- *OCn Transport.* We find on a national level that requesting carriers are not impaired without access to unbundled OCn transport facilities.[1096]

- *Dark Fiber Transport.* We find on a national level that requesting carriers are impaired without access to unbundled dark fiber transport facilities,[1097] subject to both a granular route-based review by the states to identify available wholesale facilities and to identify where transport facilities can be deployed.

- *DS3 Transport.* We find on a national level that requesting carriers are impaired without access to DS3 transport, subject to both a granular route-based review by the states to identify available wholesale facilities and to identify where transport facilities can be deployed.

- *DS1 Transport.* We find on a national level that requesting carriers are impaired without access to unbundled DS1 transport facilities, subject to a granular route-based review by the states to identify available wholesale facilities.

360. Our impairment findings with respect to DS1, DS3 and dark fiber transport facilities recognize that competing carriers face substantial sunk costs and other barriers to self-deploy facilities and that competitive facilities are not available in a majority of locations, especially non-urban areas.[1098] The record further indicates, however, that competitive DS1, DS3, and dark fiber transport facilities are available on a wholesale basis in some areas, and that competing carriers have deployed their own transport networks in some areas. Because the record is not sufficiently detailed concerning exactly where these facilities have been deployed, and because the nature of transport facilities requires a highly granular impairment analysis, we establish specific triggers for states to apply in conducting such an analysis. We establish two ways for an incumbent LEC or other party to show where requesting carriers are not impaired without unbundled transport: (1) by identifying specific point-to-point routes where carriers have the ability to use alternatives to the incumbent LEC's network, or (2) by identifying specific point-to-point routes where self-provisioning transport facilities is economic. We delegate to state regulators the authority to make findings of fact within the scope of these triggers to identify on a more granular scale where carriers are not impaired without access to incumbent LEC

[1096] As discussed below, OCn transport refers both to a capacity and technical distinction based on fiber optic technology. *See infra* para. 372.

[1097] Dark fiber transport facilities, as discussed below, are transport facilities without any activated electronics. *See infra* para. 381.

[1098] We note that through the application of our new impairment standard to high-capacity transport, including impairment analyses based on each particular capacity level, we have considered evidence raised by joint petitioners in the High-Capacity Loop and Transport Petition. *See* High-Capacity Loop and Transport Petition. Because we base our unbundling obligations with respect to transport on our findings of impairment and non-impairment according to our new impairment standard, we dismiss the High-Capacity Loop and Transport Petition as moot.

unbundled transport. In addition to allowing a more precise finding of impairment, our analysis provides a roadmap for deregulation where regulation does not serve the goals of the Act.[1099]

2. Background

361. Dedicated interoffice transmission facilities (transport) are facilities dedicated to a particular customer or competitive carrier that it uses for transmission among incumbent LEC central offices and tandem offices.[1100] Competing carriers generally use interoffice transport as a means to aggregate end-user traffic to achieve economies of scale. They do so by using dedicated transport to carry traffic from their end users' loops, often terminating at incumbent LEC central offices, through other central offices to a point of aggregation. Ultimately, the traffic is carried to the competitor's switch or other equipment, often from an incumbent LEC central office along a circuit generally known as an entrance facility.

362. The definition of dedicated transport adopted by the Commission in the *UNE Remand Order* broadly applied to all technically feasible capacity levels between incumbent LEC wire centers, or between switches owned by incumbent LECs or requesting telecommunications carriers.[1101] Although the *UNE Remand Order* defined transport broadly, the record reveals that the availability of these facilities has been limited in a number of ways. First, although the Commission determined that requesting carriers are impaired without access to entrance facilities,[1102] availability has been very limited as a practical matter because new facilities often must be constructed to deploy this circuit.[1103] Second, CMRS providers have demanded, and incumbent LECs have denied, access to unbundled transmission circuits.[1104] Third, some incumbent LECs have interpreted commingling and use restrictions to further limit the ability of

[1099] In contrast, in the *Local Competition Order* and *UNE Remand Order*, despite observing that competitive transport facilities were available in many locations, the Commission concluded that incumbent LECs must provide interoffice transmission facilities, including dedicated and shared transport, on an unbundled basis to requesting carriers, practically without limit. *Local Competition Order*, 11 FCC Rcd at 15717, para. 439; *UNE Remand Order*, 15 FCC Rcd at 3842, para. 321; *see also Shared Transport Order*, 12 FCC Rcd at 12475, para. 25.

[1100] We refer generically to "transport" in this Part as meaning dedicated transport. We address shared transport in Part VI.E. of this Order.

[1101] The Commission defined dedicated transport as "incumbent LEC transmission facilities including all technically feasible capacity-related services including, but not limited to, DS1, DS3 and OCn levels, dedicated to a particular customer or carrier, that provide telecommunications between wire centers owned by the incumbent LECs or requesting telecommunications carriers, or between switches owned by incumbent LECs or requesting telecommunications carriers." 47 C.F.R. § 51.319(d)(1)(i).

[1102] *See UNE Remand Order*, 15 FCC Rcd at 3851-52, paras. 347-48.

[1103] For a detailed discussion of limitations on new facilities construction, see our discussion of this aspect of network modifications at Part VII.D below. *See also Supplemental Order*, 15 FCC Rcd at 1760, para. 4 & n.5 (discussing a limitation on converting entrance facilities from incumbent LEC special access to unbundled transport).

[1104] We address CMRS carrier access to unbundled transport more fully below.

carriers to obtain unbundled transport facilities.[1105] Finally, incumbent LECs have denied requesting carriers access to transport using SONET technology.[1106]

363. Reviewing courts have considered the Commission's broad network element definitions and unbundling requirements. The Supreme Court stated that the Commission's impairment analysis "cannot, consistent with the statute, blind itself to the availability of elements outside the incumbent LEC's network."[1107] More recently, the D.C. Circuit questioned how the Commission could find that an element like transport "is significantly deployed on a competitive basis," but remains available as an unbundled element from the incumbent LEC.[1108] In both *Iowa Utilities Board* and *USTA*, the courts were reviewing broad unbundling requirements for transport that made little to no distinction in capacity, geography, or customer class.

364. In the *Triennial Review NPRM*, the Commission sought comment on how to analyze impairment for transport, especially in light of the manner in which the Commission's rules have been interpreted by courts and carriers in the industry. Importantly, the Commission sought comment on whether it should refine its unbundling analysis for transport by applying a more granular analysis based on service, geographic, or capacity distinctions.[1109] The Commission also invited comments and "proposals for guidelines or bright-line rules that would provide sufficient guidance [to] all parties involved to minimize disputes arising from implementation of unbundling requirements adopted in this proceeding."[1110]

3. Definition of Dedicated Transport

365. We limit our definition of dedicated transport under section 251(c)(3) to those transmission facilities connecting incumbent LEC switches and wire centers within a LATA.[1111] The Commission previously defined dedicated transport as:

[1105] For further discussion of the Commission's previous use and commingling restrictions, *see* Part VII.A. *infra*.

[1106] BellSouth Comments at 56; *see also UNE Remand Order*, 15 FCC Rcd at 3843, para. 324. SONET is an optical interface standard for translating electronic communications signals into photonic signals for transmission across fiber optic facilities. Ideally, SONET transmission systems are laid out in a ring formation to provide redundancy. *See* NEWTON'S TELECOM DICTIONARY 684-86 (18th ed. 2002).

[1107] *Iowa Utils. Bd.*, 525 U.S. at 389. The Court intimated that the Commission should consider when elements can be "self-provision[ed]" or "purchas[ed] from another provider." *Id.*

[1108] *USTA*, 290 F.3d at 422.

[1109] *Triennial Review NPRM*, 16 FCC Rcd at 22810, para. 64.

[1110] *Id.* at 22811, para. 65.

[1111] Section 271 of the Act prohibits BOCs from providing in-region interLATA services unless the BOC meets very specific requirements, but transport and other services are permitted within a LATA without meeting such requirements. *See* 47 U.S.C. § 271. Therefore, we find that LATA boundaries serve as a reasonable limitation on the scope of BOC obligations to unbundle transport.

> incumbent LEC transmission facilities dedicated to a particular customer or carrier that provide telecommunications *between wire centers owned by incumbent LECs or requesting telecommunications carriers, or between switches owned by incumbent LECs or requesting telecommunications carriers.*[1112]

We conclude that our previous definition was overly broad. As we explain in this Part, competitive LECs often use transmission links including unbundled transport connecting incumbent LEC switches or wire centers in order to carry traffic to and from its end users. These links constitute the incumbent LEC's own transport network. However, in order to access UNEs, including transmission between incumbent LEC switches or wire centers, while providing their own switching and other equipment, competitive LECs require a transmission link from the UNEs on the incumbent LEC network to their own equipment located elsewhere. Competitive LECs use these transmission connections between incumbent LEC networks and their own networks both for interconnection and to backhaul traffic. Unlike the facilities that incumbent LECs explicitly must make available for section 251(c)(2) interconnection,[1113] we find that the Act does not require incumbent LECs to unbundle transmission facilities connecting incumbent LEC networks to competitive LEC networks for the purpose of backhauling traffic.

366. We find that a more reasonable and narrowly-tailored definition of the dedicated transport network element includes only those transmission facilities *within* an incumbent LEC's transport network, that is, the transmission facilities between incumbent LEC switches.[1114] Because the Act does not provide guidance on which transmission facilities should be included in the definition of the transport network element, we believe we have discretion to adopt a definition that is in keeping with the section 251's goal of opening the incumbent LEC's local network to competition. We find that transmission facilities connecting incumbent LEC switches and wire centers are an inherent part of the incumbent LECs' local network Congress intended to make available to competitors under section 251(c)(3). On the other hand, we find that transmission links that simply connect a competing carrier's network to the incumbent LEC's network are not inherently a part of the incumbent LEC's local network. Rather, they are transmission facilities that exist *outside* the incumbent LEC's local network. Accordingly, such transmission facilities are not appropriately included in the definition of dedicated transport. We

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[1112] *Local Competition Order*, 11 FCC Rcd at 15718, para. 440, *reaffirmed in UNE Remand Order*, 15 FCC Rcd at 3842, paras. 322-23 (emphasis added); *see* 47 C.F.R. § 51.319(d)(1)(i); *see* NuVox *et al.* Reply at 34-36 (noting that the Commission's rules explicitly unbundle transmission facilities connecting incumbent LEC switches or wire centers with competitive LEC switches).

[1113] Specifically, section 251(c)(2) requires access to "the facilities and equipment" used by competing carriers for "interconnection with the local exchange carrier's network . . . for the transmission and routing of telephone exchange service and exchange access . . . ." The *Local Competition Order* discussed the relationship between sections 251(c)(2) and 251(c)(3) only to the extent that the obligation under section 251(c)(3) "allows unbundled elements to be used for a broader range of services than subsection (c)(2) allows for interconnection." *Local Competition Order*, 11 FCC Rcd at 15636-37, para. 270.

[1114] For further discussion of the Commission's definition of "network elements," see *supra* Part V.A.

note that a previous Commission reached a different result finding that, because unbundling this type of transmission facility is "technically feasible" and "will reduce entry barriers into the local exchange market," it was appropriate to include such facilities within the definition of dedicated transport.[1115] We find that this approach was misguided. The standard for unbundling is not "technical feasibility" and, moreover, just because a facility is capable of being unbundled does not mean that it is appropriately considered to be a network element for purposes of section 251(c)(3). We find that the more reasonable approach, and the one that is most consistent with the goals of section 251, is to not consider those facilities outside of the incumbent LEC's local network as part of the dedicated transport network element that is subject to unbundling.[1116] In reaching this determination we note that, to the extent that requesting carriers need facilities in order to "interconnect[] with the [incumbent LEC's] network," section 251(c)(2) of the Act expressly provides for this and we do not alter the Commission's interpretation of this obligation.[1117] Therefore, we find that the dedicated transport network element includes only those "features, functions, and capabilities" of equipment and facilities that coincide with the incumbent LEC's transport network – the transmission links connecting incumbent LEC switches or wire centers.[1118]

367. Our conclusion in this respect is buttressed by the fact that the economics of dedicated facilities used for backhaul between networks are sufficiently different from transport within an incumbent LEC's network that our analysis must adequately reflect this distinction. Competing carriers have control over where to locate their network facilities to minimize self-deployment costs, or the costs of using third-party alternatives for transport from the incumbent LEC's network.[1119] These backhaul facilities from incumbent LEC networks to competitors' networks are distinguished from other transport facilities because competing carriers have some control over the location of their network facilities that is lacking with regard to transport as we define it here. Competing carriers control, in part, how they design and locate their networks, as

[1115] *Local Competition Order*, 11 FCC Rcd at 15718-19, paras. 440-43.

[1116] Our determination here effectively eliminates "entrance facilities" as UNEs and, therefore, moots the Commission's *Fourth Further NPRM* insofar as it proposes limitations on obtaining entrance facilities as UNEs. *UNE Remand Order*, 15 FCC Rcd at 3914-15, paras. 492-96 (setting forth the *Fourth Further NPRM*). We note that the terms of the *Fourth Further NPRM* were expanded to include unbundled loop/transport combinations in addition to entrance facilities. *See generally Supplemental Order*, 15 FCC Rcd 1760; *Supplemental Clarification Order*, 15 FCC Rcd 9587. We address issues related to unbundled loop/transport combinations *infra* Part VII.A.

[1117] Section 251(c)(2) requires access to "the facilities and equipment" used by competing carriers for "interconnection with the local exchange carrier's *network* . . . for the transmission and routing of telephone exchange service and exchange access." 47 U.S.C. § 251(c)(2) (emphasis added).

[1118] *Id.* § 153(29).

[1119] Although we are not in this subsection conducting an impairment analysis, we find that this economic difference significantly distinguishes our analysis of intra-incumbent LEC transmission facilities – which we define to be transport – from inter-network transmission facilities used for backhaul. *See supra* Part V.B. (discussing the impairment standard).

opposed to obtaining a connection between two incumbent LEC wire centers.[1120] For instance, a competing carrier can choose to locate its switch very close to an incumbent LEC wire center to minimize costs associated with deploying fiber over longer distances. Similarly, a competing carrier can choose to locate its network equipment, such as its switch, near other competing carriers to share costs, or near existing competitive fiber providers that have already deployed competitive transport facilities.[1121] Competing carriers have no such choice in seeking to obtain transport within the network of incumbent LECs. We also note that transmission facilities used for backhaul from an incumbent LEC office to a competitive LEC network often represents the point of greatest aggregation of traffic in a competing carrier's network, and such carriers are more likely to self-deploy these facilities because of the cost savings such aggregation permits.[1122] Moreover, we find that our more limited definition of transport is consistent with the Act because it encourages competing carriers to incorporate those costs within their control into their network deployment strategies rather than to rely exclusively on the incumbent LEC's network.[1123]

368. We note that this change in definition applies to all competitors alike, including intermodal competitors. We find that no requesting carrier shall have access to unbundled inter-

[1120] The Commission recognized this principle in the *Local Competition Order* in its discussion of the choices competing carriers make in choosing an efficient point of interconnection. *See Local Competition Order*, 11 FCC Rcd at 15608, para. 209.

[1121] Additionally, the BOCs describe "collocation hotels" as points of telecommunications traffic aggregation used by multiple carriers and ISPs to interconnect with each other. These collocation hotels are often located very close to an incumbent LEC central office for carriers to connect to the incumbent LEC's network. BOC UNE Fact Report 2002 at III-4 through III-5; *see also* Verizon Jan. 10, 2003 UNE-P *Ex Parte* Letter at 6 (describing the choice competitors have in the location of their network facilities when entering a market); WorldCom Reply at 130 ("Collocation hotels are useful places for carriers and very large customers to meet."). We find that collocation hotels, however, do not provide a substitute for the need to access within an incumbent LEC's network. *See* WorldCom Reply at 130.

[1122] Competing carriers agree that the most competitive type of transport is the link between an incumbent LEC wire center and a competitor's network. *See* Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 7 (filed Nov. 18, 2002) (WorldCom Nov. 18, 2002 EELs *Ex Parte* Letter) (asserting that because "entrance facility" deployment is so pervasive, incumbent LEC special access pricing closely mirrors UNE rates); Letter from Patrick J. Donovan, Counsel for Cbeyond, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Declaration of Richard Batelaan at para. 10 (filed Nov. 22, 2002) (Cbeyond Nov. 22, 2002 Transport *Ex Parte* Letter) (stating that "alternative provider [transport] facilities are typically used between Cbeyond's non-ILEC collocation point of presence ("POP") and the ILEC tandem office or offices where Cbeyond aggregates traffic.").

[1123] Finally, we do not want to delay the further development of intermodal solutions, such as point-to-point microwave, that competing carriers may use to hub traffic back to a common location. Some CMRS carriers state that they are able to use point-to-point microwave as an alternative to incumbent LEC transmission facilities on some routes. Nextel Comments at 6-7; Letter from Michael H. Pryor, Counsel for AT&T Wireless, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 11 (filed Jan. 7, 2003) (ATTWS Jan. 7, 2003 *Ex Parte* Letter) (approximately 4% of ATTWS transport links are microwave). We note that these carriers cite limitations on microwave including the need for zoning approval for towers, licensing, limited space on cell towers, and reliability concerns. *Id.* As a result, this type of self-provisioning is "not common." Nextel Comments at 6-7; *see* ATTWS Jan. 7, 2003 *Ex Parte* Letter, Attach. at 11.

network transmission facilities under section 251(c)(3). Thus, assuming *arguendo*, that a CMRS carrier's base station is a type of requesting carrier switch, CMRS carriers are ineligible for dedicated transport from their base station to the incumbent LEC network.[1124] However, all telecommunications carriers, including CMRS carriers, will have the ability to access transport facilities *within* the incumbent LEC's network, pursuant to section 251(c)(3), and to interconnect for the transmission and routing of telephone exchange service and exchange access, pursuant to section 251(c)(2).[1125]

369. We find that this technology-neutral approach best comports with the statute, suits the development of intermodal competition, and recognizes the role of the requesting carrier in controlling the costs associated with where to locate its network. Accordingly, we limit the dedicated transport network element to those incumbent LEC transmission facilities dedicated to a particular customer or carrier that provide telecommunications between switches or wire centers owned by incumbent LECs.[1126] We conduct our impairment analysis based on this definition of the transport network element.

4. Impairment Analysis

a. General Economic and Operational Characteristics of Transport

370. Competing carriers generally use dedicated transport as a means to aggregate end-user traffic to achieve economies of scale. Such transport carries their traffic within the incumbent LEC's network through the incumbent LEC's central offices to a point of aggregation. As noted above, ultimately, the traffic is carried to the competitor's switch, or other equipment, from an incumbent LEC central office along an inter-network facility often known as an entrance facility. When carriers self-deploy transport facilities, they typically deploy fiber rings that may connect several incumbent LEC central offices in a market.[1127] On these rings, carriers aggregate

[1124] Our decision moots the ATTWS/VoiceStream Petition to the extent that it requests that CMRS carriers have access to unbundled transport facilities from an incumbent LEC wire center to a CMRS base station or mobile switching center (MSC). ATTWS/VoiceStream Petition at 19-26.

[1125] Accordingly, to the extent that the Petition for Declaratory Rulemaking filed by AT&T Wireless and VoiceStream requests that unbundled transport be available to CMRS carriers, that portion of the Petition is moot. ATTWS/VoiceStream Petition at 5-19; *see also Triennial Review NPRM*, 16 FCC Rcd at 22809-10, para. 63.

[1126] We recognize that incumbent LECs may "reverse collocate" in some instances by collocating equipment at a competing carrier's premises, or may place equipment in a common location, for purposes of interconnection. *See, e.g.*, Letter from Steven A. Augustino, Counsel for SNiP LiNK, to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-3 (filed Feb. 5, 2003) (SNiP LiNK Feb. 5, 2003 Reverse Collocation *Ex Parte* Letter). However, to the extent that an incumbent LEC has local switching equipment, as defined by the Commission's rules, "reverse collocated" in a non-incumbent LEC premises, the transmission path from this point back to the incumbent LEC wire center shall be unbundled as transport between incumbent LEC switches or wire centers to the extent specified in this Part.

[1127] *See* KMC Duke Aff. at para. 3 (stating that KMC typically invests in a local SONET network and collocates at three incumbent LEC offices, including the tandem); Letter from Joan Marsh, Director - Federal Government (continued....)

end-user traffic for backhaul to their switch, or other equipment, in a similar manner to the way in which carriers do in using incumbent LEC facilities. However, these fiber rings are often deployed to maximize the ability of competitors eventually to deploy loop facilities to connect directly buildings and customers to the transport fiber ring, without accessing unbundled loops at an incumbent LEC central office.[1128]

371. Deploying transport facilities is an expensive and time-consuming process for competitors, requiring substantial fixed and sunk costs.[1129] Most competing carriers' comments have focused on the costs of self-deploying transport facilities. Among the costs associated with self-deployment of transport facilities are collocation costs,[1130] the cost of fiber, the cost of physically deploying the fiber,[1131] and the cost of the optronics necessary to light the fiber.[1132] Moreover, parties have explained that carriers deploying fiber facilities must obtain rights-of-way, which can delay deployment. While we find that substantial sunk costs are required to deploy transport, the economic characteristics of transport vary from those of loops.[1133] Incumbent LECs assert that they face similar fixed costs for deploying fiber as competitive LECs[1134] and that new technologies may reduce the costs of deploying fiber.[1135] The record

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Affairs, AT&T to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 5-8 (filed Oct. 4, 2002) (AT&T Oct. 4, 2002 *Ex Parte* Letter) (describing how AT&T deploys "metro rings").

[1128] For example, KMC designs its networks to reach 80% of the commercial buildings in each local market that it serves by either direct "on-net" service, or by using unbundled loops aggregated at incumbent LEC offices. KMC Duke Aff. at para. 3. Of the 80% of total buildings KMC is able to reach, over 36% can be reached "on-net," indicating that KMC's fiber ring deployment is significantly designed to bypass the incumbent LEC loop network where possible, rather than simply mirroring the incumbent LEC's transport network connecting incumbent LEC wire centers. *Id.*; AT&T Nov. 25, 2002 *Ex Parte* Letter, Attach. B at 1-2 (describing local "building rings" that are approximately 30 miles each and connect 10-15 buildings).

[1129] *See* WorldCom Comments at 77 (extending WorldCom's transport network to an additional incumbent central office generally costs at least $1 million); AT&T Nov. 25, 2002 *Ex Parte* Letter, Attach. A.

[1130] *See* AT&T Comments at 145. We note that the Commission's collocation rules define the statutory duties of incumbent LECs to allow competitive LECs to collocate in incumbent LEC premises. *See Collocation Remand Order*, 16 FCC Rcd at 15435.

[1131] *See, e.g.*, Conversent Comments, Exh. 1, Declaration of David A. Graham (Conversent Graham Decl.) at para. 30 (estimating the costs of deploying fiber to replicate its unbundled dark fiber network).

[1132] *See* ALTS *et al.* Comments at 73; AT&T Nov. 25, 2002 *Ex Parte* Letter, Attach. A at 6 (stating that "relatively little equipment" is required to be placed in a collocation arrangement for interoffice transport including "optical path panels (to terminate and cross-connect the fiber facility), optical multiplexers, and power distribution (*e.g.*, power filtering and fuses) equipment.").

[1133] Like loops, transport costs (aside from attached electronics) are substantially sunk insofar as the facility cannot be moved to another location upon exit from the market. However, because transport facilities typically connect points of network traffic aggregation, the sunk costs of transport are different from the sunk cost of deploying loops (especially lower capacity loops) because the carrier is less dependent upon maintaining any particular customer relationship, but rather must maintain an aggregate level of traffic sufficient to justify the costs. Moreover, the facility may be useful to other carriers aggregating traffic at the same location.

[1134] Verizon Comments at 110 n.380.

indicates that deploying fiber is significantly less expensive in rural areas than it is in urban areas[1136] and that how the fiber is deployed affects the cost of deployment.[1137] Competing carriers also explain that deploying transport facilities can take a long period of time.[1138] The record indicates that obtaining rights-of-way delays entry and imposes sunk costs on competitive LEC efforts to deploy transport.[1139]

372. Carriers have developed and continue to operate copper technologies as well as fiber optic transmission technologies, such as SONET, to transport telecommunications signals.[1140] When carriers deploy new transport facilities, they deploy fiber optic facilities.[1141] The optical circuits operate and interface at a range of capacities, up to OC192.[1142] This variation in capacity is almost exclusively based on the attached optronic equipment used to activate or

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[1135] BOC UNE Fact Report 2002 at III-8 (describing CityNet's process for deploying fiber through utility pipes rather than trenching to bury fiber cables).

[1136] *See, e.g.*, Letter from Lawrence R. Freedman, Counsel for Norlight, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 3 (filed Dec. 30, 2002) (Norlight Dec. 30, 2002 *Ex Parte* Letter) (noting that deployment in rural areas is faster and less costly because cabling can be run on poles and does not need to be buried); WorldCom Fleming Decl. at para. 18 (stating that deploying fiber in urban and suburban areas is costlier than in rural areas because trenching requires digging up and then repairing streets and sidewalks).

[1137] El Paso *et al.* Comments at 21 (indicating that placing fiber underground can cost $100,000 to $300,000 per mile while placing fiber on poles can cost $50,000 per mile and placing fiber in pipelines costs $10,000 to $60,000 per mile); Conversent Graham Decl. at para. 30 (estimating the costs in Massachusetts of underground fiber deployment where conduit is not available at $485,812.80 per mile and aerial fiber deployment at $44,915.40 per mile).

[1138] For instance, obtaining permits may take 2 weeks to 90 days. TDS Comments, CC Docket No. 96-98, at 6 (filed June 11, 2001) (TDS June 11, 2001 High-Capacity Comments); Verizon Comments at 111 n.385. Obtaining necessary rights-of-way likely takes 4-6 months. AT&T Comments at 144. Building the actual fiber facilities takes approximately 6-9 months. Sprint Comments at 46. Fiber can be deployed in a buried manner in rural areas at a rate of several miles per day, in suburban areas, at a rate of up to a half a mile per day, while in urban areas, daily construction averages only a few hundred feet. In total, WorldCom estimates that constructing fiber transport facilities takes nine months to obtain the rights-of-way, collocation application, and equipment, while it takes five months to build fiber, construct the collocation, install, and test equipment. Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 12 (filed Nov. 18, 2002) (WorldCom Nov. 18, 2002 Transition to UNE-L *Ex Parte* Letter).

[1139] *See, e.g.*, AT&T Comments at 142-44. *See supra* Part V.B.1.d.(i). (discussing the first-mover advantages possessed by incumbent LECs); *but see* Verizon Comments at 110 & n.380 (asserting that incumbent LECs can face similar fixed costs for deploying fiber as competitive LECs); BOC UNE Fact Report 2002 at III-8 (describing stating that new technologies are emerging that may reduce the costs and delays associated with deploying fiber).

[1140] *See infra* note 1106 (describing SONET).

[1141] For instance, AT&T discusses the low capacity limitations of copper facilities and states that virtually all incumbent LEC transport facilities are fiber. AT&T Comments at 132-34 (citing AT&T Comments, CC Docket No. 98-147, Declaration of Joseph P. Riolo at paras. 18-19 (filed Oct. 11, 2001)) (describing the technological progression from copper to optical transport facilities).

[1142] *See supra* Part VI.A.4.b.(ii) (discussing capacity distinctions with respect to enterprise loops).

light the fiber optic cable.[1143] Each increasing capacity level technology, while nominally a multiple of a lower capacity system, requires a slightly different interface. Effectively, an OC3 capacity circuit carries the same capacity as three DS3 circuits, but an OC3 circuit terminates on a different technological interface. Incumbent LECs generally operate their interoffice transport networks at OCn capacity levels.[1144] When transport is leased as an unbundled element to competing carriers, for example, a DS3 capacity circuit, the leased dedicated circuit is channelized within the larger OCn circuit operated by the incumbent LEC.[1145] Therefore, competing carriers are not necessarily leasing physically separate facilities, but rather, dedicated bandwidth capacities along a given route.[1146] However, through electronic equipment such as multiplexers and de-multiplexers, the circuit is provided to the requesting carrier at the requested capacity on the relevant interface, such as a DS3 interface.

373. As we have discussed, transport facilities generally are used to carry traffic aggregated from multiple customers, or even multiple carriers, within an incumbent LEC's network and, thus, the economics of transport facilities can be well-suited to a wholesale business. There are costs to carriers associated with using transport provided on a wholesale basis by third party competitive transport providers. Because a competitive transport provider may not always offer facilities that mirror the market a competing carrier serves, a competing carrier may have to make arrangements with multiple providers, thus raising its costs. Also, if a point-to-point route along which a carrier seeks transport can only be served by a combination of different competitive transport providers, commenting parties assert that service quality, especially testing for maintenance and repair, becomes much more difficult to maintain.[1147] Finally, for a collocated competing carrier to access the transport facilities terminated in the collocation arrangement of another carrier, a cross-connect must be provisioned between collocation arrangements.[1148]

374. Collocation costs need not be a factor for every competing carrier. Firms that deploy competitive transport facilities have the ability to obtain UNEs, such as loops, for the purpose of providing a wholesale product on a common carrier basis.[1149] Therefore, competing

[1143] AT&T Comments at 130.

[1144] AT&T asserts that most carriers, including incumbent LECs, typically operate their transport networks at the OC48 capacity. AT&T Comments at 134.

[1145] *See* WorldCom Comments at 79; Covad Joshi *et al.* Decl. at paras. 46-48.

[1146] To the extent CompTel petitioned the Commission for access to packetized transport, we find CompTel's petition to be mooted by our decision today. CompTel Feb. 17, 2000 Petition for Reconsideration at 5-10.

[1147] Letter from Jonathan Askin, General Counsel, ALTS, and Jonathan Lee, Vice President – Regulatory Affairs, CompTel, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 3 & Attach. A (filed Oct. 28, 2002) (ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter) (describing the problems associated with piecing together transport from different vendors along a single route). For further discussion of this issue with respect to our route-specific triggers, *see infra* paras. 401-402.

[1148] *See Collocation Remand Order*, 16 FCC Rcd at 15465, para. 58.

[1149] *See supra* Part V.B.2.c.

carriers may be able to avoid the costs of collocating in central offices in which their competitive transport provider is able to access end-user loops. We also note, to the extent incumbent LECs want to remove their unbundling obligation for DS1, DS3, and dark fiber transport, they have an incentive to allow alternate transport providers to collocate in their central offices for the purposes of providing alternative transport.[1150]

375. Unlike our analysis of certain other elements, we do not make distinctions in analyzing transport based on different customer classes. While the characteristics of serving different market classes (*i.e.*, mass market and enterprise markets) may provide a rough understanding of the how carriers use transport, the characteristics do not necessarily inform when a carrier is impaired without access to unbundled transport.[1151] Because mass market customers provide low revenue per customer relative to enterprise customers, competitors serving the mass market customer class achieve economies of scale by aggregating traffic from multiple incumbent LEC loops, often from several incumbent LEC central offices, to their switches.[1152] Carriers serving enterprise customers, on the other hand, can typically serve a more geographically concentrated area. They are more certain of recovering costs associated with self-providing transport facilities, and are able to achieve economies of scale by aggregating traffic from loops serving many fewer end users. These factors, principally the ability to aggregate greater quantities of traffic, make the self-provisioning of facilities more economically feasible for competing carriers serving enterprise customers than carriers serving the mass market customer class. Because customer class distinctions do not help refine our unbundling analysis of transport facilities, however, we do not develop an unbundling framework for transport based on such distinctions.

376. Instead, we organize our analysis of transport based on capacity level because it is a more reliable indicator of the economic abilities of a requesting carrier to utilize third-party alternatives, or to self-deploy. At the same time, we recognize that operational and economic concerns, though of lesser significance, will vary depending on the geographic market served. We find that the extent of competitive deployment of transport facilities can vary tremendously by geographic area. More specifically, the barriers to entry that requesting carriers face are most precisely identified on each geographic route connecting two points.[1153] Where our record permits, however, we distill general characteristics of transport routes on a national level sufficient to make nationwide determinations of impairment and non-impairment. Where the

[1150] *See* our discussion *infra* Part VI.C.4.d for a more detailed discussion of this incentive.

[1151] For instance, a carrier serving the mass market customer class may achieve very high levels of loop concentration in an area enabling it to justify transport facilities deployment while a carrier serving a single enterprise customer in an area with a DS1 loop faces different economic costs per customer to backhaul its loop traffic to its switch. Moreover, because transport facilities are used to carry aggregated traffic, competing carriers may utilize the same transport facility to carry loop traffic serving both the mass market and enterprise customer classes.

[1152] To date, competing carriers serving the mass market have relied most extensively on shared transport, used in combination with unbundled switching.

[1153] *See infra* paras. 401-402 (further discussing our route-specific analysis).

record indicates impairment and that only with more granular evidence could a finding of non-impairment be made, we establish triggers to identify non-impairment based on route-specific evidence.

377. For these reasons, a reliable measure of the ability of competing carriers to incur additional costs related to obtaining transport from an alternative provider, or self-providing, is based on the capacity competing carriers require along a transport route.[1154] Because a carrier using higher capacity levels of transport has a greater incentive and broader revenue base to support the self-provisioning of transport facilities, we adopt an approach to analyzing transport that considers different capacity levels.[1155] We expressly consider the ability of competing carriers to self-provision transport facilities, as well as the ability to manage the fixed costs associated with using competitive alternatives, based on different transport capacity levels.[1156]

b. Record Evidence

378. The record indicates that competing carriers have deployed significant amounts of fiber transport facilities to serve local markets. The BOCs claim that competitors have deployed over 184,000 route miles of fiber.[1157] An ALTS report claims that competitors have deployed over 339,500 route-miles.[1158] The record also indicates that much of this deployment has occurred in more densely populated areas.[1159] According to the BOC Fact Report, competitive

[1154] The *Triennial Review NPRM* asks whether the Commission should pursue distinctions based on facilities in order to refine its unbundling analysis. *Triennial Review NPRM*, 16 FCC Rcd at 22800-01, 22804-05, 22809, paras. 41, 51, 62. A single voice-grade circuit can be digitized to its equivalent digital capacity of DS0. A DS1 capacity circuit carries the traffic equivalent to 24 voice-grade or DS0 channels. A DS3 capacity circuit contains the equivalent of 28 DS1 channels or 672 DS0 channels. An OC3 circuit equals the capacity of three DS3 circuits, or 84 DS1 circuits, or 2016 DS0s. Effectively, each OCn capacity interval indicates the capacity of the equivalent number of DS3 circuits – for example, an OC48 circuit has the capacity equivalent to 48 DS3 circuits.

[1155] As WorldCom states, "for any given amount of traffic, the cost per unit of traffic will be lower where larger amounts of traffic can be aggregated and carried a short distance." WorldCom Reply at 122; WorldCom Bryant Reply Decl. at para. 16. Thus, competitive carriers with lower amounts of traffic aggregation, such as new market entrants, face economies of scale that can act as a barrier to entry.

[1156] In the *UNE Remand Order*, the Commission found that access to all technically feasible transport capacities, such as DS1, DS3, and OCn capacities, and would promote competition in the local exchange market. *UNE Remand Order*, 15 FCC Rcd at 3842-43, paras. 321-23; *see also Local Competition Order*, 11 FCC Rcd at 15717-18, para. 439.

[1157] *See* BOC UNE Fact Report 2002 at III-6 & nn.26-27 (asserting the number to be highly conservative as it does not include fiber miles deployed by "competitive Independent Operating Companies, utility CLECs, data providers, or Gig-E providers" and maintaining that the figure has been adjusted downward to address competitive LEC comments made during a prior proceeding); UNE Fact Rebuttal Report at 41-42 (addressing comments claiming that some of the reported route miles were long-haul fiber miles).

[1158] *See* SBC Reply at 143 (citing ALTS, THE STATE OF LOCAL COMPETITION 2002, Annual Report (Apr 2002) at 17).

[1159] The Commission has previously noted that competing carriers "have deployed interoffice transport along selected point-to-point routes, primarily in dense market areas." *UNE Remand Order*, 15 FCC Rcd at 3846-47, para. (continued....)

LECs have built fiber to approximately 13 percent of BOC wire centers.[1160] However, in the 25 largest metropolitan areas served by each BOC, competitive LECs have built fiber to 35 percent of wire centers, which provide access to 61 percent of the incumbent LECs' lines.[1161] Moreover, at least one competitor has deployed fiber to BOC wire centers with more than 5,000 business lines 48 percent of the time, providing access to 84 percent of all business lines.[1162] Even competing carriers recognize that they have available to them along many routes alternatives to the incumbent LEC's transport. In fact, a variety of carriers state that they have at least one alternative transport provider available to them on a range from 20 percent to over 50 percent of their routes.[1163]

379. The record also indicates that fiber transport facilities have been deployed by firms other than incumbent LECs with the intention of solely or partially providing wholesale transport capacity as well as dark fiber transport to other carriers.[1164] These carriers continue to deploy local fiber facilities today.[1165] The record also indicates that multiple carriers often coordinate a single transport construction project to share the one-time costs of deployment.[1166]

(Continued from previous page)

333. Indicia of widespread fiber deployment is most prominent in the largest metropolitan areas and connections to the largest incumbent LEC wire centers. BOC UNE Fact Report 2002 at III-2 to III-3 & Tables 1-3.

[1160] BOC UNE Fact Report 2002 at III-2, Table 1; *see* BellSouth Jan. 17, 2003 *Ex Parte* Letter, Attach. at 5, 7 (identifying 1018 fiber-based collocation arrangements in the BellSouth region). The BOCs also present evidence, supported by the record, that competitive LEC local fiber facilities often bypass the incumbent LEC network at least partially. *Id.* at III-4. For example, AT&T describes how it deploys fiber "building rings" in order to directly connect enterprise customers to its network, bypassing the incumbent LEC's loop facilities. AT&T Nov. 25, 2002 Loop and Transport Costs *Ex Parte* Letter, Attach. B.

[1161] BOC UNE Fact Report 2002 at III-3, Table 2.

[1162] *Id.* at Table 3.

[1163] *See* Broadview Aug. 2, 2002 *Ex Parte* Letter, Attach. at 14 (Broadview able to order alternative interoffice transport 20% of the time); Covad Comments at 67-68; Covad Comments, CC Docket No. 96-98 at 8 (filed June 11, 2001) (Covad June 11, 2001 High-Capacity Comments) (competitors have terminated non-incumbent fiber in their collocation arrangements in over 51% of the incumbent central offices in which Covad also collocates); Mpower Reply at 13-16 (competitors have terminated non-incumbent fiber in their collocation arrangements in over 51% of the incumbent central offices in which Mpower also collocates); Allegiance Comments at 28 (Allegiance self-provides or leases alternative transport facilities for 30% of its routes). These carriers do not propose that where only one alternative exists, they do not face impairment for unbundled transport. These numbers have not been provided in a consistent format.

[1164] BOC UNE Fact Report 2002 at III-6 through III-11 (describing "carrier-agnostic" wholesale suppliers and CAPs); Coalition of Competitive Fiber Providers Reply, at 1-2 ("Coalition members provide competitive fiber-based transport services and dark fiber to competitive local exchange carriers . . . collocated in ILEC central offices.").

[1165] *See* UNE Fact Rebuttal Report at 41-43.

[1166] AT&T Fea/Giovannucci Reply Decl. at para. 28 ("AT&T often engages in joint builds with other CLECs in order to share the high fixed costs of construction."). While AT&T reports that financial problems with building partners have proved troublesome, AT&T states that partners are often willing to make "significant payments toward construction costs" which can mitigate the up front fixed costs incurred by the lead partner actually constructing the facility. *Id.*

Moreover, we note that competitive carriers seek to use existing alternatives to incumbent LEC transport facilities, including dark fiber purchases of competitive transport facilities.[1167] Therefore, it is likely that the costs of transport deployment need not be borne by a single carrier, but rather can be shared by multiple carriers.

c. Capacity-Based Impairment Analysis

380. As described above, we conduct our impairment analysis of transport on a capacity basis as we find this to be the most informative manner to review the economic barriers to entry that affect how a competing carrier is impaired without access to unbundled transport. Thus, we analyze transport according to different capacities and make findings of impairment or non-impairment based on the record.

(i) Dark Fiber Transport

381. We find on a national basis that competing carriers are impaired without access to unbundled dark fiber transport. Dark fiber is unactivated fiber optic cable, deployed by a carrier, that has not been activated through connections to optronics that light it, and thereby render it capable of carrying communications.[1168] Once supplied with the proper optronics and activated, dark fiber transport is used by carriers for the same purposes as lit dedicated transport. We make our determination of impairment based on the high sunk costs associated with deploying fiber facilities and the lack of evidence showing on a route-specific basis alternative fiber facilities. The same economic factors and barriers, especially the sunk cost of deploying fiber, that affect the ability of carriers to self-deploy lit transport apply equally to dark fiber transport. We address dark fiber separately from OCn transport because commenting parties identify some operational characteristics that distinguish dark fiber transport from lit transport.[1169] Dark fiber transport is activated by competing carriers using self-provided optronic equipment. We find that where carriers are impaired in their ability to self-provision the transmission conduit itself, but are not impaired by the costs of collocation and electronics necessary to activate dark fiber, that unbundled dark fiber most closely addresses the impairment faced by competing carriers.

382. The record indicates that when competing carriers self-deploy transport facilities, they often deploy fiber optic facilities that are activated at OCn levels.[1170] However, this does not mean that a carrier that requires OCn capacity can necessarily self-deploy transport facilities. As

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[1167] *See* Allegiance Comments at 28; Conversent Comments at 8-9.

[1168] *UNE Remand Order*, 15 FCC Rcd at 3776, 3843, paras. 174, 325. The dark fiber transport element has been defined by the Commission as "incumbent LEC optical transmission facilities without attached multiplexing, aggregation, or other electronics." 47 C.F.R. § 51.319(d)(1)(ii). In the *UNE Remand Order*, the Commission found that dark fiber fits within the definition of "network element" as a "facility or equipment used in the provision of a telecommunications service, including "features, functions, and capabilities that are provided by means of such facility or equipment." *UNE Remand Order*, 15 FCC Rcd at 3844, para. 326.

[1169] *See* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1, 12-14.

[1170] *See, e.g.*, AT&T Oct. 4, 2002 *Ex Parte* Letter.

we have described above, large fixed and sunk costs are required to self-provision fiber transport facilities.[1171] These fixed and sunk costs include obtaining rights-of-way, the costs of fiber, the cost of deploying the fiber, and the optronic equipment necessary to activate the fiber.[1172] Unlike "lit" unbundled transport, however, users of unbundled dark fiber provide the optronic equipment necessary to activate the dark fiber strands.[1173] While users of unbundled dark fiber provide optronics, the record indicates that a substantial part of the costs of deploying transport facilities is in the sunk cost of burying, or otherwise deploying the fiber.[1174] Moreover, the costs associated with actually deploying the fiber transmission facilities are all sunk costs, such as obtaining rights-of-way, digging up streets or attaching cabling to poles.[1175] Therefore, the barriers to deployment faced by carriers that use unbundled dark fiber are very similar to those of other competing carriers. However, carriers that request dark fiber transport, used to provide relatively high-capacity transport, must purchase and deploy necessary electronics and collocations, thus requiring them to deploy those facilities for which there is no impairment. Our finding of impairment recognizes that the costs of deploying fiber, especially the sunk costs, make self-deployment of transport facilities uneconomic in some situations.

383. The record also indicates that competing carriers using unbundled dark fiber transport can operate more efficiently than when using lit transport. Conversent and El Paso argue that they can offer a higher level of service because unbundled dark fiber integrates more efficiently into their networks by reducing the number of failure points and by providing them greater control including the ability to test for quality and maintenance.[1176] Commenters also

[1171] *See supra* para. 371 (describing the costs and barriers to entry associated with deploying transport facilities); *see also* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 15-17 (describing the sunk costs associated with fiber deployment).

[1172] *See* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1, 15-17 (describing the electronic equipment a competitive LEC must deploy to activate dark fiber).

[1173] We note that the cost of electronics, such as those used to activate dark fiber, are not sunk costs because they can be moved to another location upon exit from the market.

[1174] AT&T, for example, states that the monthly costs of operating interoffice transport between two collocations is allocated roughly as follows: 50% to the cost of the transport ring, 30% to equipment and other costs, and 20% to collocation. AT&T Oct. 4, 2002 *Ex Parte* Letter, Attach. at 13. Conversent states that it has spent over $30 million in capital costs for purchasing electronics while it estimates that replicating its fiber network in eastern Massachusetts would cost $81 million. Letter from Christi Shewman, Counsel for Conversent, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 2, 5 (filed Sept. 24, 2002) (Conversent Sept. 24, 2002 *Ex Parte* Letter). Similarly, El Paso states that the electronics necessary to light an OC12 loop require $80,000 in capital investment. El Paso Oct. 4, 2002 *Ex Parte* Letter, Attach. *Regulatory Briefing* at 8.

[1175] *See* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1; *see also supra* para. 371.

[1176] *See* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1, 12-13. Specifically, dark fiber reduces the number of points of failure within a local transport network and is integrated more easily into the competitor's network. *See id.*; Conversent Comments at 7; Conversent Oct. 10, 2002 *Ex Parte* Letter at 3.

argue that dark fiber more precisely addresses impairment they face in deploying fiber.[1177] We agree that dark fiber allows competing carriers to provide service without incurring the high sunk costs of self-deploying transport, especially when the fiber is not being used by the incumbent LEC. Competing carriers assert that this also avoids unnecessary digging of streets.[1178] Commenters also argue that unbundled dark fiber users must deploy significant facilities including optronic equipment and collocation in order to light the dark fiber.[1179] We find that this investment advances the facilities deployment goals of the Act.[1180]

384. Although the record indicates that dark fiber can be self-provisioned in some circumstances or obtained on a wholesale basis from carriers other than the incumbent LEC, the record does not reveal the specific routes where such transport is available.[1181] In addition, dark fiber transport is generally not available in most areas of the country. In fact, in many areas, competing carriers are unable to self-deploy and have no alternative to the incumbent LEC's facilities.[1182] On the current record, we are unable to identify those specific routes where competing carriers are not impaired without access to unbundled dark fiber.[1183] As we describe below, however, we delegate to the states the authority to collect and analyze more specific evidence of transport deployment on a route-specific basis, applying uniform national triggers that measure self-provisioning or wholesale alternative transport availability to determine routes

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[1177] *See* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1. For example, Conversent asserts that it is not impaired without the electronics needed to activate transport facilities, but is impaired without the actual facilities. *See* Conversent Dec. 24, 2002 *Ex Parte* Letter at 2.

[1178] *See, e.g.*, Stephanie A. Joyce, Counsel for Dominion Telecom, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 4 (filed Jan. 28, 2003) (Dominion Jan. 28, 2003 Dark Fiber *Ex Parte* Letter).

[1179] *See, e.g.*, Letter from Scott Sawyer, Vice President – Regulatory Affairs, Conversent, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 1-3 (filed Dec. 6, 2002) (Conversent Dec. 6, 2002 *Ex Parte* Letter); El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1.

[1180] While it could be argued that permitting use of unbundled dark fiber acts as a disincentive to alternative transport deployment by allowing competing carrier to obtain the fiber transport without incurring sunk costs that a self-deploying carrier would incur, we find that, through the application of our triggers, described below, any disincentive effect is minimized.

[1181] *See supra* paras. 378-379 (describing record evidence of competitive LEC transport deployment); NuVox *et al.* Comments, Affidavit of Robert Riordan, (MFN Riordan Aff.) at paras. 2-4; BOC UNE Fact Report 2002 at III-1 to III-14. As discussed, above at para. 376, we find that transport is appropriately reviewed on a route-specific basis.

[1182] Conversent asserts that of its 166 dark fiber transport routes throughout six New England states, alternative dark fiber is available on only 25 routes (approximately 15%). Conversent Sept. 24, 2002 *Ex Parte* Letter, Attach. at 4-5; *see also* Conversent Comments at 8-9.

[1183] As described below, we develop specific triggers for states to identify where competing carriers are not impaired without access to dark fiber due to the ability to self-deploy or the availability of third-party wholesale alternatives. We find that our national determination that requesting carriers are impaired without access to dark fiber transport, subject to a more granular analysis, benefits competitors that operate where no competitive alternatives exist and where self-provisioning is not possible. *See, e.g.*, Conversent Comments at 4; BrahmaCom Reply at 1-2; Maine CLEC Coalition Comments at 4-5.

where competitive carriers are not impaired without access to incumbent LEC unbundled dark fiber transport.[1184]

385. Access to Dark Fiber. Because dark fiber requires an incumbent LEC to unbundle whole fibers, the Commission previously granted states "the flexibility to establish reasonable limitations and technical parameters for dark fiber unbundling."[1185] We affirm that conclusion.[1186] Additionally, requesting carriers state that they have been denied nondiscriminatory access to unbundled dark fiber in a number of ways.[1187] We note that many state commissions have directly addressed these issues through arbitrations and other proceedings.[1188] For example, states have addressed the pre-ordering and ordering processes including determinations about what information incumbent LECs must make available about the location of dark fiber,[1189] the extent to which incumbent LECs must allow or perform splicing and other preparatory work,[1190] and access to dark fiber transport that traverses through intermediate central offices where the

[1184] As discussed in detail below, we find on a national basis that requesting carriers are not impaired without dark fiber transport along point-to-point routes when a state commission finds that either three competing carriers have self-provided transport facilities on that route (irrespective of whether they make available wholesale capacity), or two competing carriers make available wholesale dark fiber transport on that route. *See infra* Part VI.C.4.d.

[1185] *UNE Remand Order*, 15 FCC Rcd at 3854-55, para. 352. Again, we note the difficult balance between putting spare incumbent LEC fiber to use and the carrier-of-last-resort-obligations and planning interests of the incumbent LEC. As noted in the *UNE Remand Order*, some states such as Texas have developed processes to allow for the equitable use of dark fiber while addressing the legitimate concerns of incumbent LECs. *See UNE Remand Order*, 15 FCC Rcd at 3854, para. 352 n.694 (affirming as reasonable some of the parameters the Texas Commission developed regarding the use of unbundled dark fiber).

[1186] Accordingly, our determination moots Mpower's petition asking the Commission to establish a "first-come, first-served" policy for access to dark fiber as we grant states the flexibility to develop rules that incorporate policy objectives such as reservation policies and meeting carrier of last resort obligations. MGC Communications Petition for Clarification on Reconsideration and Request for Expedited Treatment, CC Docket Nos. 96-98, 95-185 at 4-6 (filed Feb. 17, 2000) (Mpower Feb. 17, 2000 Petition for Clarification). Additionally, the Mpower Petition for Clarification is moot to the extent that it requests the Commission to take action before May 17, 2000. Mpower Feb. 17, 2000 Petition for Clarification at 2-4, 6.

[1187] Conversent Oct. 10, 2002 *Ex Parte* Letter at 1-4; El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 2-11.

[1188] *See, e.g.*, El Paso *et al.* Comments at 36-75; El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter at 3-10.

[1189] *See, e.g.*, El Paso *et al.* Comments at 58-80 (describing decisions made by the states of Texas, New Hampshire, Rhode Island, New Jersey and Maine); El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter at 7-10 (describing decisions made by the states of Texas, New Hampshire, Rhode Island, New Jersey, and Maine).

[1190] *See, e.g.*, El Paso *et al.* Comments at 39-44, 50, 53-57 (describing decisions made by the states of Texas, Indiana, Massachusetts, New Hampshire, Rhode Island, and the District of Columbia); Conversent Oct. 10, 2002 *Ex Parte* Letter at 1-4; El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 3-7 (describing decisions made by the states of California, Texas, Indiana, Massachusetts, New Hampshire, Rhode Island, and the District of Columbia). To the extent that access to unbundled dark fiber requires some routine modification of an existing facility, our discussion, *infra* Part VII.D, may provide additional clarity. *See, e.g.*, El Paso *et al.* Comments at 53-57 (describing existing fiber facilities not attached to termination equipment).

competitive LEC is not collocated.[1191] We recognize the hard work of the state commissions to make dark fiber meaningfully available and endorse such efforts here. We retain rule 51.307(e) which establishes an incumbent LEC's obligation to provide technical information about the incumbent LEC's network facilities.[1192]

(ii) DS3 Capacity Transport

386. We conclude on a nationwide basis that requesting carriers are impaired on a route-specific basis without access to unbundled DS3 transport. We make this determination based on the high fixed and sunk costs associated with self-providing transport and the lack of route-specific evidence showing alternative facilities as well as the difficulty of overcoming these obstacles at this transmission level. The need for DS3 capacity transport indicates that a carrier is aggregating a substantial amount of traffic from end users.[1193] However, as we discuss above, the cost of deploying a transmission facility does not vary significantly with capacity because much of the cost of the facility is related to the deployment itself, such as trenching or attaching to poles, rather than the cost of the cabling and other equipment.[1194] Moreover, the ability to economically justify transport deployment is based on the reasonable expectation of recovering the costs of deployment over time.[1195] Therefore, due to scale economies, we find, generally, that the inability to recover the fixed and sunk costs of deploying transport facilities, coupled with the barriers to obtaining rights-of-way, impairs the ability of requesting carriers to self-provision DS3 transport.

387. There is substantial evidence that carriers lease non-incumbent LEC transport at the DS3 capacity where competitive alternatives are available or self-deploy transport when multiple DS3 transport circuits are required to carry aggregated traffic along a route.[1196] The record indicates that competitive transport facilities exist in a number of areas and are often being

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[1191] *See, e.g.*, El Paso *et al.* Comments at 36-39 (describing decisions made by the states of Massachusetts, Rhode Island, New Jersey and Maine).

[1192] Section 51.307(e) states, "[a]n incumbent LEC shall provide to a requesting telecommunications carrier technical information about the incumbent LEC's network facilities sufficient to allow the requesting carrier to achieve access to unbundled network elements consistent with the requirements of this section."

[1193] A DS3 circuit has the equivalent capacity to 672 voice-grade loops or 28 DS1 loops.

[1194] *See* AT&T Oct. 4, 2002 *Ex Parte* Letter, Attach. at 12 (stating that transmission electronics generally do not scale with demand); *see also supra* para. 371 (describing costs and other barriers to entry associated with deploying transport facilities).

[1195] The potential revenue stream associated with a single DS3 is far less than the revenue stream associated with aggregating traffic that requires an OCn circuit, yet the cost to deploy the facilities can be practically the same. *See* AT&T Oct. 4, 2002 *Ex Parte* Letter, Attach. at 12 (stating that transmission electronics generally do not scale with demand). Accordingly, it takes a longer period of time for a competitive LEC to recover its costs of deploying a single DS3 transmission facility.

[1196] *See supra* para. 379 (discussing competitive wholesale supply). Importantly, where alternative transport is available, DS3 circuits are very commonly a standard unit of wholesale provisioning.

made available on a wholesale basis at the DS3 level.[1197] However, while some local markets have competitive alternatives, the record does not establish with route-specificity where such deployment has occurred.[1198] While a few competing carriers have stated in the aggregate that there is an alternative transport facility on up to approximately 50 percent of routes they use, these carriers do not serve all geographic areas, especially rural areas, and have not shown that the alternative is available to them.[1199] Although we find that alternative facilities are not available to competing carriers in a majority of areas, the record indicates that, particularly in dense urban areas, alternative transport facilities are readily available. As we describe below, however, we delegate to the states the authority to collect and analyze more specific evidence of transport deployment on a route-specific basis, applying uniform national triggers that measure self-provisioning or wholesale alternative transport availability to determine routes where competitive carriers are not impaired without access to incumbent LEC unbundled DS3 transport.[1200]

388. *Limitation on Multiple DS3 Circuits and OCn*. Consistent with our analysis of dark fiber transport, we find that as a carrier develops traffic along a route consisting of multiple DS3s worth of capacity, it can overcome barriers to entry including sunk costs and economies of

[1197] AT&T uses non-incumbent LEC facilities, including its own facilities, for a substantial portion of its DS3 transport while Allegiance uses non-incumbent LEC facilities for 30% of its DS3 transport. AT&T Comments at 150 (citing confidential data); Allegiance Comments at 28. Thus, the record indicates that when a carrier aggregates sufficient traffic to require DS3 transport, the carrier is not impaired by the fixed costs associated with negotiating for alternative facilities and obtaining a cross-connect.

[1198] BOC UNE Fact Report 2002 at III-2, Table 1 (stating that, on average, only 13% of BOC wire centers have a single competing carrier collocated using non-incumbent transport facilities). However, in the largest 25 MSAs served by each BOC, 35% of BOC wire centers have a single competing carrier collocated using non-incumbent transport facilities. BOC UNE Fact Report 2002 at III-3, Table 2. Additionally, the BOCs argue that larger central offices are more likely to have competitors collocate alternative transport facilities. BOC UNE Fact Report 2002 at III-3, Table 3 (showing that at least one competitive fiber-based collocation exists in 48% of central offices with over 5,000 business lines). Finally, the BOCs argue that the largest metropolitan areas have a significant number of competitive LEC networks. BOC UNE Fact Report 2002 at III-7, Table 4 (showing an average of 15 competitive networks operate in the top 50 MSAs). As discussed above, we find that transport is appropriately reviewed on a route-specific basis. *See supra* para. 376.

[1199] For example, Mpower states that, in 50% of the central offices in which Mpower is collocated, at least one alternative transport provider also is collocated. Mpower Reply at 13-16; Mpower Oct. 11, 2002 *Ex Parte* Letter, Attach. at 5. In the offices in which Covad is collocated in four of Covad's major markets (San Francisco, Chicago, New York Tri-State, and Washington, D.C.), Covad observes that one or more competitors have terminated non-incumbent fiber in over 51% of these central offices. Covad Comments, CC Docket No. 96-98, Declaration of Mark Shipley and Marie Chang at para. 18, Table 1 (filed June 11, 2001).

[1200] As discussed in detail below, we find on a national basis that requesting carriers are not impaired without DS3 transport along point-to-point routes when a state commission finds that either three competing carriers have self-provided transport facilities on that route (irrespective of whether they make available wholesale capacity), or two competing carriers make available wholesale DS3 transport on that route. *See infra* Part VI.C.4.d. We find that our national determination that requesting carriers are impaired without access to DS3 transport, subject to a more granular analysis, benefits small business competitors that operate where no competitive alternatives exist and where self-provisioning is not possible. *See, e.g.*, BrahmaCom Reply at 1-2; Maine CLEC Coalition Comments at 4-5.

scale such that it can prepare to self-deploy transmission facilities or optronic equipment to activate dark fiber.[1201] Indeed, our record shows that carriers add capacity in increments of DS3 capacity as demand for additional transport increases. Based on the predominance of record evidence, we establish a maximum number of twelve unbundled DS3 transport circuits that a competing carrier or its affiliates[1202] may obtain along a single route.[1203] In making this decision, we considered a wide range of evidence in the record. For instance, BellSouth states that one-third of its end offices require only three DS3 transport circuits or less.[1204] Meanwhile, competitive LECs assert that it is not economic for them to deploy transport facilities with less than ten to eighteen DS3 circuits on a route.[1205] Moreover, the record shows that carriers have deployed transmission facilities at the twelve DS3 level and above to serve enterprise customers,[1206] in areas across the country,[1207] and to provide wholesale transmission services and

[1201] *See supra* para. 371 (describing costs and barriers to entry associated with deploying transport facilities).

[1202] We incorporate the Act's definition of "affiliate" to define the extent to which a carrier or its affiliates may obtain multiple DS3 circuits on a route. *See* 47 U.S.C. § 153(1).

[1203] Because our record indicates that the cost of deploying transport can be greater than the cost of deploying some fiber loops, we set the limit on unbundled DS3 circuits at 12 per route, per carrier, higher than the permissible number of DS3 loops per location. *See supra* Part VI.A.4.b.(ii)(c)(iii) (imposing a limitation of two DS3 capacity loops per location).

[1204] Letter from Jonathan Banks, General Attorney, BellSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Feb. 5, 2003) (BellSouth Feb. 5, 2003 Transport *Ex Parte* Letter) (explaining that two-thirds of its end offices are served by fewer than 18 DS3 equivalent circuits while one-third of its end offices require only three DS3 circuits or less, and suggesting that scale economies can be achieved at these capacities); *see also* High-Capacity Loop and Transport Petition (petitioning to eliminate unbundling for all loop and transport circuits greater than DS1 capacity on the basis that competing carriers are not impaired in further deployment because these facilities have been extensively deployed and are available on a wholesale basis).

[1205] *See* Letter from Steven A. Augustino, Counsel for SNiP LiNK, to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-2 (filed Feb. 7, 2003) (SNiP LiNK Feb. 7, 2003 Transport *Ex Parte* Letter) (stating that SNiP LiNK built its own transport facilities when it required the equivalent of 12 DS3 circuits); AT&T Oct. 4, 2002 *Ex Parte* Letter, Attach. at 14 (stating that it makes economic sense for AT&T to deploy transport only when it requires 12 or more DS3s on a route); AT&T Nov. 25, 2002 *Ex Parte* Letter at 1 & Attach. A (stating that, compared to incumbent LEC special access prices, it is economic for AT&T to self-deploy transport only when it has 18 DS3s worth of traffic); Letter from Thomas Jones, Counsel for Allegiance Telecom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Feb. 3, 2003) (Allegiance Feb. 3, 2003 Transport *Ex Parte* Letter) (stating that it is generally economic for Allegiance to deploy facilities when it requires 10 DS3s on a route); Letter from Cathleen A. Massey, Vice President – External Affairs, XO Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-2 (filed Feb. 5, 2003) (XO Feb. 5, 2003 Transport *Ex Parte* Letter) (contending that it is generally economic for XO to deploy facilities when it requires 10 to 12 DS3s on a route); Letter from Patrick J. Donovan, Counsel for Cbeyond, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Feb. 13, 2003) (Cbeyond Feb. 13, 2003 *Ex Parte* Letter) (stating that any limitation "should be close to or at the OC-12 level"); *but see* AT&T Fea/Giovannucci Reply Decl. at para. 28 ("AT&T often engages in joint builds with other CLECs in order to share the high fixed costs of construction.").

[1206] *See* KMC Duke Aff. at paras. 3, 6, 10 (describing how KMC has deployed over 2100 route miles of local SONET transport networks in several geographic markets, an average of 60 miles each, serving customers using self-deployed and unbundled loops at the DS1 capacity and higher); AT&T Comments, Attach. E, Declaration of (continued....)

facilities to carriers.[1208] In limiting the unbundling obligation on a route to twelve DS3 circuits per carrier, we recognize that we are engaging in an act of line-drawing.[1209] Nevertheless, we draw this line as informed by an extensive record and based on our predictive judgment that this point will serve as an incentive for further facilities deployment while still allowing competitive entrants the opportunity to use unbundled transport at lower capacity levels, and to use dark fiber for higher capacities, to attain sufficient scale to self-deploy.[1210]

389. The Commission previously unbundled all transport capacities up "through OC192 and such higher capacities as evolve over time."[1211] We do not perpetuate such broad unbundling today. As described above, we find that requesting carriers are not impaired without lit transport beyond twelve DS3s on a route due to the ability to self-provision transport facilities, or to self-provision optronic equipment necessary to activate unbundled dark fiber. Because we find no impairment above a twelve DS3 level and transport below this level is unbundled, we need not unbundle OCn interface transmission facilities. Rather, we find that dark fiber and multiple DS3 circuits provide reasonable substitutes for OCn interface circuits at these capacities and find that requesting carriers are not impaired without OCn or SONET interface transport.[1212]

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Michael E. Lesher and Robert J. Frontera at para. 9 (citing AT&T's 17,000 fiber route miles); *see also supra* Part IV (describing the evolution of the market for local telecommunications services); SNiP LiNK Feb. 7, 2003 Transport *Ex Parte* Letter at 1-2 (stating that SNiP LiNK built its own transport facilities when it maximized the use of an OC12 circuit).

[1207] For example, KMC serves markets ranging between 100,000 and 750,000 in population using its extensive fiber transport network. KMC Duke Aff. at para. 3; *see also* BOC UNE Fact Report 2002 at III-7, Table 4 (showing that several competitive LECs operate networks, even in much smaller MSAs with an average of 4.8 networks in MSAs ranked 101 to 125 and 3.4 competitive LEC networks in MSAs 126-150). We also note that the costs of deploying fiber in rural areas can be substantially lower, thus requiring a lower aggregation of traffic sufficient to take on the costs of fiber deployment. *See supra* para. 371.

[1208] BOC UNE Fact Report 2002 at III-6 through III-11 (describing "carrier-agnostic" wholesale suppliers and CAPs); Coalition of Competitive Fiber Providers Reply at 1-2 ("Coalition members provide competitive fiber-based transport services and dark fiber to competitive local exchange carriers . . . collocated in ILEC central offices.").

[1209] *See* ALTS Feb. 13, 2003 *Ex Parte* Letter at 4 (stating that an "acceptable trade-off would logically occur at 12 DS-3s.").

[1210] *See infra* para. 403 (indicating the need to draw bright-line rules for the sake of market certainty and administrative practicality).

[1211] *UNE Remand Order*, 15 FCC Rcd at 3842-43, para. 323. Typically, carriers employ OCn circuits in OC3, OC12, OC48, and OC192 capacity intervals. *See supra* note 1154 (describing capacity equivalencies). We also note that most carriers operate their transport networks at OC48 levels as the associated electronics are only incrementally more expensive in relation to the large jump in available scale. AT&T Comments at 134; AT&T Oct. 4, 2002 *Ex Parte* Letter, Attach. at 12 (stating, "transmission electronics . . . generally do not scale with demand (*e.g.*, an OC48 is not generally 4 times as costly as an OC12)").

[1212] Commenting parties provide differing interpretations of the availability of unbundled transport using SONET technology, as set forth in the *UNE Remand Order*. *See UNE Remand Order*, 15 FCC Rcd at 3843, para. 324; NuVox *et al.* Comments at 93-94; BellSouth Comments at 56 ("The Commission has not required ILECs to provide (continued....)

(iii) DS1 Capacity Transport

390. We find that requesting carriers generally are impaired without access to DS1 capacity transport.[1213] We make this determination based on the high entry barriers associated with deploying or obtaining transport used to serve relatively few end-user customers and the lack of route-specific evidence showing sufficient alternative deployment.

391. The record indicates that competing carriers generally cannot self-provide DS1 transport. A carrier requiring only DS1 capacity transport between two points typically does not have a large enough presence along a route (generally loop traffic at a central office) to justify incurring the high fixed and sunk costs of self-providing just that DS1 circuit.[1214] This is because a requesting carrier in need of DS1 capacity transport faces the same fixed and sunk costs as other carriers deploying transport or using alternatives, but faces substantially higher incremental costs across its customer base than a carrier requesting higher capacity transport.[1215]

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unbundled access to SONET rings."). Because we find that competing carriers are not impaired without access to optical capacity transport circuits, there is no need to clarify whether competing carriers can access a circuit directly provided on a SONET interface. However, because an incumbent LEC's interoffice transport facilities often operate using SONET technology, we clarify that incumbent LECs must unbundle DS1 and DS3 capacity circuits and dark fiber (on which a competing carrier may use SONET technology provided by its own electronics) on a point-to-point basis where subject to an unbundling obligation. Specifically, we note that this obligation exists regardless of the underlying technology the incumbent employs, and includes point-to-point transport provided on SONET rings operated by incumbent LECs. *See also infra* Part VII.D (discussing incumbent LEC unbundling obligations for specially constructed network facilities).

[1213] Unlike the DS3 cap we establish today, we do not find it prudent to establish a limit on the number of unbundled DS1 transport circuits a carrier may lease on a route. Instead, we are convinced that both operational and pricing efficiencies exist that serve to limit a competing carrier's incentive to over-subscribe DS1 transport on a route, even where unbundled DS3 transport is not available. Specifically, our record shows that the coordination of large multiples of DS1 circuits quickly becomes burdensome and much more costly than using larger capacity DS3 transport. *See, e.g.*, Letter from Henry Hultquist, Senior Attorney, WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. (filed Oct. 29, 2002) (WorldCom Oct. 29, 2002 Loops and Transport *Ex Parte* Letter).

[1214] DS1 transport is the lowest standard capacity level of dedicated transport, although dedicated transport can be ordered at the DS0 capacity. Unbundled DS0 dedicated transport is not used by competing carriers as a practical matter.

[1215] *See supra* para. 371 (discussing transport costs and entry barriers). Even some incumbent LECs concede that some impairment exists at the DS1 level according to the impairment tests they propose. For example, while BellSouth asserts that transport at the DS3 level and above should not be unbundled, BellSouth proposes to use a trigger proxy at the DS1 level. Letter from Robert T. Blau, Vice President – Executive and Federal Regulatory Affairs, BellSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338 and 02-33, Attach. at 8 (filed Jan. 16, 2003) (BellSouth Jan. 16, 2003 *Ex Parte* Letter); *see also* Letter from W. W. Jordan, Vice President – Federal Regulatory, BellSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-321, 01-338, Attach. at 3 (filed Aug. 26, 2002) (BellSouth/Time Warner Aug. 26, 2002 Transport and Performance Measures *Ex Parte* Letter) (advocating a trigger be applied to determine impairment for all dedicated transport). Similarly, SBC proposes (in the alternative to removing unbundling for all DS1 and above transport) that unbundling for DS1 transport should be determined according to triggers similar to those adopted in the *Pricing Flexibility Order*. SBC Reply at 153.

392. The record also indicates that, although competitive fiber has been deployed in many areas, DS1 transport is not generally made available on a wholesale basis[1216] and the record lacks the specificity for us to analyze appropriately transport on a route-specific basis.[1217] At this time, while we find that the market for competitive wholesale DS1 transport is nascent, even where higher capacity competitive transport is already made available on a wholesale basis, we find that applying a wholesale availability trigger is appropriate. While carriers suggest that a wholesale market for DS1 transport has not developed due to operational and cost considerations, we find that technological advances may allow this market to become practical.[1218] It is our predictive judgment that wholesale provision of DS1 transport will develop as technology improvements make wholesale provision of DS1 circuits economic such that carriers have an incentive to invest in the equipment necessary to provide this capacity service.[1219] As we state below, however, we delegate to the states the ability to collect and analyze more specific evidence of transport deployment on a route-specific basis, applying a uniform national trigger that measures wholesale alternative transport availability to determine routes where competitive carriers are not impaired without access to incumbent LEC unbundled DS1 transport.[1220]

393. We also note that unbundled DS1 transport is often used by competing carriers in a loop/transport combination when collocation at the customer's end-office is uneconomic.[1221] In this manner, DS1 transport is used by competing carriers to expand into new service areas and

[1216] While it is relatively common for carriers to obtain wholesale transport at higher capacities, we have very limited evidence of carriers using alternative DS1 transport. AT&T "almost never" uses non-incumbent LEC facilities for its DS1 transport while it uses non-incumbent LEC facilities a substantially higher percentage of its DS3 transport. AT&T Comments at 149-50 (citing confidential data); *see also* Cbeyond Nov. 22, 2002 Transport *Ex Parte* Letter, Declaration of Richard Batelaan at para. 11 (concluding that "alternative providers for DS1 level transport are at best nascent"); NuVox *et al.* Comments, Affidavit of Edward J. Cadieux (NuVox Cadieux Aff.) at para. 9 (where "third-party providers exist they either do not offer dedicated transport at the DS1 level (only at the DS3 level or higher) or that operational interfaces at the DS1 level are too problematic for third-party providers to be a viable facility source."); ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 3 (stating that competition at the DS3 capacity level does not equate to competition for DS1 transport).

[1217] As discussed in para. 376 above, we find that transport is appropriately reviewed on a route-specific basis.

[1218] Competing transport providers would have to install additional multiplexing equipment and refine back office systems to handle DS1 interface wholesale transport. KMC Duke Aff. at para. 13; NuVox Cadieux Aff. at para. 9 (where "operational interfaces at the DS1 level are too problematic for third-party providers to be a viable facility source"); *see also* Eschelon Kunde Aff. at para. 11 (describing the costs associated with using multiple transport vendors including the added complexity of managing multiple contracts, ordering processes, maintenance processes, and bills).

[1219] Therefore, our wholesale availability test, explained in detail below, while not likely to have an immediate impact at the DS1 capacity level, ensures that our analysis is flexible enough to accommodate innovation in the marketplace.

[1220] As discussed in detail below, we find on a national basis that requesting carriers are not impaired without DS1 transport along point-to-point routes when a state commission finds that two competing carriers make available wholesale DS1 transport on that route. *See infra* Part VI.C.4.d.

[1221] *See infra* Part VII.A (describing combinations of UNEs).

may be used as a transition mechanism for carriers just entering an area, or for carriers serving a customer in an area only as a supplement to its primary operations in another area. In these situations, carriers are able to enter new markets to begin accumulating traffic, but do not have sufficient traffic to self-deploy.[1222] Under our analysis, new market entrants will have the ability to access unbundled DS1 transport, or access DS1 transport from multiple competing carriers.

d. Route-Specific Review Conducted by States Applying Federal Triggers

394. The Supreme Court required that the Commission apply "*some* limiting standard" to its impairment analysis.[1223] In this regard, the Court advised that "[t]he Commission cannot, consistent with the statute, blind itself to the availability of elements outside the incumbent's network," including whether requesting carriers are able to "self-provision, or . . . purchas[e] from another provider."[1224] We also recognize that the D.C. Circuit questioned how the Commission could find that an element like transport "is significantly deployed on a competitive basis," but remains available as an unbundled element from the incumbent LEC.[1225] As discussed above, we make affirmative national findings of impairment and non-impairment for transport at the national level, as supported by the record. However, evidence suggests that requesting carriers likely are not impaired without access to unbundled transport in some particular instances, but evidence in the record is not sufficiently detailed to identify these specific routes. Therefore, as described in detail below, we delegate to states a fact-finding role to identify where competing carriers are not impaired without unbundled transport, pursuant to two triggers.

395. Commenting parties suggested various proposals for how the Commission should apply a more granular impairment analysis for dedicated transport as suggested in the *Triennial Review NPRM*. We review these proposals here as they inform our conclusions about an appropriate level of granularity.

396. While the competitive LEC community generally supports unlimited unbundling of all transport,[1226] in the alternative, competitive LECs generally support removing the unbundling obligation for transport on a route-specific basis only when a transport market on that route is fully competitive.[1227] ALTS and CompTel proposed that the Commission adopt the

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[1222] For the reasons outlined above, nationwide availability of DS1 transport will benefit small business competitors, especially those just entering a new market, as well as small business telecommunications consumers that use DS1 capacity services.

[1223] *Iowa Utils. Bd.*, 525 U.S. at 388.

[1224] *Id.* at 389.

[1225] *USTA*, 290 F.3d at 422.

[1226] *See, e.g.*, ALTS *et al.* Comments at 60-61; NuVox *et al.* Comments at 84-91.

[1227] *See, e.g.*, Letter from H. Russell Frisby, President, CompTel, and John Windhausen, President, ALTS, to William F. Maher, Chief, Wireline Competition Bureau, FCC, CC Docket No. 01-338, Attach. at 1-4 (filed Oct. 8, 2002) (ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter); ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* (continued....)

Department of Justice merger guidelines to determine when each transport route is sufficiently competitive because such a test will ensure that no alternative transport provider, or the incumbent LEC, maintains market power along every route for which no impairment is found. We reject this proposal because, as we describe above, this introduces a standard other than the impairment standard we have adopted more generally for determining unbundling obligations.[1228] Additionally, market power analyses are neither easily verifiable nor administratively simple for purposes of our instant inquiry; they rely on market share analysis that is complicated and requires considerable time and expense to prepare.[1229] Moreover, such an analysis is likely to be controversial and difficult to resolve.[1230] We conclude that a route-specific bright-line standard is more manageable for the parties and administratively more practical.[1231]

397. SBC, Verizon, and BellSouth all propose that the Commission find no impairment for all DS3 and greater transport, including dark fiber.[1232] In the alternative, they and Qwest argue that if the Commission should adopt a trigger to identify impairment, the Commission should adopt a competitive trigger based on those in the Commission's *Pricing Flexibility Order* for special access.[1233] In general, these incumbent LECs argue that wherever and whenever they

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Letter at 5-6; Letter from Douglas I. Brandon, Vice President – External Affairs and Law, AT&T Wireless, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-3 (filed Dec. 20, 2002) (ATTWS Dec. 20, 2002 *Ex Parte* Letter). Indeed, competitive LECs opposed geographic granular analysis that did not consider route-specific factors, or applied only to broader geographic areas. *See, e.g.*, ALTS Feb. 13, 2003 *Ex Parte* Letter at 3-4; Letter from Praveen Goyal, Senior Counsel, Covad, to Michelle Carey, Chief, Competition Policy Division, Wireline Competition Bureau, FCC, CC Docket No. 01-338 at 4-5 (filed Jan. 21, 2003) (Covad Jan. 21, 2003 *Ex Parte* Letter).

[1228] *See supra* Part V.B.1.d.(iii) (describing why the Commission does not adopt an antitrust-style market power analysis as a part of its impairment analysis).

[1229] *See Pricing Flexibility Order*, 14 FCC Rcd at 14271-72, para. 90.

[1230] *Id.*

[1231] *See, e.g.*, WorldCom Reply at 127 (suggesting a bright-line standard of four wholesale competitors on a route); Allegiance Reply at 47 (suggesting a bright-line standard of four wholesale competitors on a route); Letter from Thomas Jones, Counsel for Allegiance, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-5 (filed Jan. 30, 2003) (Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter) (proposing a bright-line standard of 2 competitive wholesale providers or 3 competitive providers on a route as sufficient to satisfy the impairment standard); XO Jan. 28, 2003 Transport *Ex Parte* Letter at 1-2 (advocating a bright-line route-based standard of at least four competitors collocated at both end points of a transport route, three of which must offer wholesale transport).

[1232] *See, e.g.*, Verizon Comments at 105-13; BellSouth Comments at 90-102; SBC Comments at 96. To the extent that these arguments are based on the availability of incumbent LEC tariffed "special access" services serving as an alternative to UNEs, we address these arguments in our impairment analysis, *supra* Part V.B.1.d.(iii). *See* Verizon Dec. 17, 2002 *Ex Parte* Letter at 1, 8-11 (arguing that competitive LECs are not impaired without unbundled transport because they use incumbent LEC special access transport services).

[1233] *See, e.g.*, Qwest Comments at 32-39. We note that while their various proposals may differ slightly, they are all based expressly on the triggers set forth in the Commission's *Pricing Flexibility Order*. *Pricing Flexibility Order*, 14 FCC Rcd 14221.

have received pricing flexibility for special access, they should not be required to unbundle transport.[1234] The record indicates that incumbent LECs have qualified for special access pricing flexibility in numerous MSAs throughout their regions, almost exclusively by meeting the triggers based on special access revenues.[1235] Because the revenue trigger requires only a single collocated competitor and the purchase of substantial amounts of special access in a concentrated area, this test provides little indication that competitors have self-deployed alternative facilities, or are not impaired outside of a few highly concentrated wire centers. Additionally, the pricing flexibility trigger based on alternative transport-based collocation requires no consideration of the ubiquity of the competitive transport facilities throughout an MSA. The measure does not indicate that the competitive fiber facilities connect to collocations in any other incumbent LEC central offices. The measure may only indicate that numerous carriers have provisioned fiber from their switch to a single collocation rather than indicating that transport has been provisioned to transport traffic between incumbent LEC central offices. Therefore, we find that Commission approval for special access pricing flexibility, finding that competing carriers have made "irreversible sunk investments," is not sufficiently tailored to identify where requesting carriers are not impaired without unbundled transport.[1236]

398. There is no disagreement among the parties that alternative transport facilities have been deployed and are available as alternatives to unbundled transport in some locations. However, the record does not identify the location of alternative transport facilities, and parties dispute the degree to which competitive facilities must be deployed before competing carriers are no longer impaired without unbundled transport. We need not resolve in this Order the factual identification of where alternative facilities exist. Rather, we are able to discern impairment at the national level based on aggregated data. However, because we recognize that the record is insufficiently detailed to make more precise findings regarding impairment, we delegate to the states, subject to appeal back to this Commission if a state fails to act, a fact-finding role to

[1234] *See, e.g.*, Qwest Comments at 32. Although they argue non-impairment should be identified based on Phase I pricing flexibility, in the alternative, the BOCs argue that Phase II pricing flexibility should apply as a non-impairment trigger. Phase I pricing flexibility for certain special access services is triggered on an MSA basis when (1) 15% of wire centers have one collocated competitor using non-incumbent transport, or (2) in wire centers accounting for at least 30% of revenues for these services, at least one competitor has collocated using non-incumbent transport. Phase II pricing flexibility is triggered on an MSA basis when (1) 50% of wire centers have one collocated competitor using non-incumbent transport, or (2) in wire centers accounting for at least 65% of revenues for these services, at least one competitor has collocated using non-incumbent transport. *See* 47 C.F.R. § 69.709.

[1235] *See supra* note 1234 (describing the *Pricing Flexibility Order* triggers based, alternatively, on competitive transport-based collocation or special access revenues); *see also* NewSouth Dec. 12, 2002 *Ex Parte* Letter at 2 (describing details of where and how BellSouth has received special access pricing flexibility); BellSouth Oct. 15, 2002 Transport and Loop *Ex Parte* Letter, Attach. at 5 (stating that BellSouth has received Phase I and Phase II special access pricing flexibility in 100% of nation's top 150 MSAs in its region); Verizon Dec. 17, 2002 *Ex Parte* Letter at 7 (stating that Verizon has pricing flexibility in 37% of its wire centers); Qwest Oct. 11, 2002 Transport *Ex Parte* Letter, Attach. at 5 (stating that Qwest has been granted pricing flexibility in 33 of its 45 MSAs, many of which are not national top 100 MSAs).

[1236] *See supra* Part V.B.1.d.(iii) (distinguishing the purposes of the "impair" standard and the pricing flexibility standard).

determine on a route-specific basis where alternatives to the incumbent LECs' networks exist such that competing carriers are no longer impaired.[1237]

399. As discussed above, the record indicates that competing carriers have self-deployed significant quantities of local fiber transport facilities. Moreover, the record indicates that competing carriers often use transport provided by competitive transport providers where available, rather than facilities provided by the incumbent LEC. However, substantial barriers to self-deploying transport including high fixed and sunk costs indicate that carriers are impaired in many instances without access to incumbent LEC facilities. Therefore, we adopt two triggers designed to identify where carriers are not impaired without access to incumbent LEC transport based on the two primary ways carriers can overcome impairment: (1) the ability to self-deploy facilities, and; (2) access to third party alternatives.[1238] We adopt both triggers to best address the guiding principles provided by reviewing courts.[1239]

400. The first trigger is designed to identify routes along which the ability to self-provide transport facilities is evident based on the existence of several competitive transport facilities. Specifically, where three or more competing carriers, not affiliated with each other or the incumbent LEC, each have deployed non-incumbent LEC transport facilities along a specific route, regardless of whether these carriers make transport available to other carriers, we find that to be sufficient evidence that competing carriers are capable of self-deploying.[1240] The second trigger is designed to identify where competitive wholesale alternatives are available. Specifically, we find that competing carriers are not impaired where competing carriers have available two or more alternative transport providers, not affiliated with each other or the incumbent LEC, immediately capable and willing to provide transport at a specific capacity along a given route between incumbent LEC switches or wire centers.[1241] If a state commission finds no impairment for a specific capacity of transport on a route, the incumbent LEC will no longer be required to unbundle that transport along that route, according to the transition schedule adopted by the state commission.

[1237] Appeals of state inaction shall be filed as pursuant to the procedures we adopt today. *See supra* Part V.E.

[1238] *See Iowa Utils. Bd.*, 525 U.S. at 389; *see also supra* Part V.B (discussing the impair standard).

[1239] We expect states to implement both triggers as each addresses only part of the analysis. Were we to adopt (or states to implement) only a test for the ability to self-provision transport, two carriers could conceivably deploy transport facilities and make them available to other carriers such that competing carriers are not impaired without access to the incumbent LEC's facilities, but the incumbent would remain subject to an unbundling obligation. Likewise, were we to adopt (or states to implement) only a test for wholesale availability, it is possible that wholesale opportunities may not exist despite the ability of several carriers to overcome the barriers to deploy along a route. We note that where a state makes a finding of non-impairment under either trigger, there is no reason to apply the other trigger on that route.

[1240] *See infra* para. 405.

[1241] *See infra* para. 413.

401. Both triggers we adopt today evaluate transport on a route-specific basis. We define a route, for purposes of these tests, as a connection between wire center or switch "A" and wire center or switch "Z."[1242] Even if, on the incumbent LEC's network, a transport circuit from "A" to "Z" passes through an intermediate wire center "X," the competitive providers must offer service connecting wire centers "A" and "Z," but do not have to mirror the network path of the incumbent LEC through wire center "X." We find that analyzing transport at this very granular level will provide the most accurate determination of impairment. BellSouth's and other BOC's fiber-based collocation proposals are based solely on the presence of alternative transport at one end of a route such that when one end of a route is competitive (a central office with fiber-based collocation), no unbundled transport will be available in or out of that competitive central office.[1243] These proposals would effectively leverage the existence of competition in one location to remove the unbundling obligation to perhaps several other locations without any proof that a requesting carrier could self-provide or utilize alternative transport to reach those other locations.[1244] A route-specific test is sufficiently granular to avoid falsely identifying as competitive a route between two offices.[1245] Also, the route-based triggers we adopt allow carriers to avoid the costs and operational problems associated with cobbling together multiple vendor links to complete a route between two incumbent LEC central offices.

402. We consider, but decline to adopt, a test based on each link between two incumbent LEC central offices.[1246] While this may have benefits of being easier to implement, a link-specific test raises practical operational problems of linking together facilities of multiple providers to complete a single circuit, sometimes called daisy-chaining. That is, a competing carrier may have to coordinate multiple vendors for a single route if the complete route a competing carrier requests goes through an intermediate central office and one of the two links

[1242] *See, e.g.*, Letter from Steven A. Augustino, Counsel for SNiP LiNK *et al.*, to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3-6 (filed Jan. 24, 2003) (SNiP LiNK *et al.* Jan. 24, 2003 Transport *Ex Parte* Letter); Letter from Michael H. Pryor, Counsel for NewSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, Attach. at 2 (filed Feb. 3, 2003) (NewSouth Feb. 3, 2003 Transport *Ex Parte* Letter); Letter from Jonathan Askin, General Counsel, ALTS, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 1 (filed Jan. 29, 2003) (ALTS Jan. 29, 2003 Transport *Ex Parte* Letter); Covad Jan. 21, 2003 *Ex Parte* Letter at 1, 4-5.

[1243] *See, e.g.*, BellSouth and Time Warner Telecom propose finding no impairment for unbundled transport where "3 or more competitive transport providers exist in either A or Z wire center." BellSouth/Time Warner Aug. 26, 2002 Transport and Performance Measures *Ex Parte* Letter, Attach. at 3.

[1244] *See, e.g.*, ALTS *et al.* Comments at 67.

[1245] *See* ALTS Jan. 29, 2003 *Ex Parte* Letter at 1; SNiP LiNK *et al.* Jan. 24, 2003 Transport *Ex Parte* Letter at 3-6; Covad Jan. 21, 2003 *Ex Parte* Letter at 4-5. As ALTS and CompTel state in a metaphor, "[A] passenger at Dulles Airport seeking to fly to San Francisco would not ask an airline: 'Do any of your flights have seats available?' Instead, the question would be: 'Do any of your flights to San Francisco have seats available?'" ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter at 1.

[1246] By a "link," we mean a direct connection between two incumbent LEC switches or wire centers, without passing through any intermediate wire centers or switches. On the other hand, a "route" may connect wire centers or switches that are not directly connected to each other.

comprising the complete route is not unbundled.[1247] This almost inevitably would raise costs, increase provisioning time intervals, and make maintenance and repair more difficult.[1248] We also consider, but decline to adopt, an analysis of transport markets on a broader scale, such as a city, MSA, or other zone and reject these approaches as too over- and under-inclusive.[1249] That is, there may be actual impairment on some routes, but not others within a wider geographic area. Thus, a finding of impairment or non-impairment throughout an area could permit unbundling on routes where no impairment exists, or foreclose access to unbundled transport on routes where impairment does exist.

403. As the Commission has done in other circumstances, we adopt these triggers as a mechanism for determining impairment. Adopting triggers with objective criteria can avoid the delays caused by protracted proceedings and can minimize administrative burdens.[1250] Our selection of various thresholds, as in rate setting, is not an exact science.[1251] Rather, the thresholds are based on our agency expertise, our interpretation of the record, and our desire to provide bright-line rules to guide the industry in implementing section 251.[1252] Our effort to select triggers that precisely measure impairment for transport is hampered by the lack of verifiable data concerning competitor's facilities. Given these constraints, we adopt triggers that, in our reasoned judgment, minimize administrative burdens while still reasonably applying our impairment standard.

404. We also expect that the triggers we adopt will produce desirable incentives for competing carriers to build out their transport networks. As a policy matter, we find that unbundling can create a disincentive for competitive LECs to deploy transport. After incurring substantial fixed and sunk costs, a carrier that has deployed transport facilities must continue to compete against carriers able to obtain unbundled transport without incurring any large costs. Moreover, the triggers will benefit competing carriers that invest or have invested in their own transport facilities by attracting additional wholesale customers to mitigate the costs of deployment if their facilities trigger a finding of no impairment that eliminates unbundling.

[1247] ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 3, 6 & Attach. A (describing the costs associated with not using a whole route approach and multi-span routes).

[1248] *Id.*

[1249] *See supra* para. 397 (discussing incumbent LEC suggestions to incorporate the MSA-based *Pricing Flexibility Order* triggers into the Commission's impairment analysis of transport).

[1250] *Pricing Flexibility Order*, 14 FCC Rcd at 14267-68, para. 84.

[1251] *United States v. FCC*, 707 F.2d 610, 618 (D.C. Cir. 1983); *see also Pricing Flexibility Order*, 14 FCC Rcd at 14276, 14297-98, paras. 96, 144.

[1252] Although ALTS and CompTel do not support a test based on a strict count of the number of alternative transport providers, they urge the Commission to set numbers "at a level sufficient to insure meaningful competition, and that the viability of the providers is clear and unquestioned." ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter, Attach. at 2.

(i) Self-Provisioning Trigger

405. We delegate to state commissions the authority to declare requesting carriers not to be impaired without unbundled transport when there is sufficient evidence that facilities deployment is possible on a particular route, regardless of the availability of wholesale transport. Reviewing courts have instructed the Commission to identify those areas in which lack of access to an incumbent LEC's facilities does not present an insurmountable barrier to entry as evidenced by the suitability of "multiple, competitive supply."[1253] As noted above, we give substantial weight to actual commercial deployment of an element by competing carriers.[1254] Therefore, our trigger identifies existing examples of deployment by multiple competitive LECs on a route-specific basis. Specifically, we delegate to states authority to determine where three or more unaffiliated competing carriers each have deployed transport facilities on a route.[1255] We find that, when three carriers, in addition to the incumbent LEC, have each made sunk investment in transport facilities on a route, that is a sufficient indication that sunk costs, economies of scale, and other barriers to deploying transport facilities do not present an insurmountable barrier on a particular route such that requesting carriers are not impaired without access to unbundled transport.

406. Each counted self-provisioned facility along a route must be operationally ready to provide transport into or out of an incumbent LEC central office.[1256] We find that the competitive transport facilities counted to satisfy this trigger must terminate in a collocation arrangement which may be arranged either pursuant to contract, tariff or, where appropriate, section 251(c)(6) of the Act.[1257] We find it beneficial to count for purposes of this test all types of collocation

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[1253] *USTA*, 290 F.3d at 427; *see supra* Part V.B. (discussing the framework for the Commission's impairment analysis).

[1254] *See supra* Part V.B. (discussing the impair standard).

[1255] Allegiance proposes a granular impairment analysis to identify where carriers can self-provision very similar to this test. *See* Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter at 2-4; Letter from Thomas Jones, Counsel for Conversent, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1 (filed Feb. 5, 2003) (Conversent Feb. 5, 2003 *Ex Parte* Letter) (supporting the transport impairment test Allegiance proposes in its January 30, 2003 *ex parte* letter).

[1256] This requirement is intended to preclude counting competitive facilities before the facility is capable of operation on that route. For example, the incumbent LEC must have fully provisioned the collocation arrangement (*e.g.*, provided space and power) before the route could be considered complete. In this same regard, states should not review the financial stability of alternative transport provisioners, except to the extent the carrier remains in operation. *See infra* para. 415. States also shall consider carriers that have self-deployed intermodal transport facilities that meet the requirements of this trigger.

[1257] Collocation may be in a more traditional collocation space or fiber can be terminated on a fiber distribution frame, or the like, to which any other competing carrier collocated in that central office can obtain a cross-connect under nondiscriminatory terms. *See* MFN Riordan Aff. at paras. 6-13 (describing Verizon's CATT arrangement for terminating transport fibers). Our impairment analysis recognizes alternatives outside the incumbent LEC's network regardless of the authority under which they came to exist.

arrangements, including those that may not qualify for collocation under section 251(c)(6).[1258] This provides an incentive to incumbent LECs to enable competitive LEC, including the "carrier-agnostic" wholesale transport providers, identified by incumbent LECs, to develop their transport networks by developing viable alternatives to unbundled transport.[1259]

407. We set the number of competitive facilities at three for several reasons. First, we want to be assured that the route can support "multiple, competitive" transport networks. Second, setting the trigger at three competitive facilities allows for the possibility that some network owners may not be interested in providing wholesale services, in contrast with the wholesale availability trigger which counts only actual wholesalers.[1260] Third, due to the sunk nature of transmission facilities, facilities will remain on a route even if a competitive transport provider exits the market.[1261] Furthermore, we note that where, through the application of this trigger, impairment for unbundled transport at a particular capacity is no longer found, substantial competitive transport facilities, and perhaps other capacities of UNE transport will be available.[1262] Therefore, if this trigger removes unbundled transport at a particular capacity level, carriers will remain capable of serving end-user customers in all areas. This will provide certainty for new market entrants.

408. The competitive transport providers identified to satisfy this trigger on a route must be unaffiliated with the incumbent LEC and each other.[1263] This requires that separate facilities are counted and avoids counting as a true alternative a provider that uses the transport facilities of the incumbent LEC or another alternative provider to provide service on that

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[1258] *See* Coalition of Competitive Fiber Providers Petition for Declaratory Ruling, CC Docket No. 01-77 (filed Mar. 15, 2001) (stating that competitive fiber providers must reach a central office in order to be able to provide alternative transport to competing carriers collocated there, but are often denied access to section 251(c)(6) collocation rights); Coalition of Competitive Fiber Providers Reply at 3-9; ALTS *et al.* Comments at 69; Cbeyond Nov. 22, 2002 *Ex Parte* Letter at 2.

[1259] MFN Riordan Aff. at paras. 6-13; *see* BOC UNE Fact Report 2002 at III-6.

[1260] *See, e.g.*, KMC Duke Aff. at paras. 12-14 (indicating KMC's lack of interest in providing wholesale transport services on its network).

[1261] UNE Fact Rebuttal Report at 20-24, 41-43.

[1262] Transport facilities may also be available from the incumbent LEC as a special access service. As noted in our earlier general discussion, the presence or absence of these facilities is not a factor in our impairment analysis.

[1263] Affiliated companies will be counted together in order to prevent gaming. We use the term affiliated and affiliate as the Act defines "affiliate." Section 3 of the Act defines the term "affiliate" as "a person that (directly or indirectly) owns or controls, is owned or controlled by, or is under common ownership or control with, another person. For purposes of this paragraph, the term 'own' means to own an equity interest (or the equivalent thereof) of more than 10 percent." 47 U.S.C. § 153(1). As discussed above, we find, for the limited purposes described herein, that when a company acquires dark fiber, but not lit fiber, from another carrier on a long-term IRU or comparable basis, that facility should be counted as a separate, unaffiliated facility. *See* ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 3 (stating that, for a route-specific test, "a facilities-based transport provider must offer transport capacity via fiber it either owns, or else leases from a third party via long term lease.").

route.[1264] We find, however, that when a company has obtained dark fiber from another carrier on a long-term IRU basis and activated that fiber with its own optronics, that facility should be counted as a separate, unaffiliated facility.[1265] As described above, the record suggests that competing carriers are able to engage and have engaged in joint efforts to deploy transport, so that imposing a trigger that requires each facility on a route to have been separately deployed would fail to consider and may inhibit such cooperative deployment efforts.[1266] However, each competitive transport facility on a route counted to satisfy the trigger must terminate in a collocation arrangement in the incumbent LEC central office. This demonstrates that true alternatives to the incumbent LEC's network have been deployed[1267] and is consistent with the Supreme Court's interpretation of impairment.[1268] There is no requirement that the competing carriers identified to meet this trigger offer wholesale access to their transport networks.

409. *Specific Application.* As described above, the record indicates that competing carriers generally cannot self-provide DS1 transport. Therefore, we find that the self-provisioning trigger described above should not apply at the DS1 level.

410. *State Analytical Flexibility.* In applying the self-provisioning trigger, we find that actual competitive deployment is the best indicator that requesting carriers are not impaired and, therefore, emphasize that this quantitative trigger is the primary vehicle through which non-impairment findings will be made. However, we recognize that this trigger identifies only the existence of *actual* competitive facilities and does not address the *potential* ability of competitive

[1264] Thus, the self-provisioning trigger may be satisfied on a route by a combination of carriers' facilities that were self-deployed to provide wholesale transport to other carriers and facilities self-deployed by carriers to serve their own needs.

[1265] ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 3 (stating that, for a route-specific test, "a facilities-based transport provider must offer transport capacity via fiber it either owns, or else leases from a third party via long term lease."). For purposes of this test, a competing carrier that has obtained dark fiber transport facilities from the incumbent LEC on an IRU basis should be considered to operate its own unaffiliated facilities. We believe that dark fiber IRU-type contracts protect against short-term gaming of this trigger. Moreover, we do not want to foreclose incumbent LECs from negotiating dark fiber IRU agreements with competitive LECs. Because we want to be certain of the independent ownership of the transport facilities, we find that consideration of transport facilities transferred on an IRU basis is limited to dark fiber and does not include "lit" fiber IRUs.

[1266] AT&T Fea/Giovannucci Reply Decl. at para. 28 (describing coordinated deployment projects); *see* Letter from Stephen W. Crawford, General Counsel, El Paso Global Networks, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 6 (filed Feb. 5, 2003) (El Paso Feb. 5, 2003 Transport *Ex Parte* Letter) (asserting that only separately deployed facilities should be considered); Letter from Jonathan D. Lee, Vice President – Regulatory Affairs, CompTel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 12-13 (filed Feb. 6, 2003) (CompTel Feb. 6, 2003 Dark Fiber *Ex Parte* Letter) (asserting that only separately deployed facilities should be considered).

[1267] As the Commission explained in the *Pricing Flexibility Order*, the lease of facilities from the incumbent does not indicate the type of lasting competitive infrastructure that can provide competition. *See Pricing Flexibility Order*, 14 FCC Rcd at 14270-71, para. 88.

[1268] *Iowa Utils. Bd.*, 525 U.S. at 389 (discussing "self-provision" and looking for "the availability of elements *outside* the incumbent's network") (emphasis added).

LECs to deploy transport facilities along a particular route.[1269] Therefore, when conducting its analysis, a state must consider and may also find no impairment on a particular route that it finds is suitable for "multiple, competitive supply," but along which this trigger is not facially satisfied. States must expressly base any such decision on the following economic characteristics: local engineering costs of building and utilizing transmission facilities; the cost of underground or aerial laying of fiber; the cost of equipment needed for transmission; installation and other necessary costs involved in setting up service; local topography such as hills and rivers; availability of reasonable access to rights-of-way; the availability or feasibility of alternative transmission technologies with similar quality and reliability; customer density or addressable market;[1270] and existing facilities-based competition. We believe that it is important to delegate this limited additional analysis because states are best positioned to analyze the characteristics of local markets where national aggregation does not appear possible.[1271]

411. In other instances, by contrast, states may identify impairment on specific routes that facially satisfy the self-provisioning trigger, but where some significant barrier to entry exists such that deploying additional facilities is entirely foreclosed. For example, a state might find impairment, despite the facial satisfaction of this trigger, if a municipality has imposed a long-term moratorium on obtaining the necessary rights-of-way such that a competing carrier can not deploy new facilities. In these circumstances, a state commission may petition the Commission for a waiver of application of the trigger until the impairment to deployment identified by the state no longer exists. Nevertheless, as explained in the following Subpart, a state must make a finding of non-impairment under the wholesale availability trigger if two or more carriers make transport available at wholesale, pursuant to the trigger.

(ii) Competitive Wholesale Facilities Trigger

412. Because the record demonstrates that competing carriers can obtain transport facilities from alternative providers offering wholesale dark fiber, DS3, and DS1 capacity transport along certain routes, carriers are not impaired without access to unbundled transport along those routes at the capacities made available. However, the record before the Commission is not granular enough to determine along which routes multiple alternative providers are able and willing to offer service to other competing carriers on a point-to-point basis. Therefore, we delegate to state commissions the fact-finding role of identifying on which routes requesting carriers are not impaired without unbundled transport at a specific capacity when there is evidence that two or more competing carriers, not affiliated with each other or the incumbent

[1269] For example, incumbent LECs claim that competing carriers have deployed transport networks that entirely "bypass" parts of the incumbent LECs' networks. *See* BOC UNE Fact Report 2002 at III-4; *WorldCom v. FCC*, 238 F.3d. 440, 462 (D.C. Cir. 2001) (quoting *Pricing Flexibility Order*, 14 FCC Rcd at 14275-76, para. 95).

[1270] The record indicates that competitive transport facilities are most likely to connect central offices with large addressable markets. *See* BOC UNE Fact Report 2002 at III-3, Table 3.

[1271] *See, e.g.*, Michigan Commission Comments at 4-5; Massachusetts Department Comments at 3; Kansas Commission Comments at 4; Ohio Commission Comments at 10; Oklahoma Commission Comments at 4.

LEC, offer wholesale transport service completing that route.[1272] This test ensures that transport can readily be obtained from a firm using facilities that are not provided by the incumbent LEC.

413. We choose two competitive wholesale providers as the appropriate trigger because it ensures the suitability of "multiple, competitive supply" and will provide an incentive for new transport facilities deployment while allowing competitive pressures from the wholesalers to control pricing and terms.[1273] A competing carrier that is considering whether to deploy transport facilities for the purpose of providing a wholesale offering is likely to be encouraged to deploy if its deployment will eliminate transport priced at TELRIC, which is often lower than incumbent LEC tariffed special access rates. Because we want to provide an incentive for competing carriers to deploy facilities, we avoid setting the required number of wholesalers as high as competing carriers suggest.[1274] Finally, we find that two wholesale providers, in addition to the incumbent LEC, should provide competitive pressures on pricing and terms and avoid "umbrella pricing" while providing incentives to deploy.[1275]

[1272] Although wholesale providers may lease entire transport ring offerings, for purposes of this trigger, a wholesale offering must be made available on a route-specific basis. *See* El Paso Feb. 5, 2003 Dark Fiber *Ex Parte* Letter at 5-6.

[1273] *USTA*, 290 F.3d at 427. Although Allegiance initially advocated the use of the Department of Justice market concentration guidelines, Allegiance asserts that two is an appropriate number of competitive wholesale providers on a route to identify non-impairment. Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter at 1-4. We also find, given the way we have developed our triggers for transport, that setting the number of wholesale providers at three or more would conflict with our determination that three self-provisioned facilities on a route indicates a lack of impairment on that route. *See supra* para. 407.

[1274] *See, e.g.*, WorldCom Reply at 127; ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter at 2; El Paso Feb. 5, 2003 Transport *Ex Parte* Letter at 2-4. If we established a higher number than two as the threshold, such as four, to ensure the market is fully competitive, the first potential entrant might be deterred from deploying facilities by the prospect of facing competition from providers using unbundled transport for a long time – until three other competitors deployed facilities. With a threshold of two, the first entrant to deploy and wholesale facilities need only wait until one other entrant deploys and wholesales facilities before a finding of no impairment is warranted and they no longer face competition with transport priced at TELRIC.

[1275] Umbrella pricing occurs when a smaller market entrant is able to price its product or service immediately below the price of the larger market leader, but does not have sufficient market presence to affect the market leader's price. *See* CARLTON & PERLOFF, MODERN INDUSTRIAL ORGANIZATION 111 (3d ed.) (stating, "[i]t is often asserted that a dominant firm provides a *pricing umbrella* for smaller firms. As long as competing firms price at or below the level of the dominant firm, they will be able to find buyers."). We find that the risk of umbrella pricing is high when only one wholesale competitor enters the market in competition with the incumbent LEC, but is substantially reduced when two or more competitors provide wholesale transport in competition with the market leader, the incumbent LEC. *See also* Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter at 4 (stating, "the choice of two non-ILEC wholesalers . . . avoids the extreme inefficiencies created by a duopoly market structure."). We therefore recognize the balance between encouraging facilities deployment and ensuring that competitors have access to facilities on a competitive basis.

414. The competitive transport providers identified to satisfy this trigger must be unaffiliated with the incumbent LEC and each other.[1276] This requires that separate facilities are counted and avoids counting as a true alternative a provider that uses the lit transport facilities of the incumbent LEC or another alternative provider to provide service on that route. We find, however, that when a wholesale transport provider has obtained dark fiber from another carrier, including unbundled dark fiber from the incumbent LEC, and activates and operates that fiber with its own optronic equipment, that facility should be counted as a separate, unaffiliated facility.[1277] Additionally, the competitive transport providers must be operationally ready and willing to provide the particular capacity transport on a wholesale basis along the specific route.[1278] This safeguards against counting alternative fiber providers that may offer service, but do not yet have their facilities terminated or collocated in the incumbent LEC central office, or are otherwise unable immediately to provision service along the route.[1279] Moreover, the quality and terms of the competing carriers' wholesale offerings need not include the full panoply of services offered by incumbent LECs.[1280] Finally, for purposes of this test, the competitive transport provider must make the specific capacity transport services widely available. These

[1276] We use the term affiliated and affiliate as the Act defines "affiliate." Section 3 of the Act defines the term "affiliate" as "a person that (directly or indirectly) owns or controls, is owned or controlled by, or is under common ownership or control with, another person. For purposes of this paragraph, the term 'own' means to own an equity interest (or the equivalent thereof) of more than 10 percent." 47 U.S.C. § 153(1).

[1277] Competing carriers that offer wholesale DS1 and DS3 transport using unbundled dark fiber will be counted for purposes of this test if they activate and operate the unbundled dark fiber with their own electronic equipment. However, the availability of unbundled dark fiber will not affect the application of this wholesale availability trigger as applied to dark fiber. Thus, a provider of wholesale dark fiber must own the fiber it wholesales. *See* Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter at 3 (stating that the Commission should consider as viable wholesale alternatives competing carriers that obtain dark fiber on a long-term basis and activate that fiber with their own electronics); ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 3 (stating that, for a route-specific test, "a facilities-based transport provider must offer transport capacity via fiber it either owns, or else leases from a third party via long term lease.").

[1278] *See* ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter, Attach. at 3; Cbeyond Nov. 22, 2002 *Ex Parte* Letter at 2 (asserting that the Commission should ensure that competitive fiber providers are able to extend facilities into incumbent central offices and establish a presence in that central office that will permit ready and economical access to competing carriers). States also shall consider carriers that utilize intermodal transport facilities to provide wholesale transport capacity to the extent that they satisfy the requirements of this trigger.

[1279] We believe that a connection such as a cross-connect between collocations, or the ability to connect to a competitive fiber termination panel, similar to the CATT tariffed offering by Verizon, qualifies as ready to provision, so long as other carriers can obtain such a connection in a reasonable and nondiscriminatory manner. *See* ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter, Attach. at 3 (advocating that economical and reliable access to competitive transport facilities should be a prerequisite of a route-by-route analysis); MFN Riordan Aff. at paras. 6-11 (describing Verizon's CATT fiber termination offering). This ensures that the wholesale trigger counts only wholesale offerings that are readily available. The Commission's collocation rules provide clarity on nondiscriminatory principles including the right to interconnect with other collocated competing carriers by cross-connection. *See generally Collocation Remand Order*, 16 FCC Rcd 15435.

[1280] We expect that providers of alternative transport will have an incentive to offer competitive terms with those of the incumbent LEC.

provisions avoid counting alternative transport facilities owned by competing carriers not willing to offer capacity on their network on a wholesale basis.[1281]

415. We find that states should not evaluate any other factors, such as the financial stability or well-being of the competitive transport providers.[1282] Bankrupt competing carriers in Chapter 11 are often still providing service and, regardless of their financial status, the physical assets remain and may be bought by someone else and remain in service.[1283] Requiring states to determine the financial ability of competitive wholesale providers to provide service in the future could hamper economic recovery efforts of companies in financial distress. The key principle is that they are currently offering and able to provide service.[1284] Another factor that states should not consider is whether the incumbent LEC allows multi-vendor end-to-end testing of circuits.[1285] Our trigger looks at the entire requested route and so avoids the pitfalls of multi-span patchwork problems. Finally, we do not expect states to consider the economic feasibility of competitive offerings.[1286] Again, this type of review would engender great uncertainty and variability from state to state. We find that economic forces will act to constrain uneconomic wholesale offerings. Moreover, an offering that may not be feasible for one competing carrier may be feasible for another.

416. *Specific Application to Different Capacities.* Unlike the wholesale availability tests for lit DS1 and DS3 transport, unbundled dark fiber from the incumbent LEC is not to be considered a wholesale alternative for dark fiber. States may ensure that wholesalers of dark fiber have sufficient quantities of dark fiber available to satisfy current demand.[1287]

(iii) State Action Under Both Triggers

417. We expect states to complete their initial reviews applying the triggers and other analysis discussed above within nine months from the effective date of this Order. Unbundled DS1, DS3, and dark fiber transport will remain available in all locations until the state commission determines that unbundled transport at particular capacities in specific locations is no longer required. States that conduct this review need only address routes for which there is relevant evidence in the proceeding that the route satisfies one of the triggers or the potential

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[1281] We note that carriers with transport facilities on a route not willing to provide wholesale services will be counted in the self-provisioning trigger described above.

[1282] *See* ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter, Attach. at 3.

[1283] UNE Fact Rebuttal Report at 20-24, 41-43.

[1284] For instance, states should review whether the competitive transport provider has filed a notice to terminate service along the route in question.

[1285] *See* ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter, Attach. at 3.

[1286] ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 1-2 (asserting that alternative transport must be economically feasible).

[1287] *See* Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter at 3; Conversent Feb. 5, 2003 *Ex Parte* Letter at 1.