

proprietary unbundled element of the incumbent (the switch in general) while also self-supplying the proprietary aspect of the element (i.e. the routing tables), then the incumbent's proprietary aspect would not pass the (combined) necessary and impair tests. Finally, the fourth possibility is where an entrant cannot technically provide its own substitute for the incumbent's proprietary aspect and the proprietary aspect is required to make the element usable. This situation could arise either because it is simply impossible as a technical matter to have a substitute for the proprietary aspect or because the incumbent would provide the element in such a way that it could not be done. If this is the case, the necessary test would require access to the incumbent's proprietary aspect of the element, and the element together with the proprietary aspect would be subject to the impair test.

#### 4. Justification for this Interpretation of "Necessary" and "Impair"

Our framework for evaluating "necessary and impair" has the virtues that it is consistent with the language of the Act, meaningfully satisfies the concerns raised by the Supreme Court, is consistent with economic principles, and can be translated into a tractable, objective bright-line test.

##### a) Statutory Support

First, the definition is consistent with the language of the Act. We provide rigorous criteria for determining whether an aspect of an element is necessary when proprietary aspects of elements exist, including whether lack of access to the proprietary aspects would impair competition for otherwise non-proprietary elements. For elements that have no proprietary aspects, the impair test is readily applied. Not only are our

criteria valid from an economic perspective, they comport with an intuitive, common meaning of the words necessary and impair. That is, a proprietary aspect of an element is necessary if the element could not function without it. Lack of access to an element impairs reasonably efficient competitors if no competitor could compete without it but at least one could compete with it. Our definitions also provide a meaningful distinction between the necessary and impair standards, protecting proprietary features of an element unless they are technically critical. This is appropriate because, as we discussed earlier, there is a powerful social interest in protecting intellectual property rights. It is only by respecting intellectual property rights that we protect the incentive to invest in risky innovation efforts to the benefit of consumers and competition.

Moreover, while our definitions focus on competition, rather than competitors, they also satisfy the specific language of the Act, which provides that failure to provide the element would not “impair the ability of the telecommunications carrier seeking access” to provide service. It has been argued that this language requires that any carrier, no matter how inefficient, be provided with the element if failure to do so would impair its ability to compete. Our criteria handle this problem automatically. Consider a very inefficient potential entrant. By our criteria, a highly inefficient entrant seeking access would not be impaired by lack of access to the element, because such an entrant would not be able to provide service profitably even with the element, assuming that the element would be provided at realistic TELRIC-based rates. Unbundling is justified only if there are entrants who are efficient enough to make a profit using the unbundled element while paying realistic TELRIC-based prices, but who could not make a profit

without it. Conversely, a highly efficient entrant that did not need the unbundled element to compete likewise would fail the necessary and impair tests. The fact that the entrant might be able to make more profits with access to the element than without it is irrelevant in passing or failing the tests. Therefore, our necessary and impair tests focus only on those “reasonably efficient” entrants who truly would not be viable without access to a particular element within the relevant time frame.

b) Economic and Antitrust Market Principles

Second, our definitions give substantive meaning to the requirements of the Court by applying sound economic principles to the language of the Act. The Court fundamentally requires a limiting standard that explicitly accounts for the availability of elements outside the incumbent’s network. In any real-world production process, there are virtually always substitutes, in some sense, for any input into production. The relevant question is whether those substitutes are close enough to or at cost levels that enable the entrant to be viable. For example, the classic textbook illustration of an essential facility is a single bridge over a river.<sup>39</sup> While it is certainly *technically* possible for a competitive railroad to build its own bridge to compete with the bridge monopolist (or develop an alternative technology entirely to bypass the bridge), the relevant issue is whether the entrant could make a business case that shows a profit even accounting for the costs of building the bridge or developing some other alternative. If

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<sup>39</sup> For example, see Areeda, Phillips E. and Hovenkamp Herbert. *Antitrust Law – An Analysis of Antitrust Principles and Their Application*. Vol. IIIA, Little, Brown and Company, 1991, for its discussion of *United States v. Terminal Rail Road. Assn*, 224 U.S. 383 (1912), p. 772b1.

the answer is yes, then access to the bridge is not required. Only if there is no profitable alternative is it possible that the bridge is required.

Our criteria are necessarily specific to a location and a period of time. Just as the viability of building a second bridge will depend on the width of the river, the surrounding terrain, and the expected traffic over the bridge, the viability of providing alternative telecommunications facilities will depend on the density of demand and other location-specific factors that affect costs and revenues. Business cases are not “universal,” they are specific to the business conditions in an area; so should be the application of the necessary and impair standards. It is impossible to give legitimate meaning to the Supreme Court’s remand or, indeed, to the language of the Act itself, without acknowledging that the availability of and viability of alternative supply is highly location-specific for most elements. Unbundling rules that comply with the Act cannot, therefore, be other than geography-specific. National unbundling rules cannot conform with the economic reality of the heterogeneity of alternative facilities available unless the relevant markets are national. Moreover, what cannot viably be replicated today may be duplicated in the future. Technology advances, demand changes, and resource costs change. Just because a second bridge, to recall our earlier example, could not be built viably in 1999 does not imply that it could not be done in 2001. By that time, there may be more advanced materials available (or existing materials available at lower cost), more advanced engineering methods developed, or greater demand to justify the cost. For the same reasons, an element that satisfies Section 251(d)(2) today in a

particular area must be re-evaluated periodically and removed from the unbundling list when it no longer satisfies the standard.

As is clear from our definitions of necessary and impair, the 251(d)(2) standards are directly and intimately entwined with the antitrust concepts of product market and geographic market definition. It is impossible to assess whether a competitor can enter the same market as the incumbent without knowing what the market is. If the competitor can profitably provide wireless services, is that the same market? Put another way, if the only viable competitors were using different technologies than the incumbent, should this be considered competitive supply from the standpoint of determining whether there are alternative sources of supply to the incumbent's elements? The answer to both of these questions requires a proper economic definition of the product market. Economists say that two firms compete with each other, or provide a competitive constraint to each other, if they are in the same product market.

The concept of economic product market definition is critical in antitrust litigation and in merger analysis. The Horizontal Merger Guidelines provide a detailed methodology for determining whether two firms are in the same product market; that methodology can, in our view, be appropriately applied here. The premise of the Merger Guidelines' approach is that market definition depends on consumers' willingness to substitute among products. Market definition is based entirely on demand-side substitution, not supply-side substitution. If consumers view two different end-use products as close enough substitutes that a "small but significant non-transitory increase in price" in one would induce a significant amount of defection of demand to the other,

then the two are in the same product market. In particular, if the defection would render the initial price increase non-profitable, then the two products are considered to be in the same product market.

The question of whether wireless or any other product is in the same product market as wireline service in a geographic area is an empirical question that cannot be answered in the abstract. In Section II below, we propose a bright-line test for switching in which we present some relevant statistics. We note here that our empirical analysis is highly conservative because we consider the availability only of digital, circuit switching as substitutes for Ameritech's switching elements. To the extent that other means of providing a similar service, such as packet switching, are substitutable on the demand side for circuit switches, our approach omits an important alternative source. Our omission is not the result of our belief that only circuit switches produce services that are in the same product market with Ameritech's services; but rather that our evidence shows that in most areas, the availability of circuit switches is so widespread that it is not necessary to evaluate whether the market is in fact broader. In our view, if a narrow consideration of identical elements fails to demonstrate reasonable availability of alternative supply, the Commission must consider the supply of elements that are not identical but can produce services that are in the same product market as the relevant services produced by the incumbent.

The other critical facet of market definition is proscribing the geographic boundaries of the relevant market. This factor is particularly important in this proceeding because, as we indicated earlier, the Court's mandate cannot be carried out by

imposing national rules that fail to account for geographic differences in the availability and viability of alternative supply of elements. Again, the Merger Guidelines provide a methodology for determining the geographic extent of the market, which also relies on the extent of demand substitutability. In the case of switching, for example, the relevant question for purposes of determining whether there are alternative sources of supply for unbundling a switch in, say, downtown Chicago is how far away a competitor's switch can be located and still be considered a viable substitute for switching in Chicago. This, in turn, depends on the cost of transporting calls to Chicago and the revenues to be had in Chicago if transport is provided. This, once again, is an empirical question, which is specifically modeled in the analysis presented by Dr. William Fitzsimmons in his accompanying affidavit. A similar analysis, which captures the specific geographic characteristics of each element, must be performed for each element that is under scrutiny for unbundling.

c) Cost, Quality, and Time Differentials

Our proposed framework addresses the question explicitly recognized by the Court of how much cost disadvantage is "too much" and how much quality disadvantage is "too much."<sup>40</sup> The court found that the Commission erred in concluding that "any" increase in cost or decrease in quality resulting from the failure to gain access to a network element satisfied the necessary and impair standards.<sup>41</sup> The determination of how much is too much is conceptually simple: if the cost or quality disadvantage is material to the point that entry that would not have occurred without unbundling, then

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<sup>40</sup> Slip op. at 22-25.

the materiality threshold has been met.<sup>42</sup> If the cost or quality differential is not sufficient to preclude profitable entry, then the threshold has not been met, even if the entrant's profitability would be significantly lower without access to the element than with it.

The viability of entry upon which our definitions hinge must be understood to occur within a reasonable time frame, not instantaneously. Standard competition policy analysis acknowledges that even delayed entry may exert competitive pressure on the market. The Merger Guidelines recognize that "entry [that is] timely, likely, and sufficient in its magnitude, character and scope" can "deter or counteract" anticompetitive conduct by a dominant firm or firms.<sup>43</sup> The Guidelines further note that entry into a new market can be difficult and time-consuming, requiring effort to acquire permits, construct facilities, debug support systems, and market the new product or service. Potential "committed" entrants<sup>44</sup> are considered to be viable if they are able to "achieve a significant impact on price" within two years of planning the entry.<sup>45</sup>

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<sup>41</sup> *Second NPRM* at ¶21.

<sup>42</sup> Slip op. at 22: "[T]he Commission's assumption that any increase in cost (or decrease in quality) imposed by denial of a network element renders access to that element 'necessary,' and causes the failure to provide that element to 'impair' the entrant's ability to furnish its desired services is simply not in accord with the ordinary and fair meaning of those terms."

<sup>43</sup> Department of Justice and Federal Trade Commission Horizontal Merger Guidelines, April 2, 1992, § 3.0, hereinafter *Merger Guidelines*.

<sup>44</sup> An entrant is considered to be "committed" if market entry requires substantial up-front capital investment. "Uncommitted entrants" are described in Section 1.3 of the Guidelines, and are defined as firms that can enter a market within one year without incurring "significant sunk costs" (defined as costs that would require more than one year's production to recoup), in response to a "small but significant and non-transitory increase in price." These uncommitted entrants are considered to be *current participants* in the product market, regardless of whether they currently produce any output.

<sup>45</sup> *Merger Guidelines*, § 3.2.

According to the Guidelines, recent examples of entry in the industry provide a “useful starting point” for identifying the required ramp-up time for launching a new product or service.<sup>46</sup> Indeed, the Commission itself has recognized that viable entry need not be instantaneous. For example, in approving the MCI WorldCom merger, the Commission found that in most of the relevant markets there was a likelihood of substantial entry within a two-year time horizon.<sup>47</sup> Given that many of the concerns surrounding UNEs involve the expansion of existing network facilities and, given that many participants in the market have gained significant experience in providing competitive local telephone service recently, it is likely that new construction or expansion will take less time than it has in the past.

The requirement of viability simply requires that the entrant have a business case with a positive net present value. The concept of positive net present value does not require that the investment turn cash-flow positive or achieve any other short-run profit criterion within *any* specific time frame – only that the total discounted present value of revenues over the entire foreseeable life of the investment exceed the total discounted present value of its costs. Moreover, if it requires several months, say, for an entrant to build out its facilities in a market, the necessary and impair standards do *not* compel an incumbent to provide UNEs in the interim. The necessary and impair standards require that elements be shared if they cannot be self-provided; if the entrant is in the process of

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<sup>46</sup> *Merger Guidelines*, § 3.1.

<sup>47</sup> Memorandum Order & Opinion, In the Matter of Application of WorldCom, Inc. and MCI Communications Corporation for Transfer of Control of MCI Communications Corporation to WorldCom, Inc., CC Docket No. 97-211, September 14, 1998, at ¶¶ 36, 101, 105, 114, 151 discussing various input markets. Hereinafter *MCI WorldCom Order*.

building the elements, then they fail the necessary and impair standards *automatically* – the fact that the entrant is building them means they can be and are being self-provided. If the entrant wants to build up a customer base during the buildout period (as it may be rational to do), resale is available for this purpose. One role of resale is to establish a beachhead in the market in advance of facilities build-out. There is no additional public policy impetus that would justify unbundling to serve this purpose also, given the direct and indirect costs of unbundling.

Finally, the necessary and impair standards do *not* require that the entrant be able to serve the ILEC's entire customer base, as AT&T has advocated.<sup>48</sup> Local exchange service, as the name implies, is a location-specific service. Therefore, the relevant market for analysis is relatively limited on a geographical basis. Further, entrants will legitimately choose to pursue the most lucrative entry opportunities first, as would occur in any rational entry strategy. If the incumbent's customer base can be segmented easily into strata of varying profitability, then we would expect entrants to compete to different extents in each of these segments. In the particular case of local exchange service, this tendency towards segmentation of the customer base has been exacerbated by regulation-imposed, systematic discrepancies between prices and costs. Many observers find that there is substantial competition in the most profitable segment (centrally located multi-

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<sup>48</sup> AT&T White Paper on Remand Proceeding on Rule 319, Submitted to the FCC, p. 23.

line businesses), while there is much less competition for the least profitable segment (rural single-line residential consumers).<sup>49</sup>

In particular, the lack of incentives has deterred firms from entering some segments of the market. The fact that many residential local service prices remain below cost due to historical social pricing policies by regulators makes this segment of the market unattractive from a profitability standpoint. In addition, existing long distance providers have strong incentives to procrastinate in residential competition in order to forestall the Baby Bells' entry into the long distance markets under the Section 271 process in the Act. It is not surprising, then, to see new entrants concentrating their efforts on some parts of the market and not others. The necessary and impair standards in no way imply or require that all or any particular subset of customers be served. If distorted retail rates deter entrants from serving certain customers, then perhaps the retail rates should be corrected; the 251(d)(2) standards should not be twisted in an attempt to correct that deficiency.

#### d) Ease of Application

Finally, our criteria can be translated into a meaningful bright-line test. Our bright-line test has three parts. First, we assert that the existence of one or more competitors is *prima facie* evidence that a competitor or competitors have a viable

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<sup>49</sup> As one industry analyst states, "We think that [last-mile] competition already exists in the large business market, with the RBOCs, CLECs, and major IXCs competing for local market share. We estimate that about 30% of Baby Bells' revenues come from this market segment. In the small and medium business segment (which we believe accounts for about 20% of the RBOCs' revenues), we are getting a glimpse of the competition and believe that the action could really heat up over the next several years. We include multiple dwelling units and small office/home office users in this segment." See Simon Flannery, "Telecoms in the Age of the Internet," JP Morgan, November 24, 1998, p. 7.

business case and lack of the unbundled element would not impair competition. We believe it is appropriate to define the necessary test in a way that recognizes a high standard for the protection of proprietary elements. Even if access to the non-proprietary element is required, access to the proprietary aspect of an element is only required when it is shown to be necessary. If one firm has entered the market, the incumbent clearly does not control the only facility and demonstration of the ability to enter by at least one firm should suffice.

In the second step of our impair test, if there are no *actual* competitors providing the service, then we look to the business cases of *potential* entrants. This is the subject of Dr. Fitzsimmons' affidavit. If it can be demonstrated that at least one potential competitor has a viable business case through self-supplying or purchasing the element, then the element should again be deemed to fail the impair test. As described earlier, when one or more proprietary aspects of an element pertain, the impair test further must consider the four "necessary" scenarios we described earlier.

As stated above, we believe that the existence of an actual competitor is sufficient to cause the impair test to be failed. When there is no actual competitor, our proposed test turns to whether a potential competitor could viably enter without access to the unbundled element. If there is no actual competitor, then we believe a potential competitor poised to enter the market viably sufficiently demonstrates a high likelihood of there being an actual competitor in a reasonable period of time, and we believe it demonstrates that lack of actual competitors is not the result of lack of access to the incumbent's element in question.

Third, if the element passes the second step, i.e., no viable potential competitor, then the analysis must demonstrate that at least one entrant could feasibly enter by purchasing the unbundled element at TELRIC-based prices. As we indicated earlier, failure to provide an element cannot be said to impair competition if no competitors could make a profit even with the element (at TELRIC-based rates). This might occur for two reasons. The first is the (perhaps unlikely) scenario that there exist no reasonably efficient potential entrants requesting elements. The second case is likely to be of much greater practical importance. This scenario may arise anywhere that retail rates for end-user services are below their total service long-run incremental costs (TSLRIC). If retail prices are below cost, it is likely that even a reasonably efficient competitor would not be able to compete with the retail rate and cover the TELRIC-based price of the unbundled elements. In that case, it is *not* lack of access that impairs a competitor; it is the retail rate. The competitor could not make a business case, even with the element. In such cases, it would be socially wasteful to require unbundling and thereby cause unbundling costs to be incurred. Indeed, this is a perfect example of the principles articulated by Justice Breyer when he explained that costs of unbundling must be considered. When there is no apparent benefit to unbundling, the costs of unbundling must dominate the calculus.

E. Guidance from the Essential Facilities “Doctrine”

1. The Essential Facilities “Doctrine”

The essential facilities “doctrine” is a framework the courts have adopted for determining whether a monopolist in an input to another market must share its facilities with a competitor in the “downstream” market, in cases where the competitor claims that

access to the facility is a prerequisite to competition.<sup>50</sup> If access to the facility is found to be “essential,” the denial of access to the facility may be declared to be illegal. We note first that legal scholars and economists agree that the essential facilities doctrine (“EFD”) should be applied only in cases where the defendant is considered to be a monopolist in that input, because both the courts and economists recognize that if there is competition in the output market, the defendant’s input cannot be essential. Hence, competition in the output market automatically rules out the application of the EFD.

Various researchers and courts have proposed numerous means for defining an essential facility. According to legal scholar Daniel Troy, in order for a facility to be essential, three requirements must be met: first, the facility is necessary for entry into a market; second, duplication of the facility is beyond the standard cost of entry into the foreclosed market; and third, without access to the facility, the plaintiff cannot commercially exist.<sup>51</sup>

In legal scholar David Gerber’s view, “All essential facilities share four salient characteristics. First, the facility must be unique. Second, it must remain unique while its output is widely distributed.<sup>52</sup> Third, it must be centrally located in the path of users’

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<sup>50</sup> Several Supreme Court cases are commonly cited to provide the foundation for the essential facilities doctrine, such as *United States v. Terminal Road Rail Road Association of St. Louis* (1912), *Associated Press v. United States* (1945), *Otter Tail Power Co. v. United States* (1973), and *Aspen Skiing Co. v. Aspen Highlands Skiing Corp* (1985).

<sup>51</sup> Troy, Daniel. “Unclogging the Bottleneck: A New Essential Facilities Doctrine.” *Columbia Law Review*, Vol. 83, pp. 441-487, 1983, pp. 463.

<sup>52</sup> Gerber illustrates this point by stating that “to remain essential, the monopolist may sell only access to or perishable output from his facility rather than pieces or shares in the facility.... [E]ssential facilities such as pipelines and bridges provide only access or passage; users do not purchase a lane or channel but purchase only a service that is consumed up as quickly as it is produced and therefore cannot be used to establish a competing bridge or pipeline.”

production. And fourth, it must have the ability to impede or enable the process by which such users do their business.”<sup>53</sup> In elaborating on his second criterion, Gerber wrote “only unique facilities can be essential because access to similar competing facilities allows potential users to circumvent the facility’s control. Implicit in the notion of uniqueness is the preclusion of duplication, such as by the natural occurrence of a unique resource (e.g., a single strip of land through a mountain pass), a limited government license (e.g., a patent), onerous capital requirements in thin markets, or natural monopolies.”<sup>54</sup>

The Seventh Circuit decision in *MCI Communications Corp. v. AT&T Co.* is probably the most salient recent articulation of the EFD in the telecommunications industry.<sup>55</sup> Specifically, the Seventh Circuit identified “four elements necessary to establish liability under the essential facilities doctrine.” The four elements are:

- (1) control of the essential facility by a monopolist;
- (2) a competitor’s inability practically or reasonably to duplicate the essential facility;
- (3) the denial of the use of the facility to a competitor; and
- (4) the feasibility of providing the facility.<sup>56</sup>

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<sup>53</sup> Gerber, David. “Rethinking the Monopolist’s Duty to Deal: A Legal and Economic Critique of the Doctrine of Essential Facilities.” *Virginia Law Review*. Vol. 74, p. 1069-1113, 1988, p. 1073.

<sup>54</sup> *Id.* pp. 1073.

<sup>55</sup> *MCI Communications Corp. v. American Telephone & Telegraph Co.*, Nos. 80-2171, 80-2288, 708 F. 2d 10811983 U.S. App. LEXIS 31432, decided Jan. 12, 1983, p. 49.

<sup>56</sup> For a full economic discussion of *MCI*, see Werden, Gregory. “The Law and Economics of the Essential Facilities Doctrine.” *Saint Louis University Law Review*. (1982) Vol. 32, at pp.453-454. For a more encompassing discussion of the EFD, see Lipsky, Abbott B. and Sidak, Gregory J.

In each of these cases, a critical component of essentiality is the inability of competitors to duplicate or bypass the facility. If duplication or bypass is possible, the element fails the essentiality test by any of these definitions.

As an antitrust principle, the purpose of the essential facilities doctrine is to promote competition, not to further the interest of any particular competitor. Because the application of the essential facilities doctrine requires the owner to share the facility with rivals, which may lead to potential anti-competitive effects such as the dampening of incentives to innovate, it is recognized that the doctrine should be applied only if there is no other alternative to make the market more competitive.

Areeda and Hovenkamp made this point very clear: "The doctrine should be avoided unless it is the only realistic mechanism for making a market more competitive. Thus, proving essentiality also requires the critical showing that unless the facility is shared, the market is unlikely to become more competitive. Antitrust's purpose is not to permit particular rivals to survive, but to make markets more competitive. If the market can be made more competitive without forcing the defendant to share the facility, then granting the relief undermines antitrust's purpose."<sup>57</sup>

Gerber voiced a similar opinion: "Furthermore, in evaluating the desirability of a duty to deal in these exceptional situations, the test should be consumer welfare, a

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"Essential Facility" Stanford Law Review, Forthcoming Vol. 51 1999, and Areeda, Phillip E., *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841 (1989).

standard of general economic wealth. Until courts understand refusals to deal in these terms, the doctrine of ‘essential facilities’ will not maximize consumer welfare.”<sup>58</sup>

Competition and competitors are not totally unrelated, since no competition can exist if there is no competitor. However, there are many instances where what is essential to a *competitor* is not essential to *competition*. An example given by Areeda and Hovenkamp illustrates the difference. “[S]uppose the dominant natural gas seller owns a gas pipeline and the plaintiff, a small producer, wishes to share. Suppose this particular plaintiff can show that its own gas supplies are too small to warrant construction of a pipeline, and the line is essential to its own viability. However, other gas fields are in the area and other firms could readily construct pipelines to serve the market served by the defendant. In this case, the defendant’s pipeline is ‘essential’ to the plaintiff’s survival as a business, but it is hardly essential to increased competitiveness in the market, and granting the plaintiff’s request reduces the incentive of others in a similar provision to build their own lines.”<sup>59</sup>

Therefore, Areeda and Hovenkamp concluded, “Although effects on the plaintiff competitor can be congruent with the effect on competition, this can hardly be assumed and the emphasis must always be on the latter.”<sup>60</sup>

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<sup>57</sup> Areeda, Phillips E. and Hovenkamp Herbert. *Antitrust Law – An Analysis of Antitrust Principles and Their Application*. Vol. IIIA, Little, Brown and Company, 1991, p. 773b3.

<sup>58</sup> Gerber, David. “Rethinking the Monopolist’s Duty to Deal: A Legal and Economic Critique of the Doctrine of Essential Facilities.” *Virginia Law Review*. Vol. 74, pp. 1069-1113, 1988, pp. 1071-1072.

<sup>59</sup> Areeda and Hovenkamp, *Antitrust Law*, 1991, § 773b3.

<sup>60</sup> Areeda and Hovenkamp, *Antitrust Law*, 1991, § 773b3.

## 2. Relevance of the Essential Facilities Doctrine to the “Necessary” and “Impair” Standards

While the Court did not find that the Commission should have applied the EFD in developing its application of the unbundling provisions of the Act, it implied that use of such an approach would have remedied the problem with the Commission’s implementation, and hence was permissible.<sup>61</sup> Further, Justice Breyer found the EFD to be closely linked to the statutory language of the Act.<sup>62</sup>

Specifically, the four elements of the EFD as applied in *MCI* that we listed earlier are highly relevant to the necessary and impair standards of the Act and are consistent with our approach, as it explicitly asks the decision-making body to consider whether the competitor can practically or reasonably duplicate the essential facility, which is the core of the Supreme Court ruling. The actual insights from the case law and literature on the EFD are summarized as follows.

First, evidence that there are competitors in the market absent compulsory unbundling shows that the input is not essential. If competitors exist, it must be that the facility has economic substitutes which are competitively available, and that, therefore, the incumbent does not “monopolize” the relevant input under standard antitrust market definition.

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<sup>61</sup> “We need not decide whether, as a matter of law, the 1996 Act requires the FCC to apply that standard; it may be that some other standard would provide an equivalent or better criterion for the limitation upon network-element availability that the statute has in mind. But we do agree with the incumbents that the Act requires the FCC to apply some limiting standard, rationally related to the goals of the Act, which it has simply failed to do.” Slip op. at 21.

<sup>62</sup> “Although the provision describing which elements must be unbundled does not explicitly refer to the analogous ‘essential facilities’ doctrine (an antitrust doctrine that this Court has never adopted),

Second, the EFD holds that a facility is not “essential” if it can be obtained elsewhere or self-provided. If the facility can indeed be obtained elsewhere, it cannot be controlled by a “monopolist,” and hence the facility fails the test on the first prong. If the facility can be self-provided, it fails the test on the second prong.

Third, the incumbent’s scale and scope or cost advantages are not sufficient reasons for forced sharing. It must be shown that the incumbent’s “advantages” are so extensive and pervasive that the facility cannot be feasibly duplicated by the entrants. As described above, the relevant issue is the effect on competition, not on individual competitors. If other competitors can achieve any scale economies enjoyed by the incumbent, the fact that a small new entrant does not would not warrant unbundling. Also, the test is whether entrants can enter viably, not how much (economic) profit they would earn upon entry. Whether gaining access to the scale economies of the incumbent would increase the entrant’s profits is irrelevant if the entrant can enter without the unbundled element, albeit at smaller profits.

Fourth, even if entry requires duplication of assets with spare capacity, the costs of duplication may be justified by the benefits of genuine competition. In many competitive markets in our economy, excess capacity exists because numerous competitors exist. The value of having several competitors, even though it may result in redundant capacity, may well be worth the cost of any such duplication. In addition, especially in rapidly growing markets like telecommunications, what appears to be

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the Act, in my view, does impose related limits upon the FCC’s power to compel unbundling.” See *Breyer Opinion*, at 18.

unneded duplication today may be fully pressed into service tomorrow. Indeed, the very opening of telecommunications markets to competition is premised on the ability of the market to support more than one firm. Not too many years ago, many textbooks used markets such as these as examples where needless duplication made competition inadvisable. Any such arguments today should be subject to extreme and careful scrutiny.

Finally, under the EFD the firm requesting access bears the burden of proof to demonstrate that the facility is essential.

The examples discussed earlier of cases involving EFD all relate to cases in which non-proprietary facilities were involved. The facilities involved did not contain or involve intellectual property issues. Because this was the case, it makes the application of the EFD principles especially applicable here to the impair test as we propose it. Where proprietary aspects of elements are involved, our necessary test appropriately comes into play.

F. Applying the “Necessary” and “Impair” Standards

The Commission should define a general analytic framework that can be applied to each element in each geographic area and yield a clear “yes or no” answer to the question of whether the element satisfies Section 251(d)(2). Anything other than a bright-line test will inevitably lead to regulatory delay and gaming, while a bright-line test will instead facilitate the evolution of unbundling requirements as the network develops and as the degree of competition in the industry increases.

While Ameritech is presenting in this proceeding evidence and analyses for evaluating the self-supply of switching and transport for individual, relevant markets, more time is needed to gather pertinent data from the participants, and for the Commission to establish its analytical framework, in order to have a comprehensive framework that can be applied to each element in each market.

The first step in the bright-line test seeks to determine whether one or more firms are already competing with the incumbent in the relevant market via the same product or a product that is an adequate substitute. If so, clearly there is no need to unbundle. In the same vein, if an entrant is self-supplying the element in question in the relevant geographic region, or obtaining it from another carrier other than the incumbent LEC, the element *prima facie* fails the “impair” test and need not be unbundled, whether proprietary or not. If these conditions are not met, the Commission must conduct further empirical analysis, based on realistically modeled business cases of potential entrants to determine whether the element in question should be compulsorily unbundled.

Such business case analysis, however, should recognize that, even in the absence of unbundling, the entrant can continue to avail itself of LEC services purchased from wholesale or retail tariffs. For example, if an entrant can construct a reasonable economic substitute for shared transport by combining its own switching elements with ILEC-provided dedicated transport purchased under the relevant federal or state tariff, then this should be viewed as a relevant alternative source of supply. This example underscores the importance of defining the relevant product market using standard market definition principles, based on consumer demand considerations. The

Commission should be wary of “necessary” or “impair” claims based on narrow, technological market definitions, and instead explicitly must consider product substitution by end users.

Finally, requesting carriers who claim “necessity” or “impairment” should be required to bear both the burden of proof and that of supplying the relevant data to support this claim. Assigning the burden of proof to requesters is efficient and appropriate because entrants have the best, and often sole, control of the information on competitive supply. Entrants have direct information on the degree of impairment without unbundling, while incumbents and regulators have only incomplete information at best. Moreover, because entrants have an incentive to claim necessity or impairment even if none exists, they should bear the cost of making such claims. Placing the burden of proof on carriers requesting UNEs would provide the correct incentive for the requesters to disclose specific information as to their degree of necessity or impairment.

## **II. Application of the Framework to Individual Network Elements**

At this point, we apply the framework we have developed for the necessary and impair standards to individual network elements. As we have emphasized in this affidavit, when the relevant geographic market is at the local level, it is not possible to draw broad, national generalizations in determining that an element should be unbundled. Such an analysis simply must be done at the relevant geographic level. If it can be demonstrated that it is not necessary to unbundle a particular element in at least one

geographic market, it is impossible to conclude that unbundling should occur everywhere as a national requirement would entail. On the other hand, passage of the tests in any given market does not mean that it would pass the test everywhere and a national unbundling requirement would be appropriate. The test simply must run on a geographic market specific basis.

The data necessary to consider an element-by-element analysis are far too voluminous to be collected and analyzed in the short 30-day timeframe allowed by the Commission. Instead, our analysis focuses on one element, switching, and considers the implications of this analysis for the switching “platform.” We have confined our analysis to the geographic territory covered by Ameritech. Even so, the proper unit of analysis is that of individual local markets and we have further refined our “testing” on that basis.

#### A. Application to Unbundled Local Switching

As stated above, we have elected to concentrate our analysis on an application of the framework we propose to local switching. Local switching very clearly exemplifies the need for and benefits from a bright-line test which takes into account geographic and market conditions as well as the deployment of alternative facilities by entrants. Switching also has proprietary aspects of an otherwise non-proprietary element. Thus, it would be appropriate to run the necessary test on any proprietary aspects of the element. The evidence we present vividly shows that local switching does not satisfy the impair standard in many geographic areas. It fails step 1 of the test in that there are existing competitors in those areas.

a) Step 1: Analysis of Actual Self-Supply

We analyze the current existence of competitors along three dimensions: (1) the number and location of competitor switches, (2) the number, location and size of rate centers to which competitor switches are assigned and (3) the number, location and size of rate centers in which competitors are collocated. An analysis of these data at the Ameritech region level makes it abundantly clear that a blanket requirement to unbundle switching is inappropriate. Further analysis of selected local markets emphasizes this finding and graphically shows that competitive switching in medium sized as well as large markets is significant.

(a) Competitor Switches

There are currently 112 competitive local switches in Ameritech's service territory: 35 in Illinois, 27 in Michigan, 23 in Ohio, 11 in Indiana and 16 in Wisconsin.<sup>63</sup> As might be expected, the largest cities have the most competitor switches (28 in Chicago for instance); however, many smaller cities including Peoria (IL), South Bend (IN), and Dayton (OH) also have competitor switches. Figure 1 identifies the location of competitor switches and shows its location within Ameritech's region.

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<sup>63</sup> As reported in the Local Exchange Routing Guide (LERG).



The fact that one or more competitor switches are located in many Ameritech cities demonstrates that unbundled switching elements are not required in all of Ameritech's local markets. This information does not tell us, however, which customers are or can be served by the switch. Hence, we also examine the customer locations that competitor switches can address. We look at two measures of addressability – the areas to which competitor switches are assigned, and collocation. Switch assignment data tell us where competitors are currently providing or plan to provide local service. Collocation tells us where competitors have facilities in place that can be used to provide (directly or with enhancements) interconnection between ILEC facilities and competitors' switches.

(b) Switch Assignments

Every local and toll switch in the U.S. must be told where to direct calls that have been dialed by subscribers. This is accomplished through use of a device called the LERG, which is an industry-wide database maintained by Telcordia Technologies (formerly Bellcore). The LERG tracks the location and type of all providers' switches. In the LERG, every active NPA-NXX is assigned to a local switch. Each NPA-NXX, further, is assigned a rate center, a broad geographical area used by LEC billing systems to determine how calls should be "rated" for billing purposes. Importantly, the rate center for an NPA-NXX is established by the carrier to whom the NPA-NXX is assigned. Hence, if a carrier has NPA-NXX codes assigned to a rate center in a particular geographic area, this indicates an apparent intention and ability to serve customers there

from its existing switch. Rate centers to which competitor switches are assigned, therefore provide an important measure of addressability. As noted in Table 1, 42 percent of the rate centers in Ameritech's region have one or more competitor switches assigned. These rate centers represent 85 percent of all Ameritech's switched access lines.

(c) Collocation

Collocation is another important measure of addressability. Where operational collocation exists in a wire center, competitors have facilities for interconnecting with the ILEC and, if desired, to the ILEC's unbundled loops, and are therefore well positioned to serve all of the customers in that wire center. To make our analysis consistent, we mapped Ameritech's wire centers to its rate centers and analyze collocation on a rate center basis.<sup>64</sup> We find that 21 percent of Ameritech's rate centers have one or more collocations, representing 72 percent of Ameritech's switched access lines.

(d) Switch Assignments and Collocation

Considered separately, switch assignments and collocation provide strong evidence that there is no economic basis for unbundling switching in many areas of Ameritech's region. Combining these measures confirms and strengthens this conclusion. We examined rate centers in which one or more competitor switches are assigned and one or more competitors are collocated. The analysis shows that 20 percent of the rate centers and 70 percent of the lines meet both conditions. As Table 1 shows, switching clearly fails the impair tests on a region-wide basis, in the sense that many

relevant geographic markets in Ameritech's region are not impaired even at step 1 of the test. For many markets, then, there is no need even to reach the necessary test which would pertain to proprietary aspects of switching.

**TABLE 1**  
**Facilities-Based Local Competition in Ameritech's Territory:**  
**Five State Region**

	Rate Center		Access Lines	
	Count	Percent	Count	Percent
<b>Has One or More Competitor Switch Assignments</b>	392	42%	17,425,288	85%
<b>Has One or More Competitor Collocations</b>	194	21%	14,673,785	72%
<b>Has One or More Competitor Switch Assignments and One or More Collocations</b>	185	20%	14,389,498	70%

**A. Selected Local Markets**

In addition to an Ameritech region-wide analysis, we examine competitive switching activity in three local markets – Chicago, Indianapolis and Columbus. We apply the same methodology used for the Ameritech region and demonstrate that in all of these markets switching fails the impair test.

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<sup>64</sup> Some wire centers have more than one rate center assigned. In these cases, we assigned the wire center to one rate center to avoid double counting of collocation.

Not surprisingly, Chicago has a tremendous amount of competitor switching activity. Twenty-eight competitor switches are currently located in the city. One or more competitor switches are assigned to 100 percent of Chicago rate centers, covering 100 percent of the lines. There is also considerable collocation. Seventy-six percent of Chicago rate centers have one or more competitors collocated, covering 89 percent of the lines. Eighty-nine percent of the lines in Chicago are also in rate centers that have both one or more competitor switches assigned and one or more collocations. Competitor switching activity in Chicago is summarized in Table 2. It is clear from these measurements that most or all of the Chicago market fails the impair test,<sup>65</sup> and requiring unbundling of switching in this city would not only be in conflict with the Act and the Court remand, it would entail significant costs without attendant benefits. Any national rule that swept in Chicago would be uneconomic and would not meet the public interest.

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<sup>65</sup> Even where alternative facilities do not currently exist, the propinquity of alternative facilities implies that an analysis of potential supply would almost surely sweep the rest of Chicago into the “fails” category, as well. The importance of propinquity for potential competition applies to the other markets, as well.

**TABLE 2**  
**Facilities-Based Local Competition in Ameritech's Territory:**  
**Chicago**

	Rate Center		Access Lines	
	Count	Percent	Count	Percent
<b>Has One or More Competitor Switch Assignments</b>	54	100%	4,300,716	100%
<b>Has One or More Competitor Collocations</b>	41	76%	3,826,623	89%
<b>Has One or More Competitor Switch Assignments and One or More Collocations</b>	41	76%	3,826,623	89%

Because of its size and prominence, one might expect Chicago to fail the impair test. With less than 900,000 lines, however, one might or might not expect Indianapolis or Columbus to fail the impair test. Our analysis shows that even in these smaller cities, competitors are serving or intending to serve the vast majority of customers. Indianapolis has 16 rate centers and 8 competitor switches. As shown in Table 3, one or more competitor switches is assigned to 50 percent of the rate centers, covering 93 percent of the lines. In addition, one or more competitors are collocated in 25 percent of the rate centers, covering 87 percent of the lines. Eighty-seven percent of the lines in Indianapolis are in rate centers with one or more switch assignments and one or more collocations. As competitors are positioned to serve the vast majority of customers in Indianapolis, this city also clearly fails the impair test, and there clearly is no reason to unbundle switching in most of Indianapolis.

**TABLE 3**  
**Facilities-Based Local Competition in Ameritech's Territory:**  
**Indianapolis**

	Rate Center		Access Lines	
	Count	Percent	Count	Percent
<b>Has One or More Competitor Switch Assignments</b>	8	50%	802,889	93%
<b>Has One or More Competitor Collocations</b>	4	25%	752,036	87%
<b>Has One or More Competitor Switch Assignments and One or More Collocations</b>	4	25%	752,036	87%

Columbus has a competitor switching profile very similar to Indianapolis. Ninety-two percent of the rate centers have one or more competitor switches, covering 99 percent of the lines in this market. Fifty-four percent of the rate centers have one or more collocations covering 89 percent of the lines. Fifty-four percent have both one or more switch assignments and one or more collocations. As Table 4 shows, most or all of Columbus also fails the impair test.

**TABLE 4**  
**Facilities-Based Local Competition in Ameritech's Territory:**  
**Columbus**

	Rate Center		Access Lines	
	Count	Percent	Count	Percent
<b>Has One or More Competitor Switch Assignments</b>	12	92%	748,544	99%
<b>Has One or More Competitor Collocations</b>	7	54%	667,600	89%
<b>Has One or More Competitor Switch Assignments and One or More Collocations</b>	7	54%	667,600	89%

Using actual data on switching and collocation for the Ameritech region, we demonstrate that unbundled switching is not required in order to have entrants viably enter the marketplace in at least many geographic areas. The three individual cities we study provide further evidence that unbundled switching is not required in these areas. The presence of existing competitors is a clear showing that entrants are not impaired by their inability to gain access to Ameritech's unbundled switching. The fact that switching has proprietary aspects that would need to undergo the necessary test if switching passed the impair test is moot by virtue of the fact that the impair test is failed for much of the region at step 1 of the impair test without the need to continue to a step 2 evaluation.

While one cannot necessarily conclude that there could be no local markets that could pass the impair test for switching, one also cannot conclude that they would without further analysis. What is more than clear, however, is that a national rule requiring switching to be unbundled would ignore the evidence and fall into the same

lack of substantive application of the necessary and impair test that resulted in the Supreme Court remand.

b) Step 2: Analysis of Potential Suppliers

As discussed in the earlier part of our paper, when step 1 fails in the impair test, there is no need to look beyond this step. The fact that there are existing competitors is sufficient to demonstrate convincingly that entrants can self-supply or find alternative sources of the element in question. The above analysis indelibly makes this point for switching. The results from Dr. Fitzsimmons' analysis using the LECG Entry Model reinforce this point for the Indianapolis and Columbus metropolitan areas. In areas where the existing supply test fails (e.g. Muncie-Anderson Indiana), Dr. Fitzsimmons' model, goes further to demonstrate that expanding facilities-based competition can be financially viable. His analysis also provides generalized guidelines for determining where CLECs have opportunities for value-positive entry without access to unbundled local switching and transport. His conclusions reinforce what we can already see from actual market experience. Indeed, it is equally significant that our conclusions validate his findings.

The Fitzsimmons model is instrumental in enabling the Commission and others to determine the viability of entry with and without unbundling of switching and transport. Because it can offer this capability, it provides a ready-made vehicle to determine whether unbundling of these elements is or is not required in the context of the necessary and impair tests. We will not attempt to replicate the extensive description of the model that is provided in Dr. Fitzsimmons' affidavit nor to describe in detail his results.

However, the analysis that he has performed with respect to switching is directly applicable and supplemental to that provided in our affidavit and thus bears summarizing briefly.

The model used by Dr. Fitzsimmons includes all of the important variables relevant to a determination of whether facilities-based entry is financially viable without access to unbundled switching and transport. It includes appropriate consideration of the cost and demand characteristics of the local markets that must be taken into account for such an analysis. Indeed, the subtleties that must be considered, such as the size of the relevant markets and the distances to available facilities, all are embodied in the model's economic and financial calculations. It is important both to recognize the powerful tool that the model as it is currently constructed is; and to recognize that it can be used by the Commission to analyze many aspects of our proposed necessary and impair tests require. Its availability further demonstrates the practicality of the approach that we recommend for implementing the requirements of the Act and to satisfy the instructions of the Supreme Court's remand.

Dr. Fitzsimmons analyzes both mid-sized and small metropolitan areas to assess the viability of entrants when self-supplying their own switching. In markets such as Indianapolis, Columbus, and Toledo within Ameritech's territory, he conclusively finds that entrants have the opportunity to earn significant profits with self-supplied local transport and switching. His model validates the actual investment decisions that existing CLECs have made, both verifying the workings of the model and affirming that competition is viable in many instances, without unbundling of switching and transport.

We encourage a careful inspection of Dr. Fitzsimmons' description and findings, both because the results he finds are highly supportive of all the corroborating evidence both we and others are presenting and because the tool that he utilizes is one that can greatly facilitate implementation of the required tests to implement the letter and spirit of the Act.

**B. The Switching "Platform"**

As discussed in the previous section, it is abundantly clear that switching fails the impair standard if it were to be imposed on a nationwide basis, and also clearly fails the test in many of Ameritech's markets. The fact that switching fails the test in many markets, at least in Ameritech's territory, raises the question of whether the integrated platform, which includes all of the relevant network elements, could pass either the necessary or impair tests. We conclude that it cannot.

From an economic standpoint, the central issue remains the same for the platform as it is for the individual network elements. The question is: does or can an entrant provide the service at issue by either utilizing existing network elements or by self-supplying its own? As before, this question is only relevant in the context of its effect on competition, not how it affects individual competitors. If any individual element fails the necessary and impair test (as appropriate for that element), then that element need not be unbundled under an appropriate interpretation of the Act. If only a single element were found to fail the relevant test (and therefore not be unbundled), the entrant could purchase all other elements from the incumbent and be able to furnish competitive service. Of course, if more than one element were found to fail the relevant tests, the

entrant would be forced to rely on still fewer incumbent-provided elements in order to compete. The inescapable conclusion of this train of logic is that, as long as at least one element that comprises the platform fails the necessary and/or impair tests, the platform, itself, also fails the test. The platform, as an integrated whole, is simply not required in order to provide competitive service. In fact, proclaiming the platform as meeting the necessary or impair test would sweep in an element that had already been found to fail the test. It would be convoluted logic to reach such a result.

In addition to the fact that it is unnecessary to “unbundle” the platform when one or more of its constituent elements are found to be unnecessary or would not impair competition, it would also be redundant since the resale of local service is required by the Act. The retail local service of the incumbent is no different from the service that could be provided by virtue of reassembling elements that comprise the service. Whether or not resale should be required is not at issue here, rather we simply state that the resale of local service enables competitors to compete for local service in the same way that the platform does. Indeed, if the reason for preferring the platform over resold local service is due to the differences between them in the wholesale cost to the entrant, the problem lies in the pricing of the two alternatives, not in inherent technical differences between the services. The problem then would be a regulatory one, not a marketplace one.

### C. Conclusions

The Supreme Court remand of Rule 319 of the Act presents the Commission with both a challenge and an opportunity. Where the Commission did not articulate sufficient

standards that must be applied for determining whether incumbent LECs must unbundle their network elements, it now must find straightforward, efficient ways of doing so. Therein lies the challenge. At the same time, the Commission now has the opportunity to define these standards in ways that bring about true competitive benefits to society while avoiding the expenditure of unnecessary and wasted resources. We believe the approach outlined in our affidavit enables the Commission to accomplish both these goals.

Any reasonable reading of the necessary and impair standards must take into account whether one or more competitors is already providing the relevant end user service using something other than the incumbent's facilities. Our test for impairment begins with that perspective. If there is no firm currently supplying the element in question, the issue becomes whether a competitor could. Our test makes this question the second step of its analytical framework and, furthermore, Dr. Fitzsimmons' affidavit describes a sophisticated but straightforward tool for analyzing these situations, where they occur. Finally, if entry is not viable without the element, the question must be settled as to whether it would be, were the element made available. If this were not possible, unbundling would be a futile exercise resulting in costs and no benefits. Our analytical framework makes this the third step of the impair test.

Finally, if it is determined that a non-proprietary element must be supplied, it must be decided whether any proprietary aspects of the element also must be unbundled and provided. The necessary test we propose establishes the means to make this assessment.

We firmly believe that the tests we propose have many qualities that the Commission finds desirable, or even mandatory. They meet the requirements of the Act and satisfy the remand mandate of the Supreme Court. They will result in unbundling decisions that are not only sensible but have a sound economic foundation, ones that will bring society the benefits of unbundling while avoiding non-productive and costly outcomes. The proposal we offer also has the benefit of efficiency. It can be managed and administered in ways that do not involve protracted and expensive legal proceedings because the tests either involve bright lines, where appropriate, or provide the analytical tools for carrying out the job.

Any proper economic analysis in administering the necessary and impair tests can only be done in the correct economic context. Our proposal shows that the relevant geographic and product markets must be the frame of analysis. The approach we recommend would have the Commission establish a solid framework for analysis which then could be applied by the Commission itself, or at a more local level where the data are more readily available and familiarity with the situation greater.

We sincerely hope that the Commission will not err on the side of excessive unbundling. Indeed, the very words of the Act in establishing the necessary and impair tests are designed to prevent excess. The tests we propose will bring society the benefits that the Act and the Commission envisage without unnecessary costs. We urge their adoption.

We declare under penalty of perjury that the foregoing is true and correct to the best of our knowledge and belief.

  
Debra J. Aron

Subscribed and sworn before me this 24 day of May, 1999

  
Notary Public



My commission expires: \_\_\_\_\_

We declare under penalty of perjury that the foregoing is true and correct to the best of our knowledge and belief.

Robert G. Harris  
Robert G. Harris

Subscribed and sworn before me this 25<sup>th</sup> day of May, 1999

Jacqueline O'Neill  
Notary Public

My commission expires: 12/6/00

