Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

	)	
Review of the Commission's Rules	)	
Regarding the Pricing of Unbundled	)	WC Docket No. 03-173
Network Elements and the Resale of Service	)	
by Incumbent Local Exchange Carriers	)	
	)	

REPLY DECLARATION OF JOSEPH P. RIOLO
ON BEHALF OF AT&T CORP.

January 30, 2004

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REPLY DECLARATION OF JOSEPH P. RIOLO

1. My name is Joseph P. Riolo. I am an independent telecommunications consultant. My business address is 102 Roosevelt Drive, East Norwich, NY 11732. I am the same Joseph P. Riolo who submitted a Declaration in this proceeding on December 16, 2003 ("Riolo Opening Decl.").

I. PURPOSE

2. The purpose of this Reply Declaration is to respond to certain issues regarding cost inputs, network routing and construction, and loop conditioning in the comments and supporting declarations submitted by the incumbent local telephone companies ("RBOCs" or "ILECs") on December 16, 2003.

3. Part II addresses the argument made by each of the ILECs that UNE rates should be calculated on the basis of their "actual" utilization rates – a euphemistic reference to their embedded fill factors. In attempting to buttress their ill-conceived argument that their woefully low embedded fill rates should be presumed to reflect the optimally efficient spare capacity, the ILECs rely upon a host of misguided rationalizations. Thus, for example, the ILECs contend that the levels of spare capacity in their embedded networks are required for

churn, maintenance, breakage, and future growth, and that current ratepayers should pay for such growth capacity. The ILECs also contend that a host of other factors – including engineering guidelines, price caps, intermodal competition, and service quality standards – assure that their networks operate at maximally efficient utilization rates.

4. Remarkably, after strenuously arguing that their networks are models of efficiency, the ILECs reverse course and contend that the excessive levels of spare capacity in their networks are required because of their carrier-of-last-resort ("COLR") obligations. And, finally, the ILECs contend that reliance on their embedded fills will result in increased transparency and accuracy in cost calculations. Each of these contentions is meritless, and the Commission should categorically reject any presumption that an incumbent's actual fill factors are efficient and forward-looking.

5. Part II explains that the ILECs' woefully low embedded fill rates cannot possibly reflect the capacity utilization rates of an efficient carrier in a forward-looking environment because they reflect their past practices of building excessive levels of spare capacity in their networks. Despite the ILECs' contrary claims, neither customer churn nor defective equipment can justify the excessive amounts of spare capacity in their networks; and, in all events, the spare capacity due to breakage that is built into most modern day cost models may be sufficient to cover the relatively small amounts of spare capacity required for these purposes.

6. Furthermore, the ILECs' assertion that current ratepayers should pay for growth capacity is incorrect. Cost models should reflect the costs of only that spare capacity that

is required to satisfy current demand. Even if an efficient carrier reasonably concludes that it should carry unused capacity to satisfy further growth, under no circumstances should current ratepayers be saddled with the costs of such growth capacity.

7. Part II also explains that the myriad factors the ILECs claim ensure the operation of their networks at optimally efficient fill levels – including price caps, facilities-based competition, and service quality standards – do nothing of the sort. Thus, reliance on the incumbents' low fill rates would result in inflated UNE rates which reflect the inefficiencies that persist in the incumbents' existing networks. Part II also shows that the incumbents' attempt to justify excessive levels of spare capacity in their networks based upon their carrier-of-last resort obligations is nothing more than a red herring. The ILECs' submissions glaringly omit any evidence to support their claims and, in all events, the universal service contribution fund is the appropriate mechanism for recovery of these costs. Finally, Part II explains that use of the ILECs' embedded fill factors – which reflect the inefficiencies in their networks and which are based upon the ILEC's own incomplete, inaccurate, and unreliable records that the ILECs control and which are subject to manipulation – highlights the absurdity of the ILECs' claims that their actual data will increase transparency and accuracy in cost calculations.

8. Part III addresses the ILECs' claims that UNE rates should be based on their "actual," embedded structure sharing percentages, and that insurmountable difficulties – such as the need for coordination, security, and safety concerns – preclude buried and underground structure sharing arrangements. That section explains that embedded structure sharing percentages should not and must not be used in determining UNE rates because they

reflect the ILECs' historical experience as monopolies when they had absolutely no incentive to engage in structure sharing. Additionally, the ILECs' claims regarding the purported insuperable difficulties which preclude structure sharing are belied by, *inter alia*: (1) the veritable plethora of ordinances and regulations that strongly encourage or require structure sharing; (2) the substantial structure sharing opportunities that exist today and should increase in a forward-looking environment; and (3) the ILECs' participation in coordinating committees which have been highly successful in achieving the level of coordination that the ILECs now contend is impossible to attain.

9. Part IV addresses the ILECs' contention that their embedded outside plant mix is a reasonable proxy for the forward-looking mix of an efficient new entrant. As that section explains, the ILECs' embedded outside plant mix is not forward-looking at all because it is significantly constrained by the incumbents' *ad hoc* outside plant decisions and the manufacturing processes, technologies, materials and tools that existed at the time the plant was deployed. Moreover, given the inherent unreliability of outside plant records, the Commission must and should be highly skeptical of any claims that the incumbents' reported outside plant mix data accurately reflect their actual outside plant mix percentages. And because ILECs alone possess the data on their embedded structure mix, reliance on the incumbents "actual," embedded data would place CLECs and regulators at a substantial disadvantage in verifying the accuracy of the ILECs' claims.

10. Part V addresses the assertions of the ILECs that their embedded placement costs should be used in calculating UNE prices. Contrary to the ILECs' claims, their

embedded placement costs are not forward-looking at all because they too are constrained by the limitations of the embedded networks, including the inefficiencies in network routing, manufacturing and technology options, and costs of labor and equipment at the time of plant deployment. Additionally, because the ILECs' outside plant records are unreliable, incomplete, and inaccurate, the ILECs' claims that the use of "actual" data will result in greater accuracy in cost calculations are purely illusory. And, once again, because the ILECs are the only entities that possess their actual placement costs, CLECs and regulators would be severely handicapped in verifying the ILECs' data – data which could be subject to manipulation by the ILECs whenever they see fit.

11. Part VI addresses the assertions of certain ILECs regarding the propriety of assessing separate charges for loop conditioning. The ILECs' assertions that CLECs should be required to pay such charges because they caused the ILECs to incur them are flatly wrong. The *ILECs* cause such charges to occur, due to their failure to implement decades-old industry guidelines that call for the elimination of load coils and excessive bridged taps. Furthermore, BellSouth's argument that conditioning charges are needed as a "financial incentive to judiciously request conditioning" is illogical. CLECs would not request conditioning that was unnecessary, because doing so would substantially delay provisioning and increase the CLEC's internal costs. There is also no basis for BellSouth's suggestion that "excessive" requests for loop conditioning would damage its voice grade network. To the contrary, loop conditioning can, and does, improve the quality of that network.

12. Part VII responds to Qwest's assertion that a cross-connect, once installed, cannot always be used for succeeding customers. Situations where a cross-connect cannot be used by a subsequent customer are rare. Generally, when a customer vacates the premises, the cross-connect stays in place.

II. FILL FACTORS

13. Each of the ILECs urges this Commission to adopt the simplifying presumption that their "actual," embedded fills reflect the optimal utilization rates of an efficient carrier in a forward-looking network.[1] The Commission should not rise to the bait. There is no legitimate basis for any such "presumption," and the Commission should soundly reject the ILECs' invitation to permanently anchor UNE rates to the incumbents' woefully low and inefficient embedded fill factors.

14. As AT&T demonstrated in its opening comments, the embedded fill levels in the ILECs' existing networks are not and should not be used as the basis for calculating UNE rates.[2] Indeed, the Commission's Wireline Competition Bureau and State commissions have

[1] *See, e.g.,* Verizon at v (prices "must reflect . . . actual levels of fill"), 43 ("[t]he Commission should provide that . . . 'fill' levels reflected in UNE rates are consistent with . . . actual network experience"); SBC at 64 ("actual . . . fills are the *only* reliable evidence of the fills that are demonstrably achievable"); BellSouth at 27 ("the Commission should adopt guidelines that require State commissions to consider recent ILEC utilization rates"); Qwest at 43 ("the Commission should also establish a rebuttable presumption in favor of using the ILEC's actual . . . fill factors").

[2] Riolo Opening Decl. ¶¶ 36-52.

properly rejected the use of embedded utilization rates in calculating UNE prices.[3] And there is no sound basis upon which the ILECs can legitimately contend that their actual achieved fill factors equal the utilization rates that an efficient carrier would achieve in a forward-looking environment.[4]

15. As AT&T has shown, the ILECs' legacy networks reflect decades of piecemeal expansion and the historical practice of incumbents to construct excess levels of spare capacity in their networks.[5] Additionally, the ILECs' existing patchwork networks contain older, less efficient DLC equipment and were built based on engineering technologies that are now obsolete. As a consequence, the incumbents' embedded fill factors cannot possibly reflect the utilization rates that could be achieved by an efficient carrier using more efficient DLC equipment and engineering technologies that permit higher fill rates.[6] As AT&T also has explained, because the ILECs' embedded networks contain spare capacity reserved for future growth, the costs of such spare capacity cannot properly be borne by current ratepayers.[7]

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[3] AT&T at 66-67; Riolo Opening Decl. ¶ 36.

[4] Verizon is thus wrong in asserting that "real-world fills 'are exactly the right figures to use' when setting UNE rates." Verizon at 46 (quoting *AT&T Communications, Inc. v. Illinois Bell Tel. Co.*, 349 F.3d 402, 411 (7th Cir. 2003). In any event, Verizon's quotation of the Seventh Circuit's recent decision is highly selective. The court stated that "*If SBC's current fill factors are the efficient ones (or are within the range that a student of the subject might think a reasonable estimate of that figure*), then they are exactly the right figures to use." *AT&T Communications, Inc.*, 349 F.3d at 411 (emphasis added). As explained herein and in my Opening Declaration, the ILECs' existing fills are neither efficient nor within the range that would be considered a reasonable estimate of efficient fills. Riolo Opening Decl. ¶¶ 36-52.

[5] Riolo Opening Decl. ¶ 82.

[6] *Id.* ¶ 44.

[7] AT&T at 64-66; Riolo Opening Decl. ¶ 15; Willig Opening Decl. ¶¶ 87-89.

Moreover, if the ILECs' embedded fill factors are presumed to be dispositive regardless of efficiency, the ILECs would have every incentive to install excessively high levels of capacity in their networks. Nothing in the incumbents' comments alters these conclusions.

16. In urging adoption of embedded fill rates as the framework for analysis, the ILECs rely on a kitchen-sink variety of arguments that purportedly show that their reported actual fill factors are suitable proxies for forward-looking utilization rates. Thus, for example, the ILECs contend that UNE rates should be calculated based upon the embedded fills in the ILECs' existing networks because: (1) their existing utilization rates reflect the appropriate levels of spare capacity for churn, maintenance, breakage, and growth; (2) the ILECs' engineering guidelines assure that their embedded networks produce optimally efficient utilization rates; (3) their embedded fill levels have remained stable over time, thereby demonstrating the efficiency of their capacity utilization rates; (4) price cap regulation, facilities-based competition, and service quality standards incent ILECs to design outside plant networks with maximally efficient amounts of spare capacity; and (5) their COLR obligations mandate that they maintain the excessive levels of spare capacity in their networks. Alternatively, the ILECs contend that reliance on embedded fill rates will yield predictability and accuracy in cost calculations and eliminate any "guesswork" by State commissions. As demonstrated in more detail below, each of these arguments is devoid of merit.

17. **Breakage, Customer Churn and Maintenance**. In attempting to justify the excessive levels of spare capacity in their embedded networks, the RBOCs contend that their

actual fill levels are eminently reasonable because they are the product of "real-world constraints," such as breakage, churn and maintenance.[8] This justification is baseless.[9]

18. It is indisputable that breakage – the manufacturing constraints that limit cable to discrete sizes – is a reality in the industry. It is equally clear that this phenomenon is amply accounted for by modern cost models, which assume the cost of actual equipment.[10] Importantly, however, the spare capacity attributable to breakage that is built into cost models is often sufficient to accommodate the relatively small amounts of spare capacity required as a result of churn and maintenance.[11]

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[8] *See, e.g.,* Verizon at 43-44; Qwest at 39; SBC at 66-67.

[9] AT&T at 62-63; Riolo Opening Decl. ¶¶ 19-30; Murray Essay at 5-11.

[10] Riolo Opening Decl. ¶ 30.

[11] AT&T at 63-64; Riolo Opening Decl. ¶ 30. In its discussion on breakage or lumpy capacity, Qwest contends that CLEC proposals for higher fill factors, particularly those for high capacity loops, are wholly unrealistic because they ignore that "the per-unit costs of using high capacity equipment with moderate fills are lower than those incurred by using low-capacity equipment with higher fills." Qwest at 40. This argument is specious for several reasons. First, to the best of my knowledge, Qwest has not based its proposed UNE rates or fill factors on the premise that the lowest-cost equipment purchased by an efficient carrier would result in fill factors lower than those produced by more expensive equipment. Second, Qwest's argument is based on the premise that in computing fill factors, AT&T and other CLECs have selected the facilities for the forward-looking network first, before determining the appropriate fill factors. *See* Qwest at 40 n. 105. Generally, however, the CLECs have first determined the appropriate amount of capacity needed to meet current demand and then used their cost models to determine the particular equipment that would meet those needs. Third, Qwest assumes that when an efficient carrier purchases new facilities with a higher *potential* capacity, it will immediately equip those facilities with the *maximum* potential capability, and that the resulting fill of the new facilities will therefore be low. *See id.* That, however, may not always be the case. For example, a carrier can vary the capacity of an OC-48 ADM according to the number of Add/Drop cards that it inserts into the "tributary shelf" of that facility. If the carrier uses a limited number of cards (because, for example, it does not currently need the full capacity of the OC-48 ADM), the actual capacity of the OC-48 ADM will be correspondingly limited. Thus, depending upon the

(footnote continued on next page)

19. In that connection, the ILECs' assertion that the high levels of spare capacity in their current networks are due to churn is nonsensical. Customer churn cannot justify the excessive levels of spare capacity in the ILECs' current networks. As AT&T explained in its opening comments, a significant amount of churn is essentially self-canceling and produces no change in demand for telephone capacity.[12] And even when a location is vacant between occupants, the line is still active on a limited basis, and the status of the cable pair in the numerator of the fill ratio is simply changed from "working" to "idle assigned."[13] Thus, the ILECs' assertion that churn necessarily increases the amounts of spare capacity beyond planned levels is incorrect.[14] Moreover, the one source of churn that theoretically could cause short-term fluctuations in line demand – the ordering of additional residential telephone lines at existing locations – is decreasing as customers increasingly use a single telephone line for both telephone and broadband services.[15]

(footnote continued from previous page)
number of cards with which it is equipped, the OC-48 ADM may have a relatively high fill factor. Fourth, many of the facilities cited by Qwest have no bearing on proper fills for *copper* distribution fills and *copper* feeder fills. *See* Qwest at 40. DS-3 circuits, for example, are entirely fiber – not copper. OCn loops (including OC3, OC12, and OC48) facilities also are fiber. Even in the calculation of fiber feeder fills, the particular OCn loop has no impact on the fiber feeder fill, because fiber optic multiplexers typically operate on one "send" fiber and one "receive" fiber. Riolo Opening Decl. ¶ 64. Thus, in calculating fiber feeder, engineers simply count OCn loops as working fiber, since such loops vary only according to the speed of the signal transmitted over them.

[12] AT&T at 62; Riolo Opening Decl. ¶ 21.

[13] Riolo Opening Decl. ¶ 22.

[14] *See* Verizon at 45; SBC at 67; Riolo Opening Decl. ¶¶ 20-24.

[15] Riolo Opening Decl. ¶ 23.

20. Equally infirm is the ILECs' argument that the extravagantly high levels of spare capacity reflected in their embedded fill rates are required in a forward-looking network for maintenance due to defective equipment.[16] As AT&T has shown, the embedded networks of the ILECs contain nontrivial amounts of defective pairs.[17] However, equipment currently produced by manufacturers has failure rates that are close to zero, and an efficient new carrier would not construct plant containing the high levels of defective plant in the ILECs' embedded networks.[18] Furthermore, as AT&T has explained, a contestable market simply would not permit an incumbent to recover the costs of such high equipment failure rates from ratepayers.[19]

21. **Growth and Cost Attribution**. To defend their unreasonably low embedded fill factors, the ILECs also contend that the large amounts of spare capacity reflected in their actual fill rates are required to accommodate future growth, and that current ratepayers should pay for such spare capacity.[20] These arguments are fatally flawed.

22. Although an efficient carrier may reasonably conclude that it should carry an amount of currently unused capacity for future growth, the costs of such growth spare should not be recovered from current ratepayers. Indeed, this Commission has rejected the notion that fill factors should reflect ultimate demand, finding that "forecasting ultimate demand [is] too

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[16] *See* SBC at 66; Verizon at 44.

[17] Riolo Opening Decl. ¶¶ 25-26.

[18] *Id.* ¶ 27.

[19] *See* AT&T at 63.

[20] *See* Qwest at 41; Verizon at 45-46; SBC at 66-67.

speculative."[21] And the RBOCs' submissions have offered no justifiable reason why current ratepayers should be required to subsidize the *future* ratepayers on whose behalf the future growth spare capacity is built.

23. Thus, for example, Verizon contends that, in rejecting its proposed embedded distribution fill factors, the *Virginia Arbitration Order* improperly found that current ratepayers should not bear the costs of Verizon's embedded spare capacity which is designed to meet future growth in demand.[22] In attempting to defend its embedded utilization rate, Verizon insists that no portion of spare capacity costs should be recoverable from "future users" rather than current ratepayers because "on average" utilization in the network "remains stable over the long run."[23] However, this argument is simply a reprise of an argument that the *Virginia Arbitration Order* properly rejected.

24. In the *Virginia Arbitration Proceeding*, AT&T explained that, when Verizon constructs its real network, it provides substantial spare capacity for growth and then presumes that such growth will continue into the future.[24] AT&T also explained that, when that growth occurs, some of the spare capacity will be used up; however, Verizon's model priced UNEs as if the level of spare capacity was constant.[25] AT&T also pointed out, however, that

[21] *See Virginia Arbitration Order* ¶ 254 (footnote omitted).

[22] Verizon at 45-46.

[23] *Id.* at 46.

[24] *Virginia Arbitration Proceeding,* Joint Initial Post-Hearing Brief of WorldCom, Inc. and AT&T on Pricing Issues at 148-149.

[25] *Id.* at 148.

Verizon modeled its distribution plant to meet current and future demand, but then calculated unit costs by using current demand in the denominator of its calculation.[26] Thus, Verizon's cost model charged present customers for capacity that will be used by future customers and then also charged future customers for that capacity.[27]

25. Consistent with its approach here, Verizon contended that no portion of the costs of spare capacity should be recoverable from future ratepayers because the average utilization rates in the network have remained stable.[28] This argument is both incorrect and irrelevant. As AT&T explained in the *Virginia Arbitration Proceeding*, Verizon's argument makes no sense with respect to the costing of distribution plant, which is sized to meet *ultimate* demand.[29] AT&T explained that the concept of "sizing demand" within a given distribution area means that "'capacity is installed at once initially.'"[30] And Verizon's argument is irrelevant because Verizon confuses the average utilization of the network *in the aggregate* with the utilization of *individual* loops, serving areas or other subcomponents of the network – the level at which Verizon makes plant-sizing decisions and offers units of capacity for sale to CLECs and other ratepayers.[31]

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[26] *Virginia Arbitration Proceeding*, AT&T/WCOM Exh. 11P (Murray Reb.) at 32.

[27] *Id.*

[28] *Virginia Arbitration Proceeding*, Verizon Cost Br. at 108.

[29] *Virginia Arbitration Proceeding*, AT&T/WorldCom Reply Post-Hearing Brief on Pricing Issues at 65.

[30] *Id.*

[31] *Id.* at 65-66.

26. AT&T also explained that, at that disaggregated level, Verizon clearly sizes its plant in the expectation that demand will tend to grow over time, and that capacity utilization *for a given set of facilities* will tend to trend upward until the capacity is reinforced.[32] AT&T also noted that, under Verizon's approach, when a previously idle loop is brought into revenue-generating service by increased demand, the new customer does not receive credit for whatever contribution that prior ratepayers may have made to the cost of that loop when it was merely idle capacity. AT&T argued further that charging current ratepayers for spare capacity that is expected to go into future revenue-generating service produces double-recovery of costs and requires current ratepayers to cover costs they did not cause.[33] The *Virginia Arbitration Order* properly concluded that "[j]ust as the Commission found it inappropriate to include in universal service support the costs of building outside plant to meet uncertain ten- or twenty-year demand projections, it is inappropriate for [the CLECs] to bear the cost today of building plant for uncertain ultimate demand."[34]

27. Accordingly, fill factors must and should be set by determining the appropriate amount of spare capacity that is required to meet current demand. As this Commission has already concluded, "[i]f we were to calculate the costs of a network that would serve all potential customers, it would not be consistent to calculate the cost per line by using current customer demand. In other words, it would not be consistent to estimate the cost per line

[32] *Id.*

[33] *Virginia Arbitration Proceeding*, AT&T/WCOM Ex. 20 (Murray Surreb.) at 38-41.

[34] *Virginia Arbitration Order* ¶ 254.

by dividing the total cost of serving all potential customers by the number of lines currently served."[35] Moreover, even if it is assumed counterfactually that the costs of spare capacity for future growth should be borne by current ratepayers, as AT&T has pointed out, the amount of growth capacity would have to be discounted substantially since, *inter alia*, DSL and wireless technology have reduced demand for second lines.[36]

28. **Engineering Guidelines**. The ILECs contend that their current fill levels are efficient because they are based upon network engineering guidelines which set forth the efficient levels of spare capacity that engineers must build into their networks.[37] These arguments are demonstrably unsound.

29. The ILECs' arguments suggest that engineering guidelines are highly inflexible documents containing rigid cable requirements which are strictly adhered to by their engineers. Despite the ILECs' contrary suggestions, far from requiring the ILECs' currently low fill levels, engineering guidelines leave the ILECs' engineers considerable discretion in determining optimal plant capacity.[38] And sound engineering practices encourage the maximization of outside plant to the greatest extent possible.

30. **Stability of Fill Levels**. The RBOCs also contend that their current fill levels are efficient because they have remained relatively stable, and are unlikely to change

[35] *Universal Service Order* ¶ 58.
[36] AT&T at 66; Riolo Opening Decl. ¶ 23.
[37] *See, e.g.,* Verizon at 43; SBC at 64.
[38] Riolo Opening Decl. ¶ 57.

significantly on a forward-looking basis.[39] Even assuming that the RBOCs' fill levels have remained "stable,"[40] however, that "stability" simply demonstrates the *inefficiencies* of their current fills – and the ineffectiveness of price caps and other factors that, the RBOCs contend, cause them to be efficient.

31. Given the low levels of fills in the ILECs' current networks, the fact that fill levels have remained "stable" shows that they are installing too much capacity in their networks. For example, BellSouth's data (if accurate) show that its copper distribution fills have *never* exceeded 50 percent in any of the States in its region between 1998 and 2002, and fell below 40 percent in almost half of those States in 2002.[41] Similarly, BellSouth's copper feeder fills have consistently been below 65.31 percent.[42]

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[39] *See, e.g.,* Verizon at 44-45; BellSouth at 27.

[40] Verizon provides no data in support of its claim that its fills have remained relatively stable. Verizon at 44-45. Although BellSouth provides data on its copper distribution and copper feeder fills (but not its fiber feeder fills), it does not describe the methodology that it used or the points in its network where it measured the fills. As I have previously shown, the manner in which ILECs have measured fills in the past has rendered their claimed fills unreliable. *See, e.g.,* Riolo Opening Decl. ¶ 50.

[41] *See* BellSouth, Exh. 4, "Copper Distribution Pairs."

[42] BellSouth, Exh. 4, "Copper Feeder Pairs." BellSouth provided no description of the methodology or formula that it used to calculate the copper distribution and copper feeder fill factors that it included with its Comments. *See* BellSouth at 27 & Exh. 4. Thus, it is not possible to determine whether, for example, BellSouth included working pairs, idle assigned pairs, and defective pairs in the numerator of its calculation, as would be required under standard engineering principles. Riolo Opening Decl. ¶ 22. Nor does BellSouth describe the points in its network where it measured these fills. *See id.* at ¶¶ 50-51 (describing flaws in ILECs' approach of measuring copper distribution utilization rates at the serving area interface, and of measuring copper feeder fill at the vertical side of the Main Distribution Frame).

32. Moreover, implicit in the ILECs' arguments touting the stability of their fill factors is the notion that an efficient carrier automatically adds capacity to its network whenever it places facilities into service.[43] This assumption is incorrect. An efficient carrier would not blindly augment its network each time it places previously unused capacity into service, but rather would seek to increase utilization to the maximum extent possible to avoid the costs of idle capacity. Verizon's admission that its spare capacity remains "stable" because it augments the network whenever unused capacity is placed into service merely confirms that Verizon's utilization rates are demonstrably inefficient.

33. **Incentives That Maximize Fills.** The RBOCs assert that a variety of factors – including price caps, competition, and service quality standards – give them strong incentives to maintain optimally efficient fills and to minimize excess capacity.[44] This argument is fundamentally infirm.

34. *Price Caps.* The ILECs contend that the existence of price cap regulation has given ILECs strong incentives to maximize fill levels because excess spare capacity would

[43] *See* Verizon at 46. Low fill levels can only remain "stable" if the ILEC consciously elects to add increasingly more spare capacity over time than is used. The denominator of the fill ratio consists of total available pairs. Because the total available pairs increase over time as additional capacity is added to the network, in order to achieve a "stable" level of spare capacity as Verizon claims, it would have to augment its network with more than the previously idle capacity that is being placed into service. For example, if there are 100 pairs of spare capacity in a route served by 1,000 available pairs, the percentage of spare capacity would be 10% (100/1000). Assume further that the 100 pairs of unused capacity are placed into service. In order to achieve a stable level of spare capacity (*i.e.*, 10%), as Verizon claims, it would have to add 110 pairs to the network (110/1000 + 100) – more than the 100 pairs that were placed into service.

[44] *See, e.g.,* Shelanski (Verizon) Decl. ¶¶ 51-52; SBC at 65.

increase the ILECs' investment costs without providing corresponding increased revenues.[45] As AT&T's opening and reply comments explain, however, the advent of price caps has not eliminated the ILECs' incentives to overbuild their networks.[46] As AT&T has shown, price cap regulation is not equivalent to effective competition, and the various loopholes contained therein effectively permit incumbents to preserve the inefficiencies in their networks. Thus, the notion that price caps assure that incumbents operate at optimally efficient fill rates is absurd.[47]

35. As AT&T also has explained, even assuming counterfactually that price caps provide ILECs with the same strong incentives to operate a network as efficiently as a carrier subject to effective competition, the ILECs are necessarily constrained by the prior, sunk nature of their investments in outside plant.[48] The vast majority of the outside plant in the incumbents' existing networks was deployed under prior rate-of-return regulation that provided strong incentives for ILECs to deploy excess capacity in their networks. Because of the sunk nature of this investment, the ILECs have not eliminated the excess capacity from their networks because the costs of carrying such capacity are substantially less than the costs of removal.[49] Moreover, where demand has been stagnant or declining, excess capacity in the incumbents' existing networks will persist.[50]

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[45] Shelanski (Verizon) Decl. ¶ 51; SBC at 65.
[46] *See* AT&T at 48-50.
[47] *See* AT&T at 7-8.
[48] AT&T at 50-51.
[49] *Id.*
[50] *Id.*

36. Because of the ILECs' prior sunk investment in outside plant, their networks cannot be expected to have adopted practices and procedures that minimize the levels of spare capacity. For example, because their investment in less efficient DLC equipment is sunk, the incumbents continue to maintain in their networks older, less efficient DLC equipment instead of newer GR-303 compatible DLC equipment which would permit incumbents to operate at higher levels of utilization.[51] Similarly, a number of ILECs have replaced copper with fiber in substantial portions of their networks in order to move customers using DSL from copper to fiber – a step that is intended to improve the quality of DSL service and the ILECs' competitive position. Nonetheless, the ILECs have left the replaced copper capacity "in place" as spare capacity, even though the ILECs' copper fill levels declined as a result. Furthermore, now that the Commission has denied access to certain broadband capabilities of many UNEs, this architecture plainly includes far more capacity than is required to provide the UNEs that CLECs are allowed to purchase.[52]

37. *Intermodal Competition*. The ILECs contend that their embedded utilization rates can be presumed to be optimally efficient because they are already subject to effective competition from existing facilities-based carriers, and that this increased competition is likely to cause their utilization rates to decline.[53] This argument is erroneous and illogical.

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[51] Riolo Opening Decl. ¶ 44.

[52] AT&T at 52.

[53] SBC at 68-69; Verizon at 19-24, 45.

38. As explained in the Willig Reply Declaration, the Commission in the *Triennial Review Order* has already determined that, in general, there are no alternative providers of the network elements at issue. As a consequence, the ILECs' contention that they are already subject to the rigors of competition from facilities-based carriers (and, thus, can be presumed to have maximized their utilization rates) falls of its own weight.

39. Furthermore, if, as the ILECs suggest, fill levels are likely to *decrease* in the future as a result of intermodal competition,[54] considerations of efficiency would dictate that the ILECs decrease their costs per line by *increasing* their current fills – rather than keeping them stable – and reduce the current amount of spare capacity in their networks. As Mr. Klick explains in his Reply Declaration, the ILECs' arguments are imbued with other inconsistencies. As Mr. Klick explains, if, as the ILECs contend, existing facilities-based competition has resulted in declining fills in the ILECs' networks, it is irrational for the ILECs to assert – as they do here – that UNE prices should be increased to promote *additional* intermodal competition.

40. *Service Quality Standards*. The ILECs also contend that service quality standards give ILECs "strong incentives to design and operate their networks with efficient levels of spare capacity,"[55] and that service quality would deteriorate if the ILECs operated at rates higher than their embedded fill levels.[56] These arguments border on the frivolous.

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[54] Verizon at 45.

[55] SBC at 5.

[56] *Id.* at 66; SBC, Exh. A at 25-26; Verizon at 44 n.84.

41. Service quality requirements and performance metrics specify no minimum, or maximum, levels of spare capacity that an ILEC must maintain. Instead, they establish parity or benchmark standards for other aspects of the ILEC's performance that the ILEC must meet. For purposes of determining whether the ILEC satisfies those standards, the level of its capacity is immaterial. For example, a carrier with excessive amounts of spare capacity in its network could satisfy the Indiana standards cited by SBC (completion of 90 percent of installation orders within 5 days and generation of fewer than 10 trouble reports annually per 100 lines).[57]

42. Furthermore, the ILECs have provided no empirical cost-benefit or optimization analysis to support their blanket assertion that the operation of a network with fill levels higher than their embedded fill rates would spawn a loss of efficiency and degradation of service.[58] In the absence of such analysis, the ILECs' arguments are nothing more than empty rhetoric. Indeed, I have previously shown that, even at relatively high fill levels, a carrier has sufficient spare capacity to satisfy current demand. Contrary to SBC's suggestion, even at distribution fills of 75 percent (or even higher)[59] a carrier would have sufficient capacity to address maintenance and churn.

43. **COLR Obligations**. Ironically, after heralding their networks as models of efficiency, the ILECs contend that the excessive levels of capacity in their networks are

[57] *See* SBC at 68.

[58] *See, e.g.*, Verizon at 44 n. 84; SBC at 66, 68.

[59] *See* SBC at 65-66.

required to satisfy their COLR obligations.[60] This contention suffers from a number of fundamental infirmities.

44. First, the ILECs' reliance on their status as "carriers of last resort" is nothing more than a variant of their discredited claim that fill factors should be based on ultimate demand.[61] Second, the ILECs' submissions are bereft of any evidence to support their contention that State commissions are somehow requiring them to maintain the bloated levels of spare capacity in their networks. Third, even assuming *arguendo* that the ILECs' assertions are true, these costs should be recovered through the universal service contribution fund, rather than wholesale UNE rates.

45. **Transparency.** Perhaps recognizing the inadequacy of the justifications that the ILECs have offered for their current low fills, SBC rationalizes that the use of "actual fills" would "promote predictability and administrative economy" by reducing the State commissions' discretion to engage in "guessing games" regarding the appropriate utilization rates that should be used in calculating UNE rates.[62] However, the mechanical application of embedded fills reflecting the excessive amounts of capacity in the incumbents' existing network would simply result in overly inflated UNE rates which reflect the inherent inefficiencies that persist in the ILECs' networks.

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[60] Verizon at 45; SBC at 67-68; BellSouth at 8; NERA (BellSouth) Decl. ¶¶ 22-25.

[61] Riolo Opening Decl. ¶ 67. SBC's own witnesses acknowledge that the ILECs' networks are designed to satisfy "ultimate" demand. *See* SBC, Exh. A at 25 ("In the real network . . . the distribution plant is designed to satisfy 'ultimate' demand").

[62] *See* SBC at 69.

46. Nor is it true – as the ILECs suggest – that the use of the ILECs' reported embedded fills will spawn greater accuracy in cost calculations than the Commission's TELRIC rules. As AT&T has explained, the ILECs' distribution plant records are hopelessly inaccurate.[63] The inherent unreliability of the ILECs' distribution plant records, in combination with the flawed methodology they use when measuring fills in their networks, demonstrates the absurdity of any suggestion that the ILECs' reported embedded fill levels accurately depict their actual utilization rates.[64]

47. To make matters worse, the use of the ILECs' reported embedded fill factors would render UNE cost calculations less verifiable. Because the ILECs are in sole possession of the data on their embedded fill factors, CLECs are at a substantial disadvantage in attempting to verify the ILECs' embedded fill factors. As explained in the Willig Reply Declaration, because of the asymmetry of available information, the ILECs have every incentive to manipulate the data as they see fit.[65] Thus, reliance on the ILECs' low embedded fill factors would not only result in costs well in excess of those required to serve current demand efficiently, but it would also place CLECs (as well as regulators) at a substantial informational disadvantage without improving the accuracy of TELRIC calculations.[66]

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[63] *See* Klick Opening Decl. ¶¶ 62-67.

[64] *Id.*; Riolo Opening Decl. ¶ 50.

[65] *See also* AT&T at 29-30.

[66] *See* AT&T at 39; Klick Opening Decl. at ¶ 51.

III. STRUCTURE SHARING

48. Each of the RBOCs asserts that loop prices should reflect their actual, embedded structure sharing percentages.[67] As I have previously testified, however, it would be inappropriate to use the ILECs' embedded sharing percentages as a basis for determining structure sharing percentages in a forward-looking network. The ILECs' embedded percentages are far lower than those which would exist in a forward-looking market.[68] Existing sharing percentages merely reflect the sharing decisions that the ILECs made in a monopoly environment, with the incentives of a rate-based regulated utility. Thus, the ILECs' historical experience as monopolies provides no sound basis for any assumption that their actual structure sharing percentages equal those of efficient service providers operating in a competitive, forward-looking environment.

49. In an effort to bolster their argument that embedded structure sharing percentages should be used in calculating UNE prices, the RBOCs contend that any structure sharing percentages higher than their "real-world experience" would be improper because their

[67] *See, e.g.,* Verizon at v, 47; SBC at 62; BellSouth at 26; Qwest at 34.

[68] Riolo Opening Decl. ¶ 81. Qwest, for example, asserts that between 1998 and 2001, the amount of structure sharing that it "experienced" was only 22%. Qwest at 34. The reliability of Qwest's claim is highly suspect, given Qwest's failure to describe what the 22% figure represents, the basis for this figure, or a description of the methodology and documents that Qwest used to calculate it. But even assuming that Qwest's 22% figure is credible, its historical sharing experience is of little use in determining forward-looking sharing estimates. For example, when Qwest installed much of its loop plant, there were no CATV carriers with which to share placement costs. Moreover, given that Qwest historically operated under a rate of return regulatory scheme that permitted it to recover all of its costs, it lacked a strong incentive to operate in the most efficient manner.

actual sharing opportunities are limited.[69] The RBOCs, however, do not seriously dispute that they have substantial opportunities for sharing of *aerial* structure. The alleged lack of opportunities that they describe focuses on *buried* and *underground* cable.[70]

50. Even as to buried and underground cable, the RBOCs' allegations of limited structure sharing opportunities are flatly wrong.[71] The RBOCs argue that such sharing is difficult, and rare, because: (1) the networks of other utilities and carriers are already in place, and sharing would be difficult even in new developments; (2) construction must be coordinated; (3) any sharing arrangement would require security arrangements for the participating parties' equipment and plant; and (4) technical and safety considerations preclude the placement of

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[69] *See, e.g.,* Verizon at 47. Verizon also contends that "the extent to which the incumbent shares structure costs with other entities . . . [is] unlikely to change significantly at any time in the foreseeable future." Verizon at 46. Verizon is wrong. In the long-run, the structure sharing percentages of the incumbents should and would increase as municipalities continue to enact ordinances and regulations requiring structure sharing, and utilities and other carriers seek to reduce their placement costs by participating in structure sharing arrangements. Indeed, Qwest's assertion that aerial plant is now declining because municipalities are requiring the undergrounding of facilities (Qwest at 35) is a tacit admission that structure sharing opportunities in the long-run are subject to change to reflect regulatory requirements.

[70] *See, e.g.*, Riolo Opening Decl. ¶¶ 87-89 (describing opportunities for sharing of pole structure); Verizon at 47 ("wide scale opportunities to share structure costs with third parties in the real world are limited, *particularly* for buried and underground cable") (emphasis added); BellSouth at 26 (emphasizing lack of sharing opportunities for buried and underground cable).

[71] Qwest's assertion that an AT&T witness gave "unrefuted testimony" that "structure sharing would not occur for cable placed by plowing" is an exercise in sheer fantasy. *See* Qwest at 26. The witness, Douglas Denney, testified that he was not qualified to discuss that issue. *See* Arizona Corporation Commission Cost Docket, No. T-0000A-00-0194 ("*Arizona Cost Docket*"), Tr. Vol. VI, July 27, 2001, at 1424 (testimony of Douglas Denney).

electrical cable in the same trench with telephone cables, and require that the cables be separated by a minimum distance.[72] These assertions are without merit.

51. First, the ILECs' argument that structure sharing is not feasible because the networks of other utilities and carriers are already in place is a non-starter. As AT&T has explained, the ILECs' argument is based upon a short-run costing perspective.[73] However, if structure sharing opportunities are assessed based upon a short-run time horizon, then it logically follows that so too must the unshared costs of the support structure. Because the ILECs' investment in support structure is sunk when made, the short-run incremental cost of the support structure is close to zero.[74] As Mr. Klick explains in his Reply Declaration, the ILECs cannot have it both ways. They cannot assert that UNE rates should reflect their embedded structure sharing percentages and simultaneously ignore the effects of the sunk nature of their investments in support structure.

52. Additionally, as I have previously shown, in the long-run – the time horizon encompassed in TELRIC – substantial opportunities for sharing of buried and

[72] *See, e.g.,* Verizon at 47; SBC at 62; BellSouth at 26; Qwest at 33-34. BellSouth, without elaboration, also cites "available space considerations" as a factor that makes it even more difficult to share buried and underground structure. BellSouth at 26; *see also* NERA (BellSouth) Decl. ¶ 76. The precise nature of the "available space considerations" to which BellSouth refers remains unclear. To the extent that BellSouth is referring to the lack of available space for *any* carriers or utilities desiring to place underground or buried facilities, the lack of such space would act as an incentive for such carriers to engage in sharing.

[73] AT&T at 10.

[74] *Id.* at 10, 43.

underground structure exist in both existing and new developments.[75] SBC's assertion that "[t]here are complications and costs to sharing that make it limited even in new developments"[76] is simply contrary to the facts. In new residential developments, developers generally provide, free of charge, the buried trench and structure within which the facilities of telecommunications carriers are placed.[77] Even in the case of existing developments, there are today, and will be in the future, numerous opportunities for the sharing of costs with utility companies, developers, municipalities and CLECs. For example, power companies often rebuild or replace their facilities, CATV companies frequently upgrade their networks, and road widenings often require companies that share space on poles to move their facilities underground.[78]

53. The ILECs also contend that buried and underground structure sharing is extremely limited because the construction plans of other utilities do not coincide precisely (in terms of time and location) with those of the ILECs, and the need to coordinate excavations and trench construction significantly increases the time required to complete installation and the ILECs' costs.[79] The ILECs ignore, however, that many municipalities require or strongly encourage sharing of underground or buried structure, and require utilities or carriers to provide

[75] Riolo Opening Decl. ¶¶ 87-107.

[76] SBC at 62 n.94.

[77] Riolo Opening Decl. ¶ 91.

[78] *Id.* ¶ 89. In many existing developments where pole lines were originally installed in the back yards of residential customers, carriers and utilities have increasingly decided to move those lines to the customers' front yards to make the lines more accessible – thereby creating additional opportunities for sharing.

[79] *See* Verizon at 47.

advance notice of proposed excavations so that other parties can participate in such projects wherever possible.[80] The frivolity of the ILECs' arguments is also illustrated by their memberships on utility coordinating committees which are designed to facilitate the very coordination that the incumbents claim is impossible to achieve.[81]

54. Furthermore, contrary to the RBOCs' claims, the need for coordination does not substantially increase the time and costs of installation. In a typical buried or underground sharing arrangement, each party lays its own cable within a very short time after the other parties have completed laying their own cable. Thus, for example, if an electric company, an ILEC, and a cable television company agreed to lay cable in the same trench, the parties might agree that the electric company would lay its cable first in the trench, followed by the ILEC and then by the CATV company. After the electric company completed its work on the portion of the trench that is open and available for cable installation (and sufficient dirt had been added to separate that cable from the telephone and CATV cable), the electric company would notify the ILEC, which would then proceed to install its own cable. Once the ILEC had finished laying its cable, the CATV company would lay its cable. Usually, only a brief period (perhaps a few hours) transpires between the completion of one company's work and the commencement of the next participants' work. Generally, all of the parties complete their cable installation within a single day. Thus, the sharing arrangement causes minimal delay in the ILEC's installation of its own cable.

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[80] Riolo Opening Decl. ¶¶ 96-100.

[81] *Id.* ¶ 95.

55. After the cable has been laid by all parties, each party is responsible for splicing and "turning up" its own cable after the trench has been covered or the conduit has been otherwise completed. Each party performs those tasks independently of the other, at such time as it chooses. Thus, one party need not wait for the other parties to splice and turn up their own cables before that party can proceed to use its own cable to serve customers.

56. As this discussion indicates, the only "coordination" that is actually required in a structure sharing arrangement is minimal. Each party to the arrangement appoints a coordinator, who reaches agreement with the other coordinators as to the sequence of installation (*i.e.*, which party will install its cable first, which party will install its cable next, etc.). Such agreement is usually easy to reach, since each party can begin laying its own cable soon after another party has completed its work. Once that timetable is arranged, the coordinators will keep one another apprised of the progress of the work. Thus, for example, whenever a party finishes laying its own cable, the coordinator for that party will advise the other coordinators. However, the number of such communications is limited, and the time consumed by such communications is relatively short.

57. These facts belie any notion that the need for coordination can materially increase the time and costs of installation. Even assuming for the sake of argument that the need for coordination increases costs, those costs are almost certainly offset (and exceeded) by the costs that each of the participants to the sharing arrangement – including the ILEC – save by participating in the sharing arrangement, rather than building their own facilities independently (where they would bear the entire cost).

58. In a feeble effort to buttress its argument that coordination materially increases installation costs, Verizon cites a single construction project – the conduit installation project in Georgetown – as the quintessential example of prohibitively high costs associated with structure sharing arrangements. Verizon contends that, "in part" due to the need to coordinate multiple parties' construction crews, the costs per foot of installing conduit in its ongoing conduit installation project in Georgetown have exceeded the costs per foot of installing conduit in other projects where Verizon has been the only utility involved.[82] These arguments founder on a number of fronts.

59. In this regard, Verizon neither describes what portion of the additional costs are attributable to coordination requirements, as opposed to other causes, nor provides any empirical evidence or comparative data demonstrating how the nature, scope, and costs of the Georgetown project compare to those of other unidentified installation projects to which it refers. Thus, Verizon's unsupported and highly-partisan assertions regarding the prohibitive costs of coordination in the Georgetown Project are entitled to no weight.

60. Indeed, Verizon's current characterization of the Georgetown Project is at least highly selective and self-serving. According to press reports, after "multiple manhole explosions in 2000 sent sewer covers flying and knocked out neighborhood power grids," PEPCO joined forces with Washington Gas, the District of Columbia Water and Sewer Authority, Verizon, and the District of Columbia Department of Transportation[83] in a four-year,

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[82] Verizon at 47.

[83] Clarence Williams, "A Gift for M Street: Repairs Nearly Done," *The Washington Post*,
(footnote continued on next page)

two-phased, comprehensive renovation of the underground utility infrastructure in Georgetown which involves renovations to M Street, a major commuter route from the Virginia suburbs, as well as to Wisconsin Avenue. Significantly, "[t]he Georgetown Project is the first project of its type"[84] and "represents an *unprecedented* level of cooperation"[85] among the participants involving a major upgrade to the underground utility system in a mixed-use, historical district with 3,346 households and over 350 storefronts in the trade area, and which attracts approximately 17 million tourists annually.[86] In order to minimize the impact of excavation on businesses, residents, and visitors, the vast majority of work in the Georgetown Project is conducted on weekday nights between the hours of 10:00 p.m. and 8:00 a.m.,[87] and no work is conducted during weekends and holidays.[88]

61. The Georgetown Project also has been hampered by the above-average levels of precipitation that the Washington area has experienced. For example, average annual snowfalls in Washington, D.C. total 18 inches; however, in 2003 alone, Washington received 40 inches of snow. Not only was 2003 "noteworthy for significant snowfall," but the annual precipitation in Washington in 2003 "was the largest annual precipitation total in Washington

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(footnote continued from previous page)
December 11, 2003 at DZ04.

[84] http://www.thegeorgetownproject.org/displayContent.asp?Keyword=FAQs.

[85] http://www.thegeorgetownproject.org/displayContent.asp?Keyword=Project Profiles.

[86] http://www.georgetowndc.com/demographic.php.

[87] http://www.thegeorgetownproject.org/.

[88] http://www.thegeorgetownproject.org/displayContent.asp?Keyword=ProjectOverview. An "annual holiday construction moratorium" was instituted between November 27, 2002 and January 5, 2003. http://www.thegeorgetownproject.org/displayContent.asp?

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since 1889."[89] Although Washington typically experiences approximately 112 days of precipitation annually, in 2003, the area experienced approximately 140 days of precipitation.[90] Worse yet, during 2003, the Washington area sustained severe property damage and exceptionally long power outages as a result of Tropical Storm Isabel. The unusually high levels of precipitation in Washington "cost the [Georgetown] project 48 work days" in 2003.[91] Thus, even assuming *arguendo* that Verizon is correct in asserting that the installation costs in the Georgetown Project have exceeded other projects where Verizon has been the only utility involved, the increased costs for the Georgetown Project could well be attributable to the unique working conditions that are required in this bustling historical, commercial, and residential district, as well as the less than optimal weather conditions that the participants faced during the course of this "unprecedented" project.

62. Significantly, although Verizon in its assault on structure sharing arrangements insists that the need for close coordination renders it impossible to engage in structure sharing arrangements, these assertions are belied by Verizon's own public statements heralding the success of the Georgetown Project. Notwithstanding all of the challenges that the Georgetown Project participants have faced, the Executive Management Committee – which is

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[89] National Oceanographic and Atmospheric Administration, National Weather Service, 2003 Annual Statistics, http://www.nws.noaa.gov/om/presto/2003dectable.pdf.

[90] *See, e.g.,* www.accuweather.com, Past Weather Data for Washington, D.C.; http://www.ncdc.noaa.gov/oa/climate/online/ccd/prcpdays.html.

[91] Clarence Williams, "A Gift for M Street: Repairs Nearly Done," *The Washington Post*, December 11, 2003 at DZ04.

comprised of Verizon and all other project participants and which is responsible for project coordination – has stated publicly that the project has been successful because of the "level of cooperation" among the participants that "has helped the project run smoothly and stay on schedule" – an "especially impressive [feat] given the magnitude of this project and the diversity of the partners."[92] In fact, the Executive Management Committee of the Georgetown Project received the 2003 Team Excellence Award for Exemplary Partner from the American Association of State and Highway Transportation Officials ("AASHTO") because of the success of this "$40 million coordinated venture."[93]

63. In explaining why the Georgetown Project was worthy of such recognition, the AASHTO noted that the participants in this project established the Executive Management Committee that "coordinate[d] and combine[d] the individual projects [of the participants] into one massive effort," and that "the parties' cooperative effort condensed 10-15 years of proposed consecutive utility and DDOT upgrades into one project scheduled for completion within four years."[94] Additionally, the AASHTO also observed that because of the

[92] http://www.thegeorgetownproject.org/displayContent.asp?Keyword=ProjectProfiles.

[93] District of Columbia Department of Transportation News Release, October 16, 2003 (http://ddot.dc.gov/news_room/2003/October/10_16_03pr.shtm) (noting that "Mayor Anthony A. Williams today congratulated the District Department of Transportation (DDOT) and the Executive Management Committee of the Georgetown Project for receiving the Team Excellence Award for Exemplary Partner from the American Association of State and Highway Transportation Officials (AASHTO)"). *See also* Councilmember Jack Evans Weekly Newsletter, Week of October 17, 2003 (congratulating the municipal agencies and "the utility companies for their dedication and commitment to making this unprecedented project a success" and noting that "[t]he level of cooperation between the six different entities has been exemplary and the Project is very deserving of such an honor in recognition of their hard work.") http://www.dccouncil.washington.dc.us/EVANS/newsletter/Week.of.10.17.03.htm.

[94] 2003 AASHTO Excellence and Innovation Awards Program at 7, attached as Attach. 1.

"high standard of cooperation and communication" during this project that minimized the impact of construction on residents and businesses, "the project enjoys a high level of credibility with the community."[95] Thus, Verizon's reliance on the Georgetown Project as evidence of the infeasibility of coordination in structure sharing arrangements is misplaced. If anything, the Georgetown Project highlights the substantial benefits that attain through coordinated, structure sharing arrangements.

64. Third, the need for security arrangements for the parties' plant and equipment does not impair opportunities for structure sharing. ILECs often implement such security arrangements – such as the placement of warning indicators or fences around excavated areas – even when they are constructing their own facilities independently. But even when a sharing agreement exists, the costs and time incurred to build fences, place warning indicators, and provide other forms of security are relatively small – and cost each participant less when shared with others.[96]

65. Fourth, the alleged "technical and safety considerations" cited by the RBOCs are both factually incorrect and highly misleading. Verizon, for example, states that such considerations "preclude placing electrical cable in the same trench with telephone cables."[97] There is no such prohibition in the industry. Under longstanding industry practice,

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[95] *Id.*

[96] Security arrangements would not normally include the placement of security guards at the construction site absent unusual circumstances (such as excavation adjacent to an elementary school).

[97] Verizon at 47.

electrical cable and telephone cable may be laid in the same trench, as long as the cables are separated by a minimum distance. Based on my experience, this is a frequent practice. When parties wish to place both electrical and telephone cable in the same trench, the normal practice in the industry is to install them in the same trench, one on top of the other, with approximately one foot of sand separating the two cables.[98] If the sharing arrangement involved three parties (such as an electric company, an ILEC, and a CATV company), the parties would follow the same approach, placing the electrical cable 12 inches[99] below the other two cables (which would be on the same level and would themselves be separated by 12 inches). A page from Bell System Practices depicting the installation of electrical, telephone, and CATV cables in the same trench is attached hereto as Attachment 2.[100]

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[98] Alternatively, the parties could place the cables laterally in the trench, at the same level, depending on a number of factors outlined in the National Electric Safety Code, Rules 353 & 354.

[99] Verizon argues that structure sharing is also limited because carriers and utilities prefer the "far less expensive option" of leasing individual ducts from ILECs, often "at steeply discounted rates," rather than sharing underground structure costs. Verizon at 47. Such a leasing arrangement, however, is in itself a form of structure sharing. Moreover, it is by no means clear that leasing would be less expensive in the long run than a sharing arrangement. Over time, the sum total of the monthly payments that a carrier or utility makes to an ILEC under a lease might well be greater than the costs that it would have incurred under a direct cost-sharing arrangement with the ILEC. In all events, Verizon offers no data to support its suggestion that leasing arrangements are "far less expensive" than sharing arrangements.

[100] Qwest also contends that the limited structure sharing in which CLECs have engaged demonstrates the infeasibility of structure sharing arrangements. Qwest at 34. However, the experiences of the CLECs are wholly irrelevant. The CLECs' networks are not as extensive and ubiquitous as those of the ILECs. Thus, Qwest is making an apples to oranges comparison.

IV. OUTSIDE PLANT MIX

66. Outside plant mix represents the relative proportions of aerial, buried and underground cable. True to form, the ILECs contend that their embedded plant mix is an appropriate and reasonable proxy for the structure mix that would be expected in a forward-looking network.[101] This argument is devoid of merit.

67. The appropriate mix of aerial, buried, and underground plant that an efficient carrier will deploy will depend upon a number of factors, including: whether the cable is feeder or distribution; population density; labor costs; material costs; topography; zoning rules; municipal requirements; and best engineering practices. In a forward-looking network, outside plant would be constructed in the least-cost, most efficient manner. The incumbents' embedded outside plant mix simply does not satisfy this basic test.

68. The ILECs' embedded outside plant mix is not forward-looking at all. As AT&T has explained, the ILECs' outside plant networks were deployed in a piecemeal fashion over a hundred years and could not possibly reflect the plant mix that would be employed by an efficient new carrier today. For example, much of incumbent's embedded outside plant was deployed before the development of Long Range Outside Plant Plans which standardized and formalized the outside plant planning process. These plans set forth a wide array of factors that engineers should consider when planning the outside plant architecture, including: zoning restrictions; population densities; forecasts; cable locations; utilization rates; and pair group

[101] Qwest at 36; SBC at 5, 63; Verizon at 46.

displays. As a consequence, the outside plant mix in the incumbents' embedded networks reflects *ad hoc* decisions by their engineers that would not mirror those that an efficient new carrier would make today.

69. Additionally, the incumbent's embedded outside plant mix is not forward-looking because it is constrained by the technologies, materials, tools, and manufacturing processes that were available at the time the plant was deployed. For example, much of the outside plant in the incumbents' embedded networks was deployed before development of newer cable designs such as "jelly-filled," protected, double-sheath cable that can be used in buried environments and water-blocking compounds which have made it possible for a much higher percentage of the structure in low-lying coastal suburban areas to be buried than in previous years. Against this backdrop, the ILECs cannot legitimately contend that their embedded outside plant mix is a reasonable proxy for the forward-looking mix of an efficient new carrier that would take full advantage of new cable designs.

70. Verizon claims that its embedded outside plant mix is the best source for determining forward-looking costs because, *inter alia*, it is "unlikely to change significantly at any time in the foreseeable future."[102] This statement is not true in the long-run. The composition of outside plant has been impacted and will continue to be impacted by technological changes and advances in manufacturing processes and procedures. Importantly, Verizon's assertion in this proceeding that its outside plant mix is "unlikely to change

[102] Verizon at 46.

significantly at any time in the foreseeable future" is belied by its own admission in the *Virginia Arbitration Proceeding*, where it conceded that "[t]he forward-looking network will include a different mix of . . . plant that exists in the current network."[103]

71. Furthermore, the ILECs' breezy suggestion that use of "actual" embedded outside plant mix data will somehow yield greater accuracy in TELRIC calculations is pure fantasy.[104] Absolutely no solace can or should be taken that the purported outside plant mix percentages that ILECs have proffered or would proffer in UNE proceedings supposedly reflect their actual embedded outside plant mix. As AT&T pointed out in its opening comments, when the ILECs started automating their systems in the 1990s, the only available outside plant records were unreliable and inaccurate.[105] And even when ILECs have conducted outside plant surveys purportedly to obtain accurate information regarding their networks, the survey results have been riddled with errors.

72. For example, in a number of UNE rate proceedings, Verizon has proffered its embedded outside plant mix that was purportedly extrapolated from the results of an engineering survey conducted by its outside plant engineers in the early to mid-1990s. The design of the engineering study on which Verizon so heavily relied, however, is so seriously flawed that the reported results could not possibly reflect accurate information about Verizon's embedded structure mix. As designed, the survey instructions, which directed respondents to

[103] *Virginia Arbitration Proceeding*, Verizon Post-Hearing Br. at 105.
[104] *See, e.g.*, SBC at 62.
[105] Klick Opening Decl. ¶¶ 62-63.

describe the "predominant" structure used for feeder and distribution cable within each Ultimate Allocation Area ("UAA"), invited respondents to hazard nothing more than guesses regarding "the most likely type of structure that the next proposed cable will require."[106] If, on the basis of subjective judgment, an engineer "believe[d] that the predominant structure mix was underground, the survey recorded that 100% of the structure in the particular UAA was, in fact, underground structure."[107] The survey default also treated *all* distribution structure as buried whenever the survey respondent failed to specify the so-called "predominant" distribution structure type.[108] And, unfortunately, because the documents underlying the survey no longer exist, it is impossible to verify the full extent to which the survey results reflect inaccuracies or inefficiencies in Verizon's structure mix.

73. Thus, the outside plant mix that Verizon has proffered in UNE rate proceedings has been premised on a seriously flawed engineering survey which elicited nothing more than a grab-bag of guesses by independent Verizon employees about which structure would be used for whatever cable Verizon happened to have in its pipeline years ago. And when Verizon employees could not even hazard a guess regarding the predominant structure in the particular UAA, the survey default treated all distribution structure as buried. Because the incumbent's outside plant mix data are highly untrustworthy and unreliable, they cannot

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[106] *Pennsylvania UNE Proceeding*, Verizon Stmt. 1.1 (Recurring Cost Panel Sur.), Attachment G at 4.

[107] *Virginia Arbitration Proceeding*, Tr. 4144-4145.

[108] *Pennsylvania UNE Proceeding*, AT&T/WCOM Stmt. 3.1 (Riolo Sur.) at 16-17.

seriously contend that their actual outside plant mix data will yield greater accuracy in cost calculations.

74. Furthermore, because ILECs are the only parties that possess data on their structure mix, reliance on the ILECs' embedded plant mix would place CLECs, as well as regulators, at a significant disadvantage in verifying the ILECs' data. And given this disparity in information, the ILECs would have strong incentives to massage their data to their advantage.

V. PLACEMENT COSTS

75. SBC and Qwest assert that the incumbent's "real-world" (*i.e.,* embedded) placement costs should be used in determining loop costs.[109] In that connection, Qwest states that placement "costs cannot be based on hypothetical assumptions, but 'must be representative of the real world' and 'based upon the incumbent LEC's actual' …experience."[110] Like their other embedded costs, the use of the ILECs' "real-world" placement costs would be inappropriate in any determination of forward-looking costs.

76. The incumbent's embedded placement costs are not forward-looking because they are significantly constrained by the incumbents' existing networks. Plant placement costs are a function of any number of factors, including network routing and labor costs associated with plant installation. However, as AT&T has shown, an efficient new entrant entering the market today would not use the same serving areas, FDIs, SAIs, and remote

[109] SBC at 59-60; Qwest at 34-36.

[110] Qwest at 59.

terminals as those in the ILECs' existing networks, given current service demand patterns and customer locations.[111] The incumbent's embedded networks have duplicative sheaths along many routes as a result of plant reinforcement and use of copper and fiber on the same route. In stark contrast, a TELRIC model should produce significantly less sheath distance than an embedded network because the model designs routes efficiently, rather than piecemeal to address incremental demand as it develops. Clearly, placement costs that are tethered to the ILECs' routing assumptions would merely replicate the inefficiencies of the ILECs' existing networks.[112]

77. Similarly, the incumbent's embedded placement costs reflect decisions made at a time when different manufacturing and technology options existed and the costs of labor and equipment were quite different than they are today. For example, outside plant construction labor costs have been impacted by the tools required to perform the wire joining/splicing tasks. Substantial portions of copper wires in the incumbents' existing plant were joined by twisting two wires together by hand – a relatively slow and costly process. In stark contrast, an efficient new entrant can accomplish the same task by using a connector that accepts 25 pairs at a time, thereby dramatically reducing the costs and time associated with the wire joining/splicing process.

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[111] Riolo Opening Decl. ¶ 134.
[112] *Id.*

78. Additionally, reliance on the ILECs' embedded replacement costs would reflect the ILECs' historical practices of installing poles on a piecemeal basis, resulting in costs that are higher than those that are incurred when pole installations are planned in advance. The unit costs of such piecemeal placements do not reflect the economies of scale attainable from the large-scale installation jobs that an efficient new entrant would undertake. Indeed, pole installations in a forward-looking environment would capture the efficiencies realized from sequential installation and minimization of mobilization and demobilization. Hence, use of the ILECs' embedded placement costs would grossly overstate the costs that an efficient new entrant would incur that would seek to maximize the efficiencies and economies associated with planned pole installations.

79. In attempting to buttress its argument that UNE rates should be based upon embedded placement costs, SBC contends that the CLECs' placement assumptions ignore existing conditions and real world factors that affect placement costs. For example, SBC argues that the CLECs' cost models have attempted to minimize placement costs by advocating the use of "cheap placement methods (such as 'plowing') in modeling the costs of laying cable in highly developed areas, even though no real-world carrier could ever hope to 'plow' and then 'backfill' a paved city street."[113] Based on my experience in UNE rate cases, this is untrue.

[113] SBC at 60.

80. TELRIC models account for an impressive array of conditions that affect placement costs.[114] As AT&T has explained, the HAI model, for example, determines placement methods based on a variety of factors, including topography, zoning restrictions, and best engineering practices.[115] The HAI model also accounts for the cost effects of terrain by recognizing that excavation of streets and boring through concrete are more expensive than using aerial or buried structure. Modern TELRIC models also account for other factors such as population density, labor, and material costs that can vary by state and locality.[116]

81. Qwest contends that adoption of the incumbent's unit costs of placement is necessary because state commissions, including the Arizona Corporation Commission ("ACC"), have erroneously endorsed the CLECs' "time machine approach" which assumes that all cable was placed prior to the existence of streets, sidewalks, and landscaping in Arizona. Qwest at 36. These arguments are meritless.

82. The ACC determined that certain of Qwest's cable placement assumptions were unfounded. In that proceeding, Qwest assumed that a substantial percentage of the cable in rural and suburban areas of Arizona would require the excavation and restoration of streets and sidewalks, as well as landscaping. As the ACC Staff pointed out, Qwest's assumptions were entirely unrealistic.[117] In the most rural areas of Arizona, there are few, if any, asphalt roads or

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[114] Bryant Essay at 11-12.

[115] AT&T at 57.

[116] Klick Opening Decl. ¶¶ 45-74.

[117] *See Qwest v. Arizona Corporation Commission*, Case No. CIV-02-1626 PHX SRB (D.

(footnote continued on next page)

concrete sidewalks that cannot be avoided, and there is virtually no landscaping. And, even in suburban areas, buried cable can be placed in dirt along side roads.[118] The ACC ultimately determined that, with respect to buried cable, "Qwest's . . . inputs overstate the costs attributable to placement of cable in a forward-looking environment," and that "the HAI model relies on . . . reasonable assumption[s]."[119] Thus, contrary to Qwest's claims, neither the CLECs nor the ACC ignored existing conditions, and the ACC correctly concluded that Qwest's placement costs for buried cable were unsupportable.

83. In its recent appeal of the ACC's UNE rate decision, Qwest contended that the loop rates adopted by the ACC were grossly understated because they erroneously assumed "that most of the roads in downtown Phoenix and Tucson are made of dirt."[120] This argument was plainly incorrect. In fact, the ACC's decision assumed that there were no dirt roads in downtown Phoenix and Tucson.[121] Thus, Qwest's claim that the ACC's decision in this Arizona UNE rate case is a prime example of a State's inability to implement the TELRIC rules properly is sheer nonsense.

(footnote continued from previous page)
Arizona) ("*Qwest v. ACC*"), Response to Plaintiff's Opening Brief of Intervenor/Defendants AT&T Communications of the Mountain States, Inc., MCI WorldCom Network Services, Inc., and MCI METRO Access Transmission Services LLC, filed February 28, 2003, at 17-18.

[118] *Id.*

[119] *Arizona Cost Docket*, *Phase II Order* at 12.

[120] Qwest Opening Br. on the Merits, *Qwest v. ACC,* at 16 (filed December 20, 2002).

[121] *Id.*

84. There are other significant problems with using the ILECs' "actual" placement costs in calculating UNE rates. As noted above, placement costs can vary depending upon any number of factors, including geography, labor and material costs, terrain, population density, and the characteristics of the cables and supporting structures.[122] The accounting records maintained by the ILECs, which are wholly unreliable, do not capture geographic cost differences and otherwise lack the detailed granular information required to determine placement costs. And, because the incumbents possess the data on their placement costs, this asymmetry in UNE cost information places CLECs and regulators at a considerable disadvantage when attempting to verify the ILECs' costs. Because of this informational disparity, an ILEC necessarily has incentives to manipulate its cost information to suit its purposes.

VI. LOOP CONDITIONING

85. Verizon and BellSouth argue that the Commission should continue to allow ILECs to charge CLECs for conditioning loops, because loop conditioning is a cost that the ILECs actually incur as a result of the CLEC's request for conditioning.[123] These RBOCs, however, miss the point. ILECs incur these costs, and CLECs are required to compensate the ILECs for them, *only* because the ILECs have failed to implement CSA guidelines that have called for the elimination of load coils and excessive bridged taps for more than 20 years.[124] If

[122] Bryant Essay at 3.

[123] Verizon at 88; BellSouth at 49. SBC simply cites loop conditioning charges as an example of non-recurring charges that the Commission's current rules authorize even though a "cutting-edge network built today" would not do so. SBC at 81. As discussed in the Murray Reply Declaration, however, the Commission should reverse its previous ruling, because it is flatly inconsistent with forward-looking principles.

[124] *See* Riolo Opening Decl. ¶¶ 144-146.

these guidelines had been followed, few (if any) loops would require conditioning. CLECs should not be required to pay for the ILECs' failure to implement the forward-looking approach called for by the industry guidelines.[125]

86. BellSouth further argues that "if there is no financial incentive to judiciously request conditioning, the CLECs will not be deterred from making unnecessary requests, which may ultimately damage the voice grade network."[126] This argument makes no sense. First, as previously stated, if the ILECs had implemented industry guidelines, little or no loop conditioning would currently be performed – and there would be no need for a "financial incentive" for CLECs.

87. Second, it is difficult to understand BellSouth's suggestion that CLECs would make "unnecessary requests" for loop conditioning. CLECs request the removal of excessive bridged taps and load coils only when they need to do so, as when a customer requests DSL service. The notion that a CLEC would gratuitously submit a request for conditioning is preposterous. A request for conditioning substantially delays the provisioning of a loop order (by as much as three to four months) beyond the provisioning intervals that would be experienced when conditioning is not requested. Moreover, making a request for conditioning causes a CLEC to incur substantial additional internal costs, such as the costs of preparing,

[125] Verizon itself removes excessive bridged taps for CLECs at no cost in cases when the tap exceeds CSA guidelines (which allow bridged taps only if they do not exceed 2,500 feet, and prohibit any single bridged tap from exceeding 2,000 feet in length).

[126] BellSouth at 49.

submitting, and tracking the request. Given these additional delays and internal costs, a CLEC would not order conditioning unless there was a *bona fide* need for it.

88. Although BellSouth does not define the "unnecessary" requests to which it refers, it is possible that these are requests that CLECs make for the removal of bridged taps which, due to their amount and proximity to the transmitting equipment, cause an intolerable level of errors on high-speed service lines. I do not regard these requests, however, as "unnecessary." They are made for the purpose of ensuring quality service to customers.

89. Third, BellSouth's assertion that such "unnecessary" requests "may ultimately damage its voice grade network" borders on the frivolous. BellSouth does not describes the particular "damage" that it fears. Nor does BellSouth explain why such damage would result from excessive requests from the CLECs, and not from its own retail operations (whose loops it also conditions when necessary to provide a variety of special services, including DSL service).

90. In reality, loop conditioning can, and does, *improve* the quality of an ILEC's network. There are several types of conditioning that could occur in connection with the ILEC's existing plant configuration. Although some conditioning deals with the removal of obsolete technology (such as voice grade repeaters), the most common forms of conditioning are load coil removal and bridged-tap removal. Far from damaging the ILEC's network, the removal of bridged taps clearly *improves* network performance and reliability from an engineering and operational perspective, because it reduces the potential problems that can result

from bridged taps (including loss of service, greater maintenance, weaker signals, slower speed, and degraded transmission). Similarly, ILECs such as BellSouth typically remove load coils from copper loops longer than 18,000 feet in order to provision a variety of special services circuits on long copper loops.[127]

91. In any event, BellSouth's professed fear of damage to its voice grade network is inconsistent with its refusal to implement the CSA guidelines. If loop conditioning truly posed a danger of damaging its network, BellSouth would have designed its network in accordance with the CSA guidelines – which would have minimized (if not totally eliminated) the risk of such damage.

VII. CROSS-CONNECTS

92. Qwest states that "it is not true, as claimed by CLECs, that once installed, a cross-connect can always be used for succeeding customers."[128] Although Qwest does not elaborate, situations where the cross-connect cannot be used by a subsequent customer are rare. Generally, a cross-connect stays in place when a customer vacates the premises. Qwest itself admits that in such circumstances, "carriers keep the line connected to the switch – an efficient practice assumed by the CLECs' proposed NRCs."[129] On the basis of my experience, cross-

[127] ILECs have typically incorporated load coils into voice frequency design for copper loops in excess of 18,000 feet – even though CSA design limits specify that the length of copper loops should not exceed 12,000 feet. Although the removal of load coils from copper loops greater than 18,000 feet would generally render them unavailable for voice service, such removal would enable the ILEC to use the loop to provide special services, including DSL.

[128] Qwest at 56.

[129] *Id.* at 41.

connects are disconnected only in unusual circumstances, as when the line requires maintenance, or when the premises are being demolished and the facilities are being rearranged.

VERIFICATION PAGE

I declare under penalty of perjury that to the best of my knowledge the foregoing Reply Declaration is true and correct.

/s/ Joseph P. Riolo
Joseph P. Riolo

Executed on: January 30, 2004

Attachment 1

2003 AASHTO

Excellence and Innovation Awards

AASHTO

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Excellence and Innovation Awards

Standing Committee on Quality Awards Council

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Denny Knepper – Pennsylvania dknepper@state.pa.us
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Special Thanks

The Standing Committee on Quality Awards Council would like to recognize everyone who has helped to make this a successful program. The applicants this year responded to the improved system by providing high quality applications.

The Board of Examiners stepped up to the plate by providing outstanding service to the team.

To the CAO's, AASHTO staff and all the others who provided us a fast response, thank you.

You have made this job a little easier.

History of the AASHTO Team Excellence Award Program

As transportation projects and programs become more complex, the need for highly skilled teams becomes more pressing and more apparent.

Seven years ago, AASHTO's Standing Committee on Quality (SCoQ) addressed the need to encourage team formation and team function by recognizing outstanding team efforts in state and federal transportation organizations throughout the country.

Teams are recognized at three levels of achievement:

Exemplary Partner –
Teams which perform at the highest level of team function, understanding and using appropriate tools and techniques, diagnosing and self-correcting on process and group dynamic issues;

Pathfinder –
Teams which accomplish their mission through use of appropriate tools and techniques; and

Trailblazer –
Teams which accomplish their missions but may not use appropriate tools and techniques.

All teams applying for recognition, including those which fail to attain an award-winning performance level, receive feedback to assist them in improving their performance in future years.

Baldrige Performance Excellence Criteria

Team performance is judged against the national Baldrige Criteria for Quality:

- Leadership
- Strategic Planning
- Customer Focus
- Information and Analysis
- Human Resource Management and Development
- Process Management
- Organizational Results

In the hopes that some of the award-winning teams' improvements will serve as best practices which can benefit other organizations, a brief summary of each team's improvement and a contact person can be found in this booklet.

Each year the SCoQ Awards Council evaluates and improves the application and scoring processes within the Program. During the 2002 Program, greater emphasis was placed on teams to obtain greater consistency of scoring. A Board of Qualified Examiners were trained.

2003 Team Excellence Results
A total of 26 teams from state highway and transportation departments applied for recognition with one receiving the President's Award, three Exemplary Partner Awards, none Pathfinder Awards and ten Trailblazer Awards.

Team applications were submitted from the District of Columbia, Maryland, Michigan, Missouri, New Mexico, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, and Virginia. Award thresholds are established by the Awards Council based on the scores submitted by the Board of Examiners. Award plaques for Exemplary Partners are presented to State CAO's at the AASHTO Annual Meeting. Award plaques for Trailblazer and Pathfinder teams are mailed to the recipients.

2003 AASHTO President's Award for Quality

Pennsylvania Department of Transportation
Center for Performance Excellence
Performance Assessment Group

Contact Person: Richard H. Harris, Jr.
E-Mail Address: richaharri@state.pa.us
Team Vision - *To be the most effective Baldrige Assessment resource available to our customers.*
Team Mission - Assist The Department of Transportation to become a Baldrige-like Organization.

1. In a time when out-sourcing and downsizing of government agencies is prevalent, tools are needed to provide direction and alignment for focus on improving products and services with timeliness and efficiency. We need to be better than our competition to maintain our standing. The Baldrige model contains many tools to ensure we are the best.
2. By focusing on the customer and determining the value placed on the products and services used by the customer, the organization is able to focus our resources in a more direct manner. The organization has reviewed and mapped key processes, focusing on removing waste, improve efficiency and effectiveness.
3. As a result of implementing the criteria, the organization adopted a business model and our future leaders learned how to successfully operate a business. The importance of leadership, strategic planning, processes and focus on the customer became real as not only did they learn these concepts in the classroom but also applied this learning through the assessment process.

Impact of Team's Improvement(s):
The impacts were: focus on the customer, customer segmentation, benchmarking best practices, management by fact, integrating and aligning measures, dashboards and scorecards, gap closure and organizational learning.

EXEMPLARY PARTNER AWARDS

Team Name: Executive Management Committee (EMC)
Organization Name: The Georgetown Project (TGP)
Sponsoring Group: District Department of Transportation (DDOT)
Contact Person: Karyn Good, Communications Manager, DDOT
E-Mail Address: Karyn.Good@dc.gov
Team Mission:
To provide a major upgrade of Georgetown's (historic district in Washington, D.C.) underground utility infrastructure and streetscape while minimizing construction impact on business and residents and service interruptions, and providing informative and continuous communication to the community.

Impact of Team's Improvement(s):
Realizing the economic and quality of life impact that necessary infrastructure upgrades required by utilities and DDOT were going to have on a mixed-use community, DDOT asked each party to agree to create an entity to coordinate and combine the individual projects into one massive effort. DDOT, Pepco, Washington Gas, Verizon, and DC Water and Sewer Authority (DCWASA) signed an MOA and created an oversight entity called the Executive Management Committee (EMC). The parties' cooperative effort condensed 10-15 years of proposed consecutive utility and DDOT upgrades into one project scheduled for completion within four years. The EMC immediately made concessions to help with the impact of construction such as limiting construction activity to nights, prohibiting weekend and holiday work, etc. Special apparatuses on equipment minimizes noise. Regular community meetings are held to discuss and review the project status. Communication efforts are enhanced by the creation of a project web site, www.thegeorgetownproject.org. The efforts of the project team resulted in minimal complaints and limited loss of business. Because of this high standard of cooperation and communication, the project enjoys a high level of credibility with the community.

Team Name: Team Building
Organization Name: Kentucky Transportation Cabinet
Sponsoring Group: Department of Highways
Contact Person: Mike Hancock
E-Mail Address: Mike.Hancock@mail.state.ky.us
Team Mission:
The mission of this team is to create a shift in the culture of working relationships between Cabinet work centers, and between the Cabinet and FHWA. Additionally, we must build a culture within the Transportation Cabinet and key stakeholder agencies that focuses attention and effort to working better together. This agenda impacts the delivery of products and services by decreasing barriers to communication and coordination eases approval activities that span within and across agency lines. These enhancements though at this point are intangible, will reduce "red tape" issues that impact organizational effectiveness. In addition, the team continuously works to dissolve undesirable attitudes and behaviors that influence processes.

Impact of Team's Improvement(s):
One of the vital few strategic goals of the Kentucky Transportation Cabinet is to improve organizational performance. We now share this goal with our Federal partners. In order to achieve this goal, we must learn to eliminate and/or reduce barriers and roadblocks to communication and coordination, and learn how to work better together. This team has used multiple meeting formats to whittle away at long standing issues that have caused project delays and undesirable attitudes. The team was successful in identifying the vital few attributes that function as barriers and roadblocks to working relationships. As ad hoc activities were developed to tackle the vital few issues, the team has initiated a culture shift. Culture shifts of this nature usually take five to ten years. This team's aggressive desire for improvement has made noticeable changes in two years. The culture two years ago between KYTC and FHWA was at an all time low. Today, most people view the relationship and culture as somewhat good and getting better.

Team Name: Northern Virginia District Construction Quality Assurance Team
Organization Name: Virginia Department of Transportation
Sponsoring Group: Northern Virginia District of VDOT
Contact Person: John A. DePasquale, P.E.
E-Mail Address: John.DePasquale@VirginiaDOT.org
Team Mission:
Continuously improve the overall quality of construction in the Northern Virginia District by utilizing and sharing the talents, abilities, and resources within the construction program, in order to enhance VDOT's quality initiative to improve specification compliance as a measurable increase. As such, a NOVA Construction Quality Assurance Team (QAT) was formed. The QAT charge was to develop and implement a Quality Assurance Program for all design and construction projects in the NOVA District. The Quality Assurance Program specifically, the Quality Assurance Team (QAT) would perform the following items:

- Randomly select on-going construction projects for review to improve the quality and consistency of services.
- Support the inspection field staff by providing on-site training, mentoring, and re-engineering initiatives.
- Provide on-the-job training and sharing of technical information to project staff, consultant staff and contractor staff to support quality initiatives to provide improved and consistent project documentation and training procedures.

Impact of Team's Improvement(s):
The greatest impacts have been information sharing and dissemination of important quality enhancing tools to a decentralized workforce. Internal and external outreach programs shared information throughout the VDOT District as well as the regional construction industry. Quality Assurance Tips, Lessons Learned/Best Practices were published and a website established as a means to communicate with both internal with external customers. Construction Quality Improvement Program (CQIP) scores of quality evaluations of construction projects improved from 87% in FY 2001/2002, below the state average of 89.7% to 91.8% above the state average of 89.6 % for FY 2002/2003.

PATHFINDER AWARDS

Team Name: PENNDOT Ignition Interlock Program
Organization Name: Pennsylvania Department of Transportation
Sponsoring Group: Pennsylvania Department of Transportation
Contact Person: Gary Modi, P.E., Chief, Safety Mgt. Division
E-Mail Address: gmodi@state.pa.us
Team Mission:
Our mission is to establish the best ignition interlock program in the nation that exceeds customer expectations and results in the reduction of miles driven under intoxication (DUI) by repeat offenders thereby reducing fatalities on Pennsylvania highways. Our partners are the Ignition Interlock Device (IID) service providers, law enforcement officers, consultants (PA DUI Association), courts, and probation officers. Our suppliers are the IID manufacturers. Through our quality assurance program we serve our customers, partners, and suppliers.

Impact of Team's Improvement(s): Pennsylvania's high level goal is to reduce DUI fatalities 10% per year by the year 2005. This will result in saving 50 lives per year. The repeat offender law (Sept. 2000) provided an additional tool to achieve our goal. To be effective, a PENNDOT team created the following systematic and repeatable processes: 1) process for development of unique IID specifications and selection of IID, 2) process for developing & issuing a special ignition interlock driver license, 3) process for conducting a Quality Assurance Program that includes future improvements, 4) process for customer satisfaction measurement and incorporating findings into future actions to improve performance, and 5) systematic process of measuring results that relates to our high level goals. As a result of the implementation of the above processes, PENNDOT was able to select highly dependable IIDs, foster good relationships with IID manufacturers, create a dependable and high quality IID service provider network, and maintain a tightly monitored quality assurance program that enables us to improve quality continuously, based upon customer satisfaction measurements. The above methodology resulted in preventing over 10,000 DUI trips.

Team Name: Financial Management Team
Organization Name: South Carolina Department of Transportation
Sponsoring Group: South Carolina Department of Transportation
Contact Person: Carl Chase Jr.
E-Mail Address: chasec@dot.state.sc.us
Team Mission:
South Carolina recently embarked on the largest highway construction program in the state's history. The mission of the financial team was to develop a comprehensive Financial Management and Strategic Planning System (FMSPS) to successfully manage and report to our customers and employees at a project, program and state-wide level on the financial status of this accelerated program. In addition, we aimed to use our learned knowledge and experiences to successfully incorporate all SCDOT programs into the FMSP system.

Impact of Teams Improvement(s):
The SCDOT along with two Construction Resource Management (CRM) firms and the Federal Highway Administration have embarked on this venture using innovative financing and contracting. The Department's contract with the CRM's called for the development of a comprehensive financial management system that will remain in use long after the CRM Contract is complete. The SCDOT has the benefit of acquiring a state of the art integrated financial management computer system that tracks and manages project schedules and financial requirements, controls state cash and bond requirements and generates reports while integrating data from existing SCDOT legacy systems. In addition, the Department has benefited from the training of in-house staff on its use and cross-fertilization with the Construction Resource Management organization. The system has improved communication to its stakeholders through the consolidation of data into clear and succinct reports, automatic updates to the publicly accessed web site and real-time access to SCDOT employees. The system has generated an integration of data from existing computer legacy systems, which has improved the integrity of the data and improved performance.

Team Name: ISO 9002/17025 Lab Implementation Team
Organization Name: Bureau of Construction and Materials
Sponsoring Group: Pennsylvania Department of Transportation
Contact Person: Gary L. Hoffman, P.E.
E-Mail Address: gahoffman@state.pa.us
Team Mission:
The Executive Management of PENNDOT with the vision to provide outstanding customer service in the area of the Laboratory Testing Section envisioned the opportunity to pursue this goal using the ISO system. The journey began in July 2000 with the adoption of Our ISO Quality Policy Statement "The Materials and Testing Division, Laboratory Testing Section will perform accurate and timely testing for our customers". This quality system was pursued as a management tool for improving services and validating testing efforts. For the employees, it provides a method for elevating recurring issues for resolution, ensuring clear work instructions, and validating staff qualifications through identified core competencies, education and training. This international recognized certification of quality provides added credibility to the testing performed by the Laboratory Testing Section.

Impact of Team's Improvement(s):
PENNDOT's Materials and Testing Division, Laboratory Testing Section has successfully implemented ISO 9002 as an unprecedented undertaking for a State Department of Transportation in that the ISO certification is for the entire central laboratory testing functions. The team directed and applied the necessary procedures and operational policies required to successfully achieve ISO 9002 certification. This latest accomplishment is another major step forward for achieving a World Class Organization. As additional States Laboratories achieve ISO certification they will help create a national momentum of taking quality to the next highest level. It is hoped that this will lead the way for Transportation Material Suppliers, Contractors and other stakeholders to also become certified; and raise the quality of their products and services to unprecedented levels, requiring less need for costly non value adding oversight.

Team Name: GASB 34 Implementation Team
Organization Name: Missouri Department of Transportation
Sponsoring Group: MoDOT Controller's Office
Contact Person: Mara Campbell
E-Mail Address: campbm1@mail.modot.state.mo.us

Team Mission:
The mission of the GASB 34 Implementation Team was to create financial reports compliant with Governmental Accounting Standards Board (GASB) Statement 34 in time to meet the auditor's schedule, with existing staff and maintaining current responsibilities.

Impact of Team's Improvement(s):
The new GASB 34 compliant financial reports provide information in a format showing the general public where their money is being spent and allows comparisons of MoDOT operations to other entities. The new reports show MoDOT is accountable, a priority of the Missouri legislature and the Joint Committee on Transportation Oversight. Accountability is a value listed in MoDOT's Strategic Plan which guides the Business Plan goals and implementation strategies. The Missouri Highway and Transportation Commission benefits from the new financial statements. Now they have a tool to hold MoDOT accountable. MoDOT's Director and Managers benefit from the new reports by having data to base decisions that previously had not been available. A significant accomplishment of the team was the development of a method to value all state owned roads, bridges and right of way. They created financial reports that show each program's effectiveness and the overall change in financial position as a result of the department's operations. The team created and documented a process for accessing data for ongoing changes to the transportation infrastructure.

Team Name: 2003 Leadership Conference Planning Team
Organization Name: Michigan DOT
Sponsoring Group: Management Group Steering Committee and Gloria J. Jeff, Director
Contact Person: Dee Parker
E-Mail Address: parkerde@michigan.gov

Team Mission:
To plan and execute a leadership conference for MDOT's current and potential leaders (approximately 320 individuals).

Impact of Team's Improvement(s):
The team was responsible for the conference planning and execution, including arranging speakers, planning special activities, meals, transportation, housing and materials. The team sought input and approval from the MDOT Management Group Steering Committee (MGSC) as needed. This conference received one of the highest ratings of any conference since 1993, based on participants' responses to the evaluation survey. Surveys were completed by over 92 percent of participants. There was very little variation in the overall value of the conference by work location (central or region), or by frequency of attending a MDOT Leadership Conference (first time or repeat attendance). Participants written comments on the survey reflected, to a very great degree, the key messages of the conference that related directly to the conference objectives. One of our highest rated speakers at the conference was the new director, in her first major appearance before a significant number of department employees. As part of the conference evaluation survey, participants were also asked to indicate how effective was the conference in reinforcing our goal of "Working Together as Team MDOT" and team building. Overall participants responded with high marks to both questions with average scores of 4.4. Considering that nearly a third of the participants were new leaders, which was not the case five years ago.

Team Name: District 10 ISO 14001 Implementation Team
Organization Name: PENNDOT, District 10-0
Sponsoring Group: Pennsylvania Department of Transportation
Contact Person: Richard Pavic
E-Mail Address: rpavic@state.pa.us
Team Mission:
For PENNDOT Engineering District 10's Maintenance Unit, consisting of the counties of Armstrong, Butler, Clarion, Indiana and Jefferson, to obtain International Organization for Standardization (ISO) 14001 Registration for its Strategic Environmental Management Program (SEMP) related to maintenance activities consisting of Winter Services, Stockpile/ Garage Management and Erosion and Sedimentation (E&S) Control Measures. The ISO 14001 Implementation Team consisting of a SEMP Process Owner and a cross-section of management and non-management level personnel totaling 72 other members from across the District was to pilot the development and implementation of our Strategic Environmental Management Program (SEMP) as an Environmental Management System (EMS) for PENNDOT statewide that conforms to the ISO 14001:1996 Standard.

Impact of Team Improvement(s):
The team was responsible for developing a SEMP Manual (Sound Environmental Practices Manual) that is available to all employees in hard copy and electronic versions which provide guidance documentation related to the significant aspects addressed under the SEMP. Electronic versions of the SEMP Manual are maintained for use by all employees on the District network. Hard copies of the SEMP Manual are maintained at the District Maintenance Office, County Offices and County Stockpiles. Guidance documentation in the SEMP Manual includes process mapping, training programs, quality assurance evaluations, employee responsibility statements, etc. related to each of the individual environmental aspects outlined in the SEMP. Process Maps have been developed for each of the significant aspects using the principles and framework of Plan-Do-Check-Act. These Process Maps also identify responsibilities associated with each action.

Team Name: Local Government Project Procedures (LGPP) Team
Organization Name: Texas Department of Transportation
Sponsoring Group: Ms. Jennifer D. Soldano, Director, Contract Services Office **Contact Person:** Emily Margrett
E-Mail Address: emargre@dot.state.tx.us
Team Mission:
The continuous improvement of the Texas Department of Transportation (TxDOT) management processes for transportation projects funded or developed in cooperation with local governments (LGs). The team's resolve to carryout this mission resulted in the development and implementation of Local Government Project Procedures for transportation projects that are let by the LG. The mission currently guides the Team's on-going commitment to solicit end-user feedback; to integrate revisions to the procedures based upon this feedback; and to provide training when necessary. These on-going efforts assure that locally-let transportation projects for developing roads, rails, trails, historic building renovations, intelligent transportation projects, transportation museums, and related projects under TxDOT oversight proceed most expeditiously.

Impact of Team's Improvement(s):
The immediate impact was the successful development and implementation of a comprehensive approach to managing oversight of locally let transportation projects. The Team complied with TxDOT administration's directive to develop project procedures for use by LGs. In 2002, the LGPP Team:

- Established an on-going forum between 11 divisions and two administrative offices to focus on LG project issues.
- Developed and implemented federally-approved guidance relating to construction, design, environmental affairs and contracting for transportation projects.
- Created a Local Government Project Procedures website to serve many customers.
- Developed and implemented a related training program.
- Achieved federal and administrative objectives at minimal cost, due to teamwork. No additional TxDOT staff or outsourcing to consultants was necessary.

Team Name: Hydraulics Review Team
Organization Name: Maryland State Highway Administration
Sponsoring Group: Highway Hydraulics Division
Contact Person: Jason Alwine
E-Mail Address: jalwine@sha.state.md.us
Team Mission:
To provide comprehensive hydraulics reviews and customer service for developments adjacent to state highways by developing and maintaining a process that allows the tracking, review, customer service and archiving of hydraulics and storm water management designs through continuous improvement in team capabilities through process enhancements, personal capabilities through training, and customer relations through communication, consistency and flexibility. The team's mission is consistent with SHA's Business Plan, its environmental policy to be the leading environmental steward in Maryland, and its mission to provide the customers with a safe, well-maintained and attractive highway system that offers mobility and supports Maryland's communities, economy and environment.

Impact of Team's Improvement(s):
The program of providing hydraulics reviews for projects adjacent to State highways began in the 1980's. At the time, such reviews were considered to be the lowest priority and a subsequent 6-month backlog resulted even though only a hundred or so reviews came through each year. In the early 1990's, this work was being done by one full-time employee, various in-house staff doing reviews and one consultant. Still, low priority meant slow turnaround and many different reviewers at many different experience levels meant inconsistent reviews that were of narrower scope. With the new process, hydraulic reviews for access permits are now turned around in less than 2 weeks on average, priority levels are high, products are uniform, and customer service and access have been greatly improved. The secondary processes developed by the program resulted in streamlining and new relationships. The targeted increase in the number of qualified team members resulted in greater team depth.

Team Name: NMSH&TD District Six Mentoring Team
Organization Name: New Mexico Department of Transportation
Sponsoring Group: New Mexico Department of Transportation
Contact Person: Larry Maynard, District Six Engineer
E-Mail Address: Larry.Maynard@nmshtd.state.nm.us
Team Mission:
With a potential for loss of experience from the District, no free time, and an already extended training budget, it was determined to utilize District resources to develop a "Mentoring Program" that would cater to the "New Highway Engineering Technician". District Six wanted to develop improvements to project documentation, timely payments to contractors/partners, timely completion and finalization of projects, satisfied employees, decreased change orders, reduced claims, and design projected cost equal to bid cost and equal to constructed cost. All of this while facing the dilemma of potential decreases in knowledge, skills, and abilities due to extensive retirement of experienced technicians and supervisors.

Impact of Team's Improvement(s):
The start up costs for an annual "Mentoring Program" is $ 0.00 for equipment, $125.00 for materials, and 640 employee hours. Fifteen construction supervisors work the program. Fifty-one Highway Engineering Technicians from construction, seven Maintenance supervisors, and eleven Maintenance employees benefited from the program this year. There has been noted improvement to employee's knowledge, skills, and abilities measured by improved audits (figure 4). There is measurable improvement in time management as shown by the improvement to timely pay estimates and project documentation finals. There has been a noted improvement to employee confidence, attitude, and general climate based on non-measurable improved communications and documentation.

TRAILBLAZER AWARDS

Team Name: NMSH&TD Environmental Section
Organization Name: New Mexico Department of Transportation
Sponsoring Group: New Mexico Department of Transportation
Contact Person: Steve Reed, Environmental Program Manager
E-Mail Address: Steve.Reed@nmshtd.state.nm.us
Team Mission:
Meeting environmental commitments during construction is a critical element of transportation project development. In the late 90s, the New Mexico State Highway and Transportation Department, like many other State transportation departments, was having difficulty meeting environmental commitments and permit conditions during the construction of a number of projects. The department's credibility with resource management agencies and the public eroded due to a series of construction related incidents. Management concern over this issue led to a National Quality Initiative (NQI) session involving individuals from a number of different areas within the Department to develop a program solution. The goals of the program are:

- To ensure compliance with environmental commitments and mitigation found in the environmental document, construction plans, regulatory permits.
- To assist the Department and contractors in avoiding delays and citations from regulatory agencies.
- To promote credibility for the Department with the public and regulatory agencies.
- To assist contractors with the process of environmental and cultural resource approvals in off-site areas.

Impact of Team's Improvement(s):
Prior to the implementation of this program, major construction related incidents involving environmental permits and commitments during construction were occurring at the rate of four to six per year. Over the past 12 months, there has only been one major construction related incident. The effectiveness of the program increases with time as construction personnel become

more knowledgeable about environmental requirements and secure in knowing when to ask for assistance. Implementation of the program has led to a cultural change in District awareness and responsibility for environmental issues and environmental staff in understanding issues faced during construction. This change represents an important shift in standard operating procedures for the Department.

A midterm evaluation of the program by District engineers and project managers resulted in very positive support for the program and a strong desire to continue.

Team Name: MoDOT Social and Economic Indicator Team
Organization Name: Missouri Department of Transportation
Sponsoring Group: MoDOT
Contact Person: Mara Campbell
E-Mail Address: campbm1@mail.modot.state.mo.us
Team Mission:
The Social Economic Indicator Resource (SEIR) project and webpage provides up-to-date, authoritative social and economic data and information for use in transportation planning, Title VI and protected population analysis and project development/ environmental clearance. This project provides value to our customers through ensuring the human components of transportation are considered during all planning and project stages. We expect an overall improvement in our organizational effectiveness through better knowledge of our customers and the social, economic and community context. The project was developed by two MoDOT teams, one considered high level data users and a second group of less proficient users but seen as leaders by others in the department (early adopters). The project provided a learning experience for all involved, especially those not proficient in the use of social and economic data use. Additionally, 5 training session were held to familiarize employees, stakeholders and partners with the webpage and its use.

Impact of Team's Improvement(s):
This project and the resulting website provides easy access to up-to-date social and economic information that is relevant, authoritative, convenient and understandable. Further, the information has been customized for transportation applications. The SEIR website provides information to address the demographic and economic issues faced in transportation planning and development at all levels. From local planning groups who need to know about their neighborhood, to Metropolitan Planning Organizations who need to know the location of minority populations, to the State DOT in need of projected population numbers for advanced planning, all can use the SEIR website to find the answers they need.

Team Name: Port Aransas Ferry System
Organization Name: Texas Department of Transportation
Sponsoring Group: David Casteel
Contact Person: Emily Margrett
E-Mail Address: emargre@dot.state.tx.us
Team Mission:
The team will provide reliable transportation, and improve customer service by reducing the wait time for boarding ferryboats. Customer service will be improved by having more boats available during peak periods, training personnel in safety measures, and allowing them to receive training in other areas to expand their personal learning. Team members will develop and improve maintenance standards and methods. Loading schedules will be improved for efficiency and safety.

Impact of Team's Improvement(s):
The SH 361 intersection with the Corpus Christi Ship Channel has been plagued with delays to motorists for several years. Travelers expressed frustration about excessive delays as they wait for lines for ferry boarding. During the spring and summer of 2001, the Texas Department of Transportation (TxDOT) was the subject of public criticism because of excessive land side delays experienced at this intersection. Several ferryboats undergoing extensive repair were out of service causing wait time to exceed two hours. Newspaper articles and letters to the editor about the long delays were common. In the summer of 2001, a group representing the City of Port Aransas, the Port Aransas Chamber of Commerce and others approached the local office of TxDOT requesting improvements. The TxDOT office requested one year to optimize existing ferry operations and plan for improvements. The group agreed. Changes improving service included expanded boat schedules. TxDOT worked with the U.S. Coast Guard to improve safety and maintenance. In September 2002, TxDOT facilitated the formation of an operations study team composed of persons who use the intersection on a daily basis. The team assisted TxDOT in fulfilling the commitment made in 2001 to plan for improvements. The team accomplished the task of planning for short term improvements and began efforts for mid and long term planning.

Team Name: NOVA Smart Traffic Signal System
Organization Name: Virginia Department of Transportation
Sponsoring Group: VDOT
Contact Person: Mark Hagan
E-Mail Address: mark.hagan@virginiadot.org
Team Mission:
Providing Safe and Efficient Traffic Signal Systems Operations including plan development and implementation to facilitate efficient and safe traffic flows, reduced congestion, delays, and Quick Incident Response to Reduce Secondary Traffic Crashes and Incidences, by Providing state of the art technologies, a professional well-learned staff, constant improvements in knowledge and technologies and detailed "well thought out" collaborative coordination with adjacent jurisdictions and emergency responders.

Impact of Team's Improvement(s):
The Northern Virginia District (NOVA) Smart Traffic Signal System (STSS) staff developed a "High Value Optimization Project" to better manage the daily traffic operations for one of the nation's busiest and most congested areas, the Washington DC Metropolitan region. Through innovative application of a "state of the art" traffic signal control system, and commonsense project management the STSS staff interweaved a project management plan, aggressive timing plan development and signal optimization, and a seamless integrated traffic signal network to leverage outstanding savings in travel delay, congestion savings, and reduced emissions. VDOT Staff needed a way of addressing traffic signal optimization taking into account the rapid growth of development, dynamic regional shifts in traffic patterns due to major construction projects (major interstate construction projects). Staff found that to account for all of these factors they needed a way of keeping ahead of these. The end state is a strong *Traffic Signal Optimization Project* which resulted in impressive reduction in over 400 staff-hours per month in savings resulting in more staff training and intellectual capacity building, over 66% reduction in congestion related complaints by commuters, reduced emissions, and an impressive operational savings to drivers during the year.

Team Name: Project Dashboard Team
Organization Name: Virginia Department of Transportation
Sponsoring Group: Virginia Department of Transportation
Contact Person: Constance S. Sorrell
E-Mail Address: Connie.Sorrell@VirginiaDOT.org
Team Mission:
Our mission was to develop a tool for quick and simple assessment of construction project and the construction program status. This would become a report to hold VDOT accountable for it's work in a very public way, and demonstrate good stewardship of the taxpayer's funds. As the team, and all of VDOT, learned how to use the new tool, we could become more effective in delivering construction projects on time and within budget. We would apply our VDOT values of Truth, Trust, and Teamwork. We would tell the truth, we would gain the public's trust, and we would develop better teamwork with the public we serve.

Impact of Team's Improvement(s):
With the help of many key "experts" within the agency, the team was able to develop a new way to view program and project status. This was used immediately within VDOT to help focus on advertising and constructing projects on time, and on delivering them within budget. The new tool (and report) was then made available to everyone through the World Wide Web. VDOT's business was suddenly made very transparent. A new emphasis on teamwork was developing within VDOT, and with the public. Like a car dashboard can alert a driver if something is going wrong, VDOT's Dashboard alerts project teams and the public if something is wrong. A key feature of the Dashboard is a built-in way to contact the responsible engineer on a project, and ask questions or make comments. A response is sent back the same way, within 2 or 3 working days. In the first few weeks of being on the Web, the site received 14,800 visits. There have been very positive comments and reviews from the media, the public, legislators, and contractors. The response within VDOT has also been positive, as goals have been set, and improvements are being made in project delivery.

Team Name: TDOT Planning Assessment Project Team
Organization Name: Tennessee Department of Transportation (TDOT)
Sponsoring Group: TDOT
Contact Person: Preston Elliott, Planning Division
E-Mail Address: Preston.elliott@state.tn.us
Team Mission:
To advance the Department's strategic initiative of developing a needs based planned approach to transportation systems development through the undertaking and preparation of a department-wide planning assessment.

Impact of Team's Improvement(s):
In 1998, the Department initiated a strategic planning process aimed at addressing the numerous business issues facing the agency including how to better engage transportation stakeholders in the planning process and how to balance growing transportation system demands with shrinking fiscal resources. In 2002, the Department's leadership created an internal project team to coordinate and oversee an assessment of TDOT's long range transportation planning process. The assessment included:

- An identification of the Department's current planning practices
- A listing of "Critical Issues" to the Department and other stakeholders in transportation planning for Tennessee
- An understanding of TDOT's internal capabilities in planning
- A review of other State DOT practices, and
- A recommended plan of action for an improved planning process.

With the assistance of a consulting firm, the team completed its assignment identifying 34 recommendations concerning improvements to TDOT's long range transportation planning process. The 34 recommendations were grouped into six specific areas of emphasis including development of a multimodal plan, public involvement, stakeholder partnership, planning tools and technology, improved planning process, and institutional and organizational issues.

Team Name: PENNDOT Innovations Council
Organization Name: PENNDOT
Sponsoring Group: Center for Performance Excellence
Contact Person: Paul E. Reed, Jr.
E-Mail Address: pareed@state.pa.us
Team Mission:
The Council Mission is "To identify, gather and disseminate organizational innovations and best practices throughout the Department". If the Council is successful in the completion of the Mission, they will share equipment improvements, process, and procedures improvements in highway maintenance, design and construction. These are of high importance to the traveling public of the state and the legislators who govern the state and this translates into increasing value to all of the Transportation Departments customers. The Council, by fulfilling their Mission, can provide the opportunity for Department organizations to reduce costs associated with the duplication of effort. The reduced costs can include labor, materials, and equipment. The reduction can also be found in the improvement of service and support processes associated with the design, construction and maintenance of the Department of Transportation. Personal learning is a key part of the Department's initiatives. Some of the programs presented to the Council have included, but not limited to, mentoring, increased training opportunities, advanced technology to provide training via the video conferences, and mobile training centers.

Impact of Team's Improvement(s):
Organizations within the Department now look to the Council as a point of reference for improvements to ideas and practices they are working on or presenting. The Department has developed a database in which the innovative ideas and best practices are available for review by all department employees and in preparation for conferences as agenda items. The presentations have become an opportunity for rank and file members to present their solutions to problems and the results these solutions have shown. They have also taken the initiative to begin to share the ideas and practices with other organizations.

Team Name: PENNDOT Workers Memorial Team
Organization Name: PENNDOT
Sponsoring Group: PENNDOT
Contact Person: Kelly Cielo
E-Mail Address: kcielo@state.pa.us
Team Mission:
To commemorate those PENNDOT employees who have lost their lives in the line of duty while
building, maintaining, and protecting the Pennsylvania roadways. To increase safety awareness to the general public and current PENNDOT employees and to reinforce our commitment to a safer working environment for ourselves, our co-workers, and the motoring public.

Impact of Team's Improvement(s):
In the process of developing this initiative ,several issues emerged. Project management tools and action plans, along with problem solving techniques, kept the team running smoothly. The team's mission related to four of PENNDOT's seven strategic focus areas - Quality of Life, Relationship Building, Safety, and Leadership at all Levels. The team's mission also links directly to our values (Service, Integrity, People, Performance). The team worked diligently over several months in its infancy stage gathering information from other states, agencies, partners and customers. In lieu of facts gathered, the team envisioned the memorial to be a life-size sculpture. A monument that would have different meanings to different people, poignant and respectable.

Team Name: NMSHTD Construction Project Crew Org 52-18 & Value Engineering Team
Organization Name: New Mexico Department of Transportation
Sponsoring Group: New Mexico Department of Transportation
Contact Person: Earle Smith
E-Mail Address: earle.smith@nmshtd.state.nm.us
Team Mission:
The New Mexico State Highway and Transportation Department is committed to meet the state's transportation needs with the main goal to move people and goods effectively and safely in a productive and cost-effective innovative manner. We strive to work together to provide leadership through partnering, problem solving and resource sharing to foster a positive learning and safe work environment for our employees while ensuring a quality project for the consumer.

Impact of Team's Improvement(s):
This project consisted of resurfacing, rehabilitation and restoration RRR 16.7 miles of two-lane highway north of Tularosa to the Lincoln County Line on US 54 in New Mexico. US 54 is a major east west highway, running from Liberal, Kansas west to El Paso, Texas. With the advent of the North American Free Trade Agreement NAFTA, there has been and is expected to be more traffic from Mexico using this route. This section had little or no shoulders. The Department and Contractor personnel worked together through weekly partnering meetings to lead in constructing a quality project that was completed within the contract time and budget. An initial measurement of the roadway smoothness was conducted prior to roadway construction using a profilograph. Testing after construction shows a significant increase in roadway smoothness providing a more comfortable riding experience for the highway traveler. Problems were addressed and resolved that enhanced the safety and drivability of the roadway through a Value Engineering Brainstorming Session with different sections within the Department in which solutions were provided that utilized existing departmental resources, personnel and required no additional funding for the project.

Team Name: Amarillo Rural Intelligent transportation System
Organization Name: Texas Department of Transportation
Sponsoring Group: Mark. E. Tomlinson, P.E.
Contact Person: Emily Margrett
E-Mail Address: emargre@dot.state.tx.us
Team Mission:
The Amarillo Rural ITS will gather traffic, weather, road conditions, and emergency information and deliver it to TxDOT maintenance personnel and the public for use. Intelligent Transportation Systems are an important part of the operation of surface transportation systems and service to the traveling public. It is in the public's best interest for TxDOT to share transportation information in order to increase the mobility, safety, and efficiency of the transportation system. Creating a Rural Intelligent Transportation System which includes a Traffic Management Center allows TxDOT to make all transportation related information available to internal and external customers. The creation of a Rural ITS Architecture and ITS Deployment Plan strengthens relationships with other agencies, increasing TxDOT's overall effectiveness regarding emergency service agencies and the traveling public. Teams are required to learn about technical aspects of installing, operating, and maintaining an ITS, and how it should interact with current and planned applications in other agencies.

Impact of the Teams Improvement(s):
The team successfully overcame technical challenges resulting in the installation and operation of a Rural ITS used for situations unique to a rural transportation district. The system successfully operated with little or no technical problems for over six months. The team's work resulted in availability of reliable and accurate information to the traveling public during inclement weather and other traffic related incidents. The team's work resulted in on-going working relationships with local law-enforcement and emergency management authorities. The team also reinstated the district's Traffic Management Team – which will meet on a regular basis to critique incidents and share information about upcoming scheduled traffic incidents.

Congratulations

Congratulations and thank you to the following who submitted applications and received feedback responses:

Team Name: County Work Plan
Organization Name: Ohio Department of Transportation
Sponsoring Group: Division of Highway Operations
Contact Person: Kathy Barber, Administrator, Office of Quality & Operations
E-Mail Address: Kathy.barber@dot.state.oh.us

Team Name: NMSH&TD P.S.& E. Section
Organization Name: New Mexico Department of Transportation
Sponsoring Group: New Mexico Department of Transportation
Contact Person: Yolanda Roybal, P.S.&E. Section Manager
E-Mail Address: yolanda.roybal@nmshtd.state.nm.us

Team Name: Bay Region Maintenance Business Team
Organization Name: Michigan Department of Transportation
Sponsoring Group: Michigan Department of Transportation
Contact Person: Terry A. Stepanski
E-Mail Address: stepanskit@michigan.gov

FRANCIS B. FRANCOIS AWARD for INNOVATION

In our rapidly changing world of transportation, few leaders have left such a lasting imprint as Francis B. Francois, former Executive Director of the American Association of State Highway and Transportation Officials, who completed an 18-year career in 1999.

To honor his achievements, and to continue the legacy of innovative thought that he embodied, in 2000 AASHTO established an academic endowment bestowed annually upon a state department of transportation that has developed innovative transportation programs or projects.

The award-winning department will designate a state university as the recipient of a $10,000 graduate fellowship from AASHTO, to be conferred upon an applicant pursuing an advanced transportation-related degree. The AASHTO Standing Committee on Quality's Awards Council has been delegated responsibility for the competitions for the Francis B. Francois Award for Innovation.

This year, seven states submitted nominations for consideration.

2003 Francis B. Francois Award for Innovation Winner

Streamlining Environmental Processes

State: Ohio Department of Transportation
Contact: C. Kathleen Barber
E-mail: Kathy.Barber@dot.state.oh.us

Streamlining environmental processes has become a way of doing business at ODOT for the last several years. ODOT has worked successfully with FHWA to secure an aggressive *Programmatic Agreement for Categorical Exclusions* (CE); and, with FHWA and OSHPO to develop a *Memorandum of Understanding* (MOU) for the Section 106 Process and with the OSHPO to develop a *History/Architecture Thematic Review and Table.*

The innovations of the *CE Programmatic Agreement* have evolved over the years and are different from many other states. ODOT and FHWA's Ohio Division have worked cooperatively to ensure that this programmatic agreement balances the need to advance transportation projects without compromising environmental resources. ODOT's CE agreement provides a simple method of meeting the requirements of the National Environmental Policy Act (NEPA) and preparing high-quality documents. The Programmatic Agreement allows for ODOT projects to be processed efficiently as either exempt projects, requiring no documentation, or as categorical exclusions, using one of four levels. Typically, CE Level 1 and 2 projects involve culvert and bridge replacements, general highway improvements and construction of realignments or minor new highways. Projects with higher level impacts are elevated to a CE Level 3 or 4, based on context and intensity of the impacts. Many other types of projects can be processed as categorical exclusions and are defined in the programmatic agreement. (See Attachment A – Table which lists Project Types in ODOT's Categorical Exclusion Process) A threshold limit has been established for impacts, right-of-way acquisitions and relocations at each CE level to ensure statewide consistency throughout ODOT's twelve district offices.

ODOT's *CE Programmatic Agreement* "pushes the envelope" allowing a variety of projects to be processed as low-level simple CEs rather than requiring preparation of complex environmental assessments or environmental impact statements. This increased flexibility is based on ODOT's past experiences and uses an impact based approach for analyzing environmental resources rather than processing "typical" projects under a standard document format – as it had been done in the past. In the late 1990's, ODOT decentralized many of its services to the district offices, including environmental actions. Prior to decentralization, each environmental document required approval from ODOT's central office, slowing projects and incurring increased costs. As the 21st Century approached, ODOT took the initiative to break-through existing paradigms and create a CE programmatic agreement that would expand its authority for documenting and approving projects event at the district level.

The *Section 106 MOU*, is an interagency agreement between ODOT, OSHPO & FHWA for maintenance and minor highway projects with no potential to cause effects. It was a streamlining and paperwork reduction initiative for all three agencies and establishes a list of project types or activities that, under the agreement, would be deemed exempt and require no further review under 36CFR Part 800.

With the *Section 106 MOU*, all three agencies, particularly ODOT and OSHPO, realized that a large volume of work requiring review under Section 106 were for the projects identified under the MOU as exempt (requiring no further review under 36 CFR Part 800). When 36 CFR Part 800 was revised and reissued in 1999, a section (36 CFR Section 800.3{a}{1} was written to say that if an undertaking was a type of activity that had no potential to cause effects on historic properties, the agency official had no further obligations under Section 106 or this part of 36 CFR Part 800. This section, however, did not identify what those types of activities might be. In 1999, ODOT, FHWA and OSHPO verbally agreed to a process on how ODOT would document such findings and how those findings would be reported to FHWA and

OSHPO. This process worked fine, but resulted in large quarterly reports because of the volume of such projects/activities that were being processed under this section.

The *Thematic Review* was developed for a project with five 2000' wide corridors along a 70 mile long route of a proposed new highway in northwest Ohio. This was in an area of Ohio where no pre-existing historic context had been developed. Development of the thematic review/historic context provides the framework for evaluating the National Historic Register of Historic Places eligibility and integrity of historical/architectural resources. The *History/Architecture Table* was developed as an extension of the thematic review/historic context in order to manage a project with a large volume of properties 50 years of age or older. It allows the researcher to organize their field data and observations in a way that eliminates the need to fill out Ohio Historic Inventory forms on each property and considerably reduces the amount of text that would be needed in a survey report to describe findings.

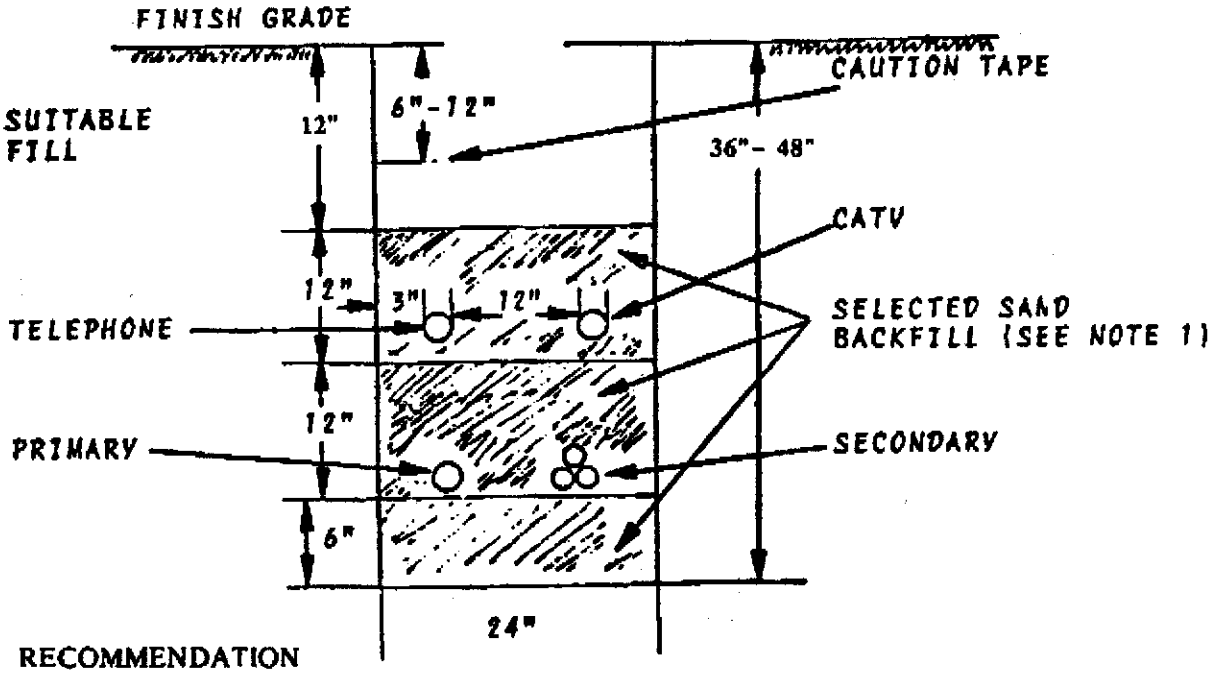
At the proposed new highway in northwest Ohio in which the *Thematic Review* was developed for, this was an area where no pre-existing historic context had been developed. Without that context, each property would have to be evaluated on its own merits and/or within a "micro" review area. The history/ architecture table was developed as an extension of the thematic review/historic context in order to manage a project with a large volume of properties 50 years of age or older. It allows the researcher to organize their field data and observations in a way that eliminates the need to fill out Ohio Historic Inventory forms for each property, and considerably reduces the amount of text and preparation time that would be needed in a survey report to describe findings. This concept, when used in conjunction with a thematic review/historic context and a photolog, saves considerable time and money on the project. It allows for faster preparation of a field survey document and allows for a more rapid review at ODOT and the OSHPO.

The innovation for the *CE Programmatic Agreement* and the *Section 106 MOU* allows the agencies to streamline environmental documents and Section 106 processing and review. This innovation eliminates considerable paperwork and time spent for ODOT, FHWA and OSHPO. It has established a baseline of understanding for the agencies to process certain types of projects/activities on Ohio's transportation program.

Having these agreements in place allows the agencies to proceed with the same understanding of what Federal undertakings are exempted in Ohio. The *thematic review/historic context* was developed in partnership with the consultant doing the fieldwork and the OSHPO, which would have the final review. With these partners working with ODOT to develop the study, buy-in on the approach and results by OSHPO would be a guarantee. With the consultant working directly with ODOT and OSHPO, production of a survey report with no surprises for both agencies would be a guarantee. The use of the *history/architecture table* allows the researcher to easily organize and evaluate resources and to report the survey findings in a much more concise manner. It allows the field researcher/report preparer to perform both tasks more quickly than before. This then translates into a document that is much easier and quicker to review by both ODOT and OSHPO. Both methodologies streamline the recordation, evaluation and review process at ODOT and OSHPO, resulting in considerable savings in time and money.

Attachment 2

TRENCH DETAIL PLAN



RECOMMENDATION

NOTES:

1. A - SELECTED SAND BACKFILL SHALL CONSIST FINE GRANULAR MATERIAL, 100% SHALL PASS THROUGH A 1/4" SIEVE.

   B - EXCEPTION: NATURALLY OCCURRING SMOOTH ROUND PEBBLES NO GREATER THAN 3/8" IN DIAMETER ARE PERMITTED AS LONG AS THEIR TOTAL VOLUME PER CUBIC FOOT OF SAND DOES NOT EXCEED 1%.

   C - THE SAND SHALL BE COMPLETELY FREE OF FROZEN LUMPS, ROCKS, STONES, DEBRIS OR RUBBISH.

2. ALL CONDUIT TO BE SCHEDULE 40 UL APPROVED - ALL ELBOWS SHALL BE LONG SWEEPS - NOT PLUMBERS ELBOWS - CONDUIT SHALL BE 4" MINIMUM ON MAIN RUNS AND ROADCROSSINGS - 2" MINIMUM FOR SERVICE RUNS.

3. ALL CLOSURE LOCATIONS TO BE A MINIMUM OF 3' OFF THE MAIN TRENCH AND TO BE FILLED TO FINISHED GRADE WITH SAND.

4. ALL CONDUIT AT CLOSURE LOCATIONS TO BE STUBBED UP ABUTTING EACH OTHER AND TERMINATED 6" ABOVE FINISHED GRADE.

5. A PULL STRING CAPABLE OF A 200 TO 300 POUND PULL SHALL BE INSTALLED IN ALL CONDUITS.