

Alliance for Telecommunications
Industry Solutions

Sponsor of



Industry Numbering
Committee

A forum of the Carrier Liaison Committee

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July 9, 1997

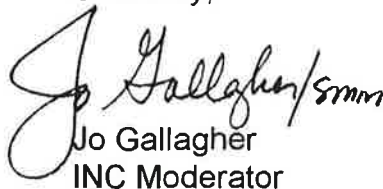
Mr. William F. Caton
Secretary
Federal Communications Commission
2000 L Street, NW
Washington, DC 20554

Dear Mr. Caton:

In Paragraph 198 of the Federal Communications Commission's ("FCC" or "Commission") First Report and Order and Further Notice of Proposed Rulemaking, in the Matter of Telephone Number Portability, CC Docket No. 95-116/RM 8538 (FCC 96-286) adopted: June 27, 1996; Released: July 2, 1996, the FCC directed the Alliance for Telecommunications Industry Solutions, ("ATIS") - sponsored Industry Numbering Committee ("INC") to examine the issue of the technical feasibility of modifying the existing toll free database to make only those 500 and 900 numbers that are assigned to local exchange carriers portable and file a report with the FCC within twelve mnths of the effective date of the Order. The INC accepted this directive and accordingly files an original and nine (9) copies of the INC report.

If you have any questions, please feel free to call Jo Gallagher, the INC Moderator, at 703-974-8160, Paula Jordan, the INC Assistant Moderator, at 510-279-6316, or Susan M. Miller, ATIS Vice President and General Counsel at 202-434-8828.

Sincerely,


Jo Gallagher
INC Moderator


Paula Jordan
INC Assistant Moderator

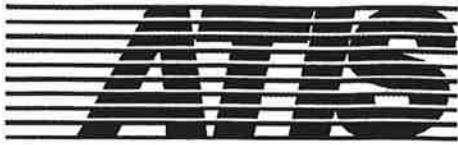
cc: Regina Keeney, Common Carrier Bureau Chief

FEDERAL COMMUNICATIONS
COMMISSION
OFFICE OF SECRETARY

JUL 9 '97

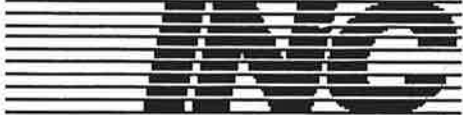
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**Report In Response to
the Federal Communications
Commission's
First Report and Order and
Further Notice of Proposed
Rulemaking,
In the Matter of
Telephone Number Portability,
CC Docket No. 95-116/
RM 8535 (FCC 96-286)
Adopted: June 27, 1996,
Released: July 2, 1996**

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**Report In Response to the Federal Communications Commission's First Report and Order and Further Notice of Proposed Rulemaking, In the Matter of Telephone Number Portability, CC Docket No. 95-116/RM 8535 (FCC 96-286)
Adopted: June 27, 1996, Released: July 2, 1996**

EXECUTIVE SUMMARY

In paragraph 198 of its First Report And Order And Further Notice Of Proposed Rulemaking, (hereinafter the "First Report and Order") (In the Matter of Telephone Number Portability, CC Docket No. 95-116/RM 8538 (FCC 96-286) Adopted: June 27, 1996; Released: July 2, 1996), the Federal Communications Commission ("FCC" or "Commission") directed the Industry Numbering Committee ("INC") to examine the issue of "the technical feasibility of modifying the existing toll free database to make only those 500 and 900 numbers that are assigned to local exchange carrier portable and file a report with the FCC within twelve months of the effective date of [the] order..." The Commission further asked that this examination consider whether the technical feasibility could be achieved through modifying the existing toll free database or through another system. The INC accepted this directive and accordingly, submits the following report.

In addition, INC sought the expertise of the Network Interconnection/Interoperability Forum's ("NIIF") Network's Interconnection/Architecture Committee ("NIAC") on those aspects of this report pertaining to interconnection and architecture. Thus, the consensus reflected in this report is that of the INC's and where pertaining to architectures, the NIIF's NIAC (hereinafter the "NIIF") as well. The NIIF is also sponsored by the Alliance for Telecommunications Industry Solutions ("ATIS").

The INC has interpreted the FCC's directive associated with portability for local exchange carrier ("LEC") 500 and 900 numbers to mean that only 500 and 900 numbers assigned to LECs need be portable, and that such numbers would be portable only between LECs in the United States.¹ Accordingly, 500 or 900 numbers assigned to non-LECs (e.g. interexchange carriers or CMRS ("Commerical Mobile Radio Service") providers) would not be portable and subscribers assigned these numbers, who choose to change service providers, would require a number change. Similarly, a subscriber assigned a LEC 500 or 900 number who choose to migrate their service to a non-LEC service provider would also require a number change.

In this report, the network architecture(s) that could be used to support portability of LEC 500/900 numbers are described. In addition, the report examines the impact of portability for LEC 500 and 900 numbers on number administration, resource utilization,

¹ Any reference to LEC(s) in this document refers only to FCC-regulated LECs.

network elements, and end users. Within number administration, the areas of assignment guidelines, the pooling of numbers and relief planning are also considered.

The INC and NIIF submits that the network architecture and call processing flows described in the previously developed INC Report on PCS N00 Portability could be used to support LEC 500/900 portability². It is estimated that the development and deployment of this architecture could take up to forty-eight months following FCC direction.

The use of the infrastructure currently in place to support portability of 800 numbers – modified and/or expanded as necessary – for use as the vehicle for the implementation of 500 and/or 900 portability is also examined. The 800 Service Management Team – the industry organization responsible for the design and maintenance of the 800 Service Management System (“SMS”)—indicates that the necessary effort for a 500/900 SMS based on the 800 SMS would take from 1.5 to 2 years from the date of firm, fully defined requirements for the SMS and appropriate client authorization and tariff approvals. The SMS portion of the development represents only a part of the necessary effort; further development of network switches and routing data bases would be required to interface with a 500/900 SMS required within the four year period.

It is concluded that the capabilities necessary for the support of LEC 500 and 900 portability are not currently available, but that the technology to provide such portability is understood and could be developed with the associated effort and expense. However, and most importantly, the INC and the NIIF concluded that portability of only LEC 500 and 900 numbers would be confusing to end users, could favor one industry segment over another, would not promote the most efficient utilization of the resources, and would be complex, time consuming and expensive to implement. Consequently, it is the unanimous opinion of the INC and the NIIF that number portability for LEC-only 500 and 900 assigned numbers should not be implemented because it is not prudent; nor is it technically feasible using existing network and administrative data base capabilities.

² INC Report on PCS N00 Portability, INC 95-0512-010, see Attachment 1.

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1.0 INTRODUCTION - In paragraph 198 of its First Report And Order And Further Notice Of Proposed Rulemaking, (hereinafter the "First Report and Order") (In the Matter of Telephone Number Portability, CC Docket No. 95-116/RM 8538 (FCC 96-286) Adopted: June 27, 1996; Released: July 2, 1996), the Federal Communications Commission ("FCC" or "Commission") directed the Industry Numbering Committee ("INC") to examine the issue of "the technical feasibility of modifying the existing toll free database to make only those 500 and 900 numbers that are assigned to local exchange carriers portable and file a report with the FCC within twelve months of the effective date of [the] order ..." The Commission further asked that this examination consider whether the technical feasibility could be achieved through modifying the existing toll free database or through another system. The INC accepted this directive and accordingly, submits the following report.

In addition, INC sought the expertise of the Network Interconnection/Interoperability Forum's ("NIIF") Network's Interconnection/Architecture Committee ("NIAC") on those aspects of this report pertaining to interconnection and architecture. Thus, the consensus reflected in this report is that of the INC's and where pertaining to architectures, the NIIF's NIAC (hereinafter the "NIIF") as well. The NIIF is also sponsored by the Alliance for Telecommunications Industry Solutions ("ATIS").

2.0 BACKGROUND ABOUT THE INDUSTRY NUMBERING COMMITTEE- The INC was formed in October, 1993 to provide an open forum to address and resolve industry-wide issues associated with the planning, administration, allocation, assignment and use of numbering resources and related dialing considerations for public telecommunications within the North American Numbering Plan ("NANP") area. The INC reports to the Carrier Liaison Committee of ATIS. INC participation typically includes LECs, interexchange carriers ("IXCs"), competitive local exchange carriers, manufacturers, cellular companies and paging carriers from the US and its territories, Canada and the Caribbean.

INC reaches resolution by consensus. Any interested party may submit an issue to INC. However, only issues conforming to the mission of INC will be accepted and discussed. Once consensus on an issue before INC is reached, the issue is placed in a status called "initial closure." Initial closure serves as official notification to the industry that the INC has completed its work. Notice is sent to all INC participants as well as any interested party on the INC mailing list. It is also posted to the INC website (www.atis.org/atis/clc/inc/inchom.htm). Should any party have concerns about the

proposed resolution of an issue, the party can submit contributions to INC during the interval between initial closure and final closure. The INC will consider all such contributions. After such consideration, the INC will modify the proposed resolution if consensus is reached to do so based on the contribution. The issue will then move into final closure. Final closure serves as official notification that consensus has been reached for resolution of an issue.

In this four and a half years of existence, INC has accepted over 100 issues. It has produced a number of guidelines and recommendations in use by the telecommunications industry today. These consensus documents were developed based on industry input to address the need for a uniform, consistent manner in the assignment and use of numbering resources.

3.0 ASSUMPTIONS AND THE RAMIFICATIONS OF THOSE ASSUMPTIONS - The INC reviewed the FCC direction in CC Docket 95-116, paragraphs 188 through 198. In order to develop the INC's response, it agreed to the following assumptions and limitations based on the information in the FCC directive. These assumptions and recognized limitations allowed the INC and NIIF participants to start their deliberations, analysis and develop understandings on common ground. It should be noted that if INC's and NIIF's assumptions are correct, then significant problems/issues are raised because it results in the concept of "limited portability" (i.e., LEC-only portability).

- 1) Only FCC-regulated LECs are obligated to offer number portability for their own 500 and 900 numbers to the extent technically feasible.
- 2) The Telecommunications Act of 1996 (hereinafter the "Act") defines the term "local exchange carrier" as any person that is engaged in the provision of telephone exchange service or exchange access.
- 3) Commercial Mobile Radio Service ("CMRS") providers are excluded from the definition of local exchange carriers, and therefore are also excluded from the Act's Section 251(b) obligations to provide number portability, unless the Commission ultimately concludes that they should be included in the definition of a LEC.
- 4) The First Report and Order does not specifically address whether 500 and 900 numbers assigned to CMRS providers shall be portable. Since CMRS providers are not by definition considered to be LECs, it is assumed for the purposes of this report that the 500 and 900 numbers assigned to CMRS providers do not have to be portable.
- 5) It is assumed that the offering of 500 and 900 services by LECs will increase in the future. Thus, it is also assumed that the volume of such numbers will increase in the future.

- 6) If it is technically feasible for only LEC-assigned 500 and 900 numbers to be portable, these numbers will be portable only between LECs and not between LECs and other 500 and 900 service providers (IXCs, CMRS, etc.).
- 7) It is assumed that the type of 500 and 900 service provider (LEC, IXC, CMRS) is determined by its specific business intent, and not by the principal business of the number assignee's corporate affiliation. For example, a 500 or 900 number assigned to BellSouth Wireless is considered to be a CMRS number rather than a LEC number and as such, BellSouth Wireless would not have to make its 500/900 numbers portable.
- 8) In the current non-portable environment for both 500 and 900 services, number assignment is NXX based; that is, numbers are assigned to 500 and 900 service providers on a NXX basis – in blocks of 10,000 numbers – consistent with industry assignment guidelines.³ With the implementation of portability, number assignment could continue to be NXX based as it is today. However, it may be advantageous to consider number pooling, in which numbers within designated portable NXXs are made available to all 500 and 900 service providers who participate in 500 and 900 portability. If pooling is mandated by the FCC, then new number assignment guidelines for the pooled environment will need to be developed. The concept of pooling and its relationship to portability are further explained in Section 3.1.
- 9) 500 and 900 resources are non-geographic by nature and therefore are inherently location portable. Limitations in LECs' ability to offer 500/900 services in a given area are a function of the service area and not a function of the 500/900 service (e.g., if an east coast LEC 500/900 customer wishes to change his/her service provider to a west coast LEC, he/she can do so without a number change).
- 10) 500/900 portability should not have an adverse effect on existing 500/900 services or other services that could potentially be impacted by portability such as 800 services.

While the INC and NIIF agreed to develop its response on the above-stated assumptions, this report does not represent an endorsement of any of the approaches discussed herein. INC and NIIF recognize and express the concern that all scenarios related to Assumption 6, as stated above create an "uneven playing field" between 500/900 service providers. The related assumptions, listed below, were also discussed. However, they were not considered further in this report because INC agreed that these assumptions could result in even more customer confusion and be even more problematic from a number administration perspective.

³ See 900 NXX Code Assignment Guidelines, INC 97-0404-012, at Attachment 2 and Personal Communications Service N00 NXX Code Assignment Guidelines, INC 95-0407-009, at Attachment 3.

- Alternatively, it can be assumed that 500/900 NXXs originally assigned to LECs, and therefore portable, will continue to be portable regardless of the service provider (LEC or non-LEC) which provides service for a given line number within the portable NXX.
- As yet another alternative, only LEC-assigned numbers would be portable to LECs and non-LECs. Once ported to a non-LEC, the number would be non-portable.

The above-stated ten assumptions result in the following impacts and ramifications:

- 1) Some NXXs will be portable, other NXXs will not. All line numbers within portable NXXs will be portable only between LECs. Therefore, customers within a portable NXX that want to change their service provider to a non-LEC service provider will have to change their 500/900 numbers.
- 2) Customers within a non-portable NXX that want to change their service provider to a LEC service provider will have to change their 500/900 numbers.
- 3) Two sets of 500/900 assignment guidelines/administrative processes will be required; one set for portable NXXs and the other set for non-portable NXXs.

4.0 IMPACTS OF LEC-ONLY 500/900 NUMBER PORTABILITY - Traditionally, the concept of number portability, when introduced for a given numbering resource, has been understood to include the resource in its entirety. In its present decision related to portability for 500 and 900 services, the FCC has implied that portability for these resources be implemented for LEC-only 500 and 900 numbers; a subset of the resource. Accordingly, INC and NIIF submit that the impacts of this "limited" portability should be more fully understood.

These impacts will negatively affect number administration, resource utilization, some network elements and ultimately, end users.

4.1 IMPACTS ON NUMBER ADMINISTRATION - From INC's perspective, number administration is generally considered to include number assignment and number management, including the oversight of number relief.

4.1.1 Number Pooling - For the purposes of discussion within this report, INC has defined number pooling as all numbers within the designated portable codes (NXXs) being made available to all service providers who participate in portability. In other words, number pooling is defined as similar to existing 800 number portability. However, number pooling is not a requirement for portability. Rather, assignment in a portable environment can continue on an NXX basis with each provider assigning numbers to its potential subscribers only from those codes (NXXs) it has been allocated.

INC maintains that pooling, however, promotes number conservation and is, therefore, advantageous. Specifically, the pool of numbers, overseen by an administrator, need only be large enough to accommodate the collective needs of all providers, and need only be augmented when required by industry demand. The total number of codes assigned should be fewer than if NXX assignments were made, and the resource should last for a longer period of time. For these reasons, pooling of 500/900 numbers maybe considered if portability for 500 and 900 numbers is mandated.

4.1.2 Proposed Assignment Guidelines For Portability- INC submits that portability of a numbering resource requires that administrative/assignment guidelines be developed to accommodate the portability environment; specifically, the assignment practices associated with the "pool" of portable numbers, if such a pooling arrangement is adopted, and the methods and procedures required for the "porting" of numbers between service providers. INC maintains that guidelines are required regardless of whether the entire numbering resource is made portable or a subset of the resource is identified as portable.

In addition, the INC submits that the segmentation of a given numbering resource to allow some numbers to be portable and others non-portable requires that administrative/assignment guidelines be maintained for non-portable (i.e., NXX assigned) numbers, as well as for portable numbers. There currently exist assignment guidelines for PCS N00 (500) and 900 NXX assignments.⁴ Accordingly, INC submits that two sets of portability assignment guidelines must be developed, maintained and used. An administrative data base for LEC-only portable numbers will need to be designed, developed, built and funded. Additionally, an appropriate administrator will need to be selected.

4.1.3 Sizing of the Initial Pool of Portable Numbers - Portability for LEC-assigned numbers may include the use of number pooling. The size of such a pool of numbers necessary to satisfy the needs of limited (i.e., LEC-only) portability may initially be small (i.e., the volume of 500 and 900 numbers currently assigned to LECs is small). However, INC believes that consideration must be given to accommodating the marketing needs of the impacted service providers; particularly the need to increase the size of the pool to provide sufficient numbers to afford adequate customer choice of numbers (e.g., the need to satisfy a request for vanity numbers). INC further submits that increasing the size of this pool may be problematic.

4.1.4 Relief Planning and Pool Expansion - If number pooling for 500/900 numbers is adopted, INC submits that the administrator must monitor the assignment of the (500 or 900) number resource to determine the associated fill rate and monitor/estimate the time at which the resource is likely to exhaust. The current NXX assignment process makes the assessment of potential exhaust straightforward. With the implementation of portability within a subset of the resource, the administrator will

⁴ See 900 NXX Assignment Guidelines, INC 97-0404-012, at Attachment 2 and Personal Communications Service N00 NXX Code Assignment Guidelines, INC 95-0407-009, at Attachment 3.

also need to assess the utilization within the pool of portable numbers, the estimated growth rate, and the impact of this growth on the projected date of exhaust. It is INC's view that planning within this environment will be more complex and administratively burdensome than planning for relief, if either there were no portability, or if all numbers within the resource were portable.

INC submits that number portability with pooling provides the promise of increased utilization of the pooled resource relative to the utilization achieved with the assignment of blocks of numbers (e.g., 10,000 numbers) to a given service provider. Clearly, with portability constrained to only a portion of the resource, the potential for increased utilization is limited.

4.3 IMPACTS ON THE NETWORK - The implementation of "limited portability" (i.e., for 500/900 numbers) could also impact the necessary network capabilities that must be provided for call processing. Current arrangements identify a 500 or 900 call using an initial 3-digit analysis, either switch-based or through the use of an Intelligent Network (IN) or Advanced Intelligent Network (AIN) based 3-digit trigger. Identification of the call as either 500 or 900 demands examination of the following three digits (NXX) to identify the associated carrier as required for call routing. In an environment with "limited" portability, six digit analysis will be required to identify those NXXs which are portable and require further (10 digit) look-up to identify the service provider associated with the dialed number. Specifically, INC and NIIF submit that the most significant change would be the implementation of new 6-digit analysis/trigger capabilities within IN and AIN based platforms. Currently, there is a wide variation in the deployment of IN and AIN among service providers. Access providers without the required capabilities would either have to upgrade their facilities (e.g. SS7 capabilities, AIN, etc.) or route 500 and 900 traffic to other carriers for the necessary call processing.

4.4 IMPACT ON SUBSCRIBERS - An environment of "limited portability" will impose potentially confusing situations upon subscribers. The INC and NIIF note that subscribers will have to become familiar with the idea that some 500 or 900 numbers can be retained if they choose to change service providers, while other numbers, upon a service provider transfer, require a number change. Specifically, end users need education to understand that only LEC-assigned numbers are portable, and that the ability to retain a 500 number depends upon whether a 500 number was originally a LEC-assigned number and whether the end user seeks to port that number to another LEC 500 service provider. The INC and NIIF maintain that such end user confusion could have a broad and negative effect on subscription and use of 500/900 services.

In addition, a customer may become confused, if not irritated, upon learning that a new service the customer wishes to activate could be offered by any of a number of service providers if a given number is chosen, but can only be supplied by a single carrier if some other number is the customer's choice. For example, a customer wishes to obtain a new personal number (500) service and seeks the use of one of several possible vanity numbers. With "limited portability," a customer choosing a given

number may obtain service from several service providers, while with another number, the customer would be limited to a single provider.

Furthermore, INC and NIIF submit that the limited porting of numbers will create situations which benefit one industry segment relative to another and, therefore, provide certain competitive advantages. For example, customers with the opportunity to select one service provider versus another could choose the provider whose numbers are portable (i.e., the LEC), affording that customer the flexibility to change providers at some future date, and still keep the same number. Thus, existing LEC 500/900 number subscribers will be the only ones with the ability to retain their number to take advantage of pricing and service differences among LEC service providers. In addition, existing 500/900 number subscribers of non-LEC companies may be reluctant to change their 500/900 service provider because such a transfer would require a number change.

5.0 500 TECHNICAL FEASIBILITY

5.1 500 ARCHITECTURAL/CALL FLOW ASSUMPTIONS - The PCS N00 target architecture in the INC Report on PCS N00 Portability (INC 95-0512-010 at Attachment 1) serves as the baseline architecture for our analysis. **It should be noted that this document assumed portability for all 500 numbers where a query is performed for every call origination to a 500 number to determine how to route the call.** This document recommends modifications to the target PCS N00 architecture in the INC report (please refer to the INC report on PCS N00 Portability - Section 8.0 at Attachment 1 herein for details on the PCS N00 target architecture).

This target architecture could support LEC-assigned 500 numbers being portable only among LEC 500 service providers. This architecture requires a nationwide PCS administrative data base because numbers could be portable nationwide. Having such a data base would be impractical for LEC-only 500 portability, since LEC-only numbers account for such a small quantity of the total resource.

The target PCS N00 architecture call routing descriptions are applicable, with modifications, for LEC-only 500 portability. Modifications are required to determine when to launch a query to the PCS numbering data base. In the worst case, a query is performed for every call origination to a 500 number to determine how to route the call.

Given that LEC-assigned 500 numbers can be identified by the NXX blocks, INC and the NIIF submits that selective querying may be performed. When a switch receives a call origination request for a 500 number, the switch would check to see if the number is a LEC-assigned 500 number. The switch would then determine whether the called party number is within one of the 500-NXX blocks allocated to LECs. If it is not a LEC-assigned number, the switch can route the call using current call routing procedures (i.e., route the call using the NXX to determine the service provider of that 500 number). If the call origination request is for a LEC-assigned 500 number, the switch

will then launch a query to the PCS numbering data base. The PCS numbering data base will respond with one of the following:

- CIC (Carrier Identification Code)
- CIC and geographic number
- Geographic number
- SS7 point code
- "USE PIC" (Presubscribed InterLATA Carrier) message and geographic number

The switch will use the information provided in the query response to proceed with call routing. This two-step query process could have adverse impacts on call set-up times (please refer to the target PCS N00 architecture in the INC Report on PCS N00 Portability - Section 8.0 at Attachment 1 for more call routing details).

5.2 USE OF EXISTING TOLL FREE DATA BASE - Various approaches for the use of the toll-free Service Management System ("SMS/800") have been considered for LEC-only 500 and 900 portability. Comments below are stated in terms of LEC-only 500 portability, but apply to LEC-only 900 portability as well. The approaches considered include:

- enhancements to the existing software to partition the toll free SMS to support 500 (and 900) services;
- re-using the existing software with enhancements changes as necessary to support the relevant subset of the 500 Service Access Code (SAC); and
- software re-use/enhancements combined with the flexibility of client/server technology.

Regardless of the approach selected, the use of SMS/800 would have significant impacts. All functional areas within the system would be impacted because they would either need to be modified to support specific 500 functions, bypassed because they would not be needed for 500 or replaced with new functionality to support 500.

It is estimated that a production-grade system could be available approximately 1.5 to 2 years following completion of requirements development, architecture design, etc. and industry authorization of work and tariff approvals. There are major open issues related to the functions and interfaces of a national system for LEC-only 500 portability, including the critical areas of network management and service maintenance. Also, a choice among the three approaches described above would be needed. In order to get to the point where work could be authorized, these outstanding architectural and technical issues would have to be resolved.

6.0 900 TECHNICAL FEASIBILITY

6.1 900 ARCHITECTURAL/CALL FLOW ASSUMPTIONS - A data base architecture serves as the baseline architecture for our analysis. **A data base**

architecture assumes and requires a national SMS, despite the fact that a national SMS for this small quantity of LEC-only 900 numbers would be neither cost effective nor practical.

INC maintains that a data base architecture could support LEC-assigned 900 numbers being portable only among LECs, with the obvious distinction that 900-only supports calling-party-pays services. Such a distinction could potentially require that different and/or additional data elements be returned on a data base query and would require design, development and funding of a new data base or, at a minimum, new data elements and /or modifications of the existing Signaling System 7 (SS7) protocol.

In addition, the INC and the NIIF maintains that there will be a need to determine when to launch a 900 query to the data base and to define the query response information. The document, "Technical Interconnection Arrangements for 500-Like Non-Geographic Services", ICCF96-0913-015 (Attachment 4) could serve as a baseline for consideration of potential additional data elements required for LEC-only 900 number portability.

In the worst case, the INC and the NIIF submits that a query needs to be performed for every call origination to a 900 number to determine how to route the call. Given that LEC-assigned 900 numbers can be identified by the NXX blocks, selective querying may be performed. When a switch receives a call origination request for a 900 number, the switch would check to see if the number is a LEC-assigned 900 number. The switch would then determine whether the called party number is within one of the 900-NXX blocks allocated to LECs. If it is not a LEC-assigned number, the switch can route the call using current call routing procedures (i.e., route the call using the NXX to determine the service provider of that 900 number). If the call origination request is for a LEC-assigned 900 number, the switch will then launch a query to the routing data base. The switch will use the information provided in the query response to proceed with call set-up.

6.2 USE OF EXISTING TOLL FREE DATA BASE - Various approaches have been considered for LEC-only 500 and 900 portability based on the use of the toll-free SMS/800. Comments below are stated in terms of LEC-only 900 portability, but apply to LEC-only 500 portability as well. The approaches considered include:

- enhancements to the existing software to partition the SMS to support 900 (and 500) services;
- re-using the existing software with enhancements/changes as necessary to support the relevant subset of the 900 Service Access Code (SAC); and
- software re-use/enhancements combined with the flexibility of client/server technology.

Regardless of the approach selected, the use of SMS/800 would have significant impacts. All functional areas within the system would be impacted because they would

either need to be modified to support specific 900 functions, bypassed because they would not be needed for 900 or replaced with new functionality to support 900.

It is estimated that a production-grade system could be available approximately 1.5 to 2 years following completion of requirements development, architecture design, etc. and industry authorization of work. There are major open issues related to the functions and interfaces of a national system for LEC-only 900 portability, including the critical areas of network management and service maintenance. Also, a choice among the three approaches described above would be needed. In order to get to the point where work could be authorized, these outstanding architectural and technical issues would have to be resolved.

7.0 IMPLEMENTATION

7.1 500 IMPLEMENTATION - The INC and the NIIF submit that if implementation of portability for LEC-only 500 numbers is mandated, such implementation should be performed consistent with this document and the INC Report on PCS N00 Portability (INC 95-0512-010) at Attachment 1. The INC PCS N00 Portability Report provides detailed information on the network infrastructures necessary to support portability for PCS N00 type services. The analysis provided within the INC PCS N00 Portability Report applies primarily to the 500 numbers since the PCS N00 architecture is referenced. It should be noted that the INC PCS N00 Report identified several questions which need to be addressed before LEC-only 500 number portability implementation could move forward (see specifically Section 9.1, page 28 of the INC Report on PCS N00 Portability). Without FCC direction on these questions, LEC-only 500/900 portability could not move forward. Even if FCC direction were received, the INC and the NIIF emphasize that deployment of the necessary network infrastructure could not be implemented in the near term. The estimated 48-month timeline presented in the INC PCS N00 report is also valid for LEC-only 500 number portability implementation. This timeline is contingent upon other mandated industry activities (e.g., implementation of local number portability).

7.2 900 IMPLEMENTATION - The implementation considerations listed in Section 6.1 also apply to LEC-only 900 number portability. There are additional complexities associated with LEC-only 900 number portability. Specifically, these include the contents of the data base and its query responses (see INC 95-0512-010, INC Report on PCS N00 Portability at Attachment 1; and ICCF 96-0913-015, Technical Interconnection Arrangements for 500-Like Non-Geographic Services at Attachment 4).

7.3 ADDITIONAL IMPLEMENTATION CONCERNS - The following sections detail additional implementation considerations related to administrative guidelines development, transition plan development and end user education.

7.3.1. Administrative Guidelines Development - The INC 900 NXX Code Assignment Guidelines (INC97-0404-012) at Attachment 2 and the INC Personal Communications Services N00 NXX Code Assignment Guidelines (INC 95-0407-009)

at Attachment 3 describe the procedures for 500 NXX and 900 NXX assignment in a non-pooled environment respectively, and will be used as the basis for number assignment guideline development. If LEC-only 500/900 number portability is mandated, the development of new assignment guidelines would also be required. It is estimated that completion of these industry guidelines would require approximately 9 to 12 months following some regulatory directive.

7.3.2. Transition Plan Development - Given that 500/900 numbers are in use today, development of a transition plan would also be required.

7.3.3. End User Education - Based on the significant end user impacts and customer confusion factors, the INC and the NIIF submits that an end user education program will need to be developed and implemented.

8.0 CONCLUSIONS - Using existing network and administrative data base capabilities, it is not technically feasible to implement LEC-only 500/900 number portability. However, the technology is available to develop the appropriate network and administrative elements to deploy LEC-only 500/900 number portability. The INC and the NIIF submit that, while it may be possible to implement LEC-only 500/900 portability based on the architectures and call flows noted in this document, INC and NIIF conclude that LEC-only 500/900 number portability is not prudent for the following reasons:

- It does not foster competition in that it decreases and discourages providers and consumers from using the service.
- It creates an "unlevel playing field" by providing a more flexible service offering to one industry segment.
- It will not be user friendly and will be confusing to the public because some 500/900 numbers will be portable and some will not.
- It does not promote efficient number resource utilization because it segregates the resource(s).
- It would be complex, time consuming and expensive to implement.

Consequently, it is the unanimous opinion of the INC and the NIIF that number portability for only-LEC 500 and 900 assigned numbers should not be implemented because it is not prudent, nor is it technically feasible using existing network and administrative data base capabilities.

ATTACHMENT 1

ICCF

INDUSTRY CARRIERS COMPATIBILITY FORUM

**UNDER THE AUSPICES OF
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INC REPORT ON PCS N00 PORTABILITY

INC
Report on
PCS N00 Portability

Section

Executive Summary

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- 7.0 Evaluation of Portability Scenarios
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- 9.0 Migration Prom NXX Environment
- 10.0 Recommendations

INC Report on PCS N00 Portability

EXECUTIVE SUMMARY

The purpose of this INC report is to document the steps required for a potential implementation plan and guidelines for enabling the portability of the PCS N00 numbers among service providers.

A PCS portability architecture has been identified in Section 8. The portability architecture is based on the portability principles and criteria described in Sections 5 and 6. INC recommends this architecture along with a migration plan to provision a nationwide data base with sufficient capabilities to support multiple access arrangements and multiple PCS NPAs. The proposed architecture and associated call flows/routing in Section 8 would support both number portability and meet service provider requirements in a competitive PCS environment. This report includes recommendations for further work on this subject. It is understood that this report includes the most current information available at the time of publication. This report serves as a foundation for detailed implementation work.

The INC has concluded that if PCS number portability is to become a reality the following actions need to be taken by the appropriate regulatory bodies and by the industry.

A clear directive should be issued by the appropriate regulatory bodies to direct the industry to proceed with efforts for detailed implementation to achieve PCS number portability. The directive needs to include answers to the following questions:

- Who will be the owner/operator of the nationwide SMS/local SMS data base administration and how will they be selected?
- How will the costs for PCS portability be recovered?
- Taking into account that the industry needs resolutions of the above questions, when must the industry begin deployment of PCS portability?

When regulatory direction is provided to proceed with PCS portability, INC recommends that an industry group be identified to do the detailed planning for the development and implementation of the nationwide PCS data base. This industry group will address the items identified in Section 10.

INC Report on PCS N00 Portability

1.0 Purpose and Scope

The implementation of personal communications service (PCS) N00 number portability will impact many facets of the telecommunications infrastructure in World Zone 1 (WZ1). Different architectures and implementation strategies will result in varying levels of impact on the network and its operations.

The purpose of this INC report is to document the steps required for a potential implementation plan and guidelines for enabling the portability of the PCS N00 numbers among service providers.

Included in this work is the development of a migration plan to this portable environment from an assumed N00 NXX service provider implementation. This report addresses a high level target PCS N00 portability architecture and describes how to migrate from an NXX implementation. The portability architecture is based on the portability principles and criteria described in Sections 5 and 6. It includes recommendations for further work on this subject. It is understood that this report includes the most current information available at the time of publication. This report serves as a foundation for detailed implementation work.

This report has been developed via the industry forum consensus process by the PCS Portability Workshop of the INC (Industry Numbering Committee), a standing committee of the ICCF (Industry Carriers Capability Forum) which operates under the auspices of the CLC (Carriers Liaison Committee). The Workshop was formed to address the following issue statement associated with INC Issue # 007:

Issue Statement: The assignment of one non-geographic N00 code for PCS can lead to a shortage of numbers if only blocks of NXX codes are to be issued to PCS service providers. In addition, service provider number portability will not be possible under such an assignment procedure. This situation necessitates the development of a plan to share the available numbering space more efficiently and to provide number portability for PCS subscribers.

The PCS Portability Workshop's mission and scope statements are as follows:

Mission: To develop an implementation plan and guidelines for the establishment of the portability of the PCS N00 numbering resource for subscribers and service providers.

* A convention used throughout this document is "PCS N00" to refer to all PCS non-geographic NPAs regardless of format.

Scope: This work also requires the development of a migration plan to this portable numbering environment from the N00 NXX service provider environment. An analysis of the architecture alternatives will include but not be limited to technical feasibilities, target technologies, end-user and service impacts (both positive and negative), timing complexities/benefits/costs for each. The architecture alternatives addressed will accommodate the needs of service providers offering technical and user mobility services. The output will consist of documentation of the above.

2.0 Definitions

The following terms are defined at the beginning of this report for the benefit of the reader since these terms will be used throughout the document.

Access Time - the period commencing when the caller completes dialing a PCS N00 call and ending when the call is delivered by the originating Access Provider to the PCS N00 Service Provider or to a Transport Provider for the PCS N00 Service Provider. (Note that Access Time is only one component of call set-up time.)

AIN (Advanced Intelligent Network) - a service-independent architecture which allows its service provider to create and/or modify telecommunications services.

ANI (Automatic Number Identifications) - the automatic identification of the calling station or billing number.

ANI (Automatic Number Identification) II Codes - ANI II digits are two digits that are sent with the originating telephone number identifying the type of originating station (for example: Plain Old Telephone Service (POTS)[00], Hotel/Motel [06], etc.). Use of the ANI II codes in an SS7 message is referred to as the Originating Line Information Parameter (OLIP). **Authorized Representative of Code Applicant/Holder** - the person from the applicant's/holder's organization or its agent that has the legal authority to take action on behalf of the applicant/holder.

CIC (Carrier Identification Code) - is a numeric code which is currently used to identify an entity which purchased Feature Group B and/or Feature Group D access services. This code is primarily used for routing from the local exchange network to the access purchaser and for billing between the Local Exchange Carrier and access purchaser. CICs are assigned by the North American Numbering Plan Administrator.

CIP (Carrier Identification Parameter) - is an SS7 ISUP (ISDN User Part) parameter carried in an Initial Address Message and provides the presubscribed CIC or is the 10XXX/10XXXXX dialed by the calling party.

HLR- (Home Location Register) see SCP/HLR

ICCF (Industry Carriers Capability Forum) - provides an open forum under the auspices of the Carrier Liaison Committee to encourage telecommunication entities to discuss and resolve, on a voluntary basis, national technical issues associated with telecommunications network interconnection, and the issues associated with the assignment and use of NANP/World Zone 1 numbering resources.

IN (Intelligent Network) - a telecommunications network architecture in which processing capabilities for call control and related functions are distributed among specialized network nodes rather than concentrated in a switching system.

NANP (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 number of the form XXXX where N represents the digits 2-9 and X represents any digit 0-9.

NPA (Numbering Plan Area) - also called area code. An NPA is the 3-digit code which occupies the A, B, and C positions in the 10-digit NANP format which applies throughout World Zone 1. NPAs are of the form NXX, where N represents the digits 2-9 and X represents any digit 0-9. In the NANP, NPAs are classified as other 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 which do not correspond to discrete geographic areas, but which are instead assigned for services with attributes, functionalities, or requirements that transcend specific geographic boundaries within WZ1. The common examples are NPAs in the N00 format; e.g., 800. N00 codes are commonly referred to as Service Access Codes (SACs).

Number Portability - number portability in the context of personal communications service implies that a PCS subscriber can change service providers while retaining their number assignment.

PIC (Presubscribed Inter LATA Carrier) - the carrier selected by the customer if they wish to be presubscribed to an IC (Interexchange Carrier) rather than selecting the IC on every interLATA call. The PIC is also frequently referred to as the presubscribed IC. In the context of this document PIC is also used as the Presubscribed IntraLATA Carrier.

PCS (Personal Communications Service) - for the purpose of this document personal communications service is a set of capabilities that allows some combination of personal mobility, terminal mobility, and service profile management. It enables each personal communications service user to participate in a user defined set of subscribed services, and to initiate and/or receive calls on the basis of some combination of a

personal number, terminal number, and a service profile across multiple networks at any terminal, fixed or mobile, irrespective of geographic location. Service is limited only by terminal and network capabilities and restrictions imposed by the personal communications service provider.

PCSNDB (Personal Communications Service Numbering Database) - a regional/local data base which contains PCS number assignments and routing information.

PCS Record Administrator - the responsible organization that assumes the duty of managing and administering the appropriate records in the PCS N00/SMS. These duties include data entry, record change, trouble acceptance, referral and/or clearance.

Personal Communications Service Subscriber - a person who, or entity which, obtains a personal communications service from a personal communications service provider on behalf of one or more personal communications service users.

Personal Communications Service User - a person who, or entity which, has access to personal communications services and has been assigned a personal number.

Personal Mobility - the ability of a user to access telecommunication services at any terminal on the basis of a personal identifier, and the capability of the network to provide those services according to the user's service profile. Personal mobility involves the network capability to locate the terminal associated with the user for the purpose of addressing, routing, and charging of the user's calls.

Personal Number - a number that uniquely identifies a PCS user and is used to place, or forward, a call to that user.

PC (Preferred Carrier) - the carrier (which may be selected by the customer to provision intraLATA or interLATA services).

PSTN (Public Switched Telephone Network) - the switched network that enables full and mutual access between public users via E.164 numbers. It is an integrated system of transmission and facilities, signaling processors, and associated operational support systems that are shared by customers.

SCP (Service Control Point) - a network data base containing information and/or logic used in call processing to provide services. A service switching point (SSP) contacts an SCP when the SSP recognizes the need for special call handling. Use of this term does not imply any specific technology platform.

SCP/HLR (Service Control Point/Home Location Register) for purposes of this document, an SCP/HLR is a data base that the PCSNDB may query in order to translate a dialed PCS N00 number into a geographic number.

SMS (Service Management System)- an Operations Support System used to facilitate the provisioning and administration of service data required by the SCP. Use of this term does not imply any specific technology platform.

SSP (Service Switching Point)- a network element that initiates a dialogue with an SCP in which the logic for the requested service resides. The SSP may communicate with more than one SCP. Use of this term does not imply any specific technology platform.

Service Profile - a record containing all the information related to a personal communications user in order to provide that user with personal communications service. Each service profile is associated with a single personal number.

Service Profile Management - the ability to access and manipulate the service profile. Service profile management can be performed by the personal communications service user, personal communications service subscriber, or personal communications service provider.

Service Provider - any entity that is authorized, as appropriate, by local government, state, federal, or World Zone 1 governmental authorities to provide personal communications service to the public.

STP (Signal Transfer Point)- a Common Channel Signaling (CCS) network element.

SS7 (Signaling System 7) - a standardized protocol for high speed communication between intelligent network nodes.

Terminal Mobility - the ability of a terminal to access telecommunication services from different locations and while in motion, and the capability of the network to identify and locate that terminal.

Working Numbers - the quantity of numbers within existing CO codes (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 (Point Of Interconnection).

WZ1 (World Zone 1) - consists of the United States, Canada, Bermuda, and the NANP Caribbean administrations.

3.0 Reference Documents

1. ICCF 93-1130-011, PCS N00 NXX Code Assignment Guidelines (ICCF document)
2. TR-NWT-001284, Advanced Intelligent Network 0.1 Switching System Generic Requirements (Bellcore document) TR-NWT-001285, Advanced Intelligent Network

0. I Switch Service Control Point/Adjunct Application Protocol Interface (API) Generic Requirements (Bellcore document)
3. CC Docket 86-10, Implementation Plan for 800 Data Base Access Service, 3m92 (FCC Docket)
4. SR-TSV-00227S, BOC Notes on the LEC Networks, Issue 2, 4194 (Bellcore document)
5. TR-NWT-000690, LSSGR Issue I, March, 1991 (Bellcore document)

To obtain Bellcore or ICCF documents please contact:

Bellcore Customer Relations	(908) 699-5800
ICCF Secretary	(201) 740-3571

4.0 Assumptions and Constraints

This report is based on the following assumptions and constraints resulting from Agreements Reached by the ICCF and INC.

- This document does not address the issue of who will administer the PCS N00 data base(s).
- This document describes an architecture intended to provide the greatest latitude to those providing personal communications service.
- Any new signaling messages required to implement PCS portability are recommended for implementation in SS7 only. Modifications to MF (Multi Frequency) signaling were not considered for PCS portability due to the additional call set up time required.
- International inbound routing from non-WZI areas to PCS N00-NXX is not addressed.

5.0 PCS N00 Portability-Principles

To allow entities the greatest possible latitude in providing services, the following principles apply to all aspects of PCS Portability:

- No PCS Service Provider should be advantaged or disadvantaged by the portability aspect of the architecture proposed.
- The terminology used within this document does not assume any particular equipment configurations, implementation or platform provider and is used for reference purposes only.

6.0 PCS N00 Portability Criteria

The following network, operational and user elements have been considered in assessing the various PCS N00 portability architecture options. This assessment is shown in the matrix in Appendix I.

6.1 Network

- Originating Switch (source of dial tone)
- Transport/tandem/interexchange/international switches
- Signaling (SS7, X.25)
- Data Base(s) (SSP, SCP, STP)
- PCS Number Portability Data Base(s)
 - ◆ Special capabilities - IN/AIN
 - ◆ Special capabilities - equal access
 - ◆ Capabilities - vertical services
- Intelligence/translations
- Load/traffic engineering/capacity
- Connectivity/interconnection/interworking
- Response times/grades of service
- New network elements/topology

6.2 Call Flows/Routing

- Call set-up procedures
- Link-by-link call flows
- Speech path vs. signaling paths
- Information flow/dependencies
- Response times/grade of service impacts
- Emergency call handling

6.3 Billing/Rating/Accounting/Settlement

- Methods of payment
- Billing/collection
- Billing records
- Settlement procedures
- Compensation

6.4 Traffic Performance: (portability portion only)

- Call set-up times (up to hand off to service provider)
- Network overhead/call processing
- Traffic load/engineering
- Reliability/survivability
- Load control/network management

6.5 Ubiquity/Universality

- Availability of service
- Ability/impact of accessing portable WZ1 PCS numbers (Domestic (USA)/WZ1/Outside WZ1)
- Assumptions
- Scheduling impacts
- Industry standards

6.6 Service Provider/Carrier Identification (ID)

- Service provider/carrier may be different entities
- ID embedded in PCS number
- ID embedded in address
- Calling party determinable - How?
- Network determinable - How?
- Carriage of ID information (Originating - transit terminating - billing)

6.7 Operational Support Systems (e.g., ordering, billing, maintenance, etc.)

- Support with no modifications
- Support with modifications
- New system/functionality required

6.8 Portable PCS Number Administration

- Security/data protection
- Number assignment procedures (request, selection, confirmation ,etc. .)
- Resource management
- Centralized vs. de-centralized
- Access/communications

6.9 Expandability

- Ability to support multiple PCS NPAs
- Ability to support multiple non-geographic NPA number portability
- Numbering resources required
- Open ended/closed
- Expediency vs. quality

6.10 Operator Services/Directory Assistance

- Requirements/assumptions
- Access arrangement(s)
- Information (number assignment, name of service provider, etc.) source .

6.11 Transparency Between Service Providers (Portability should not add or subtract value across service provider spectrum)

- Advantage vs. no advantage
- Small service provider vs. large service provider

- National vs. international
- Intra-World Zone I (between countries) ;

6.12 Timing/Availability

- Critical assessment criteria
- Degree of difficulty and availability
- Relative estimates required (i.e., 2 years vs. 5 years)
- Trade-offs involved (features vs. bare bones)
- Establish minimum standard

6.13 Dependencies/Limitations

- Factors/actions which ease or complicate portability implementation (i.e., NXX plan implementation might complicate portability implantation/transition)

6.14 End User Impacts

- PCS users/subscribers
- PCS callers (casual callers to PCS numbers)
- Transition to PCS portability/number of changes
- Transparency
- Evolution path

6.15 Blocking Capability

- Screening and blocking of PCS calls at source
- Number of digits analyzed versus code blocking
- Calling customer control

6.16 Maintenance

- Trouble Reporting
- Testing/tracing/clearance
- Customer relations (PCS user, casual caller. etc.)
- Carrier/service provider identification

7.0 Evaluation of Portability Scenarios

Following review and discussion of potential PCS portability architecture contributions, the Workshop focused its evaluation efforts on three potential portability scenarios; an 800 Data Base Clone, an expanded 800 Data Base and an AIN based solution. Discussions of alternative architectures supporting PCS number portability have identified an overall architecture with two versions, one that uses CIC or CIC with Geographic Number to route calls and a second that provides a larger set of routing instructions, including TGID (Trunk Group ID), signaling point code, PIC, etc. (Appendix 1 uses the Assessment Criteria described in Section 6.)

The matrix column identified as "800 Clone" assumes development of an architecture supporting PCS Number Portability that duplicates the functionality of the existing 800 Database service deployed today. No additional functions are assumed.

The matrix column identified as "Expanded 800" refers to a PCS Number Portability architecture derived from the current 800 Database architecture, but updated to provide the additional capabilities at the database of addressing other service providers' databases via a Signaling Routing Point Code, the use of calling party's PIC, and/or directed use of a Trunk Group ID for routing purposes. It is assumed that the development of such a database would accommodate at least the 500 SAC, and may support additional NPAs beyond 500. No additional capabilities are assumed in the "Expanded 800" architecture.

The matrix column identified as "AIN Based" describes an architecture supporting PCS Number Portability that is based on the capabilities described in AIN documentation, TR 1284 and TR1285 (see reference 2 in Section T).

The entries in the attached matrix are intended to be a high level assessment of the alternative architectures. More definitive data is not currently available for many of the entries.

7.1 800 Data Base Clone - An evaluation of the "800 Data Base Clone architecture was conducted and is summarized in Appendix 1.

7.2 Expanded 800 Data Base - Evaluation results are included in Appendix 1.

7.3 AIN Based - Evaluation results are included in Appendix 1.

8.0 PCS N00 Target Architecture

The following PCS N00 portability architecture was developed based on the evaluation of portability scenarios in Appendix I as a potential PCS portability network architecture solution.

8.1 Network

This section describes the functionality of various network elements to provide PCS Number Portability (see Figure 1).

8.1.1 Nationwide SMS PCS Administrative Data Base - The nationwide PCS data base is a Service Management System (SMS) which contains information that will be downloaded to regional/local SMSs which will in turn download the information to the PCS Numbering Data Bases (PCSNDBs). The information contained in the nationwide SMS may take the following forms:

- a) CIC
- b) CIC & geographic number
- c) geographic number
- d) SS7 Point Code

8.1.2 Regional/Local SMS - The regional/local SMS receives information from the nationwide SMS and passes this information to the regional/local PCSNDBs. The regional/local SMS is also used to indicate and implement local options such as the Trunk Group Identification (TGID) as per Section 8.2.

8.1.3 PCSNDB (PCS Numbering Data Base) - The regional/local PCSNDB responds to the queries from the switch/SSP which contain the N00-NXX-XXXX. The PCSNDB inspects the N00 NXX-XXXX and may return one of the following:

- a) CIC (Carrier Identification Code)
- b) CIC plus geographic number
- c) Geographic Number & "USE PIC" message
- d) CIC & Geographic Number (result of second SCP/HLR query)

8.1.4 PCS Service Provider SCP/HLR - The PCS Service Provider SCP/HLR is a data base provided by a particular PCS Service Provider which, as a business arrangement, the PCSNDB can query for call processing information. The query from the PCSNDB to the PCS Service Provider SCP/HLR is referred to as a second query.

8.1.5 Signaling - This document assumes that the signaling links to any PCSNDB are SS7 signaling links as part of an SS7 signaling network that includes Signal Transfer Points (STPs).

8.1.6 Switches/SSPs - if the originating switch has Service Switching Point (SSP) capability, it will recognize the PCS N00 code and launch a query to a regional/local PCS Number Data Base.

If the originating switch lacks SSP capability, it will pass the call to another switch that has SSP capability which in turn will launch a query to a regional/local PCSNDB.

8.2 CALL FLOWS/ROUTING

The following assumptions apply to all call flow diagrams:

- the nationwide SMS periodically updates the local SMS which then updates the PCSNDB, with appropriate routing information for each assigned PCS N00-NXX-XXXX.

- the dialed number is 1+N00-NE-XXXX. The dialed number, along with the calling party's preferred carrier ** and intraLATA carrier are sent to the PCSNDB as part of the database query. The dual PIC capability (capability to send both interLATA and intraLATA presubscribed carriers) may require development and standardization in most locations. The carrier information is P passed along for service applications that specify the calling party's presubscribed carrier to transport the call.
- the original dialed number is passed to the indicated carrier, regardless of additional information also being passed (e.g., geographic number). The ANI plus ANI II of the calling party are also passed to the indicated carrier. The CIP, an optional SS7 parameter that indicates the original CIC or preferred carrier may also be passed to the indicated carrier. How the CIP interacts with service applications that specify the calling party's presubscribed carrier to transport the call is subject to further study.

In Figure (2), SW/SMS DATA RECORD: CIC, the information the PCSNDB contains related to the N00-NXX-XXXX is a CIC. The CIC along with the N00-NXX-XXXX were downloaded previously from the Nationwide SMS. The CIC is returned to the SSP. (The presubscribed carrier information is discarded.) Note that the SSP cannot distinguish from the returned information whether or not the carrier to which the call is to be routed was selected by the calling or called party (i.e., CIC and PIC use the same format). The SSP then routes the call to the indicated carrier.

In Figure (3), NW/SMS DATA RECORD: CIC & Geographic Number, the information the PCSNDB contains related to the N00-NXX-XXXX is a CIC and a geographic number (e.g., a geographic number associated with a switch or platform of the PCS Service Provider), which were previously downloaded from the Nationwide SMS. The CIC, N00 NXX - XXXX and NPA-NXX-XXXX are returned to the SSP. The SSP then routes the call to the indicated carrier.

In Figure (4), NW/SMS DATA RECORD: SS7 POINT CODE, the information the PCSNDB contains related to the N00-NXX-XXXX is an SS7 point code. The PCSNDB then routes a message to the database (PCS Service Provider SCP/HLR) identified by that SS7 point code to receive routing information on the subscriber's current location.

The capability for an SCP to launch a second query to another SCP/HLR may require a different application layer, which may entail development and standardization. Note also that when a second query is launched, the response must always include a translated number (the response may also include carrier identification, billing information, and other relevant information).

** The carrier chosen to transport long distance calls. If the service provider provisions for equal access, then a calling party may choose which carrier(s) transport the long distance portion of the call. In instances where dual PICs are provisioned, the interLATA and intraLATA presubscribed carriers may be different.

In Figure (5), NW/SMS DATA RECORD; Geographic Number/"USE PIC", the information the PCSNDB contains related to the N00-NXX-XXXX is both a geographic number and a "Use PIC" routing instruction. When the PCSNDB receives the dialed N00-NXX-XXXX, the PCSNDB sends the preferred carrier's PIC(s) and the geographic number plus the original dialed number to the SSP. The SSP then routes the call to the indicated carrier. The calling party's preferred carrier may be selected for certain billing options (e.g. "Calling Party Determinable Routing").

The Local SMS is also used to indicate and implement local options. For example the use of a TGID) (Trunk Group Identification, or Route Index) is a local option in cases of direct interconnection of the Indicated Carrier to the EO/SSP which launched the PCS N00 query. A unique TGID is required for each trunk group for each switch served by that PCSNDB. The Nationwide SMS will need to download some form of null value for the routing instructions that indicates to the Local SMS that a local value needs to be entered, such as TGID. Or, alternatively, the Local SMS could override the CIC or "Use PIC!" indicator, which was downloaded from the Nationwide SMS, with the appropriate TGID.

Other routing instructions which could be downloaded from the Nationwide SMS to PCSNDBs include some form of "out of area coverage". These are error messages that indicate that the dialed PCS N00-NXX-XXXX is either not assigned to any PCS Service Provider, or that the location from which the calling party is attempting to place the call is not within the coverage area of the PCS Service Provider for that particular PCS N00-NXX-XXXX. These error messages may, for example, indicate to the SSP to route the call to a particular announcement.

Figure 6 displays potential interconnection configurations. These are the same configurations used in Reference (3).

In Figure 6.1 there are SS7 links between the EO/SSP and the Other Carrier. This configuration could support the call flows of Figures 2 - 5. Figures 6.2 and 6.3 also could support the call flows in Figures 2 - 5, being end-to-end SS7 between the originating EO and the Other Carrier. Note: It is assumed that the subscriber's intraLATA and interLATA PICs are available at the AT/AIN SSP, since the link from the EO is SS7 and development has occurred which supports the delivery of dual PIC information.

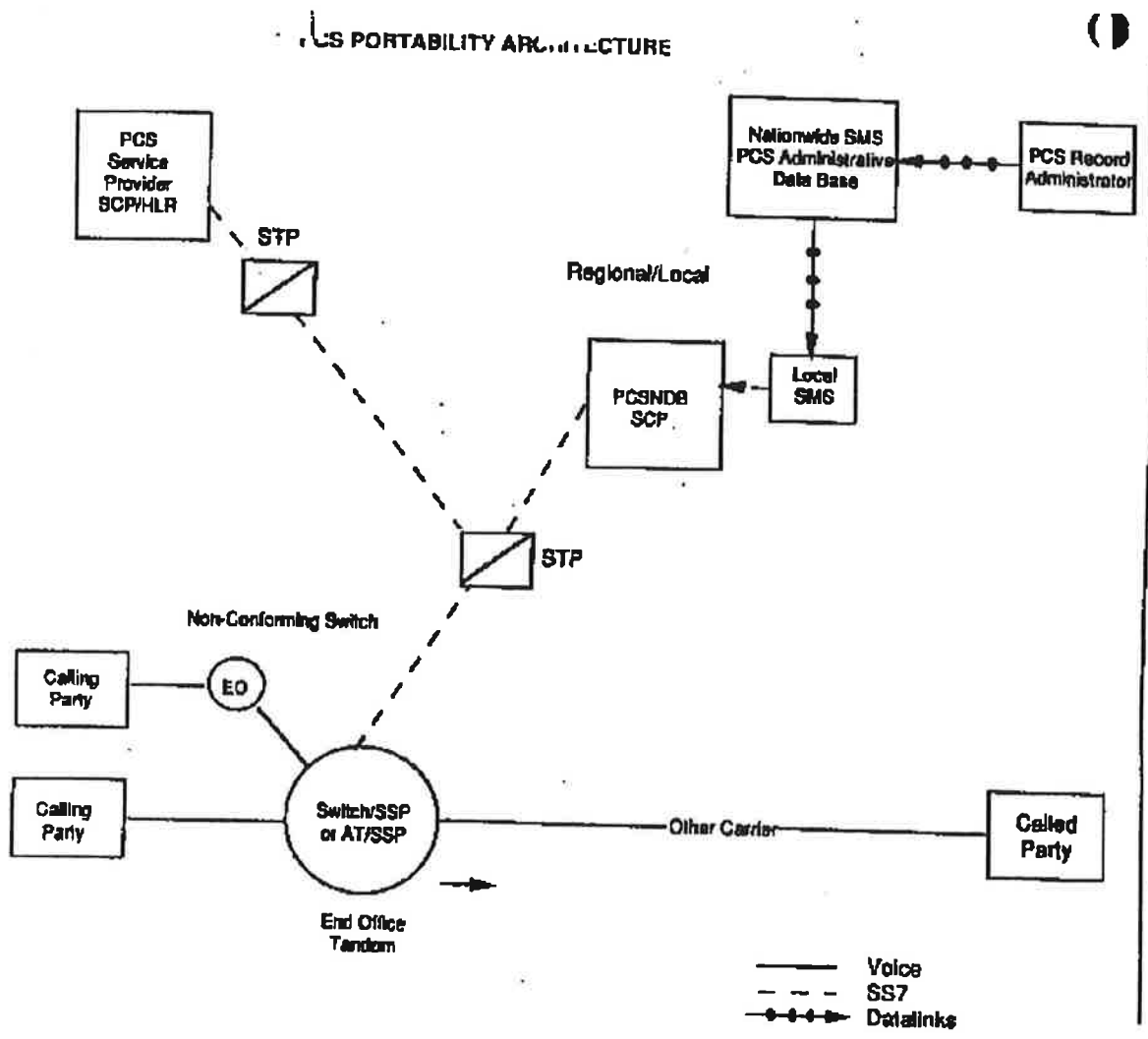
Figure 6.4 has an MF link between the EO and AT SSP. This configuration could not support passage of the "preferred carrier" (dual PIC). This configuration could support the call flows of Figures 2 - 4, but not the call flow of Figure 5.

Figure 6.5 has an MF link between the EO/SSP and the AT. This configuration could not support both the untranslated and translated PCS N00 number between the EO/SSP and the AT for passage on to the Other Carrier. Therefore, this configuration could only support

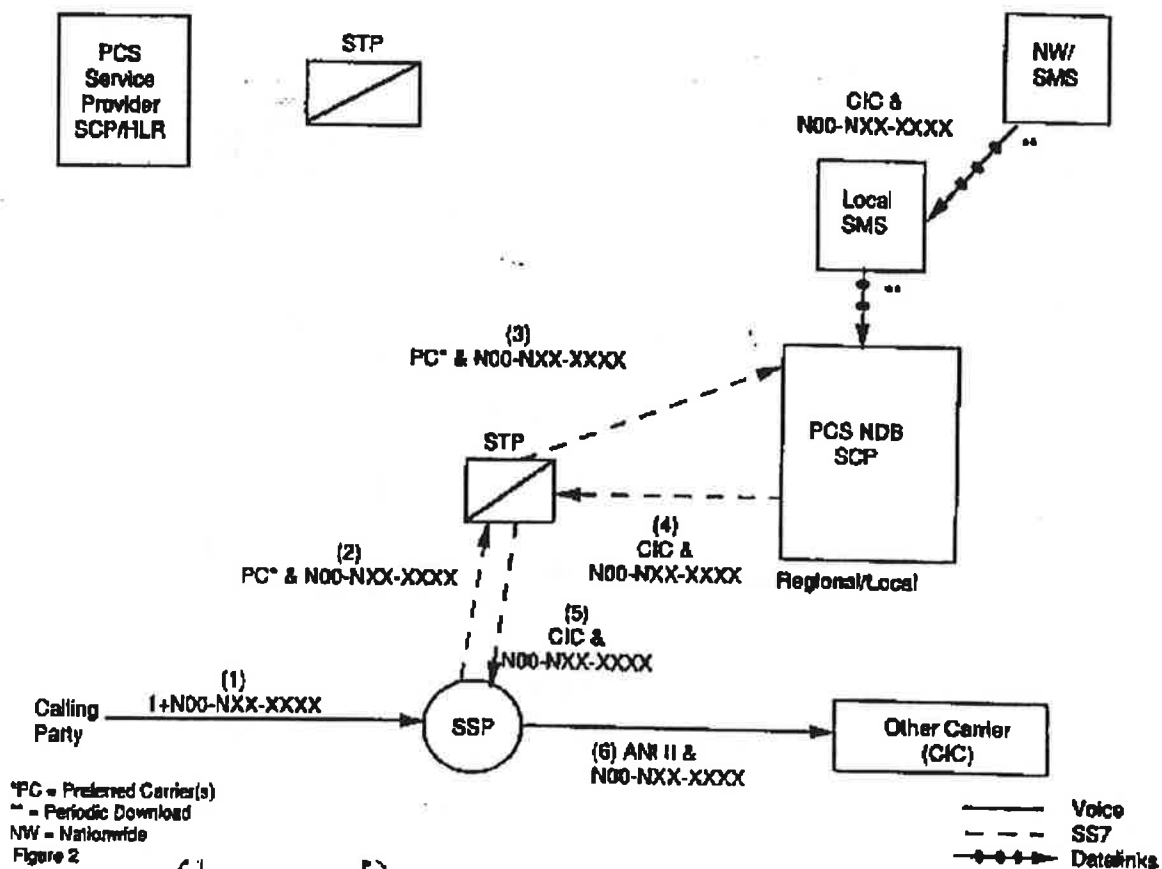
the call flow of Figure 2.

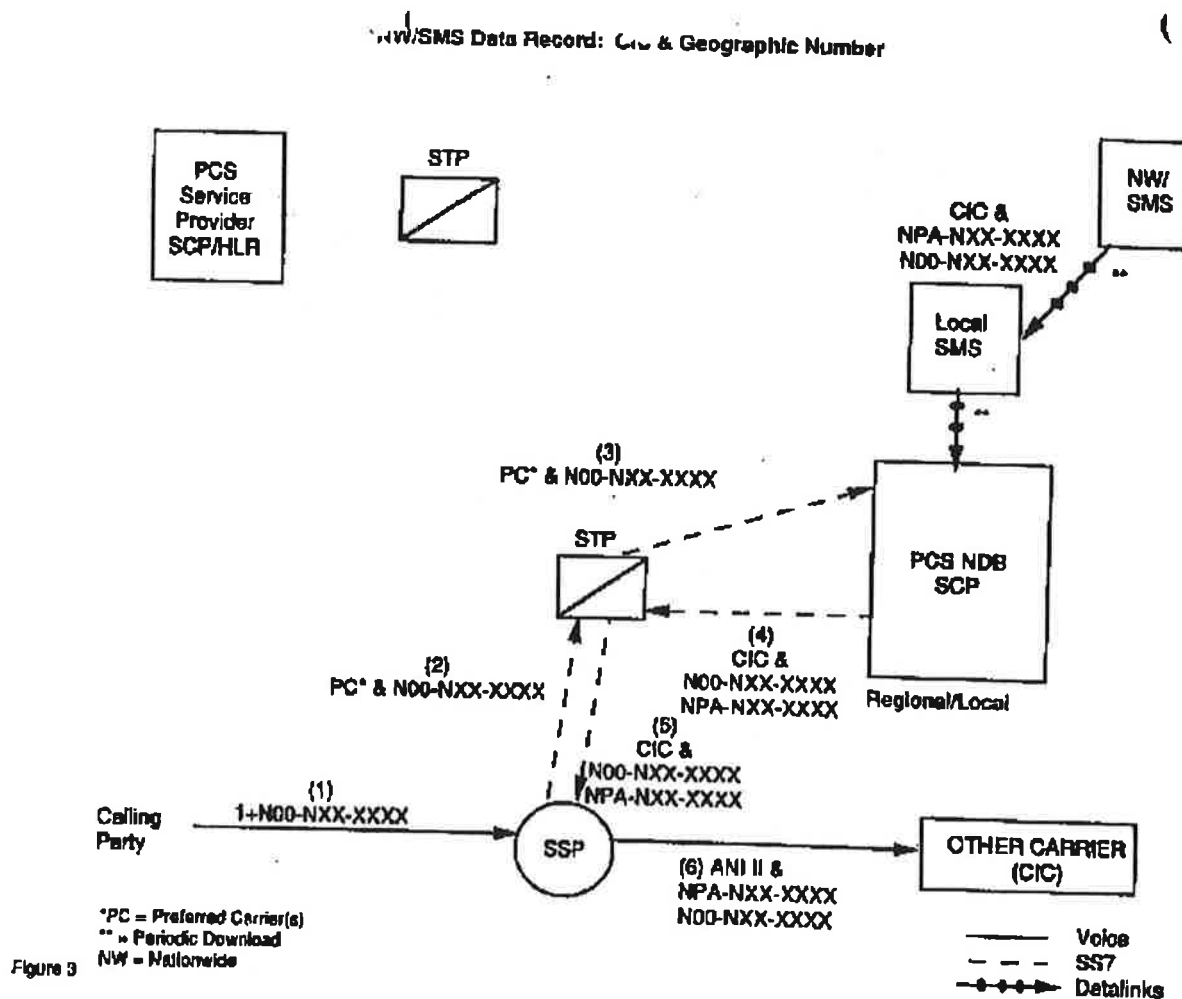
Figure 6.6 has an SS7 link between the EO/SSP and the AT, with an MF link between the AT and the Other Carrier. This configuration could not support both the untranslated and translated PCS N00 number between the AT and the Other Carrier. Therefore, this configuration could only support the call flow of Figure 2.

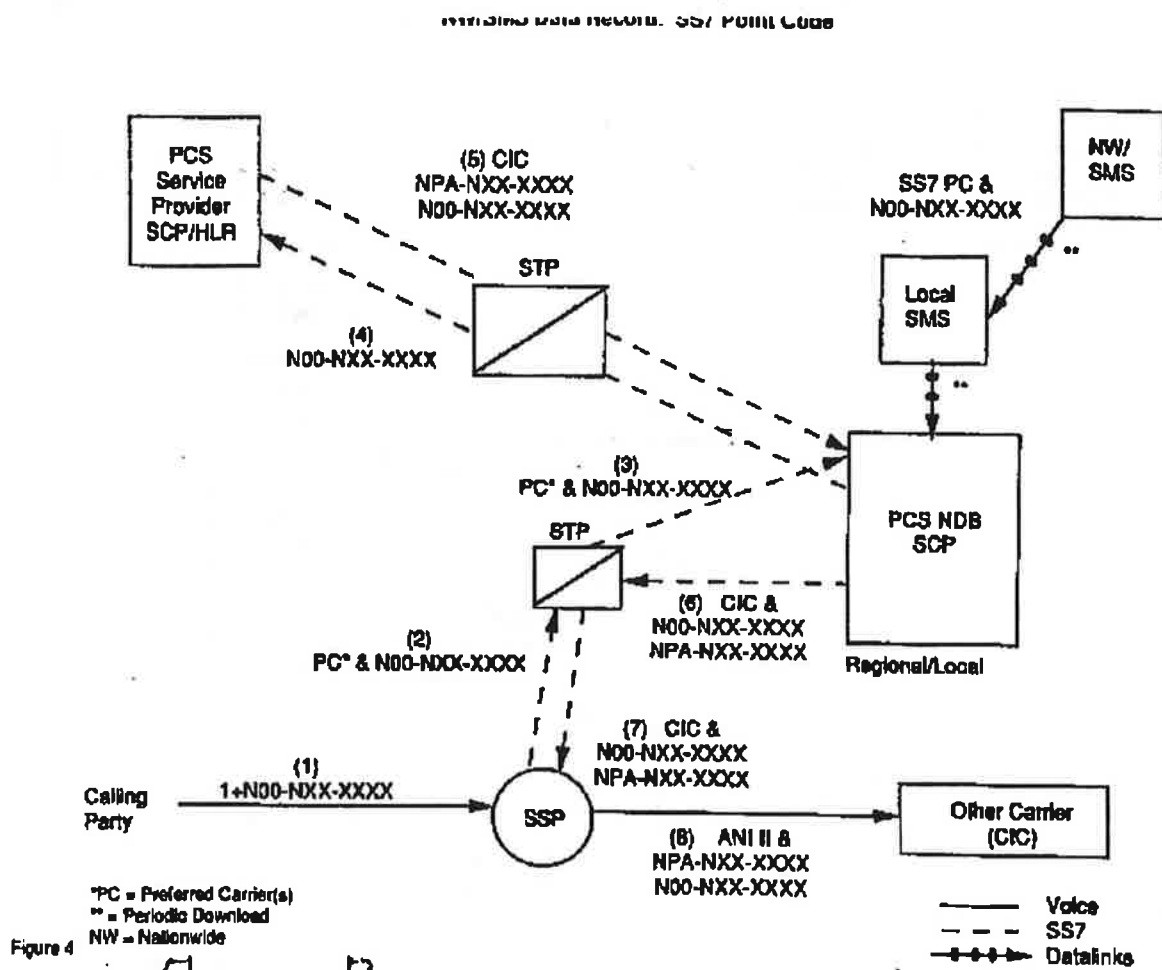
Figures 6.7 - 6.10 could only support the call flow of Figure 2, for the same reason as Figure 6.5. In addition, Figure 6.9 could not support the "preferred carrier" (dual PIC) required for Figure 5.



NW/SMS Data Record: CIC







NW/SMS Data Record: Geographic Number/USE PIC**

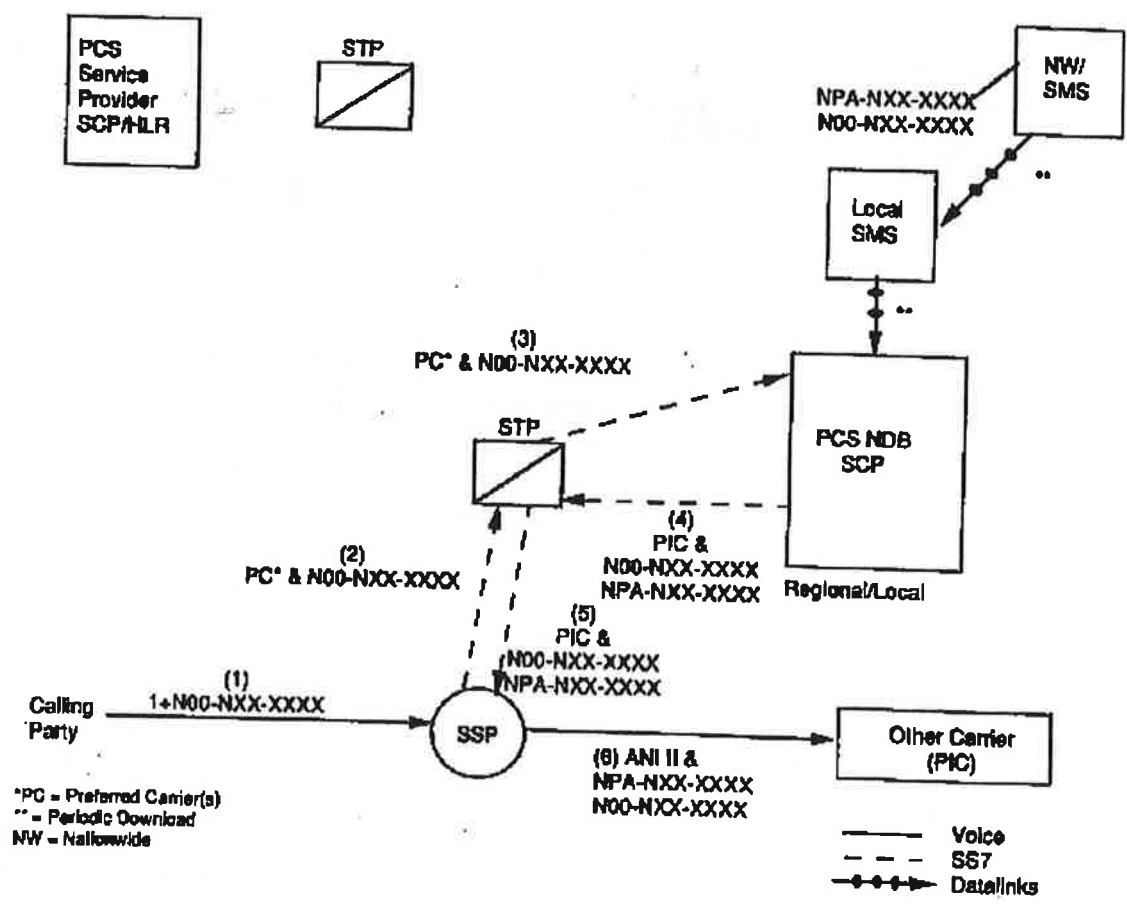


Figure 5

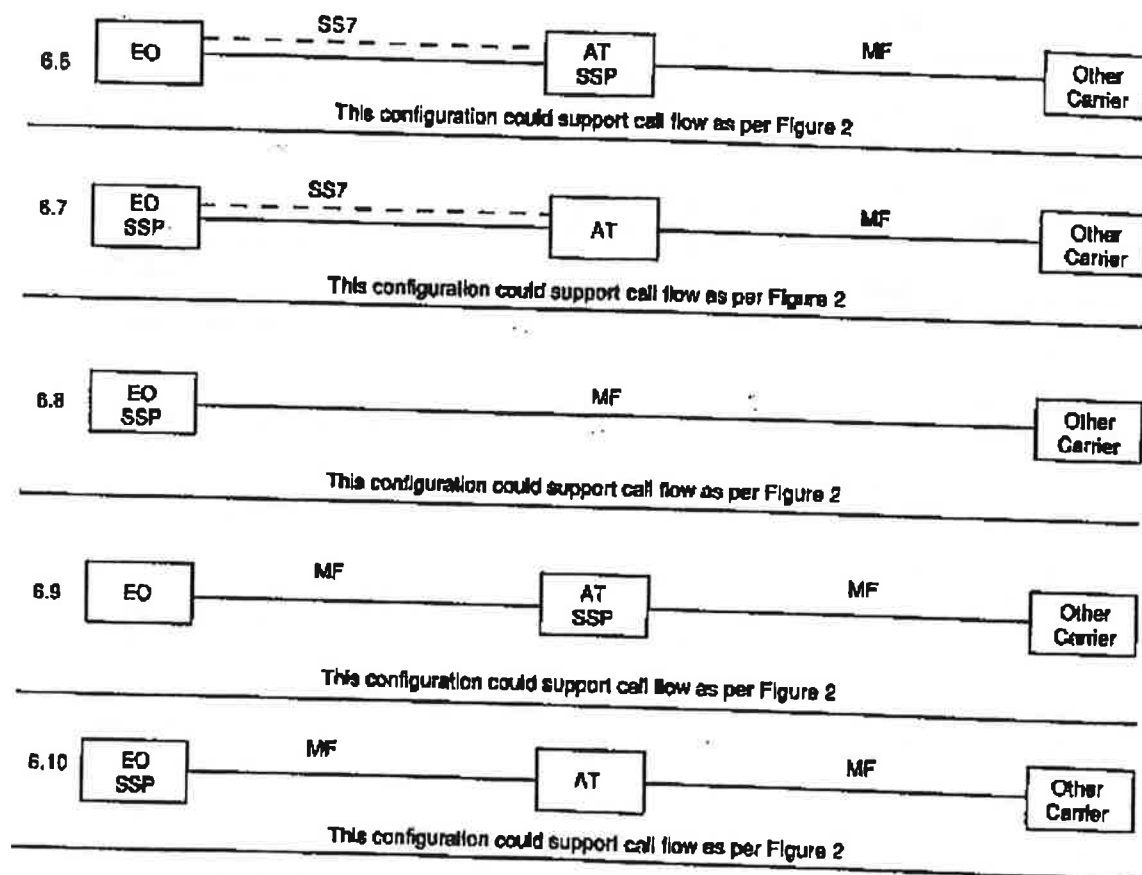


Figure 6: Potential Interconnection Configurations

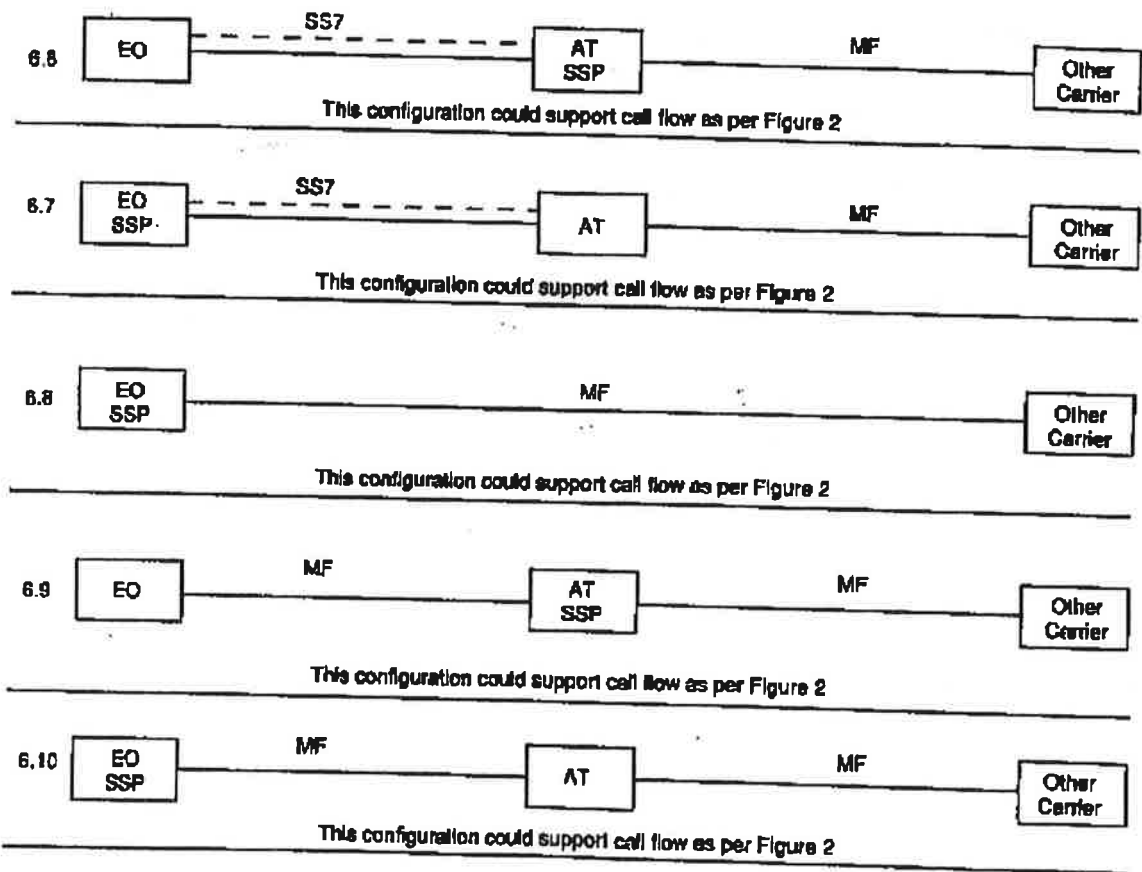


Figure 6: Potential Interconnection Configurations

8.3 Billing/Rating/Accounting/settlement - When a PCS call is dialed, a record for access charge billing and possibly end user billing should be made at the originating SSP.

A traffic count of queries per PCS service provider should be made at the PCSNDBs and should be used to assess query charges for PCSNDB queries. Additional or further queries, such as SCP to SCP/HLR queries, should also be counted so that additional charges may be assessed.

8.4 Traffic Performance - Access times for 800 service may be a useful guideline to begin determining access times for PCS Portability. The SCP-to-SCP/HLR query time must be taken into account. Common Channel Signaling (CCS) testing may be needed to determine performance standards.

It might be of use to provide a call processing announcement to calling parties if the end-to-end set-up time could be significant.

8.5 Ubiquity/Universality - No PCS Service Provider should be advantaged or disadvantaged by the portability aspect of the architecture proposed.

8.6 Service Provider/Carrier Identification - Service provider/carrier may be different entities - The originating SSP queries the PCSNDB and receives carrier identification/(PIC in the case of the optional Calling Party Pays). The originating SSP routes the call to the carrier. The carrier is responsible for disposition of the call including determining if another Service Provider is involved. A potential drawback of this solution is a possible increase in call set-up time.

ID derived from PCS number/Address - since the PCS N00 resources are to be portable among service providers, the Service Provider ID or Carrier ID can only be determined by the database translation of the 1 0-digit number.

Network determinable - on the originating side via query launched to PCSNDB. Response will contain carrier identification. When the call is routed to the indicated carrier, that carrier may have to perform additional translations/database queries (either to the PCSNDB or to the carrier's own database) to determine disposition of call. A drawback of this approach is a possible increase in call set-up time.

8.7 OSS Impacts - Most operations systems utilize the dialed telephone number as a geographically significant network terminating address. With non-geographic numbering services there is no relationship between the telephone number and the network terminating address. The proposed architecture in this contribution will require some work within the structure of operations support systems.

8.8 Portable PCS Number Administration - A nationwide PCS portability plan will require development of assignment guidelines. These guidelines may be similar to the

"Industry Guidelines for 800 Number Administration". These guidelines are a subject for future development.

8.9 Expandability - These architectures which use the AIN platform should be expandable to other SACs (e.g., for other non geographic services). However, capacity of the AIN PCSNDBs may also be a factor in their expandability.

8.10 Operator Services/Directory Assistance - 0 + dialing to PCS numbers is not addressed in this document.

8.11 Transparency between Service Providers - No PCS Service Provider should be advantaged or disadvantaged by the portability aspect of the architecture proposed.

8.12 Timing/Availability - See Section 9.2.

8.13 Dependencies/Limitations - This architecture requires specifications and an implementation plan.

8.14 End User Impacts - PCS subscribers have portability in their assigned PCS N00-NXX-XXXX. that is, subscribers will be able to change service providers and maintain the same PCS N00-NXX-XXXX.

8.15 Blocking Capability - Blocking, if necessary will be done on a 1 0-digit basis.

8.16 Maintenance - The PCS portability architecture should have a network reliability, testing and performance monitoring plan similar in concept to that of the 800 Data Base Access Service. This plan should include but not be limited to, SS7 network reliability objectives, SS7 testing, compliance and interoperability testing, PCSNDB access service reliability objectives, SMS testing, and carrier/service provider identification.

9.0 Migration From NXX Environment

The DID recognizes that a mature PCS N00 NXX environment does not yet exist. However, it is assumed that the environment from which the Industry will migrate will include such functions as screening of the N00 NXX digits, which will provide routing information such as, CIC to enable the access provider to route the call to the appropriate service provider.

The initial PCS portability architecture must support any and all functionality provided in the pre-portability environment. Subsequent evolution will be - driven by market factors.

Furthermore, the architecture and methodology for routing PCS (N00-NXX-XXXX) traffic originating from non-WZI areas as well as all areas within WZ1 needs to be considered when selecting a portability implementation plan.

9.1 Regulatory Direction Requirements - INC has determined that the following questions need to be resolved by the appropriate regulatory bodies prior to the industry moving forward with PCS portability planning:

- Who will be the owner/operator of the nationwide SMS/local SMS data base administration and how will they be selected?
- How will the costs for PCS portability be recovered?
- Taking into account that the industry needs resolution of the above questions, when must the industry begin deployment of PCS portability?

9.2 Proposed Migration Steps - An industry group charged with the implementation of personal communications services number portability (i.e. migration from the NXX environment) would need to address the proposed list of project management and technical tasks appearing in Section

A broad range estimate of the time period to complete each task and an overall time period to cut-over is also provided. The estimated time line does not address the regulatory environment, e.g. the process and time period required for an FCC order to deploy PCS number portability and the local Public Utility Commission activity for access tariff approval for the new access capabilities. The time line assumes that there is an industry agreement in place for an appropriate industry group to perform the project management for PCS portability implementation. An initial task of the Industry Group would be to address the method(s) to support the development and deployment of the PCS nationwide data base, and its ongoing operation, administration and maintenance (OA&M).

9.3 Proposed Project Management/Technical Tasks and Estimated Time Line
(Note: List is not all inclusive.)

Task	Time	Period**
OBTAIN REGULATORY GUIDANCE	TBD	
I. Nationwide data base development		
• Review and document existing and planned NXX access arrangements	2 months	
• Develop requirements *	12 months	#
• Prepare & issue RFP	2 months	#
• Vendor proposals preparation	2 months	#
• Evaluate vendor responses	2 months	#
• Select vendor * (including contract negotiations)	3 months	#

II. Develop Implementation Time Line *

- Access providers implementation estimates

III. Industry Standards (if needed)

- Development of new call associate signaling parameters 9 months
- Development of new non-call signaling parameters 9 months

IV. Nationwide Database Implementation

- Database Development 9 months #
- Develop Implementation Test Plan* 3 months
- Implementation and Testing 3 months #
- Record loading and user data base training 9 months #

V. PCS Number Portability Implementation

- Access Arrangements Developed, Implemented and Tested for Participating Providers 18 months
- Access Arrangements Developed, implemented and Tested for Non-Participating Providers 9 months
- Provisioning and billing process changes (if needed) 9 months
- Develop Cut Over Test Plan 4 months
- Conduct Test Program 6 months #

VI. Implementation Time Line

Start Date	Cut Over
(1) _____	48 months (2) #

* Require Industry review and agreement

** Time periods for tasks are not sequential.

The cut over time period is based on the development and implementation of the nationwide PCS data base and administration system.

(1) Start Date: The START DATE of the implementation time line is the date agreed to by the recommended industry group as the beginning of the process of development, implementation on and OA&M for the nationwide data base and PCS portability. It is assumed that the start date will not occur before obtaining regulatory guidance.

(2) Cut Over: Successful completion of cut over testing program

10.0 Recommendations

The Industry Numbering Committee (INC) developed this report on PCS N00 Portability based on the CLC consensus process. r 10. 1 Migration to Portability - The migration plan presented is a high level view of the tasks involved and an estimate of the time periods involved for each task. Based on these tasks and time frames, it is estimated that from the START DATE it would take approximately 4 years to transition from an NXX environment to a number portability environment. However, under the regulatory issues, are defined and resolved, a firm plan for migration to portability including project management and technical tasks cannot be determined.

10.2 Architecture - PCS N00 service is presently offered in an NXX access environment and is in its infancy. Consequently, development of a detailed migration plan was not possible at this time. INC recommends a high level architecture, described in Section 8, which uses a nationwide data base with sufficient capabilities to support multiple access arrangements and multiple SAC NPAs. The proposed architecture and call flows would support both number portability and meet service provider requirements in a competitive PCS environment.

In order to implement an architecture which provides the greatest latitude for enabling portability among service providers, consideration should be given to various intelligent network platforms and network industry interface standards used to interconnect potential network providers.

1 0.3 Industry group - When regulatory direction is provided relative to the questions in Section 9.1 and if the regulatory directive is given to proceed with PCS portability, INC recommends that an industry group or committee be for need to do the detailed planning for the development and implementation of the nationwide PCS data base. INC makes no recommendation on how this industry group would be sponsored or supported, nor does it support that this industry group be formed within INC, since the implementation of portability is outside the mission and scope of INC. INC recognizes the need for such a industry group to facilitate the implementation of PCS N00 portability in an acceptable time frame. The industry group may address such issues as:

- development, operation and maintenance of the nationwide data base platform
- establishment of requirements for the nationwide data base and issuance of an RFP for the nationwide data base
- evaluation of RFP responses and vendor selection
- development of a time line for cut-over to portability
- monitoring the development, implementation and operation
- the analysis necessary to carry forward any standards for enhancements for the call flows
- determination of who owns the information in the SCPs in terms of property and privacy

- determination of how requests for modifications to the data base(s) will be approved and prioritized
- determination of performance measures, such as call setup time

PERSONAL COMMUNICATIONS SERVICE-NUMBER PORTABILITY - ARCHITECTURE ASSESSMENT

ASSESSMENT CRITERIA	CIC/CIC+GEO NUM. 800 CLONE	OTHER RESPONSES EXPANDED 800	OTHER RESPONSES AIN BASED	NOTES
	Doesn't exist	Doesn't exist	Existing	
NETWORK				
Orig. Switch (Source of dial tone)	Slight additional dev. req.	Additional dev. req.	Uses exist capability	
Tandem (or Int'l) switch	No impact	May req. additional dev.*	May req. additional dev.*	*2nd data dip
Signaling	No additional dev. req.	No additional dev. req.	No additional dev. req.	
Databases	Add. dev. req. for 500	Signl. modifications req.	Development of 500 database	
PCS Database	Develop from 800 capability	Develop from 800 capability	Development of 500 database	
Capabilities	Limited capabilities like 800	Limited capabilities like 800	Additional svcs. available	
Translations	Basic translation to geo #	Basic translation to geo #	Additional translation avail.	
Capacity	Add'l capacity or new SCP req.	New SCP req. with add'l info	Add'l cap. or new SCP req.	
Interworking	Connectivity available	Connectivity available	Connectivity potential	
GOS/Res. time	Same as basic 800	Potent. longer than 800*	Potent. longer than 800*	*2nd data dip
Nat'l. Topology	Need new 500 SCP/SMS	Need new 500 SCP/SMS	Add'l AN SMS and Nat'l # Ad.	
(Equal Access SSP Switch Req'd)				
500 DATABASE RESPONSE				
Carrier Identification Code (CIC)	Provided	Provided	Provided	
Carrier Identification Code (CIC)+Geo. Num.	Provided	Provided	Provided	
Geo Num. (Use PIC)	Provided	Provided	Provided	
SS7 Point Code	Not Available	Provided	Provided	
CALL FLOWS				
Call set-up proc.	Same as basic 800	Like 800+SCP-SCP comm.	Like 800+SCP-SCP comm.	
call flows	Same as 800	Like 800+SCP-SCP comm.	Like 800+SCP-SCP comm.	
Speech/signaling.	Same as 800	Like 800+SCP-SCP comm.	Like 800+SCP-SCP comm.	
Dependencies	Same as 800	Like 800+SCP-SCP comm.	Like 800+SCP-SCP comm.	
GOS/Res. time	Same as 800	Like 800+SCP-SCP comm. Add'l delay for *	Like 800+SCP-SCP comm. Add'l delay for *	*2nd data dip
BILLING/RATING/ACC. TG/SETTLEMENT				
Methods of Payment	Set-up for called party pays	Set-up for called party pays	Flexible billing	
--Billing Records	Record at orig. sw. & others	Sw. & SCP based records	Sw. & SCP based records	
--Settlement Process	Not req.	May be req.	May be req.	
--Compensation	Access Tariff based	Access + Transaction??	Access + Transaction??	

TRAFFIC

Set-up time	Same as 800	Pot. increased set-up time	Pot. increased set-up time	*2nd data dip
Net. Overhead	Same as 800	Increased messaging*	Increased messaging	*2nd data dip
Traffic load/engineering	Same as 800	Like 800 with add'l messages	New procedures req.	
Reliability	Same as 800	Need to handle*	Need to handle*	
Net. Mgmt.	Same as 800	Need to handle*	Need to handle*	*2nd data dip

UBIQUITY/UNIVERSITY

~Availability of service	Avail. to all Service Providers	Pot'lly Avail. to all Svc. Prov.	Avail. to all Svc. Prov.	
~Ability/impact of access to port. WZ1 #s	Same access assump. as 800	Same access assump. as 800	Same access assump. as 800	
Domestic (USA)/WZ1/Outside WZ1				
Scheduling	Req. dev. & deployment	Req. dev. & deployment	Req. deployment & svc. dev.	

SVC. PROV/CARRIER ID

Svc. Prov./center not aware ID embedded in PCS #	Not set up to handle	Not set up to handle	Can modify to handle	signal limit.
ID embedded in address	Based on number assign.	Based on number assign.	Based on number assign.	signal limit.
Sel. by caller/show	Linked capabilities	Linked capabilities	Some flexibility	
Sel. by net/show	Not sel. by caller	Pot. sel. by caller	Pot. sel. by caller	
Carriage of ID	Sel. by CID in database	Sel. by CID and/or TGID	Sel. by CID and/or TGID	
	Not forwarded to svc. prov.	Pot. forwarded to Svc. Prov.	Pot. forwarded to Svc. Prov.	

OPS SUPPORT SYSTEMS

Systems/functionality impacts	no additional systems req.	some new systems req.	some new systems req.	
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PORT, PCS # ADMINIST.

Security/data protection	Exist. structures limit acc.	New structures may be req.	New structures may be req.	
Numb. assign. procedures	Clone exist. proc.	Clone exist. proc.	Clone exist. proc.	
Resource mgmt.	Clone exist. proc.	Clone exist. proc.	Clone exist. proc.	
Centralized vs. de-centralized	Req. centralized admin.	Req. centralized admin.	Req. centralized admin.	
Administrative access	Req. "real-time" access	Req. "real-time" access	Req. "real-time" access	

EXPANDABILITY

Support mult. non-geo PCS NPAs portability	Supports single non-geo SAC	Could support mult. PCS SACs	Supports mult. non-geo SACs	
Numbering Resources required	single NPA-\$\$ cost	single NPA-\$\$\$ cost	multi. NPAs - \$\$\$ cost	
Expandability, open ended/closed	Closed	Expand. with Development	Designed to be expanded	

Expediency vs. quality	Expedient-limited features	Not expedient	Expedient-robust	
OPERATOR SERVICES/DIRECTORY				
Requirements/assumptions Access arrangements Information source	opr. access to database like 800 500 database/natl num. adm.	opr. access to database new access req. 500 database/natl num. adm.	opr. access to database new access req. 500 database/natl num. adm.	not today?
TRANSPARENCY BETWEEN SPs				
Advantage vs. no advantage Small vs. large service provider National vs. international Between W21 countries	no impact no impact issues like 800 like 800	no impact no impact issues like 800 like 800	no impact no impact issues like 800 like 800	
TIMING/AVAILABILITY				
Degree of difficulty and availability Relative estimates required Trade-off involved (feature vs. bare bones) Established minimum standard Ind. Stand. for Nat. Elements & interfaces	fast and simple 1-2 year bare bones does not meet minimum req. SS7 only, GPs for SCP	more complex and slower 2-3 year additional features meets minimum req. SS7 only, GPs for SCP	complex and not-so-fast 1-2 year additional features/expansion meets minimum req. GPs for Interface, SCP, SS7	dev vs deploy
DEPENDENCIES/LIMITATIONS				
Factors/actions impacting implementation Local/Regional SMS National Admin. System	no specs. or dev. yet no specs. or dev. yet	no spec. or dev. yet no spec. or dev. yet	specs. avail. not wide deploy no specs. or dev. yet	
END USER IMPACTS				
PCS users/subscribers PCS calls (to PCS #s) Transition to portability/# of changes Transparency Evolution Path	limited access to svc. prov. no impact initial limited portability limited transparency limited evolution	no impact no impact initial portability transparent transparent some flexibility	no impact no impact-pot. more features transparent transparent flexible, easy evolution	

BLOCKING CAPABILITY**Orig. EO per line blocking****3 & 6 digit analysis only
(performed at SCP)****3 & 6 digit analysis only
(performed at SCP)****all 10 digits available (performed
at SCP)****MAINTENANCE****Trouble Reporting
Testing/tracing/clearance
Cust. relations (PCS user,
caller, etc.)****like EOD today
like EOD today
transparent****req. more flexibility
req. more flexibility
transparent****req. more flexibility
req. more flexibility
transparent****Carrier/svc. prov. identification****limited capabilities****minimum capabilities****minimum capabilities**

ATTACHMENT 2

INC

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900 NXX CODE ASSIGNMENT GUIDELINES

These guidelines are issued in resolution to INC Issue
#082.

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900 NXX CODE ASSIGNMENT GUIDELINES

1.0 PURPOSE AND SCOPE

This document specifies guidelines for the assignment of NXX codes within the 900 Service Access Code (SAC) to carriers.

1.1 For the purpose of these assignment guidelines, unique NXX codes will be utilized within the 900 SAC to identify the individual carriers for routing purposes.

1.2 These guidelines are provided to accommodate a method which utilizes unique NXX codes within the 900 SAC to identify individual carriers in order to allow multiple carrier 900 access. This method requires a Local Exchange Carrier (LEC) to 6-digit translate the 900 NXX portion of a 900-NXX-XXXX number in order to identify the carrier for call routing. Consequently, the assignment of individual NXX codes to specific carriers is required. The 900 SAC may be accessed by dialing (1)+900-NXX-XXXX. As an option, use of 0+900-NXX-XXXX dialing may also be allowed for 900 access. Use of the 10XXX or 101XXX Carrier Access Code prefix is not consistent with NXX assignment and routing and is therefore not permitted.

1.3 These guidelines were developed by the industry consensus process by the Industry Numbering Committee.

1.4 These guidelines are expected to apply throughout the NANP serving area subject to the appropriate regulatory or governmental procedures and constraints.

2.0 BACKGROUND

The 900 SAC was first introduced in 1971 for information services in which the caller pays for call setup and the specific services associated with the 900 call. In 1986, NANPA issued 900 NXX Assignment Guidelines in Bellcore Advisory Letter, AL-86/07-006. The AL described the use of NXX codes to identify individual carriers for routing purposes and contained a set of procedures for obtaining NXX assignments. In 1996, the Industry Numbering Committee (INC) developed the 900 NXX assignment guidelines contained herein to replace the previous version.

3.0 ASSUMPTIONS AND CONSTRAINTS

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

* * This would not apply to those end user lines from which the subscriber has requested the blocking of all 900 calls.

3.1 NANP resources, including those covered in these guidelines, are collectively managed by the North American Telecommunications industry with oversight of the North American federal regulatory authorities.

The NANP resources are considered a public resource and are not owned by the assignees. Consequently, the resources cannot be sold, brokered, bartered or leased by the assignee for a fee or other consideration.

If a resource is sold, brokered, bartered, or leased for a fee, the resource is subject to reclamation by the Administrator.

3.2 These guidelines are intended to apply to 900 NXX code(s) which are assigned to carriers.

3.3 These assignment guidelines do not apply to an environment where 900 number portability exists. If portability is implemented, these guidelines will be replaced with a 10-digit assignment plan negating the need for the allocation of specific NXXs to carriers. However, there may be a need to retain specific NXX assignments for areas that do not participate in portability.

3.4 The allocation and assignment of 900 NXX codes to telecommunications carriers, as set forth in these guidelines, remains in effect until there is industry consensus and/or regulatory policy direction to change or supersede these assignment guidelines.

3.5 NANP numbering resources shall be assigned to permit the most effective and efficient use of a finite numbering resource in order to maximize the existing resource pool and delay the need to assign additional resources. To promote the efficient and effective use of numbering resources, audits of code applicants will be performed to ensure the consistent application of, and compliance with, these guidelines.

3.6 These guidelines do not address the issue of who will fill the role of 900 NXX code administrator. The guidelines described herein were developed by the industry without any assumption on who should be the 900 NXX code administrator. Currently, the code administrator is North American Numbering Plan Administration (NANPA)

3.7 The applicant/holder of the 900 NXX code must have authorization, if required, from the appropriate applicable regulatory authority(ies) to operate in the area in which it intends to provide 900 service.

3.8 The guidelines should provide the greatest latitude to those 900 carriers while effectively permitting management of a finite resource.

3.9 900 NXX code(s) are a public resource and administrative assignment of the 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 it is assigned. The assignment of a 900 NXX code(s) by the code administrator implies the use of that code(s) by the code recipient/holder for 900 services.

4.0 ASSIGNMENT PRINCIPLES

To allow the entities the greatest possible latitude in providing services the following assignment principles apply to all aspects of the "900 Code Assignment Guidelines":

4.1 The NXX code, as part of the 900-NXX-XXXX NANP number format, is to be assigned to identify the carriers.

4.2 900 NXX codes shall be assigned in a fair, timely and impartial manner to any applicant which meets the criteria for assignment as detailed in Section 4.

4.3 If required, applicants for 900 NXX codes must comply with all applicable local governmental, state, federal and the NANP area governmental regulations relative to the pay per call information service they wish to provide.

4.4 The 900 NXX codes will be assigned and used only for pay per call information services.

4.5 900 NXX codes are a finite resource that should be used in the most effective and efficient manner possible.

4.6 Information that is requested of applicants in support of a 900 NXX code assignment shall be uniform and kept to a minimum. Information received by the administrator shall be treated on a proprietary and confidential basis, adequately safeguarded and not shared with non-code administrator personnel.

4.7 An entity which is denied the assignment of one or more codes, under these guidelines, has the right to appeal that decision as described in Section 12 (Appeals Process).

4.8 NXX codes will be assigned on a first come, first served basis from the available pool of unassigned codes. However, the code administrator will attempt to match a code assignment with a specific code request.

4.9 These guidelines do not impose a limit on the total number of NXX codes assigned to each entity, provided that codes already assigned are used as specified in these guidelines.

5.0 CRITERIA for ASSIGNMENT

The assignment criteria in the following sections shall be used by the code administrator in reviewing a 900 NXX code assignment request.

5.1 NXX codes will only be assigned to applicants for 900 service in the NANP area who have established plans for a 900 access arrangement and upon approval of a completed code request form, Attachment A. In the case of an Interexchange Carrier (IC), an access arrangement through a Local Exchange Carrier (LEC) should be in place or in the process of negotiation with a LEC before submitting a 900 NXX request form.

5.2 In order to obtain an NXX within the 900 code, the applicant must complete and sign Part A of the "900 NXX Code Forms" (see Attachment A). In addition, the applicant must certify that it will be providing 900 service as a public telecommunications service and that it has secured the authorization, if necessary, from the federal, state, provincial or other regulatory body within the NANP area in which it intends to provide 900 service.

5.3 All information provided on or with Part A of the "900 NXX Code Forms" (Attachment A) will be considered proprietary and confidential.

5.4 NXX codes will be assigned to applicants who plan on activating these codes within six months after the date of their NXX code(s) assignment. This time interval is an outside limit and is not intended to delay implementation(s). If a code holder can demonstrate that the code has not been activated solely due to delays beyond their control, the time period will be extended until these constraints are resolved. This time interval is intended to be used for the following purposes:

- Trigger administrator follow-up
- Provide target time frames for code activation
- Provide a basis for code conservation.

5.5 900 NXX codes shall be assigned on a first come, first served basis and each applicant requesting a code(s) will be assigned a unique code(s) on an exclusive basis, i.e., the code may be used only by the assignee in any state, province or country in the NANP area.

5.6 There will be no maximum placed on the total number of codes assigned to each carrier. However, each NXX request shall be limited to one per application

form (Attachment A). *No more than 5 codes can be requested at any one time.* Additional codes will be allocated provided the applicant can:

1. Demonstrate that all previously assigned codes have been activated or will be activated within the six-month period from the date the codes were assigned. A code is considered activated if the code holder has arranged for the code to be opened (i.e., for the necessary translations to be performed) in at least one Central Office.
2. Justify the need for the additional codes requested by advising of plans to activate new services requiring individual codes within six months of the date of the request.

5.7 Advance code reservation is not recommended and normally not permitted. Consideration by the code administrator for code reservation will be made, however, if the applicant can clearly demonstrate that it is essential to accommodate technical or planning constraints that could limit an effective service offering. The code administrator will try to satisfy such requests but cannot guarantee specific requests will be satisfied.

5.7.1 Any code reservation(s) is subject to assignment to another qualifying requestor in the case that no other feasible resource exists.

5.7.2 A code can be reserved for a maximum of three months, and at that time written notice will be forwarded to the applicant informing them that the reservation will be cancelled by the administrator.

5.7.3 To obtain a 900 NXX reservation, an applicant shall submit a written request to the administrator explaining the reasons why the request meets the conditions for reservations as specified in Section 5.7. The administrator will respond in writing to the applicant within 10 business days as to the disposition of the reservation request.

5.8 The N11 (211 through 911) codes will not be assigned as 900 NXX codes.

5.9 The applicant's preference for a specific 900 NXX code will be honored to the extent possible. The code administrator should advise applicants that certain NXX codes may cause dialing confusion; e.g., 700, 950, etc. However, applicants requesting one of these codes are not precluded from receiving it, if unassigned. In the event that the applicant's preferred code is unavailable, the applicant may specify up to five alternative codes in order of preference. If the preferred and alternatives are not available or the applicant does not indicate a preference for another specific code, the administrator will assign a code on a random basis.

5.10 If two applicants request the same NXX code simultaneously (i.e., their written requests are received by the code administrator with the same time and date stamp) one of the applicants would be randomly selected to receive the NXX code.

6.0 RESPONSIBILITIES OF CODE APPLICANTS AND HOLDERS

Entities requesting new 900 NXX code assignments as well as entities already assigned 900 NXX codes shall comply with the following:

6.1 The code applicant shall request from the 900 NXX code administrator information associated with the assignment of NXX codes for 900 services. This includes a current copy of the "900 NXX Code Assignment Guidelines".

6.2 The code holder is responsible for meeting all conditions of these guidelines.

6.3 The application process for 900 NXX assignments shall include the following:

6.3.1 Apply in writing to the code administrator, complete all required entries on the "900 NXX Code Forms" that are in Attachment A of these guidelines to the best of his/her ability as well as sign the forms. One form shall be completed per request. No more than 5 codes can be requested per application form. The completed and signed "900 NXX Code Forms" should be sent to the code administrator (see Section 11).

6.3.2 Requests for an additional code(s) shall include sufficient information to demonstrate the need for the code(s) and should include the following:

- 1) certify previously assigned codes have been activated or will be activated within six months from the date of assignment, and
- 2) certify that new NXX codes will be activated within a 6-month period.

6.3.3 Provide, if desired, requests for specific and alternative NXX code assignments in order of preference. The administrator will try to satisfy such requests but cannot guarantee specific requests will be satisfied, see Section 7.4.1.1.

6.3.4 Certify on Part A of the "900 NXX Code Forms" that the required regulatory authority authorization has been obtained for which the code is being requested.

6.3.5 Agree to abide by sound code conservation practices and the reclamation procedures (see Sections 9).

6.4 Ongoing 900 NXX code holders responsibilities shall include the following:

6.4.1 Assume the responsibility for the assignment of the last four digits of the 900 NXX numbers and the maintenance of up-to-date assignment records that match 900 NXX numbers to subscribers for all allocated NXX code(s). These records will be required for audit purposes (see Section 8.0). If 900 service number portability is implemented in the future, a portion of these records may also be required for centralized assignment of 900 numbers.

6.4.2 Changes in the information associated with a code assignment shall immediately be made known to the code administrator using Part A of the "900 NXX Code Forms". Such changes may occur because of the transfer of a code, through merger or acquisition, to a different company. The code holder of the NXX code acquired by merger, acquisition or other means must immediately inform the code administrator when the change becomes effective. This change information is required to ensure that an accurate record of the entity responsible for the code and the data associated with the code is maintained.

6.4.3 The holder of the 900 NXX code acquired by merger, acquisition, or other means must use the code consistent with these guidelines.

6.4.4 The code holder must participate in the audit process. See Section 9.

6.4.5 A code(s) assigned to an entity, either directly by the code administrator or through transfer from another entity, should be activated within six months after the original date of assignment by the code administrator. See Section 7 and Part C of "900 NXX Code Forms" (Attachment A).

6.4.5.1 Code holders shall also provide trouble reporting contact and telephone number associated with their 900 NXX numbering resource. See Part C of "900 NXX Code Form".

6.4.6 If a code holder no longer has need for the code, the code should be returned to the code administrator for reassignment. See Section 8.

6.4.7 If the audit process determines that a code is not in activated after six months from the date of a code assignment, the code administrator will request the voluntary return of the code. See Section 9.

6.6 The code applicant/holder should be aware that provision of 900 service on a national or regional basis using a particular NXX code(s) may be restricted by either state or federal regulation.

7.0 RESPONSIBILITIES OF CODE ADMINISTRATOR

The code administrator shall:

7.1 Provide copies of the "900 NXX Code Assignment Guidelines", including timely notification of changes.

7.2 Provide code applicants/holders assistance in completing the "900 NXX Code Forms". (See Attachment A.)

7.3 Track 900 NXX code requests and make NXX code assignments on a first come, first served basis.

7.4 Upon receipt of the written request form, the administrator shall process the application for 900 NXX codes and should follow these steps:

7.4.1 Determine if the request is in compliance with code assignment principles and criteria as set forth in these guidelines.

7.4.1.1 Based on the availability of the codes, an attempt will be made to assign the preferred code as listed on Part A of the "900 NXX Code Forms". If two applicants request the same NXX code simultaneously (i.e., their written requests are received by the code administrator with the same time and date stamp) one of the applicants would be randomly selected to receive the NXX code.

7.4.1.2 The code administrator will discuss with the applicant if one of the current codes from the existing resource pool is appropriate and select an unassigned code for assignment.

7.4.1.3 Provide a disposition on a NXX code request (See Part B of the "900 NXX Code Forms"). There are three possible dispositions; i.e., assigned, denied and requires further information. The code administrator will respond in writing of the disposition within 10 working days from receipt of the assignment request form. The response will include:

- a) If assigned: The NXX code actually assigned,
- b) If denied: The reason(s) for denial and instructions on how and where to make an appeal of the decision, or
- c) Requires additional information: The specific additional information required

7.4.2 If the application is approved and a code is assigned, the code administrator will notify Bellcore Traffic Routing Administration of the assigned NXX code and carriers identification information for publication; e.g., in the Local Exchange Routing Guide (LERG).

7.4.3 Records on code assignments and resource availability will be updated and used to develop the annual 900 assignment status report provided to INC and other appropriate bodies.

7.5 Treat information supplied by the applicant as proprietary and confidential and not disclose that information to non-900 NXX code administrator personnel, except as requested by appropriate regulatory bodies.

7.6 Initiate an inquiry into the status of one or more NXX codes that have not been activated within the required time frame. If appropriate, the code administrator will initiate an investigation for the return of the code(s).

7.7 Conduct periodic audits of code holder records (see Section 9.0 Code Conservation).

7.8 Perform reclamation procedures outlined in Section 8, as needed.

8.0 Code Reclamation Procedures

8.1 Resource Assignee Responsibility

The entity to which a NANP resource has been assigned shall return the resource to its administrator if:

- It is no longer needed by the entity for the purpose for which it was originally assigned
- The service it was assigned for is discontinued, or
- The resource was not activated by the INC-established activation date.

In the latter case, the assignee may apply to the administrator for an extension date. Such an extension request must include the reason for the delay and a new activation time commitment.

8.2 Administrator Responsibility

- The NANP resource administrator will contact any resource assignee(s) identified as not having returned to the administrator for reassignment of any NANP resource:
 - Assigned, but no longer in use by the assignee(s),
 - Assigned to a service no longer offered,
 - Assigned, but not activated by the INC-established date, or
 - Assigned but not used in conformance with the appropriate assignment guidelines.

The code administrator will seek clarification from the assignee(s) regarding the alleged non-use or misuse. If the assignee(s) provides an explanation satisfactory to the administrator, and in conformance with the assignment guidelines the resource will remain assigned. If no satisfactory explanation is provided, the administrator will request a letter from the assignee(s) returning the assigned resource. If a direct contact can not be made with the assignee(s) to effect the above process a registered letter will be sent to the assignee(s) address of record requesting that they contact the administrator within 30 days regarding the alleged resource non-use or misuse. If the letter is returned as non-delivered the administrator will advise the INC that the resource will be made available for reassignment following the established idle period, if any, unless the INC advises otherwise within 30 days.

- The NANP resource administrator will refer to the INC for resolution any instance where a NANP-assigned resource has not been returned for reassignment by the assignee if:
 - The resource has not been activated by the INC established date.
 - A previously activated resource is not now in use.
 - An activated resource is not being used in accordance with the appropriate assignment guidelines.
- If a resource is not activated by the INC-established date and the administrator determines, by discussion with the resource assignee(s), that the reason for the non-activation is not within the control of the assignee(s), the administrator may extend the INC-established activation date by up to 90 days.
- The NANP resource administrator will receive, process and refer to the INC for resolution any application from resource assignees for an extension on an INC-established NANP resource activation date when the:
 - Activation has not occurred within the 90 day extension,
 - Administrator believes that the activation has not occurred due to reason within the assignee's control, or
 - Assignee requests an extension in excess of 90 days.

Referral to INC will include the offered reason why the extension is requested, a new proposed activation date, and the administrator's recommended action.

The resource administrator will make all returned resources available for assignment following the established idle time, if any.

8.3 INC Responsibilities

The INC will:

- Accept all referrals of alleged non-use or misuse of NANP resources from the resource administrator or any other entity, by referring issues to the Resource Management Workshop
- Investigate the referral,
- Review referrals in the context of existing assignment guidelines,
- Attempt to resolve the referral, and
- Direct the resource administrator regarding the action, if any, to be taken.

Absent a consensus resolution of the referral or non-compliance to the resolution by the resource assignee, the case will be referred by INC via the CLC process, to the appropriate regulatory body for resolution.

9.0 Code Conservation

Assignment of the NANP area 900 NXX numbering resources is undertaken with the following conservation objectives:

- To efficiently and effectively administer/manage a limited NANP resource through code conservation
- To delay the exhaust of the 900 NXX code resource.

9.1 The code administrator will track and monitor 900 NXX code assignments. Ongoing code administrator practices which foster conservation shall include the following:

9.1.1 The code administrator may conduct an audit (e.g., when a 900 NXX code holder requests additional NXX codes). The purpose of this audit is to verify the code applicant's/holder's compliance with the provisions set forth in these guidelines.

9.1.1.1 These audits may be conducted, if necessary, at the code applicant's/holder's premises or at a mutually agreed to location and at a mutually agreed to time.

9.1.1.2 The code administrator will not copy or remove the information from the premises nor will they disclose the information to non-900 NXX code administrator personnel.

9.1.1.3 The code administrator will expect to review the activation status of each 900 NXX assigned to the entity.

9.2 Audit results should be used to identify and recommend to the appropriate organization specific corrective actions that may be necessary. Examples of specific corrective actions which may be proposed are as follows:

- Modifications to the 900 NXX Code Assignment Guidelines
- Additional training for code applicant(s) concerning the assignment guidelines
- Return of NXX codes (either voluntarily or via the appropriate regulatory action)
- Requiring supporting documentation of future code requests in non-compliant situations
- Process modifications to code applicant(s) in the maintenance of records for and/or number assignment.

9.3 Audit results with respect to code applicant/holder information and/or recommended code holder process modifications shall be treated on a proprietary and confidential basis, adequately safeguarded and not shared with non-900 NXX code administrator personal.

9.4 Failure to participate/cooperate in an audit shall preclude the assignment of additional 900 NXX codes, may trigger other corrective action, and will be considered as having failed an audit (see Section 9.2).

10.0 CODE RELIEF PLANNING

The Code Administrator's responsibilities for code relief planning shall include the following:

10.1 900 NXX code assignments will be tracked and monitored, and when the projected exhaust is within 5 years relief planning activities will be initiated within the industry. An annual report of 900 NXX utilization will be presented to the INC.

10.2 When the 900 code approaches exhaust it is planned that the code administrator will examine the available options (e.g., assignment of another N00 or other NPA) and in consultation with Industry will assign another NPA code for 900 services.

11.0 MAINTENANCE OF GUIDELINES

It may be necessary to modify the guidelines periodically to meet changing and unforeseen circumstances. Questions regarding the maintenance of the guidelines may be directed to:

Director - NANP Administration
6 Corporate Place
Room 1F275

Piscataway, NJ 08854
(908) 699-3700
(908) 336-3293 FAX

12.0 APPEALS PROCESS

Disagreements may arise between the Code Administrator and code applicants/holders in the context of the administration of these guidelines. In all cases, the Code Administrator and code applicants/holders will make reasonable, good faith efforts to resolve such disagreements among themselves consistent with the guidelines prior to pursuing any appeal. Appeals may include but are not limited to one or more of the following options:

- The code applicant/holder will have the opportunity to resubmit the matter to the administrator for reconsideration with or without additional input.
- Guidelines interpretation/clarification questions may be referred to the body responsible for maintenance of the guidelines. Unless otherwise mutually agreed to by the parties, these questions will be submitted in a generic manner protecting the identity of the appellant.
- The code administrator and code applicant/holder may pursue the disagreement with the appropriate governmental/regulatory body.

Reports on any resolution resulting from the above options, the content which will be mutually agreed upon by the involved parties, will be kept on file by the code administrator. At minimum, the report will contain the final disposition of the appeal; e.g., whether or not a code was assigned.

13.0 GLOSSARY

900 Services - These are any public telecommunication service which may be accessed by the public over the PSTN using the dialing format 900-NXX-XXXX, in which the caller pays for the call. 900 Service is frequently referred to as "Pay-Per-Call".

ACNA (Access Customer Name Abbreviation) - is a three character alpha identification assigned by Bellcore Common Language Group to a purchaser of Feature Group B and/or Feature Group D services. The code is primarily used for billing between Local Exchange Carrier and the access purchaser.

Activated - A 900 code is considered activated if the code holder has arranged for the code to be opened (i.e., for the necessary translations to be performed) in at least one Central Office.

Authorized Representative - The person from the applicant's/holder's organization or of code applicant/holder its agent that has the legal authority to take action on behalf of the applicant/holder

Central Office (CO) - A Central Office is a local switching system that connects lines and trunks.

CIC (Carrier Identification Code) - is a numeric code which is currently used to identify a customer who purchased Feature Group B or Feature Group D access services. This code is primarily used for routing from the local exchange network to the access purchaser and for billing between the Local Exchange Carrier and access purchaser. CICs are assigned by the North American Numbering Plan administration.

Code Administrator - Administration of 900 NXX codes will be performed by the NANPA. Current contact information as shown in Section 10.

900 Code Holder - The entity to which a 900 NXX code has been assigned for the provisioning of 900 services.

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.

INC - The Industry Numbering Committee is a forum under the Carrier Liaison Committee (CLC). The mission of the INC is to provide an open forum to address and resolve industry-wide issues associated with the planning, administration, allocation, assignment and use of numbering resources and related dialing considerations for public telecommunications.

Local Exchange Routing Guide (LERG) - A Bellcore document which contains information about local routing data obtained from the Routing Data Base System (RDBS). This information reflects the current network configuration and scheduled network changes for all entities originating or terminating PSTN calls within the NANP excluding Canada.

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

NANP area - Consists of the United States, Canada, Bermuda, and the NANP Caribbean administrations. (Replaces World Zone 1 in all documents)

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 area code. An NPA is the 3-digit code which occupies the A, B, and C positions in the 10-digit NANP format which applies throughout the NANP area. NPAs are of the form NXX, where N represents the digits 2-9 and X represents any digit 0-9. NPAs are classified as either geographic or non-geographic.

- a) Geographic NPAs are NPAs which correspond to discrete geographic areas within the NANP area.
- b) Non-geographic NPAs are NPAs which 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. N00 codes are commonly referred to as service access codes (SACs).

Number Portability - Number portability in the context of 900 service implies that a 900 NXX subscriber can change 900 carriers while retaining their number assignment.

OCN - Operating Company Number is an alpha-numeric field in the Routing Database System (RDBS) that identifies the company to which a NXX code, such as a 900 NXX code, has been assigned. OCNs are assigned by the National Exchange Carriers Association (NECA) for its members or by Bellcore's Traffic Routing Administration for non-NECA members with assigned NANP resource(s) entered in RDBS.

PSTN - Public Switched Telephone Network. The PSTN is comprised of all transmission and switching facilities and signal processors supplied and operated by all telecommunications common carriers for use by the public. Every station on the PSTN is capable of being accessed from every other station on the PSTN via the use of NANP E.164 numbers.

Public Telecommunication Service - A public commercial service, the subscribers to which must be capable of being reached over the public switched telephone network.

Carriers - Any entity that is authorized, as appropriate, by local government, state, federal or NANP area governmental authorities to provide 900 service to the public.

ATTACHMENT A

900 NXX CODE FORMS

These forms consist of three parts¹:

- PART A** To be completed by the Code Applicant/Holder:
1. 900 NXX Code request (one per form), Sections 3c and 3d
 2. Code Return Notification, Section 3f
 3. Code Information Change, Section 3e
- PART B** To be completed by the Code Administrator in response to receipt of Part A above.
- PART C** To be completed by Code Holder to confirm implementation of the assigned code.
- SEND TO:** Director - NANP Administration (NANPA)
6 Corporate Place, Room 1F275
Piscataway, New Jersey 08854-4157

¹ Code applicants/holders can obtain assistance in completing the 900 NXX Code Forms from the code administrator shown above and confirm they have the latest version of the application. Forms may be obtained on the internet (www.atis.org) and reproduced locally as required.

900 NXX CODE FORMS**PART A****ASSIGNMENT REQUEST/RETURN NOTIFICATION/INFORMATION CHANGE**

The applicant and the code administrator acknowledge that the information other than identifying the applicant and any code assigned to that applicant, contained on this request form is sensitive and will be treated as confidential. The information in this form shall be treated as proprietary and will only be shared with 900 NXX code administrator personnel and/or regulators.

1. Name of entity requesting code assignment/return notification/information change:

2. Applicant Contact Information:Name:

Street Address:

 Room:

City, State/Province,

Country

Zip/Postal Code

Phone No.:

 FAX No.:

Company Name:

Operating Company Number (OCN)²:

Access Customer Name Abbreviation (ACNA)³:

Carrier Identification Code (CIC)³:

² Not required for code assignment. See Glossary in "Assignment Guidelines" for definition.

3. 900 NXX Code Request

- 3a.** Is certification or authorization required to provide 900 NXX service in the intended service area?

Yes _____ No _____

If yes, does your company have such certification or authorization?

Yes _____ No _____

If yes, indicate type and date of certification (e.g., letter of authorization, license, Certification of Public Convenience, etc.):

If no or pending, explain:

3b. Type of Request (*check one*)

- _____ 900 NXX Code request (also complete Sections 3c and 3d)
_____ 900 NXX Code return (also complete Section 3e)
_____ 900 NXX Code information change (also complete Section 3f)

3c. 900 NXX Code Request Information (see Section 5 of the Guidelines)

There will be no maximum placed on the total number of codes assigned to each carrier. No more than 5 codes can be requested per application form. Additional codes will be allocated provided the applicant can:

1. Demonstrate that all previously assigned codes have been activated or will be activated within the six-month period from the date the codes were assigned (see Section 3d).
2. Justify the need for the additional codes requested by advising of plans to activate new service requiring individual codes within six months of the date of the request.

Assignment Preferences	Activation Date
(1) _____	_____
(2) _____	_____
(3) _____	_____
(4) _____	_____
(5) _____	_____

Expected date of activation(s) (must be within 6 Months of assignment)

3d. Current 900 NXX Code Assignments

List current 900 NXX Code(s) already assigned:

Have all the above 900 NXXs been activated or will they be activated within 6 months of assignment?

Yes _____ No _____

If no, please list the 900 NXXs not activated and the reasons why.

3e. Code Return Notification

The following 900 NXX code(s) are being returned to the list of available NXX codes:

Effective date: _____

3f. Code Information Change

900 NXX Codes affected:

Reasons for change:

- _____ Merger/Acquisition
_____ Company Name Change
_____ Contact Information Change
_____ Other

Explanation: _____

Effective date: _____

These NXX code(s) were formally administered by:

Company Name: _____

Contact Name: _____

Street Address: _____ Room: _____

City, State/Province, _____

Country: _____

Zip/Postal Code: _____

Phone: _____ FAX: _____

OCN: _____ ACNA: _____ CIC: _____

It is understood that the applicant will return the assigned 900 NXX code to the administrator if the resource is no longer in use by the applicant, no longer required for the service for which it was intended, not activated within the timeframe specified in these guidelines (an extension can be applied for), or not used in conformance with these assignment guidelines.

I hereby certify that the above information is true and accurate to the best of my knowledge, that the assigned 900 NXX code will be used in the provision of 900 service as a public telecommunications service, and that this application has been prepared in accordance with the "900 NXX Code Assignment Guidelines."

Signature of Authorized Representative of Code Applicant/Holder

Name/Title

Date

900 NXX FORMS

PART B

900 NXX CODE ASSIGNMENT CONFIRMATION FORM

Applicant Information

Name: _____
Street Address: _____ Room: _____
City, State/Province: _____
Country: _____
Zip/Postal Code : _____
Phone No.: _____ FAX No.: _____
Company Name: _____
Operating Company Number (OCN): _____
Access Customer Name Abbreviation (ACNA): _____
Carrier Identification Code (CIC): _____
Date of Application: _____
Date of Receipt of Request: _____
Date of Response to Request: _____

Disposition of Code Request

_____ Code request approved. 900 NXX code(s) assigned:

_____ Form complete, code request denied

Explanation: _____

_____ Form incomplete. Additional information required in the following section(s):

Explanation: _____

_____ Code(s) returned: _____

Effective: _____

Signature of Code Administrator

Date

Street Address

Room

City, State/Province,

Country

Zip/Postal Code

Phone No. _____

FAX No. _____

900 NXX CODE FORMS**PART C****CONFIRMATION OF 900 NXX CODE ACTIVATION FORM**

By signing below, I certify that the 900 NXX code(s) specified below are in service and that the NXX code(s) are being used for the purpose specified in the original application (See Section 5, "Responsibilities of Code Applicants and Holders" in the 900 NXX Code Assignment Guidelines:).

Authorized Representative of Code Holder (Print)

Signature

Title

Date

Service Trouble Reporting Contact Name: _____

Service Trouble Reporting Number: _____

900 NXX CodeDate of ApplicationIn-Service Date

ATTACHMENT 3

ICCF

INDUSTRY CARRIERS COMPATIBILITY FORUM

UNDER THE AUSPICES OF THE CARRIER LIAISON COMMITTEE

3 Corporate Place
Piscataway, NJ 08854
Fax: (908) 336-3640

Madeline Bogdan
Moderator
Room: 2F305
Phone: (908) 699-2494

Kathy Cullen
Secretary
Room 2F309
Phone: (908) 699-3245

INDUSTRY NUMBERING COMMITTEE CO-CHAIRS

Denny Byrne, USTA
1401 H Street, NW
Suite 600
Washington, DC 20005
Phone: (202) 326-7296

Bob Hirsch, AT&T
900 Route 202/206 North
Room 5A257
Bedminster, NJ 07921
Phone: (908) 234-4197

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TELECOMMUNICATIONS INDUSTRY
SOLUTIONS**

PERSONAL COMMUNICATIONS SERVICES N00 NXX CODE ASSIGNMENT GUIDELINES

April 1996 Revision

This revision includes the text developed by the Industry Numbering Committee (INC) in association with resolution of INC Issue #059.

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ATTACHMENT A: PCS N00 NXX CODE FORMS

PERSONAL COMMUNICATIONS SERVICES N00 NXX CODE ASSIGNMENT GUIDELINES

1.0 PURPOSE AND SCOPE

This document specifies guidelines for the assignment of NXX codes within a N00 non-geographic Service Access Code (SAC) used for personal communications services.

1.1 For the purpose of these assignment guidelines, personal communication service is a set of capabilities that allows some combination of personal mobility, terminal mobility, and service profile management. It enables each personal communication service user to participate in a user-defined set of subscribed services, and to initiate and/or receive calls on the basis of some combination of a personal number, terminal number, and a service profile across multiple networks at any terminal, fixed or mobile, irrespective of geographic location. Service is limited only by terminal and network capabilities and restrictions imposed by the personal communication service provider.

1.2 These guidelines apply only to assignments of unique NXX codes within the PCS N00 code to identify individual service providers in order to allow multiple service providers N00 access.

1.3 These guidelines do not preclude the implementation of personal communications services number portability in the future.

1.4 These guidelines were developed by the industry consensus process under the auspices of the Industry Carriers Compatibility Forum (ICCF).

1.5 These guidelines are expected to apply throughout the NANP Area subject to procedures and constraints of the NANP Area Administrations unless the affected Administrations direct otherwise.

1.6 These guidelines do not supersede controlling appropriate the NANP Area governmental or regulatory principles, procedures and requirements.

2.0 ASSUMPTIONS AND CONSTRAINTS

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

2.1 NANP resources, including those covered in these guidelines, are collectively managed by the North American Telecommunications industry with oversight of the North American federal regulatory authorities.

The NANP resources are considered a public resource and are not owned by the assignees. Consequently, the resources cannot be sold, brokered, bartered or leased by the assignee for a fee or other consideration.

If a resource is sold, brokered, bartered, or leased for a fee, the resource is subject to reclamation by the Administrator.

2.2 These guidelines are intended to apply to N00 code(s) which are assigned to personal communications services before and after implementation of interchangeable NPAs (INPA) in January, 1995.

2.3 "Personal Communications Services N00 NXX Code Assignment Guidelines" are needed because personal communications services number portability was not technically available when these guidelines were written.

2.4 These assignment guidelines do not apply to an environment where number portability exists. In the event of implementation of personal communications services number portability, these guidelines will be modified to address non-service provider specific 10-digit personal numbers within the personal communications services N00 codes.

2.5 The allocation and assignment of N00 NXX codes for personal communications services, as set forth in these guidelines, remains in effect until there is industry consensus and/or regulatory policy direction to change these assignment guidelines.

2.6 North American Numbering Plan Administrator (NANPA), based on industry input, determined that there is an immediate need for non-geographic numbers to support personal communications service availability. The NANPA will initially assign an N00 code(s) for use with personal communications service. It is recognized the potential exists that the demand for these resources may exceed the N00 codes allocated for this application. Therefore, code applicants/holders should be aware that in the post-INPA time period, additional codes for personal communications service may be allocated from non-geographic NPAs which are not in the N00 format.

2.7 NANP numbering resources shall be assigned to permit the most effective and efficient use of a finite numbering resource in order to maximize the existing resource pool and delay the need to assign additional resources. To promote the efficient and effective use of numbering resources, audits of code applicants will be performed to ensure the consistent application of, and compliance with, these guidelines.

2.8 These guidelines do not address the issue of who will fill the role of PCS N00 NXX code administrator. The guidelines described herein were developed by the industry without any assumption on who should be the PCS N00 NXX code administrator.

2.9 The applicant/holder of the N00 NXX code must have authorization, if required, from the appropriate applicable regulatory authority(s) to operate in the area in which it intends to provide the personal communication service.

2.10 The guidelines should provide the greatest latitude to those providing personal communication service while effectively permitting management of a finite resource.

2.11 PCS N00 NXX code(s) are a public resource and administrative assignment of the 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 it is assigned. The assignment of a PCS N00 NXX code(s) by the code administrator implies the use of that code(s) by the code recipient/holder for personal communication services.

3.0 ASSIGNMENT PRINCIPLES

To allow the entities the greatest possible latitude in providing services the following assignment principles apply to all aspects of the "PCS N00 NXX Code Assignment Guidelines":

3.1 The NXX code, as part of the PCS N00 NXX-XXXX NANP number format, is to be assigned to identify the service provider.

3.2 PCS N00 NXX codes shall be assigned in a fair, timely and impartial manner to any applicant which meets the criteria for assignment as detailed in Section 4.

3.3 If required, applicants for PCS N00 NXX codes must comply with all applicable local governmental, state, federal and the NANP Area governmental regulations relative to the personal communications service they wish to provide.

3.4 These PCS N00 NXX codes will be assigned and used only for personal communications services (See Section 1.1).

3.5 PCS N00 NXX codes are a finite resource that should be used in the most effective and efficient manner possible.

3.6 Information that is requested of applicants in support of a code assignment shall be uniform and kept to a minimum. Information received by the administrator shall be treated on a proprietary and confidential basis, adequately safeguarded and not shared with non-code administrator personnel.

3.7 An entity which is denied the assignment of one or more codes, under these guidelines, has the right to appeal that decision as described in Section 11 (Appeals Process).

3.8 NXX codes will be assigned on a first come, first serve basis from the available pool of unassigned codes. However, the code administrator will attempt to match a code assignment with a specific code request.

3.9 These Guidelines do not impose a limit on the total number of NXX codes assigned to each entity, provided that codes already assigned are used as specified in these Guidelines.

4.0 CRITERIA for ASSIGNMENT

The assignment criteria in the following sections shall be used by the code administrator in reviewing a PCS N00 NXX code assignment request for an initial and/or additional code(s):

4.1 NXX codes will only be assigned to applicants for personal communications service, as described in Section 1.1, upon approval of a completed code request form, see Attachment A.

4.2 In order to obtain an NXX within the PCS N00 code, the applicant must complete and sign Part A of the "PCS N00 NXX Code Forms" (see Attachment A). In addition, the applicant must certify that it will be providing personal communications service as a public telecommunication service and that it has secured the authorization, if necessary, from the federal, state, provincial or other regulatory body within the NANP Area in which it intends to provide personal communications service.

4.3 Applicants for initial code assignment shall provide the administrator with the following information:

- A general description of the service(s).
- A subscription forecast substantiation if the request is for more than one NXX code (Twelve month view minimum)
- A commitment to implement the service for which the code(s) have been allocated within twelve months of assignment.

Based on the above, the administrator will, in consultation with the applicant as appropriate, determine the number of codes to be assigned.

There will be no maximum placed on the number of initial codes assigned. However, the administrator shall limit an initial code assignment to a single PCS N00 NXX code unless the applicant is able to substantiate a multiple code assignment.

4.4 All information provided on or with Part A of the "PCS N00 NXX Code Forms" will be considered proprietary and confidential.

4.5 NXX codes will be assigned to applicants who plan on activating these codes within twelve months after the date of their initial NXX code(s) assignment and six months after the date of additional code(s) assignments. These time intervals are outside limits and are not intended to delay implementation(s). If a code holder can demonstrate that the code has not been activated solely due to delays beyond their control, the time period will be extended until these constraints are resolved. These time intervals are intended to be used for the following purposes:

- Trigger administrator follow-up
- Provide target time frames for code activation
- Provide a basis for code conservation.

4.6 PCS N00 NXX codes shall be assigned on a first come, first serve basis and each applicant requesting a code(s) will be assigned a unique code(s).

4.7 Advance code reservation is not recommended. Consideration by the code administrator for code reservation will be made, however, if the applicant can demonstrate that it is essential to accommodate technical (the NANP Area or international) or planning constraints that could limit an effective service offering, e.g., requests for decades of NXX codes which may be required to provide for international inbound personal communications services to the NANP Area. The code administrator will try to satisfy such requests but cannot guarantee specific requests will be satisfied.

4.7.1 Any code reservation(s) is subject to assignment to another qualifying requester in the case that no other feasible resource exists.

4.7.2 No reservation will be made unless the applicant has met the criteria for code assignment for either initial or additional codes. If the code has not been activated solely due to technical constraints, the reservation will be extended until the constraint is no longer present.

4.7.3 In the absence of any technical constraint, a code can be reserved for a maximum of six months, and at that time the reservation will be subject to re justification.

4.7.4 Applicants/code holders that have codes reserved will have their future NXX code(s) assigned from those reserved NXX codes (e.g., to provide for international inbound personal communications services to the NANP Area) until the reserved NXX codes are exhausted.

4.8 The following codes will not be assigned as PCS N00 NXX codes:

4.8.1 N00 911 because of its widespread use for access to public emergency services.

4.8.2 The remaining N00 N11 codes will be reserved pending a decision by the industry and appropriate regulatory bodies on the appropriate use of these codes.

4.8.3 555 will be reserved pending a decision by the industry to use it for personal communications service number Directory Assistance.

4.8.4 A block of ten NXX codes, 990 through 999, will also be reserved for future unforeseen public service applications. However, if these codes are not assigned to public service applications they will be released from reservation and made available for assignment to delay the exhaust of the PCS N00 number resource.

4.9 The applicant's preference for a specific PCS N00 NXX code will be honored to the extent possible. The code administrator should advise applicants that certain NXX codes may cause dialing confusion; e.g., N00, 950, etc. However, applicants requesting one of these codes are not precluded from receiving it, if unassigned. In the event that the applicant's preferred code is unavailable, the applicant may specify up to five alternative codes in order of preference. If the preferred and alternatives are not available or the applicant does not indicate a preference for another specific code, the administrator will assign a code on a random basis.

4.10 If two applicants request the same NXX code simultaneously (i.e., their written requests are received by the code administrator with the same time and date stamp) one of the applicants would be randomly selected to receive the NXX code.

4.11 For additional code assignments, each code holder will certify that their existing codes will exhaust within six months and will complete Section 3c in Part A of the "PCS N00 NXX Code Forms". In calculating the months to exhaust for Section 3c in Part A of the "PCS N00 NXX Code Forms", use the following formula:

$$\text{Months to Exhaust} = \frac{\text{Numbers Available for Assignment}}{\text{Growth (Quantity of Numbers To Be Added per Month)}}$$

Numbers Available for Assignment:

The quantity of numbers within existing N00-NXX codes which are immediately available for assignment to PCS subscribers. Numbers reserved or disconnected, or pending connection for a period in excess of 12 months will be counted as numbers available for assignment.

Numbers Unavailable for Assignment:

The quantity of numbers within existing N00-NXX codes which are neither "Working Numbers" as defined below, nor available for new assignments as working numbers.

Examples include numbers required for maintenance testing, numbers reserved for specific subscribers, disconnected numbers on intercept, pending connects or disconnects, suspended, etc. Numbers reserved or disconnected, or pending connection, or suspended for a period in excess of 12 months will be counted as numbers available for assignment.

Working Numbers:

the quantity of numbers within existing N00-NXX codes which have been assigned to PCS subscribers and are reflected as working in the appropriate records.

5.0 RESPONSIBILITIES OF CODE APPLICANTS AND HOLDERS

Entities requesting new PCS N00 NXX code assignments as well as entities already assigned PCS N00 NXX codes shall comply with the following:

5.1 The code applicant shall request from the PCS N00 NXX code administrator information associated with the assignment of NXX codes for personal communications services. This includes a current copy of the "Personal Communications Services NXX Code Assignment Guidelines".

5.2 The code holder is responsible for meeting all conditions of these guidelines.

5.3 The application process for initial and/or additional PCS N00 NXX assignments shall include the following:

5.3.1 Apply in writing to the code administrator, complete all required entries on the "PCS N00 NXX Code Forms" that are in Attachment A of these guidelines to the best of his/her ability as well as sign the forms. The completed and signed "PCS N00 NXX Code Forms" should be sent to the code administrator.

5.3.2 Requests for an additional code(s) shall include sufficient information to demonstrate the need for the code(s) and should include the following:

- 1) current percent fill
- 2) growth history for 12 months
- 3) projected demand for the coming 12 months.

5.3.3 Provide, if desired, requests for specific and alternative NXX code assignments in order of preference. The PCS N00 NXX code administrator will try to satisfy such requests but cannot guarantee specific requests will be satisfied, see Section 6.4.1.1.

5.3.4 Shall certify on Part A of the "PCS N00 NXX Code Forms" that the required regulatory authority authorization has been obtained for which the code is being requested.

5.3.5 Agree to abide by sound code conservation practices and the reclamation procedures (see Sections 7 and 8).

5.4 Ongoing PCS N00 NXX code holders responsibilities shall include the following:

5.4.1 Assume the responsibility for the assignment of the last four digits of the N00-NXX-XXXX numbers and the maintenance of up-to-date assignment records that match N00-NXX-XXXX numbers to subscribers for all allocated NXX code(s). These records will be required for audit purposes (see Section 8.0). If number portability is implemented in the future, a portion of these records may also be required for centralized assignment of personal numbers.

5.4.2 Changes in the information associated with a code assignment shall immediately be made known to the code administrator using Part A of the "PCS N00 NXX Code Forms". Such changes may occur because of the transfer of a code, through merger or acquisition, to a different company. The code holder of the NXX code acquired by merger, acquisition or other means must immediately inform the code administrator when the change becomes effective. This change information is required to ensure that an accurate record of the entity responsible for the code and the data associated with the code is maintained.

5.4.3 The holder of the PCS N00 NXX code acquired by merger, acquisition, or other means must use the code consistent with these guidelines.

5.4.4 The code holder must participate in the audit process. See Section 8.

5.4.5 A code(s) assigned to an entity, either directly by the code administrator or through transfer from another entity, should be placed in service within twelve months after the original date of assignment by the code administrator for an initial code application and six months after the original date of assignment by the code administrator for additional code(s) application. See Section 7 and Part C of "PCS N00 NXX Code Forms" (Attachment A).

5.4.5.1 Code holders shall also provide trouble reporting contact and telephone number associated with their 500NXX numbering resource. See Part C of "PCS NXX Code Form". This information will be sent by the Code Administrator (see Section 6.10) to the Network Operations Forum (NOF) secretary who will make it available to other service providers and access providers.

5.4.6 If a code holder no longer has need for the code, the code should be returned to the code administrator for reassignment. See Section 7.

5.4.7 If the audit process determines that a code is not in use after twelve months after the date of an initial code(s) assignment and six months after the date of additional code(s) assignments, the code administrator will request the voluntary return of the code. See Section 7.

5.4.8 All code holders shall provide forecasted code requirements to the code administrator to be used solely for projecting PCS N00 exhaust and for planning PCS N00 relief. All such forecasts shall be provided, typically on an annual basis (or as needed), by the code holders in response to a request from the code administrator and will be treated on a proprietary and confidential basis.

5.5 Code holders shall immediately return PCS N00 NXX code(s) when they determine that they no longer will be offering personal communications service. See Section 7.

5.6 The code applicant/holder should be aware that provision of a personal communications service on a national or regional basis using a particular NXX code(s) may be restricted by either state or federal regulation (e.g., pay-per-call services may be restricted to a particular NXX code(s) within certain jurisdictions).

6.0 RESPONSIBILITIES OF CODE ADMINISTRATOR

The code administrator shall:

6.1 Provide general information on the structure and limitations of N00 NXX assignments for personal communications services and, on request, copies of the "Personal Communications Services N00 NXX Code Assignment Guidelines", including timely notification of changes.

6.2 Provide code applicants/holders assistance in completing the "PCS N00 NXX Code Forms". (See Attachment A.)

6.3 Track NXX code requests and make NXX code assignments on a first come, first served basis.

6.4 Upon receipt of the written request form, the administrator shall process the application for PCS N00 NXX codes and should follow these steps:

6.4.1 Determine if the request is in compliance with code assignment principles and criteria as set forth in these guidelines.

6.4.1.1 Based on the availability of the codes, an attempt will be made to assign the preferred code as listed on Part A of the "PCS N00 NXX Code Forms". If two applicants request the same NXX code simultaneously (i.e., their written requests are

received by the code administrator with the same time and date stamp) one of the applicants would be randomly selected to receive the NXX code.

6.4.1.2 An analysis will be performed to determine if any one code is more appropriate than any other code due to a technical requirement or constraint.

6.4.1.3 The code administrator will discuss with the applicant if one of the current codes from the existing resource pool is appropriate and select an unassigned code for assignment.

6.4.1.4 Provide a disposition on a NXX code request (See Part B of the "PCS N00 NXX Code Forms"). There are three possible dispositions; i.e., assigned, denied and requires further information. The code administrator will respond in writing of the disposition within 10 working days from receipt of the assignment request form. The response will include:

- a) When assigned: The NXX code(s) actually assigned.
- b) When denied: The reason(s) for denial and instructions on how and where to make an appeal of the decision.
- c) Requires additional information: The specific additional information required

6.4.2 If the application is approved and a code(s) is assigned, it is planned that the administrator will notify Bellcore Traffic Routing Administration of the assigned NXX code(s) and service provider identification information for publication; e.g., in the Local Exchange Routing Guide (LERG).

6.4.3 Records on codes assignments and resource availability will be updated.

6.5 Treat information supplied by the applicant as proprietary and confidential and not disclose that information to non-PCS N00 NXX code administrator personnel.

6.6 Request annually (or as needed) from each code holder their forecasted code requirements in order to monitor the rate and level of PCS N00 NXX code assignments, predict the potential for exhaust, and report its findings to the industry (see Section 9.0).

6.7 Initiate an inquiry into the status of one or more NXX codes that have not been put into service within the required time frame. If appropriate, the code administrator will initiate an investigation for the return of the code(s).

6.8 Conduct periodic audits of code holder records (see Section 8.0 Code Conservation).

6.9 Perform reclamation procedures outlined in Section 7, as needed.

6.10 Upon receipt of Part C of "PCS N00 NXX Code Forms" send the following to the Network Operations Forums (NOF) secretary:

1. Code holder name
2. Address
3. Trouble Reporting Contact
4. Trouble Reporting Number
5. 500 NXX Code(s) assigned

7.0 CODE RECLAMATION PROCEDURES

7.1 Resource Assignee Responsibility

The entity to which a NANP resource has been assigned shall return the resource to its administrator if:

- It is no longer needed by the entity for the purpose for which it was originally assigned
- The service it was assigned for is discontinued, or
- The resource was not activated by the INC-established activation date.

In the latter case, the assignee may apply to the administrator for an extension date. Such an extension request must include the reason for the delay and a new activation time commitment.

7.2 Administrator Responsibility

The NANP resource administrator will contact any resource assignee(s) identified as not having returned to the administrator for reassignment of any NANP resource:

- Assigned, but no longer in use by the assignee(s),
- Assigned to a service no longer offered,
- Assigned, but not activated by the INC-established date, or
- Assigned but not used in conformance with the appropriate assignment guidelines.

The administrator will seek clarification from the assignee(s) regarding the alleged non-use or misuse. If the assignee(s) provides an explanation satisfactory to the administrator, and in conformance with the assignment guidelines the resource will remain assigned. If no satisfactory explanation is provided, the administrator will request a letter from the assignee(s) returning the assigned resource. If a direct

contact can not be made with the assignee(s) to effect the above process a registered letter will be sent to the assignee(s) address of record requesting that they contact the administrator within 30 days regarding the alleged resource non-use or misuse. If the letter is returned as non-delivered the administrative advise the INC that the resource will be made available for reassignment following the established idle period, if any unless the INC advises otherwise within 30 days.

The NANP resource administrator will refer to the INC for resolution any instance where a NANP-assigned resource has not been returned for reassignment by the assignee if:

- The resource has not been activated by the INC established date.
- A previously activated resource is not now in use.
- An activated resource is not being used in accordance with the appropriate assignment guidelines.

If a resource is not activated by the INC-established date and the administrator determines, by discussion with the resource assignee(s), that the reason for the non-activation is not within the control of the assignee(s), the administrator may extend the INC-established activation date by up to 90 days.

The NANP resource administrator will receive, process and refer to the INC for resolution any application from resource assignees for an extension on an INC-established NANP resource activation date when the:

- Activation has not occurred within the 90 day extension,
- Administrator believes that the activation has not occurred due to reason within the assignee's control, or
- Assignee requests an extension in excess of 90 days.

Referral to INC will include the offered reason why the extension is requested, a new proposed activation date, and the administrator's recommended action.

The resource administrator will make all returned resources available for assignment following the established idle time, if any.

7.3 INC Responsibilities

The INC will:

- Accept all referrals of alleged non-use or misuse of NANP resources from the resource administrator or any other entity, by referring issues to the Resource Management Workshop
- Investigate the referral,

- Review referrals in the context of existing assignment guidelines,
- Attempt to resolve the referral, and
- Direct the resource administrator regarding the action, if any, to be taken.

Absent a consensus resolution of the referral or non compliance to the resolution by the resource assignee, the case will be referred by INC via the CLC process, to the appropriate regulatory body for resolution.

8.0 CODE CONSERVATION

Assignment of the NANP Area PCS N00 NXX numbering resources is undertaken with the following conservation objectives:

- To efficiently and effectively administer/manage a limited NANP resource through code conservation
- To delay the exhaust of the PCS N00 NXX code resource.

8.1 The code administrator will track and monitor PCS N00 NXX code assignments. Ongoing code administrator practices which foster conservation shall include the following:

8.1.1 The code administrator may conduct an audit (e.g., when a PCS N00 NXX code holder requests additional NXX codes). The purpose of this audit is to verify the code applicant's/holder's compliance with the provisions set forth in these Guidelines.

8.1.1.1 These audits will be conducted at the code applicant's/holder's premises or at a mutually agreed to location and at a mutually agreed to time.

8.1.1.2 The code administrator will not copy or remove the information from the premises nor will they disclose the information to non-PCS N00 NXX code administrator personnel.

8.1.1.3 The code administrator will expect to review the following information to demonstrate the current percent fill:

- a) Verification of assignment by working number
- b) Date of assignment of working number
- c) Activation date of each working number
- d) Indication of assignment to end user (name)
- e) Status and status date of each number unavailable for assignment; i.e., numbers assigned to test, reserved, aging, pending and suspended.

8.2 Audit results should be used to identify and recommend to the appropriate organization specific corrective actions that may be necessary. Examples of specific corrective actions which may be proposed are as follows:

- Modifications to the PCS N00 NXX Code Assignment Guidelines
- Additional training for code applicant(s) concerning the assignment guidelines
- Return of NXX codes (either voluntarily or via the appropriate regulatory action)
- Requiring supporting documentation of future code requests in non-compliant situations
- Process modifications to code applicant(s) in the maintenance of records for and/or number assignment.

8.3 Audit results with respect to code applicant/holder information and/or recommended code holder process modifications shall be treated on a proprietary and confidential basis, adequately safeguarded and not shared with non-PCS N00 NXX code administrator personal.

8.4 Failure to participate/cooperate in an audit shall preclude the assignment of additional PCS N00 NXX codes, may trigger other corrective action, and will be considered as having failed an audit, see Section 8.2.

9.0 CODE RELIEF PLANNING

The Code Administrator's responsibilities for code relief planning shall include the following:

9.1 PCS N00 NXX code assignments will be tracked and monitored, projected exhaust will be determined and relief planning activities will be initiated within the industry.

9.2 When the initially assigned PCS N00 code(s) approaches exhaust it is planned that the code administrator will examine the available options (N00 or INPA code) and in consultation with Industry will assign another NPA code to personal communications service.

10.0 MAINTENANCE OF GUIDELINES

It may be necessary to modify the guidelines periodically to meet changing and unforeseen circumstances. Questions regarding the maintenance of the guidelines may be directed to:

Director - NANP Administration
6 Corporate Place

Room 1F275
Piscataway, NJ 08854
(908) 699-3700
(908) 336-3293 FAX

11.0 APPEALS PROCESS

Disagreements may arise between the Code Administrator and code applicants/holders in the context of the administration of these guidelines. In all cases, the Code Administrator and code applicants/holders will make reasonable, good faith efforts to resolve such disagreements among themselves consistent with the guidelines prior to pursuing any appeal. Appeals may include but are not limited to one or more of the following options:

- The code applicant/holder will have the opportunity to resubmit the matter to the administrator for reconsideration with or without additional input.
- Guidelines interpretation/clarification questions may be referred to the body responsible for maintenance of the guidelines. Unless otherwise mutually agreed to by the parties, these questions will be submitted in a generic manner protecting the identity of the appellant.
- The administrator and code applicant/holder may pursue the disagreement with the appropriate governmental/regulatory body.

Reports on any resolution resulting from the above options, the content which will be mutually agreed upon by the involved parties, will be kept on file by the code administrator. At minimum, the report will contain the final disposition of the appeal; e.g., whether or not a code was assigned.

12.0 GLOSSARY

ACNA (Access Customer Name Abbreviation) - is a three character alpha identification assigned by Bellcore Common Language Group to a purchaser of Feature Group B and/or Feature Group D services. The code is primarily used for billing between Local Exchange Carrier and the access purchaser.

authorized representative - The person from the applicant's/holder's organization or of code applicant/holder its agent that has the legal authority to take action on behalf of the applicant/holder

CIC (Carrier Identification Code) - is a numeric code which is currently used to identify a customer who purchased Feature Group B and/or Feature Group D access services. This code is primarily used for routing from the local exchange network to the access purchaser and for billing between the Local Exchange Carrier and access purchaser. CICs are assigned by the North American Numbering Plan administration.

code administrator - Administration of PCS N00 NXX codes will be performed by the NANPA. Current contact information is as follows:

DIRECTOR: NANP Administration
6 Corporate Place
Room 1F275
Piscataway, NJ 08854
(908) 699-3700
(908) 336-3293 FAX

code holder - The entity to which a PCS N00 NXX code has been assigned for the provision of personal communications services.

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.

ICCF - The Industry Carriers Compatibility Forum (ICCF) provides an open forum under the auspices of the Carrier Liaison Committee to encourage telecommunication entities to discuss and resolve, on a voluntary basis, national technical issues associated with telecommunications network interconnection, and the issues associated with the assignment and use of the NANP Area numbering resources.

initial code - The first PCS N00 NXX code assigned to an entity for the provision of personal communications service.

in service- An active code in which specific subscribers, services or market trials are utilizing assigned numbers.

Interchangeable NPAs- NPAs which has the format 'NXX', where N=2-9, and X=0-9.

Local Exchange Routing Guide (LERG)- A Bellcore document which contains information about local routing data obtained from the Routing Data Base System (RDBS). This information reflects the current network configuration and scheduled network changes for all entities originating or terminating PSTN calls within the NANP excluding Canada.

months to exhaust =
$$\frac{\text{Numbers available for Assignment}}{\text{Growth (Quantity of Numbers To Be Added Per Month)}}$$

NANP - The North American Numbering Plan is a numbering architecture in which every station in the NANP Area 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.

NANP Area - Consists of the United States, Canada, Bermuda, and the NANP Caribbean administrations. (Replaces World Zone 1 in all documents)

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 area code. An NPA is the 3-digit code which occupies the A, B, and C positions in the 10-digit NANP format which applies throughout the NANP Area. 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 the NANP Area.
- b) Non-geographic NPAs are NPAs which 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. N00 codes are commonly referred to as service access codes (SACs).

number portability - Number portability in the context of personal communications service implies that a PCS subscriber can change service providers while retaining their number assignment.

numbers available for assignment - The quantity of numbers within existing N00-NXX code which are immediately available for assignment to PCS subscribers. Numbers reserved or disconnected, or pending connection for a period in excess of 12 months will be counted as numbers available for assignment.

numbers unavailable for assignment - The quantity of numbers within existing N00-NXX codes which are neither "Working Numbers" as defined below nor available for new assignments as working numbers. Examples include numbers required for maintenance testing, numbers reserved for specific subscribers, disconnected numbers on intercept, pending connects or disconnects, suspended, etc. Numbers reserved or disconnected, or pending connection, or suspended for a period in excess of 12 months will be counted as numbers available for assignment.

OCN - Operating Company Number is an alpha-numeric field in the Routing Database System (RDBS) that identifies the company to which a NXX code, such as a PCS N00 NXX code, has been assigned. OCNs are assigned by the National Exchange Carriers Association (NECA) for its members or by Bellcore's Traffic Routing Administration for non NECA members with assigned NANP resource(s) entered in RDBS.

personal communications services subscriber - A person who, or entity which, obtains a personal communications service from a personal communications service provider on behalf of one or more personal communications service users.

personal communications services user - A person who, or entity which, has access to personal communications services and has been assigned a personal number.

personal mobility - The ability of a user to access telecommunication services at any terminal on the basis of a personal identifier, and the capability of the network to provide those services according to the user's service profile. Personal mobility involves the network capability to locate the terminal associated with the user for the purpose of addressing, routing, and charging of the user's calls.

personal number - A number that uniquely identifies a PCS user and is used to place, or forward, a call to that user.

PSTN - Public Switched Telephone Network. The PSTN is comprised of all transmission and switching facilities and signal processors supplied and operated by all telecommunications common carriers for use by the public. Every station on the PSTN is capable of being accessed from every other station on the PSTN via the use of NANP E.164 numbers.

public telecommunication service - A public commercial service, the subscribers to which must be capable of being reached over the public switched telephone network.

service profile - A record containing all the information related to a personal communications user in order to provide that user with personal communications service. Each service profile is associated with a single personal number.

service profile management - The ability to access and manipulate the service profile. Service profile management can be performed by the personal communications service user, personal communications service subscriber, or personal communications service provider.

service provider - Any entity that is authorized, as appropriate, by local government, state, federal or NANP Area governmental authorities to provide personal communications service to the public.

terminal mobility - The ability of a terminal to access telecommunication services from different locations and while in motion, and the capability of the network to identify and locate that terminal.

working numbers - The quantity of numbers within existing N00-NXX codes which have been assigned to PCS subscribers/users and are reflected as working in the appropriate records.

PCS N00 NXX CODE FORMS

These forms consists of three parts*:

- Part A To be completed by Applicant/Code Holder:
- 1 - Initial PCS N00 NXX Code(s) Request (3b)
 - 2 - Additional PCS N00 NXX Code(s) Request (3c)
 - 3 - Code Return Notification (3d)
 - 4 - Code Information Change (3e).

- Part B To be completed by the Code Administrator in response to receipt of Part A above.

- Part C To be completed by Code holder to confirm implementation of the assigned codes.

Send to:	Director - NANP Administration	Telephone: 908-699-3700
	6 Corporate Place	Facsimile: 908-336-3293
	Room 1F275	
	Piscataway, New Jersey	
	U.S.A 08854	

Date of Submission**: _____

*Code applicants/holders can obtain assistance in completing the "PCS N00 NXX Code Forms" from the Director - NANPA (see above for contact information).

Notes:

The above date of submission will serve as the key tracking mechanism for this transaction. Please submit complete form (Cover sheet, Part A, Part B and Part C) to the Code Administrator. Forms may be reproduced locally as required.

PCS N00 NXX CODE FORMS**PART A****ASSIGNMENT REQUEST/RETURN NOTIFICATION/INFORMATION CHANGE FORM**

The applicant and the code administrator acknowledge that the information contained on this request form is sensitive and will be treated as confidential. The information in this form shall be treated as proprietary and will only be shared with PCS N00 code administrator personnel and/or regulators.

1. Name of entity requesting code assignment/return notification/information change:

2. Contact information:Applicant

Name: _____

Address: _____

Room: _____

City, Prov, Zip Code: _____

Phone No.: _____ FAX No.: _____

Company Name: _____

Operating Company Number (OCN) _____¹**3. PCS N00 Code Request****3a. Type of Request (check one)**

- ____ Initial PCS N00 NXX code(s) for service provider
(Also complete section 3b)
- ____ Additional PCS N00 NXX code(s) for service
provider (Also complete section 3c)
- ____ N00 PCS NXX Code return (Also complete section 3d)
- ____ N00 PCS NXX Code information change (Also complete
section 3e)

Note: It is the responsibility of the applicant to arrange with other entities code activation, deactivation, and changes.

¹ Not required for code assignment. See Glossary in "Assignment Guidelines" for definition.

3b. Initial PCS N00 NXX Code(s) Request

Quantity of initial PCS N00 NXX(s) being requested _____

Initial PCS N00 NXX(s) Assignment Preference in order of priority.²

Provide a general description of the service:

Provide a subscription forecast substantiation if request is for more than one NXX code; i.e.,

Projected demand for 12 Months (from Initial service date):

_____ (Average Amount of Numbers/Month)

Planned in service date(s) for PCS N00 NXX code(s): _____³

Is certification or authorization required to provide the service in the intended service area(s)?

Yes ____ No ____

If yes, does your company have such certification or authorization?

Yes ____ No ____ Pending ____

If yes, type and date of certification (e.g. letter of authorization, license, Certification of Public Convenience):

If no or pending, explain:

² Initially a single N00 code (500) will be allocated to personal communications services. However, it is anticipated that additional SAC(s) will be allocated when applicable. Please indicate the full six digit (e.g. 500-234) in order of preference.

³ At least 90 calendar days, after the code is assigned by the Administrator, is needed to update the LERG. Updating the LERG does not imply the code will be activated/de-activated/changed in every network by that date. It is the responsibility of the applicant to arrange with other entities code activation, deactivation, and changes.

3c. Additional INT/NPA/ NXX code request

Quantity of additional PCS NXX(s) being requested _____

Additional PCS N00 NXX(s) Assignment Preference in order of priority²

Current percent fill on assigned PCS N00 NXX code(s): _____

Current % Fill = $\frac{[\text{Working Numbers} + \text{Numbers Unavailable for Assignment}]}{[\text{Number of NXX code(s)} \times 10,000]} \times 100$

Growth history for 12 months: _____ (Average Amount of Numbers/Month)

Projected demand for the coming 12 months:
_____ (Average Amount of Numbers/Month)

Months to exhaust: _____

Planned in service date for the PCS N00 NXX code(s): _____³
(The applicant agrees to place these code(s) in service within six months of the assignment date.)**3d. Code return notification**The following PCS N00 NXX code(s) are being returned to the list of available NXX codes:

Effective date: _____

² Initially a single N00 code (500) will be allocated to personal communications services. However, it is anticipated that additional SAC(s) will be allocated when applicable. Please indicate the full six digit (e.g. 500-234) in order of preference.

³ At least 90 calendar days, after the code is assigned by the Administrator, is needed to update the LERG. Updating the LERG does not imply the code will be activated/de-activated/changed in every network by that date. It is the responsibility of the applicant to arrange with other entities code activation, deactivation, and changes.

3e. Code information change

PCS N00 NXX(s) affected:

Reason for change:

_____ Merger/Acquisition
_____ Company Name Change
_____ Contact Information Change
_____ Other

Explanation _____

Effective date: _____

These NXX code(s) were formally administered by:

Company name: _____

Contact name: _____

Address: _____

Room: _____

City, State, ZIP: _____

Phone: _____ FAX: _____

OCN _____

ACNA _____

CIC _____

It is understood that the applicant* will return the PCS N00 NXX to the administrator for reassignment if the resource is no longer in use by the applicant, no longer required for the service for which it was intended, not activated by the timeframe specified in these guidelines (an extension can be applied for), or not used in conformance with these assignment guidelines.

I hereby certify that the above information is true and accurate to the best of my knowledge, that the assigned N00 NXX codes will be used in the provision of international inbound communications as a public telecommunication service, and that this application has been prepared in accordance with the "Personal Communications Services Code Assignment Guidelines".

Signature of Authorized Representative of Code Applicant/Holder_____
Name/Title_____
Date

* either an individual applicant or several users of a shared use resource

PCS N00 NXX FORMS

PART B

PCS N00 NXX CODE ASSIGNMENT CONFIRMATION FORM

Applicant

Name: _____
 Address: _____
 Room: _____
 City, Prov, Zip Code: _____
 Phone No.: _____ FAX No.: _____
 Company Name: _____
 Operating Company Number (OCN) _____
 Access Customer Name Abbreviation (ACNA) _____
 Carrier Identification Code (CIC) _____

Date of Application: _____
 Date of Receipt of Request: _____
 Date of Response to Request: _____

_____ Code(s) Assigned: _____
 _____ Code(s) Returned: _____ will be removed/re-assigned
 effective: _____

_____ Form incomplete
 Additional information required in the following section(s):

_____ **Form complete, code request denied.**

Explanation: _____

Other:
 Explanation: _____

Code Information Change Confirmed:

- ☐ Merger/Acquisition
- ☐ Company Name Change
- ☐ Contact Information Change
- ☐ Other

Explanation: _____

Signature of PCS N00 Code Administrator Representative

Date

Name/Title

Address

Room

City, Province, Postal Code

Phone No. _____ FAX No. _____

PCS N00 NXX CODE FORMS**PART C****CONFIRMATION OF INT/NPA/NXX CODE ACTIVATION**

By signing below, I certify that the PCS N00 code(s) specified below are in service and that the NXX code(s) are being used for the purpose specified in the original application (see Section 5.0, "Responsibilities of Code Applicants and Holders" in the current INT/NPA/NXX Code Assignment Guidelines").

Authorized Representative of Code Holder (Print)_____
Signature_____
Title_____
Date

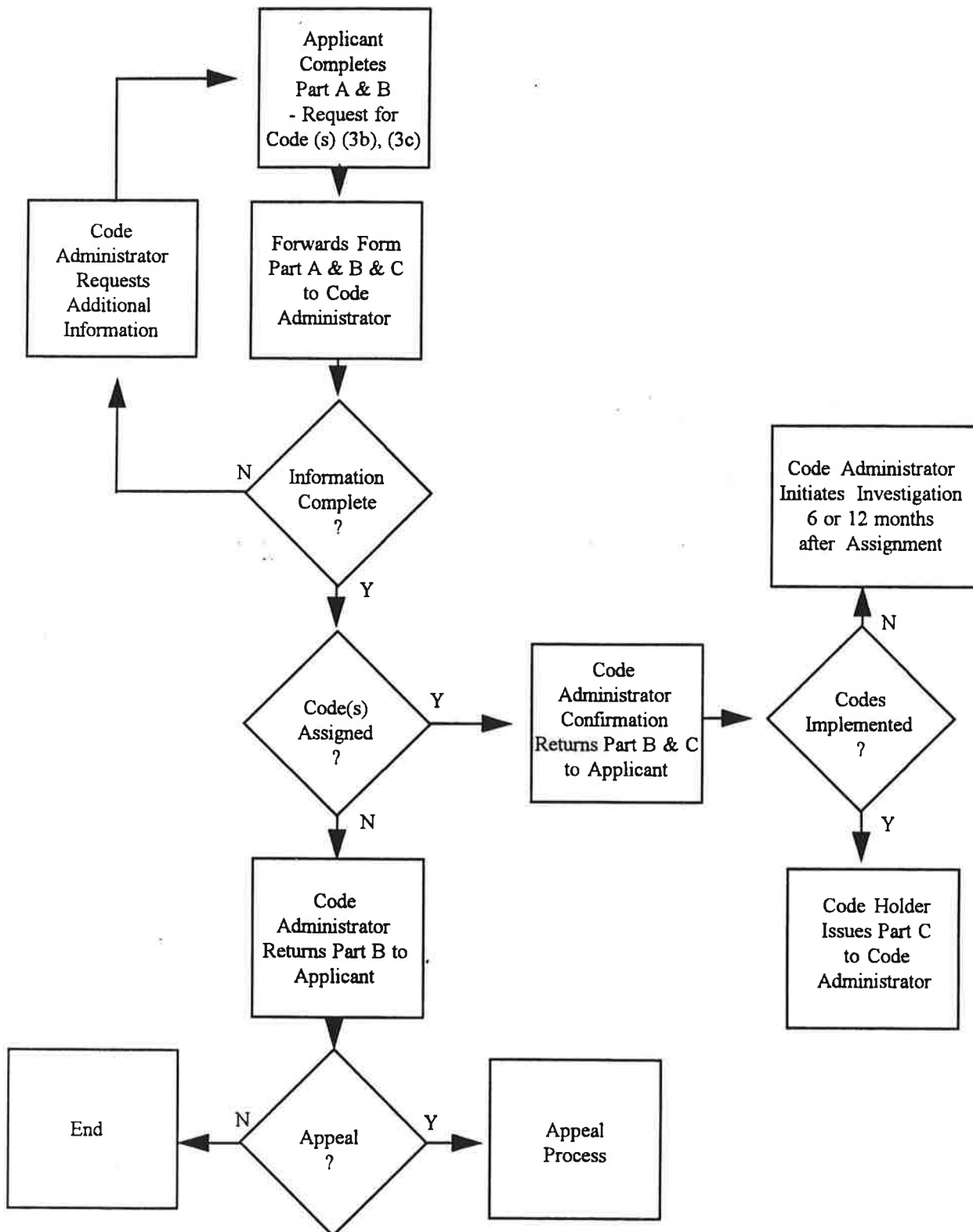
Service Trouble Reporting Contact _____

Service Trouble Reporting Number _____

PCS N00 NXX CodeDate of ApplicationIn-Service Date_____

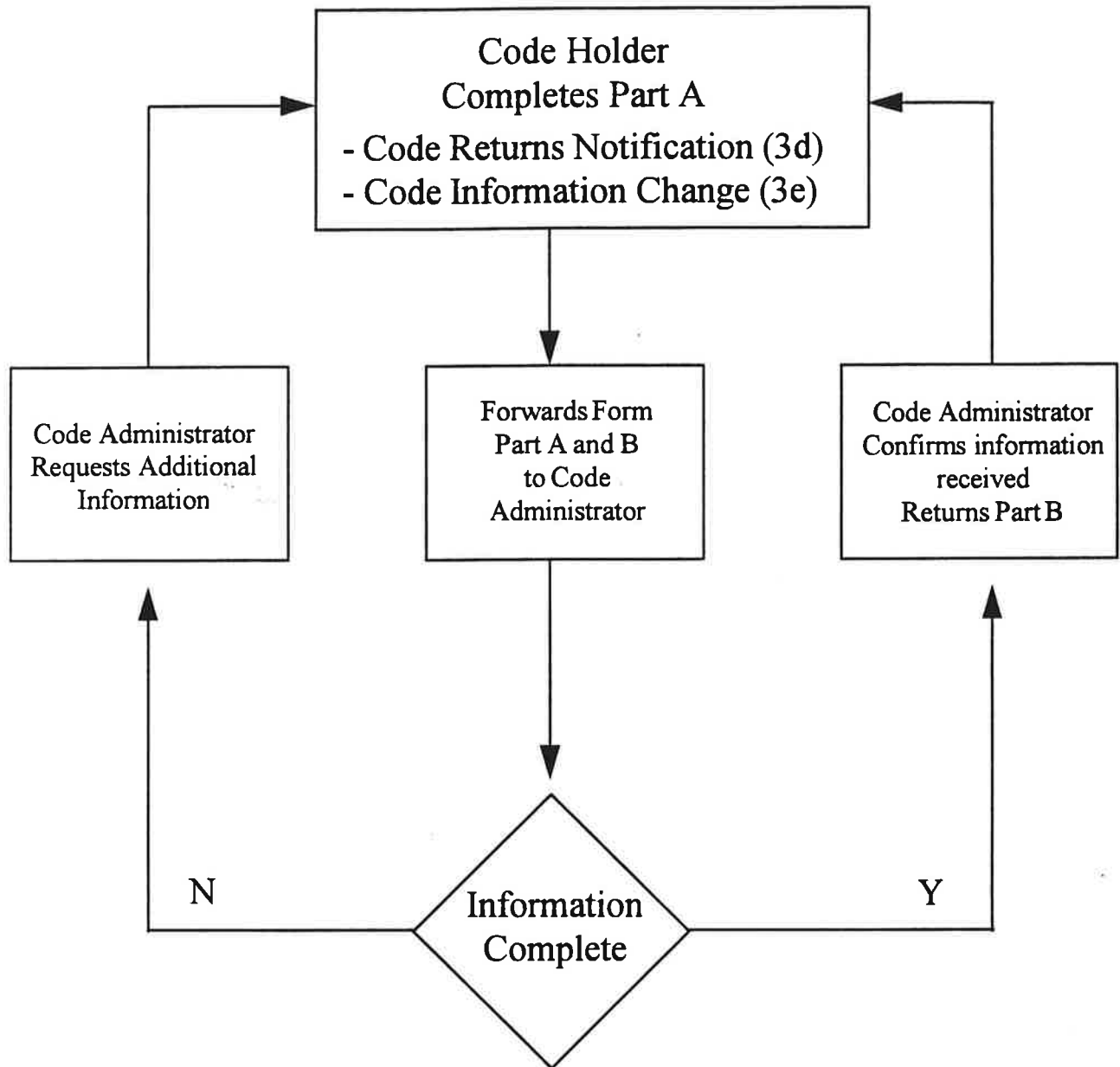
PCS N00 NXX CODE FORMS FLOWCHART #1

- Initial PCS N00 NXX Code(s) Request (3b)
- Additional PCS N00 NXX Code(s) Request (3c)



PCS N00/NXX CODE FORMS FLOWCHART #2

- Code Return Notification (3d)
- Code Information Change (3e)



ATTACHMENT 4

ICCF

INDUSTRY CARRIERS COMPATIBILITY FORUM

UNDER THE AUSPICES OF THE CARRIER LIAISON COMMITTEE

Ron Havens, ICCF Moderator
Sprint - LDD, 5th Flr East
8140 Ward Parkway
Kansas City, MO 64114
(913) 624-6881
Fax: (913) 624-5504
email: Ronald.D.Havens@sprint.sprint.com

Mary Ann Weldon, ICCF Assistant
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NECA RM2B218
100 South Jefferson Rd.
Whippany, NJ 07981
Phone: (201) 884-8037
Fax: (201) 884-8469
email: mweldon@neca.org

Kathy Cullen, ICCF Secretary
Bellcore - Room 2F309
3 Corporate Place
Piscataway, NJ 08854
Phone: (908) 699-3245
Fax: (908) 336-3640 or 2304
email: kcullen@notes.cc.bellcore.com

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TECHNICAL INTERCONNECTION ARRANGEMENTS FOR 500-LIKE NON-GEOGRAPHIC SERVICES

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Executive Summary

This document focuses on technical interconnection arrangements for 500 * service in a pre-portability environment in which codes are assigned to service providers on a central office code (NXX) basis. These technical interconnection arrangements are expected to apply to the portability environment also, with the exception of 10-digit screening additions to support service provider portability. As such, the existing interconnection/routing options for delivering the call to the service provider/carrier, described in Section 6, are a subset of those in the document developed by the Industry Numbering Committee (INC) Personal Communications Service (PCS) Portability Workshop, "INC REPORT on PCS N00 Portability". Also, the potential interconnection/routing options for delivering the call to the designated query provider (DQP), described in Section 7, include all the options in the "INC REPORT on PCS N00 Portability".

* In the context of this document use of the terms "500 service" and "500-like" includes the use of the 500, 533, 544, 566, 577 and 588 NPAs.

Dialed Number - The number dialed by the calling party.

Generic Address (SS7 Parameter) - Information in the form of an address pertaining to a supplementary service (e.g., dialed number, destination number) and including type of address, nature of address and numbering plan indications.

Geographic Routing Address - May be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

Initial Address Message (IAM) - A message sent in the forward direction to initiate seizure of an outgoing circuit and to transmit number and other information relating to the routing and handling of a call.

Integrated Services Digital Network (ISDN) User Part (ISUP) - Defines the protocol which supports the signaling functions required to provide voice and non-voice services in an Integrated Services Digital Network.

Interexchange Carrier (IC) - Any entity that is authorized by appropriate governmental authorities within the area served by the NANP to provide long distance telecommunications service to the public.

Intermediate Network (IMN) - The network that accepts the call from one network and passes it to the next network.

Jurisdiction Information (SS7 Parameter) - Information sent in the forward direction indicating the geographic origination of the call.

Local Exchange Company (LEC) - Any entity that is authorized by the appropriate governmental authorities within the North American Numbering Plan (NANP) to provide local telecommunications service to the public.

Modified Operator Services Signaling (MOSS) - A type of signaling protocol for operator services.

Multifrequency (MF) - An inband signaling method that is used for call control and other network management functions.

Number Portability - Number portability in the context of personal communications implies that a subscriber can change service providers while retaining their number assignment.

Originating Line Information (SS7 Parameter) - Information sent in the forward direction indicating a toll class of service for the call.

Originating Network (ON) is the network in which the call originates.

Personal Communications Service (pcs) - For the purpose of this document, personal communications service is a set of capabilities that allow some combination of personal mobility, terminal mobility, and service profile management. It enables each personal communications service user to participate in a user defined set of subscribed services, and to initiate and/or receive calls on the basis of some combination of a personal number, routing address, and a service profile across multiple networks at any terminal, fixed or mobile irrespective of geographic location. Service is limited only by terminal and network capabilities and restrictions imposed by the personal communications service provider.

Restricted Line(s) - Refers, in this document, to any line requiring special treatment/routing on 500 service calls. Examples of these types of lines are coin, coinless payphones, Type 1 cellular interconnected lines, restricted PBX or CENTREX or hotel/motel lines.

Signaling System 7 (SS7) - An out-of-band common channel signaling protocol used for information transfer for call control and other network management functions.

Terminating Network (TN) - For the purpose of this document the terminating network is the network in which the geographic routing address resides.

Transaction Capability Application Part (TCAP) - The Application Layer protocol in SS7 supporting functions that control non-circuit-related information transfer between two or more signaling nodes via a signaling network.

Acronyms

ANI	Automatic Number Identification
ANI II	ANI Information Integers
ANSI	American National Standards Institute
BRIDS	Bellcore Rating Input Database System
CCS	Common Channel Signaling
CIC	Carrier Identification Code
DB	Database
IC	Interexchange Carrier
ICCF	Industry Carriers Compatibility Forum

IAM	Initial Address Message
IMN	Intermediate Network
INC	Industry Numbering Committee
ISDN	Integrated Services Digital Network
ISUP	ISDN Users Part
ITU	International Telecommunications Union
ITU-T	Telecommunications Standardization
LEC	Local Exchange Carrier
LERG	Local Exchange Routing Guide
MF	Multi-Frequency
MOSS	Modified Operator Services Signaling
NPA	Numbering Plan Area
ON	Originating Network
PIC	Presubscribed Interexchange Carrier
RDBS	Routing Database System
SP	Service Provider
SS7	Signaling System 7
TCAP	Transaction Capabilities Application Part
TGID	Trunk Group Identifier
TN	Terminating Network
UPT	Universal Personal Telecommunications

3.0 Reference Documents

Listed below are reference documents related to non-geographic services.
Please consult the individual documents for further information.

ANSI T1.113-1995 Signaling System No. 7 (SS7) - Integrated Services Digital Network (ISDN) Users Part (ISUP)

ANSI T1.701-1994 Universal Personal Telecommunication (UPT) - Service Description (Service Set One)

ANSI T1.702-1995 Personal Communications Terminology

Bellcore GR-1434-CORE, CCS Network Interface Specification (CCSNIS) Supporting Wireless Service Providers

Bellcore GR-2801-CORE, Switching and Signaling Generic Requirements for Network Access Services to Personal Communications Service (PCS) Providers

Bellcore SR-TSV-002459, PCS Network Access Services

BOC Notes on the LEC Networks - (Bellcore) SR-TSV-002275, issue 2, 4/94

INC 95-0407-009, (formerly ICCF 93-1130-011), PCS N00 NXX Code Assignment Guidelines

INC 95-0512-010, INC Report On PCS N00 Portability

ITU-T Recommendation E.174, Routing Principles and Guidance for Universal Personal Telecommunications (UPT)

T1 Technical Report TR 30, UPT Numbering and Addressing in World Zone 1

T1 Technical Report TR 34, Network Capabilities, Architecture's, and Interfaces for Personal Communications

T1 Technical Report 41, UPT Routing for the Networks Served by the North American Numbering Plan

4.0 Assumptions and Constraints

This section identifies the assumptions and constraints that were considered in generating this document.

- A) The potential technical interconnection and routing arrangements identified are for 500-like non-geographic services in a pre-portability environment.
- B) Databases will be used to provide the routing information required for processing and completion of the non-geographic call. While the figures illustrate the presence of one database accessed by the DQP, there may be other databases in individual networks involved in processing these calls.
- C) The "common minimum" set of attributes or arrangements defined, can be used on a nationwide basis for 500-like non-geographic services. These "common minimum" arrangements do not preclude use of any other arrangements that could be negotiated between carriers or between carriers and service providers.
- D) The potential technical interconnection arrangements and/or attributes identified can be used in both wireline and wireless networks using non-geographic 500 numbering resources.
- E) Dialing plans supported by the potential technical interconnection arrangements are 1+500, 0+500, 0-.

-
- F) Transaction Capability Application Part (TCAP) messages will be used for database queries.
 - G) The proposed arrangements, with modifications, could be used in a portable environment.
 - H) Switch/protocol development may be required to populate and use the IAM with the necessary ISUP parameters (e.g., JIP, GAP, etc.) as depicted in this document.
 - I) A call is considered to be from the ON to the TN; any additional call routing beyond the TN is considered to be outside the purview of this document.
 - J) This document does not address access transport billing.
 - K) Six-digit routing using PIC is only available using AIN in a pre-portability environment
 - L) Architectures suggested in this document to provide non-geographic services in a pre-portability environment and the routing scenarios depicted in Figures 7.3.1 through 7.3.11 illustrate end to end routing configurations. These scenarios are not the only arrangements that might be used. They are only examples provided in order to define the network functionalities that may be required to route non-geographic calls in a pre-portability environment.
 - M) Deploying the technical interconnection arrangements contained in this document, or any other non-geographic arrangements, may require tariff approvals as well as business agreements between network providers and service providers. These agreements are outside the scope of this document.
 - N) The text in Section 7 contains assumptions about where call detail recording might be done. However, there has been no attempt to identify every potential location where call detail recording could be done. Neither has any attempt been made to suggest how billing would be provided to end users. These are service provider issues that must be resolved with network providers when service is established.

-
- O) The SS7 IAM parameters shown in the diagrams in Section 7 are the minimum set technically required for call routing and/or billing and may be subject to business arrangements.

5.0 Principle

The following is a fundamental principle in developing this document:

No service provider should be advantaged or disadvantaged by the technical interconnection arrangements proposed in this document.

6.0 Existing Interconnection/Access Arrangements

The interconnection/access arrangements described in this section support an originating access service that is offered to 500 Service Providers.

When a call is originated to a 500 number by an end user, the access provider performs access customer identification based on six-digit screening of the 500 number to determine the next point in the call routing. The six-digit screening is performed using database technology or switch translations.

In addition, 500 service providers may have the option of the access provider performing additional data base processing for calls to their 500-NXX central office code in order to translate the dialed 500-NXX-XXXX number to a geographic routing address.

Access architecture arrangements are illustrated in Figure 6-1. Table 6-1 provides the type of dialing and signaling supported by the designated access arrangements (labeled a,b,c, and d) and the signaling information parameters that are forwarded.

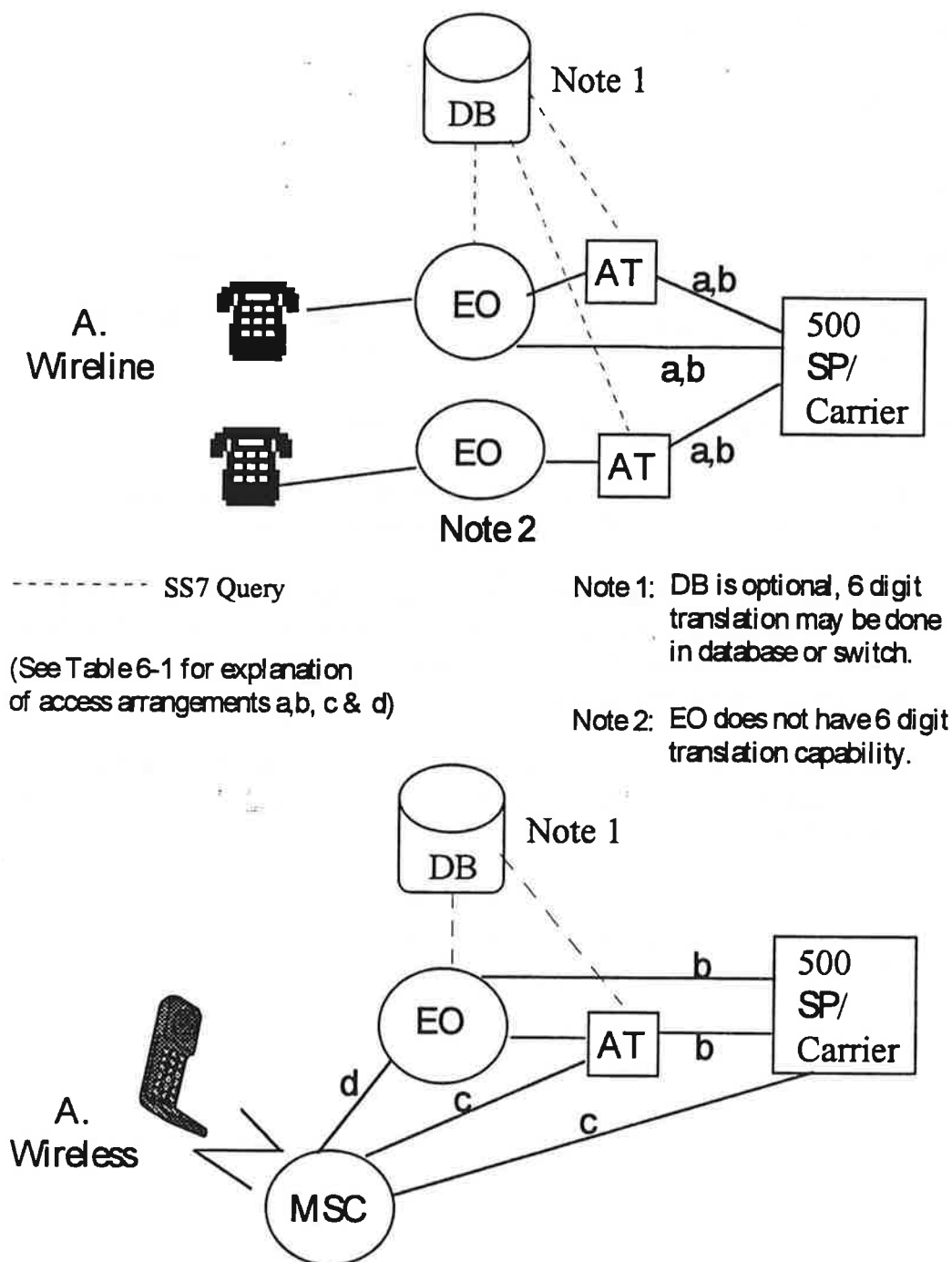


Figure 6-1
500 NXX Access Architecture

Table 6-1

Fig. 6-1 Ref.	Dialing Type	Signaling Type	Signaling Information Parameter - MF	Signaling Information Parameter - SS7
a	1+500	MF or SS7	<ul style="list-style-type: none"> • Dialed Number (e.g., 500-234-1234) • ANI (e.g., 212-987-6543) • ANI II (e.g., 00) 	<ul style="list-style-type: none"> • Called Party Number (e.g., 500-234-1234) • Charge Number (e.g., 212-987-6543) • Originating Line Information (e.g., 00)
b	1+500 (from restricted line) or 0+500	MF, SS7 or MOSS	<ul style="list-style-type: none"> • Dialed Number (e.g., 500-234-1234) • ANI (e.g., 212-987-6543) • ANI II (e.g., 07) (Note 1) 	<ul style="list-style-type: none"> • Called Party Number (e.g., 500-234-1234) • Charge Number (e.g., 212-987-6543) • Originating Line Information (e.g., 07) (Note 1)
c Note 2	0+500 Note 4	MF or SS7	<ul style="list-style-type: none"> • Dialed Number (e.g., 500-234-1234) • ANI (e.g., 212-987-6543) • ANI II (e.g., 62) 	<ul style="list-style-type: none"> • Called Party Number (e.g., 500-234-1234) • Charge Number (e.g., 212-987-6543) • Originating Line Information (e.g., 62)
d Note 3	0+500 Note 4	MF	<ul style="list-style-type: none"> • Dialed Number (e.g., 500-234-1234) 	NA

Notes:

1. If the call is from a wireless network via a Type 1 Interconnection ANI II will be 61, the ANI (Charge Number) signaling information parameter is the billing trunk number of the wireless system and not the ANI (Charge Number) of the wireless caller.
2. 10-digit ANI (Charge Number) of the wireless caller is provided only with Type 2A Interconnection which supports exchange access signaling (see TR-NTL-000145, "Compatibility Information for Interconnection of a Wireless Service Provider and Local Exchange Carrier Network", Issue 2, 12/93).
3. Type 1 Interconnection only. Note 1 applies.
4. 1+ 500 dialing is currently not supported.

7.0 Potential Technical Interconnection Arrangements

This section contains potential technical interconnection arrangements for non-geographic services and is consistent with routing concepts described in T1 Technical Reports and ITU-T Recommendations.

This section provides suggested alternatives that may be used to provide non-geographic services in a pre-portability environment. The routing scenarios depicted in Figures 7.3.1 through 7.3.11 illustrate functional end-to-end routing configurations. The actual service provider has not been identified in these diagrams and may, or may not, be one of the network providers. These scenarios are not the only arrangements that might be used. They are only examples provided in order to define the network functionalities that may be required to route non-geographic calls in a pre-portability environment.

The routing diagrams and tables included in this section are functional (i.e., what occurs at each step) and are not intended to depict the office architecture or actual network interconnections that may be provided. In addition, the functional arrangements are independent of whether number portability exists. Routine call processing functions are only identified when clarification of routing call flow is required.

This section also contains assumptions about where call detail recording might be done. However, there has been no attempt to identify every location where call detail recording could be done. Neither has any attempt been made to suggest how billing would be provided to end users. These are service provider issues that must be resolved with network providers when service is established.

In addition, deploying these arrangements, or any other non-geographic arrangements, may require tariff approvals as well as business agreements between network providers and service providers. These agreements are outside the scope of this document.

7.1 Non-geographic Routing Model

A generic routing model for non-geographic access services using NANP resources is shown in Figure 7 below. In this application, the call to the user of a non-geographic number is routed to the Designated Query Provider (DQP). It is important to note that the DQP function may be located in the originating (ON), intermediate (IMN) or the terminating network (TN). The DQP interrogates the service provider database to determine the routing address. The call is then progressed from the DQP and terminates at the routing address (called party). The actual routing may include multiple internetwork connections.

There may be cases where the actual originating network (e.g., wireless) designates another network to act as the ON as described in the options that follow. In those cases, all 1+ and 0+ non-geographic traffic would be routed to the network acting as the ON.

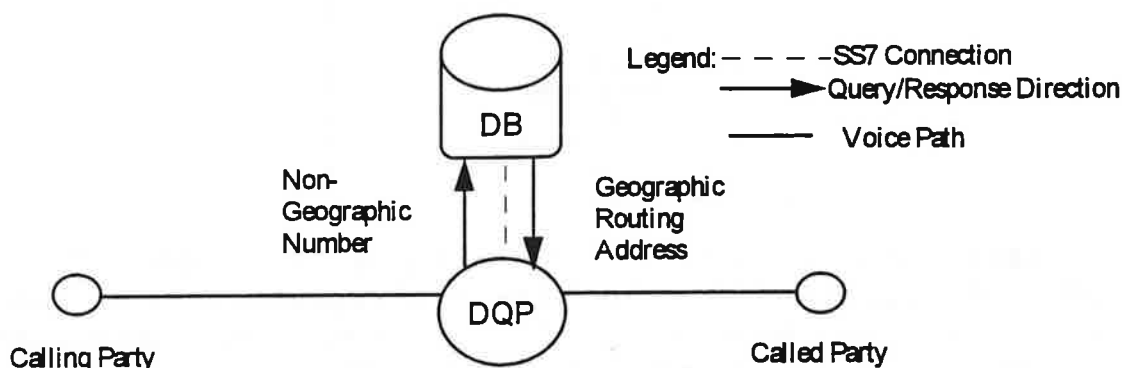


Figure 7: Generic Routing Model

7.2 Routing Scenario Considerations

This section contains routing scenario considerations.

The figures (7.3.1 through 7.3.11) together with the associated tables illustrate the various routing scenarios for the non-geographic number and outline the division of functionality provided by the originating network (ON), intermediate network (IMN) and the terminating network (TN). The routing scenarios are accomplished by use of switch translations and/or a database query.

The signaling information (parameters) passed between networks as shown in the routing scenarios is contained in an SS7 Initial Address Message (IAM). ANSI T1.113-1995 should be consulted for a detailed explanation of the parameters and their use.

Depending on the translation option and network capabilities, some of the information parameters contained in the IAM that may pass from the ON to an IMN or TN are illustrated below. The table lists the parameters, of significance to the routing scenarios (not necessarily all parameters), that may be passed. The IAM illustrated with each scenario contains only those parameters required for the particular scenario. There are other parameters related to routing, not illustrated in this document, that may be used where network capabilities permit.

Table 7**SS7 IAM Parameters**

Called Party Number
Calling Party Number
Carrier Identification Code
Charge Number
Generic Address
Jurisdiction Information
Originating Line Information
Original Called Number

The Jurisdiction Information Parameter (JIP) contains an NPA NXX that identifies the geographic location from which a call originates. This information may be useful to other networks (e.g., IMN, TN) for billing/rating purposes when calls originate from wireless users in which neither the calling party number nor the charge number (ANI) represent the geographic location of the origination of the call (e.g., roamer originations).

The SS7 Charge Number Parameter (CNP) and Originating Line Information Parameter (OLIP) are included in possible information flows for all the routing scenarios discussed below, including intraLATA routing. In a called party pays environment, these parameters may be needed for billing and billing screening functions; they may also be needed in scenarios where more than one end user is paying for a portion of the call.

When a non-geographic call originates from an end office that is not equipped with SS7 functionality, the call must be sent forward using MF signaling, to an SS7 equipped office. The originating office will perform a switch translation of the dialed number to acquire the routing information necessary to route the call forward to the SS7 equipped office. The MF signaling information sent forward is described in Table 6.1.

7.3 Routing Scenarios

This section contains examples of possible routing scenarios:

7.3.1 Originating Network (ON) is both the DQP and the Terminating Network (TN). There is no Intermediate Network (IMN).

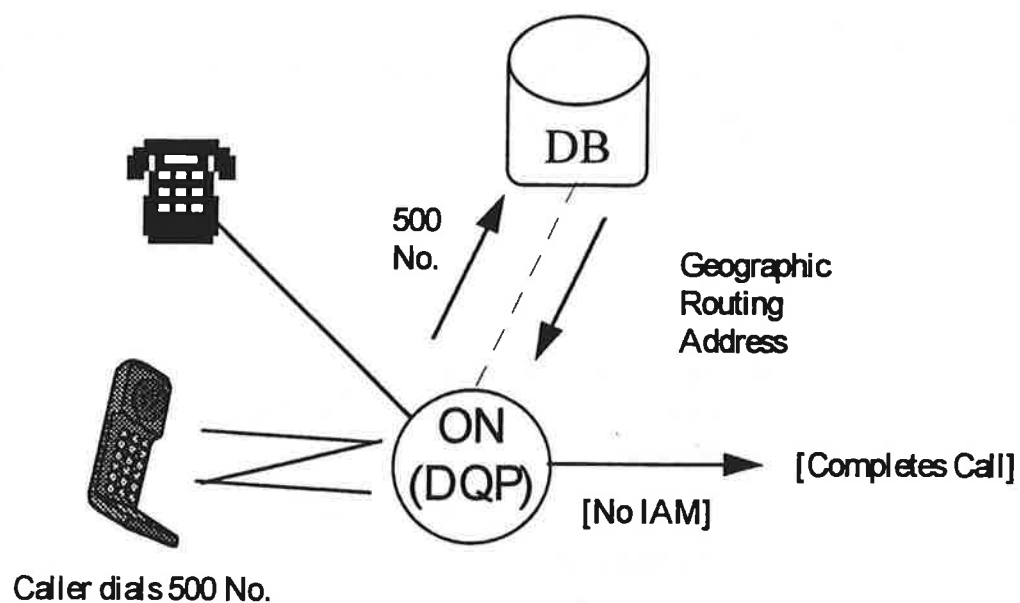
The ON queries the database and routes the call. No IAM between networks is required as the ON is the TN. The assumption in this diagram is that call detail recording for end user billing is performed in this network in order to display the called number on the end user's bill.

TABLE 7.3.1

Originating/Terminating Network
Performs translation and determines ON is DQP
Queries DB and receives geographic routing address ¹
Completes call

¹ Geographic routing address may be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

Figure 7.3.1
Originating Network (ON) is both the DQP and the Terminating Network (TN). There is no Intermediate Network (IMN)



7.3.2 Originating Network (ON) is the DQP and there is no Intermediate Network (IMN).

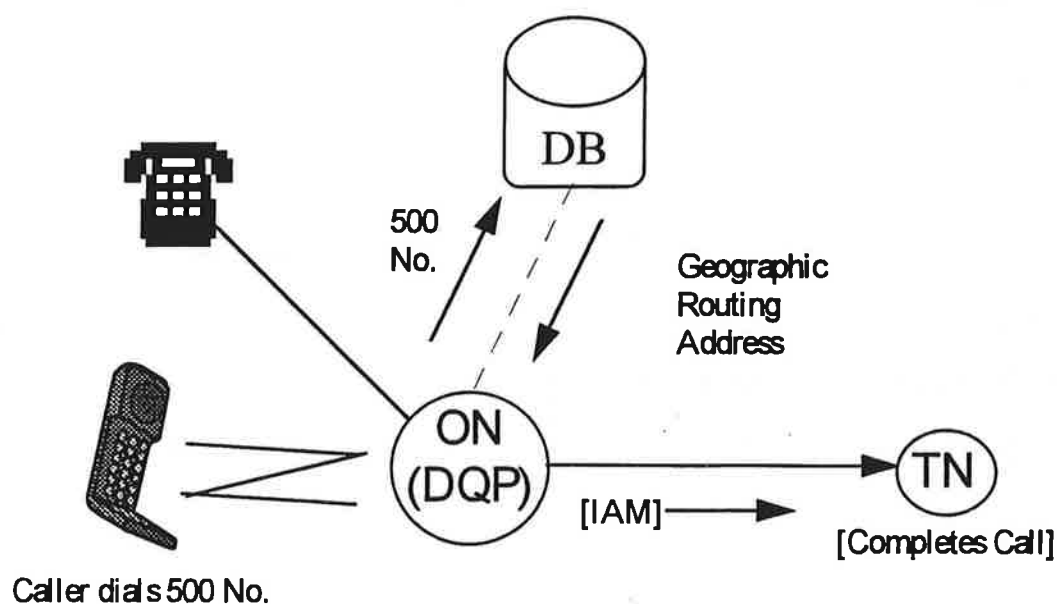
The ON queries the database, retrieves the routing information, sends an IAM with the signaling information parameters, and passes the call to the applicable terminating network. The assumption in this diagram is that call detail recording for end user billing is performed in the ON in order to display the dialed number on the end users' bill.

Table 7.3.2

Originating Network	Terminating Network
Performs translation and determines ON is DQP	—
Queries DB and receives geographic routing address ¹	—
Routes call to the TN	Completes call

¹ Geographic routing address may be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

Figure 7.3.2
Originating Network (ON) is the DQP
and there is no Intermediate Network (IMN)



Information Parameter

Called Party Number

Calling Party Number

IAM Example

404-987-XXXX

213-223-XXXX

Note: The SS7 IAM parameters shown are the minimum set technically required for call routing and/or billing and may be subject to business arrangements.

7.3.3 Originating Network (ON) is the DQP. Call routes through an IMN to the TN.

The ON queries the database, retrieves a CIC² (to determine IMN) and routing address and routes the call to the IMN. The IMN routes the call to the TN using the routing address which is contained in the IAM. The assumption in this diagram is that call detail recording for end user billing can be performed in the ON or IMN when appropriate business arrangements exist to use the GAP and JIP (Generic Address Parameter and Jurisdiction Information Parameter) to forward the 500 number between networks. Modifications of the information provided in the GAP would be required.

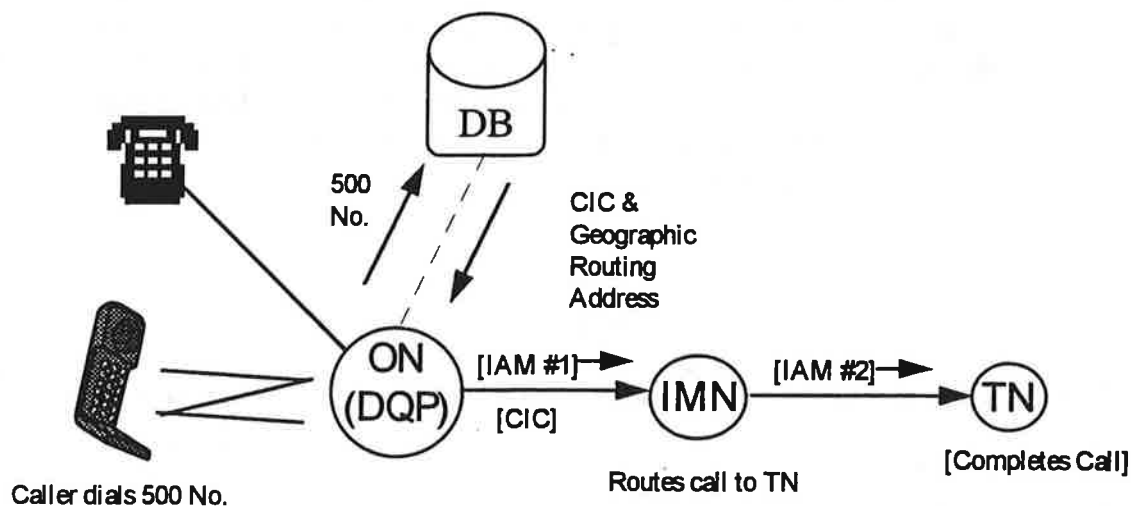
Table 7.3.3

Originating Network	Intermediate Network	Terminating Network
Performs translation and determines ON is DQP	-	-
Queries DB and receives CIC ² and geographic routing address ¹	-	-
Routes call to the IMN identified by CIC ²	Routes call to TN using geographic routing address	Completes call

¹ Geographic routing address may be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

² "CIC" allows for the DB to return CIC associated with the non geographic number or a "Use PIC" indicator that instructs the ON to use the calling party's PIC for routing.

Figure 7.3.3
Originating Network (ON) is the DQP.
Call routes through an IMN to the TN



<u>Information Parameter</u>	<u>IAM #1 Example</u>	<u>IAM #2 Example</u>
Called Party Number	404-987-XXXX	404-987-XXXX
Charge Number	212-223-XXXX	212-223-XXXX
Originating Line Information	00 or 62	00 or 62
Calling Party Number	212-223-XXXX	212-223-XXXX
Jurisdiction Information	415-234	
Generic Address	500-234-XXXX	

Note: The SS7 IAM parameters shown are the minimum set technically required for call routing and/or billing and may be subject to business arrangements.

7.3.4 Terminating Network (TN) is the DQP. The ON routes call to TN using the Trunk Group Identification (TGID). There is no IMN.

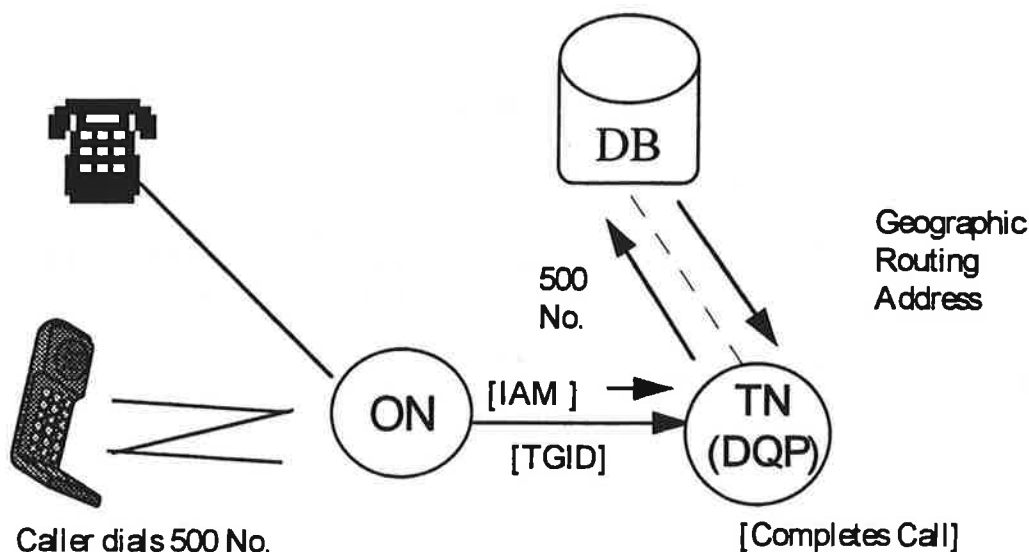
The ON routes the call to the TN using a TGID. The TN queries the database, retrieves the geographic routing address and routes the call. The assumption in this diagram is that call detail recording for end user billing could be performed in the TN.

Table 7.3.4

Originating Network	Terminating Network
Performs 6-digit translation to identify the TGID	Holds call, queries DB and receives geographic routing address ¹
Routes call to TN using TGID	Completes call

¹ Geographic routing address may be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

Figure 7.3.4
Terminating Network (TN) is the DQP.
The ON routes call to TN using the
Trunk Group Identification (TGID).
There is no IMN.



Information Parameter

Called Party Number
 Charge Number
 Originating Line Information
 Calling Party Number
 Jurisdiction Information

IAM Example

500-234-XXXX
 212-223-XXXX
 00 or 62
 212-223-XXXX
 415-234

Note: The SS7 IAM parameters shown are the minimum set technically required for call routing and/or billing and may be subject to business arrangements.

7.3.5 Terminating Network (TN) is the DQP. ON routes to the TN using the CIC. There is no IMN.

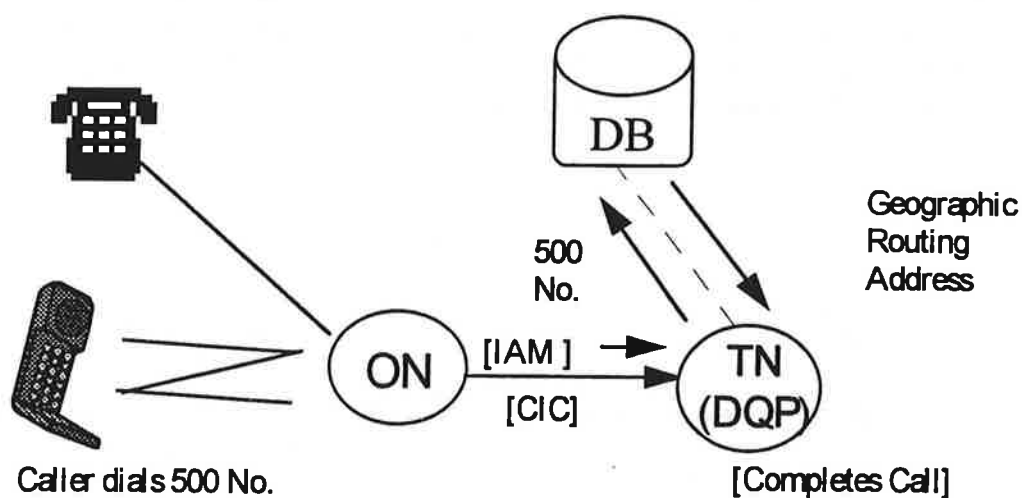
The ON routes the call to the TN using a CIC obtained from a 6-digit translation of the non- geographic number. The TN queries the database, retrieves the routing address and completes the call. The assumption in this diagram is that call detail recording for end user billing is performed in the ON. The geographic routing address is not available to the ON.

Table 7.3.5

Originating Network	Terminating Network
Performs 6-digit translation to identify the CIC	Holds call, queries DB and receives geographic routing address ¹
Routes call to TN identified by CIC	Completes call

¹ Geographic routing address may be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

Figure 7.3.5
Terminating Network (TN) is the DQP.
ON routes to the TN using the CIC.
There is no IMN.



Information Parameter

Called Party Number

Calling Party Number

IAM Example

500-234-XXXX

212-223-XXXX

Note: The SS7 IAM parameters shown are the minimum set technically required for call routing and/or billing and may be subject to business arrangements.

7.3.6 Intermediate Network (IMN) is the DQP with a second IMN and a Terminating Network (TN). ON routes to IMN 1 using a TGID.

The ON routes the call to IMN 1 using a TGID since the ON cannot determine which CIC to use without a data base query because the call may be; 1) intra or interLATA, 2) calling or called party pays. The IMN 1 queries the data base, retrieves the geographic routing address and a USE PIC indicator, or a designated CIC associated with the non-geographic number, which resides in the database, and routes the call to the IMN 2 using the PIC or CIC. In some situations, IMN 2 is selected by the originating party (PIC), and in others, by the terminating party or service provider (designated CIC) based on business agreements and service offerings (i.e. called vs. calling party pays). The IMN 2 routes the call to the TN using the geographic routing address. The TN completes call. The assumption in this diagram is that call detail recording for end user billing could be performed in IMN 1 or 2 based on the IAM details listed below. The information contained in IAM 2 and 3 is based upon business agreements and therefore call detail for end user billing could also be performed in the TN. With the TGID routing, the CIC/PIC is not currently sent from the ON to another network. Sending the CIC/PIC associated with the calling party's line, between networks, when TGID routing is used, would require development of new switch features.

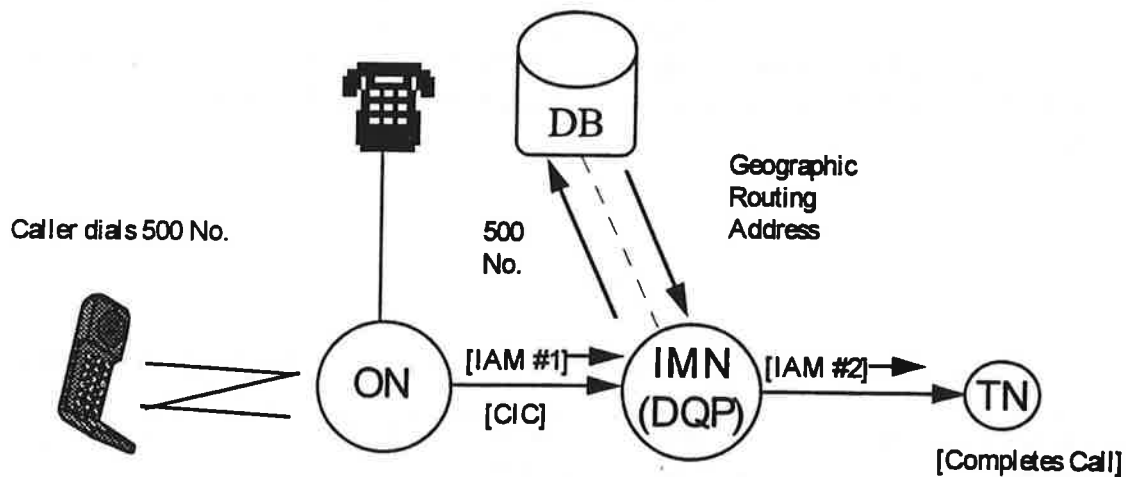
Table 7.3.6

Originating Network	Intermediate Network	Terminating Network
Performs 6-digit translation to identify the TGID	IMN 1 holds call, queries DB and receives CIC ³ and geographic routing address ¹ . IMN 1 uses CIC to route call to IMN 2	—
Routes call to IMN 1 using TGID	IMN 2 routes call to TN using IAM #2	Completes call

¹ Geographic routing address may be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

³ "CIC" allows for the DB to return the CIC associated with the non-geographic number or a "USE PIC" indicator that instructs the IMN to use the calling party's PIC for routing. Protocol changes for a "USE PIC" indicator will be required to provide the PIC to the IMN.

Figure 7.3.7
Intermediate Network (IMN) is the DQP.
ON routes to the IMN using the CIC.



<u>Information Parameter</u>	<u>IAM #1 Example</u>	<u>IAM #2 Example</u>
Called Party Number	500-234-XXXX	404-987-XXXX
Charge Number	212-223-XXXX	
Originating Line Information	00 or 62	
Calling Party Number	212-223-XXXX	212-223-XXXX
Jurisdiction Information	415-234	

Note: The SS7 IAM parameters shown are the minimum set technically required for call routing and/or billing and may be subject to business arrangements.

7.3.8 Terminating Network (TN) is the DQP. ON routes to the IMN using a TGID, IMN performs translation using the called number.

The ON routes the call to the IMN, using a TGID. IMN performs translation of Called Party Number (e.g., 500 234-XXXX) to geographic number of DQP switch location (e.g., 404 987). The IMN routes the call to the TN. The TN queries the database, retrieves the routing address and routes the call. The assumption in this diagram is that call detail recording for end user billing and the identification of the terminating network node where the DQP is located, is performed in the IMN. The call detail recording for end user billing could also be performed in the TN based on business arrangements.

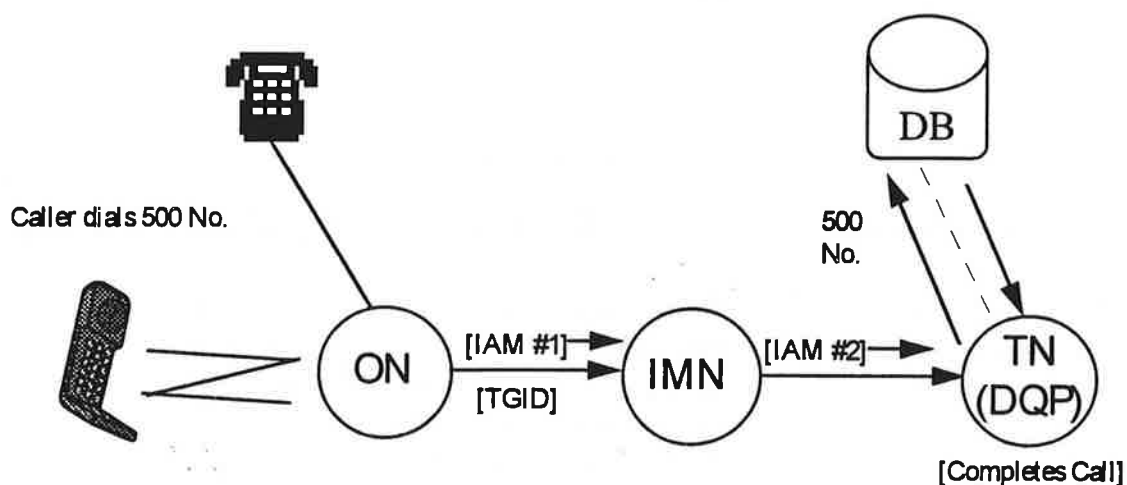
Table 7.3.8

Originating Network	Intermediate Network	Terminating Network
Performs 6-digit translation to identify the TGID	Performs 6-digit translation of the 500 number to a geographic routing address which is the terminating address of the DQP	Holds call, queries DB for geographic routing address ¹
Routes call to IMN using trunk group	Routes call to TN using the terminating address of the DQP	Completes call

¹ Geographic routing address may be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

Figure 7.3.8
Terminating Network (TN) is the DQP.
ON routes to the IMN using a TGID,
IMN performs translation using the called number.

Note: IMN performs translation of Called Party Number (e.g., 500 234-XXXX) to geographic number of DQP switch location (e.g., 404 987).



<u>Information Parameter</u>	<u>IAM #1 Example</u>	<u>IAM #2 Example</u>
Called Party Number	500-234-XXXX	404-987-XXXX (Terminating
Charge Number	212-223-XXXX	address of the DQP)
Originating Line Information	00 or 62	
Calling Party Number	212-223-XXXX	212-223-XXXX
Jurisdiction Information	415-234	
Generic Address	Blank Field	500-234-XXXX

Note: The SS7 IAM parameters shown are the minimum set technically required for call routing and/or billing and may be subject to business arrangements.

7.3.9 Terminating Network (TN) is the DQP. ON routes to the IMN using a CIC. IMN performs translation using the called number.

The ON routes the call to the IMN, using a CIC associated with the non-geographic number. The IMN performs a translation of the Called Party number (e.g., 500 234-XXXX) to the geographic number of the DQP switch location (e.g., 404 987). The IMN routes the call to the TN. The TN queries the database, retrieves the routing address and routes the call. The assumption in this diagram is that call detail recording for end user billing and the identification of the terminating network node where the DQP is located, is performed in the IMN. The call detail recording for end user billing could also be performed in the TN based on business arrangements.

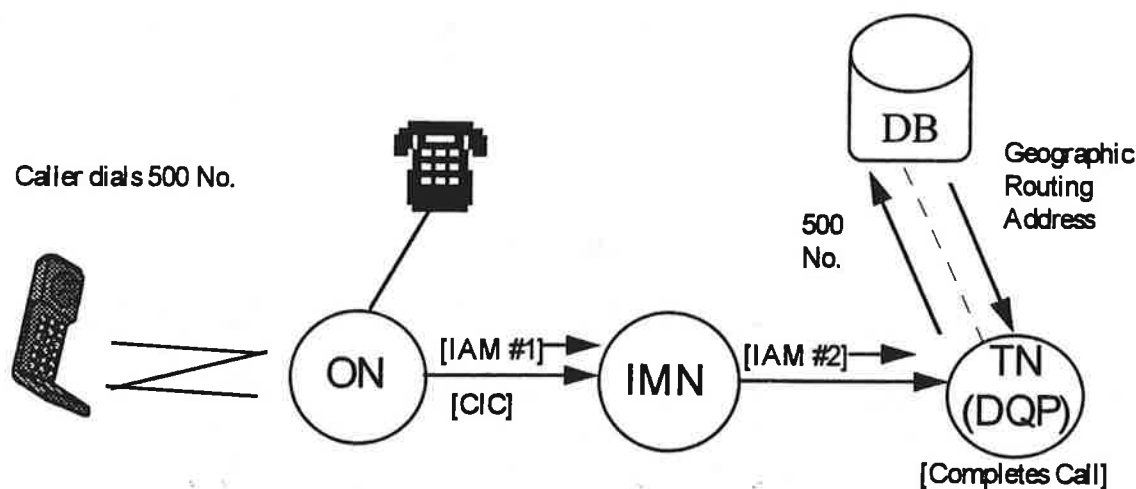
Table 7.3.9

Originating Network	Intermediate Network	Terminating Network
Performs 6-digit translation to identify the CIC	Performs 6-digit translation of the 500 number to a geographic routing address which is the terminating network address of the DQP	Holds call, queries DB for geographic routing address ¹
Routes call to IMN identified by CIC	Routes call to TN using terminating address of the DQP	Routes call to geographic routing address ¹

¹ Geographic routing address may be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

Figure 7.3.9
Terminating Network (TN) is the DQP.
ON routes to the IMN using a CIC.
IMN performs translation using the called number.

Note: IMN performs translation of Called Party Number (e.g., 500 234-XXXX) to geographic number of DQP switch location (e.g., 404 987).



<u>Information Parameter</u>	<u>IAM #1 Example</u>	<u>IAM #2 Example</u>
Called Party Number	500-234-XXXX	404-987-XXXX
Charge Number	212-223-XXXX	
Originating Line Information	00 or 62	
Calling Party Number	212-223-XXXX	212-223-XXXX
Jurisdiction Information	415-234	
Generic Address	Blank Field	500-234-XXXX

Note: The SS7 IAM parameters shown are the minimum set technically required for call routing and/or billing and may be subject to business arrangements.

7.3.10 Terminating Network (TN) is the DQP. ON routes to the IMN using PIC. ON performs translation using the dialed number.

The ON translates the dialed number (e.g., 500 234-XXXX) to the geographic number of the DQP switch location (e.g., 404 987) and routes the call to the IMN using the PIC of the calling party. The information identifying the terminating network node where the DQP is located is then passed on to the IMN. The IMN routes the call to the TN using the geographic number of the DQP switch location (e.g., 404 987). The TN queries the database and retrieves the routing address and routes the call. The assumption in this diagram is that call detail recording for end user billing and identification of the terminating network node where the DQP is located, is performed in the ON. The call detail recording for end user billing could also be performed in the IMN. In addition, based on business arrangements, the call detail recording for end user billing could be performed in the TN.

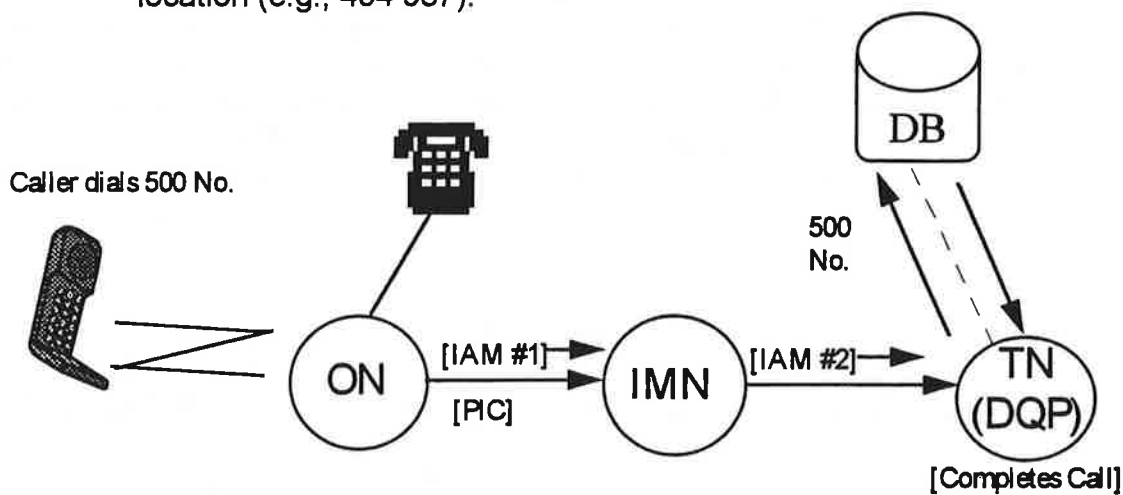
Table 7.3.10

Originating Network	Intermediate Network	Terminating Network
Performs 6-digit translation of the 500 number to a geographic routing address which is the terminating address of the DQP	-	Holds call, queries DB for geographic routing address ¹
Routes call to IMN identified by PIC of the calling party	Routes call to TN using terminating address of the DQP	Completes call

¹ Geographic routing address may be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

Figure 7.3.10
Terminating Network (TN) is the DQP.
ON routes to the IMN using PIC.
ON performs translation using the dialed number.

Note: ON performs translation of Called Party Number (e.g., 500 234-XXXX) to geographic number of DQP switch location (e.g., 404 987).



<u>Information Parameter</u>	<u>IAM #1 Example</u>	<u>IAM #2 Example</u>
Called Party Number	404-987-XXXX	404-987-XXXX
Charge Number	212-223-XXXX	
Originating Line Information	00 or 62	
Calling Party Number	212-223-XXXX	212-223-XXXX
Jurisdiction Information	415-234	
Generic Address	500-234-XXXX	500-234-XXXX

Note: The SS7 IAM parameters shown are the minimum set technically required for call routing and/or billing and may be subject to business arrangements.

7.3.11 Terminating Network (TN) is the DQP. ON routes to the IMN using the CIC. ON performs translation using the dialed number.

The ON translates the Dialed Number (e.g., 500 234-XXXX) to the geographic number of the DQP switch location (e.g., 404 987), then routes the call to the IMN using the CIC associated with the non-geographic number. The information identifying the terminating network node where the DQP is located is then passed on to the IMN. The IMN routes the call to the TN using the geographic number of the DQP switch location. The TN queries the database and retrieves the routing address and routes the call. The assumption in this diagram is that call detail recording for end user billing and identification of the terminating network node where the DQP is located, is performed in the ON. The call detail recording for end user billing could also be performed in the IMN. In addition, based on business arrangements, the call detail recording for end user billing could be performed in the TN.

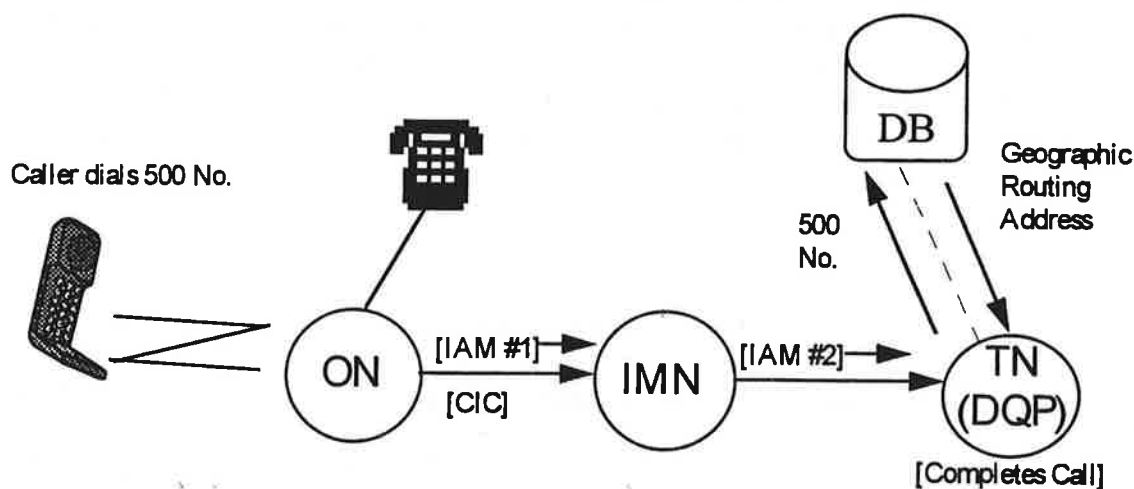
Table 7.3.11

Originating Network	Intermediate Network	Terminating Network
Performs 6-digit translation of the 500 number to a geographic routing address which is the terminating address of the DQP and identifies the CIC	—	Holds call, queries DB for geographic routing address ¹
Routes call to IMN identified by CIC	Routes call to TN using terminating address of the DQP	Completes call

¹ Geographic routing address may be the actual NANP number of the non-geographic user at their present location or the network address of the terminating switch that will provide additional call processing.

Figure 7.3.11
Terminating Network (TN) is the DQP.
ON routes to the IMN using the CIC.
ON performs translation using the dialed number.

Note: ON performs translation on Dialed Number (e.g., 500 234-XXXX) to geographic number of DQP switch location (e.g., 404 987).



<u>Information Parameter</u>	<u>IAM #1 Example</u>	<u>IAM #2 Example</u>
Called Party Number	404-987-0000	404-987-0000
Charge Number	212-223-XXXX	
Originating Line Information	00 or 62	
Calling Party Number	212-223-XXXX	212-223-XXXX
Jurisdiction Information	415-234	
Generic Address	500-234-XXXX	500-234-XXXX

Note: The SS7 IAM parameters shown are the minimum set technically required for call routing and/or billing and may be subject to business arrangements.

8.0 Rating and Routing Support System Considerations

A detailed analysis of rating and routing support system considerations was not conducted.