonstrated below, factoring the availability of tariffed special access services into the analysis of the base station-to-central office and interoffice transport network elements has no significant impact on the final determination of impairment. Indeed, it is precisely because CMRS providers have had to rely on the use of special access services at inflated prices to provide service that they have been impaired in their ability to compete with incumbent LECs to provide primary line service.

The standard for determining impairment is not whether, in the absence of access to UNEs, a company would be driven out of all business segments in which it operates. Rather, the standard is whether denying a firm access to UNEs poses a barrier that is likely to make it uneconomic for that firm to enter a market in which it seeks to compete.[52] Accordingly, the key questions to consider in determining whether CMRS providers are impaired without access to UNEs are:

- What market are CMRS providers trying to enter? and
- Is entry into that market uneconomic without access to UNEs?

As noted above, T-Mobile's objective is to compete with incumbent LECs to provide primary line telephone service to today's wireline customers. The *USTA II* court seems to have assumed that CMRS and wireline telephony are substitutes for one another and, consequently, compete today in the same market. Specifically, the court observed that CMRS providers likely are not impaired in entering the local exchange market without access to UNE loops and

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51 *USTA II*, 359 F.3d at 577.

52 *UNE TRO* ¶ 84.

transport because they currently are competing – and licenses are selling at a positive value – without unbundled access to those network elements.[53]

The fact that T-Mobile and other independent CMRS providers currently are able to compete with one another for mobile wireless customers without access to UNEs does not mean that they are or would be able to compete effectively against the incumbent LECs in the provision of local exchange and exchange access services to residential customers without access to UNEs.[54] And, encouraging competition with incumbent LECs and reducing their market power in the local exchange and exchange access businesses are what the unbundling requirements of section 251(c)(3) of the Act are all about.

In fact, as the declaration of Dr. Williams shows, CMRS is not an effective substitute for most people for wireline local exchange service today and the two products do not compete in the same market.[55] Although CMRS and wireline service likely compete with one another for certain customer classes (*e.g.*, college students) and certain products (*e.g.,* second or third lines), these customers represent only a small share of the overall market and these services are more accurately characterized as complements, not substitutes. Approximately 60% of households have wireless phones,[56] but only 5-6% of households have substituted CMRS for wireline

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53 *USTA II*, 359 F.3d at 575-76.

54 *See* Williams Declaration ¶ 18 (explaining that competition among CMRS carriers is "completely irrelevant" to the issue of their impairment as competitiors to the wireline incumbents).

55 *Id.*

56 "Research Finds Increase in Wireless Satisfaction," CTIA Daily News (Sept. 10, 2004) (reporting that an estimated 59% of households now have wireless service, according to market researchers J.D. Powers); *UNE TRO* ¶ 230 (citing estimates that 61% of all U.S. households use wireless phones); *see also* Ninth Report ¶ 174 (finding a nationwide penetration rate of 54%).

service.[57] In other words, approximately 90% of households that subscribe to wireless service also continue to subscribe to wireline telephone service. Even with the introduction of local number portability ("LNP"), only a small fraction of households have ported their wireline numbers to wireless phones.[58] These marketplace statistics clearly indicate that most consumers view wireline and wireless services as complements and hence subscribe to both services.[59]

As Dr. Williams notes, and the Commission previously has observed, differences in service quality and functionality are the main reasons that CMRS and wireline services are not viewed by most consumers as close substitutes, especially with respect to primary lines.[60] Despite these differences between the two services, there is evidence that consumers would consider CMRS a viable substitute to wireline local exchange service if CMRS providers were able to lower their retail rates sufficiently.[61]

CMRS providers, however, will not be able to improve service quality or lower prices sufficiently without access to UNEs. As Dr. Williams explains in his declaration, incumbent

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57 Ninth Report ¶ 212 & n.575.

58 As of May 2004, only 229,000 customers had ported their landline numbers to wireless carriers. FCC News Release, "FCC Chairman Powell: Another 70 Million Americans to have Freedom to Switch Wireless Carriers and Keep their Phone Numbers on Monday," 2004 FCC LEXIS 2670 (May 21, 2004).

59 *See, e.g., UNE TRO* ¶ 230 (the record shows that CMRS is "primarily a complementary technology to wireline narrowband service"); *id.* at ¶ 245 (concluding that wireless has not "blossomed into a full substitute for wireline telephony"); Williams Declaration ¶¶ 18, 21.

60 *See* Williams Declaration ¶ 18 (noting that CMRS providers currently cannot match incumbent LECs' reliability or service quality and cannot provide the independently-powered 911 capability that incumbent LECs can offer customers); *see also UNE TRO* ¶ 445 ("the record demonstrates that wireless CMRS connections in general do not yet equal traditional landline facilities in their quality and their ability to handle data traffic"); *id.* ¶ 230 ("wireless CMRS connections in general do not yet equal traditional landline local loops in their quality, their ability to handle data traffic, and their ubiquity" and "the record indicates that CMRS is not yet capable of providing broadband services to the mass market").

61 *See* Williams Declaration ¶22.

LECs charge supra-competitive prices for the special access services that CMRS providers must rely on in the absence of access to UNEs.[62] Charging inflated rates for the transmission links between the cell site and the incumbent LEC's central office and for interoffice transport[63] enables the incumbents to increase CMRS providers' expenses, thereby limiting the funds they have available to invest in their networks to improve service quality and preventing CMRS providers from lowering their prices to levels that would increase the substitutability of wireline and wireless services.[64] Thus, the high prices that CMRS providers must pay for incumbent LEC special access services place wireless providers at a severe disadvantage in attempting to compete with incumbent LECs for telephony customers.[65]

One simple way to demonstrate that prices for special access services are excessive is to compare the incumbent LEC charges with those that are produced by a competitive marketplace. Because competition in the provision of interoffice transport has emerged along certain, especially longer haul, routes, pricing data drawn from those routes provide an instructive point of comparison.

In his declaration, Dr. Williams demonstrates that the DS1 and DS3 special access channel mileage services that T-Mobile depends on for interoffice transport are priced at rates far above competitive levels and that the rates the BOCs charge for these transport services far

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62 *Id.* ¶¶ 25-28, 32, 36; *see also* Economics and Technology, Inc., "Competition in Access Markets: Reality or Illusion" at 35 (Aug. 2004), attached to Letter from Colleen Boothby, Counsel for Ad Hoc Telecommunications Users Committee, WC Docket No. 04-313 (Sept. 30, 2004).

63 *See* Williams Declaration ¶¶23-37 (demonstrating that that the BOCs charge supra-competitive rates for both channel mileage (transport) and channel terminations (loops)).

64 *Id.* ¶¶ 8, 22, 35 (concluding that with access to unbundled network elements, CMRS carriers would be able to compete economically with incumbent LECs; without UNEs they are impaired).

65 *Id.*

exceed their costs of providing such services.[66] Indeed, T-Mobile's analysis suggests that special access transport prices are about 79% higher than UNE transport prices.[67] The supra-competitive rates that the BOCs charge for these services severely impair the ability of T-Mobile and other competitive CMRS providers to make the network investments necessary to improve the quality of their service, or to lower their retail rates, to levels that would allow CMRS providers to compete effectively against the BOCs for existing wireline customers.[68]

In short, the inability of CMRS providers using tariffed special access services to compete with incumbent LECs for wireline customers demonstrates that T-Mobile and other carriers are impaired without access to transport as a UNE, unless competing transport services are available along the route in question. The Commission's impairment analysis, therefore, should focus primarily on the actual deployment of competitive facilities on a route-by-route basis. Where there are insufficient competitive alternatives, incumbent LECs must be required to offer CMRS providers unbundled access to DS1 and DS3 interoffice transport.

With respect to the prices for "last mile" special access connections, the problem is that there are no comparisons that can be made with competitively priced connections because there are virtually no locations where such transmission links are offered on a competitive basis.[69] The only other useful benchmark for assessing special access channel termination prices are the charges for comparable UNE loops. According to information compiled by T-Mobile, the prices incumbent LECs charge for special access DS1 channel termination services are approximately

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66 *See id.* ¶¶ 24-37.

67 *See id.* ¶ 22.

68 *See id.* ¶ 8.

69 *Id.* ¶ 34.

twice the prices, on average, for comparable UNE loop facilities.[70] Although Dr. Williams' analysis shows that UNE prices generally are substantially higher than the prices a competitive market place would produce,[71] TELRIC-based UNE prices more closely reflect the actual economic costs of those facilities than do special access rates.[72]

Savings realized through substantial reductions in the costs of base station-to-central office connections, like savings in transport costs, could translate into lower prices for CMRS services, higher service quality (*e.g.*, additional build-out of CMRS networks to unserved areas, additional cell splitting in high volume areas) or both, making CMRS a much more serious competitor for wireline customers.

E. CMRS Providers Must Be Permitted to Combine UNEs And Commingle UNEs With Tariffed Services

If CMRS providers are to have a full and fair opportunity to compete in the market for local exchange services, the Commission must permit CMRS providers to combine UNEs and to commingle them with tariffed special access services. Assuming the Commission requires incumbent LECs to provide access to base station-to-central office links as loops or subloops, the Commission should revise its service eligibility rules to allow CMRS providers to combine those loops or subloops with UNE transport. Such a change would promote the Commission's goals of fostering intermodal competition and would be consistent with the Commission's policy of technological neutrality.

In the *UNE TRO*, the Commission established eligibility criteria, including architectural safeguards, with respect to combinations of high-capacity (DS1 and DS3) loops and interoffice

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70 *See id.*, Appendix B.

71 *Id.* ¶ 33.

72 *Id.* ¶¶ 26-27, 32.

transport.[73] The Commission developed these rules to address concerns that non-qualifying providers (*e.g.*, exclusively long-distance voice or data service providers) would obtain access to UNEs in order "to obtain favorable rates or to otherwise engage in regulatory arbitrage."[74] As a result, the Commission adopted criteria "to demonstrate that a requesting carrier [had] undertaken substantial regulatory and commercial measures to provide local voice service."[75]

Differences between the physical and technological configurations of CMRS networks and wireline networks make the Commission's service eligibility requirements unworkable for CMRS providers, however. For example, although T-Mobile has a point of interconnection in every LATA in which it provides service, it may not have a "collocation arrangement" – as defined by the eligibility requirements[76] – in every LATA.[77] The Commission should not establish rules that unfairly place one group of competitive local service providers (i.e., CMRS carriers) at a disadvantage relative to other competitive local service providers (e.g., competitive LECs).

T-Mobile and other CMRS providers today plainly offer a local voice service that consumers could use as an alternative to local wireline service. The FCC, therefore, should revise its service eligibility rules to allow CMRS providers to combine high-capacity loops with interoffice transport in order to facilitate CMRS providers' ability to compete against the incumbent LECs for residential local exchange customers.

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73 *UNE TRO* ¶ 591.

74 *Id.*

75 *Id.* ¶ 598.

76 47 C.F.R. § 51.318(c).

77 *See* Wong Declaration ¶ 6.

Specifically, the Commission should modify its service eligibility rules to clarify that CMRS providers that are licensed to offer service in a particular area and that have a point of interconnection in the LATA in which service is being offered meet the Commission's service eligibility requirements. The Commission could accomplish this change by revising Rule 51.318 to include a new subparagraph (e) that reads as follows:

> (e) Notwithstanding paragraph (b) of this section, an incumbent LEC shall provide nondiscriminatory access to (1) an unbundled DS1 loop in combination, or commingled, with a dedicated DS1 transport or dedicated DS3 transport facility or service, or to an unbundled DS3 loop in combination, or commingled, with a dedicated DS3 transport facility or service, or (2) an unbundled dedicated DS1 transport facility in combination, or commingled, with an unbundled DS1 loop or a DS1 channel termination service, or to an unbundled dedicated DS3 transport facility in combination, or commingled, with an unbundled DS1 loop or a DS1 channel termination service, or to an unbundled DS3 loop or a DS3 channel termination service, if the requesting telecommunications carrier certifies that it:
>
> (1) is licensed to offer commercial mobile radio service in the LATA in which the loop or channel termination is located;
>
> (2) has a point of interconnection in the LATA in which service is being offered; and
>
> (3) is offering or plans to offer commercial mobile radio service over the requested facilities.

This change will ensure that the Commission's rules are consistent with its policy objectives and are accomplished in a technologically neutral manner.

In addition, the FCC should also ensure that CMRS providers do not face obstacles, such as incumbent LEC refusals to permit commingling, that would prevent CMRS providers from combining UNE links with special access transport or from combining UNE transport with entrance facilities obtained through special access tariffs. These commingling restrictions effectively deprive CMRS providers of the benefits of UNEs in areas where the Commission has

found impairment exists.[78] In the *UNE TRO*, the Commission modified its rules affirmatively to permit commingling of UNEs with special access services, and "to require incumbent LECs to perform the necessary functions to effectuate such commingling upon request."[79] The *USTA II* court did not disturb the Commission's commingling rule. The FCC should now reaffirm that rule, and announce its intention to enforce it aggressively.

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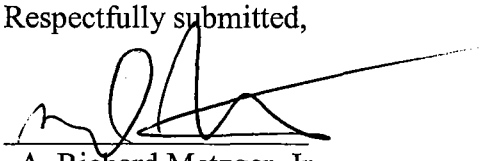
[78] For example, if the FCC finds that T-Mobile or another CMRS provider is impaired without UNE access to the link between the base station and the incumbent LEC's central office in a geographic market in which there is no impairment for interoffice transport, an incumbent LEC restriction on commingling would significantly limit T-Mobile's ability to take advantage of the UNE loop to which it is entitled. Even if T-Mobile were able to find an alternative transport provider to carry traffic from the central office to T-Mobile's entrance facilities, it would still face substantial operational difficulties associated with using different carriers for different parts of its network. *See* Wong Declaration ¶ 7.

[79] *UNE TRO* ¶ 579.

IV. CONCLUSION

For the reasons stated herein, T-Mobile urges the Commission to revise its unbundling rules, service eligibility rules and other local competition rules in accordance with the recommendations set forth above. These revisions would promote the Commission's goal of fostering intermodal competition and would be consistent with its policy of technological neutrality.

Respectfully submitted,



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October 4, 2004

CERTIFICATE OF SERVICE

I, Ruth E. Holder, hereby certify that on this 4th day of October, 2004, I caused true and correct copies of the foregoing Comments of T-Mobile USA, Inc., with attachments, to be delivered by electronic mail to:

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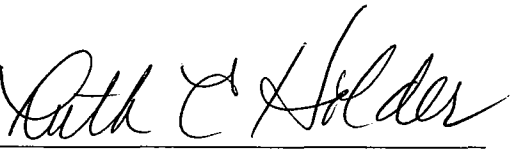


Ruth E. Holder

ATTACHMENT A

Declaration of Tim R. Wong

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers	)	CC Docket No. 01-338
	)	
Implementation of the Local Competition Provisions of the Telecommunications Act of 1996	)	CC Docket No. 96-98
	)	
Deployment of Wireline Services Offering Advanced Telecommunications Capability	)	CC Docket No. 98-147

DECLARATION OF TIM R. WONG

1. My name is Tim R. Wong. I am Executive Vice President of Engineering and Chief Technical Officer to T-Mobile USA, Inc. ("T-Mobile"). I have been employed in the communications industry since 1978, beginning as a Customer Premise Design Engineer for Pacific Northwest Bell. Subsequently, I joined the wireless subsidiary of USWest, where I held a number of technical positions, including RF Engineering Manager, Engineering Director and Executive Director of Engineering and Operations. I received a Bachelor of Science in Electrical Engineering from the University of Washington in 1978.

2. In my current position, I am responsible for overseeing network design, engineering and deployment for T-Mobile and for ordering and provisioning of circuits from third-party carriers.

3. T-Mobile is a Commercial Mobile Radio Service ("CMRS") provider based in Bellevue, Washington, and is the fifth largest nationwide wireless carrier in the United States with over 15 million customers. T-Mobile is a member of the T-Mobile International group, the mobile telecommunications subsidiary of Deutsche Telekom.

4. T-Mobile's network links its cell sites or base stations with its mobile switching centers ("MSCs"). Three interconnected segments provide this connectivity: links between T-Mobile's base stations and the incumbent local exchange carriers' ("LECs") central offices; transport facilities between the incumbent LECs' central offices; and connections between the central offices and T-Mobile's MSCs.

5. T-Mobile principally uses a DS1 level of service to connect its base stations with incumbent LECs' central offices. T-Mobile obtains over 95 percent of these wireline circuits from incumbent LECs. Depending on traffic volumes, T-Mobile then either utilizes DS1s to carry traffic between incumbent LEC central offices or aggregates traffic from several T-Mobile base stations onto one or more DS3 circuits (*i.e.*, interoffice transport). From the serving wire center closest to T-Mobile's MSC, T-Mobile obtains DS3 or OCn services to carry that traffic to the MSC via a SONET configuration (either ring or point-to-point).

6. The service areas for CMRS providers are based on Major Trading Areas ("MTAs"). MTA and LATA boundaries are not coterminous – some MTAs have multiple LATAs within them (*e.g.*, the Washington DC/Baltimore MD MTA contains four LATAs) and some LATAs have multiple MTAs (*e.g.*, LATA 664 in New Mexico has three MTAs). While CMRS providers typically have a single point of presence

within any given LATA, they do not generally collocate equipment at an incumbent LEC's central offices.

7. Because of operational concerns, T-Mobile nearly always uses a single carrier to link a set of base stations with its MSC. In other words, T-Mobile contracts with a carrier (an incumbent LEC or a competitive LEC) to connect the cell sites to the MSC. The decision to use a single carrier (rather than have two carriers providing different portions of the circuit) is driven by maintenance and repair concerns. For example, if T-Mobile were to experience trouble between an MSC and a base station, multiple service providers along that route would complicate troubleshooting. Because no single carrier would have responsibility for the entire connection, pinpointing and correcting a problem would take longer as the providers would need to coordinate testing and maintenance activities between themselves, as well as with T-Mobile.

8. Because the incumbent LEC is often the only service provider with a network capable of reaching T-Mobile's cell sites, T-Mobile purchases the vast majority of DS1s and DS3s described above from incumbent LECs under special access service arrangements. T-Mobile pays hundreds of millions of dollars annually for the use of these circuits, and this sum represents a significant portion of T-Mobile's operating expenses.

9. T-Mobile actively seeks non-incumbent LEC alternatives for its wireline needs. For example, in T-Mobile's Northeast region, T-Mobile actively pursues competitive providers for the connections between its base stations and its mobile switching centers. T-Mobile's Northeast region encompasses New York, Massachusetts,

Connecticut, Rhode Island, New Hampshire, Maine, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, and parts of Vermont and West Virginia. T-Mobile selects competitive providers when it is economically and operationally feasible to do so (*i.e.*, a competitive carrier is able to provide connectivity from T-Mobile's base station to its mobile switching centers). Even given T-Mobile's express preference for non-incumbent LEC providers, the vast majority of its wireline facilities in the Northeast region are provided by an incumbent LEC. As stated before, the incumbent is generally the only service provider with a network capable of reaching T-Mobile's cell sites. Consequently, incumbent LECs are most often the only carriers able to provide T-Mobile with end-to-end service between T-Mobile's base stations and its mobile switching centers.

I declare under penalty of perjury that the foregoing is true and correct.

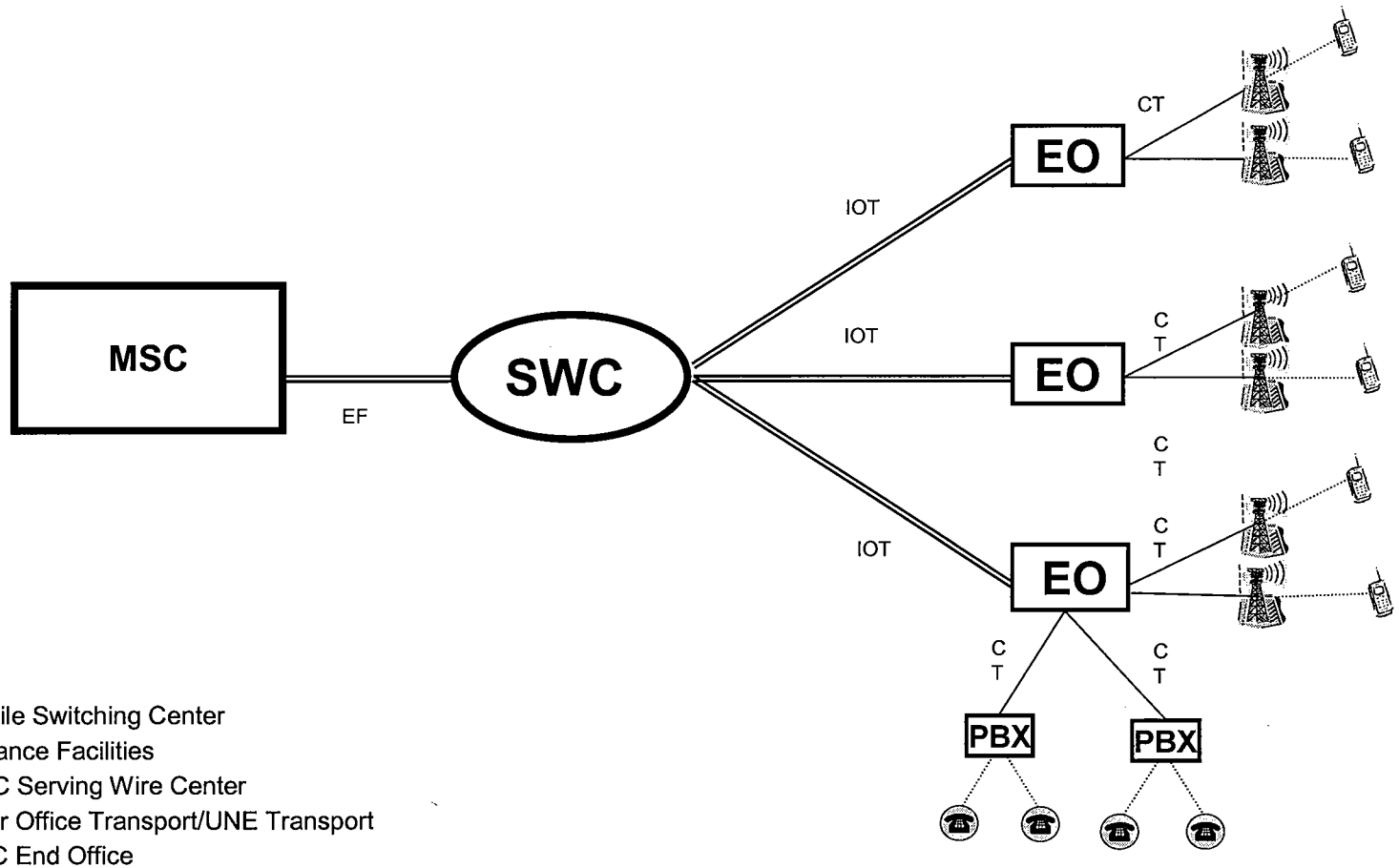
Executed on October 1, 2004.

Tim R. Wong

ATTACHMENT B

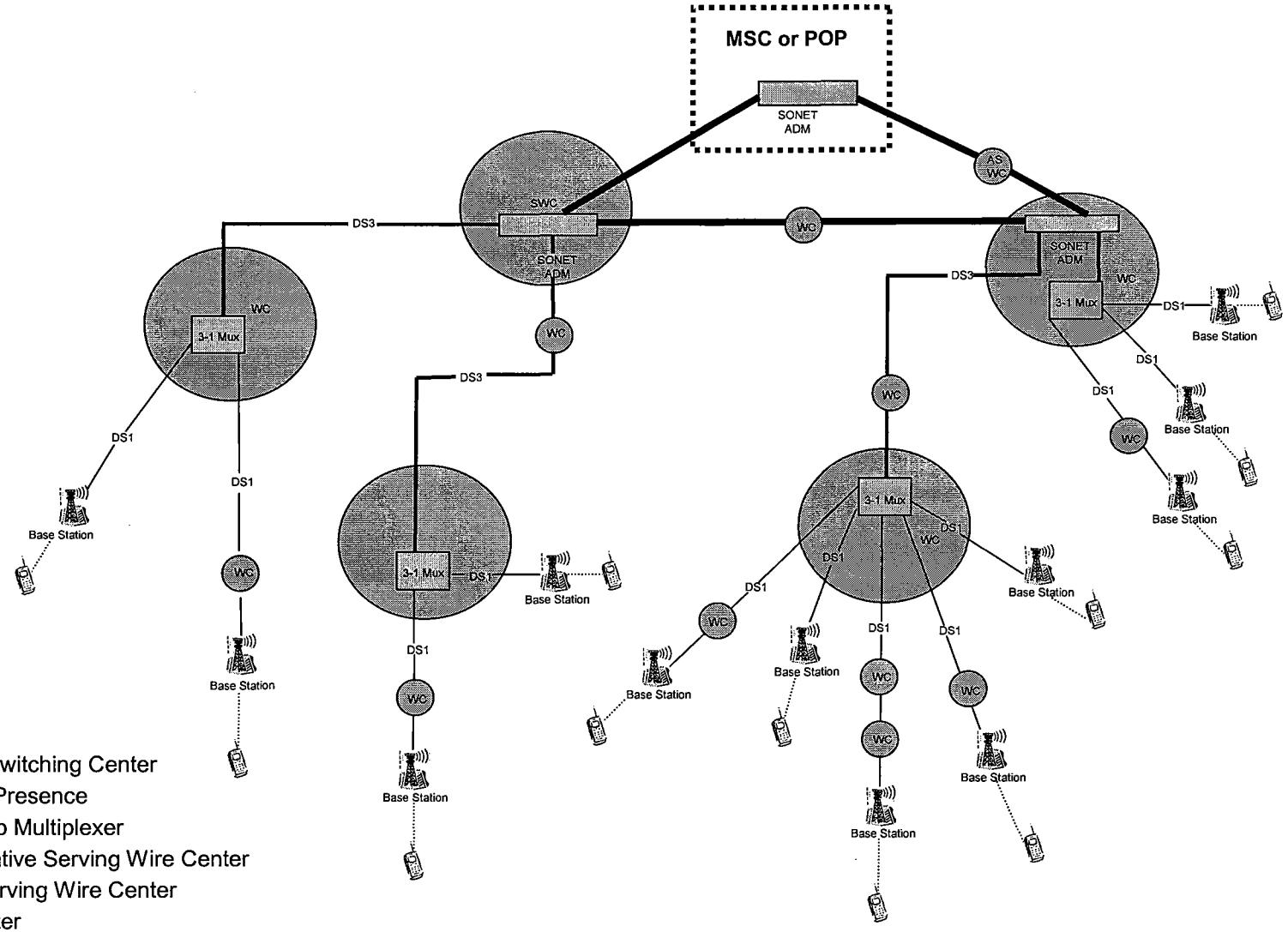
Network Diagrams

Schematic View of CMRS Network



MSC - Mobile Switching Center
EF - Entrance Facilities
SWC - ILEC Serving Wire Center
IOT - Inter Office Transport/UNE Transport
EO - ILEC End Office
CT - Channel Termination/UNE Loop/subloop

CMRS Network Diagram (LATA View)



MSC – Mobile Switching Center
POP – Point of Presence
ADM – Add/Drop Multiplexer
ASWC – Alternative Serving Wire Center
SWC – ILEC Serving Wire Center
WC – Wire Center
3-1 Mux – DS3 –DS1 Multiplexer

ATTACHMENT C

Declaration of Michael A. Williams

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
Unbundled Access to Network Elements	)	WC Docket No. 04-313
Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers	)	CC Docket No. 01-338

DECLARATION OF
MICHAEL A. WILLIAMS

I. Introduction

1. My name is Michael A. Williams. I am a Director of the ERS Group, an economics and financial consulting firm. Prior to joining ERS Group, I was an economist with the U.S. Department of Justice, Antitrust Division and was a Vice President of Analysis Group/Economics. I specialize in analyses involving antitrust, industrial organization and regulation and I have conducted economic research and prepared testimony on a variety of antitrust and regulatory issues in a number of industries, including the telecommunications industry. I have also consulted on matters involving competition in telecommunications markets for spectrum auctions, MFJ waiver requests and issues related to long-distance service and wireless communications. My work includes economic analysis of the competitive effects of the proposed merger of MCI WorldCom and Sprint as well as an economic analysis of the effects of entry by Bell Atlantic into interLATA phone services. I have also drafted reports for use in arbitration proceedings, consulted to the U.S. Department of Justice and the Federal Trade Commission in a number of matters and provided testimony and analysis in numerous state and federal regulatory proceedings. My research has appeared in a number of academic journals, including the *American Economic Review*, *Journal of Economics and Management Strategy*, *Journal of Industrial Economics*, *Behavioral Science*, *Economics Letters*, *Texas Law Review*, *Antitrust Bulletin*, and *Yale Journal on Regulation*. I hold a B.A. in economics from the University of California at Santa Barbara, and M.A. and Ph.D. degrees in economics from the University of Chicago. My curriculum vitae is attached to this declaration as Appendix C.

2. I have been retained by T-Mobile USA, Inc. to evaluate certain economic issues that arise in this docket. In particular, I address the following issues: first, the economic characteristics of the transmission links between T-Mobile's cell sites (or base stations) and the nearest incumbent local exchange carrier (LEC) central office (CO); and second, how the availability of loops and transport as special access services should affect the impairment analysis. Finally, I discuss some of the fundamental errors in both market definition and basic logic that frequently arise in discussions of these issues.

3. For the reasons explained below, I find that base station-to-CO links share the economic characteristics of loops, including paucity of competition, and high sunk costs.

4. The impact of the availability of special access pricing on the impairment analysis depends on the degree of substitutability of CMRS offerings and wireline products, which is an empirical question. If current special access prices paid by CMRS carriers raise their incremental costs to levels that inflate the prices of CMRS products to such a degree that CMRS providers are unable to capture sufficient market share to discipline wireline prices, then, in the absence of unbundled network elements, CMRS providers will not be able to compete successfully with wireline carriers. It is important to note that, because all CMRS carriers face such input prices, the ability of CMRS carriers to compete with each other in the CMRS market has *no bearing on the issue of their ability to compete with the incumbent LECs.* I find that special access prices are at supra-competitive levels and prevent CMRS from being a substitute for local exchange services.

5. In addition, I conclude that, for both loops and transport, each point-to-point link is a separate market. The suggestion that a metropolitan service area (MSA) is the correct definition of the relevant market is clearly wrong, as a matter of fundamental economic analysis. Moreover, the MSA market definition is thoroughly discredited by the available empirical evidence.

6. In the following discussion I distinguish between the three links T-Mobile takes from incumbent LECs to connect its cell sites to its mobile switching centers (MSCs): (1) cell site to nearest CO; (2) CO-Serving Wire Center (SWC) (the SWC is the CO nearest the MSC); and (3) SWC-MSC (entrance facilities). I focus on the economic characteristics of the cell site-to-CO link because the Commission previously determined that link should not be available as a network element, although that determination has been remanded by the *USTA II* court. The Commission also previously determined that the CO-SWC link should be available to CMRS carriers as interoffice transport, although that determination has been called into question by the *USTA II* court's discussion of the relevance of special access. The court's question regarding special access has implications for both loops and transport, and I therefore discuss the relevance of the availability of special access to the impairment analysis for both the cell site-to-CO and interoffice transport links.

II. Economic Characteristics of Cell Site-to-CO Links

7. CMRS deployment requires investment in multiple cell sites. Traffic from those locations must then be carried to either an incumbent LEC's central office or some

other point of interconnection. Virtually all of these links are DS1 capacity circuits.[1] Obviously, the number of cell sites affects the scope of the CMRS coverage and the number of customers that CMRS carriers can serve, as CMRS carriers cannot provide service to customers where there is no coverage. Similarly, the quality of the service offered, measured by, for example, the probability of a dropped or blocked call, the transmission quality of the wireless service, and the capability to offer data products, will be affected by the number of cells in a geographic area. The cost of transmitting traffic between cell sites and base stations and incumbent LEC central offices is obviously one of the determinants of the CMRS provider's decision regarding how many cell sites to deploy. In particular, when facing the decision to invest in provisioning a cell site, the carrier must trade off the incremental gains from increased coverage and higher quality service against the incremental (or marginal) expense of additional sites.

8. Raising the cost of these cell site-to-CO transmission links to CMRS carriers could cause CMRS providers either to reduce the quality of service, or to raise prices and reduce their capacity to serve the market and acquire new customers, or both. Increasing these input prices thus directly lowers the degree of substitutability between wireline and wireless services by reducing CMRS providers' effective capacity to serve customers and limiting their ability to gain new customers in the face of price increases for wireline services. In short, increased prices for these critical transmission links compromise the ability of CMRS carriers to compete with, and therefore discipline the retail prices charged by, wireline incumbent LECs. The ability of competitors to provide price

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[1] *See* Declaration of Tim R. Wong attached to Comments of T-Mobile USA, Inc., ¶ 5 (Oct. 4, 2004) ("Wong Declaration").

discipline in the market and thereby allow a path to deregulation without the threat of price increases is, of course, a primary goal of the 1996 amendments to the Communications Act.

9. Having established the adverse impact of increasing the cost of these transmission links on a CMRS carrier's ability to compete with incumbent LECs, I now examine the economic characteristics of these links.

10. The transmission link between a cell site and an incumbent LEC CO has the economic characteristics of a loop. In particular, it is noteworthy that: (i) there is only one customer location served by the link, the CMRS carrier's cell site; (ii) the link typically carries relatively low volumes of traffic; and (iii) most of the costs incurred to provide the link are sunk costs. Therefore, any firm that enters and loses the sole customer will lose its investment. If multiple firms enter, competition between the incumbent and the new entrants will drive prices down toward the level of incremental costs and the new entrant will not be able to recover its sunk investment even if it wins the customer. Moreover, because most of the costs of this transmission link are sunk, the incumbent LEC can effectively deter entry either through a simple "Most Favored Customer" contractual clause that promises to meet or beat any entrant's offering or by using long term contracts with discounts and penalty clauses.[2] Therefore, the barriers to firms entering particular local markets to offer cell site-to-CO links are significant and it

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[2] *See, e.g.*, Illya Segal and Michael Whinston, "Naked Exclusion: Comment," American Economic Review, Vol. 90 pp. 296-309 (2000); *see also* P. Rey and J. Tirole, "A Primer on Foreclosure" mimeo (2003), forthcoming in Handbook of Industrial Organization III, edited by M. Armstrong and R. Porter for a comprehensive discussion of foreclosure and the incentive to raise inputs prices.

is improbable that an entrant would enter and incur the sunk costs to win one customer. The only realistic possibility for competition is if a competitive LEC has already deployed infrastructure that meets the CMRS carrier's requirements.

11. The key point is that for this loop-like transmission link there is neither the customer base, nor the traffic density, to support multiple firms. Therefore, in an unregulated market we would have the classic case of a natural monopoly. The CMRS carrier has only two alternatives: (i) to self provision; or (ii) to purchase from the incumbent LEC. Of course, when the required link can be provided over existing facilities, the incumbent LEC – having already incurred the sunk cost of building its existing network – is able to provide the link at a lower cost than the CMRS carrier's cost of self-provisioning. In addition, the incumbent LEC has several cost advantages for the provisioning of new infrastructure. In particular, it has the local access and rights of way and can deploy facilities without the legal challenges and local regulatory burdens that can encumber a new entrant. In addition, the incumbent LEC has a base of skilled labor and other expertise in-house that a new entrant does not possess. Moreover, the CMRS carrier, in determining how to spend its capital budget has a choice between building out its network or investing in deploying links duplicative of those of the incumbent LEC. In the language of economics, "the opportunity cost" of spending the capital budget on self-provisioning a link is the cost of the additional cell sites forgone. The competitive pressures to serve the CMRS market have clearly driven the carriers to focus on investing in new cell sites rather than duplicative infrastructure. Thus, CMRS providers face a distinct cost disadvantage relative to the incumbent LECs. Therefore, the most likely unregulated market outcome is that the incumbent LEC will sell to the CMRS carrier at

the "extractive price," that is, the incumbent LEC will charge the CMRS carrier just slightly less than the cost that the CMRS carrier would incur to self-provision the link.

12. For promoting wireless-wireline competition, the outcome is even worse to the degree that wireless and wireline services are actual or potential substitutes. In that case, the incumbent LEC will charge a price for the required links that is higher than the stand-alone monopoly price in an effort to render the CMRS offering less competitive, thereby reducing customer losses to CMRS. This is a relatively simple example of the "raising rivals' costs" strategy, which is described in standard introductory Industrial Organization textbooks.[3] Economic theory thus tells us that we should see a virtual incumbent LEC monopoly in the provision of these cell site-to-CO transmission links and that these links should be priced significantly above competitive levels.

13. The record reveals that this is indeed the case. As Mr. Wong states in his declaration, T-Mobile purchases over 95% of its cell site-to-CO links from incumbent LECs.[4] Moreover, just as economics predicts, T-Mobile has found it uneconomic to undertake any self-provisioning of these elements, even when the incumbent LEC charges an excessive price. Furthermore, T-Mobile's annual expenditures for connections between cell sites and MSCs run into hundreds of million of dollars. These costs have significant effects on product quality and pricing. First, as we identified above, the cost of the links is a key variable in determining how many cell sites to deploy and thus affects the quality of service and the degree of substitutability of CMRS service with wireline services. Secondly, the costs of these loops and transport links enter into

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3 *See, e.g.,* Jean Tirole, The Theory of Industrial Organization (MIT Press 1988).

4 Wong Declaration ¶ 5.

the CMRS carriers' marginal expenses, as the more customers a CMRS carrier serves the greater the number of cell sites it must build and the greater the amount of transport it must lease. Thus, the higher these input costs, the higher the final price of CMRS products to the consumer, and therefore the lower the degree of substitutability between wireless and wireline services.

14. In its discussion of entrance facilities, in the *UNE Triennial Review Order* (*TRO*), the FCC likened the CMRS carriers' placement of base stations to the wireline CLECs choice of locating their facilities. The FCC defended this approach as being "technologically neutral."[5] In particular, the FCC viewed the links that connect cell sites to COs as equivalent to the entrance facilities that connect wireline competitive LEC switches to incumbent LEC COs.[6] That comparison is inapt. As the FCC noted in the *TRO*, a wireline CLEC may have considerable latitude in placing its switch in a location that minimizes the costs of connecting that switch with the incumbent's network.[7] The placement of cell sites, by contrast, is dictated primarily by the need to maximize CMRS service quality in a particular geographic area. For example, if a CMRS carrier in New York desires to provide coverage to customers in the Bronx, it must locate facilities in the Bronx. It cannot serve the Bronx by locating more towers and base stations in Manhattan. Thus, although the costs of obtaining wireline transmission facilities are a

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5 *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, 18 FCC Rcd 16978, *as modified by* Errata, 18 FCC Rcd 19020, ¶¶ 368-369 (2003) ("*Triennial Review Order*" or "*TRO*").

6 *Triennial Review Order* ¶ 368.

7 *Triennial Review Order* ¶ 367.

significant factor in a CMRS carrier's analysis of whether or not to deploy additional base stations, it is likely that they play little or no role in determining where new base stations should be deployed. Rather, it is likely that the locations of new cell sites are driven primarily by coverage constraints.

15. In light of the above analysis and the particular economic characteristics of the cell site-to-CO link, it should rightly be treated as a loop and recognized as a natural monopoly until there is evidence of competitive supply.

III. Economic Analysis of the Role of Special Access in Impairment

16. Thus far we have established that the base station-to-CO links can only be economically provided by the incumbent LEC. Absent regulation, the incumbent LECs will charge a monopoly price. However, in addition to these links, the CMRS carrier must also purchase interoffice transport links. In both cases, these links currently are purchased at "special access" prices. Together, the purchase of these links from the incumbent LEC at the current prices form one of the major components of a CMRS carrier's operational incremental costs.[8] Therefore, they bear directly on a CMRS carrier's ability to lower prices profitably and/or to deploy more cell sites in order to improve the quality and substitutability of CMRS service. I now examine the *USTA II* court's question as to how the availability of incumbent LEC special access service affects the determination of whether a CMRS provider would be "impaired" – as the FCC has defined that term – if it were denied access to these transmission links as UNEs.

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[8] *See* Wong Declaration ¶ 8.

17. In the *USTA II* decision,[9] the court makes reference to the incumbent LECs' argument that because CMRS carriers have been successfully competing in the CMRS market, they are not impaired without access to unbundled network elements, stating:

> Although the ILECs implicitly concede that wireless providers would be impaired if they were denied *any* access to ILEC dedicated interoffice transport facilities, they point out that wireless providers have traditionally purchased such access from ILECs at wholesale rates (a transaction classified, since adoption of the Act, under § 251(c)(4)). And the data above clearly show that wireless carriers' reliance on special access has not posed a barrier that makes entry uneconomic. Indeed, the multi-million dollar sums that the Commission regularly collects in its auctions of such spectrum . . . and that firms pay to buy already-issued licenses . . . seem to indicate that wireless firms currently expect that net revenues will, by a large margin, more than recover all their non-spectrum costs (including return on capital).[10]

18. The flaw in this reasoning is transparent. CMRS and wireline service today provide differentiated products, and are not perfect substitutes for one another. CMRS carriers cannot currently match an incumbent LEC's reliability and quality of service. Nor can CMRS carriers currently provide their customers with the independently-powered 911 capability that wireline service provides. Conversely, an incumbent LEC, by its nature, cannot offer mobility. To date, the evidence demonstrates that the two services are in separate markets.[11] Therefore, the fact that CMRS carriers compete

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9 *United States Telecom Ass'n v. FCC*, 359 F.3d 554 (D.C. Cir. 2004) ("*USTA II*").

10 *Id.* at 575-576 (citations omitted).

11 *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 04-111, Ninth Report, ¶ 212 (rel. Sept. 28, 2004) (FCC 04-216) ("*Ninth Wireless Competition Report*"); Declaration of Professor Richard Gilbert at 14-19 and ¶ 44, Attachment 1 to Public Interest Statement of AT&T Wireless and Cingular Wireless, WT Docket No. 04-70 (Mar. 17, 2004); Mark Rodini, Michael R. Ward and Glenn A. Woroch, "Going Mobile: Substitution between Fixed and Mobile Access," Telecommunications Policy, 27 (2003).

healthily among themselves is logically, *completely irrelevant to the issue of their ability to compete with the wireline incumbents.*[12] The role of unbundling incumbent LEC bottleneck facilities is not to enhance competition among CMRS providers. Rather, Congress directed the FCC to unbundle those elements necessary to develop competition for the *wireline incumbents*.

19. The relevant question is: At what point would CMRS carriers be able to provide sufficient quality/value combinations that they would provide effective economic competition to the wireline incumbent? Ideally, this economic competition would exist to such a degree that it would then allow retail rate deregulation – the abolishment of a slew of regulations and reporting requirements – without leading to higher consumer prices.

20. We are, thus, left with two empirical questions. First, are the so-called "wholesale" prices for special access services, on which, as I have shown, CMRS carriers rely to connect their cell sites with their mobile switching centers, close to competitive prices? If so, then CMRS carriers would effectively not be impaired without access to those links as unbundled network elements; the cost of their inputs would be the very prices that the FCC's pricing methodology applicable to unbundled network elements strives to achieve. Second, if the special access prices actually are higher than competitive prices, do these supra-competitive prices effectively prevent a CMRS carrier

[12] One may as well argue that US Can prospers in the tin can market without UNEs and tin cans can be used for communications (albeit with some string), therefore no unbundling is needed to promote competition with the wireline incumbents.

from competing economically with the incumbent LEC offerings so long as the former must rely on special access as a key input?

21. I will address the second question first. It has been ten years since the first historic PCS auctions ushered in the era of wireless competition. We now have six fierce national competitors, and as a result of ten years of intense competition and sage policies by the FCC, CMRS prices have fallen dramatically. To quote the FCC, "[s]ince 1994, RPM [revenue per minute] has fallen from $0.47 in December 1994 to $0.10 in December 2002, a decline of 79 percent."[13] Yet despite this, only a small percentage of users have substituted wireless product for a wireline as their primary phone.[14] From the perspective of promoting effective competition, such a small degree of consumer substitution in the market would have to count as a massive failure. Thus, although there is some evidence of substitution of wireline second lines by wireless offerings, we have to conclude that the historic level of CMRS prices and the quality of wireless service have not been sufficient to induce sufficient substitution.[15]

22. At some price/value point and/or level of service quality and reliability, CMRS carriers will be able to provide true economic competition with incumbent LEC

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13 *Ninth Wireless Competition Report* ¶ 171.

14 *Id.* ¶ 212.

15 *See* Mark Rodini, Michael R. Ward and Glenn A. Woroch, "Going Mobile: Substitution between Fixed and Mobile Access," 27 Telecommunications Policy 457-476 (2003) (finding evidence for second line substitution); and "Fixed-Mobile 'Intermodal' Competition in Telecommunications: Fact or Fiction?," Phoenix Center Policy Bulletin No. 10 (2004), *available at*: <http://www.phoenix-center.org/ pbulletin.html> (finding that CMRS and wireline products are technically not in the same market). To the extent that there is substitution of minutes of use, the most profound effect has been on traditional wireline interexchange services, with minutes of use migrating from IXCs to CMRS providers, commencing with the introduction of the AT&T "One Rate Plan."

offerings. One major study found that the primary reason survey respondents gave for their decision not to consider substituting a wireless plan for a fixed line was that the "price is too high."[16] As the study's authors state, "[t]he remarkable finding is that price is the number one reason why survey respondents answered 'no' to the willingness-to-pay questions."[17] This suggests that CMRS and incumbent LEC service offerings may be close to being sufficiently substitutable to be found to be competing in the same relevant product market (although, as noted, today they are not in fact sufficiently substitutable). The need to pay special access prices thus raises the costs of a CMRS provider's essential input by 79% – the approximate difference between special access and UNE rates[18] – thereby severely limiting the degree of substitutability. As indicated above, this increase in input prices will lower the quality of CMRS carriers' product (as they deploy fewer cell sites), and raise CMRS prices. In short, if special access prices are supra-competitive, then access to unbundled network elements is required in order for the CMRS carriers to compete economically with the incumbent LECs.

23. To address the first question of whether special access prices are competitive, ideally we would have data from competitive benchmark markets. The data would then permit a simple comparison to determine whether incumbent LEC special access prices are above or below the competitive benchmark. Absent such relevant data,

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16 Ernst & Young LLP and PriMetrica, Inc., "Mobile Wireless-Primary Line Substitution Study" (2003), Executive Summary at xi, *available at*: <http://www.telegeography.com/products/wireline_wireless/index.php?PHPSESSID=78d545dd6654f0dd027c7b6fc68ec313> ("Ernst & Young").

17 *Id.*

18 This is the average across several states of the difference in the cost of a 10 mile DS3 circuit priced at UNE and special access rates. See Appendix B.

we can use economic theory to make the same determination. In the case of loops, there is no competitive market that has developed that would provide the necessary data. Therefore, much of the debate has been in the form of "counterfactuals," such as: What would the competitive price for loops be, absent UNEs? However, in the case of transport, because there are several sources of empirical data, we are able to make direct comparisons between special access prices and the rates charged for the same transport services in competitive marketplaces.

24. Insight can be gained by comparing the special access rates for transport with the transport rates between cities. In this case, we can use the data of actual single route prices set in a market where we know that there are several competitive suppliers. We can then use the length of the route to obtain a price per mile of DS3 or OC3 transport. We can then use these data to build an econometric model of the transport market to estimate the competitive price for transport of a certain distance. We can then test to see if the special access price is indeed comparable to the competitive price for transmitting traffic over the same distance. If it is not, then we can reject the hypothesis that special access prices are close to competitive prices. In this case, we can also examine the relationship between competitive prices for transporting traffic and prices for access to unbundled network elements that involve transport to test the hypothesis that UNE prices approximate competitive prices.

25. Consider the market for DS3 (45 Mbps) level transport from New York to Los Angeles, a distance of approximately 2,500 miles. In June 1999, such a circuit could

be leased for $55,000 per month.[19] In February 2004, the price was $3,500.[20] This represents a price decline of over 90%. Normalizing for distance we find that long distance DS3 circuits are priced at approximately $1.40 per mile in a competitive market. Similarly, we can examine the price of a DS3 circuit on the transatlantic New York-to-London route. In January 1999, the lease price for a DS3 circuit was $80,000.[21] In December 2003, the most recent contract that I could find, the price was $4,000 a month.[22] This amounts to a price decline of 95%. Today, the price of a higher capacity OC3 or 155 Mbps line between New York and London has fallen below even that level. The lowest contract price has a monthly fee of $876 for a circuit with three times the capacity of a DS3 circuit.[23] This transatlantic price is significantly less than a dollar per month per mile.

26. Let us now consider the same product, DS3 transport, in an area where the infrastructure is owned by a BOC. For example, in New York, Verizon's monthly special access price for DS3 interoffice transport is $118.60 per mile, plus a $631.12 fixed fee.[24] Thus, the cost of a 10 mile Verizon special access DS3 circuit in New York

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19 *See* PriMetrica, Inc., Telegeography Bandwidth Pricing Database Service, *available at*: <http://www.telegeography.com/products/bandwidth_pricing/index.php> ("Telegeography Bandwidth Pricing Project"). All prices quoted here are from that database.

20 Indeed, other recent contracts from November 2003 are as low as $2750, with no installation fee! *Id.*

21 *Id.*

22 *Id.*

23 *Id.*

24 *Verizon Tariff F.C.C. No. 11*, § 31.7.9, 1st Rev. p. 31-150, after calculating 36-month commitment discount per *id.* § 25.1.4., 1st Rev. p. 25-10.

is $1,817.12, or over 100 times the $14.00 price of a circuit of the same length along the New York-Los Angeles route.[25] Indeed, a carrier can lease a transatlantic OC3 between New York and London for $876 – less than half the $1,817 cost of a 10-mile DS3 special access circuit within New York!

27. The comparison with UNE rates is also instructive. In New York, the fixed fee for a DS3 transport UNE is $711.09 while the mileage rate is now $15.21.[26] Thus, the cost of a ten mile circuit is $863.19. Thus, even using UNE rates, the cost of a 10 mile DS3 circuit within New York is more than 50 times the $14.00 price charged for 10 miles of DS3 transport between New York and Los Angeles. Moreover, in contrast to prices in competitive transport markets, the special access prices have been increasing by as much as 37% per year for a DS1 circuit.[27]

28. These price discrepancies between the services are revealing. If a new firm could enter the New York area to provide competing transport services along routes where the prevailing prices are 50 to 100 times the prices for comparable services in competitive marketplaces, then surely entry would have already happened and the price discrepancies would have been competed away. This entry has not happened, thus again we are led to the conclusion that the combination of sunk costs and smaller size of the market for the short-haul links are barriers to entry that make entry uneconomic.

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25 Telegeography Bandwidth Pricing Project. *See supra* ¶ 25 (finding that DS3 circuits between New York and Los Angeles are priced at approximately $1.40 per mile).

26 *Verizon New York Inc. Tariff PSC N.Y. No. 10*, § 5, 1st Rev. p. 23.

27 *See* "Average Percentage Increase in Bell Special Access Rates, 2001-2004," attached to Letter from A. Sheba Chacko, BT Americas Inc., to Marlene H. Dortch, FCC, RM No. 10593 (Sept. 30, 2004).

29. The above examples are subject to the criticism that there are economies of scale and scope on the long transcontinental routes that cannot be realized on shorter haul routes. Indeed we do see differences in the cost per mile on competitive routes as the distance falls. Thus, for example, the December 2003 cost of an OC3 circuit from New York to Washington D.C. is $1,500, which would indicate a cost per Mbps/mile of $0.047. This would lead to a cost estimate of $10 \times 45 \times 0.047 = \$21.15$, which is higher than the $14.00 rate charged for a comparable length of transport between New York and Los Angeles. Thus, it seems that the longest routes provide us with an estimate of marginal cost and the shorter routes are priced with a higher markup factor. However, we can construct a competitive price estimate based on the data from many competitive IXC routes to estimate the size of the economy-of-scale factor.

30. The methodology is as follows. We can collect contract prices for a class of transport and then normalize that into a price per mile per month for carriage. We then can regress the price per Mbs mile per month on the inverse of the distance of that route. This regression gives us two numbers, a constant, telling us how much transport should cost for an arbitrarily small distance, and the coefficient on distance, telling how much price per mile falls as distance increases due to the increased competition from entry or economies of scale. If we assume that entry is feasible in local transport markets, and these short-haul markets covered by special access are competitive, the regression price for 10 miles of DS3 transport should provide the unbiased estimate of the competitive price. We can then compare this price with the actual UNE prices and special access prices. This regression will enable us to test the hypothesis that (a) the special access market is competitive, and (b) UNE prices are below competitive prices and therefore

discourage investment. Further details concerning the methodology are presented in Appendix A.

31. Running the test regression we obtain the following equation; at the price per mile regressed on inverse link miles: *price= 1.77+(223/link miles).*

32. This leads to the price of a 10 mile DS3 circuit being as follows: A DS3 circuit is 45 Mbps and at a length of ten miles the estimated competitive price would be $10x((1.77 + (223/10))= \$240.60$. Thus, we find that even allowing for the distance effect, the special access price of transport is significantly higher than the competitive benchmark produced by the regression analysis. The cost of our sample 10-mile circuit priced at special access rates in New York is $1,817,[28] or more than six times higher than the benchmark competitive price of approximately $250. Indeed, the special access price in every market analyzed ranges from two to six times the estimated competitive price (see Appendix B). This again is clear and compelling evidence that special access prices are supra-competitive and that they therefore impede the ability of CMRS carriers to compete with incumbent LECs.

33. Additionally, we find the striking result that UNE prices are also significantly higher than the benchmark competitive price, which suggests that there is no basis for concern that offering CMRS providers access to transport and loops as unbundled network elements will discourage efficient investment in transport infrastructure. Indeed, as noted above, CMRS firms have had to pay the higher special

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28 *See supra,* ¶ 26.

access rates for ten years and still have not found it economic to self-provision these links.

34. In contrast to interoffice transport, the CO-to-base station links, as discussed above, have the economic characteristics of loops. Because loops have not been subject to competition, there is no competitive market to provide a source for data that shows what a competitive rate would be. Therefore, I use UNE rates as a basis for comparison. T-Mobile compared DS1 channel terminations to DS1 UNE loops in Florida, Illinois, New York, Texas, and Washington.[29] In every instance, the DS1 channel termination rate exceeded the UNE rate for the comparable circuit, by a large margin. In Illinois, for example, SBC charges $102 for a DS1 channel termination, but only $27.72 for a DS1 UNE loop.[30]

35. These results for both loops and transport show that the failure to unbundle these elements will hamper the CMRS carriers' ability to invest in cell sites and product quality.

36. Further proof of the supra-competitive nature of special access prices can be found in the rates of return on special access circuits. A recent study by FCC economists Noel Uri and Paul Zimmerman answers the question of competition definitively.[31] In 1999, the FCC issued its *Pricing Flexibility Order*, which used "triggers" based on the

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29 *See* Appendix B.

30 *See id.* at 1.

31 Noel D. Uri & Paul R. Zimmerman, "Market Power and the Deregulation of Special Access Service by the Federal Communications Commission," Information & Communications Technology Law, Vol. 13, No. 2, pp. 129-173 (2004) ("Uri & Zimmerman").

number of competitive LECs located in a particular MSA to deregulate, partially or fully, special access pricing in that MSA.[32] Since December 2000, the BOCs have been granted pricing flexibility for channel termination in 158 MSAs and for transport in over 186 MSAs.[33] The authors examine the impact of this "flexibility" on the firms' rates of return calculated based on the reports that the BOCs are required to file annually with the FCC. Based on current cost allocations, the BOCs' unweighted average rates of return on special access for calendar year 2002 exceeded 37%.[34] For 2003, the BOCs average rate of return was over 43%.[35] For Bell South and Qwest, these rates of return were almost 70%.[36] By comparison, the last FCC-authorized return for the BOCs when they were still subject to rate-of-return regulation was 11.25% (a relic of the high inflation era).[37] Thus, the BOCs' rates of return from their special access services far exceed the legacy regulated rate, let alone competitive levels. And these accounting rates of return suggest a significant degree of market power and supra-competitive prices. Moreover, these rates of return are significantly above the incumbent LECs' cost of capital.[38]

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32 *Access Charge Reform*, Fifth Report and Order and Further Notice of Proposed Rulemaking, 14 FCC Rcd 14221 (1999) ("*Pricing Flexibility Order*").

33 Uri & Zimmerman at 134.

34 *Id.* at 135.

35 Economics and Technology, Inc., "Competition in Access Markets: Reality or Illusion" at iii-iv (Aug. 2004), attached to Letter from Colleen Boothby, Counsel for Ad Hoc Telecommunications Users Committee, to Marlene H. Dortch, FCC, WC Docket No. 04-313 (Sept. 30, 2004) ("ETI").

36 ETI at 28.

37 *Represcribing the Authorized Rate of Return for Interstate Services of Local Exchange Carriers*, Order, 5 FCC Rcd 7507 (1990).

38 Competitive levels vary with the degree of risk. Given the BOCs' high quality bond ratings and the large decline in interest rates since 1990 – and assuming that

37. It is thus apparent that the rates of return from special access tariffs reflect an enormous degree of monopoly power and the prices therefore are supra-competitive and create a significant cost disadvantage for CMRS carriers that seek to compete against the incumbent LECs. Moreover, when we compare the level of these prices with the prices on transport routes where we know there are multiple facilities-based providers, we find an enormous disparity, again confirming that these prices are supra-competitive. The reason for this market power is explained in the next section.

IV. Loop and Transport Market Definitions

38. The Court also suggests that the FCC should examine the possibility that the MSA is the appropriate market definition, rather than the route-by-route definition adopted by the Commission in the *TRO*. This is straightforward to analyze. To assess the scope of competition in a market requires us first to identify the availability of substitute products to the consumer, in this case the CMRS carrier.[39] Consider first the

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11.25% was equivalent to zero economic rent at the time – one analyst estimates that their current average cost of capital is around 9%. *See* Deutsche Bank Securities, "RBOCs: Initiating Coverage" (Nov. 22, 2002). The marginal cost of capital is even lower, with Verizon bond yields below 5% for 2013 maturity and 6.5% for 2030 maturity. *See* Yahoo! Finance Bond Center, *available at*: <http://bonds.yahoo.com>. Bond yields are, of course, the marginal cost of capital a firm must pay when it relies on debt to finance new infrastructure.

[39] *See, e.g.*, U.S. Department of Justice and Federal Trade Commission Horizontal Merger Guidelines, §§ 1.1 and 1.2 (1992), *available at*: <http://www.ftc.gov/bc/docs/horizmer.htm>. To define the product market one begins with the narrowest definition and asks whether a monopolist owning the product under consideration and the putative substitute could raise prices by having a monopoly on both goods. In this case, the answer is no. Consider a central office, A, and cell sites B and C in the same MSA. The links are A-B and A-C. The CMRS provider needs both A-B and A-C to provide service. Assume there is a monopolist on A-B, while there is competition on A-C. Obviously, the monopolist will charge the monopoly price for A-B. Now suppose there is also is a monopolist on A-C. The product market definition hinges on whether this market power

case of the link from a cell site to the incumbent LEC's CO. CMRS carriers require transport from all of their cell towers in the coverage area to the wireline network. If there are competing providers on some routes, that does the CMRS carrier no good on the remaining routes where there is no competition. For example, if a carrier were to offer local telephony service in New York, it is impossible to substitute more links along routes in Manhattan – where there are competitive providers – for a high priced link in the Bronx, where Verizon may be the only provider. Therefore, the relevant competitive conditions that determine the pricing are the number of competitors, or evidence of self provisioning, on a specific point-to-point route, not the number of providers with some limited presence within an MSA.[40]

39. Some may contend that because there is competitive entry on some routes in an MSA, that indicates that entry is feasible on all routes within that MSA and is suggestive of future entry on other links in that MSA. Again, elementary economics tells us these conclusions are false. The conditions for entry depend on the level of the sunk costs and the size of the relevant market. The market for transport between Wall Street

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in A-C leads to a rise in the price of A-B. But it cannot, because the seller is already charging the monopoly price for A-B. The price of A-C will rise but the price for A-B will remain the same. Therefore, the two goods (A-B and A-C) are not in the same product market. In this particular case the geographic market and the product market coincide.

[40] Even if there are several links along routes with multiple providers, the incumbent LEC can extract rent based on the value of the entire service area from those links for which the incumbent LEC is the sole provider. Indeed, as Mr. Wong states in his declaration, because of these complementarities – *i.e.*, the synergies from dealing with a single provider for all transport in a geographic area – T-Mobile has a strong preference for dealing with one supplier in each area. *See* Wong Declaration at ¶ 7. Therefore, for CMRS providers, the presence of alternative suppliers on a few links in an MSA may be entirely irrelevant.

and Midtown Manhattan is enormous, since there are a large number of brokerage and other financial firms that have offices in both locations and these firms transport huge volumes of data among those locations. Thus, *ceteris paribus,* we should indeed see new firms entering to provide transport service between those points in Manhattan. What does this tell us about the market conditions for our CMRS carrier requiring isolated DS1 transport links from cell sites in the Bronx to the Verizon network? Absolutely nothing. The fact is that the DS1 link in the Bronx still involves a single customer with a low volume of traffic and the costs are mostly sunk, so the link is a natural monopoly. Indeed, the nature of competition on the hypothesized Wall Street/Midtown link tells us more about the nature of competition, for example, in downtown Chicago, or in Los Angeles between downtown and Culver City, than it tells us about the rest of the New York MSA. Moreover, there is also the issue of timing. Even if a competitive LEC intended to deploy fiber on a particular link, there is evidence that it can take years to obtain the local regulatory approval necessary before such a link can be deployed.[41] Thus, even when entry is possible, competitive carriers may not be able to offer service to the CMRS carrier for several years – far beyond the horizon that would be reasonable for the purposes of disciplining prices.

40. The record is clear regarding the effect of an error in market definition. In the *Pricing Flexibility Order*, the FCC used "triggers" based on the number of competitors collocating in COs in an MSA to deregulate transport in the MSA. To an economist, the "proof of the pudding" is in the prices. The analysis of Uri and

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[41] *See, e.g., ex parte* presentation attached to letter from Thomas Jones, counsel to Allegiance Telecom, Inc., CC Docket No. 01-338, at 17-18 (Dec. 12, 2002).

Zimmerman cited above is especially relevant. They found that, in stark contrast to the experience of long-haul markets where prices fell dramatically – as much as 90% – the flawed MSA market definition generally led to price increases. For example, in Alabama, where Bell South was granted pricing flexibility, rates increased 35.7% for fixed charges and 48.9% for variable charges.[42] Rather than competition eroding rents, the incumbents were able to make triple the most recently authorized rate of return of 11.25%.[43] Indeed, the rates of return and degree of monopoly power is getting worse over time.[44] The important point here is that the incorrect market definition has disastrous effects. Economics principles tell us, and the empirical record overwhelmingly demonstrates, that the correct definition of the geographic market for loops and transport is point-to-point or route-by-route. To suggest that the MSA, or any other artificially constructed geographic area, defines a market where special access customers face comparable competitive conditions is erroneous. Applying "triggers" to unbundling requirements using such an erroneous market definition would essentially lead to no unbundling at all and leave monopoly prices intact, essentially defeating the purpose of the Act.

41. This concludes my declaration on behalf of T-Mobile USA, Inc.

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42 Uri & Zimmerman at 150. See also the BT ex-parte, *supra* ¶29.

43 *See supra*, ¶ 36.

44 As we noted above, the average rate of return has now risen to 43%. *Id.*

I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 4, 2004.

Michael A. Williams

Appendix A

APPENDIX A

TECHNICAL APPENDIX

1. In this technical appendix, I describe the methodology used to compute the competitive transport price index used in the text.

2. Transport markets are characterized by (i) homogeneous product markets (all firms in each market are offering the same good e.g., DS3 circuit from Boston to Washington), and (ii) large sunk costs. The structure of these markets is studied extensively in the classic book by John Sutton, whose methodology we adapt.[45] In particular under the hypothesis that entry is possible in a market then entry should happen until it is no longer profitable. Thus, in comparing several different sized markets there should be an inverse relationship between the ratio of the size of the market to the fixed costs and the markup factor (and thus, prices), observed in a market. In large markets there should be more entry and lower markups. In the limit, the market will shrink to the point where it is a natural monopoly. In that case we see a lack of market discipline and prices rising to the monopoly level.

3. I assume that the longer haul markets have a larger ratio of market size to sunk costs. Thus, we should see more entry the longer the distance and so the price per mile of transport should be closer to marginal cost the longer the route. Indeed the data bear this out, price per mile is generally falling as distance increases. Thus, if the markets are contestable, that is entry is possible when price is above average cost, we

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[45] John Sutton, Sunk Costs and Market Structure (MIT Press 1991).

should see that price per mile times the milage of a route should equal the fixed cost, F, plus distance sensitive cost, c times distance d per user. That is p(d)d=F +cd. Dividing both sides by d yields the equation p(d) = F/d +c. This is the equation we use to obtain our cost estimates. It will give us an estimate of the zero rent price in a market of any given distance, as well as the marginal cost of transport per mile.

4. I obtain data on DS3 and OC3 level transport from the Telegeography data set, see < http://www.telegeography.com/products/bandwidth_pricing/index.php>. This data set is composed of the monthly rental rate and installation fees in actual contracts from the December 2003 time frame. We have few DS3 contracts, thus I look at the ratio of DS3 contract prices to OC3 prices to get a conversion factor. We know that, to prevent arbitrage, it must be that a DS3 circuit is priced at between a third and 100% of the OC3 price on each route. We find that in December 2003, an OC3 circuit from New York to Los Angeles cost $10,500 per month, but DS3 circuits sold at $3,737 per month with a $4,000 initial fee which amortized over 36 months gives us a lease rate of $3,848 per month, thus the scaling factor for DS3/OC3 prices is $3,848/10,500= 36.6% which I round up to 37%. To compute the distance of each route we use the U.S air mile distance as computed by Web Flyer, *available at*: <http://www.webflyer.com/ travel/milemarker/>. Where there are multiple airports in a market I choose the one closet to the city center. Thus for example I chose the 34th Street heliport in New York City.

5. I run a standard Ordinary Least Squares Regression (OLS) to estimate the coefficients. The coefficients of the regression of interest are the constant and the coefficient on inverse distance. The constant is interpreted as the marginal cost of

transport. The coefficient on inverse distance then captures the level of average fixed costs that must be recovered by raising price above marginal costs. This then tells us what the price would be if the same competitive framework held in local markets. Under the hypothesis that these markets are indeed competitive, this calculated price should be close to special access prices.

Appendix B

DS1 -- Channel Termination/Loop

ILEC	State	Special Access Rate ($)	UNE Rate ($)	SPA to UNE Comparison
SBC				
	Illinois	102.00	27.72	367.97%
	Texas	112.00	76.96	145.53%
BellSouth				
	Florida	124.00	70.74	175.29%
Verizon				
	New York	132.84	82.92	160.20%
Qwest				
	Washington	102.53	68.86	148.90%

Notes: (1) Special access rates are based on a 36-month term.
(2) Zone 1/Urban rates are used for both special access and unbundled network element pricing.
(3) Citations attached.

DS1 -- Channel Mileage/Interoffice Transport

ILEC	State	Special Access -- Channel Mileage (fixed) ($)	UNE Transport (fixed) ($)	SPA to UNE Comparison	Special Access -- Channel Mileage (per mile) ($)	UNE Transport (per mile) ($)	SPA to UNE Comparison	Special Access -- 10 Mile Circuit ($)	UNE -- 10 Mile Circuit ($)	SPA to UNE Comparison
SBC										
	Illinois	35.00	17.35	201.73%	13.25	1.88	704.79%	167.50	36.15	463.35%
	Texas	39.00	38.15	102.23%	12.25	0.35	3500.00%	161.50	41.65	387.76%
BellSouth										
	Florida	70.00	88.44	79.15%	4.90	0.19	2640.09%	119.00	90.30	131.79%
Verizon										
	New York	35.34	54.72	64.58%	14.38	2.05	701.46%	179.14	75.22	238.15%
Qwest										
	Washington	59.50	33.12	179.65%	8.50	0.65	1307.69%	144.50	39.62	364.71%

Notes: (1) Special access rates are based on a 36-month term.
(2) Zone 1/Urban rates are used for both special access and unbundled network element pricing.
(3) Citations attached.

DS3 -- Channel Mileage/Interoffice Transport

ILEC	State	Special Access -- Channel Mileage (fixed) ($)	UNE Transport (fixed) ($)	SPA to UNE Comparison	Special Access -- Channel Mileage (per mile) ($)	UNE Transport (per mile) ($)	SPA to UNE Comparison	Special Access -- 10 Mile Circuit ($)	UNE -- 10 Mile Circuit ($)	SPA to UNE Comparison
SBC										
	Illinois	250.00	146.93	170.15%	55.00	29.81	184.50%	800.00	445.03	179.76%
	Texas	510.00	417.24	122.23%	65.00	9.29	699.68%	1,160.00	510.14	227.39%
BellSouth										
	Florida	956.25	1,071.00	89.29%	46.75	3.87	1208.01%	1,423.75	1,109.70	128.30%
Verizon										
	New York	631.12	711.09	88.75%	118.60	15.21	779.75%	1,817.12	863.19	210.51%
Qwest										
	Washington	297.00	225.41	131.76%	35.10	11.55	303.90%	648.00	340.91	190.08%

Notes: (1) Special access rates are based on a 36-month term.
(2) Zone 1/Urban rates are used for both special access and unbundle network element pricing.
(3) Citations attached.

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Illinois

Ameritech Operating Companies, Access Service

DS1	Local Distribution Channel	$102.00	Zone 1	36 Month, Optional Payment Plan	Tariff FCC No. 2, 44th Revised p. 411
DS1	Channel Mileage Term.	$35.00	Zone 1	36 Month, Optional Payment Plan	Tariff FCC No. 2, 10th Revised p. 411.2
DS1	Channel Mileage	$13.25	Zone 1	36 Month, Optional Payment Plan	Tariff FCC No. 2, 8th Revised p. 411.4
DS3	Channel Mileage Term.	$250.00	Zone 1	36 Month, Optional Payment Plan	Tariff FCC No. 2, 20th Revised p. 413.3
DS3	Channel Mileage	$55.00	Zone 1	36 Month, Optional Payment Plan	Tariff FCC No. 2, 20th Revised p. 413.4

Illinois Bell Telephone Company, Unbundled Network Elements

DS1	Digital Interface Loop	$27.72	Zone A	ILL. C.C. No. 20, Part 19, Sec. 2, 6th Revised Sheet No. 31
DS1	Interoffice Mileage Term.	$17.35	Zone 1	ILL. C.C. No. 20, Part 19, Section 12, Orig. Sheet No. 30
DS1	Interoffice Mileage	$1.88	Zone 1	ILL. C.C. No. 20, Part 19, Section 12, Orig. Sheet No. 30
DS3	Interoffice Mileage Term.	$146.93	Zone 1	ILL. C.C. No. 20, Part 19, Section 12, Orig. Sheet No. 32
DS3	Interoffice Mileage	$29.81	Zone 1	ILL. C.C. No. 20, Part 19, Section 12, Orig. Sheet No. 32

Texas

Southwestern Bell Telephone Company, Access Service

DS1	Channel Termination	$112.00	Zone 1	3 Year Monthly Rate	Tariff FCC No. 73, 5th Revised p. 7-189.39
DS1	Channel Mileage (fixed)	$39.00	Zone 1	3 Year Monthly Rate	Tariff FCC No. 73, 5th Revised p. 7-189.41
DS1	Channel Mileage (per mile)	$12.25	Zone 1	3 Year Monthly Rate	Tariff FCC No. 73, 5th Revised p. 7-189.41
DS3	Interoffice Fixed	$510.00	Zone 1	3 Year Monthly Rate	Tariff FCC No. 73, 14th Revised p. 20-47.9
DS3	Interoffice Per Mile	$65.00	Zone 1	3 Year Monthly Rate	Tariff FCC No. 73, 24th Revised p. 20-47.17

Southwestern Bell Telephone Company, UNE Pricing (T2A)

DS1	4 Wire Digital Loop	$76.96	Zone 1	Appendix Pricing UNE (T2A), Schedule of Prices (04/16/01)
DS1	Interoffice Transport Term.	$38.15	Urban	Appendix Pricing UNE (T2A), Schedule of Prices (04/16/01)
DS1	Interoffice Transport Mileage	$0.35	Urban	Appendix Pricing UNE (T2A), Schedule of Prices (04/16/01)
DS3	Interoffice Transport Term.	$417.24	Urban	Appendix Pricing UNE (T2A), Schedule of Prices (04/16/01)
DS3	Interoffice Transport Mileage	$9.29	Urban	Appendix Pricing UNE (T2A), Schedule of Prices (04/16/01)

Florida

BellSouth Telecommunications, Inc., Access Service

DS1	Local Channel	$124.00	Zone 1	Plan A, 24 to 48 Months	Tariff FCC No. 1, 9th Revised p. 7-144.1
DS1	Interoffice Channel (fixed)	$70.00	Zone 1	Plan A, 24 to 48 Months	Tariff FCC No. 1, 14th Revised p. 7-146
DS1	Interoffice Channel (per mile)	$4.90	Zone 1	Plan A, 24 to 48 Months	Tariff FCC No. 1, 13th Revised p. 7-146.2
DS3	Interoffice Channel (fixed)	$956.25	Zone 1	LightGate 1, Plan A, 12 to 36 Months, Mileage Band 9-25	Tariff FCC No. 1, 7th Revised p. 7-147.0.3.4
DS3	Interoffice Channel (per mile)	$46.75	Zone 1	LightGate 1, Plan A, 12 to 36 Months, Mileage Band 9-25	Tariff FCC No. 1, 9th Revised p. 7-147.0.3.5

BellSouth Telecommunications, Inc., UNE Prices – BST/MCI Agreement (9/12/01)

DS1	4-Wire DS1 Digital Loop	$70.74	Zone 1	BST/MCI FL Agreement, Exhibit 1, p. 3 of 49 (ver. 3Q02 – 10/07/02)
DS1	Interoffice Chan. (facility term.)	$88.44	N/A	BST/MCI FL Agreement, Exhibit 1, p. 8 of 49 (ver. 3Q02 – 10/07/02)
DS1	Interoffice Chan. (per mile)	$0.1856	N/A	BST/MCI FL Agreement, Exhibit 1, p. 8 of 49 (ver. 3Q02 – 10/07/02)
DS3	Interoffice Chan. (facility term.)	$1,071.00	N/A	BST/MCI FL Agreement, Exhibit 1, p. 9 of 49 (ver. 3Q02 – 10/07/02)
DS3	Interoffice Chan. (per mile)	$3.87	N/A	BST/MCI FL Agreement, Exhibit 1, p. 9 of 49 (ver. 3Q02 – 10/07/02)

New York

The Verizon Telephone Companies, Access Service

DS1	1.544 Mbps Channel Terminations	$132.84	($177.12)	Zone 1	Tariff FCC No. 11, 4th Revised p. 31-122
DS1	1.544 Mbps Channel Mileage (fixed)	$35.34	($47.12)	Zone 1	Tariff FCC No. 11, 3rd Revised p. 31-147
DS1	1.544 Mbps Channel Mileage (per mi.)	$14.38	($19.17)	Zone 1	Tariff FCC No. 11, 3rd Revised p. 31-147
DS3	44.736 Mbps Channel Mileage (fixed)	$631.12	($701.25)	Zone 1	Tariff FCC No. 11, 1st Revised p. 31-150
DS3	44.736 Mbps Channel Mileage (per mi.)	$118.60	($131.78)	Zone 1	Tariff FCC No. 11, 1st Revised p. 31-150

All Verizon FCC special access tariffs identified above include a 36-month commitment discount. This results in a 25% and 10% discount for DS1 and DS3 services, respectively (Tariff FCC No. 11, 1st Revised p. 25-10). The published tariff rate is enclosed in parentheses.

Verizon New York Inc., Network Elements, Public Service Commission of New York

DS1	1.544 Mbps Conditioned Link	$82.92	Density Zone 1A#	PSC NY No. 10, Section 5, 2nd Revised p. 45
DS1	Interoffice Transport Mileage (fixed)	$54.72	N/A	PSC NY No. 10, Section 5, 1st Revised p. 23
DS1	Interoffice Transport Mileage (per mile)	$2.05	N/A	PSC NY No. 10, Section 5, 1st Revised p. 23
DS3	Interoffice Transport Mileage (fixed)	$711.09	N/A	PSC NY No. 10, Section 5, 1st Revised p. 23
DS3	Interoffice Transport Mileage (per mile)	$15.21	N/A	PSC NY No. 10, Section 5, 1st Revised p. 23

Washington

Qwest Corporation, Access Service

DS1	Channel Termination	$102.53	Zone 1	36 Months	Tariff FCC No. 1, 3rd Revised p. 7-347
DS1	1.544 Mbps Transport Chan. (fixed)	$59.50	Zone 1	36 Months, Mileage Band over 8 to 25	Tariff FCC No. 1, 5th Revised p. 7-355
DS1	1.544 Mbps Transport Chan. (per mile)	$8.50	Zone 1	36 Months, Mileage Band over 8 to 25	Tariff FCC No. 1, 5th Revised p. 7-355
DS3	Transport Channels (fixed)	$297.00	Zone 1	36 Months, Mileage Band over 8 to 25	Tariff FCC No. 1, 7th Revised p. 7-416
DS3	Transport Channels (per mile)	$35.10	Zone 1	36 Months, Mileage Band over 8 to 25	Tariff FCC No. 1, 7th Revised p. 7-416

Qwest Corporation, WN U-42 Interconnection Services, Washington

DS1	DS1 Capable Loop	$68.86	Zone 1	WN U-42, Section 3, 4th Revised Sheet 8.1
DS1	Direct-Trunked Transport (fixed)	$33.12	Mileage Band over 8 to 25	WN U-42, Section 3, 1st Revised Sheet 2
DS1	Direct-Trunked Transport (per mile)	$0.65	Mileage Band over 8 to 25	WN U-42, Section 3, 1st Revised Sheet 2
DS3	Direct-Trunked Transport (fixed)	$225.41	Mileage Band over 8 to 25	WN U-42, Section 3, 1st Revised Sheet 2
DS3	Direct-Trunked Transport (per mile)	$11.55	Mileage Band over 8 to 25	WN U-42, Section 3, 1st Revised Sheet 2

Appendix C

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Mr. Williams specializes in analyses involving antitrust, industrial organization, and regulation; he has conducted economic research and prepared testimony on a variety of antitrust and regulatory issues in the telecommunications, electric power, natural gas, and oil and pipeline industries. He has published articles in a number of academic journals, including the *Journal of Economics and Management Strategy, Journal of Industrial Economics, Behavioral Science, Economics Letters, Antitrust Bulletin, Texas Law Review, Review of Industrial Organization, Yale Journal on Regulation,* and *Quarterly Journal of Economics and Business.* He has provided testimony and comments before the Federal Communications Commission, the U.S. Securities and Exchange Commission, and the U.S. Postal Service, as well as a number of state regulatory commissions, the U.S. Court of Federal Claims, and U.S. District Court in Texas. He has consulted on matters involving competition in telecommunications markets for spectrum auctions, MFJ waiver requests, and such services as long-distance and wireless communications. Mr. Williams' research includes:

- Analyses of market definition, market power, and regulation in the computer, energy, and telecommunications industries;
- Studies of horizontal and vertical mergers to determine whether they would lead to the exercise of market power in such industries as airlines, avionics, bus and truck transportation, electric utilities, natural gas pipelines, radio and television programming, satellites, and other industries;
- Analyses of antitrust issues, including monopolization, price fixing, resale price maintenance, and tying arrangements, in a variety of industries;
- Evaluation of rate and entry regulation in the natural gas, electric power, postal service, securities, and telecommunications industries;
- Market definition analyses for both antitrust and economic markets;
- Valuation of gas and oil for tax purposes;
- Analyses of liability and damages in issues involving breach of contract; and
- Market studies to determine the prudence of long-term contracts.

Previously, Mr. Williams was an economist with the U.S. Department of Justice, Antitrust Division and was a Vice President of Analysis Group/Economics. Mr. Williams holds a B.A. degree in economics from the University of California, Santa Barbara, and he received his M.A. and Ph.D. degrees in economics from the University of Chicago.

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