

**ECONOMIC ANALYSIS OF THE MARKET FOR
BUILDING ACCESS**

**WT Docket 99-217 and
CC Docket 96-98**

**Charles River Associates, Inc.
John B. Hayes**

Preliminary Draft

27 September 1999

TABLE OF CONTENTS

I. INTRODUCTION AND SUMMARY 1

II. ECONOMIC THEORY OF THE MARKET FOR ACCESS 1

 A. DEMAND FOR ACCESS TO MTEs IS COMPARATIVELY INELASTIC 3

 B. MTE OWNERS CONTROL ACCESS TO TELECOMMUNICATIONS SERVICES 4

III. EVIDENCE OF MARKET FAILURE..... 4

 A. MOST REQUESTS FOR ACCESS ARE UNSUCCESSFUL..... 5

 B. ECONOMIC IMPLICATIONS OF MTE ACCESS REQUIREMENTS 6

**IV. MARKET FORCES CANNOT BE EXPECTED TO SWIFTLY ELIMINATE
MARKET POWER OVER ACCESS..... 8**

 A. HIGH SWITCHING COSTS WILL SLOW MARKET MOVES TO COST BASED PRICING
 9

 B. MARKET FORCES ARE BLUNTED IF CLECs DO NOT PASS HIGH ACCESS PRICES
 ON TO CUSTOMERS 11

V. CONCLUSION..... 12

I. Introduction and Summary

The Real Access Alliance argues that because tenants can move to other multi-tenant environments ("MTEs") to seek access to competitive local exchange carrier ("CLEC") service, MTE owners are unable to charge prices above cost for access to MTEs. Both the evidence in this proceeding and economic theory demonstrate this claim is unfounded and must be rejected.

The evidence in this proceeding indicates that MTE owners have, in fact, been able to exercise market power over access to their buildings. This market power is evident in the numerous anecdotal examples provided by CLECs in this proceeding that relay instances where MTE owners and managers requested excessive prices for building access, as well as in the negotiation delays experienced by CLECs. It also is demonstrated by the Charlton Research Company survey provided by the Real Access Alliance. This survey confirms the relatively low probability that MTE owners and managers will grant access when it is requested by CLECs. Excessive access prices harm consumers by creating barriers to entry that deny tenants the full benefits of competition for local telephone service. In addition, negotiation delays prevent CLECs from offering services to consumers on a timely basis, thereby slowing the benefits of competition.

As demonstrated below, economic theory shows that even though real estate markets are not concentrated, MTE owners can exercise market power over access prices for extended periods of time. Tenants are insensitive to excessive access prices for long periods because long-term leases limit their ability to move, and the costs of relocating to obtain CLEC services exceed the potential gains from receiving CLEC service. Therefore, contrary to the claims of the Real Access Alliance, real estate markets cannot be expected to discipline MTE owners and managers that deny, delay, or impose unreasonable conditions or excessive prices on CLEC access.

II. Economic Theory Of The Market For Access

The Real Access Alliance argues that real estate markets are generally competitive, with little concentration in ownership and few barriers to entry. Further, the Alliance asserts that because real estate markets are competitive, markets for access to MTEs must also be competitive. While it is true that real estate markets are typically unconcentrated with few barriers to entry and that tenant mobility can impose market discipline on building owners and

managers in the long run, landlords may be able to exercise considerable market power when the available space for rent falls short of demand. Under current real estate market conditions, landlords may feel little pressure to provide tenants access to the telecommunications carrier of their choice because the supply of rental lease space is relatively low.¹

Moreover, even when the demand for and supply of rental space are in balance, landlords can exercise market power over tenants when relevant economic conditions change unexpectedly. The Telecommunications Act of 1996 introduced significant new telecommunications service opportunities for consumers, and it is unlikely that these changes were fully anticipated by tenants and are reflected in existing lease agreements. In effect, the advent of local competition gives MTE owners an opportunity to charge tenants more without violating their lease agreements. One should expect, then, that MTE owners and managers will be able to exercise market power over building access until real estate markets fully adjust to the new telecommunications opportunities.²

¹ The Building Owners and Managers Association (“BOMA”) *1999 Experience Exchange Report* shows that vacancy rates have been declining for the past five years, from around 16 percent in 1994 to near 7 percent in 1998. *1999 Experience Exchange Report US Office Market Highlights*, Building Owners and Managers Association International (1999) Available at <http://www.boma.org/download/eer/1999eerus.pdf> (visited September 21, 1999) (hereinafter “*1999 EER Highlights*”). In fact, vacancy rates in some parts of the country are at record lows. “The suburban vacancy rate fell into the single digits in the third quarter of 1997 for the first time since CB Commercial began tracking downtown and suburban rates in 1984.” CB Richard Ellis, Torto Wheaton Research. Available at <http://www.cbrichardellis.com/> (visited September 21, 1999).

Moreover, rents have steadily increased over this period as well, reflecting the tightening market for space. BOMA reports that average income in private sector buildings rose 3.3 percent from 1997 to 1998. *1999 Experience Exchange Report*, Building Owners and Managers Association International (1999) at 11. During 1998, office rents in the West (excluding California) rose 14 percent, and rents rose 12 percent and 9 percent in California and the Northeast. CB Richard Ellis, *Global Market Rents*, July 1999. Available at <http://www.cbrichardellis.com/> (visited September 21, 1999) (hereinafter “*Global Market Rents*”). Moreover, the data on new construction indicate that the imbalance between demand and supply will not end soon, although the rate of growth in rents may slow. *Global Market Rents. 1999 EER Highlights*.

² One important characteristic of leases is that they protect tenants from *ex post* opportunism—efforts to raise price or reduce quality after the deal is struck—by MTE owners and managers. These protections are necessarily imperfect, and they are particularly so when events are unforeseen or poorly understood by the parties to the negotiation.

At this early stage of competition in local exchange markets, it is unrealistic to expect real estate markets to effectively discipline MTE owners' attempts to delay or deny CLEC access to MTEs, or to demand unreasonable conditions or excessive prices. The competitive dynamics in real estate markets will fail to limit such behavior because the conditions that drive real estate competition are only now beginning to bear on building access. Few leases today spell out the landlord's obligations with respect to building access for CLECs, although future leases may do so more frequently. Also, the legal rights of tenants to use their telecommunications provider of choice are largely nonexistent. If landlords are unwilling to allow access on reasonable terms, tenants have no recourse other than to move to another building. And because local exchange competition and CLEC entry into MTEs are nascent, threats to relocate to another building will ring hollow if tenants cannot choose alternative MTEs with the desired CLEC service.

A. Demand For Access To MTEs Is Comparatively Inelastic

It is important to understand that access to telecommunications services is but one of many inputs to the bundle of goods and services purchased in a lease agreement. Further, telecommunications services are almost certainly a small share of the total cost of ownership (rent plus services) of space in an MTE. It follows that a large price increase in telecommunications services will have a much smaller percentage effect on the total cost of ownership. For example, if telecommunications services are 10 percent of the total cost of ownership, a 20 percent increase in the price of access to such services amounts to only a 2 percent increase in the total cost of ownership. In essence, building owners and managers are able to charge prices for access to their buildings well above the costs of such access, secure in the knowledge these excessive charges will have little effect on the total cost of ownership.

This fundamental relationship has important implications for the elasticity of demand for access to MTEs. The demand for access to MTEs is derived from tenants' demand for CLEC services. In general, the demand for each component of a bundle is less elastic than the demand for the bundle itself. This property holds because the total elasticity of demand is a weighted sum of the elasticities for each component of the bundle. Further, the smaller the share of a specific component in the total value of the bundle, the less elastic is the demand for that component. Hence, it is significant that telecommunications services are typically a small share of the total cost

of leasing space in an MTE. For this reason, most tenants will have substantially less elastic demand for CLEC services than for the complete bundle of goods and services contained in a lease agreement. Consequently, CLECs' demand for access to MTEs also will be comparatively inelastic, and one should expect markets for CLEC access to MTEs to be substantially less competitive than real estate markets.

B. MTE Owners Control Access To Telecommunications Services

MTE owners control access to telecommunications services for their tenants. They are therefore in a position to exploit the comparatively inelastic demand for telecommunications services by charging high access prices to new telecommunications service providers. CLECs have no alternative means to reach potential customers in MTEs. They must either pay the inflated prices or lose the opportunity to provide service to those consumers.

Contrary to the argument presented by the Real Access Alliance, economic theory shows that MTE owners will profitably charge supracompetitive prices for access to MTEs because the conditions that drive competition in real estate markets are not yet present for telecommunications access. While tenants are unwilling or unable to move to another building to get access to CLEC service, the market will not effectively discipline MTE owners that charge unreasonable prices for access, and one should therefore expect profit-minded landlords to demand high access fees from entrants.

III. Evidence Of Market Failure

The Real Access Alliance asserts that the market is working. The evidence, however, tells a different story. The record contains an abundance of anecdotal evidence that MTE owners sometimes seek excessive payments or demand unreasonable terms as conditions for access, and I review the economic implications of some of these examples below. Of course, systematic survey evidence is typically a better resource, and the Real Access Alliance should be commended for attempting to gather such evidence. However, the Alliance survey is consistent with and further supports the anecdotal evidence of market failure documented by CLECs in this proceeding.

A. Most Requests For Access Are Unsuccessful

The Real Access Alliance claims that its survey demonstrates that 65 percent of the requests for access were either successful or negotiations were continuing.³ This statistic should, on its face, raise concerns for the Commission. Based on the survey data, we know that at least 35 percent of requests for access fail.⁴ In addition, we know that this fraction understates the true proportion of requests that fail, because some of the requests still in negotiations will ultimately fail.⁵ Although the reported survey data do not allow us to directly calculate the fraction of requests that fail, we can estimate the failure rate using other reported data.⁶ After compensating for incomplete negotiations, I estimate that only 45 percent of access requests are completed successfully, and that 55 percent of access requests are ultimately unsuccessful.⁷ Hence, the

³ Real Access Alliance Comments, at 10. See also the “Charlton Survey Report,” submitted as Exhibit C to the Real Access Alliance Comments. The survey data tabulate the number of relevant responses to each question. Because many respondents represent more than one building, it is impossible to estimate reliably how many potential customers are affected by these access failures from the reported survey results.

⁴ Shooshan *et al* claim that “... Teligent and WinStar requested access most often and were almost always successful.” Harry M. Shooshan III, Margaret L. Rettle, and John Haring, “Economic Analysis of the FCC’s Proposed Policy of ‘Forced Access’ for CLECs to Private Buildings,” at 13. Submitted as Exhibit D to the Real Access Alliance Comments (hereinafter “SPRI Comments”). This claim is incorrect and does not follow from the data they cite. Their table 2 actually shows that Teligent is somewhat less likely to successfully negotiate an access agreement than are CLECs on average, and WinStar is somewhat more likely to successfully negotiate an access agreement. It is, in fact, impossible to determine how frequently each CLEC’s requests for access were successful based on the data reported in their table 2. However, since at least 35 percent of all carrier’s requests for access are unsuccessful, and Teligent’s and WinStar’s data are comparable to the average CLEC, it is safe to conclude that at least 35 percent of their requests were unsuccessful. Further, as I show below, 35 percent is almost certainly an underestimate of the true failure rate.

⁵ Shooshan *et al* incorrectly claim that the “Results of the Alliance Survey indicate that building access is successfully negotiated over 65 percent of the time.” SPRI Comments, at 15. The authors improperly fail to recognize that a significant proportion of the on-going negotiations are likely to end unsuccessfully and therefore dramatically overstate the probability of successful negotiation.

⁶ Based on the survey questionnaire, it appears that the collected survey data do not distinguish between completed successful negotiations and continuing negotiations. If so, it is impossible to directly calculate the sample failure rate. Charlton Survey Report, Appendix G, question 9.

⁷ My estimate uses the Alliance survey’s reported average time to complete a negotiation, 4.7 months, to estimate the proportion of negotiations that were continuing at the time the survey was taken. If negotiations typically take longer than 4.7 months to complete, my estimate of the probability that

survey actually demonstrates that MTEs grant access to CLECs only 45 percent of the time they request it. Given the clear economic motivations for CLECs to seek access to MTEs, this failure rate is surprisingly high.

There is additional evidence in the Alliance survey which further demonstrates that the market for MTE access is not functioning well. Specifically, the Alliance survey shows that 9.6 percent of the survey respondents have not granted access to any CLEC, despite receiving requests to do so.⁸ The market is not functioning effectively if all CLECs are denied access to nearly 10 percent of the MTEs where they sought access.

B. Economic Implications of MTE Access Requirements

In addition to the evidence of market failure provided by the Alliance survey, the record in this proceeding contains many examples of MTE owners demanding prices in excess of realistic estimates of the cost or requiring unreasonable terms for access to MTEs. Without intending to offer an exhaustive or necessarily representative list of the kinds of problems encountered, I discuss a number of them here to illustrate how MTE owner requests can diverge from what would be expected in a competitive market and can present a truly formidable barrier to CLEC entry.

- A building owner requested that WinStar pay \$1000 per 100,000 square feet in a building simply for the right to serve tenants. For one building alone, the right to access and serve

negotiations are completed successfully would be lower than the 45 percent reported here. WinStar has reported that its negotiations typically take 9 months, but may take as long as two years, to complete. *See Access to Buildings and Facilities by Telecommunications Providers: Hearing Before the Subcommittee on Telecommunications, Trade, and Consumer Protection of the Committee on Commerce in the U.S. House of Representatives, 106th Cong., at 26-27 (1999) (attached as Exhibit A to WinStar' Comments) (Prepared Statement of William J. Rouhana, Jr., Chairman and CEO, WinStar Communications, Inc.) (hereinafter "Hearing").* Appendix B, attached hereto, contains a detailed discussion of the methods and data used to produce my estimates.

⁸ Thirty-seven percent of the survey respondents that received a request for access said they have denied access to a CLEC. Of this 37 percent, 26 percent have not granted access to any CLEC. Charlton Survey Report, Appendix B. It follows that 9.6 percent of the survey respondents that have received requests for access have not granted access to any CLEC.

tenants would cost WinStar \$9000 per month. Moreover, this charge did not include additional payments to a separate management company for access to the rooftops and risers.⁹

- A management company for a Florida MTE demanded that a telecommunications carrier pay the management company \$700 per customer for access to the MTE, in addition to a sizable deposit, a separate monthly rooftop fee, and a substantial monthly fee for access to the MTE's risers.¹⁰
- A nationwide property management company requested a management fee of \$2,500 per building in addition to separate space rental charges of approximately \$800 to \$1500 per month per building. This company also insisted that the CLEC agree to refrain from making any regulatory filings regarding the building access issue.¹¹
- After 18 months of negotiations, a Colorado MTE owner charged a CLEC a \$7,500 fee plus monthly lease payments for access to a single MTE.¹²
- A number of building owners and managers require CLECs to sign revenue sharing agreements.¹³

Each of these five examples raises questions about how well the market for access is working. The Real Access Alliance states that the typical rate for building access is \$300 to \$500 per month.¹⁴ In the first four examples, separate fees are requested above and beyond the standard charges for usage of building facilities. These separate fees potentially could be explained by fixed costs associated with allowing CLECs access, but the magnitude of the charges in these examples suggests that explanation lacks credibility.¹⁵ An explanation more consistent

⁹ WinStar Comments, at 17.

¹⁰ ALTS Comments, at 16.

¹¹ *Id.* at 9.

¹² *Id.*

¹³ *Id.* at 7, 11, 12, 14, 15, 17. *See also* Hearing, at 21 (Prepared Statement of John D. Windhausen, Jr., President, Association for Local Telecommunications Services).

¹⁴ Real Access Alliance Comments, at 8. *See also* Stern, at 5, 6. At the May 13, 1999 hearing before the Subcommittee on Telecommunications, Trade, and Consumer Protection of the Committee on Commerce in the U.S. House of Representatives, one MTE owner stated that individually negotiated rates range from \$100 to \$500. *See* Hearing, at 79.

¹⁵ The evidence of excessive charges is more persuasive when the separate space rental charges are clearly at or above market rates. It appears particularly likely that this is the case in the first example.

with the available evidence is that some MTE owners and managers are able to demand fees in excess of the costs caused by granting access, a textbook example of the exercise of market power.

In addition, the existence of “involuntary” revenue sharing agreements is also an indicator of the presence of market power.¹⁶ Revenue sharing agreements can function as a way for MTE owners and managers to price discriminate, effectively extracting higher payments from the most successful CLECs. Such agreements, in the absence of compensatory services provided by the MTE owner or manager on the CLEC’s behalf, are consistent with the exercise of market power.¹⁷

IV. Market Forces Cannot Be Expected To Swiftly Eliminate Market Power Over Access

There are several reasons to believe the market will not swiftly eliminate MTE owners' and managers' market power over CLEC access to MTEs. Most importantly, there are high costs associated with moving a business, and these costs typically exceed the potential gains tenants would experience from switching telecommunications service providers. Hence, many potential

because the space rental charges are levied by a separate management company that presumably has separate fiduciary duties to maximize profits.

¹⁶ There are many pro-competitive reasons for revenue sharing agreements. For example, an entrant might voluntarily enter into an agreement to share revenues with an MTE owner to secure the owner’s efforts in marketing the CLEC’s service. Hearing, at 30 (Prepared Statement of William J. Rouhana, Jr.). My concern is solely with involuntary revenue sharing agreements demanded as a condition of entry, with no compensatory services provided by the building owner or manager.

¹⁷ The staff of the Texas Public Utility Commission reached a similar conclusion, finding that “[c]ompensation mechanisms that are based on the number of tenants or revenues are not reasonable because these arrangements have the potential to hamper market entry and discriminate against more efficient telecommunications utilities. By equating the cost of access to the number of tenants served or the revenues generated by the utility in servicing the building’s tenants, the property owner effectively discriminates against the telecommunications utility with more customers or greater revenue by causing the utility to pay more than a less efficient provider for the same amount of space.” *Informal Dispute Resolution: Rights of Telecommunications Utilities and Property Owners Under PURA Building Access Provisions*, Project No. 18000, *Enforcement Policy Memorandum from Ann M. Coffin and Bill Magness, Office of Customer Protection, to Chairman Wood and Commissioners Walsh and Curran*, at 6 (October 29, 1997).

CLEC customers will choose to stay in a building that limits choice rather than incur the expenses of relocating to a building that allows them to use their telecommunications provider of choice. In WinStar's experience, it is unrealistic to expect customers to move in order to access CLEC service. In addition, some CLECs may not pass on high access charges to customers, choosing instead to advertise a uniform service price across locations. The price signals that would otherwise induce tenants to move are blunted in this circumstance. Finally, because local telecommunications competition is new, some potential customers may perceive CLECs as too risky and be unwilling to move to simply receive CLEC service.

A. High Switching Costs Will Slow Market Moves To Cost Based Pricing

The costs and other barriers associated with moving an on-going business are unquestionably large. These costs may prevent tenants from moving and can therefore limit market pressure on MTE owners that charge high access fees. The Real Access Alliance avers that MTE owners also experience costs when tenants move, and that these costs temper owner incentives to demand high access prices.¹⁸ However, the evidence reviewed above shows that some MTE owners charge excessive access prices, despite the potential costs associated with losing tenants. High switching costs for tenants limit the ability of market forces to punish such owners.

One significant potential impediment to moving is an existing lease agreement that presents a continuing liability. Commercial lease agreements generally run for five to 10 years and may extend beyond a decade.¹⁹ Long-term leases can limit tenant mobility and reduce the ability of tenants to pressure landlords to grant access to CLECs on reasonable terms.

¹⁸ Real Access Alliance Comments, at 7.

¹⁹ "NAIOP Applauds the Senate Introduction of Leasehold Improvement Legislation," *PR Newswire*, April 27, 1999 (stating that the average length of a commercial lease is 5 to 10 years). See also Eric Avidon, "REIT Group Backs Bill Requiring Periodic Rehab," *National Mortgage News*, March 22, 1999 (quoting Steven A Wechsler, President and CEO of the National Association of Real Estate Investment Trusts: "In reality, commercial leases now average about a single decade, not four [decades]."); and *Global Market Rents*. Shooshan *et al* claim that the average commercial lease runs about three years. SPRJ Comments, at 4. They do not, however, provide a source for their data.

There are, in addition to lease commitments, many other significant costs of relocating a business. Some examples are:

- *Relocation Costs.* Relocation costs include the costs of locating and preparing a new space, physically moving employees and equipment, printing new business cards and stationary, announcing the move to customers, and terminating and restarting building and business services.
- *Lost Productivity.* Packing and moving employees to a new location reduces their productivity. In addition, some employees may leave for alternative employment rather than travel to a new business location, generating additional lost productivity and hiring costs.
- *Loss of Existing Customers.* Many businesses rely on local patronage for a significant share of their business and can expect to lose, at least temporarily, some portion of this locally generated business when they move.

Although it is difficult to quantify relocation costs precisely, there is abundant anecdotal evidence that they are considerable. One author estimates, for example, that the total cost to relocate could equal a full year's rent.²⁰

It is easy to understand that relocation costs of this magnitude must overwhelm the potential gains from choosing CLEC service. A simple example can illustrate the problem. Suppose telecommunications expenditures are about 20 percent of rent and that CLEC service can save tenants 30 percent on their telecommunications bills. Under these conditions, it would take more than 16 years (ignoring discounting) for the savings on telecommunications services to pay for a move. This is longer than the term of most leases and far too long for most businesses to cost justify the move. If telecommunications expenditures are 10 percent of rent, it would take more than 33 years for the savings to pay for the move.

The fact that moving costs can slow the development of competition should not surprise the Commission. The Commission observed a similar phenomenon in 1995 with regards to telephone number portability. In that proceeding, the Commission noted that customers will be deterred from switching carriers if they must obtain new telephone numbers because of the costs

²⁰ James S. Saunders, "Lease Restructuring Strategies Can Save Money for All," *Real Estate Weekly*, (May 20, 1998) S4.

involved.²¹ In particular, the Commission found that business customers incur administrative and marketing costs.²² It concluded that "[t]hese costs, and the potential loss of customers, may inhibit businesses from selecting new services or new providers."²³ Indeed, the costs associated with moving are considerably greater than the costs of obtaining a new phone number. Following the Commission's reasoning in that proceeding, the likelihood that customers will incur the costs of moving to access CLEC service is considerably less than the likelihood that customers will change phone numbers to access such service.

In addition, CLEC service remains new and, to some customers, largely unproven. Some potential customers may therefore consider CLEC service too risky to consider seriously as an alternative to ILEC service, or they may undervalue the potential gains from CLEC service. These potential customers cannot reasonably be expected to move in response to high MTE access prices, unreasonable conditions, or delay in negotiations for CLEC access. Consequently, the Commission should act to enable CLECs to offer reliable, quality telecommunications service to all MTE customers without exposing those customers to unnecessary cost and inconvenience.

B. Market Forces Are Blunted If CLECs Do Not Pass High Access Prices On To Customers

For business reasons, some CLECs may choose not to pass on high access prices to customers in the buildings where the high prices are charged. They may instead spread the high access prices across all customers or not pass them on at all. WinStar, for example, does not pass high access prices on to its customers. These CLECs find that economies of scale in advertising, marketing, and billing, together with strong customer preferences for simple pricing plans, drive

²¹ *In re Telephone Number Portability, Notice of Proposed Rulemaking*, 10 FCC Rcd 12350, at ¶2 (1995).

²² *Id.*

²³ *Id.* It should be noted that Congress also believed that the inability for customers to retain their telephone numbers when switching carriers presented a large impediment to local competition, and it imposed number portability on local exchange carriers in the 1996 Act. *See, e.g.*, H.R. Rep. No. 204, 104th Cong., 1st Sess., pt. 1, at 72 (1995) ("The ability to change service providers is only meaningful if a customer can retain his or her local telephone number."); *see also* 47 U.S.C. § 251(b)(2).

them to adopt uniform prices across geographic markets. In addition, ILEC prices effectively put a ceiling on CLEC prices and limit the extent to which high access costs can be passed on to customers.

The market forces working to limit unreasonable access prices are blunted when CLEC customers facing high building access charges do not observe those charges. Tenants have less incentive to move and exert market pressure on landlords when high access prices are not fully reflected in CLEC service prices.²⁴ Moreover, even if tenants see the full cost of high access charges in telecommunications service prices, they may not understand that these service prices reflect building access charges levied by MTE owners. In addition, consumers are harmed by the high access prices because they experience either higher prices or reduced CLEC entry.

V. Conclusion

Consumers are harmed when MTE owners deny, delay, or impose excessive prices or unreasonable conditions on CLEC access because the development of local exchange competition is slowed or prevented altogether. The potential benefits from competition in local exchange service are substantial, and these benefits are needlessly diminished by excessive access prices. The Real Access Alliance's claim that tenant mobility will discipline unreasonable MTE owners' and managers' demands for CLECs to access their properties is not supported by the facts in this proceeding. The examples provided in this proceeding demonstrate that MTE owners have requested excessive prices and unreasonable conditions for access to MTEs. In addition, the Alliance survey demonstrates that MTE owners and managers grant CLEC access only 45 percent of the time. This failure rate is surprisingly high given the economic incentives CLECs have to enter MTEs. Moreover, tenants' willingness and ability to move in order to access CLEC service is limited by long-term leases, high moving costs, and inconsistent price signals to customers. These factors limit the market's ability to discipline MTE owners' attempts to deny, delay, impose

²⁴ Tenants will continue to have an incentive to pressure MTE owners and managers to alter their access terms to enable CLEC service when CLECs are denied access completely. The market will function less effectively, however, when the price signals that would otherwise create additional market pressures on MTE owners are absent or muted.

unreasonable conditions, or charge excessive prices for CLEC access to MTEs. Thus, the Commission should reject the Real Access Alliance's claims that competition in real estate markets will ensure that tenants are able to access their telecommunications provider of choice.

Appendix A

John B. Hayes — Principal

Ph.D. Economics, University of Wisconsin—Madison, 1994
M.A. University of Denver, 1986
B.A. Stanford University, 1983

Professional Experience

1998–present *Principal*, Charles River Associates Incorporated, Boston, MA.
Economic analysis of antitrust and regulatory issues in the computer and communications industries. Authored and presented numerous filings before federal and state competition authorities.

1997–1998 *Senior Economist*, The Tilden Group, Oakland CA.
Economic analysis to support antitrust litigation.

1993–1997 *Economist*, US Department of Justice, Antitrust Division, Washington, DC.
Economic analysis to support antitrust litigation and Federal competition policy. Advised and trained foreign competition agency personnel. Extensive telecommunications experience including comments filed with the Federal Communications Commission and analysis of mergers.

1995–1996 *Adjunct Professor of Economics*, Georgetown University, Washington DC.
Taught an undergraduate course in industrial organization.

1989–1991 *Research Assistant*, Wisconsin Vocational, Technical, and Adult Education System, Madison, WI.
Economic analysis of labor market trends affecting enrollment in the VTAE system.

1987–1988 *Project Manager*, US WEST, Strategic Marketing Division, Denver, CO.
Identified new business opportunities. Compared the performance of business units to industry benchmarks. Trained staff in the use of data resources for business performance analysis.

1986–1987 *Research Assistant*, Medical Group Management Association, Center for Research and Ambulatory Health Care, Denver, CO.
Survey design, implementation, analysis, and presentation of results. Authored articles for the association newsletter and journal. Maintained research databases. Prepared research proposals.

HONORS AND AWARDS

Federal Reserve System Board of Governors Dissertation Fellowship, 1992.
University of Denver Fellowship, 1986.

PUBLICATIONS

Testimony and White Papers

"An Empirical Analysis of the Footprint Effects of Mergers between Large ILECs." White Paper on behalf of Sprint Corporation, Applications for Transfer of Control to SBC Communications Inc. of Licenses and Authorizations Held by Ameritech Corporation, CC Docket No. 98-141, filed at the FCC on March 31, 1999. With Michael L. Katz and Jith Jayaratne.

"CMRS HHI's from Customer Share Data." Declaration of John B. Hayes. 1998 Biennial Regulatory Review—Spectrum Aggregation Limits for Wireless Telecommunications Carriers. CC Docket No. 98-205, filed at the FCC on January 25, 1999.

"Market Power and the Bell Atlantic-GTE Merger." Declaration of John B. Hayes. Application of GTE and Bell Atlantic for Consent to Transfer of Control, CC Docket No. 98-184, filed at the FCC on November 23, 1998.

"Market Power and the SBC-Ameritech Merger." Declaration of John B. Hayes. Applications for Transfer of Control to SBC Communications Inc. of Licenses and Authorizations Held by Ameritech Corporation. CC Docket No. 98-141, filed at the FCC on October 14, 1998.

"Unintended Consequences: Public Policy and Wireless Competition." White Paper on behalf of the Personal Communications Industry Association, October 1, 1998. With Michael L. Katz.

"Declaration of Carl Shapiro and John Hayes on Behalf of Sprint." Application by BellSouth Corporation, BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc., for Provision of In-Region, InterLATA Services in Louisiana. CC Docket No. 98-121, filed at the FCC in August 1998.

Research Papers

"Do Firms Play Exit Games? Theory and Evidence on the Strategic Role of Size in an Exit Game." Ph.D. dissertation, Department of Economics, University of Wisconsin-Madison (1994).

"An Exit Game with Continuously Adjustable Output and Efficiency Differences." Working paper, Department of Economics, University of Wisconsin-Madison (1994).

"Labor Market Information for the Trade and Industry Occupations." Wisconsin Board of Vocational, Technical, and Adult Education, Madison, WI (1992). With James Eisner.

"Labor Market Information for Business and Marketing Occupations." Wisconsin Board of Vocational, Technical, and Adult Education, Madison, WI (1992). With Catherine M. Cotter and Ronald J. Hustedde.

"Optimal Exit Strategy in a Stochastically Declining Market." Applied Microeconomics Workshop, Department of Economics, University of Wisconsin-Madison (1990).

Appendix B

Methodology for Estimating the Probability that Negotiations Are Successfully Completed

The Alliance Survey data show 805 requests for access during the year preceeding the survey.²⁶ Of these 805 requests, 522 were either successfully negotiated or negotiations were continuing at the time the survey was taken.²⁷ I would like to (1) estimate how many of these 522 requests were successfully completed when the survey was taken (*i.e.*, estimate the number of censored and uncensored observations), and (2) estimate the probability that an access request is successfully negotiated, after properly accounting for the censoring in the survey data. This memo describes my methodology and provides some comments on certain assumptions taken.

1. Estimating the Number of Censored Observations

Assume that the number of requests received over an interval of time follows a Poisson process. One useful property of a Poisson process is that the expected number of requests arriving over t units of time is $E(N(t)) = \gamma t$, where γ is the "rate" of the process.²⁸ Note that the rate of the process is constant for all t , a property that will prove useful below. We can use the survey data to estimate $\gamma = \frac{805}{12} = 67.0833$ per month.

Assume that the time required to complete a negotiation, either successfully or unsuccessfully, follows an exponential distribution, which has the following cumulative distribution function:

$$F(t) = \begin{cases} 1 - e^{-\lambda t} & t \geq 0 \\ 0 & t < 0 \end{cases}$$

²⁶ Charlton Survey Report, Real Access Alliance Membership Survey, Question 8.

²⁷ *Id.* Question 9.

²⁸ A useful reference for the results applied here is Sheldon M. Ross, *Introduction To Probability Models*. New York: Academic Press, Inc. (1989).

One useful property of an exponential distribution is that the expected length of time required to complete a negotiation is $E(T) = \frac{1}{\lambda}$ where T is the time required and λ is a parameter. Question 18 in the Alliance Survey asks how long it takes to negotiate an agreement with a telecommunications provider.²⁹ Charlton research used the data from this question to estimate the average time to complete a negotiation at 4.7 months.³⁰ This estimate of the mean negotiation interval can be used to estimate λ as $\hat{\lambda} = \frac{1}{4.7} \approx 0.2128$. Note that this estimate of λ assumes that the answers to Question 18 in the Alliance survey report the length of time required to complete all negotiations, not just successfully completed negotiations.³¹ I will comment on the significance of this assumption below.

Comparing the survey distribution data for T to an exponential distribution with $\lambda = 0.2128$ shows that the exponential distribution provides a reasonably close approximation to the survey data.

²⁹ Charlton Survey Report, Real Access Alliance Membership Survey, Question 18.

³⁰ Charlton Survey Report, Appendix E.

³¹ Equivalently, one could assume that the average times to complete negotiations successfully and unsuccessfully are equal.

**Survey Frequencies
Compared to an Exponential Distribution**

Period	Survey Frequency	Exponential Distribution ($\lambda = 0.2128$)
1-3 Months	45%	47%
3-7 Months*	39%	30%
7-12 Months*	12%	15%
>12 Months	4%	8%
	100%	100%

Denote the number of negotiations completed, either successfully or unsuccessfully, over t months by $N^*(t)$. Then the expected number of completed observations in one year is approximately

$$E(N^*(12)) \approx E(N(1))(P(T \leq 1) + P(T \leq 2) + P(T \leq 3) + \dots + P(T \leq 12)).$$

Conceptually, this is the expected number of observations arriving each month, multiplied by the probability that negotiations will be completed during the time remaining in the observation period. The first term in the sum represents the probability that requests for access received at the beginning of the 12th month of the observation year are completed by the end of the year. Note that the expression takes advantage of the fact that the expected number of observations arriving each month is constant and equal to $E(N(1))$.

The calculation is only approximate because it assumes all observations arrive at the beginning of each month. An exact expression can be developed by making the time period for each increment in the sum arbitrarily small to get

* The time periods listed on the survey form were actually 1-3 months, 3-6 months, 7-11 months, and greater than 12 months. Charlton Survey Report, Real Access Alliance Membership Survey, Question 18. The calculated probabilities from the exponential distribution function match the time periods listed in the table.

$$\begin{aligned}
 E(N^*(12)) &= \int_0^{12} E(N^*(1))F(t)dt \\
 &= \int_0^{12} \gamma(1 - e^{-\lambda})dt
 \end{aligned}$$

Evaluating this expression yields $E(N^*(12)) = 514.2850$.

2. Estimating the Probability that Access Requests Are Successfully Negotiated

We know from the survey data that $805 - 522 = 283$ of the requests for access were not successful at the time the survey was taken. Hence my estimate of the number of access negotiations that were successfully completed when the survey was taken is $514 - 283 = 231$, and the estimated number of censored observations is $522 - 231 = 291$.

An unbiased estimate of the probability that requests for negotiation are successfully negotiated is $\frac{231}{805 - 291} = 0.449$ and an estimate of the probability that requests for access are unsuccessful is 0.551.³²

3. Comments on the Assumptions

The interesting assumptions in this analysis center on the use of an exponential distribution with $\lambda = 0.2128$ to model negotiation intervals.³³ This statistical model has identical conditional distributions for successful and unsuccessful negotiations. There are a number of reasons to believe that the conditional distributions for these two outcomes might differ. For example, it is possible that when negotiations last a long time they do so because the MTE owner is not negotiating in good faith. This theory implies that unsuccessful negotiations are likely to last longer than successful negotiations. Alternatively, it might be that unsuccessful negotiations end quickly because the MTE owner simply denies access.

³² Tony Lancaster, *The Econometric Analysis of Transition Data*, New York : Cambridge University Press (1992) , is a useful reference for estimation procedures with censored data.

³³ The use of a Poisson distribution to model access requests seems uncontroversial. Using an alternative distribution certainly could change the results, however there is little *a priori* justification for assuming that requests for access are not smoothly distributed over time.

One could model either of these alternative relationships by allowing the conditional distributions for successful and unsuccessful negotiations to differ. A straightforward extension of the model used here would allow different values for λ in each conditional distribution. If unsuccessful negotiations last longer, on average, than successful negotiations, the probability of success would be lower than I estimated here. If unsuccessful negotiations typically take less time than successful negotiations, the probability of success would be higher than I estimated.

The difficulty with this generalization of the approach used here is that there is insufficient information in the survey data to separately estimate λ for each conditional distribution. Moreover, economic theory does not provide a clear basis to fix the relationship between the parameters for the two conditional distributions. Hence this analysis assumes the conditional distributions are identical.

EXHIBIT 2

28 June 1999

Eric Hemel
First Vice President
(1) 212 449-0334
eric_hemel@ml.com
Steve Sakwa
Vice President
(1) 212 449-0335
steve_sakwa@ml.com

Mixing Real Estate and Telecom

Office REITs Seek To Exploit Growth In Telecom Services

Reason for Report: Increasing bandwidth in telecom provides opportunities for REITs

Industry

Investment Highlights:

- Over the past year, it has been impossible to read a business journal (i.e., *Business Week*, *Forbes*, *Fortune*, or *The WSJ*) that does not address the rapidly changing Telecom playing field which is being “turned on its head” by start-up companies such as Global Crossing, Qwest, Teligent, and Winstar just to name a few.
- While these companies (and others) will continue to grab the headlines, it appears that the REIT sector (specifically office REITs) has been “bitten” by the telecom bug.
- Most, if not all, of the office REITs in our coverage universe are currently seeking ways to exploit the exponential growth of high speed internet access as well as the ability to offer “bundled” telecom services to their existing tenants.
- At present, we are aware of three separate entities – within the REIT sector – that are seeking to capitalize on this trend. The three groups are: (1) OnSite — this company is partially owned by Reckson Service Industries (RSII); (2) ARC — this company is 21% owned by Sam Zell; and (3) a potential consortium of up to ten office REITs that is being led by an unnamed high profile west coast venture capital firm.
- It is this last group — the potential consortium – that may generate the most attention for the office sector. While none of the parties we spoke to were willing to talk “on the record” (some would not even acknowledge that a consortium was being contemplated), our sense is that a public announcement regarding the formation of a new telecom company could be in the not too distant future (say four to six weeks).
- While the financial impact on FFO/share for these office REITs will probably be limited to a few pennies, the real benefits could take the form of an equity stake in what could potentially become a highly valued telecom company. This consortium, if successful, could provide the basis for a much larger company (serving non REIT office properties as well) which, in theory, would have a “first mover advantage” by virtue of its initial economies of scale.
- While we cannot quantify the importance for the REIT equity holders in the consortium, the mere awareness of its existence may provide at least a positive “buzz” for a stock group otherwise in the doldrums.

EXHIBIT 3