

**North American Numbering Council**  
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January 5, 2006

Mr. Thomas Navin  
Chief, Wireline Competition Bureau  
Federal Communications Commission  
445 Twelfth Street, S.W.  
Washington, D.C. 20554

Mr. Timothy Donahue  
Chair, Network Reliability and Interoperability Council  
c/o Jeffrey Goldthorp  
Designated Federal Officer  
Federal Communications Commission  
445 Twelfth Street, S.W.  
Washington, D.C. 20554

Ms. Nancy J. Victory  
Chair, FCC's Independent Panel Reviewing the Impact  
Of Hurricane Katrina on Communications Networks  
c/o Wiley, Rein & Fielding  
1776 K Street NW  
Washington, DC 20006

**RE: NANC's Review of Hurricane Impacts**

Dear Colleagues:

I understand that you and your organizations are investigating the same aspects of the impact of this past autumn's hurricanes on telecommunications networks and services in the Gulf Coast areas. The purpose of this letter is to let you know that the North American Numbering Council (NANC) has conducted some work that may be relevant to your efforts and to share with you the results of the NANC's work.

As you know, the NANC advises the FCC on matters dealing with the North American Numbering Plan (NANP), including the administration of the NANP, number pooling and local number portability. One consequence of the hurricanes was that additional

numbering resources had to be allocated expeditiously to enable telecom carriers to serve displaced individuals and relief workers and to allow calls to the affected areas to be rerouted to other parts of the country. At the September 20, 2005 NANC meeting, I asked the North American Numbering Plan Administrator (NANPA), the Thousand Block Pooling Administrator (PA), the North American Portability Management LLC (NAPM LLC) and the Local Number Portability Administration Working Group (LNPA WG) to provide reports at the next meeting on their involvement in the hurricane response, the actions they had taken and the lessons learned.

The following are relevant excerpts of the reports made at the November 30, 2005 NANC meeting:

**NANPA:**

*As a result of Hurricane Katrina, NANPA expedited and waived the MTE/utilization requirements for five central office (CO) code assignment requests received from a satellite carrier. NANPA worked with the carrier and Telcordia Routing Administration (TRA) to get the same day effective date in the LERG. NANPA also expedited requests to change the switch identification associated with 18 central office codes.*

*With regard to Hurricane Rita, NANPA assigned one CO code to meet a need for Temporary Local Directory Numbers (TLDNs) required as a result of the evacuation of the impacted area. In this instance, the code applicant needed to be the LERG assignee. NANPA worked with the Pooling Administrator and TRA in making this assignment.*

**PA:**

*Hurricane Disaster Recovery Efforts (as of 11/21/05)*

- *Katrina:*  
*69 blocks have been assigned to 8 service providers.*
- *Rita:*  
*19 blocks have been assigned to 3 service providers.*
- *Both Katrina and Rita:*  
*10 blocks have been assigned to 2 service providers.*
- *Wilma:*  
*0 blocks have been assigned in response to Hurricane Wilma.*

**NAPM LLC**

*1. Hurricane Rita*

*On September 23rd, the NAPM LLC took a proactive approach to the Hurricane Rita events that may impact the SW region and instructed NeuStar to take the same measures that were undertaken in the SE region for Hurricane Katrina. The Cross Regional list was notified of this wavier and will be notified*

*again once the NPAC LATA edit wavier has been rescinded. In addition, all providers in the affected area will be reminded to correct any previous NPAC LATA changes that may have occurred during the wavier period.*

*2. Hurricane Katrina – September 2005 NANC Action Item*

*Provide a summary of the actions taken to respond to Hurricane Katrina's 1) impact on telecommunications networks and services; 2) lessons learned; 3) issues for NANC or the FCC to consider (including changes to rules).*

*SE Region NPAC Activity*

- Approximately 2000 telephone numbers were ported across LATA boundaries after Hurricane Katrina*
- About 300 blocks of existing numbers (1000 per block) were moved across LATA boundaries using number pooling.*
- No impact to the Help Desk nor was there any operational impact on the NPAC itself.*

*Summary of Actions Taken by NAPM LLC*

- The NPAC systems did not experience any outages or service affecting problems due to Hurricane Katrina disaster.*
- The only change made to the NPAC database and functionality was to suspend the edit that prevents a service provider from assigning an out of LATA LRN to a ported number or a pooled block.*
  - The NAPM LLC approved the suspension of the NPAC edit in the Southeast NPAC Region on August 31, 2005.*
  - Prior to relaxing the NPAC edit, all Users of the NPAC were notified of this change via email through the normal NPAC User notification distribution list.*
  - NeuStar advised the NAPM LLC that to their knowledge, no negative impacts to the NPAC system performance were experienced due to the change in the LATA LRN edit functionality.*
  - Based on the NAPM LLC instructions, the NPAC Users were notified by NeuStar that on November 27, 2005 the LATA LRN edit for the Southeast NPAC Region would be restored to normal edit functionality.*
  - On November 27, 2005, in keeping with the suspension of numbering rules ordered by the FCC, the NPAC edit was restored.*
  - The NPAC system did not experience any service affecting outages during the restoral of the LATA LRN functionality.*

*Lessons learned and issues for NANC or the FCC consideration*

- *The NAPM LLC requested the LNPA WG provide the NAPM LLC with any technical and/or operational details regarding the relaxation of the NPAC LATA LRN Edits.*
- *The LNPA WG provided the NAPM LLC with a report titled “Interim Report on Out Of LATA Porting & Pooling for Disaster Relief after Hurricane Katrina”.*
  - *The LNPA WG report contains valuable information that should be considered in future disaster events including Lessons learned and issues for NANC or the FCC consideration.*
- *The NAPM LLC agrees with the report developed by the LNPA WG and appreciates the extensive work done by the LNPA WG in developing this report.*
  - *Attached for the NANC review and consideration is the LNPA WG report.*

**LNPA WG**

The LNPA WG submitted an extensive Interim Report which is attached to this letter. (A Final report will be submitted at a later date.) I urge you and your colleagues to read it in its entirety because it has an excellent explanation of how “numbering” issues can affect post-disaster recovery of the telecom system. For purposes of this letter, I would draw your attention to two sections of the Interim Report:

***Lessons Learned from Porting or Pooling Out of LATA***

*The carrier representatives involved in generating this report compiled their observations as to “lessons learned.” These observations are listed below:*

1. *Due to regulatory restrictions and switch design to comply with those restrictions, inbound calls from RBOC subscribers will fail or be routed through an inter-exchange carrier.*
2. *Calls routed through an IXC will generate toll charges for local calls and create confusion and billing disputes.*
3. *Large volumes of customer trouble tickets were generated due to calls from the RBOC failing to complete.*
4. *More service provider education and/or industry communication is needed to insure that all participants are aware of the benefits and short comings of actions taken.*
5. *More customer education is needed to explain the impacts of porting their numbers out of LATA and what level of service restoration they can expect in this situation.*
6. *The time frame to move subscribers to the out of LATA switches was longer than anticipated due to maximum nightly porting/pooling limitations established by the industry.*

7. *Carriers have experienced problems when porting/pooling the numbers back, and it is taking longer than porting/pooling them out. (For example, voicemail platform issues, new trunk install issues, facility testing issues, internal system delays, etc.)*
8. *Moving large volumes of telephone numbers to another location overloads trunking facilities that were designed for smaller forecasted loads.*
9. *Accurate record keeping is a must for moving numbers back to the correct locations as service is restored.*
10. *Moving telephone numbers across LATA boundaries does restore some level of service to many subscribers (especially to wireless subscribers).*

*Moving numbers to working switches even if out of LATA is a viable method to restore partial service. However, carriers should be aware of the consequences associated with such action and that full service is not restored. Other alternatives should be considered before automatically moving numbers across LATA boundaries. As discussed, many calls will not be delivered due to the design of RBOC switches that cannot carry calls across LATA boundaries. It is also very significant that trunk groups sized for lesser volumes will be overloaded, and many calls that are routed across the LATA boundary will not be delivered due to unavailability of a trunk facility.*

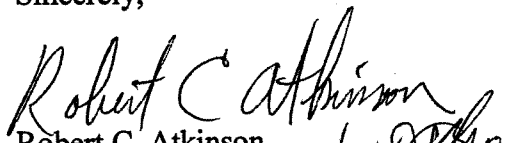
#### ***Issues for NANC or FCC Consideration***

*Under the circumstances, the LNPA Working Group believes that the NANC and FCC took appropriate action in relaxing numbering rules and allowing industry bodies and individual carriers to take emergency actions to restore service. This prompt action allowed service providers to respond quickly. Relaxing the rules gave the Pooling Administrator, the North American Numbering Plan Administrator, and the North American Portability Management LLC the freedom needed during the disaster recovery.*

*The LNPA Working Group recommends that the FCC and the NANC take similar actions in any future disastrous situations. Temporarily relaxing numbering rules will thereby allow service providers to expeditiously make decisions and take action in the best interest of providing service to their customers.*

Please feel free to contact me if you or members of your staff have any questions.

Sincerely,

  
Robert C. Atkinson  
NANC Chair

Attachment: LNPA WG Interim Report

cc: Narda Jones, FCC  
Cheryl Callahan, FCC  
Marilyn Jones, FCC  
James Bachtel, FCC  
NANC Members

**North American Numbering Council**

*Local Number Portability Administration  
Working Group*

*Interim  
Report on Out of LATA Porting & Pooling  
For  
Disaster Relief  
After  
Hurricane Katrina*

*November 16, 2005*

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## 1. Executive Summary

On August 29, 2005, Hurricane Katrina slammed into the Louisiana, Mississippi, and Alabama Gulf Coast leaving extensive damage in its wake. Millions of customers were out of service, and there was extensive damage to both wireline and wireless switching centers, facilities, cell sites, and to 9-1-1 call centers. With many switching centers damaged or totally destroyed by extreme winds and/or flooding, service providers explored ways to expeditiously move telephone numbers into working switches. The Federal Communications Commission (FCC) temporarily relaxed numbering rules facilitating service providers to move numbers to remote locations without regard to Toll Message Rate Center or Local Access Transport Area (LATA) restrictions. Service providers began using Local Number Portability (LNP) and/or Number Pooling to move numbers from the non-working switches into working switches in other locations. This report focuses on the technical aspects of suspending the rules that prohibit porting or pooling outside LATA boundaries.

Moving numbers to working switches was typically more advantageous for wireless subscribers than for wireline subscribers. When the wireless subscribers were moved to working switches, they had originating service and some terminating service. With wireline service, no originating or terminating service is possible as there is no facility to the subscriber. If a wireline number is moved to a working switch, remote call forwarding can be used to route terminating calls to other subscriber locations or to voice mail.

The edit in the NPAC that prevents assignment of out of LATA Location Routing Numbers (LRN) to a ported number or a pooled block was suspended thereby allowing numbers to be ported or pooled across LATA boundaries. This allowed wireless subscribers to have originating service and some level of terminating service. It would allow wireline subscribers to forward some terminating calls to other locations or voice mail. Many calls would not complete because Regional Bell Operating Companies (RBOC) cannot deliver calls across LATA boundaries. Other calls fail because of trunk group overloading as the groups were not sized to handle the increased loads resulting from the massive unplanned movement of telephone numbers.

The Local Number Portability Administration (LNPA) Working Group considers the actions taken by the North American Numbering Council (NANC) and the FCC to temporarily relax numbering rules to be appropriate, thereby allowing telecommunications service providers to immediately act to restore service to the extent possible. Moving numbers, even across LATA boundaries, is a viable method, especially for wireless carriers, to restore service. However, the Working Group believes that many carriers moved numbers across LATA boundaries after Hurricane Katrina without a full understanding of the consequences.

This document describes situations encountered, lists pros and cons for consideration when moving numbers, and provides recommendations in preparation for future disasters.

## 2. Background

On Monday, August 29, 2005, Hurricane Katrina struck the Gulf Coast causing extensive damage in Louisiana, Mississippi, and Alabama. In addition to the damage caused by hurricane force winds, extensive flooding occurred especially in the vicinity of New Orleans, Louisiana. The flooding in and around New Orleans was exacerbated by failure of the levies in areas of the city that are actually below sea level.

The destruction caused by Hurricane Katrina put more than 3 million telephone lines out of service in the three states. There was extensive damage to wireline switching centers and interconnection trunks. Thirty-eight 9-1-1 call centers were out of service. The wireless network also sustained considerable damage with more than 1000 cell sites out of service.<sup>1</sup> Wireless switching centers were damaged as well.

Immediately after the hurricane subsided, telecommunications employees began extraordinary efforts to restore service. Many of these employees had suffered personal losses themselves, but continued to work to restore overall service. In the tradition of the telecommunications industry, the workers looked for ways to reinstate service as expeditiously as possible. To that end, number porting and pooling techniques were used to rapidly move subscribers from non-working switches to working switches. This report analyzes the benefits and drawbacks of such action.

Subsequent to Hurricane Katrina inflicting catastrophic damage to the Louisiana, Mississippi, and Alabama coast lines, Hurricanes Rita and Wilma have hit the Texas-Louisiana coast and southern Florida respectively. While both caused significant damage, neither was as devastating as Katrina. This report will concentrate on events associated with Katrina realizing that lessons learned will apply in other disastrous situations.

### 2.1. Situation

In the aftermath of Katrina, both wireless and wireline telecommunications companies were working to restore service. Wireline companies had facilities damaged or destroyed by high winds and flooding. Wireless carriers had cell towers destroyed, and facilities connecting switches to towers destroyed. Both wireless and wireline carriers had switches that were either damaged or totally destroyed by the hurricane.

Many service providers moved their customers' telephone numbers from the switches that were out of service to working switches in other locations. Depending on the type of service provider (wireless or wireline) and the location of the "ported-to" switch, varying service levels were restored using number porting or pooling functionality.

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<sup>1</sup> Written statement of Kenneth P. Moran, Director, Office of Homeland Security Enforcement Bureau, Federal Communications Commission. Hearing on Ensuring Operability during Catastrophic Events before the Committee on Homeland Security Subcommittee on Emergency Preparedness, Science, and Technology, US House of Representatives, October 26, 2005.

## 2.2. Federal Communications Commission Order Suspending Numbering Rules

The FCC adopted and released an order on September 1, 2005, that suspended many numbering rules for a period of 90 days (August 27 to November 27, 2005). The Commission recognized “that telecommunications service must be restored to the hurricane victims as quickly as possible and we find that waiver of the Commission’s local number portability and number assignment rules is a reasonable and practical means for doing so.”<sup>2</sup>

The Commission waived the rules to the extent necessary to permit carriers to port numbers from the hurricane affected area to remote locations on a temporary basis. This waiver applied to carriers providing service in the states of Louisiana, Mississippi, and Alabama. The waiver also applies to the numbering administrators to the extent necessary to support carriers in the affected areas.<sup>3</sup>

## 3. Actions Taken

### 3.1. Service Provider Actions

With the temporary suspension of porting and pooling location rules, some service providers used LNP or number pooling to move telephone numbers from non-working switches to working switches in other locations. Effects of moving the numbers will vary depending on whether the numbers are moved within rate center boundaries, across rate center boundaries, or across LATA boundaries. Effects also depend on the type of network attempting to originate calls to these ported or pooled numbers.

Moving numbers to another switch serving the same rate center has no negative effects on call routing or rating; however, calls may fail due to overloading of inter-switch trunk groups designed for smaller volumes. Current LNP rules allow movement within the rate center.

Moving numbers to a switch that does not serve the porting numbers’ rate center may affect terminating call rating and billing. Calls will be routed to the number based on the LRN of the new switch. However, terminating calls will be rated as if the number were still in the original rate center, and calls may fail due to overloading of inter-switch trunk groups.

If the telephone numbers are moved outside the LATA, routing and billing problems may be encountered in addition to failure of calls caused by overloading inter-switch trunk groups. In normal circumstances, the NPAC has a software edit that prohibits a service provider from porting a number to an LRN that is outside the LATA. Section 4 of this document contains a discussion of the issues associated with porting outside the LATA.

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<sup>2</sup> FCC Order 05-161, September 1, 2005.

<sup>3</sup> FCC Order 05-161, September 1, 2005, paragraph 3.

### **3.2. Changes to the NPAC**

The only change made to the NPAC database was to suspend the edit that prevents a service provider from assigning an out of LATA LRN to a ported number or pooled block. The North American Portability Management (NAPM) LLC approved suspension of the NPAC edit in the Southeast NPAC Region<sup>4</sup> on August 31, 2005. The edit will be restored on November 27, 2005, matching the period of suspension of numbering rules ordered by the FCC.

### **3.3. Numbers Ported or Pooled Out of LATA to Provide Temporary Service**

In the Southeast NPAC Region, approximately 2000 telephone numbers were ported across LATA boundaries after Hurricane Katrina. Additionally, about 300 blocks of existing numbers (1000 per block) were moved across LATA boundaries using number pooling.

## **4. Impacts of Porting or Pooling Numbers Outside the LATA**

Porting and pooling numbers outside the LATA to restore service has mixed results. Depending on the type of carrier, some level of customer service can be restored. This section describes the effects of porting and pooling out of LATA and the resulting problems encountered in the aftermath of Hurricane Katrina. Appendix A provides a summary of the pros and cons in matrix format for easy reference.

As stated previously, there were many numbers ported or pooled outside the serving LATAs after Hurricane Katrina. For example, many numbers were moved from the New Orleans LATA to the Houston LATA. Due to differences in technology and service, the benefits are much more pronounced for wireless subscribers than for wireline subscribers, but full service is not restored in either case. It is important for service providers to be aware of all the impacts.

### **4.1. Wireless Service**

If a wireless subscriber's home switch is out of service but the Home Location Register (HLR) is still in service, that subscriber can originate calls as a roamer/traveler if within range of a working cell tower, but cannot receive calls since terminating calls route through the home switch. If the HLR is out of service, the subscriber will not have originating or terminating service since there would be no way to register elsewhere as a valid user.<sup>5</sup> Porting or pooling a wireless number to a working switch in another LATA gives the customer originating service and some terminating service. Moving the number creates a new home location, and the subscriber can be

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<sup>4</sup> The NAPM also approved suspension of the LATA edit in the Southwest NPAC Region in connection with Hurricane Rita. The LATA edit was restored in the Southwest Region on November 7th and is scheduled to be restored in the Southeast region on November 27th.

<sup>5</sup> The subscriber will still have 9-1-1 access if within range of a working cell tower even if not registered.

served from that switch or register as a roamer/traveler in another area. Terminating calls will route through the “new” home switch.

When a wireless number is moved to another LATA, the subscriber will have originating telephone service and some degree of terminating service. Calls from many locations and carriers will complete, however, calls from wireline subscribers in the affected LATA<sup>6</sup> that are served by the RBOC will not complete normally. RBOCs are prohibited from carrying traffic across LATA boundaries. Calls to these numbers appear to be local, but querying the LNP database will return an out of LATA LRN. RBOC switch generics are coded to block this type of call or to hand them off to an Inter-exchange carrier (IXC).

Calls from locations outside the affected LATA to the ported or pooled numbers<sup>7</sup> will complete if the calls are queried by the originating carrier or the IXC (N-1 query) and routed to the new switch. Calls from locations outside the affected LATA that are default routed to the RBOC in the affected LATA will fail. When such a call reaches the RBOC tandem in the affected LATA, a query is made and an out of LATA LRN is returned. The RBOC switch is not capable of routing the call across LATA boundaries.

The inability of RBOC switches to route these calls caused many customer trouble reports after Katrina. Complaints were received by both the RBOC carrier and the carriers who ported out of LATA. Not only would calls originated by RBOC customers fail, but any calls to the ported out of LATA numbers that were default routed to the RBOC would fail as well. In situations where calls are routed to IXCs, billing records are generated for calls that should be routed as local. This has caused billing confusion and disputes that are still being resolved.

RBOC switches treat the blocked calls as switching errors and log the failures. In the case of one switch type, parts of the switch network may be turned down when thresholds are exceeded as the switch logic “believes” that internal problems exist.

Telecommunications trunk routes are sized to handle forecasted loads. Moving large quantities of telephone numbers inside or outside of LATA boundaries suddenly routes large volumes of calls over trunk groups that were not sized to handle such loads. Many customers received “all circuits busy” indications.

There should not be any problems with 9-1-1 call originating service for wireless numbers ported or pooled out of LATA. However, the NENA representative participating in the study indicated that in some cases call backs failed due to the RBOC inability to route calls across LATA boundaries.

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<sup>6</sup> The affected LATA is the LATA where the disaster occurred.

<sup>7</sup> As an example, consider that a New Orleans number ports out of LATA to Houston. If a caller in Nashville were to dial the number, it would be recognized as an inter-LATA call and handed off to an IXC. The IXC should query the call, receive an LRN for Houston and deliver the call.

## 4.2. Wireline Service

Porting or pooling wireline telephone numbers out of LATA does not offer as many advantages as with wireless numbers. When a number is moved to a working switch, there is no originating or terminating service as there is no facility to a wireline set. However, when the number is placed in another switch, remote call forwarding can be used to route the call to another customer location not affected by the disaster, or to a voice messaging system.

If wireline numbers are ported out of LATA, the same routing problems are incurred as with the wireless numbers. If a number is ported out of LATA, and then remote call forwarded to another location, calls from RBOC customers in the affected LATA will not complete or will be handed off to an IXC. Many trouble reports were received with the customers complaining that calls to these numbers cannot be completed. Billing confusion and disputes occur for these local calls that are completed through an IXC.

As with wireless numbers ported or pooled out of LATA, calls from locations outside the affected LATA will complete and be forwarded as long as they are originating or N-1 queried. Default routed calls to the RBOC switch will fail.

Moving large volumes of numbers to other LATAs would have the same effects on inter-LATA trunk routes as with wireless numbers. Trunk groups may be overloaded and many calls will receive "all circuits busy" indication.

Failed calls indicate switching errors, and, as described in the previous section, can cause some switch types to remove network elements when thresholds are exceeded.

There was no RBOC porting or pooling out of LATA in the Southeast NPAC Region.

## 4.3. Administration and Cleanup

After restoration of switches, towers, and facilities, numbers must be moved back to switches in the correct LATA and rate center. It is imperative that good records of the numbers moved outside the LATA be kept to facilitate prompt restoration in the correct LATA.

## 5. Lessons Learned from Porting or Pooling Out of LATA

The carrier representatives involved in generating this report compiled their observations as to "lessons learned." These observations are listed below:

1. Due to regulatory restrictions and switch design to comply with those restrictions, inbound calls from RBOC subscribers will fail or be routed through an inter-exchange carrier.

2. Calls routed through an IXC will generate toll charges for local calls and create confusion and billing disputes.
3. Large volumes of customer trouble tickets were generated due to calls from the RBOC failing to complete.
4. More service provider education and/or industry communication is needed to insure that all participants are aware of the benefits and short comings of actions taken.
5. More customer education is needed to explain the impacts of porting their numbers out of LATA and what level of service restoration they can expect in this situation.
6. The time frame to move subscribers to the out of LATA switches was longer than anticipated due to maximum nightly porting/pooling limitations established by the industry.
7. Carriers have experienced problems when porting/pooling the numbers back, and it is taking longer than porting/pooling them out. (For example, voicemail platform issues, new trunk install issues, facility testing issues, internal system delays, etc.)
8. Moving large volumes of telephone numbers to another location overloads trunking facilities that were designed for smaller forecasted loads.
9. Accurate record keeping is a must for moving numbers back to the correct locations as service is restored.
10. Moving telephone numbers across LATA boundaries does restore some level of service to many subscribers (especially to wireless subscribers).

Moving numbers to working switches even if out of LATA is a viable method to restore partial service. However, carriers should be aware of the consequences associated with such action and that full service is not restored. Other alternatives should be considered before automatically moving numbers across LATA boundaries. As discussed, many calls will not be delivered due to the design of RBOC switches that cannot carry calls across LATA boundaries. It is also very significant that trunk groups sized for lesser volumes will be overloaded, and many calls that are routed across the LATA boundary will not be delivered due to unavailability of a trunk facility.

## **6. Future Steps and Recommendations**

The LNPA Working Group recommends that service providers carefully consider alternatives and consequences before porting or pooling numbers out of the serving LATA as a service restoration method. In general, porting or pooling out of LATA is more advantageous for wireless carriers than for wireline carriers. Before moving the numbers out of LATA, alternatives such as porting to working switches inside the LATA, or assigning new telephone numbers should be considered.

Porting or pooling out of LATA allowed service providers to move numbers to working switches on an expedited basis. As a lesson learned from the Katrina experience, continuing evaluation of impacts and alternatives would be advisable before suspension of the NPAC edit in the future. Suspension of the LATA edit in an NPAC region allows numbers to be ported out of LATA erroneously in other parts of the region not affected by the disaster. The edit was developed and implemented to stop this troublesome problem. Some lessons learned comments from providers

have indicated that moving the numbers out of LATA was not as easy to do or as much of a cure as they had initially believed it would be.

If porting or pooling numbers out of LATA appears to be advantageous, then it should be done selectively, and records kept for expeditious return to the correct switch. In such cases, the service providers should make best effort attempts to educate consumers as to expectations.

### **6.1. Issues for NANC or FCC Consideration**

Under the circumstances, the LNPA Working Group believes that the NANC and FCC took appropriate action in relaxing numbering rules and allowing industry bodies and individual carriers to take emergency actions to restore service. This prompt action allowed service providers to respond quickly. Relaxing the rules gave the Pooling Administrator, the North American Numbering Plan Administrator, and the North American Portability Management LLC the freedom needed during the disaster recovery.

The LNPA Working Group recommends that the FCC and the NANC take similar actions in any future disastrous situations. Temporarily relaxing numbering rules will thereby allow service providers to expeditiously make decisions and take action in the best interest of providing service to their customers.

With the number and variety of telecommunications providers currently serving customers in the United States, the LNPA Working Group feels that more education is needed as to the pros and cons of porting numbers across rate center and LATA boundaries. The Working Group requests that NANC share information such as contained in this report with its members, the industry associations participating in NANC activities, conferences, etc.



## Appendix A: Porting/Pooling Outside the LATA for Disaster Relief “Pros & Cons”

After Hurricane Katrina, number portability and/or number pooling were felt to be effective means of restoring service to customers in the affected areas. Accordingly, the NPAC edit that prevents porting across LATA boundaries was temporarily suspended. Some level of service can be restored in some scenarios, but other problems can be introduced. These problems can be especially pronounced if the numbers are ported across a LATA boundary. Some of the pros and cons that should be considered are enumerated in this document.

### Wireless Service Providers

<b>Pros</b>	<ul style="list-style-type: none"> <li>• Wireless Customer has originating service at new location if ported to a working switch. Assumption is that former switch and HLR is no longer in service.</li> <li>• 9-1-1 access will still function properly for the wireless ported subscriber.</li> <li>• Customer has partial terminating service at new location.             <ul style="list-style-type: none"> <li>○ Calls from the same wireless carriers will complete.</li> <li>○ Many calls from other wireless carriers will complete.</li> <li>○ Many calls from wireline carriers outside the affected LATA will complete.</li> </ul> </li> </ul>
<b>Cons</b>	<ul style="list-style-type: none"> <li>• Cannot receive calls from many wireline subscribers in the affected LATA.</li> <li>• 9-1-1 callbacks from PSAPs may not complete.</li> <li>• Trouble reports from customers complaining about failed calls.</li> <li>• Billing confusion and disputes (locals calls billed as toll calls).</li> <li>• Possible Trunk route overloading in areas where customers are ported to.</li> <li>• Default routed calls from non-affected LATAs won't complete to the customer. If IXC does not query, LATA tandem in affected LATA will query and receive an LRN that it cannot route out on.</li> <li>• Potential adverse wireline switch effects. (Some switch types will automatically take corrective action when call failure thresholds are reached.)</li> <li>• Administrative recordkeeping and required cleanup.</li> </ul>

### Wireline Service Providers

<b>Pros</b>	<ul style="list-style-type: none"> <li>• Can possibly use remote call forwarding from “ported-in” switch to route terminating calls to another customer location and working number or voice mail. Preference would be to port the customer to a working switch within the affected LATA.</li> </ul>
<b>Cons</b>	<ul style="list-style-type: none"> <li>• No originating service (no facility to customer location).</li> <li>• Cannot receive calls from many wireline subscribers in the affected LATA.</li> <li>• 9-1-1 access may or may not work. Delivery of the caller's location/address and</li> </ul>

	<p>phone number to the PSAP may not be possible.</p> <ul style="list-style-type: none"><li>• Trouble reports from customers complaining about failed calls.</li><li>• Billing errors (locals calls billed as toll calls).</li><li>• Possible Trunk route overloading.</li><li>• Default routed calls from non-affected LATAs won't complete.</li><li>• Potential adverse wireline switch effects. (Some switch types will automatically take corrective action when call failure thresholds are reached.)</li><li>• Administrative recordkeeping and required cleanup.</li></ul>
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## Appendix B: Glossary

FCC	Federal Communications Commission
HLR	Home Location Register
ILEC	Incumbent Local Exchange Carrier
IXC	Inter-exchange Carrier
LATA	Local Access Transport Area
LATA ID	LATA Identification
LNP	Local Number Portability
LNPA	Local Number Portability Administration
LRN	Location Routing Number
NANC	North American Numbering Council
NENA	National Emergency Number Association
NAPM LLC	North American Portability Management Limited Liability Company
NPAC	Number Portability Administration Center
PSAP	Public Safety Answering Point
RBOC	Regional Bell Operating Company
TN	Telephone Number