

SG

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November 1, 1996

Mrs. Blanca S. Bayo
Director, Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399

RE: Docket No. 961153-TL

Dear Mrs. Bayo:

Enclosed are an original and fifteen copies of BellSouth Telecommunications, Inc.'s Direct Testimony of Daniel M. Baeza. Please file these documents in the captioned docket.

A copy of this letter is enclosed. Please mark it to indicate that the original was filed and return the copy to me. Copies have been served on the parties shown on the attached Certificate of Service.

Sincerely,

Nancy B. White (SD)

Nancy B. White

- ACK _____
- AFA _____
- APP _____
- CAF _____
- CMR _____
- CTR _____
- EAG _____
- LEG _____
- LIN _____
- OPC _____
- RCH _____
- SEC _____
- WAS _____
- OTH _____

Enclosures

cc: All Parties of Record
A. M. Lombardo
R. G. Beatty
W. J. Ellenberg

S + org

DOCUMENT NUMBER-DATE
12403 NOV 20 96
FPSC-RECORDS/REPORTING

**CERTIFICATE OF SERVICE
DOCKET NO. 961153-TL**

I HEREBY CERTIFY that a true and correct copy of the foregoing was served by U.S. Mail this 1st day of November, 1996 to the following:

Stephen S. Mathues, Esq.
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Department of Management Services
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Florida Public Service Commission
2540 Shumard Oak Boulevard
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Nancy S. White (B2)

1 **BELLSOUTH TELECOMMUNICATIONS, INC.**
2 **DIRECT TESTIMONY OF DANIEL M. BAEZA**
3 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**
4 **DOCKET NO. 961153-TL**
5 **NOVEMBER 1, 1996**

ORIGINAL
FILE COPY

7 **Q. Please state your name and business address.**

8
9 **A. My name is Daniel M. Baeza. My business address is 6451 North**
10 **Federal Highway, Fort Lauderdale, Florida.**

11
12 **Q. By whom are you employed and in what capacity?**

13
14 **A. I am employed by BellSouth as a Director in Infrastructure Planning for**
15 **the states of Florida, Alabama, Mississippi, and Louisiana.**

16
17 **Q. Please summarize your educational background, work experience, and**
18 **current responsibilities.**

19
20 **A. I received a bachelor of science degree in electrical engineering in 1974,**
21 **and a master of science degree in electrical engineering in 1979, both**
22 **from the University of Miami. Also, I have qualified as a registered**
23 **professional engineer in the state of Florida. For the past twenty two**
24 **years, I have been an employee of BellSouth. From 1974 to mid-1979, I**
25 **held various assignments within the Florida Planning and Engineering**

26

1 Department, including circuit engineering, switch engineering, and
2 engineering staff. In 1979 I joined the Network Operations Department as
3 a budget analyst and software developer. I returned to the Network
4 Planning and Engineering Department in 1982 and managed the
5 operation of the E911 automatic location identification
6 system for BellSouth. In 1987, I accepted a rotational assignment with
7 Bell Communications Research in New Jersey, providing project
8 management for the development of new operations support systems.
9 In 1990, I returned to Planning and Engineering in Florida. I presently
10 hold the position of Director in Infrastructure Planning where I
11 am responsible for interoffice facility, switching, and fundamental loop
12 planning as well as other peripheral planning requirements like NPA relief.

13
14 Q. What is the purpose of your testimony?

15
16 A. The purpose of my testimony is to provide the current status of the 904
17 area code exhaust, enumerate the relief options for that exhaust and
18 provide an implementation recommendation.

19
20 Q. Under what governance are area codes administered?

21
22 A. The North American Numbering Plan (NANP) governs the assignment
23 and use of telephone numbers in North America. The NANP standard
24 comports with the International numbering standards established by the

25
26

1 International Telephone and Telegraph Consultative Committee. These
2 standards provide the accepted format for telephone numbers; a three
3 digit Numbering Plan Area (NPA), a three digit central office code (NXX)
4 and a four digit station address code.

5
6 The NANP is currently administered by Bell Communications Research,
7 Inc. However, BellSouth, as the predominant local exchange service
8 provider in North Florida, administers the assignment of NXX codes within
9 a 904 NPA and monitors code utilization. In that capacity, BellSouth has
10 determined that the 904 area code will exhaust in or around May of 1998.

11
12 Q. How is an exhaust determined?

13
14 A. BellSouth, as central office code administrator for Florida, continuously
15 monitors the NXX code utilization and assignment. In the course of those
16 duties, the number of assigned codes is always known. Additionally,
17 BellSouth tracks the rate of code assignment requests. With these two
18 data elements, total assigned codes and rate of requests, a
19 determination can be made of the forecasted exhaust of all codes, thus
20 the exhaust of the NPA code.

21
22
23 Q. What is the current status of the 904 area code?

1 A. The 904 NPA, today, encompasses the upper part of Florida from the
2 Daytona and Jacksonville LATAs on the east through the Pensacola
3 LATA on the west. Of the possible 792 codes available for assignment in
4 the 904 NPA, 594 were in service as of January, 1996. The current
5 forecasted rate of future code assignments is approximately 6 per month
6 for 1996, 7 per month for 1997, and up to 8 per month for 1998. The
7 calculation of adding the total assigned codes to the total forecasted rate
8 of requests indicates that the current exhaust point for the 904 NPA will
9 be May, 1998.

10
11 Q. Once the forecasted 904 NPA exhaust was determined, what steps did
12 BellSouth take to form relief plans?

13
14 A. BellSouth, of course, is the code administrator, but not the only user of
15 NXX codes. It was incumbent on BellSouth to facilitate an industry
16 solution once the 904 NPA exhaust was forecasted.

17
18 BellSouth notified all known code holders and assorted other
19 telecommunications providers doing business within the 904 area code of
20 an industry meeting. Meetings were held on July 31, 1996 and August
21 22, 1996 to present the relevant information to the parties and to reach a
22 consensus of a relief plan.

23
24 Q. What are the available methods for relief of an NPA exhaust?

25
26

1 A. As defined by the Industry Carriers Compatibility Forum in their NPA
2 Code Relief Planning Guidelines, Revision 1, dated March, 8, 1996, (See
3 DMB Exhibit 2) the primary alternatives for NPA relief are:

- 4 - NPA geographic split
- 5 - Boundary realignment of two adjacent NPAs
- 6 - NPA overlay

7
8 Q. Will you briefly describe these alternatives?

9
10 A. Yes. The NPA geographic split method consists of dividing the
11 exhausting NPA into geographic areas. This method leaves
12 the existing NPA to serve, for example, the area with the highest
13 customer density, thus minimizing number changes, and assigns the
14 new NPA to the remaining area. The division can be made on
15 jurisdictional, natural, or physical boundaries such as counties, cities, or
16 rivers. This method has been the alternative chosen for nearly all NPA
17 relief requirements occurring before 1995. The technical aspects of this
18 method have been resolved and implementation procedures are well
19 understood.

20
21 The boundary realignment method can occur when an NPA requiring
22 relief is adjacent to an NPA with spare NXX code capacity within the
23 same state. The boundary shift allows spare codes in the adjacent NPA
24 to be used in relief of the exhausting NPA. The boundary realignment
25 method causes a geographic shrinkage of the physical area of the

26

1 exhausting NPA and a commensurate expansion in the NPA with spare
2 NXX capacity. This method is usually an interim measure since it
3 generally provides short term relief.

4
5 Finally, the overlay method occurs when more than one NPA serves the
6 same geographical area. In this situation, code relief is provided by
7 opening a new NPA within the same physical area as the NPA requiring
8 relief. Numbers from the new NPA are assigned to new growth on a
9 carrier neutral basis, i.e., first come first served. While mandatory number
10 changes are usually eliminated within the overlay relief area, changes to
11 customer dialing patterns will occur. This method necessitates ten digit
12 dialing of local calls between the old and new NPAs

13
14 **Q.** What were the results of the industry meetings concerning the method for
15 904 NPA relief?

16
17 **A.** The industry reached consensus on using the NPA geographic split
18 along LATA boundaries as the method for 904 NPA relief. No consensus,
19 however, was reached on which LATA(s) would be removed from the 904
20 NPA.

21
22 **Q.** Will you explain the LATA boundary options available for the geographic
23 split of NPA that were determined to be most viable by the industry
24 meeting?

1 A. Yes. The principal LATA boundary relief options under consideration by
2 the industry code holders are:

3

4 **OPTION 1- Assign New NPA to Pensacola, Panama City, and**
5 **Tallahassee**

6 This option meets the criteria set forth in the industry guidelines for NPA
7 relief (See DMB Exhibit 1 Page 1). It provides relief for the longest
8 amount of time for both the new and old NPAs. The 904 NPA would
9 then be expected to need relief again in September, 2002. The new
10 NPA, 850, would not exhaust until approximately November, 2006. It
11 should be noted that the State Department of Management Services
12 opposes this option due to the costs it would incur to reprint publications
13 and reprogram premises equipment.

14

15 **OPTION 1A- Assign New NPA to Jacksonville and Daytona LATAs**

16 This option circumvents the intent of the industry guidelines to minimize
17 the impact of an NPA split by assigning the new NPA to the areas with the
18 greatest number of subscribers and NXXs (See DMB Exhibit 1 Page 2).
19 The impact on future NPA exhaust dates, however, would be the same
20 as Option 1.

21

22 **OPTION 2- Assign New NPA to Pensacola and Panama City LATAs**

23 While this method does have the advantage of impacting fewer
24 subscribers and NXXs than Options 1 and 1A, it provides a shorter relief

25

26

1 interval than either of those two (See DMB Exhibit 1 page 3). The 904
2 NPA would be expected to exhaust under this option in October, 2000.

3

4 Q. When should the NPA relief be implemented?

5

6 A. The 904 NPA relief should be implemented through a transition plan
7 which would allow permissive dialing to begin within three to six months
8 of the FPSC's final decision and mandatory dialing to commence in the
9 second quarter, 1998.

10

11 Q. Does this conclude your testimony?

12

13 A. Yes, it does.

14

15

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22

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24

25

26

Panama City & Tallahassee Latas

850

904

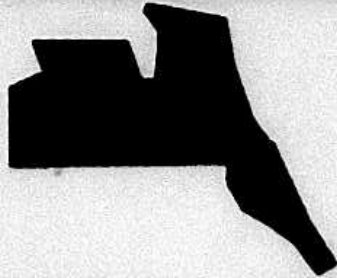
<u>LATA</u>	Population (000)				NXXs		
	<u>1996</u>	<u>2006</u>	<u>Gain</u>		<u>1996</u>	<u>2006</u>	<u>Gain</u>
Pensacola	575	663	88		112	350	238
Panama City	309	347	38		81	208	127
Tallahassee	<u>285</u>	<u>326</u>	<u>41</u>		<u>74</u>	<u>193</u>	<u>119</u>
850 NPA	1169	1336	167		267	751	484
Jacksonville	1214	1394	180		251	751	500
Daytona	<u>440</u>	<u>544</u>	<u>104</u>		<u>75</u>	<u>268</u>	<u>193</u>
904 NPA	1654	1938	284		326	1019	693

Exhaust -- 904 NPA - 09/2002
850 NPA - 11/2006

Jacksonville & Daytona Latas

FPSC DK No. 961153
 Exhibit No. DMB-1
 Page 2 of 3

904



<u>LATA</u>	<u>Population (000)</u>				<u>NXXs</u>		
	<u>1996</u>	<u>2006</u>	<u>Gain</u>		<u>1996</u>	<u>2006</u>	<u>Gain</u>
Pensacola	575	663	88		112	350	238
Panama City	309	347	38		81	208	127
Tallahassee	285	326	41		74	193	119
904 NPA	1169	1336	167		267	751	484
Jacksonville	1214	1394	180		251	751	500
Daytona	440	544	104		75	268	193
850 NPA	1654	1938	284		326	1019	693

Exhaust -- 904 NPA - 11/2006
850 NPA - 09/2002

Population of Panama City Latas

850

904

<u>LATA</u>	<u>Population (000)</u>				<u>NXXs</u>		
	<u>1996</u>	<u>2006</u>	<u>Gain</u>		<u>1996</u>	<u>2006</u>	<u>Gain</u>
Pensacola	575	663	88		112	350	238
Panama City	309	347	38		81	208	127
850 NPA	884	1010	126		193	558	365
Tallahassee	285	326	41		74	193	119
Jacksonville	1214	1394	180		251	751	500
Daytona	440	544	104		75	268	193
904 NPA	1939	2264	325		400	1212	812

Exhaust -- 904 NPA - 10/2000
850 NPA - 05/2012

ICCF

Industry Carriers Compatibility Forum

Under the auspices of the
Carrier Liaison Committee

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NPA CODE RELIEF PLANNING GUIDELINES

Sponsored by the Alliance for
Telecommunications Industry
Solutions

This revision includes a new Section 2.5, modifications to
Section 4.0 and definitions for relief plan and relief options as
agreed to by INC in connection with resolution to INC Issue
#064.

1.0 Purpose and Scope of this Document

The purpose of this document is to provide planning guidelines to NPA Relief Coordinators, affected parties and applicable regulatory authorities within affected NPAs within the North American Numbering Plan area. It lists the assumptions, constraints, and the planning principles used in NPA Code relief planning efforts. It also lists the steps of the NPA Code relief planning process and describes the alternative methods of providing NPA Code relief and their various attributes.

2.0 Assumptions and Constraints

The development of these guidelines include the following assumptions and constraints:

- 2.1 These guidelines are intended to apply to geographic NPA relief planning only.
- 2.2 These guidelines were developed to facilitate and help standardize the geographic NPA relief planning process.
- 2.3 Relief activities will be undertaken to provide relief to an exhausting NPA. For the purpose of NPA relief planning it is assumed that the capacity of an NPA is 792 CO codes (NXX). However, in overlay NPA situations the CO code exhaust capacity will be the number of NPA codes assigned to that geographic area times 792.
- 2.4 The relief plan chosen will seek to minimize end users' confusion while balancing the cost of implementation by all affected parties.
- 2.5 For each relief activity proposed in the plan, it is recommended that customers who undergo number changes shall not be required to change again for a period of 8-10 years.
- 2.6 All efforts should be made to choose a plan that does not favor a particular interest group, i.e., no carrier should receive a distinct competitive advantage over other carriers as a result of reaching a consensus on a particular plan.
- 2.7 It is assumed that the CO code administrator organization will provide the moderator for all relief planning meetings and that moderator will run meetings in a fair and impartial manner ensuring that all participants have any opportunity to express their opinions.
- 2.8 These relief planning guidelines were developed without making any assumption as to who will fill the role of CO code administrator or NANP administrator.

- 2.9 CO codes and NPA codes are public resources and administrative assignment of these codes does not imply ownership of the resource by the entity performing the administrative function, nor does it imply ownership by the entity to which the resource is assigned.
- 2.10 The appropriate regulatory commission (e.g. state, province, country) has the ultimate authority to approve or reject a relief plan.
- 2.11 In the United States, geographic NPA code boundaries do not currently extend across state lines.
- 2.12 Once there is a consensus/approved relief plan all code holders in the exhausting NPA will take the appropriate steps to facilitate the implementation of the plan.
- 2.13 These guidelines and all related documents/guidelines¹ referenced herein will be made available to all affected parties by the Relief Coordinator upon request.

3.0 NPA Relief Planning Principles

The following principles should be followed during NPA Code Relief planning:

1. Industry notification of NPA Code relief activities as outlined in ICCF 92-1127-006, Industry Notification of NPA Relief Activities, should be followed.
2. The NPA Code Relief Coordinator should facilitate the selection of a consensus NPA code relief alternative based upon input as outlined in Section 4 below.
3. Communications should be established with all affected industry members, appropriate regulatory bodies, and the North American Numbering Plan Administrator (NANPA). This should be initiated immediately after the need for NPA Code relief has been determined.

4.0 The NPA Relief Planning Process

NPA relief coordinators shall take the lead to prepare relief options for each NPA projected to exhaust within the next 5 to 10 years, in accordance with Section 3.0 above. These NPAs are identified in the Central Office Code Utilization Survey (COCUS) which is conducted annually by NANPA

¹ ICCF92-1127-006, Industry Notification of NPA Relief Activity Guidelines
ICCF93-0729-010, Central Office Code Assignment Guidelines
ICCF92-0726-004, Recommended Notification Procedures to Industry for Changes in Access Network Architectures

- a) The relief options shall cover a period of at least five years beyond the predicted date of exhaust, and shall cover more than one relief activity, if necessary, during the timeframe.
- b) The relief options shall be a living, document and reflect changes that take place over time such as demand for NXX codes or other factors (e.g., local competition, PCS, etc.). The annual COCUS analysis shall be used as one of the tools in updating the options.
- c) *The relief plan, which will evolve from these relief options shall be prepared in accordance with appropriate industry guidelines, i.e. NPA Allocation Plan and Assignment Guidelines, NPA Code Relief Planning Guidelines, etc.*
- d) Interested industry parties are encouraged to become involved in the development of the plan. Local regulators shall be made aware of the plan, and approve if necessary.
- e) The choice of relief methods (e.g., split, overlay, boundary realignment) is a local decision and shall be specified in the plan, along with boundaries if a split is chosen. The estimated relief period shall be included in the plan along with assumptions, projected code assignment rates, etc.
- f) For each relief activity proposed in the plan, it is recommended that customers who undergo number changes shall not be required to change again for a period of 8-10 years.
- g) The use of protected codes (NXXs), which permit 7-digit dialing across NPA boundaries, should be eliminated or reduced to an absolute minimum as part of the NPA code relief planning process. Reduction or elimination of protected codes should be accomplished prior to a request for a relief NPA code.
- h) In the long term, the plan shall result in the most effective use possible of all codes serving a given area. Ideally, all of the codes in a given area shall exhaust about the same time in the case of splits. In practice, this may not be possible, but severe imbalances, for example, a difference in NPA lifetimes of more than 15 years, shall be avoided.

Requests for relief NPA codes shall be submitted to NANPA at least 18 months prior to the NPA relief date subject to local regulatory constraints. Normally, only one code will be assigned per request unless the codes are to be introduced simultaneously or unless implementation concerns dictate a phased-in implementation of subsequent NPA(s) within two years of the relief date of the preceding relief code. The latest version of the

plan, along with relevant COCUS data, shall be submitted to NANPA with the NPA request.

4.1 Determine the Expected NPA Exhaust Period

Through the use of historical growth data as well as expected changes to NXX growth demands in the future, the Relief Coordinator should project to the best of his/her ability the expected exhaust of the NPA. The Central Office Code Utilization Survey (COCUS) should be used as an aid in this projection. Consideration may be given to unforeseen but reasonable increases and/or decreases to expected growth rates which would result in an exhaust "window" rather than a specific exhaust date. Once the earliest likely exhaust date is determined, the Coordinator should establish a mandatory dialing date six to twelve months prior to that date, giving consideration to items such as busy seasons, customer service order activity, customer equipment and number changes, and any other concerns which would increase the probability for service problems during the transition period.

4.2 Identify the Alternative Relief Methods Available

Within the affected NPA, the Relief Coordinator should next identify possible NPA relief alternatives and methods from among those identified in Section 5. This may include one or more NPA Split alternatives, at least one Overlay alternative, and, where applicable, one or more NPA Boundary Realignment alternatives. Combinations of these alternatives may also be considered.

4.3 Define the Attributes of Each Alternative or Method

For each of the alternative relief methods identified in 4.2, the Coordinator should next list and quantify the impacts, using Appendix A of this document, in order to determine the advantages and disadvantages of the alternatives. Specific calculations such as the relative lengths of the relief periods, identify the impacts of dialing local calls using 7-digits or 10-digits on an industry segment basis, and the number of subscribers requiring number changes should be made at this point. Technical and operational impacts should also be identified including items such as required switch replacements and support system modifications.

4.4 Notify Industry of Pending NPA Exhaust and Results of Initial Relief Planning

The next step in the recommended Relief Planning Process is to incorporate the results of the steps outlined in 4.1 through 4.3 into an Initial Planning Document for distribution to the Industry in the affected NPA. Attached to the Document should be a letter notifying Industry members of future meeting schedules to be held for the purpose of discussing the alternative relief methods, with the objective of reaching consensus on

the method to be adopted. The Relief Coordinator should also make available copies of this document, as well as other relevant numbering documents¹. Sufficient time should be provided prior to the meetings to allow individual industry members to fully analyze the alternatives from the perspectives of effects on their customers, economics, and technological and operational impacts.

4.5 Conduct Industry Meetings with the Goal of Reaching Industry Consensus on a Relief Plan

Meetings and/or conference calls should be held with all interested members of the industry within the affected NPA after each has had sufficient time to analyze the proposed alternative relief methods. The Relief Coordinator should provide a Moderator at these meetings or conference calls and be fully prepared to answer questions regarding the alternatives. During the meetings/conference calls, new alternatives may be proposed and should be included in these discussions. Initially, separate meetings for the various industry segments may be held to increase efficiency and manageability. Inasmuch as the objective of these meetings is to reach industry consensus, subsequent joint meetings will be required.

In addition to discussing the alternatives, more detailed issues such as new NPA boundaries, local calling areas, regulatory issues, customer education, and the length of any necessary permissive dialing periods should be discussed.

All meetings and/or conference calls should be fully documented in meeting minutes which are to be made available to the participants prior to the subsequent meeting or call. Copies of meeting minutes may also be forwarded to the appropriate regulatory body as well as to the North American Numbering Plan Administrator.

4.6 Notify Appropriate Regulatory Body

When consensus is reached within the industry or when it appears that additional meetings would not achieve consensus, the NPA Relief Coordinator should submit to the appropriate regulatory body (or bodies) the results of the industry effort. If consensus was not obtained, the NPA Relief Coordinator may ask the Regulatory body for assistance in reaching a solution. If regulatory assistance is required to adopt a "final plan", the NPA Relief Coordinator should prepare a "final recommendation" for circulation and then submit the "final plan" plus comments, if any, provided by industry participants to the appropriate regulatory body. Regulatory activities will vary by state. The Relief Coordinator should be prepared to furnish to the regulators any background information deemed necessary including the original studies, meeting minutes, mailing lists, etc. The NPA Relief Coordinator should prepare a "final recommendation" for circulation and comment by industry participants. The NPA Relief Coordinator should

¹ ICCF92-1127-006, Industry Notification of NPA Relief Activity Guidelines

ICCF93-0729-010, Central Office Code Assignment Guidelines

ICCF92-0726-004, Recommended Notification Procedures to Industry for Changes in Access Network Architectures

then submit the "final plan" plus comments, if any, provided by industry participants, to the appropriate regulatory body.

4.7 Notify the North American Numbering Plan Administrator (NANPA)

When the final NPA Relief Plan has been determined, and at least 18 months prior to the NPA Relief date, the Relief Coordinator should formally notify NANPA of the pending NPA exhaust, request formal assignment of a new NPA, and submit sufficient background information to justify the assignment of a code. Normally this would include the exhaust and relief projections discussed in 4.1 and 4.3, a description of the relief method to be utilized, and the relief schedule. In those situations where a final plan has not yet been developed prior to the 18-month requirement, the Planner should forward whatever information is available at that time, together with a statement that the final relief method has not yet been determined.

4.8 Public Statements/Press Releases

Public statements released prior to the first industry NPA relief planning meeting should, to the extent available, contain:

- factual information about the impending exhaust of the NPA
- that the telecommunications industry in the exhausting NPA will meet (time/place) to begin planning for the relief
- and that questions concerning the relief effort may be directed to the NPA Relief Coordinator (name/tel. no.).

The relief alternatives described in Section 5 below may be identified as the range of possible alternatives, however, preference regarding specific relief alternatives should not be discussed.

During the relief planning process, public statements are not encouraged. However, some states may require input from the public to the planning process. If questions are directed to the Relief Coordinator, or if reaction to a press article is warranted, responses should, to the extent possible, be limited to factual information (as opposed to opinion or preference) concerning relief options being considered and to agreements reached by the industry planning committee.

Upon reaching consensus on a relief plan, a press release developed with industry input may be issued to inform the public of the industry approved plan for relief of the exhausting NPA.

If there is no industry consensus for a relief plan, the NPA Relief Coordinator may advise the public of that fact and that a final recommendation, along with written comments from industry participants, have been submitted to the appropriate regulatory authority for its final disposition. Upon regulatory approval of a relief plan, the NPA Relief Coordinator will advise the public of the details of the plan. This does not preclude NANPA from issuing its standard ILs in accordance with industry guidelines for such notice (see ICCF 92-1127-006).

5.0 Alternative Relief Methods

All of the currently identified code relief alternatives are described below. Possible impacts of these alternatives are found in Appendix A.

5.1 NPA Split Method

By this method, the exhausting NPA is split into two geographic areas, leaving the existing NPA code to serve, for example, an area with the highest customer density (in order to minimize number changes), and assigning a new NPA code to the remaining area. This method divides areas by jurisdictional, natural or physical boundaries (counties, boroughs, cities, rivers, etc.) between the old and new NPAs.

This method has been the alternative chosen for practically all NPA relief situations prior to 1995. NPA splits have occurred with enough frequency so that technical aspects have been addressed and established implementation procedures are generally understood. Public education and acceptance of the process has been made easier because of the numerous NPA splits that have occurred. This method generally provides long term relief for an area.

5.2 Boundary Realignment Method

In an NPA boundary realignment, the NPA requiring relief is adjacent to an NPA, within the same state or province, which has spare NXX code capacity. A boundary shift occurs so that spare codes in the adjacent NPA can be used in the NPA requiring relief. As a result, the geographic area of the exhausting NPA shrinks, and the geographic area of the NPA with spare capacity expands. Only the customers in the geographic area between the old and new boundaries are directly affected by this change.

This method applies to multi-NPA states or provinces only. It could provide for a better balance of central office (NXX) code utilization in the affected NPAs. This method is viewed as an interim measure because it tends to provide a shorter term relief than when providing a new NPA code.

5.3 Overlay Method

An NPA overlay occurs when more than one NPA code serves the same geographic area. In an NPA overlay, code relief is provided by opening up a new NPA code within the same geographic area as the NPA(s) requiring relief. Numbers from this new NPA are assigned to new growth on a carrier neutral basis, i.e., first come first served. Mandatory customer number changes within the affected overlay relief area are eliminated. In most cases, with the overlay, relief method 10 digit dialing is required for some of the affected customers calling patterns. Since the overlay relief method could result in unequal dialing for those customers served out of the overlay NPA, mandatory

10 digit dialing is recommended for all NPAs covered by the NPA coincident with the implementation of an overlay.

The overlay method reduces or eliminates the need for customer number changes like those required under the split and realignment methods. It also allows the option to eliminate the permissive dialing period as a part of implementation. This method will necessitate ten digit dialing of local calls between the old and new NPAs as central office (NXX) codes are implemented in the new NPA.

NPAs have been previously implemented within an area and will vary with the individual characteristics of the area involved.

Four potential implementation strategies have been identified for an NPA overlay. They are listed below.

5.3.1 Distributed Overlay

The distributed overlay strategy may be considered in situations when growth in telephone numbers is expected to be more or less evenly distributed throughout the existing NPA requiring relief. The new NPA is added to the NPA requiring relief and shares exactly the same geographic boundaries. When growth telephone numbers are required, they are assigned from the new NPA.

5.3.2 Concentrated Growth Overlay

A concentrated growth overlay may be considered in situations when the majority of the new telephone numbers are expected to be concentrated in one section of the existing NPA. For example, a fast growing metropolitan area and a sparsely populated rural area could exist within the same NPA. The overlay NPA would be assigned initially to the section of the NPA experiencing the fastest growth, and new phone numbers in that section would be assigned from the new NPA. As more relief is required, the geographic area served by multiple NPAs could expand.

5.3.3 Boundary Extension Overlay

With a boundary extension overlay, the NPA requiring relief is adjacent to an NPA with spare capacity. The boundary between these two NPAs is eliminated, and spare NXX codes from the adjacent NPA are assigned within the original NPA boundary where relief is required. An appropriate use of boundary extension might be in a state or province consisting of two NPAs, where one NPA has spare capacity. This solution has the advantage of not requiring a new NPA code, but it also shares some of the limitations of boundary realignment, in that it provides less long term relief.

5.3.4 Multiple Overlay

The multiple overlay strategy may be considered where relief is required in two or more NPAs. For example, this solution may be appropriate in a metropolitan area where two

or more NPAs cover a small geographic area, and where it would be difficult to implement another kind of relief, i.e., a split or a distributed overlay. The new NPA would be assigned to overlay the multiple existing NPAs serving the entire metropolitan area. As another example, a new NPA could be assigned for new growth within an entire state or province, where more than one NPA exists.

5.4 Other

A combination of the methods described above may be used. For example, a concentrated growth overlay could be assigned initially to a section of an NPA experiencing fast growth, and as more relief is required, the section served by two NPAs could expand into a distributed or multiple overlay as demand requires. Other combinations of relief methods may be appropriate. Each NPA requiring relief must be analyzed on the basis of its own unique characteristics with regard to demographics, geography, regulatory climate, technological considerations, and community needs and requirements.

6.0 Other Relief Planning Considerations

This Section describes miscellaneous considerations which should be included during the NPA Relief Planning Process. It is not possible to identify every potential issue which may arise when planning relief for specific NPA's; each state or province, each metropolitan area, and each industry segment will have unique characteristics which could introduce concerns not included here. The following items are examples of issues which, based on past industry experiences, could create impediments to a successful and efficient implementation effort.

6.1 Organization Considerations

To the maximum extent possible, NPA Relief Planning should include considerations of organizational continuity. This includes not only the Administrator's own organization or entity, but continuity within the industry as well. The chances for successful implementation of relief efforts are greatly enhanced if there is smooth transition from the planning phase and continued involvement with the industry team as implementation progresses. Thorough documentation and dissemination of information throughout the planning process will assist in ensuring the desired continuity in the event personnel and/or organizational changes disrupt the transition.

6.2 Regulatory Issues

Involvement of the State Regulatory Staff during NPA code relief planning may expedite the process by addressing public policy concerns throughout the process.

6.3 Timing and Schedules

Issues related to timing and scheduling will vary with the type of relief method to be implemented as well as the level of difficulty of the required changes. In any case, the relief effort should be planned to be completed at least three months before the existing NPA would exhaust under the highest growth projections.

NPA splits require the establishment of a permissive dialing period during which calls placed to the area to be served by the new NPA can be completed whether the new or the existing NPA code is dialed by the caller. During this time changes are made to business telephone systems, wireless devices, alarm system networks, and individual subscribers' custom calling features lists. In addition, ANI information and billing/ordering systems may be modified to handle the new NPA code. Central office codes may not be duplicated in the old and new NPA's during this time.

Initial NPA overlays may require operational support systems to be modified due to the need for full 10-digit customer notification. Time should be built into the implementation plan for these modifications.

The length of the permissive dialing period may vary depending on the amount of time required to accomplish the above activities. Permissive dialing periods as short as four months or as long as two years have historically been used. A decision regarding the length of the permissive dialing period, if required, must be a part of the overall Plan.

When establishing transition schedules, consideration should also be given to avoiding the need to make network changes during the busiest times of the year, from the perspectives of call volumes, customer movement, and holidays. Other scheduling concerns include the length and type of customer education efforts, the length of time required for network changes, and overall budget considerations.

For more information regarding notification procedures see ICCF Document 92-1127-006, "Industry Notification of NPA Relief Activity Guidelines".

6.4 Customer Calling Patterns

Existing and planned local calling areas should be considered during the Planning Process and retained, wherever practical, along with their existing or planned dialing arrangements. This may prevent regulatory/public policy delays during implementation and/or unexpected changes to the final plan.

6.5 Interest Group Considerations

It is difficult if not impossible during NPA relief efforts to avoid negative impacts on some customers within the NPA. Whichever alternative relief method is chosen, it is highly possible that one or more customer groups may attempt to influence the decision in a manner which is most favorable to them. Extreme care must be taken by the NPA Relief Coordinator to ensure that fair and equitable treatment is given to all subscribers within an area.

7.0 Maintenance of These Guidelines

These guidelines were developed by the NPA Code Relief Workshop of the Industry Numbering Committee (INC) under the auspices of the Industry Carriers Compatibility Forum (ICCF). Any recommended changes or modification to these guidelines should be directed to the Industry Numbering Committee.

8.0 Glossary

COCUS - Central Office Code Utilization Survey (COCUS) is conducted annually by NANPA from direct input received from Central Office Code Administrator(s) in order to monitor central office code utilization, projected exhaust of NPAs and demand for new NPAs to provide code relief. The purpose of COCUS is to provide an annual overall view of both present and projected CO code (NNX/NXX) utilization for each NPA in the NANP.

Code Administrator - Entity(ies) responsible for the administration of the NXXs within an NPA.

Code Holder - The entity to whom a CO code (NNX/NXX) has been assigned for use at a Switching Entity or Point of Interconnection it owns or controls.

Conservation - Consideration given to the efficient and effective use of a finite numbering resource in order to minimize the cost and need to expand its availability, while at the same time allowing the maximum flexibility in the introduction of new services, capabilities and features.

Consensus - Consensus is established when substantial agreement has been reached among interest groups participating in the consideration of the subject at hand. Interest groups are those materially affected by the outcome or result. Substantial agreement means more than a simple majority, but not necessarily unanimity.

Jeopardy NPA - A jeopardy condition exists when the forecasted and/or actual demand for NXX resources will exceed the known supply during the planning/implementation interval for relief. Accordingly, pending exhaust of NXX resources within an NPA does not represent a jeopardy condition if NPA relief has been or can be planned and the additional NXXs associated with the NPA will satisfy the need for new NXX codes.

Moderator - An employee of the CO Code Administrator's organization which presides over NPA Code Relief coordination meetings. Responsibilities usually include issuing the meeting announcement, coordinating meeting arrangements, leading the meeting, issuing meeting minutes, and other duties as necessary to conduct the meeting.

NANP - The North American Numbering Plan is a numbering architecture in which every station in World Zone 1 is identified by a unique ten-digit address consisting of a three-digit NPA code, a three digit central office code of the form NNX/NXX, and a four-digit line number of the form XXXX, where N represents the digits 2-9 and X represents any digit 0-9.

NANPA - North American Numbering Plan Administration. With divestiture, key responsibilities for coordination and administration of the North American Numbering/Dialing Plans were assigned to NANPA. These central administration functions are exercised in an impartial manner toward all industry segments while balancing the utilization of a limited resource.

NPA - Numbering Plan Area, also called an area code. An NPA is the 3-digit code that occupies the A, B, and C positions in the 10-digit NANP format that applies throughout World Zone 1. NPAs are of the form N0/1X, where N represents the digits 2-9 and X represents any digit 0-9. After 1/1/95, NPAs will be of the form NXX. In the NANP, NPAs are classified as either geographic or non-geographic.

- a. **Geographic NPAs** are NPAs which correspond to discrete geographic areas within World Zone 1.
- b. **Non-geographic NPAs** are NPAs that do not correspond to discrete geographic areas, but which are instead assigned for services with attributes, functionalities, or requirements that transcend specific geographic boundaries. The common examples are NPAs in the N00 format, e.g. 800.

NPA Code Relief - NPA code relief refers to an activity that must be performed when an NPA nears exhaust of its 640 NNX or the 792 NXX capacity. Relief is typically provided to an NPA about a year before its capacity is reached. NPA Code relief for an NPA that is nearing the 640 NNX limit is usually provided in the form of implementing interchangeable central office code (ICOC) which provides an additional 152 assignable central office codes. An NPA that has been implemented as ICOC has a capacity of 792 assignable NXX central office codes. Providing code relief to such an NPA normally takes the form of assigning a new NPA for an NPA split or overlay. Another option is changing the boundary of the existing NPA.

NPA Relief Date - The date by which the NPA is introduced and routing of normal commercial traffic begins.

Premature Exhaust - (When referring to NANP): Premature exhaust means the exhaust of NANP resources (i.e., requires expansion beyond the 10-digit format) much sooner than the best industry projections. The NANP is expected to meet the numbering needs of the telecommunications industry well into the 21st century (i.e., a minimum of 25 years). (When referring to NPA): Premature exhaust is when a specific

date for NPA relief has been established and the NPA is projected to exhaust prior to that date.

Relief Coordinator - Organization within the CO Code Administrator's which has the responsibility of providing NPA Code relief.

Relief Options - The relief options shall cover a period of at least five years beyond the predicted date of exhaust, and shall cover more than one relief activity, if necessary, during the timeframe. The relief options shall be a living, evolving document and shall reflect changes that take place over time such as demand for NXX codes or other factors (e.g., local competition, PCS, etc.). The annual COCUS analysis shall be used as one of the tools in updating the options.

Relief Plan - The relief plan will evolve from the relief options shall be prepared in accordance with appropriate industry guidelines, i.e. NPA Allocation Plan and Assignment Guidelines, NPA Code Relief Planning Guidelines, etc.

Service Providers - Any entity that is authorized, as appropriate, by local governmental, state, federal or World Zone 1 governmental authorities to provide communications services to the public.

Working Telephone - The quantity of telephone numbers within existing CO codes

Numbers (Tns) - (NNX/NXX) which are assigned to working subscriber access lines or their equivalents, e.g., direct inward dialing trunks, paging numbers, special services, temporary local directory numbers (TLDNs), etc., within a switching entity/POI.

Issues To Be Considered During NPA Relief Planning

Following are a list of issues to be considered by the NPA Relief Coordinator to determine the advantages of the proposed relief alternatives:

Subscribers

- quantity of subscribers who will need number changes
- impact on CPE, e.g. reprogramming of wireless devices, automatic dialers, alarm systems, PBXs, etc.
- public reaction to and political involvement in boundary decisions
- impact on market identity/recognition, geographic identity, public familiarity
- public costs (stationary, business cards, customer premise equipment (CPE) and database reprogramming)

Network and Service Providers

- hardware and software upgrades to switching systems
- modification to or replacement of some operating support systems
- modification to operator services switches and/or systems
- directory assistance impacts
- 911 system impacts
- directory changes
- public notification/education requirements
- changes to existing network routing and translations
- impact of permissive dialing period
- length of planning period
- impact on dialing plan
- experience with relief method/implementation procedure
- interaction with appropriate regulatory bodies
- tariff impacts
- internal networks

Industry Concerns

- length of relief period
- NPA code utilization