

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service
Commission held in the City of
Albany on July 28, 2004

COMMISSIONERS PRESENT:

William M. Flynn, Chairman
Thomas J. Dunleavy
Leonard A. Weiss
Neal N. Galvin

CASE 03-C-0922 - Proceeding on Motion of the Commission to Examine Telephone
Network Reliability.

ORDER CONCERNING NETWORK
RELIABILITY ENHANCEMENTS

(Issued and Effective July 28, 2004)

BY THE COMMISSION:

New York's telecommunications networks provide a high quality of service. In fact, New York State is the telecommunications capital of the world. To retain this distinction, the reliability of New York's telecommunications networks must continue to improve. To that end, the State's carriers have worked hard to improve service quality and reduce the number of outages. Continued vigilance by the carriers and the Commission on network reliability will advance that objective.

In the past few years New York State has experienced major utility service disruptions that underscore our need for a highly-reliable telecommunications infrastructure. Accordingly, on July 21, 2003 the Commission established this proceeding to identify necessary improvements to the telecommunications network indicated by these and other significant, though less serious, service disruptions. Staff and other parties to this proceeding were tasked to "examine the current state of reliability of the State's communications network, desirable or optimal levels of

reliability in the State, and actions that could be taken to maintain, enhance and/or increase the reliability of the State's telecommunications network."¹

We established as goals of the proceeding "to foster dialogue among the stakeholders of the State's telecommunications network to ensure a common understanding of existing reliability and desirable levels of reliability, as well as steps that should be taken to achieve or maintain an optimum level of reliability in the State."² We also recognized the increasing importance of competition and the need for increased redundancy for certain circuits to some end users in the State.

On August 25, 2003 we issued a Notice Seeking Comment and appended to the Notice a Staff White Paper entitled "Network Reliability After 9/11," which amplified on lessons learned after September 11 and other major network outages, and included a number of tentative Staff conclusions. Comments and reply comments on the Staff White Paper were sought from the parties in this proceeding.

The Department analyzed the comments and replies received which are summarized in the attached Network Reliability Memorandum. Briefly, the parties' comments are divided between service providers, both wireline and wireless, who argue that the network is already highly reliable and that the market should decide what further protections may be necessary, and users, especially the financial community, who express a need to know the physical routing of their serving arrangements so that they might better manage their telecommunications operations and reduce the risk of costly outages. In addition, the City of New York supported strong regulatory action because, in its view, the telephone industry has not fully delivered the needed reliability. When considered in whole, we believe the steps recommended in the Staff Memorandum represent carefully focused actions that are designed to increase network reliability while balancing the interests of wireline carriers regulated by this Commission with those of their less regulated competitors.

¹ Case 03-C-0922, Order Instituting Proceeding (issued July 21, 2003), p. 4.

² Id., p. 2.

In addressing network reliability, identification of the physical routing of critical circuits to customers who demonstrate that local, state, or national interests compel a higher degree of reliability takes a high priority. We believe a show cause order to implement a new protocol specific to such circuits is an appropriate next step to enhance the reliability of services for the state's most critical telecommunications facilities. Carriers should either introduce, or show cause why they should not introduce, a new service to customers with such critical circuits. The "Critical Facilities Administration" service will provide physical routing information for a fee, to those customers who have an identified need to know and are willing to pay to participate.

We believe carriers should be granted a similar opportunity to show cause why geographically diverse routing of interoffice voice and signaling traffic should not be implemented to most end offices within one year. Such routing should improve the likelihood that a single cable failure does not prevent end user telecommunications access to emergency and interoffice services.

Finally, we also endorse the initiation of a collaborative process where carriers should rapidly address the technical and economic feasibility of inter-carrier sharing of Verizon-New York's Switched Redirect Service, because this service could confer benefits to end users' service reliability.

The White Paper reached other tentative conclusions including:

(1) mandated compliance with the best practices of the federal Network Reliability and Interoperability Councils; (2) reduced concentration of elements of the network; (3) mechanization of record keeping; and (4) strengthened service standards. Although we are taking no action on these conclusions at this time, we urge carriers to give consideration to the first three of these when planning network changes.

With respect to expanded use of agreements like New York City's Mutual Aid and Restoration Consortium, we note that no municipality in the state other than New York City currently has such an agreement, but we would generally support municipalities wishing to take similar action.

For the Federal Communications Commission's Telecommunications Service Priority program, our actions will ensure proper coordination among carriers for this important program. In conjunction with the implementation of the new Critical Facilities Administration service, we will evaluate the appropriate rates for these services. These actions should foster increased use of the Telecommunications Service Priority program essential to rapid restoration of critical telephone services during a major network failure.

We have reviewed and are adopting the Staff Memorandum. The actions we take today should improve the reliability of the telephone network and help prevent service disruptions.

The Commission orders:

1. All facilities-based local exchange carriers are directed to identify and report to the Commission (ten copies) within 90 days, or as the Secretary may require, which of their central office buildings are equipped with dual cable entrance facilities, as well as demonstrate that critical circuits are reasonably distributed between the two entrances.

2. All facilities-based carriers serving Manhattan are directed to provide to the Commission (ten copies) within 90 days, or as the Secretary may require, cost data per building to add a dual cable entrance to those buildings in Manhattan housing central office switching equipment that currently lack a dual cable entrance facility.

3. All facilities-based local exchange carriers are ordered to Show Cause, within 180 days, or as the Secretary may require, why they should not be required to provide geographic route diversity and other capabilities for most end offices within one year as specified on page 25 of the Staff Memorandum. Ten copies should be filed with the Commission and a copy should be served on active parties.

4. All facilities-based carriers are ordered to Show Cause, within 120 days, or as the Secretary may require, why they should not be required to offer Critical Facilities Administration Service as described in the Staff Memorandum and Appendix B

to the Staff Memorandum. Ten copies should be filed with the Commission and a copy should be served on active parties. Other parties may submit comments on the carriers' responses 30 days after the carriers' submissions.

5. Staff is directed to convene a collaborative of carriers to explore the availability and use of Verizon New York Inc.'s Switched Redirect Service by competitive local exchange carrier customers. Staff should report back to the Commission on this issue within 180 days, or as the Secretary may require.

6. All carriers are directed to file with the Commission (ten copies) within 120 days, or as the Secretary may require, cost support information relating to any state tariff charges for Telecommunications Service Priority services.

7. Each local exchange carrier is directed to file with the Commission (ten copies) within 30 days, or as the Secretary may require, information certifying and detailing its inter-carrier methods and procedures for ensuring that Telecommunications Service Priority circuits involving more than one carrier can easily be identified in its record of Telecommunications Service Priority circuits, and that these circuits will receive appropriate priority treatment during an emergency.

8. This proceeding is continued.

By the Commission,

(SIGNED)

JACLYN A. BRILLING
Secretary

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE

July 20, 2004

TO: THE COMMISSION

FROM: Office of Telecommunications

SUBJECT: Case 03-C-0922 – Proceeding on Motion of the Commission to Examine Telephone Network Reliability

RECOMMENDATION: It is recommended that the Commission request additional comment on a refined set of potential goals for improving network reliability, and that the state's facilities-based, wireline telecommunication carriers provide: 1) information as to the physical path of critical circuits integral to the state or national interests to a circuit user willing to pay for such information, and 2) central office route diversity within one year, or 3) show cause why it should not do both or either.

SUMMARY

In the past few years, New York State has experienced major utility service disruptions that underscore our collective need for a highly reliable telecommunications infrastructure. The Commission established this proceeding to identify necessary improvements to the telecommunications network indicated by these and other significant though less serious service disruptions. Staff recommends that the Commission direct certain carefully focused actions as described below refining a number of tentative Staff conclusions expressed in a Staff White Paper that was subject to an initial round of comments and replies in this proceeding.

When considered in whole, we believe the steps recommended now represent a measured response that increases network reliability while balancing the interests of wireline carriers regulated by this Commission with those of their less regulated competitors. In any event, other than to gather additional information and to participate on an ongoing basis in matters related to network reliability as discussed in this memorandum, no wireline carrier would be required at this time to incur costs without allowing for a process to consider compensation, if necessary.

In addressing network reliability, identification of the physical routing of critical circuits to customers who demonstrate that local, state, or national interests compel a higher degree of reliability takes a high priority. We believe a show cause order to implement a new protocol specific to such circuits is an appropriate next step to enhance the reliability of services for the state's most critical telecommunications facilities. We propose carriers either introduce, or show cause why they should not introduce, a new service to customers with such critical circuits. The "Critical Facilities Administration" service Staff recommends will provide physical routing information for a fee, to those customers who have an identified need to know and are willing to pay to participate. We believe carriers should be granted a similar opportunity to show cause why geographically diverse routing of interoffice voice and signaling traffic should not be implemented to most end offices within one year. Such routing should improve the likelihood that a single cable failure does not prevent end user telecommunications access to emergency and interoffice services.

Finally, we also recommend a collaborative process where carriers should rapidly address the technical and economic feasibility of inter-carrier sharing of VZ-NY's Switched Redirect Service, because this service could confer benefits to end users' service reliability.

The White Paper reached other tentative conclusions including:

(1) mandated compliance with the best practices of the federal Network Reliability and Interoperability Councils; (2) reduced concentration of elements of the network; (3) mechanization of record keeping; and (4) strengthened service standards. Here, we either recommend limited or no further action at this time, or simply suggest that carriers give consideration to these when planning network changes. With respect to expanded use of agreements like New York City's Mutual Aid and Restoration Consortium, we note that no municipality in the state other than New York City currently has such an agreement, but we would generally support municipalities wishing to take similar action.

For the Federal Communications Commission's Telecommunications Service Priority program, we suggest actions to ensure proper coordination among carriers for this important program, and that steps be taken to evaluate the current rates for this service, in conjunction with the implementation of the Critical Facilities Administration service. These recommendations should foster increased use of the Telecommunications Service Priority program essential to rapid restoration of critical telephone services during a major network failure.

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BACKGROUND

September 11, 2001 underscored the importance of New York's telecommunications infrastructure to the national and state economies. By Order issued July 21, 2003 (the Order), the Commission established this proceeding to "examine the current state of reliability of the State's telecommunications network, desirable or optimal levels of reliability in the State, and actions that could be taken to maintain, enhance and/or increase the reliability of the State's telecommunications network."¹

In particular, the Commission defined "network reliability" as "the day-to-day dependability of the network, its ability to continue to operate during a natural or man-made event that affects some portion of the network, and the degree of redundancy – or diversity – needed in the network (Order, p. 1)."

In its Order, the Commission placed particular importance on this examination in light of increasing competition and the need for increased redundancy for certain circuits to some end users in the state. It established as goals of the proceeding "to foster dialog among the stakeholders of the State's telecommunications network to ensure a common understanding of existing reliability and desirable levels of reliability, as well as steps that should be taken to achieve or maintain an optimum level of reliability in the state (Order, p. 2)."

The Order also listed on pp. 2-3, these seven findings and tentative conclusions as determined by Staff:

1. The Commission should consider requiring local exchange carriers to routinely demonstrate compliance with industry "best practices" regarding the reliability of specific network elements as published by the Federal Communications Commission's (FCC) Network Reliability and Interoperability Councils (NRIC). In certain instances, the Commission may wish to require steps that actually exceed the NRIC recommendations.

¹ Case 03-C-0922, Order Instituting Proceeding (issued July 21, 2003), p.4.

2. Economic considerations have led to a concentration of traffic, circuits, and key physical facilities on which both wireline and wireless carriers depend. While such concentrations may reduce costs, they may also increase the vulnerability of the network. Staff tentatively concludes that a move toward less concentration in the network may improve reliability.
3. It is critical that interoffice route diversity exist for voice and network signaling traffic for most, if not all, end offices. The Commission should consider requiring local exchange carriers to provide route diversity for each end office where reasonable.
4. Certain facilities may be so critical from the customer's perspective that they require a higher degree of reliability than would normally be provided by the network or customer-specific arrangements. Carriers and consumers need to cooperate and routinely revisit critical communications arrangements to ensure that the appropriate levels of redundancy and diversity are not jeopardized by subsequent network changes.
5. Information on the physical path taken by key circuits will likely be required to meet some customer-specific needs, would aid in maintaining diversity once it is established, and would be helpful in coordinating a response during a service failure. Staff tentatively concludes that carriers should upgrade their systems for tracking and storing information regarding physical routing of facilities.
6. The National Communications Service's (NCS) Telecommunications Service Priority (TSP) program prioritizes telecommunications services that support national security or emergency preparedness. Staff recommends that entities review the potential benefits of participating in this program as a way to aid in the restoration and identification of specific, critical services.
7. Staff tentatively concludes that municipalities may want to consider agreements similar to New York City's Mutual Aid and Restoration Consortium (MARC).

A Notice Seeking Comment (the Notice) was issued August 25, 2003.

Appended to the Notice was a Staff White Paper entitled "Network Reliability After 9/11" which amplified on lessons learned after September 11 and other major network

outages, on which Staff based its tentative conclusions.² Initial comments were due November 21, 2003, and reply comments were due January 20, 2004.

COMMENTS

Of the 55 parties to the proceeding, 17 provided comments in response to the Notice. Appendix A presents a detailed summary of the parties' comments.³ The following is a brief summary.

Carriers

Of those commenting, four are incumbent local exchange carriers (ILECs) or associations representing them: Verizon New York Inc. (VZ-NY), Frontier Telephone of Rochester, Inc. (FTR), the New York State Telecommunications Association, Inc. (NYSTA), and the United States Telecom Association (USTA).

Representing competitive local exchange carriers (CLECs) that commented are: Time Warner Telecom, Inc. (TWTC), AT&T Communications of New York, Inc. (AT&T), WorldCom, Inc. (MCI), Cablevision Lightpath, Inc. (Lightpath), Allegiance Telecom of New York, Inc. (Allegiance), Quest Communications Corporation (Quest), and a collective group (the Joint Commenters) of BullsEye Telecom, Inc., Winstar Communications, LLC, and CompTel/ASCENT Alliance. There is also one competitive interexchange carrier/Internet service provider, Americatel Corporation (Americatel), who commented.

Representing wireless carriers, the following provided comments: Verizon Wireless (VZW), Nextel of New York, Inc. (Nextel), Omnipoint Communications, Inc. (T-Mobile), the Cellular Telecommunications & Internet Association (CTIA), BellSouth Mobility LLC and Southwestern Bell Mobile Systems, LLC, d/b/a Cingular Wireless

² The Staff White Paper is included as Appendix C to this memorandum. It includes a glossary of terms used in this report.

³ All references to parties' initial and reply comments are abbreviated using the following convention: "company, initial, page number" or "company, reply, page number)." References to the Staff White Paper are in the format "WP, page number."

(Cingular), the group of Binghamton CellTelCo, Vanguard Binghamton, Inc. and AT&T Wireless PCS, LLC (collectively AT&T Wireless).

As a group, carriers oppose mandating best practices of the industry. Doing so they believe would stifle participation by the industry in changes to best practices as may be issued by the Network Reliability and Interoperability Councils. They further claim many of these practices do not apply in every situation or to every service provider. They point out that the best practices are specifically qualified by the Network Reliability and Interoperability Councils as voluntary and not mandated. The carriers believe the network is already highly reliable and that robust competition requires them to provide high quality service through diverse arrangements in order to compete successfully. Additionally, wireline carriers express concern over what they believe are "high cost" tentative conclusions in the White Paper that, if implemented, would price wireline service out of the market. Some wireline carriers argue for a level playing field among all competitors (i.e., wireline, wireless, cable, Voice over Internet Protocol or VoIP) and that mandating reliability requirements could potentially benefit those carriers over which the Commission has no jurisdiction because they would not have to bear additional costs while others – such as wireline – would.

Wireless carriers generally believe that the Commission lacks authority to regulate them, and that there is no need to do so. First, they are already active in the development of best practices via participation in the Network Reliability and Interoperability Council forums which they believe supplants any need for action by the Commission. Second, they believe the Commission should defer to a national body for best practices because cellular service does not necessarily conform to state boundaries – they prefer a single set of national standards over the potential for differing standards among the fifty states. The wireless carriers also dispute Staff's tentative conclusion "that there may be a consistent under-sizing of certain trunk groups, particularly to cellular carriers (WP, p. 45)."

Non-Carriers

Other parties commenting include the Communications Workers of America (CWA), the City of New York Department of Information Technology and Telecommunications (the City), and Plug Power, Inc. (Plug Power), a manufacturer of hydrogen powered fuel cells typically used for backup powering when commercial

power fails. Additionally, The New York Clearing House Association L.L.C., d/b/a The Clearing House (TCH) and Fiserv, Inc., jointly commented. TCH is the nation's largest bank clearing house representing a large number of commercial banks using telecommunications services to settle capital market payments of about \$1.6 trillion in daily transactions of individuals, businesses and government bodies. Fiserv is a provider of technology products and services to the financial world.

Plug Power

Plug Power's comments generally are limited to application of its fuel cells in the network as an alternative to lead-acid batteries for backup power in the event of a commercial power failure. It claims that existing backup batteries are less reliable than fuel cells, and calls for the Commission to consider whether existing Network Reliability and Interoperability Council best practices adequately consider new technologies for backup power.

The City

The City sees this proceeding as an important first step toward what it hopes will be a broader action-oriented program of the Commission to maintain the most reliable and secure telecommunications network in the world. It sees a need for a sustained effort not only as a public safety obligation, but also as an economic development imperative. The City suggests use of a task force approach similar to the Mayor's Task Force on Telecommunications Network Reliability of 1990 in order to properly address the disparate views expressed in the comments of this proceeding, and to develop a set of well-defined goals and pathways for implementation. The City believes that network reliability is far too important to leave to market forces alone. It calls for more accountability on the part of carriers concerning their voluntary compliance with the Network Reliability and Interoperability Council best practices, and recognizes a need for carriers to mechanize record-keeping of the location of their facilities. While not opposing other municipalities that may wish to establish a Mutual Aid and Restoration Consortium-like capability, it expresses support for carrier reservations about their ability to effectively participate in multiple Mutual Aid and Restoration Consortia in the event of a wide-spread emergency. The City does not

rule out incentives, public-private financing mechanisms and/or homeland security funding sources to support reliability improvements to the network.

TCH

TCH calls for a broader, nationwide effort to address network reliability so that all telecommunications networks and services can be addressed and a nationwide database of the location of carriers' facilities can be created. It believes such information is absolutely critical to the maintenance of reliability and that a national database will provide the most benefit. TCH does not believe that competition or voluntary efforts will necessarily improve reliability. Intermodal competition does not meet the needs of the financial community. For example, this community cannot rely on wireless technology because it is not suitable for financial transactions. It emphasizes that banking representatives are particularly concerned that once installed, carriers do not maintain customer-specific diversity serving arrangements perhaps in part because of poor record-keeping.

TCH opposes mandatory compliance with all 776 Network Reliability and Interoperability Council best practices. However, it advocates a joint effort to identify a reasonable subset of the best practices to which carriers periodically would demonstrate compliance. Positive incentives should be used to encourage compliance, such as tax incentives to those carriers investing in diversity. TCH believes that "the single most effective measure the Commission could adopt" is to require carriers to establish geographically diverse routes to end offices, at least for all customers having a critical need for such diversity (TCH reply, p.12). Costs associated with increased reliability should be borne by either the federal government (if associated with a national security requirement) or carriers themselves because increased reliability enhances a carrier's network and competitive position with respect to other carriers. The costs of customer-specific arrangements should be recovered from those customers who request them.

TCH claims that the existing FCC Telecommunications Service Priority program is too complicated and that the Commission should work with the FCC and other agencies to simplify it. TCH also believes that inter-carrier cooperation on Telecommunications Service Priority circuits needs to be improved. Steps like these will foster participation, it says.

CWA

CWA expresses deep concern over VZ-NY's cuts in manpower and infrastructure investment, and sees a general decline in overall service quality and reliability. Among other things, it calls for a directive by the Commission to (1) require VZ-NY to increase its capital and labor resources allocated to reliability, (2) require VZ-NY to mechanize its record-keeping, (3) tighten the Customer Trouble Report Rate (CTRR) standard, and (4) regulate cellular and VoIP providers in order to ensure reliable networks from these carriers.

DISCUSSION

In the Notice, the Commission expressed an interest in obtaining comments on three aspects of network reliability: (1) the current state of reliability, (2) goals for the future, and (3) means of attaining such goals. Parties were encouraged to use the Staff White Paper appended to the Notice (see Appendix C) as a further basis for their comments.

Current State of Reliability

Carriers provided very little specific information about the current state of network reliability. Many carriers simply indicated that the industry is addressing reliability through participation in the Network Reliability and Interoperability Council forums that develop best practices, and the give and take of the market. None addressed the extent to which they comply with these practices. Some named actions they voluntarily have taken or are taking to improve reliability. Most argued that reliability was already excellent as demonstrated by the limited impact and quick recovery efforts, or both, following major network outages such as September 11, the August 2003 power blackout, and other outages identified in the White Paper. A few carriers identified specific goals that should be set by the Commission to improve reliability.⁴

⁴ TWTC made a suggestion regarding Switched Redirect Service, and Quest addressed mechanization of record keeping, both of which are discussed later.

AT&T is deploying its Network Disaster Recovery program which "provides robust support for network survivability unmatched in the industry, for offsetting the potential risk of catastrophic network failures at a particular local node." It is a long-term \$300 million program designed to "replicate telecom equipment impacted by a catastrophic failure with a targeted recovery cycle of no longer than 96 hours (ATT initial, pp. 11-12)."

VZ-NY lists examples of how it has improved reliability (VZ-NY initial p. 4):

- a.) Manhole locks are developed and deployed.
- b.) Central offices are equipped with backup power.
- c.) Hydrogen fueled cells are deployed to access their viability during extended power outages.
- d.) Stand-by pumps are deployed to protect against flooding of central office power equipment.
- e.) Central office switches are equipped with redundant processors.
- f.) Signaling systems are designed and deployed with redundancy and diversity.
- g.) Interoffice routes are diversified for most offices.
- h.) Security measures implemented include remote monitoring of environmental conditions, identity of personnel entering or leaving a building, and alarm status of vital functions.
- i.) Fiber optic rings are deployed for most interoffice and some local loop facilities.
- j.) Tariff services providing customer-specific enhancements for reliability and survivability are available.⁵

VZ-NY indicates that it has already deployed route diversity for the vast majority of its offices as required under the Performance Regulation Plan at a cost of about \$50 to \$80 million. It claims the only offices lacking it are in "extremely remote areas where geography or geology prevent reasonable construction efforts. (VZ-NY initial, p. 9)." With respect to diverse cable entrance facilities to its central offices, VZ-

⁵ These services include: Alternate Serving Wire Center which provide simultaneous service from two central offices, SONET (Synchronous Optical Network) rings which ensure continued service even if a portion of the local loop serving a customer is lost, and dual facility entrances to customer locations protecting against loss of service due to failures at customer building entry points.

NY indicates that its large New York City buildings often have more than one entrance point.

Lightpath has deployed several switches to serve the New York Metropolitan Region and each switch directly connects to each of VZ-NY's tandems in the metropolitan area. It also has multiple points of interconnection. When possible, it has installed permanent on-site generators for use in case of commercial power failure, and provided connections for portable units in those instances where it could not justify permanent generators. (Lightpath reply, pp. 2-3). Quest uses, among other things, diverse power feeds and backup measures including batteries, generators, and mobile power-plants for disaster recovery.

None of the comments mention a recent petition from a group of thirteen rural incumbent local exchange carriers that have formed a partnership to create the Empire State Independent Network LLC (ESIN).⁶ ESIN intends to construct a statewide broadband network with extensive redundancy linking various carriers and customers in 54 cities and surrounding areas of the state, particularly upstate, where connectivity is "either inadequate or non-existent." ESIN claims it will provide "necessary network diversity and redundancy that member companies could not get from larger carriers," and will have a network consisting of "five interconnected SONET rings deployed throughout New York."⁷

⁶ Case 04-C-0433, Petition of Empire State Independent Network LLC for an Original Certificate of Public Convenience and Necessity for authority to operate as a facilities based carrier and reseller of telephone service in the State of New York, March 31, 2004.

⁷ "New York RLECS establish consortium," Telecom Flash, April 14, 2004. (See <http://www.telecomflash.com>). SONET is a means of transmitting information over fiber optic cable. Perhaps somewhat surprising is that NYSTA who represents the small ILECS in this proceeding did not mention ongoing problems of inter-company cooperation concerning network reliability issues that Staff documented (WP, p. 38), and that ESIN may now address.

Some carriers also noted that the federal government has taken substantial steps to ensure communications in times of emergency.⁸ For example, the National Communications Service hosts the Telecom Sector Information Sharing and Analysis Center (Telecom ISAC). This ISAC is designed to share threat and vulnerability information and to coordinate response initiatives in times of emergency or disaster on a twenty-four hour, seven day a week basis. The Telecom ISAC also provides a means for understanding and improving reliability of the telecommunication infrastructure. In addition, the FCC sponsors the Network Reliability and Interoperability Councils which develop industry best practices and encourage industry cooperation in their development.

Turning to the wireless carriers, T-Mobile states that it is the first and only wireless carrier operating in NY to participate in the federal nationwide Wireless Priority System program (T-Mobile initial, p. 2).⁹ VZW indicates that it designs its network for diverse routing to two different central offices and for zero blocking. In fact, "in Manhattan, VZW has switches in three different buildings to ensure sufficient redundancy and route diversity," such that on September 11, VZW "was able to complete calls through an alternate route" and that "most calls made on the VZW system during a period of extreme stress were completed" (VZW initial, p. 3). Wireless carriers also participate in ISAC and the Network Reliability and Interoperability Council.

Potential Goals

Carriers as a group offer few suggestions for furthering Commission goals to improve reliability. In responding to the tentative conclusions of the Staff White Paper, the general theme from carriers is that there is no need for Commission action; or the Commission lacks authority; or mandating requirements would be counter to the

⁸ Federal programs are also discussed at length in the White Paper (WP, pp. 42-43 and 46-52).

⁹ T-Mobile is the only wireless carrier thus far to receive federal funding for this effort. Other carriers may in the future receive federal funds to implement a Wireless Priority System in their networks.

development of best practices and/or involve substantial costs; and competition in the market by itself will lead to a highly reliable network. Other parties such as the City, TCH, and CWA express a need for action from the perspective of failures that did occur during major outages, ways and means to lessen the potential for their repetition, and the overall importance to the economy of a reliable telecommunications network especially during major service outages.

Past experience indicates a need for measured Commission intervention to ensure that telecommunications supporting public safety and our economy are adequately protected.¹⁰ Staff believes that there is room for improvement and that certain actions can be taken now to enhance reliability. The following is a discussion of the original potential goals as enumerated in the Order, and Staff's current thinking after consideration of parties' comments. Staff's current position with respect to these potential goals can be categorized as follows: a.) requires no further action, b.) represents a refinement of the original tentative conclusion of the White Paper where we suggest further comment or information be obtained, or c.) requires either immediate action or a showing that the goal can likely be achieved.

GOAL 1. Compliance with Best Practices

The primary question is whether local exchange carriers should be required to comply with and routinely report compliance with the best practices of the

¹⁰ Staff is aware of a number of entities (e.g., "network vendors", carrier "coalitions", and others) which appear to provide telecommunications services to carrier customers and which may be integral to ensuring the overall reliability of the network. The Commission should be aware that such entities exist and to the extent we conclude they are providing telecommunications services and there is a public interest basis for regulation by this Commission, we will seek to bring them into the Commission's jurisdiction to ensure no aspect of telecommunications reliability falls outside the Commission's scrutiny and oversight.

Network Reliability and Interoperability Councils. Currently, there are 776 best practices and more are under consideration.¹¹ The presumption of Staff is that mandatory compliance and routine reporting would cause carriers to take a more active role in reviewing and implementing these practices. This would then lead to higher reliability and possibly reduce or avoid major service outages.¹² The carriers are unanimous in opposing any such requirement. Even TCH and the City apparently believe that only a reasonable subset of them might be mandated.¹³

¹¹ On December 18, 2003, the FCC announced that Mr. Timothy Donahue, President and CEO of Nextel Communications, would chair the seventh NRIC which is to concentrate on the systems engineering aspects of emergency services. This latest iteration of NRIC is expected to complete its work by January 6, 2006.

¹² As a result of a collaborative process in Case 97-C-0139, the Commission's Telephone Service Standards were modified in October 2000 to include a requirement that local exchange carriers be "guided by accepted industry guidelines and best practices, such as the findings and recommendations of the FCC's Network Reliability Councils, relating to network reliability (16 NYCRR Section 603.5(b))."

¹³ On the energy side, there is a similar body to NRIC known as the North American Electric Reliability Council (NERC) which has published a set of voluntary standards. In the aftermath of the August 2003 Blackout, the Federal Energy Regulatory Commission (FERC) asked NERC to expeditiously modify its standards to make them "clear and enforceable" even though FERC appears to lack legal authority to require compliance by utilities. See: "FERC takes prompt action in response to blackout task force recommendations; outlines power reliability policy," FERC Press Release, April 14, 2004. The recently released "Initial Report by the New York State Department of Public Service on the August 14, 2003 Blackout" notes that reliability standards are mandatory in New York, that they exceed NERC standards and that the New York electric system was operating within state standards. While no action mandating compliance has been taken by the FCC with respect to NRIC best practices, September 11 led to considerable expansion of NRIC best practices, and as noted above, more best practices are to come. Apparently with FCC approval, NRIC states that "mandated implementation of its best practices are inconsistent with their intent (See: <http://www.bell-labs.com/user/krauscher/nric/>)."

a) Best Practices Need Not Be Mandated

Staff is of the opinion that for now best practices need not become mandatory. Staff believes such action could be taken, as with the state's electric reliability standards, and yet not stifle the development of future best practices as claimed by the carriers. However, we believe it is not clear today that action to make the best practices mandatory will measurably enhance reliability at a reasonable cost. We believe that other, more specific actions (e.g., physical path information and route diversity) as described elsewhere in this memorandum, are sufficient to address concerns expressed in the White Paper and should meet most of the needs of the financial community and the City. In recommending no mandate on compliance with best practices, Staff does not intend to imply a diminution of their usefulness or importance. In this regard, the Telephone Service Standards will continue to call carriers' attention to them.

b) Major Outages Require Demonstration of Best Practices Compliance

As another example of our continued support of best practices, Staff has recently modified our telephone major service outage reporting requirements to include 1) identification by the reporting carrier of those best practices that if employed by that carrier would have reduced the impact of an outage or avoided it altogether, and 2) steps the carrier plans to take to implement the practice(s) to avoid future outages and the dates by which this might be expected. Section 603.4(a) of the Telephone Service Standards requires local exchange carriers to report major service interruptions to Staff as per guidelines issued by the Director of the Office of Telecommunications. Major outages, reporting hierarchies, and detailed report forms are defined in the Office of Telecommunications' Emergency Plan, which is updated at least annually, and provided to all local carriers by the Director. By this modification to the outage reporting requirements to include identification of applicable best practices and specific actions a reporting carrier plans to take to avoid a similar future outage, we hope to encourage implementation of best practices demonstrated by experience to be necessary and prudent.¹⁴

c) Degree of Diversity in Cable Entrances to Be Examined

The White Paper further suggested that best practices might be exceeded to ensure that there be diverse entrance cables for critical central offices. The White Paper did not define any criteria for distinguishing critical offices from other offices. This tentative conclusion was arrived at after reviewing a major service outage affecting 911 circuits that were geographically diverse except at the cable entrance point to the Newburgh central office, and the devastating consequences of the collapse of the West

¹⁴ Staff notes that the FCC's outage reporting requirements already include identification of applicable best practices. However, our reporting criteria for a major outage are more encompassing than those of the FCC in terms of the carriers who must report and the degree of impact of a reportable outage.

Street cable vault on September 11, 2001. NYSTA believes every office should be deemed critical, apparently because all end users deserve the same reliability especially for 911 service. However, carriers generally indicate that establishing diverse cable entrance facilities can be extremely costly, while VZ-NY also indicates that large New York City central office buildings often have more than one cable entrance point already.

We recognize that establishing a diverse cable entrance for a central office can be an involved and expensive process, particularly in an urban setting. Thus, we do not believe all offices should be deemed critical and be equipped with dual entrance facilities. There are about 900 central offices in New York State and equipping each with a dual entrance is not necessary, in the opinion of Staff. However, some large central offices serve a critical role in supporting the financial community and the economy of the state and nation. This was evident by the impact on the financial community and the state and nation at large resulting from the loss of VZ-NY's West Street central office on September 11.

Staff believes that carriers should identify the central office buildings in New York State that currently have dual cable entrance facilities and the degree by which cable assets are distributed between those entrances. Furthermore, these carriers should demonstrate to Staff that critical circuits such as 911, SS7 links¹⁵ and Telecommunications Service Priority circuits are as evenly distributed as possible between the dual entrances in each central office so equipped. Staff may also do field verifications of some of these offices to ensure that the existing entrance diversity is being used to its fullest extent to lessen the impact of a service outage at these locations.¹⁶ All facilities-based local exchange carriers should identify to Staff which of their central office buildings in lower Manhattan (i.e., the area below Central Park) are

¹⁵ SS7, Signaling System 7, is a means of providing signaling using a packet-switched data network to control call processing in the voice or circuit-switched network. Virtually all calls over the wireline network are processed using SS7.

¹⁶ Our review will be coordinated with the Director of Utility Security, John Sennett, who concurs with these recommendations.

currently without dual entrance facilities. These carriers should identify and report to Staff, per building, the estimated cost for adding a dual entrance to each such building without a dual entrance, the carrier's perception of the need for a dual entrance, any current plans for adding a second entrance, and any roadblock (e.g., unwilling landlord) preventing such an addition to each building lacking it.

GOAL 2. Reduce the Concentration of Network Elements

The White Paper posited that the potential impact on customers of a major service outage could be reduced if carriers increased the diversity of network elements through the use of fiber optic rings in the local loop, automatic switching to an alternative office when a central office fails, and more distributed switching rather than concentrating more customers on fewer, larger switches.

Few carriers appear to have given serious consideration in their comments to these Staff suggestions. VZ-NY indicated that it would be too expensive to equip all 10 million of its local loops with rings, while AT&T noted that the interoffice network is already largely using ring technology. The Joint Commenters suggest point-to-point wireless technology could be used instead of rings in the local loop. TCH believes that the financial community cannot rely on wireless technology because it is not suitable for financial transactions.¹⁷ VZ-NY also notes that its use of digital loop carrier equipment is leading to a more distributed network, but decentralization in Manhattan is not really possible.¹⁸ AT&T believes its current ability to recover from a

¹⁷ There is reason to believe that broadband wireless technology might be useful to the financial community. (See: "A Plan for Wireless Telecommunications Network," The New York Times, April 25, 2004. Also see: <http://query.nytimes.com/gst/fullpage.html?res=9C0DE6D6173AF936A15757C0A9629C8B63>).

¹⁸ Digital Loop Carrier equipment is a means of providing a local loop using electronics rather than copper. In Staff's view, its use does not lead to a more distributed network. It simply replaces one local loop technology with another, and potentially leads to further concentration in the digital loop carrier equipment which can affect a larger group of customers if it fails versus a single copper loop failure. Its use also does not change the centralization of local loops to a single central office building.

catastrophic network failure within 96 hours is sufficient; therefore, decentralization need not be considered. Quest takes AT&T's point further by saying that only 911 tandem offices need to be duplicated, and that the availability of mobile trailer-based switches allows for quick recovery from a single office failure. Allegiance believes that potential competitors might be unable to enter the telecommunications market if they must initially deploy two switches rather than one at the outset.

a) Decentralization is an Objective, Not a Mandate

Staff never intended that use of fiber rings in the local loop or decentralization of switching be accomplished immediately or for every loop or office, as some carriers have suggested in their comments. Our overall intent is that carriers consider diversity and redundancy as they make modifications to the network to introduce new technology or perform other substantial changes. We continue to believe that carriers should consider decentralization of network elements to the extent allowed by technology and geography when planning changes to the network, in order to lessen the potential impact of outages at points of concentration of facilities (e.g., central offices). This is particularly important now as carriers are just beginning to develop and implement plans for Voice over Internet Protocol (VoIP), which requires investments in non-traditional voice processing equipment.

b) More Attention Should Be Paid to Backup Powering

Another area where Staff believes carriers could improve network reliability through new technology is in backup powering for field electronics such as Digital Loop Carrier equipment. This equipment requires commercial power and typically has lead-acid batteries for backup powering in the event that commercial power is lost. The batteries can operate for only a few hours or so before a portable generator must be brought to the site to avoid a service outage. Plug Power suggests that its hydrogen fuel cell technology is a much more reliable and longer lasting form of backup power than batteries. VZ-NY indicates that it is currently conducting field trials of this

technology. It appears at this early stage of testing to be superior to batteries and we encourage carriers to give it serious consideration.¹⁹

c) CTRR Objective Need Not be Made More Stringent

Staff also believes that network reliability could be improved by making the Customer Trouble Report Rate performance service standard more stringent.²⁰ The White Paper proposed this as a broad means of addressing reliability under the assumption that carriers would have to introduce additional diversity in the network to reduce reported service problems.

The carriers uniformly oppose such action while CWA supports it. AT&T points to the 15% improvement in CTRR over the past five years for the industry as a whole (as illustrated graphically in the White Paper on p. 37) to argue that a change in this standard is not required. Other carriers note that this standard was revised in October of 2000 after an involved collaborative effort of many parties.

After due consideration, Staff still believes that changing this standard could lead to improved reliability; CTRR is, after all, a measure of how often the customer perceives that the network fails (i.e., its reliability). On the other hand, changing this standard requires a rule making and, this effort seems unreasonable at this time given that the standard was last revised in 2002. Staff believes that other recommendations addressing specific diversity requirements as proposed in this memorandum are more appropriate interim steps. The CTRR standard could be revisited later if these interim steps are resisted or do not produce improvements to network reliability.

¹⁹ The Initial Report by the Department on the August 14, 2003 Blackout recommended that wireless carriers examine the use of all forms of backup power, including use of fuel cell technologies. The Network Reliability and Interoperability Council also concluded this in its review of the Blackout.

²⁰ 16 NYCRR Section 603.3(b)(1).

GOAL 3. Provide Route Diversity for Each End Office

The White Paper suggested that interoffice geographic route diversity for voice and network signaling traffic is a critical matter, and should exist for most, if not all, end offices.²¹ Staff took this position in order to reduce the likelihood that an end office would become isolated from the rest of the network due to interoffice cable damage. Such isolations were noted in the White Paper. They continue to occur and also can negatively impact the ability of consumers to obtain emergency services via wireline telephone.

VZ-NY claims that only a few of its end offices lack diversity and they are located in extremely remote areas "where geography or geology prevent reasonable construction (VZ-NY initial, p.9)." MCI fully supports diversity of signaling traffic "without any reservation (MCI initial, p.5) while USTA believes it would impose an enormous economic burden on LECs. TCH, on the other hand, believes that "the single most effective measure the Commission could adopt" is to require carriers to establish geographically diverse routes to end offices (TCH reply, p.12).

Staff has given this high priority over the past nine years or so as noted in the White Paper (WP, pp. 38-39). In 1995, geographically diverse routing of voice traffic was one of the requirements in the Performance Regulation Plan. By 1998, almost all VZ-NY end offices had geographically diverse voice routing.²² In 2000, a similar requirement was negotiated for FTR when its incentive regulatory plan, the Open Market Plan, was modified and extended. All of its offices have had diverse voice routing since the beginning of this year. We have also encouraged other facilities-based incumbents and new entrant carriers in the state to do the same, but are not sure

²¹ This proposal defines geographic route diversity on communications paths between central offices (i.e., end offices) except for the cable entrance facilities at each central office (i.e., to the first manhole or riser pole from each office building).

²² The few exceptions were due either to VZ-NY being denied the necessary permits from local and state government, or because the geography rendered a diverse route prohibitively expensive.

of the status of their voluntary efforts. No carrier other than VZ-NY commented on its status in this regard.

Additionally, we have become aware through service outage reporting and other means that not all end offices have geographically diverse signaling connectivity.²³ Some carriers also may be obtaining signaling connectivity through third party vendors who may lack diversity (see WP, p. 31). Furthermore, some end offices are termed "remote offices" because they gain access to the network through a host office. However, all remotes may not have geographically diverse connectivity (i.e., umbilical connections) to their associated hosts, or even have the ability to process intra-office calling (i.e., stand alone capability) should the host office fail. Finally, some carriers may be dependent on a geographically adjacent carrier in order to obtain route diversity for an office (WP, p.78 fn 74). The adjacent carrier also may be unwilling to invest in its network for the sake of improving the network reliability of another carrier.

a) Route Diversity Implementation Must Be Completed

Staff continues to believe geographic route diversity is such a critical element of network reliability in terms of access to emergency services that almost all offices should be so equipped, that the costs of implementation are to be born by the affected carriers, and that only minor exceptions should be allowed in cases of exceedingly high cost or other substantial roadblocks (e.g., municipal objections).²⁴ Staff recommends that the Commission issue an order requiring all facilities-based local exchange carriers to install geographic route diversity for voice and signaling traffic for all end offices and other associated requirements as listed below within one year, or show cause why not. In considering such a showing, Staff recommends the

²³ For example, while a majority of VZ-NY's end offices have diverse outside plant for signaling (i.e., SS7) connectivity, not all of them are so arranged. Despite this, VZ-NY can still claim that its signaling systems are designed and deployed with redundancy and diversity (as the best practices recommend) because, in general, they are.

²⁴ We would continue to allow exceptions on geographic diversity for cable entrance facilities as described under footnote 21 where dual entrance facilities do not exist.

Commission might consider limited exceptions per end office where the cost is exceedingly high or other factors (e.g., government approvals/permits) prevent it. Each facilities-based local exchange carrier should be required to:

1. Identify each end office, by office, not currently equipped with geographically diverse interoffice routing for voice and signaling traffic, and the cost to equip each with this diversity.
2. Carriers which require the cooperation of another carrier in order to install geographic routing diversity should identify each end office requiring inter-company cooperation, the "most likely connecting carrier," and the status of any inter-company negotiations to obtain that diversity. The carrier should also request cost data of the "most likely interconnecting carrier" and report that carrier's cost per route along with its own cost. Any requests for cost data received by a "most likely connecting carrier" should be responded to by quotation of a firm, detailed cost quote within 30 days of their receipt.
3. Carriers using a third party vendor for signaling (i.e., SS7) connectivity for end offices should identify, by contract, those contracts that do not include a requirement that the vendor have geographic diversity on its SS7 circuits, and initiate and report on further negotiations to include a requirement for diverse routing in each contract lacking it.
4. Identify all remote offices, by office, without geographically diverse umbilical connectivity to a host office, and the cost per remote office to equip each with this diversity.
5. Identify each remote office, by office, that is not currently equipped for stand-alone operation if its associated host office should fail to operate, along with the cost per remote office to equip each with this capability.
6. Carriers should provide supporting rationale per end office, for any of the end offices identified in items 1-5 above, where they believe the geographic routing diversity and/or capability should not be installed.

In seeking specific exemptions, carriers should reasonably estimate costs using a typical engineering broad gauge process based on current values for equipment and labor, and include their cost support. Those carriers not seeking an exemption need not report cost data as specified above. The identification of end offices and cost

data would be submitted to the Commission and not to other parties to the proceeding. Staff would then analyze the data and make further recommendations to the Commission regarding any exceptions requested by the carriers. We believe that the number of end offices identified through this process will be relatively small given past actions of the carriers, Staff and the Commission to promote such arrangements. Thus, we do not expect the cost to any carrier will be substantial after allowances for any exemptions.²⁵

However, we believe the benefits to New York of completing the task of full route diversity will make our state's telephone network more reliable especially concerning the ability for end users to place calls for emergency assistance. Staff notes that its recommendation in this area of network reliability is directed at protecting against service outages due to problems in the carriers' outside plant, that portion of the network most susceptible to damage (e.g., cable dig ups). Emergency calling (e.g., Enhanced 911) also depends on diversity of facilities within central office buildings which are inherently more protected, but we plan to continue working with the carriers to encourage diversity there as well.²⁶

b) Adequate Cellular Connections Will Be Determined

A related issue – namely, the adequacy and diversity of cellular connections to the wireline network – was also raised in the White Paper. Preliminary service data suggested consistent under-sizing of certain trunk groups, particularly to cellular carriers; and the paper tentatively concluded that the Commission could

²⁵ Should any carrier find the costs to be material and seek separate recovery, Staff recommends the Commission entertain tariffs to provide a carrier with appropriate rate relief, after consideration of the costs and other factors affecting the financial condition of a company. Carriers that wish to be considered for such increases should first discuss them with Staff.

²⁶ We plan to work with individual carriers as necessary through such efforts as application of best practices, VZ-NY's annual certification of SS7/E911 under the Verizon Incentive Plan, carrier's annual construction budget filings and major service outage reporting.

reassert authority over such carriers to ensure diverse and adequately sized interconnections (WP, p. 45).

As a group, the wireless carriers oppose this reassertion of Commission regulation, and question the legality of any such move. Furthermore, they claim that the assertion in the White Paper identifying a potential under-sizing of trunks connecting them to the wireline network is incorrect. They state that there is no consistent under-sizing of network interconnections and that these arrangements are taken into consideration as part of their overall business planning.

Staff believes that at this point it is premature to reassert regulatory authority over wireless carriers. We are using the independent audit of the service quality provided by VZ-NY currently underway to gain a more complete understanding of the preliminary data we have on trunk group sizing.²⁷ A complete analysis of that data will be available later this year, after which we intend to report those results to individual wireless carriers, as necessary, to understand their situation and seek improved interconnectivity. If actual traffic studies are required to determine how best to improve trunking arrangements, wireline and wireless carriers will be expected to cooperate in that effort and to complete the required studies within a reasonable timeframe.

GOAL 4. Customer-specific Diversity Arrangements

The Order addresses the need for customer-specific information on the physical path of carriers' circuits so that customers with enhanced reliability needs can be assured of diversity in serving arrangements and be informed of any changes that may occur over time to those arrangements. The White Paper tentatively concluded that carriers should upgrade their systems for tracking and storing information regarding physical routing of facilities to aid in maintaining diversity arrangements as well as speed their restoration in the event of a major outage.

²⁷ Case 03-C-0971, Proceeding on Motion of the Commission to Consider the Adequacy of Verizon New York Inc.'s Retail Service Quality Processes and Programs.

USTA believes this is an issue best addressed jointly by the carriers and those customers with specific diversity requirements, such as the financial industry. VZ-NY does not see a need for an upgrade of its systems and claims that Staff provides little evidence of a problem or its extent. The City and TCH support the conclusions of the White Paper; and TCH further emphasizes that the banking and financial industries "have raised their concerns in meetings with the Commission, as the White Paper reports (TCH initial, p.9)." These include, but are not limited to, such problems as determining the physical diversity of circuits when ordering similar services from two different carriers (WP p 27), as well as the tandem arrangements that may be used by the carrier (TCH reply, p.13).

The White Paper recognizes that a number of customer-specific diversity services are already available under tariff to meet the needs of those customers that require a higher level of reliability than that normally provided in the network (see pg. 12, fn 5). VZ-NY appropriately indicates that these services can be supplemented with additional customer-specific network enhancements to provide even further reliability and survivability. Also, TWTC makes a suggestion to expand the use of one of VZ-NY's services, Switched Redirect Service,²⁸ which is discussed elsewhere in this memorandum. However, the carriers' do not specifically address the deficiencies expressed to Staff by some of these customers and in the comments of TCH and the City in this proceeding. In short, they express a requirement for current and accurate physical identification of the routing of their critical circuits. The White Paper proposed to address this need in the broader context of mechanizing record keeping of all outside plant for all facilities-based local exchange carriers. Carriers object to such a broad mechanization project as an extremely costly security risk and an unnecessary burden

²⁸ VZ-NY, PSC No. 1, Section 2, p. 202. Switched Redirect Service allows the end user to redirect incoming calls (data or voice) to another telephone number on another switch (of a new entrant or an incumbent). It is particularly beneficial in the event of a catastrophic network failure. A similar new service, UltraForward Service, was introduced on an expedited basis by VZ-NY soon after September 11 to assist those affected by that event.

at a time when competitive pressures are making it difficult to recovery any additional costs. This carrier concern is addressed elsewhere in this memorandum.

a) Physical Path Information Required Only for Critical Circuits

Staff believes that facilities-based carriers can meet the expressed specialized needs of some customers for information on the facilities used to connect them to the public switched network, or to interconnect customer locations. We believe that can be done without incurring costs that cannot be recovered in a competitive environment or by jeopardizing network security. Staff recommends that facilities-based carriers serving customers with Telecommunications Service Priority circuits be directed to tariff a new "Critical Facilities Administration" service, or alternatively show cause why they should not. Appendix B details the limited conditions under which Critical Facilities Administration should be offered, and the precautions to ensure the protection of the related data.

Critical Facilities Administration would allow a customer to determine the physical routing of a critical circuit in compensation for a tariff fee. However, the proposed service would be limited to those circuits and customers enrolled in the federal Telecommunications Service Priority program. Information on physical paths would not be centralized and only circuits registered under the federal Telecommunications Service Priority program would be included. Before a customer can obtain Telecommunications Service Priority protection on a given circuit, the critical nature of the circuit must be demonstrated and a federal agency sponsor must be obtained.²⁹ Since circuits registered under the Telecommunications Service Priority must meet federal guidelines for criticality subject to national and economic security standards, only those circuits absolutely critical to local, state, or national interests would be covered. We believe this process provides the requisite security by denying participation to those customers lacking a critical need for physical path information, and

²⁹ The Telecommunications Service Priority registration process is described more fully in the White Paper (see pp. 50-52).

limiting the availability of information to that portion of the telephone infrastructure used for a customer's critical circuits to that customer.³⁰

Carriers would be obligated to maintain a database for these critical circuits to include latitude and longitude references along the route of each critical facility at important junctures such as at cable entrances to buildings, manholes, riser poles, crossboxes, carrier equipment cabinets, and other circuit access points in the outside plant of the carrier, and to obtain similar information from its vendors or other carriers whose underlying facilities are used to provide the circuit.³¹ The geographical references would have to be of sufficient accuracy (i.e., within a few feet) for the customer to determine which side of a street a manhole was located. In this way, a participating customer could determine whether that circuit is sufficiently diverse from other circuits it may have from that carrier or its competitors.

The Commission should direct facilities-based carriers serving customers with Telecommunications Service Priority circuits to introduce such a service, or alternatively to show cause why they should not. Carriers should plan to recover the costs of the service via a state tariff. Carriers should file cost support for their proposed tariff charges so as to provide other parties (specifically the City and TCH) an opportunity to comment on the carrier's tariff and proposed prices. While initial rates should be cost-based and include a fair rate of return, Staff believes the service should ultimately be subject to the market once the inherent capability to provide Critical Facilities Administration is competitively widespread. In this way, a carrier that fails to offer attractive prices for Critical Facilities Administration will run the risk of losing the customer's business for critical circuits altogether.

³⁰ We also believe this will enhance the benefits of the Telecommunications Service Priority use and encourage greater participation in this critical program.

³¹ A carrier which resells a circuit provided by another carrier will be responsible to obtain from the underlying carrier the needed data and notices, and to pay the appropriate tariff rate for such information to the underlying carrier as described herein.

b) An Expedited Collaborative to Consider Switched Redirect Service

Critical Facilities Administration service should reduce the risks to circuits dedicated to specific customers who use them to obtain a higher degree of reliability than generally available in the public switched network. The reliability of the public switched network can also be enhanced through various optional services as previously discussed (see footnote 5). A suggestion made by TWTC appears to have the potential to improve network reliability by expanding the availability of one optional service.

TWTC suggests that VZ-NY's Switched Redirect Service, an automatic rerouting service, should be made available to new entrant (i.e., Competitive Local Exchange Carrier, CLEC) end users in order to enhance reliability. TWTC claims that a carrier version of this service "is essential to allow New York consumers additional options when seeking disaster recovery products (TWTC initial, p. 3)." It says it has been negotiating with VZ-NY without success to make this possible. TWTC calls for an industry collaborative to identify factors currently blocking the availability of this VZ-NY service to CLEC end users.

Staff supports a limited collaborative to rapidly consider expanding the current availability of VZ-NY's Switched Redirect Service to CLEC end users. This service represents an alternative to duplicating network elements as a means of increasing reliability because it uses existing, in-place switching facilities to re-route calls in the event of a network failure. Staff believes, absent substantial technical or administrative impediments, it should be broadly available to the extent allowed by the technology supporting it, so that consumers have all reasonable forms of alternative communication available in an emergency or network failure. The goal of the collaborative would be to quickly determine these problems if they exist and, if not, to ensure rapid implementation of the service.

GOAL 5. Tracking/Storing of Facility Routing

The Order identifies a potential need for carriers to mechanize their records covering the physical routing of all facilities in order to meet their own as well as customer-specific diversity needs, and as an aid in emergency preparedness, response and recovery efforts. Staff noted events and other conditions supporting this tentative conclusion in the White Paper (WP, pp. 27-34, 39-41, 46, and 55-57).

The City, TCH and CWA support this proposal. Joint Commenters also support it, but want the ability to choose their own methods and database storage process. Quest notes "the significant benefit in carriers having specific information about their networks readily available," but adamantly opposes centralization of carriers' data into one database (Quest reply, p. 5) because of security concerns. It proposes that the Commission require all New York carriers to mechanize outside plant records and make information about facility and diverse service available, on request, to customers and the Commission. MCI expresses security, as well as cost concerns. AT&T states that it "is in the process of converting its locally stored paper and electronic fiber optic plant facilities records into a GIS-based record keeper (AT&T initial, p. 14)."³² However, it notes the system it is using is proprietary and of limited use for recognizing diversity. USTA, NYSTA and VZ-NY oppose Staff's tentative conclusion because they see no compelling reason, believe it will not ensure diversity, and – according to VZ-NY would be "a huge, labor intensive, costly undertaking, [that] would likely take many years to implement (VZ-NY initial, p. 14)."

a) Mechanization of Outside Plant Records Beneficial, But Not Mandated

No carrier presented any cost data even though many claim mechanization represents a huge undertaking. It seems reasonable to assume costs might be high and implementation could take some time for some carriers given the size of their networks. For example, VZ-NY has hundreds of thousands of miles of cable plant in-service and most of its plant records are manually maintained. However, it is also true that mechanization would improve carriers' ability to locate and maintain outside plant, and respond more quickly in emergencies involving such plant.

³² "GIS" stands for Geographic Information System which is a computerized means of producing maps.

Apparently some carriers already realize this and, as noted elsewhere in this memorandum, have begun to mechanize their records.³³

Staff believes that carriers should continue to pursue mechanization of record keeping of the physical location of outside plant facilities, but does not believe the Commission should direct an implementation plan or schedule at this time. We are cognizant that the competitive telecommunications marketplace makes it difficult for some wireline carriers to absorb the additional costs for mechanization generally.³⁴ Increasing competition from wireless and VoIP is causing all carriers to reconsider the rates for, and packaging of, their services. TCH suggests that a national database of such information should be part of a national objective and that federal money from the Department of Homeland Security might be made available. However, we are not aware at this time of any national effort or funding available specifically for records mechanization. We believe a self-supporting, targeted service offered under tariff, specifically Critical Facilities Administration as previously discussed in this memorandum, should meet most of the needs of those customers with specific diversity requirements to know the physical routing of critical circuits serving them without placing an undue burden on the competitive position of wireline carriers. We also believe that the lessons learned from implementing Critical Facilities Administration will better inform the overall mechanization of existing records.

GOAL 6. Telecommunications Service Priority

The White Paper noted (1) an apparent underutilization of the federal Telecommunications Service Priority program, (2) potential wholesale/retail inter-company problems with it, and (3) a need for the federal government to encourage

³³ Staff is aware through data filed outside of this proceeding that VZ-NY has begun some mechanization of its records.

³⁴ Unlike Staff's proposed CFA service which would be offered to willing and qualified customers at a specific, cost-based rate, general mechanization of outside plant records would raise the incremental costs of wireline services relative to those of other modes of telecommunications.

participation in this important emergency service program (WP, pp. 50-52). The Order sought comment on these aspects of Telecommunications Service Priority.

The parties uniformly support increased education about Telecommunications Service Priority. TCH believes the program needs to be simplified in order to increase participation, while AT&T cautions against changing Telecommunications Service Priority criteria just to increase participation. USTA urges the New York Commission to undertake a comprehensive awareness program. No parties commented on the potential wholesale/retail carrier problems which Staff identified.

The primary responsibility for the Telecommunications Service Priority program lies with the FCC, as noted in the White Paper. Staff has taken some limited steps to increase participation by placing a link to the Telecommunications Service Priority Web site on the Department's Web site, and requiring local exchange carriers to update their state tariffs for Telecommunications Service Priority. There have also been efforts to increase awareness at the federal level.³⁵ Overall, participation in New York has increased since Staff surveyed for the White Paper. Currently, there are about 825 Telecommunications Service Priority circuits for VZ-NY and 42 for Frontier Telephone of Rochester. This compares to 760 and 28 Telecommunications Service Priority circuits, respectively, for these two carriers as of about mid-year 2002.

Participation in the Telecommunications Service Priority program also may be a function of the carriers' state tariff Telecommunications Service Priority charges. To be sure that tariff charges for Telecommunications Service Priority are not inappropriately discouraging participation in the program, Staff recommends that all carriers with New York State tariff requirements and charges for Telecommunications Service Priority be directed to file cost information demonstrating that the tariff charges do not exceed the associated costs (including a reasonable

³⁵ "Homeland Security: FCC and NCS Spearhead National Outreach Campaign to Secure Priority Restoration of Phone Service to 9-1-1 Centers in the Event of a National Crisis," NCS Press Releases, April 24, 2003. See: http://www.ncs.gov/news/2003/press_release/042403a.html

return) for Telecommunications Service Priority. Staff also believes that efforts to enhance the identification of the physical routing of Telecommunications Service Priority circuits as previously described in this memorandum may increase end user demand for such circuits. In addition, we will provide reasonable assistance to any end user who needs a better understanding of the Telecommunications Service Priority program to gain that understanding, and work with the federal government, if requested, to increase participation in this important emergency program.

Because no carriers addressed the potential wholesale/retail inter-carrier problems surrounding Telecommunications Service Priority as outlined in the White Paper (p. 52), Staff believes all carriers offering wholesale services and all carriers utilizing an underlying carriers' services should be directed to demonstrate that they each have sufficient inter-company procedures in place to ensure that priority restoration of Telecommunications Service Priority circuits in an emergency can be accomplished. A filing certifying and detailing these procedures should be filed with Commission Staff within 30 days.

GOAL 7. MARC-like Agreements

Comments were requested on whether municipalities other than New York City should be encouraged to establish Mutual Aid and Restoration Consortium (MARC) programs similar to New York City's program. Generally, carriers found the City program to be useful, but express concern about their ability to participate in multiple municipal programs at the same time during a widespread regional outage. These carriers suggest a move toward a regional or national type (e.g., NCC) program rather than a multiplicity of municipal programs. The City also expresses a similar concern. VZ-NY was the lone carrier to claim no benefit to itself from the City's program during and after September 11. Most telling, no municipality has yet expressed interest in establishing a program like New York City has.

Staff supports the efforts of any municipality seeking to develop a Mutual Aid and Restoration Consortium-like program. In the White paper (pp. 53-54), it was noted that such a program really is only beneficial if a number of facilities-based carriers are operating within the municipality's boundaries. Furthermore, many facilities-based carriers have inter-company mutual aid agreements to assist each other in recovery

efforts after a major service outage. These agreements have worked extremely well in the past.

While we are sympathetic to carrier resource concerns should there be a widespread outage involving multiple municipalities each with its own Mutual Aid and Restoration Consortium-like program, we think this concern can be addressed at the time of the outage. At that point, it is clear that the Department could and should step in to coordinate overall activities, and we would work in conjunction with the State Emergency Management Office and the NCC, as necessary. This is essentially what happened during September 11.

CONCLUSION AND RECOMMENDATION

It is clear from the comments that there is a wide divergence of views. Carriers generally hold that the network is already highly reliable and oppose most of the tentative conclusions of the Staff White Paper. Non-carrier parties generally support many of Staff's proposals.

Staff continues to believe that the network is highly reliable and that carriers generally respond quickly to restore service when there is a major service outage. However, we believe there is room for improvement as evidenced by the concerns of the non-carrier parties' comments and our analysis of past service outages. New York was the first state impacted directly by the events of September 11th and the only one to experience significant telecommunications disruptions as a result. The economic impacts of this event were staggering. However, New York can also turn the lessons of those events into concrete actions to improve our state's critical infrastructure. After due consideration of the wireline carriers' concerns for the competitive environment in which they increasingly operate, we believe that the steps we recommend will lead to improved reliability targeted where it is most needed, either without substantial additional costs or via charges designed to recover those additional costs. Specifically, we seek to improve reliability in the area of geographic route diversity to end offices for voice and signaling traffic for all facilities-based carriers. We note that many of VZ-NY's and FTR's end offices should already be so arranged as a result of incentive plan agreement requirements, so the overall costs should be relatively low. Improved route diversity will lessen the likelihood of any end office being

isolated from the network, an eventuality which can hamper the ability to place and complete emergency calls.

Another significant action we propose is for facilities-based carriers to introduce a new service, Critical Facilities Administration (CFA), to allow those customers with critical circuits as determined via the federal Telecommunications Service Priority program to obtain the physical outside plant routing of such circuits. Carriers would offer this service for a fee in order to have an opportunity to reasonably recover their costs directly from those customers who need the information. As members of the financial community and the City have expressed a desire for facility routing information, Critical Facilities Administration should meet that need without jeopardizing the security of the telephone network infrastructure or the competitive economic position of the carriers.

In other areas, Staff seeks additional information from the carriers to ensure that enhanced capabilities within the network are being utilized to their ultimate advantage with respect to reliability. For example, where dual cable entrances exist into central office buildings, we are asking carriers to demonstrate that critical circuits (Telecommunications Service Priority, signaling and emergency 911 circuits) are reasonably balanced between the two entrances in order to lessen the potential impact of a service outage due to a failure in one of the cable entrances. Further, we are asking carriers to demonstrate that inter-carrier cooperation that is necessary on Telecommunications Service Priority circuits, where more than one carrier is involved in providing the circuit, has been adequately addressed so that carriers can effectively work together to restore any Telecommunications Service Priority circuits affected by a major service outage.

We also recommend other less significant steps of mostly an investigatory nature at this time. For example, we want to assess the reasonableness of current state tariff charges for Telecommunications Service Priority services, and identify the potential costs to add dual cable entrances to those central office buildings in Manhattan currently without them. As previously noted, Staff recognizes that most offices are already so arranged and adding a second entrance may be expensive and perhaps unnecessary, but we believe it is important to gather information in this regard.

Specifically, we recommend that the Commission:

1. Direct all facilities-based local exchange carriers to identify and report to Staff within 90 days which of their central office buildings are equipped with dual cable entrance facilities, as well as demonstrate that critical circuits are reasonably distributed between the two entrances.
2. Direct all facilities-based carriers serving Manhattan to provide to Staff within 90 days, cost data per building, to add a dual cable entrance to those buildings in Manhattan housing central office switching equipment and currently lacking a dual cable entrance facility.
3. Issue a show cause order to all facilities-based local exchange carriers to explain, within 180 days, why they should not be required to provide geographic route diversity and other capabilities for most end offices within one year as specified on page 25 of this memorandum.
4. Issue a show cause order to all facilities-based carriers to explain, within 120 days, why they should not be required to offer Critical Facilities Administration Service as described in this memorandum and Appendix B. Other parties would be offered the opportunity to comment on the carriers' responses 30 days after the carriers' submissions.
5. Ask Staff to convene a collaborative of carriers concerning the availability and use of Verizon New York Inc.'s Switched Redirect Service by competitive local exchange carrier customers. Staff would report back to the Commission on this issue within 180 days.
6. Direct all carriers to file with Staff within 120 days, cost support information relating to any state tariff charges for Telecommunications Service Priority services.

7. Direct all local exchange carriers to file with Staff within 30 days, information certifying and detailing its inter-carrier methods and procedures for ensuring that Telecommunications Service Priority circuits involving more than one carrier can easily be identified in its records of Telecommunications Service Priority circuits, and that these circuits will receive appropriate priority treatment during an emergency.

CASE 03-C-0922

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Appendices

APPENDIX A – SUMMARY OF COMMENTS

The following parties commented in this proceeding:

Incumbent Local Exchange Carriers (ILECS):

1. Verizon New York Inc. (VZ-NY)
2. Frontier Telephone of Rochester, Inc. (FTR)
3. New York State Telecommunications Association, Inc. (NYSTA)
4. United State Telecom Association (USTA)

Competitive Local Exchange Carriers (CLECS):

1. Time Warner Telecom, Inc. (TWTC)
2. AT&T Communications of New York Inc. (AT&T)
3. WorldCom, Inc. (MCI)
4. Cablevision Lightpath, Inc. (Lightpath)
5. Allegiance Telecom of New York, Inc. (Allegiance)
6. Quest Communications Corporation (Quest)
7. BullsEye Telecom, Inc., Winstar Communications, LLC, and
CompTel/ASCENT Alliance (Joint Commenters)

Wireless Carriers:

1. Verizon Wireless (VZW)
2. Nextel of New York, Inc. (Nextel)
3. AT&T Wireless
4. BellSouth Mobility LLC and Southwestern Bell Mobile Systems,
LLC, (Cingular)
5. Omnipoint Communications, Inc. (T-Mobile)
6. Cellular Telecommunications & Internet Association (CTIA)

Interexchange & Internet Service Providers:

1. Americatel Corporation (Americatel)

Other:

1. The New York Clearing House Association L.L.C. (TCH) and
Fiserv Inc.
2. Communications Workers of America (CWA)
3. Plug Power, Inc. (Plug Power)

4. The City of New York Department of Information Technology and Telecommunications (the City)

VZ-NY

VZ-NY agrees that telephone network reliability is important and it actively participates in the FCC's NRIC in the development of industry "best practices." VZ-NY lists ten examples of actions and/or investments it has or is undertaking to enhance the reliability and survivability of its network:

- a. Manhole locks are developed and deployed.
- b. Central offices are equipped with backup power.
- c. Deploying hydrogen fueled cells to access their viability during extended power outages.
- d. Deployed stand-by pumps to protect against flooding of central office power equipment.
- e. Central office switches are equipped with redundant processors.
- f. Signaling systems are designed and deployed with redundancy and diversity.
- g. Interoffice routes are diversified for most offices.
- h. Security measures, including remote monitoring of environmental conditions, identity of personnel entering or leaving buildings, and alarm status of vital functions, are in place.
- i. Fiber optic rings are deployed for most interoffice and some local loop facilities.
- j. Tariff services providing customer-specific enhancements for reliability and survivability are available.
- k. ¹

However, VZ-NY notes that its lines and revenues are declining, negatively affecting its cash flow and ability to invest in the network. It believes that diversity and reliability "is being achieved through the use of Intermodal competition."² Mandated investments in the wireline network that have no additional payback other

¹ These services include: Alternate Serving Wire Center which provides simultaneous service from two central offices, SONET (Synchronous Optical Network) rings which ensure continued service even if a portion of the local loop serving a customer is lost, and dual facility entrances to customer locations which protects against loss of service due to failures at customer building entry points.

² VZ states that customers have multiple modes (i.e., Intermodal forms) of communications at their disposal: Large businesses can use multiple providers for increasing reliability, while small businesses and residential consumers have access to cell phones, e-mail and instant messaging.

than increased reliability in a time of emergency run the risk of having wireline services price themselves out of the market, bankrupting the service providers or both (VZ-NY initial, p. 2)." Furthermore, VZ-NY claims that any mandated investments "cannot be recovered through increased rates," because increasing rates could cause customers to migrate "to competitors, cellular service and Voice Over Internet Protocol (VOIP) (ibid, p. 6, footnote 5)." VZ-NY seeks direction from the Commission on the cost recovery mechanisms for mandated investments.

VZ-NY claims that Staff's tentative conclusions of the White Paper are inaccurate, based on anecdotal evidence, impractical, unnecessary and prohibitively expensive to implement. It believes that enhancements should be based on sound engineering and economic considerations, and any customer-specific enhancements should be paid for by those that benefit from it.

VZ-NY then responds to each of the tentative conclusions of the White Paper.

With respect to increased use of fiber optic rings and alternative switching mechanisms, VZ-NY notes that it is prohibitively expensive and unnecessary to install fiber optic rings for all 10 million local loops, but most interoffice facilities are already arranged in an optic ring. Large business customers "routinely place orders with Verizon" for rings in the local loop to their places of business. VZ-NY believes that the costs of these customer-specific arrangements should continue to be borne by those who order them.

In terms of migrating toward a more distributed network, VZ-NY claims it is already doing so by deploying Digital Loop Carrier systems, but believes that carriers are in the best position to consider the desirability of such migration. Therefore, it should not be mandated by the state.

Where the White Paper recommended identification and elimination, where reasonable, of single points of failure, VZ-NY indicates that Staff apparently did so on the basis of one Emergency 911 (E911) network outage involving a company other than itself. VZ-NY believes its E911 service is reliable and that the single incident is not indicative of a widespread problem.

The White Paper tentatively recommends that all local carriers provide route diversity for each end office, where reasonable. VZ-NY indicates that it has already done so for the vast majority of its offices as required under the Performance Regulation Plan at a cost of about \$50 to \$80 million. It claims the only offices lacking it are in "extremely remote areas where geography or geology prevent reasonable construction efforts (ibid, p. 9)." It claims diversity is unnecessary in these remote areas.

In addressing improved network monitoring and record keeping to lessen the potential loss of customer-specific diversity arrangements, VZ-NY states that the White Paper offers "little evidence" of a problem with customers losing their arrangements either during an outage or from network rearrangements despite Staff

claims to the contrary.³ VZ-NY emphasizes a point made in the Staff White Paper that customers sometimes mistakenly believe that obtaining service from multiple carriers provides diversity when in fact, nothing more than billing diversity is obtained. VZ-NY believes it is incumbent on customers to request diversity when they order service.

While Staff suggested that carriers improve communications with customers concerning network topology changes to lessen the potential for loss of customer-specific arrangements, VZ-NY states that there is no point in doing so provided diversity is maintained.

Referring to mechanization of outside plant records to provide real time information on the physical location of facilities, VZ-NY states that it is unnecessary and would not ensure the existence of geographic diversity (ibid, p. 14). It is wrong to imply that VZ-NY does not know the location of its facilities simply because the records are not mechanized. Furthermore, VZ-NY claims mechanization would "be a huge, labor intensive, costly undertaking, and would likely take many years to implement." It is not clear to VZ-NY that mechanization would lower recordkeeping costs or allow a better assessment of vulnerabilities and quicker restoration efforts after an outage. VZ-NY emphasizes a point made in the White Paper that it has repeatedly demonstrated a quick and appropriate response to major outages, such that it believes no evidence exists of an emergency response problem needing to be addressed. Furthermore, it believes that development of a centralized Graphical Information System database of its facilities would become a target for terrorists.

Concerning Staff's recommendation that all critical links of Signal System 7 be arranged in a geographically diverse manner and that carriers routinely certify adherence to the SS7 best practices of the NRIC, VZ-NY believes there is no best practice calling for all single points of failure to be eliminated. Further, it states that it did not construct its SS7 facilities in this manner, and there is no demonstrated need to do so. With respect to diverse entrance cable for critical central offices, VZ-NY again states that it is unnecessary, impractical and astronomically expensive, even though large New York City buildings often do have more than one entrance cable. It explains that multiple entrance cables are "deployed based on space and congestion issues rather than reliability or security (ibid, p. 19)."

In discussing a proposed requirement for demonstration of compliance with NRIC best practices when filing service outage reports with PSC Staff, VZ-NY stresses that best practices are recommendations and not mandates. The Commission

³ It claims the White Paper's only example of lost network diversity is a May 1999 outage in Suffolk County which VZ claims is less likely given its implementation of a "Diversity Tracking System." This system informs the company of any rearrangements in its network that might have inadvertently eliminated pre-existing diversity, which it can then address.

should not require companies to implement each practice because certain practices are either not practical or not applicable to telephone companies and cost recovery would, in VZ-NY's view, be the responsibility of the Commission if such adherence was required.

VZ-NY also believes that the current performance expectations for CTRR as set forth in 16 NYCRR 603 may already reflect adequate reliability expectations, and in any event, that expectation is an accurate measure of reliability only during normal operating conditions. VZ-NY argues that rather than tightening the performance level as suggested by Staff, the level would have to be relaxed if abnormal conditions were to be included.

VZ-NY notes that the FCC and not the New York Commission, has jurisdiction over cellular carriers. Therefore, it asserts that Staff's recommendation about asserting jurisdiction to ensure adequate interconnections of wireless carriers to the wireline network is not legal. VZ-NY also believes the White Paper "overrates" the importance of the MARC in that the MARC has little to do with VZ-NY's 9/11 recovery efforts, and it had expired three years earlier. Further, creating additional municipal restoration agreements throughout New York State as suggested by Staff "will only serve to increase costs and confusion, not aid recovery efforts (ibid, p. 23)."

Where Staff suggested a need to improve the process of identifying buildings, customers and specific circuits affected during a service outage, VZ-NY states that Staff erroneously identifies a problem that does not exist. Of the two examples Staff relied on for this recommendation, VZ-NY states that only one applied to it, and there was no delay in the identification process in that instance.

In its reply comments, VZ-NY essentially reiterates its belief that its network is already reliable as demonstrated not only by 9/11, but also the August 2003 power blackout. If it were required to make enormous investments to further network reliability as suggested by the White Paper and the comments of CWA and TCH, the Commission "would run the risk of having companies offering wireline services price themselves out of the market and go bankrupt (VZ-NY reply, p. 3)."

FTR

FTR observes that the Commission (1) may not lawfully delegate its rulemaking authority to the NRIC, which has a role entirely different from the establishment of mandatory investment practices of individual ILECs and CLECs; and (2) must examine any proposals or recommendations for mandatory network investments in light of the applicable costs and benefits for each affected carrier. In this regard, FTR states that the recommendations of the White Paper require further study and that the most efficient process to accomplish this is through a workshop.

FTR explains that NRIC is not charged with determining the cost-effectiveness or achievability of its recommendations. Its proposals represent a "best case" or "best practices" scenario that much be evaluated by the relevant regulators. In any such rulemaking proceeding, which FTR asserts would be required before the

adoption of any NRIC best practices, each potentially affected carrier retains the right to raise any issues the carrier deems relevant. Some of these – such as the state of the carrier's network, the cost-benefit analysis of a proposal individualized for each carrier, the extent of and justification for a regulatory intrusion into a carrier's business plan and the efficacy of the NRIC best practice in question – would not have even been considered in the NRIC process.

FTR recognizes that it is reasonable for the Commission to look to NRIC recommendations for guidance, but states that it would be "an unlawful delegation and abdication of the Commission's rulemaking authority to allow NRIC to establish rules for New York carriers (FTR initial, p. 3)." Consequently, FTR asserts that the Commission may not lawfully require local carriers to certify compliance with NRIC recommendations.

FTR also expresses a concern that a "substantial number" of NRIC members are vendors with financial incentive to promote requirements that encourage the use of their products and services. Therefore, regulators must exercise necessary oversight and not cede authority to NRIC to set mandatory rules. Indeed, FTR says, it is up to the regulators to make "the much harder decisions" with due consideration of the fact that funds and resources are "severely limited."

FTR seeks to remind the Commission that the promotion of competition has been a major regulatory objective for at least a decade. Therefore, ILECs can't be expected to bear the entire burden of ensuring network reliability. "The Commission should be sensitive to the fact that economic forces may [further] change the cost-benefit equation," says FTR (*ibid*, p. 4). It warns that the result could be eventual bankruptcy for the regulated carriers with services of questionable safety and reliability remaining in that wake.

FTR calls the Staff's White Paper a careful, well-researched and thorough analysis of network reliability issues and says that it does an excellent job of identifying the important issues. FTR says it fully agrees with the caveat that "tentative conclusions should be considered in a formal proceeding" to gain the input of interested parties and properly address issues of cost and affordability.

In this regard, FTR notes that the White Paper suggests consideration of moving to a more distributed switching network. FTR states that economics have forced the industry in the opposite direction over the last decade and that such consolidation has not reduced network reliability. For example, remote switches, which are more commonly in use today, can still handle internal traffic if the links with the host are cut.

Following the White Paper's recommendation to deconsolidate central office switching would only add enormous costs without corresponding benefits, according to FTR. However, if the industry moved toward Internet Protocol call processing, decentralization could be accomplished more easily, both technically and economically. Nonetheless, says FTR, such judgments are premature and FTR (and

other ILECs taken together) lack the "economic clout" to drive vendors' decisions in this or any direction. Therefore, FTR counsels caution on the issue of decentralization.

FTR also mentions another White Paper conclusion that geographically diverse entrance cables be required in every central office, and describes this recommendation as "extraordinarily costly" and not necessarily responsive to the goal of increasing network reliability. FTR believes that the public would be far better served by devoting more resources to increasing the availability of broadband services. "Diverting capital to unnecessary facilities would directly impact the availability of capital for higher and better uses", FTR states (ibid, p. 6).

FTR also cites other circumstances where NRIC recommendations, in FTR's judgment, would not significantly improve network reliability, specifically mentioning a June 1992 Gloversville tandem cross-connect failure and a suggestion from former Commissioner Eli Noam to put automatic time limits on calls during times of emergency, that were referenced in the White Paper.

FTR concludes that the recommendations and suggestions in the White Paper both merit and require further detailed review and proposes that the Commission convene a workshop to begin the process.

NYSTA

NYSTA submitted comments on behalf of all incumbent local exchange carrier members excluding VZ-NY and FTR (a/k/a the Independents) who serve less than five percent of the state's access lines.

NYSTA believes the landline network already provides exceptional reliability. This is evidenced by the fact that the August 2003 power blackout did not cause any telephone outages for the Independents, caused only a few scattered outages for other telephone carriers, and yet society in general was greatly impacted by it. It believes the current level of security in the network provides sufficient reliability to New Yorkers.

Further, many of the White Paper proposals are either inapplicable to the Independents or carry a very high cost with little incremental benefit. It states that mandating blanket compliance with the FCC's NRIC best practices without regard to the smaller carriers could be construed as "regulatory gold plating (NYSTA initial, p. 11)." In addition, many Independents serve small areas and would require coordination with other carriers in order to achieve some diversity requirements, should they be mandated. Before mandating any diversity requirements, NYSTA calls for a cost/benefit analysis keeping in mind other upward pressures on local service rates.⁴ In view of the

⁴ It notes that elimination of the Intrastate Access Pool is already expected to do so.

foregoing considerations, it advocates continued voluntary concurrence with NRIC best practices as exists in the Telephone Service Standards.

NYSTA believes every central office should be deemed "critical," but opposes exceeding the best practices in some instances as proposed in the White Paper. With respect to mechanization of outside plant records, it notes that several of the smaller Independents have already done so, but manual records are more than adequate to meet emergency as well as normal operational needs of the Independents.

NYSTA also opposes tightening the CTRR standard in order to improve reliability. It believes CTRR was substantially tightened when the Service Standards were last revised. Furthermore, the fact that many Independents earn Commission commendations each year and that there is no public outcry concerning reliability argues for leaving the CTRR standard at the current level.

Regarding Commission assertion of authority over cellular carriers, NYSTA argues that regulatory parity among providers should be considered in a proceeding especially because cellular carriers are seeking Eligible Telecommunications Carrier status and recently received intermodal number portability. NYSTA supports federal outreach efforts regarding TSP and believes each Independent currently maintains adequate emergency preparedness plans and is responsive in emergencies such that mechanizing records is not necessary.

In reply comments, NYSTA basically reiterates its position. It notes that the phase-down of the Intrastate Access Settlement Pool has been decided⁵ and that there will be a significant financial impact from it aside from any potential mandates on network reliability. Mandates will produce "undue economic burdens" that "outweigh any perceived increase in reliability of the landline network (NYSTA reply, p. 5)." It again argues for an examination of the telecommunications marketplace to identify more pressing reliability issues "faced by non-regulated competitors (ibid, p. 3)." NYSTA argues against the TCH position that costs for diversity should be paid for by the carrier. Rather, NYSTA believes that any increased reliability will be customer-specific and should be paid for directly by those customers.

USTA

USTA states it is the nation's oldest trade organization for the local exchange carrier (LEC) industry. Its members provide a full array of voice, data and video services over both wireline and wireless networks. They place a high value on the security and reliability of their services, networks and facilities and take an active role in securing their telecommunications networks, according to USTA.

⁵ "Order Adopting Comprehensive Plan," Case 02-C-0595, issued December 23, 2002.

Of their own accord, USTA says its members "incorporate redundancy into their state-of-the-art networks to ensure that residential and business customers enjoy uninterrupted service of the highest quality." Therefore, "any proposed regulations regarding network reliability must be balanced against the economic and other burdens that such security measures place on LECs (USTA initial, p. 1)." USTA says it is "concerned that some of the staff's findings and conclusions are overbroad in their reach and create unnecessary burdens on LECs" and that this is "especially true with the staff's impulse to mandate NRIC best practices (ibid, p. 2)."

USTA warns that "best practices are not meant to be rigid standards...because not all best practices are applicable for each carrier in all situations." USTA is concerned that "mandating [such] compliance...would likely end corporate participation in NRIC and stifle industry cooperation and discussion among experts." However, USTA says it "would support individual companies self-certifying to regulators as to implementation of applicable best practices" and suggests that the Commission consider adopting policy guidelines that provide incentives to companies to follow "NRIC best practices, high levels of security standards and other recognized business contingency principles (ibid, p. 3)."

USTA says it does not agree with the White Paper conclusions that economic considerations have led to a concentration of assets, nor does it agree that LECs should be required to reduce the concentration of key facilities. It cites the technology itself as the principal cause of concentration and says that competition is broadly and adequately addressing this concern. USTA asserts that the White Paper's conclusion that the Commission "consider requiring local exchange carriers to provide route diversity for each end office where reasonable" would impose enormous economic burdens on LECs and is, in fact, an unreasonable suggestion because carriers already do provide interoffice diversity for critical customers. Such decisions, says USTA, are best left to the customer and the carrier.

USTA proposes instead that the Commission (1) work with federal authorities to develop a threat warning system, (2) help develop a system for distributing that information to carriers, (3) require all carriers to participate in the Government Emergency Telecommunications System (GETS), and (4) help develop and implement a nationwide security background check system for key personnel that access critical facilities. USTA further suggests that the Commission "encourage customers to work closely with service providers to fully describe...what needs to be protected" and utilize the service providers "expertise to determine the most effective way of protecting it (ibid, p. 6)."

USTA further disagrees with the White Paper conclusion that carriers be required to upgrade their systems for tracking and storing information about the physical routing of facilities. USTA says that "LECs already provide exceptional redundancy to protect their customers" and points to "an unwarranted financial burden" during a time of "severe financial constraint" for its members (ibid, p. 7).

USTA "applauds" the Commission for encouraging customers with critical circuits in need of priority restoration to participate in the Telecommunications Service Priority (TSP) program. The Commission is urged to educate critical users about the TSP program.

USTA states that the MARC agreement adequately addresses both crisis provisioning and restoration. However, it warns that allowing municipalities to implement their own MARC agreements could conflict with priorities established by the TSP program, give a municipality undue influence in determining restoration efforts and potentially conflict with contracted service level agreements. USTA again suggests encouraging participation in the TSP program over the creation of new MARC agreements.

TWTC

TWTC believes that the White Paper provides an excellent framework for further discussion, and states that consumers are "more focused today than in the past on network security, reliability and diversity (TWTC initial pg. 1)" which it believes is driving changes in the industry. In terms of increasing diversity, TWTC indicates that carriers have already begun that process. As examples, it states that CLECs already use fiber optic rings as part of their local service architecture, and that VZ-NY appears to have rebuilt its lower Manhattan network with the same type of reliability. TWTC also points out that VZ-NY also offers customers switching diversity services such as Custom Redirect Service and Alternate Serving Wire Center Service which are designed to maintain service in the event of a central office problem. An added feature of Custom Redirect Service is that the customer served by VZ-NY can still utilize disaster recovery service from a CLEC by redirecting calls to the CLEC during an outage. TWTC has been in discussions with VZ-NY to enhance this service such that VZ-NY would allow CLEC subscribers to use VZ-NY's redirection capabilities, but has not been able to reach agreement. TWTC believes such an automatic rerouting service would greatly enhance reliability and requests a high priority be given to its development by the Commission, using a staff collaborative process.

TWTC does not believe tightening the CTRR standard will result in direct enhancements of network reliability, but could impose significant regulatory costs. It notes the current standard is the result of a careful and lengthy collaborative process and therefore should not be arbitrarily modified.

Finally, TWTC claims the White Paper fails to recognize economic realities when it suggests that carriers must comply with all best practices of the NRIC. Mandatory best practices would be inconsistent with their intent. The practices may not be economically feasible or even applicable "given the current status of the embedded telecommunications infrastructure in New York (TWTC initial, p. 4)." TWTC suggests that the Commission "implement a reporting system whereby carriers would report annually on their status and progress toward implementation of the various NRIC best practices that New York's carriers and the PSC have agreed collectively would further New York's goal of providing a highly reliable telecommunications system (ibid, p. 4)."

In its reply comments, TWTC emphasizes the need for a thorough investigation of any proposed action, particularly because of the potentially high cost associated with them and the impact that might have on CLECs. In its view, redundancy must be balanced with economics. It believes that a technical conference or industry workshop should be scheduled to discuss the White Paper recommendations, and a formal cost-benefit analysis may also be required to avoid economic harm to carriers.

AT&T

AT&T says it "agrees with the Commission that it is important to foster dialogue among all stakeholders to ensure a common understanding of existing reliability, and believes that this dialogue should prove valuable in developing realistic expectations regarding future network reliability in New York (AT&T initial, p. 4)."

AT&T states that the current competitive environment requires carriers to provide route diversity and redundancy in order to maintain swift and efficient automated restoration of service. Furthermore, an increasing number of customers have a highly sophisticated knowledge of telecommunications facilities and the service options available to them. Therefore, the Commission does not need to impose any additional requirements on carriers.

In this regard, AT&T says that providing local loop redundancy through a requirement that every customer be connected to two separate end offices would be impractical and prohibitively expensive – on the order of double the costs. It would also be extremely difficult to engineer and would not serve the public interest because it would remove a subscriber's ability to customize its network diversity needs in accord with its own business requirements and budget.

AT&T concludes that customers are in the best position to assess their own critical business needs and evaluate, with their service providers, the most efficient and effective means of addressing those needs. Accordingly, AT&T urges the Commission to permit customers to choose the level of diversity that fits their particular requirements and refrain from mandates in this area. In this regard, AT&T would encourage customer education programs that would enable informed customers to determine and purchase the level of redundancy required for their specific circumstances and applications. Nonetheless, AT&T agrees with the E911 initiatives noted in the White Paper as they pertain to loop diversity.

AT&T asserts that it continues to make substantial investment its Network Disaster Recovery programs, processes and equipment supporting the present local and long distance network configuration with a targeted recovery cycle of not more than 96 hours. AT&T also informs that it has completed and continually renews its internal business continuity plans based on the network's evolving technology. These programs obviate the need for Commission mandates on decentralizing switching network distribution.

AT&T is supportive of White Paper recommendations regarding mechanization of plant records at the carrier level as this would foster the objective of safeguarding network reliability and ensuring a speedier restoration process in the event of emergency. However, AT&T feels that consolidation of such information from different carriers in any format would, itself, pose a potential security threat, as acknowledged according to AT&T by NRIC VI best practices. Sensitive information needs to be kept secure and this can best be accomplished at the carrier level.

AT&T also encourages the Commission not to mandate best practices. Doing so would fail to recognize that not all best practices provide appropriate mitigation in every situation. It could also place the whole process in jeopardy by having the unintended effect of stifling industry cooperation and open discussion among its experts.

While asserting that AT&T reports major telephone service outages in accordance with the Department's current guidelines and believes that Commission rules adequately meet the interests identified in the White Paper, AT&T would support Staff's recommendation that a carrier be required to acknowledge whether it considered industry best practices in analyzing the cause of a service outage and taking steps to remediate it.

AT&T sees no need for the Commission to impose "additional, costly obligations (ibid, p. 18)" by adopting more stringent CTRR standards citing the Commission's own records which it says show a 15% improvement in network reliability over the past five years. As an alternative, AT&T suggests that Staff continue to monitor this indicator as a means of ensuring improving network reliability.

In regard to cellular carriers, AT&T works closely with them to provide any additional diversity they might request. AT&T suggests that this is – and should remain – the cellular company's responsibility.

AT&T supports the Commission's tentative conclusions regarding TSP, but with the understanding that the end user must meet all the necessary criteria established within the TSP program to be declared a national security and emergency preparedness (NS/EP) provider. Increasing the number of entrants in this way would increase the risk that critical entities will remain without service for longer periods.

AT&T participates in and supports the existing MARC program in New York City, but opposes the proliferation of MARC programs throughout the state as such an eventuality would present a significant strain on company resources. AT&T recommends instead that the Commission adopt the NRIC model which provides a more flexible framework permitting industry participants to quickly enter into mutual aid agreements based on the specific requirements of the disaster and the area in question. In addition, the NRIC model can provide additional resources since it offers the organizational efforts of the National Coordinating Center (NCC) in the event of a widespread disaster.

In its reply comments, AT&T notes what it terms "a striking similarity (AT&T reply, p. 1)" among the views presented in the proceeding. However, it notes its (and several others') disagreement with many of the points raised by the TCH and urges the Commission to reject the latter's recommendations.

AT&T takes exception to TCH's assertion that large users should not be expected to share in the cost of improving network diversity and reliability. In response, AT&T says it is only fair that customers both determine and pay for increased level of network reliability they receive. AT&T, also in opposition to a position taken by TCH, reiterates its own opposition to the creation of an automated nationwide facilities database.

MCI

MCI fully supports the Commission's efforts to ensure a reliable network. However, MCI believes that effective reliability efforts at the state and local level need to be coordinated with national efforts and believes that the White Paper recognizes this. MCI asks that technical workshops be convened to obtain input from the carriers and weigh implementation costs.

MCI opposes mandating compliance with NRIC best practices because such action would be contrary to their voluntary nature and could dissuade carriers from participating in NRIC. The effectiveness of each best practice could also be affected leading to an "incentive to water down those guidelines (MCI initial, p. 3)." MCI suggests exceeding any of the best practices be considered in technical workshops. In particular, it wishes to address how companies with a national scope such as MCI might be expected to follow different standards for different states and/or recover costs of state-specific requirements. MCI does not oppose more diversification in the network, but cautions the Commission not to micromanage, but to regulate very lightly, if at all. It believes each carrier has sufficient financial incentive to develop a robust and reliable network such that deference should be given to each carrier's judgment.

MCI believes that the costs of any customer requested diversity arrangements beyond those normally provided in its network should be recovered directly from those customers. MCI states that it has built customer-specific arrangements that meet an "extremely high reliability level; that exceeds MCI's standard arrangements (ibid, p. 5)."

Concerning SS7 signaling for voice traffic, MCI fully supports without reservation, the tentative conclusion of the White Paper to provide route diversity for each end office where reasonable.

With respect to creation of a mechanized data base of outside plant facilities, and development of a GIS database, MCI is concerned about maintaining the security of such information because it can be more readily accessible once it is in a database. Further, it believes creating the database would be costly.

MCI fully agrees with efforts to foster use of the FCC's TSP program,. Similarly, it supports New York City's MARC, but cautions that it and perhaps others would not have staff to support multiple MARCs across the state. Rather, MCI believes that outage events of a broad, regional or national scope should be handled through the NCC rather than through multiple MARCs.

Lightpath

Lightpath states that "network reliability is a competitive issue that will be advanced in the rigors of the marketplace (Lightpath reply, p. 1)." It believes that carriers have a competitive incentive to provide the best quality service to their customers through reliable, robust and redundant networks. It opposes regulatory network reliability mandates which could delay network upgrades and use of technological advancements.

It believes its network is reliable as evidenced by the fact that during the August 2003 blackout the only Lightpath customers to lose service were those that chose not to implement back-up power for customer premises equipment. It is a member of the New York City MARC and worked to provide temporary power to other carriers in a carrier hotel during the blackout. On the basis of this cooperative effort, Lightpath supports Commission efforts to establish regional MARCs in other areas of the state. It says it has deployed several switches to serve the New York Metropolitan Region and each switch directly connects to all ten VZ-NY tandems. It also says it has multiple points of interconnection. When possible, it claims to have permanent on-site generators for use in case of commercial power failure, and connections for portable units in those instances where it could not justify permanent generators. All of this, Lightpath states, represents its own steps to ensure reliable service.

Allegiance

Allegiance admits there is always room for improvement of network reliability, but does not support regulatory action to achieve it. It believes that competition provides sufficient incentive to carriers because "failure to maintain a diverse and reliable network would be economic suicide (Allegiance initial, p. 3)." Furthermore, it believes that any regulatory mandates on reliability would be "over regulation" that would stifle innovation, that the Commission should leave "network design to the technical experts," and that the Commission should step in only "when necessary based on reportable service outages and service quality levels (ibid, p. 1)." It believes technological change is occurring rapidly and regulatory intervention can only result in significant delays in deployment.

Allegiance urges the Commission not to adopt routine certification and/or demonstration of compliance with NRIC best practices, or any requirements exceeding those best practices. It notes that NRIC itself, a body created by and reportable to the FCC, has publicly opposed any regulatory efforts to mandate its voluntary recommendations. Allegiance also quotes Karl F. Rauscher, Chairman of the Homeland Security Physical Security Focus Group, who also opposes any regulatory requirements forcing implementation of the NRIC best practices on the basis of

inconsistency with their intent, inapplicability of all best practices to all situations and/or carriers, and the potential to stifle industry discussion and adoption of additional best practices.

With respect to migrating toward a more distributed switching network, Allegiance argues that it could not enter the market if it were required to deploy multiple switches from the outset. Allegiance also states that carriers who lease facilities from an underlying carriers should not be required to mechanize outside plant records. It claims that exceeding geographic diversity at or near a central office by using diverse entrance facilities appears unnecessary given that the initial connection would already have to be diverse. In any event, Allegiance says that exceeding NRIC best practices should not be done without a full cost/benefit analysis.

QWEST

While acknowledging the Commission and its staff for fostering industry discussion on network reliability, QWEST says it is concerned by the regulatory approach Staff is suggesting.

QWEST asserts that because it has various types of service providers across the country in its "family" of companies, it uniquely understands network reliability issues "from the perspective of various types of market participants (QWEST initial, p. 2)." According to QWEST, this knowledge allows it to balance the respective interests in much the same way the Commission will need to do with the parties in this proceeding.

QWEST urges the Commission to refrain from promulgating rules that would mandate that all carriers adhere to all NRIC best practices. Such a move would restrict technological innovation while increasing costs to network service providers and, ultimately, to the end users themselves. The good judgment, sound engineering practices and economic viability analyses of the network operator, and the informed individualized decisions of customers and carriers, would be inappropriately superseded.

QWEST lauds the "thorough analysis of the issues facing the telecommunications industry with regard to network reliability and survivability" contained within the White Paper. It goes on to state that various suggestions in the White Paper are likely to "have a positive impact on the reliability of the telecommunications infrastructure (ibid, p. 4)." However, QWEST says this will only be true if responsibility to implement these suggestions is left to the carriers to be accomplished in a manner suitable for their individual customers and underlying networks. "Adopting these suggestions wholesale into state regulations is not only impractical to implement," says QWEST, "but unnecessary with the current state of competition in the telecommunications marketplace (ibid, p. 5)."

QWEST expresses concern that the Staff's tentative conclusions appear to ignore the impact of competition and the way it has driven carriers to distinguish themselves, principally through the levels of service quality and reliability offered to

customers. QWEST also points out that consumers have a growing number of suitable technologies from which to choose. The concepts of survivability contained within the White Paper are generally unreasonable to mandate, says QWEST.

Furthermore, QWEST seizes on Staff's assertion in the White Paper that, in QWEST's words, "not all network failures can be avoided by duplication of facilities, which may quickly become economically unfeasible (ibid, p. 8)." QWEST points out that the duplication of circuit switching has been appropriately reserved for the most critical network functions and that it and presumably other carriers already employ reliability and survivability principles when economic and technological conditions and opportunities to do so are present. Indeed, Qwest says, it has to do so in this competitive environment; but it must be allowed to balance network survivability, reliability and economics in the context of that marketplace. Mandates will not permit this, but will "arguably" place "undue economic and technological pressures on the already fragile telecommunications industry (ibid, p. 10)," according to QWEST. This, in turn, could hinder the growth of competition.

A state regulatory mandate on network reliability improvements, QWEST says, would also fail to take into account the fact that the amount and type of traffic normally carried in certain rural areas of the state differ drastically from that carried in Manhattan. Treating these diverse areas the same for the purposes of fostering greater network reliability would not be effective or efficient, argues QWEST.

This principle also can be applied to the federal-state relationship, inasmuch as there are initiatives at both levels and in several states to identify means to improve infrastructure security and reliability in the wake of September 11. But QWEST says the company is unaware of any federal or state agency that has determined that promulgating rules is necessary to do so. Furthermore, QWEST argues, adhering to various sets of state rules in this regard would be "administratively infeasible (ibid, p. 13)." These judgments must reside with the carrier, not the Commission, concludes QWEST. Indeed, QWEST goes on to argue, customers and their carriers are in a better position than the Commission to identify which traffic requires additional reliability and what efforts are appropriate for ensuring it. Competition underlies the imperative for carriers to meet their customers' expectations.

In any event, says QWEST, mandated implementation of NRIC best practices is inconsistent with their intent. "Coerced implementation without expert judgment will result in wrong directions being followed because not all 'best practices' apply in all situations (ibid, p. 16)."

QWEST also expresses concerns about being required to report compliance with specific 'best practices' to a state governmental entity. QWEST says that such information should remain highly confidential and protected from public disclosure.

NRIC "best practices" should be considered guidelines, not standards. QWEST says that had they been developed as mandates, there would have been fewer of them and the verbiage within them stressing their voluntary nature and the need for

expert involvement in determining the most appropriate implementation under each circumstance would not be so prominent. Therefore, QWEST strongly recommends that NRIC "best practices" remain voluntary in its implementation.

In its reply comments, QWEST notes that the "overwhelming majority of comments (QWEST reply, p. 1)" agree that blanket adoption of NRIC best practices would be inappropriate.

QWEST also urges the Commission to refrain from ordering carriers to report the status or progress of their compliance with best practices. If the Commission determines it has need to be more informed or assured about such compliance efforts, then it should consider some form of regulatory incentive to carriers that encourages them to review, evaluate and implement appropriate best practices for their customers, businesses and networks, and/or direct carriers to regularly certify to the Commission that such review, evaluation and implementation is occurring. QWEST warns that any information reported in this regard deserves the highest level of confidential treatment to prevent any public disclosure. Furthermore, QWEST says it "adamantly disagrees (ibid, p. 5)" with the compilation of any such information into a central database, under any circumstances.

QWEST closes its reply comments with a discussion about the importance of weighing the need for compiling such information against the importance of protecting the information from public disclosure. It then goes on to recommend that the Commission require all New York carriers to mechanize outside plant records and make information about facility and diverse service availability to customers and the Commission, upon request. QWEST also advises the Commission to refrain from ordering carriers to develop and maintain one centralized database of this network facility information.

Joint Commenters

The Joint Commenters believe that the presence of multiple carriers in the telecommunications market brings increased network reliability, and that the Commission should consider actions to further competition rather than actions that might hinder market entry or deployment of CLEC facilities. It believes that fiber, point-to-point wireless (as used by Winstar) and VoIP represent new technologies that competitive carriers are using which can play a critical role enabling communications particularly during a crisis. However, it cautions the Commission against elimination of access to certain Unbundled Network Elements and the Platform as a means of fostering facilities-based competition and reliability because these elements continue to be necessary to the development of competition. It is suggested that further growth of the competitive market might be achieved through "tax incentives (perhaps allowing competitors to sell tax losses to provide funds to subsidize investment) or direct grants (Joint Commenters initial, p. 10)."

The Joint Commenters support some, but not all of the Staff's tentative conclusions. Encouraging use of TSP and multiple MARCs are beneficial as is decreased concentration in the network which it believes is best accomplished by

facilitating competition. The Joint Commenters also generally support mechanization of outside plant records provided the carriers are allowed to use existing methods and retain flexibility to use methods and databases of their choosing (*Ibid*, p. 6).

However, the Joint Commenters oppose required compliance with all NRIC best practices as being inconsistent with their intent, and overly burdensome considering there are 567 such practices today, and chilling on the development of future best practices.

VZW

VZW points out that through a combination of federal preemption and a 1997 amendment to the Public Service Law, the Commission has no authority to act on cellular rate and entry issues, nor may it assert jurisdiction over the terms and conditions on which cellular services are provided. In order for the Commission to resume such jurisdiction, the Commission would have to find – after notice and hearing – that such resumption is necessary to protect the public interest.

VZW also disputes the White Paper's tentative finding that network connections to the wireline network "may" not be adequate, at least insofar as VZW's system is concerned. The company says that it has designed its system for diverse routing and zero blocking and the "end result" is that on 9/11 most calls made on that system were completed during that "period of extreme stress". VZW concludes that reassertion of Commission jurisdiction over cellular service "is not warranted (VZW initial, p. 3)."

In its reply comments, VZW addresses the comments of CWA, NYSTA and Plug Power, each of which expressed support for the resumption of Commission jurisdiction over cellular services. VZW claims that the increase in cellular use cited by CWA and Plug Power is insufficient in itself to meet the public interest standard of PSL for resumption of Commission jurisdiction. VZW also criticizes the CWA position that service interruptions during the August 14, 2003 blackout justify such resumption of jurisdiction by arguing that CWA fails to point out how that resumption would prevent future interruptions.

VZW dismisses NYSTA's stated concern over regulatory parity as irrelevant to this proceeding and characterizes Plug Power's comments as self-serving and designed to promote the company's own interests.

VZW argues that wireless carriers are subject to federal regulation and oversight. Consistent national regulation is particularly important for wireless services which, VZW points out, do not stop at state borders. VZW says it is actively participating in the national NRIC best practices program and that the FCC is beginning a rulemaking to consider national standards for outage reporting and other measures for wireless carriers.

Nextel

Nextel opposes any Commission action regarding wireless carriers. It believes its market is national and multi-state making reliability and security issues national in nature. It is participating in the NRIC and believes the Commission should defer to NRIC. It states that the Staff White Paper failed to provide any data supporting a claim that wireless-to-wireline interconnections may be inadequate. In view of these considerations, it believes that as a policy matter the Commission should not assert jurisdiction over cellular carriers.

Nextel also believes the Commission lacks authority to regulate cellular carriers. It believes the FCC has preemption authority. Furthermore, Public Service Law, §5(3), first requires the Commission to find, after a hearing, that regulation is in the public interest due to a lack of effective competition. It believes there is sufficient evidence of competition and refers to FCC Docket WT-02-379 to support this.

AT&T Wireless

AT&T Wireless filed only reply comments and in them points out that the federal government is taking an active role to ensure telecommunications network reliability in times of emergency. It describes several such steps including the National Communications Systems' hosting of the Telecom Sector Information Sharing and Analysis Center (ISAC), Homeland Security Directive/Hspd-7 (HSPD-7), and NRIC. AT&T Wireless argues that additional oversight in this area would be duplicative at best and conflicting at worst.

AT&T Wireless does not believe that NRIC best practices should be made mandatory. The process has worked successfully as a collaborative forum for developing and recommending guidelines without fear that every identified best practice will be binding on every aspect of the industry and every company. Since many best practices are applicable to only certain sectors of the industry, AT&T Wireless says it finds it hard to imagine how mandatory reporting would work in a practical sense. It joins others' comments in pointing out that mandatory best practices are contrary to the nature and spirit of their intent and the process that creates them.

Since the FCC is considering an NPRM on applying federally-mandated outage reporting requirements to wireless carriers (and others), AT&T Wireless says it is premature for the Commission to investigate adopting standards at the state level. Since wireless carriers are licensed by the FCC and wireless networks are national and multi-state in nature, any reliability and security measures that may be necessary should be implemented on the national level, AT&T Wireless concludes.

Cingular

Cingular believes that the Commission should defer to a national framework on cellular reliability and security, and questions the authority of the Commission to assert jurisdiction especially without a formal proceeding as required by law. Similar to Nextel, Cingular asserts that a patchwork of potentially conflicting individual state requirements will lead to confusion in public safety. It cites CTIA's

comments concerning national efforts such as the essential clearinghouse efforts of the NCS and its ISAC, and NRIC's development of best practices. It also believes that the presence of multiple carriers encourages it to engineer and operate a highly reliable network, and that formal regulations might impede its ability to react to competitive pressures.

Cingular states that the Commission is prohibited under both state and federal law from imposing state interconnection or reliability standards on Commercial Mobile Radio Service. It cites Public Service Law §5(3), and Section 332©(3)(A) of the Federal Communications Act.

T-Mobile

T-Mobile points out in reply comments that it is the first and still only Personal Communications Service (PCS) operator in the New York market to participate in the federal nationwide Wireless Priority System (WPS) program and that its network performed in an exemplary manner during the August 14, 2003 blackout.

T-Mobile asserts that "a reliable network cannot be established by government fiat." It argues that it is the presence of multiple carriers competing over diverse customer demand that fosters network reliability. T-Mobile says its acknowledged well-performing network "was engineered and built and has been operated and upgraded almost entirely in response to competitive market pressures shaped by consumer demands and expectations." Accordingly, T-Mobile urges the Commission to proceed cautiously so as not to impede "a carrier's ability to respond to the unpredictability of market demand (T-Mobile initial, p. 2)."

T-Mobile points out that state imposition of mandatory state interconnection or reliability standards on wireless carriers is prohibited by both state and federal law. Any attempt to reassert jurisdiction at the state level would be frustrated by the clear inability of the Commission to argue effectively that there is a lack of effective competition in the cellular industry. Even the FCC has refused to impose mandatory interconnection requirements on wireless service providers, even though it has repeatedly asserted its authority to do so. Congress determined that a comprehensive nationwide wireless telecommunications network should not be subject to a patchwork of local regulations and prohibitions. Therefore, T-Mobile concludes, the Commission should refrain from imposing any state-specific requirements on wireless service providers.

CTIA

CTIA shares the Commission's concerns on network reliability and has diligently worked with its members, other companies, the FCC, the Department of Homeland Security and other federal agencies on national mechanisms for information sharing and enhanced best practices. It is concerned that individual state action to further reliability could result in conflicting requirements for cellular carriers and undermine existing national rules and guidelines. It also believes the Commission lacks authority to assert jurisdiction under both New York and federal law, and encourages

the Commission work within the national network reliability forums that are already established.

As did other cellular carriers, CTIA mentions its ongoing work through the Department of Homeland Security and NRIC to further network reliability and security. It notes that many of the NRIC best practices apply only to wireline network architecture, but those best practices that apply to wireless carriers provide helpful guidance precisely because they are not rigid requirements. It also quotes the same state legal requirements as did other cellular carriers regarding the need for a hearing and a determination about the lack of effective competition before the Commission could assert state jurisdiction. However, it also argues that the FCC has exclusive jurisdiction of cellular carriers under section 332 of the Telecommunications Act 1996.

Americatel

Americatel is a common carrier providing domestic and international telecommunications services and also operates as an Internet Service Provider (ISP). The majority of its traffic is dial-around in nature and is provided to residential subscribers on a resale basis. Americatel's network does not have direct connections to LECs, but it does have a single international gateway switch in New York City and substantial network facilities in Florida.

Americatel says it recognizes a strong need to improve the survivability of networks and position them, to the extent possible, for quicker restoration when disaster occurs. While best practices is an important tool in this regard, carriers must be free to select which best practices are appropriate for their individual network and financial situations, rather than have their flexibility constrained by regulation. Carriers that fail to provide adequate and reliable service can be dealt with on a case-by-case basis, states Americatel. In general, Americatel says, making best practices mandatory would be counter-productive. However, it suggests that, to the extent the Commission decides to impose any additional regulatory mandates, it should apply these only to the largest LECs, such as VZ-NY and FTR, that control large numbers of end user access lines needed by all carriers to serve customers.

Americatel says that the Commission properly recognizes the importance of diversity and redundancy in telecommunications networks and describes steps it has taken to improve its network in this regard. It agrees with the Commission's assessment that the SS7 network is essential and an extremely important point of potential failure that needs to be reviewed and checked periodically to assure proper redundancy, reliability and usage of the main signaling links. But Americatel points out that these continual improvements stem from market forces, not regulation. That market imposes discipline on the effort in the form of cost-effectiveness and response to consumer demand. Americatel concludes from this scenario that the Commission should continue its oversight of carriers and their service quality, but not mandate the use of specific technology or investments.

Americatel reports that one of the most important factors causing failure in its services has been the lack of commercial power. It suggests that the Commission

may want to consider the use of a workshop among members of the industry and the carrier hotel owners to facilitate further discussion of this issue and how best to address it.

It states that carriers' mutual aid agreements might be a good tool in specific cases, but smaller carriers like Americatel need to assess the financial and human resource implications of these agreements before choosing whether or not to entertain them. Therefore, Americatel suggests that the Commission encourage mutual aid pacts, but not mandate them.

TCH

TCH is a not-for-profit bank clearing house association comprised of many of the nation's largest commercial banks that use innovative communications technology allowing its members to clear and settle payments of all types. It handles about \$1.6 trillion in daily transactions around the world. The availability of diverse and reliable telecommunications is critically important to its function without which there could be adverse consequences varying from missed payroll deposits to shifts in liquidity that may affect financial markets. It notes that a federal interagency group that includes the Federal Reserve System, the Comptroller of the Currency and the Security and Exchange Commission found that, "The resilience of the U.S. financial system in the event of a 'wide-scale disruption' rests on the rapid 'recovery' and 'resumption' of the 'clearing and settlement activities' that support 'critical financial markets' (TCH initial, p. 5)."

TCH believes the issues are broader than stated in the White Paper and that the most efficient and cost-effective approach to improving network reliability requires a coordinated nationwide effort addressing all telecommunications carriers' networks and services, and not just local exchange wireline carriers.

TCH believes the Commission should set these three goals:

1. Encourage carriers to construct and provide more geographically diverse network facilities by, among other things, spearheading the establishment of a nationwide, automated database of network facilities and routes,
2. Require carriers subject to its jurisdiction to periodically demonstrate compliance with the best practices of the NRIC, and
3. Work with the FCC and other agencies to reform the TSP program to make it easier to use and administer in order to increase participation in the program.

With respect to goal one, TCH indicates that such a database would help identify single points of potential network failure, and ensure that those customers specifically purchasing geographically diverse service from a carrier would be assured of receiving such diversity. It suggests that it is because of poor record keeping that banking industry representatives are particularly concerned that carriers are not able to maintain or guarantee such diversity, an issue it has raised in meetings with Department

Staff (ibid. p. 9). TCH believes that federal and state governments should "bear a significant share of the cost of ensuring network reliability, given its importance to public welfare (ibid, p. 11)." It also notes that carriers and some large users "have their own incentives to bear some of the cost of increasing geographic diversity of facilities through an automated, nationwide database." Large users should not share in the cost of improving diversity unless they "individually decide that their business needs justify the expense" and they can have "greater certainty that they will actually get what they pay for, i.e., they have more confidence that the circuits they believe are geographically diverse are in fact so (ibid. p. 12)." It also states that a nationwide effort provides a means of addressing obstacles such as a failure of a carrier to cooperate and/or security issues surrounding a single nationwide database.

With respect to goal two, periodic demonstration of compliance with the best practices, TCH says it is supportive because it should lead to improved reliability. TCH suggests positive incentives for LECs that demonstrate such compliance by adopting a policy for the Department to subscribe for telecommunications needs from only those carriers that do comply. As an alternative, it suggests that large users may be willing to pay more to compliant carriers for their services, but says it is not in a position to state that any large users would in fact be willing to do so.

With respect to its third goal, TCH's members have found that the participation criteria and procedures of the TSP program are "unclear and not user friendly (ibid, p. 16)." This creates a disincentive to participation. It notes that the FCC and NCS have announced an outreach campaign, but says the Commission should work with the FCC to correct TSP program deficiencies. In addition, TCH says that the Commission should facilitate inter-carrier cooperation because it believes this has also contributed to underutilization of the program.

In its reply comments, TCH is supported by Firserv, a leading supplier of technology products and services to financial institutions with 13,000 clients. In this summary of comments, Firserv and the New York Clearing House Association are collectively identified as "TCH," and TCH indicates that it is the sole voice of the financial industry and of major telecommunications end users because there are no other similar parties in this proceeding. TCH indicates that many carriers have minimized or ignored network deficiencies, and overstate the ability of natural market forces and voluntary industry efforts to address them. TCH believes the Commission is interested in identifying means to ensure continuity of service even in the wake of a major disaster and that carriers in this proceeding are ignoring this fact. TCH reiterates the importance of reliable, redundant telecommunications to financial institutions, and past failures of carriers to maintain such facilities for them in spite of the extra monthly charges paid for such redundancy.

Many carriers' characterized the White Paper tentative recommendations as overly broad and therefore prohibitively expensive. TCH believes these carriers overstate their case, but it also believes that a wide range of mandatory requirements encompassing numerous proposals is unnecessary to achieve the Commission's objectives in this proceeding. For example, it opposes a requirement for diverse entrances to central offices as well as mandatory compliance with all NRIC best

practices. Rather, it advocates a joint effort by the Commission and the carriers to identify a reasonable subset of best practices with which major carriers or groups of carriers must comply to avoid a "one-size-fits-all" approach (TCH reply, pp. 10 and 27). Further, there should be a periodic joint review process to ensure their continued effectiveness in light of industry innovation (ibid, p. 32).

TCH also reiterated its advocacy for adoption of a positive incentive for compliance rather than penalties for non-compliance. For example, the Commission could: (1) publish a "buyers guide" on its Web site identifying carriers who are in compliance with the best practices, or (2) adopt a policy that the State of New York contract only with compliant carriers for telecommunications services, or (3) encourage large users to use compliant carriers, or (4) create tax incentives for redundancy investments, or (5) provide direct grants to offset compliance costs (ibid, p. 32).

As to cost recovery of any mandated requirements, TCH believes carriers should assume principle responsibility for a reasonable portion because it represents improvements to their network and may give them a competitive advantage. TCH also states that carriers should be permitted to recover a portion of the costs from customers who choose to purchase enhanced reliability, but that costs should not be passed through to the general body of ratepayers (ibid, p. 11).

TCH believes that "the single most effect measure the Commission could adopt " is to require carriers to establish geographically diverse routes to end offices, at least for all customers having a critical need for such diversity (ibid, p. 12)."⁶ . It states that such a requirement first requires carriers to assemble accurate location information and to cooperate on an industry-wide database of such information which TCH views as essential to network reliability. "Databases maintained at the carrier level would not meet users' needs as comprehensively and reliably as a nationwide database (ibid, p. 26)."

Regarding carriers' opposition to a centralized database of outside plant facilities, TCH suggests that the federal government already has existing practices and procedures for protecting the security of a centralized database, and because "network reliability is a homeland security issue, individual carrier concerns regarding the confidentiality of their network information must yield to the overarching national interest in security (ibid, p. 16)."

TCH believes that voluntary effort and market forces are not sufficient to address reliability issues and that government funding is appropriate and necessary to avoid undue financial burdens on carriers and their customers. It points to TWTC comments concerning the lack of inter-company cooperation in the enhancement of

⁶ TCH states that carriers should not rely on tandem routing to achieve this diversity because September 11, 2001, VZ-NY "lost its West Street tandem (ibid, p. 13)."

rerouting efforts as an example of this failure. TCH believes the demand for diversity is small because carriers believe it is limited to specific large users and that those customers' network reliability needs are best handled through private negotiations. In effect, they really are attempting to shift the "responsibility for adequate network [sic] liability to their customers (ibid, p. 20)." It believes AT&T, Qwest and VZ-NY reached the conclusion that "customers should [bear] the responsibility of identifying not only their needs for improved network reliability, but also the appropriate means for ensuring that reliability, and, of course, the cost of it (ibid, p. 20-21)." Furthermore, TCH states that intermodal competition does not meet the needs of the financial community in that wireless services are not suitable for clearing financial transactions, and they can be disrupted by a landline outage.

In response to carrier concerns that the costs to implement any mandated requirements could be significant, TCH proposes that the federal government should assume most of the costs (particularly for a centralized database of outside plant facilities) through its homeland security budget, but that carriers should assume a reasonable portion themselves. Customer-specific network enhancements should be borne by those customers who benefit from them.

CWA

CWA states that the reliability of VZ-NY's network infrastructure – encompassing 68% of all retail lines in New York – is eroding just as the importance of reliability and security is increasing. As evidence, CWA argues that the failure of several central offices and problems with the E911 system during the August 2003 blackout show that VZ-NY "has not learned the lessons from September 11, 2001 (CWA initial, p. 1)."

CWA calls for "significant action" by the Commission now to prevent further deterioration of VZ-NY's network. It recommends that the Commission (1) require VZ-NY to increase the capital and labor resources allocated to network reliability, (2) expand the current service quality proceeding to include a comprehensive examination of the condition of VZ-NY's infrastructure along with its maintenance procedures, (3) mandate the mechanization of outside plant records and the implementation of supporting databases to provide real time information about the physical location of outside plant facilities, (4) set a more stringent CTRR standard, (5) assert its authority over cellular carriers and providers utilizing VoIP, and (6) include CWA in its future interviews and discussions concerning network reliability.

CWA states that VZ-NY has drastically cut the resources allocated to service quality and network reliability, claiming that there have been cuts of 60% in capital expenditures and 24.4% in plant workforce over roughly the past three years. CWA describes internal Verizon documents that acknowledge that these cuts would adversely affect the reliability of the network. It says that the blackout showed a lack of routine maintenance of back-up generators and batteries directly resulting in central office failures. In turn, according to CWA, the 911 and emergency response systems also were adversely affected by the failure of these central offices.

CWA says that internal VZ-NY company documents reveal that the E911 system started to experience problems soon after the company reduced E911 staffing levels. CWA concludes that, under this company policy, "Verizon is putting the health, safety and lives of New Yorkers at risk." CWA also points to VZ-NY's abandonment of its rehabilitation and preventive maintenance programs as the cause for increased risk of "network events." It quotes a Verizon Operations Report as stating, "if work is for [a] non-revenue producing function or not funded by the Capital Program it will not be performed (ibid, p. 10)." CWA charges that VZ-NY continues to implement programs that damage network reliability and provides a list of cost savings initiatives undertaken by VZ-NY and their effects on the network (ibid, pp. 11-13).

CWA says that VZ-NY is not replacing defective plant, maintaining existing plant or supplying enough resources to fix on-going problems. Instead, VZ-NY is relying on short-term stop gap solutions which save money in the short term but generate many more problems over time. For example, CWA states that "technicians report that they have been directed to stop conducting proactive preventive maintenance and fix problems only after they occur (ibid, p. 15)."

CWA expresses concern that Staff apparently accepted without question or comment a VZ-NY manager's statement that union work rules were preventing the company from mechanizing its record-keeping. CWA states that this charge is untrue and that it is VZ-NY's desire to cut expenses that has resulted in "inadequate records, poor service and an unreliable network (ibid, p. 18)."

CWA supports the Staff recommendation for a more stringent standard for the CTRR. Specifically, it calls for a return to the target of 2.06 reports per one hundred access lines. This more stringent standard, argues CWA, would result in improved network reliability, especially if backed up by significant penalties.

CWA also laments the gap in data gathering that it says resulted from the failure of Staff to interview or even contact CWA and FTR workers who know intimately the workings and failures of the network. It expresses the hope that such an oversight will not occur in the future.

In its reply comments, CWA largely reiterates its earlier points. However, in support of its wider assertions about the overall health of VZ-NY's network, CWA states that VZ-NY management "also is responding to the current set of regulations that militate against network investment and create an un-level playing field among competitors." As an example, CWA points to "UNE-P rates that reduce incentives for network investment while transferring income from incumbents to the CLECs...It does not pay incumbents to invest in the network if they must sell UNE-Ps at a loss (CWA reply, p. 5)."

Also, service providers relying on competing technologies are "not regulated enough to protect adequately public health and safety", states CWA (ibid, p. 5-6). It says that incumbents are partially correct when they say that the Commission cannot expect the ILECs to bear the entire burden of network reliability. CWA suggests that the Commission focus on ways to stimulate investment in all facilities "since

everyone benefits from a more reliable system. At the very least," the PSC should adopt more realistic UNE-P rates and policies with the added revenue required to be used to enhance network reliability (ibid, p. 7).

While noting the cellular industry's national character and its desire not to be further regulated, CWA points out that cell sites and many users are located in the state. For this reason, the Commission should assert jurisdiction where public safety and network reliability are concerned – especially since, according to CWA, the FCC has been slow to address these critical issues.

In a similar vein, CWA advocates that carriers using cable and/or VoIP be required to play a role in enhancing the reliability of the entire network. It says that VoIP, cable and cellular participation will become increasingly critical as these providers account for an increasing share of the market.

Plug Power

Plug Power is a designer, developer and manufacturer of on-site energy generation systems using hydrogen-supplied fuel cells. Its comments are limited to the application of its fuel cells as an alternative to lead-acid batteries for backup power in the event of commercial power failure in locations requiring two to 12 kilowatts. Typically, this applies to telephone Digital Loop Carrier systems and other amplification equipment housed in remote field huts and not in central office buildings.

Plug Power claims that many network operators rely on inadequate battery backup power, and that fuel cells offer a more reliable longer lasting means of providing backup power than batteries. It believes that enforcement of backup power standards is needed which will foster use of alternative means of backup because fuel cells are superior to batteries. Plug Power believes that the Commission should assert authority over wireless carriers, and should require wireline and wireless carriers to report on compliance with industry best practices. The Commission should also consider whether current national industry best practices for backup power are adequate for New York, and review carrier plans to introduce new technologies for backup power.

In response to carrier claims that regulation should not be substituted for the sound judgment of engineers in terms of compliance with best practices, Plug Power states that "The reality of corporate decision making is that the judgment of engineers must compete with other corporate priorities for limited dollars, when capital and operating budgets are established. The issue here is not preempting the judgment of engineers. In many cases, the issue will be requiring utility corporations to meet their public responsibilities by adhering to the judgment of engineers (Plug Power reply, p. 2)."

The City

In its comments, the City sees this proceeding as an important first step. It expresses the hope for a broader "action-oriented" Commission program the objective of which will be to maintain New York's telecommunications infrastructure as the most reliable and secure in the world. The City describes this as a "sustained effort" which it views "as both a public safety obligation and an economic development imperative (City reply, p. 1)." In this regard, the City seeks a collaborative inquiry, initiated by the Commission, focusing on the steps that will be necessary to attain this goal.

The City criticizes the attitude exemplified by some commenters that characterize the White Paper's concerns as intrusions on business and investment decisions. "In reality, however, nothing could be of greater concern to a broader array of stakeholders, ultimately rising to nothing less than a national security priority, than the state of telephone network reliability in New York," argues the City (*ibid*, pp. 2-3). It wants the next steps in this process to be inclusive of all stakeholders and "be concentrated on developing a set of well-defined network reliability-related goals and associated pathways and timelines for their implementation," much like that done by the Mayor's Task Force on Telecommunications Network Reliability established in 1990 (*ibid*, p. 3). The City suggests that the White Paper, and the comments could provide the framework for establishing areas of consideration for this newly convened task force.

Among the City's most serious concerns is the region's dependence on relatively few collocation facilities to serve a massive amount of critical voice and data traffic. This situation must be addressed as a priority if industries critical to the New York economy are going to be better able to operate primary and secondary business facilities that meet both customer and regulatory reliability demands. Otherwise, in the City's view, New York could find itself at a tremendous competitive disadvantage.

The City argues that the lack of consensus illustrated by the comments of the carriers themselves demonstrates the necessity for the collaborative task force the City advocates. The City describes those comments as "ambiguous about the extent to which, if at all, network concentration has compromised reliability." "Certainly," the City argues, "the stakes are far too high to agree that extraordinarily high network concentration is 'unavoidable,' or to accept as an article of faith that a solution will necessarily be sorted out through 'market forces' (*ibid*, p. 13)."

On the one hand, the City says, "improved network reliability would undoubtedly be in the public's best interest (*ibid*, p. 13)." On the other, the City expresses understanding for the carriers' concerns about initiatives that impose new short-term costs without any certainty as to comparably significant new revenue streams. But the City argues that such concerns should be but one element in the broader discussion; and such treatment should lead to a calculation of associated costs and a further discussion about a fair method of funding such investments. The City says that it does not rule out "incentives, public-private financing mechanisms and/or homeland security-related funding sources," in this regard (*ibid*, p. 14)."

While acknowledging the oversimplification, the City says there is "conceptual value" in viewing the outages related to the September 11 attacks as resulting from inadequate network diversity and those related to the blackout as primarily resulting from inadequate survivability.

The City expressly eschews a desire to point fingers at particular carriers (and notably praises those carriers for their responsiveness after the fact), but specifically uses recent history to note the public interest in having assurances that reasonable steps are being taken to promote the survivability of essential network facilities. It stresses this as another factor supporting the kind of proceeding it is urging the Commission to initiate.

In this vein, the City suggests that NRIC best practices are only a compelling starting point for considering what measures should be taken by the carriers. The bottom line, according to the City, is that the public interest necessitates increased accountability by the carriers. Regardless of which carriers are required to comply with which best practices, the City says that they should be required periodically to disclose to the Commission which recommendations they are in fact following (and perhaps even those which they are not, with the reasoning thereof). With the goal of increased accountability to the public in mind, the City further suggests that the Commission routinely compile and report on the status of this voluntary compliance.

The City expresses full support for the White Paper's recommendations as to record-keeping. It expresses "regret" that is yet to be accomplished and "dismay" at the carriers' resistance to future implementation. The City also supports a customer's right to be informed as to the network path and any modifications to that path utilized in providing the network diversity for which the customer has contracted. Sharing information on network changes would help to resolve some of a customer's concerns about guaranteeing the integrity of their critical back-up services, argues the City. In this regard, the City specifically urges Staff to accept VZ-NY's offer to investigate claims contained in the White Paper and disputed by VZ-NY that "specific diversity arrangements did not perform as expected during outages, and also that such customer arrangements have been lost due to network changes (ibid, p. 19)." The City also says it believes the concerns of the banking and finance industries over this issue are legitimate. Even though the carriers raise some legitimate business and security-related concerns over the consolidation of network data, the City asserts that the potential benefits are significant enough to warrant further investigation into how these concerns should be addressed.

The City describes extensively how MARC fostered a variety of critical restoration activities and proved to be the only forum for consistent communications among all of the affected carriers during both the blackout and the aftermath of September 11. The City further notes that no carrier other than VZ-NY opposes the New York City MARC. While the City expresses support for other municipalities considering the development of MARC-like programs for themselves, it "is also concerned about carriers hedging their support for New York City MARC based on stated concerns about its proliferation to other localities (ibid, p. 25)." Ultimately, the

City strongly urges the Commission not to allow the stated concerns of the carriers over this proliferation to threaten the continued existence of MARC in the City of New York.

APPENDIX B – CRITICAL FACILITIES ADMINISTRATION

Program Overview

- Facilities-based carriers are responsible to develop and, on request provide essentially real-time data¹ on the physical path of qualified circuits to customers who request such information and subscribe to a qualifying service. Such carriers would be required to maintain facilities associated with qualified circuits in such a manner as to ensure notification of a change in the physical routing of a qualifying circuit is communicated quickly to the affected customer, and the physical path data promptly updated. Such carriers will maintain the data and establish appropriate methods of identification and authentication to secure the data and restrict access by each customer to information relative to that customer's qualifying circuits.
- Customers are required to demonstrate for each qualifying circuit that the circuit has been registered under the federal Telecommunications Service Priority program in order to participate.

Customer Obligations

Customers participating under the Critical Facilities Administration program will be required to:

- Identify critical facilities by enrolling circuits in the federal Telecommunications Service Priority program, and demonstrating the sponsorship of a federal agency supporting the designation of those circuits as qualifying under the federal Telecommunications Service Priority program. Such circuits will be referred to as "qualifying circuits."
- Subscribe to the Critical Facilities Administration service offered by their carrier, and identify which qualifying circuits it wishes to enroll in the service. Such circuits will be referred to as "subscribed circuits."

Carrier Obligations

Facilities-based carriers will be obligated to identify the physical path of each subscribed circuit as follows:

¹ Real time in the sense that the data is up-to-date at least to within the time periods noted under carrier obligations.

- Physical path information will be provided by reference to the latitude and longitude (perhaps determined using Global Positioning System equipment) coordinates of suitable points along the circuit's path (e.g., cable entrances to buildings, manholes, riser poles, crossboxes, carrier equipment cabinets, and other circuit access points in the outside plant of the carrier) so as to allow the customer to ascertain with a reasonable degree of accuracy the actual physical path of each subscribed circuit.
- Physical path information for newly provisioned subscribed circuits is to be available to the customer within 5 business days after the circuit has been installed, and within 15 business days for existing, in-place subscribed circuits.
- Any planned moves, changes, or rearrangements that affect the physical path of a subscribed circuit are to be communicated at least 24 hours in advance to the customer, and information related to a move, change, or rearrangement that was as a result of unplanned activity is to be provided within 24 hours of the change.
- Updated information regarding the revised physical path of subscribed circuits would be available to the customer within 5 business days for planned actions, and within 15 business days for unplanned activities.
- Provision of the service would be suspended altogether in the instance of a major telephone outage. Once restored to service, current physical path information for a subscribed circuit would be developed and made available to the customer within ninety days of the restoration of service.
- The carrier must establish a secure database that would allow the customer to access information of the physical path for only its subscribed circuits, on a 24 hour by seven day basis, subject to appropriate authentication and authorization.

APPENDIX C – STAFF WHITE PAPER

In the electronic version of this document, this appendix is only available at the following Internet address:

<http://www.dps.state.ny.us/DPS-NetworkReliabilityRpt.pdf>