- Only service provider portability will be considered in the evaluation of any alternative. Location portability and service portability will not be considered.
- All proposals considered are assumed to be applicable to all service providers, both incumbents and new entrants alike.

4.0 CURRENT CALL RATING PROCESSES

Call rating is typically effected by downstream processes supported by each service provider. These processes rely upon knowledge of the calling and called party locations to determine if the call is local or toll, and to compute the specific charge. The calling and called party locations are associated with the NPA-NXX of calling and called party numbers and are listed in industry documents maintained by the Traffic Routing Administration (TRA) within Bellcore. Specific industry documentation which contain this information -- usually in the form of vertical and horizontal (V&H) coordinates -- are the Terminating Point Master (TPM) File, the Vertical and Horizontal Coordinates Data (VHCD) and the Local Exchange Routing Guide (LERG).

5.0 CURRENT CALL ROUTING PROCESSES

Call routing is a real time, switch based process, which requires digit analysis and translation, and is typically performed using the first three or six digits of the called party number. Although digit analysis and translation beyond six digits is possible in most central office switches, it is administratively burdensome and can impact switch capacity.

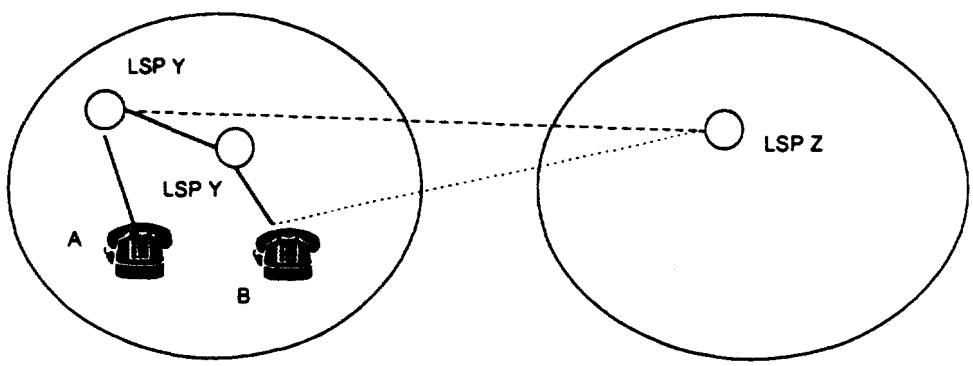
This type of digit analysis is not only necessary for call completion but also to determine the local/toll nature of the call and the subsequent need to route the call to the presubscribed intraLATA toll carrier of the calling line. Presubscription for intraLATA calls is available in several states and will likely be implemented nationwide in the foreseeable future.

6.0 THE COMPETITIVE LOCAL EXCHANGE ENVIRONMENT

New local service providers are likely to provide service using a network infrastructure which is not a mirror of the infrastructure employed by the incumbent LEC. Specifically, the serving wire center areas of switches deployed by the new entrants are likely to be much larger than that of the incumbent, and may therefore cover a multitude of existing rate centers. Consequently, although a new entrant might satisfy the demand for its services with numbering resources (i.e., line numbers) available with just one or a few central office codes, the need to perform call rating consistent with today's methods requires the assignment to the new entrant of one CO/NXX code per rate center.

Absent such assignments, current call rating procedures could result in changes in call charges and subsequent customer confusion. Consider for example the

situation described in the diagram below. Subscribers A and B are both customers of Local Service Provider (LSP), Y and are located within the same rate center -- rate center 1. Further, both subscribers are served by central office switches also located in rate center 1. Consequently, a call from subscriber A to subscriber B is rated as a local call. Assume subscriber B changes both service provider and telephone number and is now served by LSP Z from a central office switch distant from subscriber B and located in a different rate center -- rate center 2. Assume also that LSP Z has been assigned a single CO/NXX code (i.e., an NPA-NXX) to serve all its subscribers. If existing call rating processes are used, a call from subscriber A to subscriber B will be identified by the originating LSP (i.e., LSP Y), using the NPA-NXX of the calling and called parties, as an inter rate center call and potentially subject to toll charges (see Section 8.4). Recognize that the impact is on the calling party -- subscriber A -- not the called party -- subscriber B -- who has changed service providers.



7.0 THE IMPACT OF LOCAL NUMBER PORTABILITY

It has been suggested that the infrastructure which will be constructed to support Local Number Portability (LNP) will provide the capabilities necessary to allow accurate call rating, consistent with existing rate center boundaries, without the need for the assignment of a CO/NXX code per carrier, per rate center. Accordingly, it is further suggested that the development of specific capabilities to deal with potential CO/NXX code exhaust is unnecessary and inefficient if LNP will shortly provide the solution.

Indeed, the deployment of feature enhancements potentially associated with Local Number Portability (LNP) could offer the above mentioned capabilities.

One such feature is number pooling, the assignment of CO/NXX codes to specific geographic areas (rate centers) and their availability to any and all service providers who serve that area. One method of pooling could be that all numbers within the "pooled" CO/NXX codes would be resident in a data base and marked, for example, as "working" or "spare". Upon a request for service from a customer located in a given area, the service provider would interrogate the data base to obtain a spare number in a CO/NXX code designated for use in that area. The code administrator would necessarily have to monitor the utilization of the codes, adding additional codes whenever necessary. The requirements for the support of number pooling, including possible development of a number administration data base, as well as the necessary methods and procedures, have not yet been considered.

Also, the capabilities necessary to avoid the need for the assignment of codes per carrier, per rate center would be available if location portability were deployed. Location portability requires the association of location information with each line number and could, therefore, be used to allow assignment of numbers within a given NPA NXX to subscribers within any rate center in the area of portability. This arrangement must include the ability within the LNP SMS and the LNP Routing Database (SCP) to store location information associated with each line number, the ability to convey this information from the SCP to the switch (SSP) via signaling, the ability of the SSP to recognize this information , and the availability of the necessary AMA recording formats to record the relevant details. Because the development and deployment of location portability is more complex than service provider portability from both a technical and public policy perspective the use of location portability is not evaluated in this document.

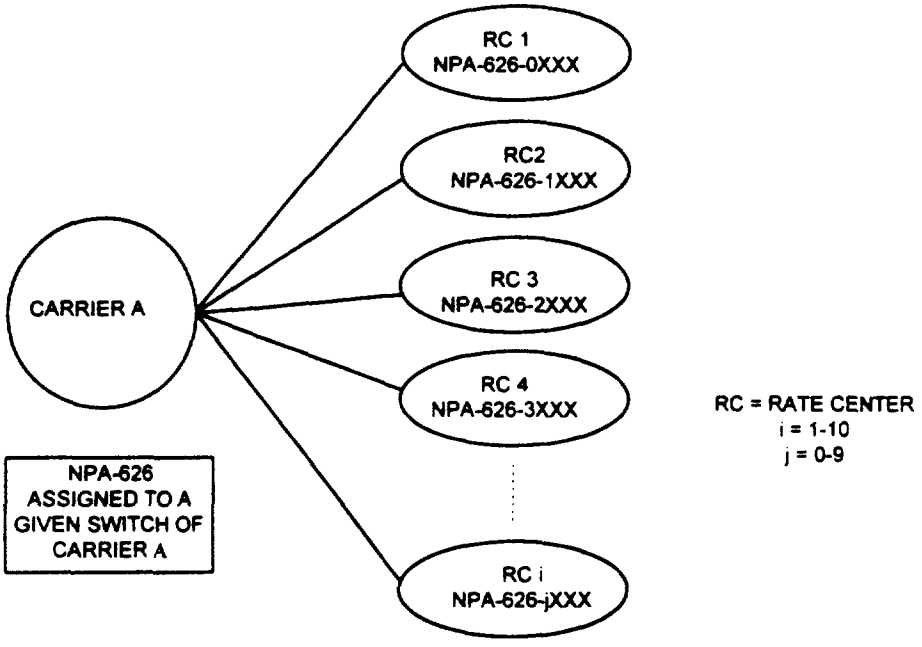
Finally, it should be recognized that neither number pooling nor location portability are part of the initial deployment of LNP -- which is designed to support only service provider portability However, because number pooling is directly related to the issue of efficient use of numbering resources this document does include number portability with pooling as a potential alternative.

8. THE PROPOSALS

The proposals offered suggest several alternatives that might be used to avoid assignment of a CO/NXX code per carrier per rate center. These include the designation of a rate center or a central office switch, not by an NPA-NXX, but by a more granular identification such as a 1000s block. It is also proposed that the number of rate centers might be reduced, thereby lowering the demand for CO/NXX code assignments, or that inconsistent rate centers be allowed and the

associated potential call rating variations tolerated. The proposals are described in detail below.

8.1 THE TERMINATING POINT MASTER (TPM) PROPOSAL - The TPM proposal suggests the continued assignment of a full CO/NXX code to a specific switch of a given carrier, but that the carrier assigns 1000s blocks to identify up to ten specific rate centers. The entire NXX, however, must be assigned within both a single LATA and single 911 tandem serving area. This proposal requires modification to the TPM to permit the association of location/rate information with a 7 digits (NPA-NXX-X) rather than the current 6 digits (NPA-NXX). The proposal is described schematically below.



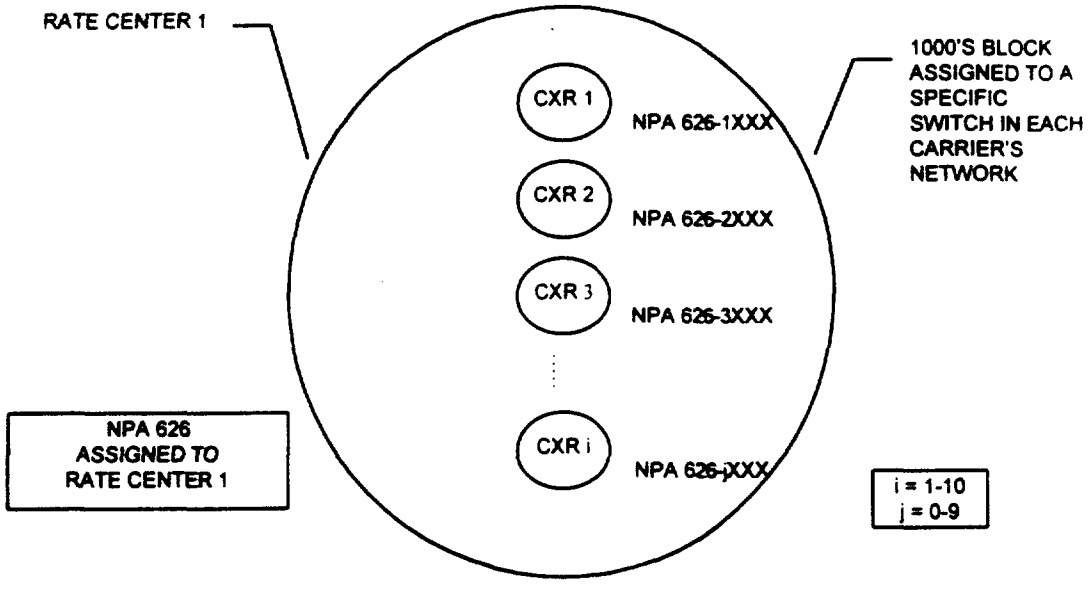
Under the TPM proposal, routing mechanisms for internetwork call completion are preserved. That is, because the NPA-NXX is associated with a given carrier and a specific switch, call routing based upon a maximum of six digits is maintained. It is recognized, however, that if an incumbent LEC (ILEC) were required or chose to distribute a CO/NXX code across multiple rate centers, it would necessarily serve those customers from the existing switches located in each of those rate centers. Consequently, the CO/NXX code would be distributed over several switches, rather than a single switch, and call routing would require analysis of seven digits. It should be recognized that this concern

is not only associated with ILECs but with any carriers with multiple switches serving any given rate center.

The TPM proposal does significantly impact call rating as rating can no longer be accurately determined using six digit analysis. Rather, seven digit analysis must be performed and the downstream rating processes must be modified to accommodate this change. Further, industry documentation must be modified to allow identification of rate centers by 1000s blocks.

It is further recognized that the ability to distinguish local calls from toll calls, which is necessary for routing where presubscription for intraLATA toll calls is required, will be impacted if the TPM proposal is deployed. Specifically, the identification of a toll call and the routing of that call to the presubscribed intraLATA carrier will require the analysis by the originating switch of seven rather than six digits.

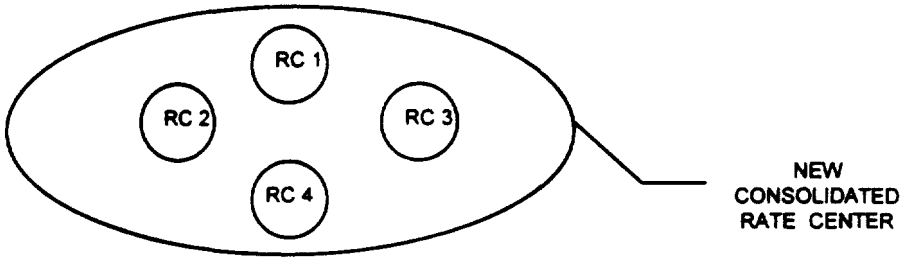
8.2 THE NXX-X PROPOSAL - The NXX-X proposal suggests that an NPA-NXX be associated with a specific rate center, but that the NPA-NXX be distributed among the carriers that serve that rate center. For example, if there were 10 carriers serving subscribers in a given rate center, the NPA-NXX would be assigned by 1000s blocks to a specific switch in each carrier's network. Accordingly, switches would be identified by NPA-NXX-X, rather than the current 6 digit (NPA-NXX) identification. A schematic representation is shown below.



With the NXX-X proposal, current call rating methods are maintained. Because the NPA-NXX identifies a specific rate center, call rating can continue to be performed using six digit analysis and downstream rating processes need not be modified. Call routing, however, is significantly impacted. Call completion can no longer be effected with six digit analysis and translation. Rather, because the serving end office of the called party is identified by a 1000s block, seven digit analysis and translation must be performed at some point in the call path. Further, number assignment practices are impacted and modifications must be made to the LERG.

It should be noted, however, that the impact of the NXX-X proposal on call routing could be mitigated if the infrastructure necessary to support service provider portability were in place. Specifically, this infrastructure maintains routing information (the Location Routing Number or LRN) in network databases which is obtained by network switches when processing calls to numbers contained in a portable NXX. Accordingly, if all numbers within codes (NXXs) assigned by 1000s blocks were resident in the routing databases, the network capabilities in place to accommodate service provider portability could be used for call completion.

8.3 THE CONSOLIDATED RATE CENTER PROPOSAL - The Consolidated Rate Center proposal suggests that the number of rate centers be reduced, combining or collapsing several existing rate centers into a few consolidated, larger rate centers. The drawing below describes the proposal.

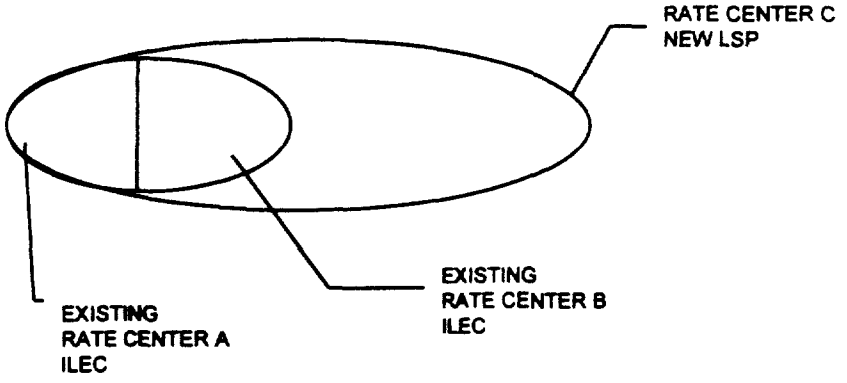


The consolidated rate center proposal maintains both the current call routing and call rating methods. This proposal, however, obviously requires a change in the common rate center boundaries used by all Local Service Providers (LSPs),

and can only be implemented with regulatory consent. Further, it may impact the existing local calling area and/or modify the existing toll rate boundaries. Accordingly, this proposal might be rate impacting and could cause considerable customer confusion. The consolidated rate center proposal assumes that a CO/NXX code will not be used to identify more than one switch. Accordingly, carriers that have more than one switch in a (consolidated) rate center can still be assigned CO/NXX codes based upon the demand for numbers in any given switch.

8.4 THE INCONSISTENT RATE CENTER PROPOSAL - This proposal suggests that inconsistent rate centers be allowed. That is, each LSP is assigned NPA-NXXs to be associated with specific end office switches, consistent with their forecasted demand. No consideration is given to the serving area supported by the end office switch and the fact that subscribers served from the new LSP switch may be resident in several different existing ILEC rate centers. Under this proposal call rating and routing methodologies, as well as CO/NXX code assignment guidelines are maintained, and no modification of these processes are necessary.
It should be recognized that the use of inconsistent rate center boundaries could result in unexpected toll charges as described earlier. (Section 6.0, paragraph 2)

A schematic representation of inconsistent rate centers is shown below.



8.5 "STATUS QUO" PROPOSAL - MAINTENANCE OF THE CURRENT ENVIRONMENT - Yet another alternative that might be considered is maintenance of the existing environment; i.e., a consistent rate center structure and assignment of a full NXX code per carrier per rate center. Although these current arrangements continue to demand the assignment of a CO/NXX code per carrier, per rate center and, therefore, do not represent a solution to this

problem, it might be argued that none of the alternatives are implementable without considerable impact and burden, and consequently do not provide a net benefit.

8.6 THE NUMBER POOLING PROPOSAL - As described in Section 5, number pooling would modify the existing number assignment arrangement, assigning numbers to a given geographic area (rate center), and making those numbers available to all service providers who serve that area. One method of pooling could be that all numbers assigned to the area would be resident in a centralized database and identified as working or spare. Upon a request for service, a service provider would interrogate the database and reserve the number or numbers necessary for its service needs. Permanent service provider portability is necessary to effect call routing when number pooling is used, and CO/NXX codes are no longer assigned to specific switches within a carrier's network. Number pooling is only applicable in this environment. Numbers obtained from the pool would be placed in the LNP SMS and downloaded to the routing SCPs, to allow successful call completion when the number is dialed.

Number pooling is not, at this time, included in the initial implementation of service provider portability. Accordingly, if it were adopted, technical specifications and specific administrative methods and procedures required for its use would have to be developed. Moreover, architectural issues must also be addressed. Specifically, it would be necessary to determine if the number assignment and service provisioning capabilities should be incorporated into the SMS used to support LNP, or if a separate number assignment database should be deployed.

The following issues must also be addresssed prior to implementation of any form of number pooling: degree of pooling (e.g., thousands groups and/or individual line numbers); geographic area of coverage (e.g., NPA/MSA); development of the interfaces with various operations support systems and tariff/regulatory impacts. In addition, number pooling assignment guidelines will be required to address administrative impacts such as the reservation of large number blocks (e.g., Centrex/DID), vanity number requests and identification of test numbers. Furthermore, a detailed auditing process should be included in the number pooling guidelines to determine, at a minimum, quantities of numbers required to do business versus the unnecessary stockpiling of numbers.

9.0 ASSESSMENT CRITERIA FOR THE EVALUATION OF THE PROPOSALS

The following criteria are used to characterize the alternatives outlined in this document. They also form the basis for comparison among the alternatives.

9.1 IMPACT ON NUMBER CONSERVATION - The proposal should minimize the number of CO/NXX codes required, thus mitigating the accelerated exhaust of these codes, and the subsequent need for NPA relief.

9.2 IMPACT ON CALL RATING MECHANISMS AND PROCESSES - Current call rating mechanisms utilize the first six digits (NPA-NXX) of the calling and called party numbers when computing the associated rate. The extent to which any proposal impacts this mechanism must be recognized.

9.3 IMPACT ON CALL ROUTING - Call completion is effected by analysis and translation of at most six digits (NPA-NXX). It is necessary to determine if the proposal requires digit analysis and translation beyond the current six digit process.

9.4 IMPACT ON LOCAL/TOLL DIFFERENTIATION - In those areas where presubscription for intraLATA toll calls has been implemented, it is necessary that the originating switch be able to distinguish between local and toll calls. Local calls are completed over the facilities of the originating LEC; intraLATA toll calls (dialed without a 10XXX/101XXXX prefix) are forwarded to the intraLATA toll carrier presubscribed to the calling line. Proposals which require an originating switch to distinguish between a local call and an intraLATA toll call through the analysis of more than six digits should be identified.

9.5 IMPACT ON END USERS - End users often identify a dialed number as a local or toll call and expect the appropriate charge. The extent to which a proposal allows an end user to easily recognize the location of the called party and to assess whether the call will be charged as local or toll should be recognized. Moreover, any proposal which allows calls to different parties in the same location, but served by different service providers, to be charged differently must be identified. Finally, the level of customer confusion, if any, generated by the proposal, and the need for subscriber education must be evaluated.

9.6 IMPACT ON OTHER SUPPORT SYSTEMS - Operations support systems, other than call rating systems, often use directory numbers (DNs) as an integral part of their processes. Particularly, DNs are used for switch identification in those systems which deal in administrative and maintenance operations. The negative impact of a proposal on such systems, specifically the need for such systems to analyze more than six digits to identify network switches must be recognized.

9.7 IMPACT ON CPE - Certain customer premises equipment (CPE) such as PBXs and private payphones may perform internal rating and routing functions. Consequently, the impact of a given proposal on the rating and routing mechanisms in this type CPE must be evaluated. For example, the modifications to allow PBXs to distinguish between local and toll calls and the changes necessary to internal call rating mechanisms in "smart" payphones should be understood.

9.8 IMPACT ON INDUSTRY/ENTITY DOCUMENTATION - Documentation associating NPA-NXX with service provider and switch location, as well as V&H coordinate data necessary for call rating is provided by the Traffic Routing Administration group in Bellcore. These documents include the Local Exchange Routing Guide (LERG), the Terminating Point Master (TPM) File, and the Vertical and Horizontal Coordinates Data (VHCD). In addition, individual service providers maintain similar information used to support carrier specific processes such as call rating systems. The extent to which a given proposal requires modification to this type documentation must be identified.

9.9 IMPACT ON NUMBER ASSIGNMENT - Central office codes are assigned by the local code administrator -- currently the dominant LEC -- consistent with the industry's CO/NXX Assignment Guidelines. Typically, full codes (i.e., the full block of 10,000 line numbers) are assigned to service providers. Changes to the number assignment process; particularly the need for the code administrator to assign numbering resources in blocks of less than 10,000 should be identified.

9.10 IMPACT ON OUT-OF-AREA ORIGINATED CALLS - A proposal which addresses the need to conserve numbering resources within a competitive area may also impact calls which terminate within the area but originate outside the area, particularly outside the state. There is a need to determine how call routing and rating for such calls will be impacted, with concern focused on interexchange carrier (IC) switches and operator systems.

9.11 IMPACT ON E911 SYSTEMS - All proposals must preserve the functionality of E911 systems. Specifically, calls must be routed to the appropriate PSAP (Public Service Answering Point), and calling parties must be easily identified and reachable via return call, when necessary. The E911 systems should not be compromised if a given NXX serves a single 911 area and if all switches sharing an NXX code route E911 calls through the same 911 tandem switch.

9.12 IMPACT ON NUMBER UTILIZATION FLEXIBILITY - Currently, assignees of central office codes, upon receipt of a block of 10,000 numbers, enjoy considerable flexibility relative to the assignment of those numbers to their subscribers. Proposals which assign numbers is smaller blocks (e.g., 1000) or suggest that blocks of numbers smaller than 10,000 be assigned to given geographic areas may hinder the flexibility of number assignment and utilization.

9.13 IMPACT ON OPERATOR SERVICES - REAL TIME RATING - Operator service systems currently provide real time rating; that is, the ability, based upon knowledge of the calling and called party numbers, to inform the calling party as to the charges for the call. If a suggested proposal requires that the location of the calling and/or called party be determined by seven (rather than six) digit analysis of these numbers, the real time rating functions will require modification.

9.14 IMPACT ON OPERATOR SERVICES - ALTERNATE BILLED CALLS - Alternate billed calls (calling card, collect, bill to third) route through an operator services system which must validate the requested billing arrangement. Typically, such validation requires a query to a LIDB. Proposals which require LIDB query routing (Global Title Translations) through the use of more than six digit analysis could require modification to the currently deployed mechanisms.

9.15 IMPACT ON IMPLEMENTATION (TIMING) - It is necessary to understand the development and implementation effort associated with each proposal in order to estimate when that proposal could be made available. It is especially important to determine the availability date relative to the introduction of a long term solution (e.g., number portability with pooling) which could ultimately provide a solution to the CO/NXX code per carrier, per rate center issue.

10.0 ASSESSMENT OF SPECIFIC PROPOSALS - The assessment criteria described in Section 9 are used to characterize the six alternative proposals.

10.1 THE TPM PROPOSAL

10.1.1 Potential for Accelarated CO/NXX Exhaust- Does not contribute to accelerated CO/NXX code exhaust

10.1.2 Call Rating - Significantly impacts downstream call rating processes; could require 7 digit analysis for call rating; switch development necessary to support modified AMA records; also may need to accommodate additional AMA records

10.1.3 Call Routing - No impact on call routing for internetwork call completion; may be impact on intranetwork calls

10.1.4 Local/Toll Distinction - Does not permit distinction of local calls from toll calls using six digit analysis; could require seven digit analysis

10.1.5 End Users - Significant impact; end users lose ability to identify "local" calls based upon NPA-NXX; information in directories describing local calling areas would necessarily be more complex

10.1.6 Support Systems - Minimal, if any impact on support systems; six digit analysis for switch identification is supported; could be an impact if NXX is distributed over several switches

10.1.7 CPE - Modifications required for smart pay phones with internal rating systems; PBXs which perform toll blocking could require 7 digit analysis

10.1.8 Industry Documentation - Requires changes in TRA documentation (TPM, VHCD, LERG); modifications to BRIDS required (line range detail for single company)

10.1.9 Number Assignment - No impact on number assignment; CO/NXX codes continue to be assigned to entities as a complete 10,000 block of numbers

10.1.10 Out-of-Area - Should be minimal impact as call rating from out of area typically does not require the granularity provided with in-area call completion

10.1.11 E911 Systems - No impact assuming the NXX is not used to serve customers in multiple 911 areas

10.1.12 Number Utilization Flexibility - The use of relatively small (i.e., < 10,000) number blocks to provide service to customers located in given geographic areas may limit assignment flexibility

10.1.13 Operator Services Systems - Real Time Rating - Rating mechanisms internal to the operator services systems would have to been modified to accommodate rating based upon seven digit analysis of calling and called party numbers

10.1.14 Operator Services Systems - Alternate Billed Calls - No impact; switch identification continues to be dependent upon six digits (NPA-NXX)

10.1.15 Timing - Requires changes in Bellcore TRA documentation; requires changes in service provider downstream rating processes; also, changes in real time rating systems used for OSPS and hotel/motel calls, and changes in translations (i.e., 7 digit) to support local/toll distinction in end office switches where intraLATA toll presubscription is deployed

10.2 THE NXX-X PROPOSAL

10.2.1 Potential for Accelerated CO/NXX Exhaust - Does not contribute to accelerated CO/NXX code exhaust

10.2.2 Call Rating - No impact on call rating; call rating continues to be performed using six digits

10.2.3 Call Routing - Routing for call completion is significantly impacted; such routing now requires 7 digit analysis and translation. Could impact switch memory capacity; may require development in some switches. Capabilities deployed for service provider portability could be used to route calls if the NXX-X proposal were deployed. If LNP capabilities were used, all line numbers in NXX must be populated in SMS/SCP; larger capacity SMS and SCP may therefore be required.

10.2.4 Local/Toll Distinction - No impact; distinction between local and toll calls continues to be dependent on six digit analysis.

10.2.5 End Users - Minimal impact; end users continue to identify local vs. toll using NPA-NXX.

10.2.6 Other Support Systems - Impact could be significant; systems must identify specific switches using 7 digits, not 6 digits.

10.2.7 CPE - No impact on rating mechanisms; no impact on local/toll distinction.

10.2.8 Industry Documentation - No impact on VHCD; however, the LERG and TPM will require modification as switches will be identified by 7 digits (i.e., 1000s blocks), not 6 digits. BRIDS must be modified (line range defined for 10 companies); EMI/EMR changes necessary; LARG modifications needed; CO/NXX guidelines changes required.

10.2.9 Number Assignment - Significant changes necessary; assignment to different entities in 1000s blocks; assignment of NPA-NXX to geographic area;

code administrator responsible for assignment of additional codes to an area; precursor to number pooling.

10.2.10 Out-of-Area Calls - Significant impact; calls routed by ICs could require seven digit rather than six digit analysis and translation for completion to the proper end office.

10.2.11 E911 Systems - No impact, assuming all switches sharing the NXX access the same E911 tandem

10.2.12 Number Utilization Flexibility - The limited numbering resources within an NXX (e.g., a 1000s block) may limit flexibility of number assignment

10.2.13 Operator Services Systems - Real Time Rating - No impact; rating continues to be performed using at most six digit analysis

10.2.14 Operator Services Systems - Alternate Billed Calls - Modifications would be required to accommodate switch identification using seven digit analysis and the associated Global Title Translations

10.2.15 Timing - Requires translation changes in end offices and intermediate switches; additional translation capability could impact switch memory capacity.

10.3 THE CONSOLIDATED RATE CENTER PROPOSAL

10.3.1 Potential for Accelerated CO/NXX Exhaust - Potentially alleviates CO/NXX accelerated code exhaust, dependent upon size of rate center(s) described.

10.3.2 Call Rating - Call rating processes and mechanisms are preserved; granularity of local vs. toll could be significantly reduced; changes in rating system tables are required.

10.3.3 Call Routing - Routing mechanisms for call completion are not impacted.

10.3.4 Local/Toll Distinction - Ability to discern local vs. toll using current six digit analysis is maintained; local calling areas may become larger and may have competitive impacts on presubscribed intraLATA toll providers; changes in data located in switch tables are required.

10.3.5 End User - Basic concept of local calling based upon a select set of NPA-NXXs is maintained; size of local area and/or toll boundaries may change

10.3.6 Support Systems - Should be little, if any impact.

10.3.7 CPE - No impact; all mechanisms within PBXs and smart payphones would be unaffected; translation changes to reflect new rate center boundaries (i.e., local vs. toll) will be necessary

10.3.8 Industry Documentation - No change required in format; new rate centers and V&H data to reflect changes must be entered

10.3.9 Number Assignment - No impact on number assignment methodology and practices

10.3.10 Out-of-Area Calls - Should be minimal impact; depends on specific size of consolidated rate centers

10.3.11 E911 Systems - No impact

10.3.12 Number Utilization Flexibility - No impact

10.3.13 Operator Services Systems - Real Time Rating - Data within rating tables accessed by the operator systems would require data changes, consistent with the new rate center boundaries

10.3.14 Operator Services Systems - Alternate Billed Calls - No impact; switch identification and GTT routing are maintained

10.3.15 Timing - Requires extensive data entry changes to industry documentation and downstream systems, as well as switch table changes, but no process changes

10.4 INCONSISTENT RATE CENTERS

10.4.1 Potential for Accelerated CO/NXX Exhaust - Minimal impact on CO/NXX code resource

10.4.2 Call Rating - Rating mechanisms are maintained.

10.4.3 Call Routing - Routing mechanisms are maintained; six digit analysis and translation are maintained.

10.4.4 Local/Toll Distinction - Mechanisms to distinguish local vs. toll in end office switches are maintained

10.4.5 End Users - Significant impact on end users; toll charge could be dependent upon service provider of called party

10.4.6 Other Support Systems - Minimal, if any impact

10.4.7 CPE - Least cost routing tables could be impacted

10.4.8 Industry Documentation - No impact

10.4.9 Number Assignment - No impact

10.4.10 Out-of-Area Calls - No impact

10.4.11 E911 Systems - No impact, assuming all switches sharing the NXX access the same E911 tandem

10.4.12 Number Utilization Flexibility - No impact

10.4.13 Operator Services Systems - Real Time Rating - Minimal impact; If the current six digit analysis is used, calls completed to the dialed NXX will be rated based on the rate center associated with the NPA NXX. This should not be a significant problem for these type calls

10.4.14 Operator Services Systems - Alternate Billed Calls - No impact

10.4.15 Timing - Implementation requires regulatory approval; data entry changes are required; current processes and mechanisms used.

10.5 MAINTENANCE OF CURRENT ENVIRONMENT

Maintenance of the "status quo" continues to allow assignment of a code per carrier, per rate center. Accordingly, this proposal provides no relief from the potential accelerated demand for CO/NXX codes and the associated, possible advancement of the need for NPA relief. All other criteria, however, are not impacted.

10.6 THE NUMBER POOLING PROPOSAL

10.6.1 Potential for Accelerated CO/NXX Exhaust - Number pooling avoids the need for the assignment of a code per carrier, per rate center and, therefore, does not accelerate the need for CO/NXX codes.

10.6.2 Call Rating - If rate center association with NXXs is maintained; there should be little impact on call rating mechanisms. However, if the geographic area of pooling comprises several rate centers, the ability to continue to use current call rating mechanisms will be impacted.

10.6.3 Call Routing - Number pooling requires the use of permanent number portability to allow proper call routing. The addition of pooled (but not necessarily ported) numbers in the LNP SMS and SCPs could impact SMS/SCP capacity

10.6.4 Local/Toll Distinction - The ability to distinguish local calls from toll calls using exisiting six digit analysis is maintained.

10.6.5 End Users - If rate center association with NXXs is maintained; there should be little impact on end users. However, if the geographic area of pooling comprises several rate centers, the end users ability to distinguish local from toll would be impacted.

10.6.6 Other Support Systems - Support systems (e.g., maintenance, provisioning) will require significant modification in order to identify the central office switch from which a given line number is served. Such modification may already be in place to accommodate service provider portabillity.

10.6.7 CPE - If rate center association with NXXs is maintained; there should be little impact on CPE. However, if the geographic area of pooling comprises several rate centers, the CPE's ability to distinguish local from toll would be impacted.

10.6.8 Industry Documentation - Some changes required; NPA-NXXs no longer identified with service providers, but with geographic areas; industry documentation will need to be modified to associate service provider with number assignment (e.g. thousands block, line level, etc.). New and/or modified number assignment guidelines are required.

10.6.9 Number Assignment - New number assignment procedures are required; assignment of specific line numbers will involve the use of a number assignment database and industry approved methods of operation.

10.6.10 Out-of-Area Calls - LNP methods and capabilities must be used to route calls to a pooled number.

10.6.11 E911 Systems - No impact assuming all switches sharing the pooled NXX access the same E911 tandem

10.6.12 Number Utilization Flexibility - Number pooling should enhance number utilization. Flexibility of assignment for each provider is dependent upon the method of pooling and the associated assignment guidelines.

10.6.13 Operator Services - Real Time Rating - If rate center association with NXXs is maintained; there should be little impact on operator services real time rating mechanisms. However, if the geographic area of pooling comprises several rate centers, the ability to continue to use current operator services real time rating mechanisms will be impacted.

10.6.14 Operator Service - Alternate Billed Calls - The necesary GTTs should be available to support LNP. However, the number of required 10-digit GTT queries will increase if pooling is implemented.

10.6.15 Timing - Implementation requires the development of a number administration system to support pooling, along with the necessary industry approved methods and procedures. Such capabilities are not likely to be available in the near-term.

11.0 COMPARISON OF PROPOSALS

The following matrix uses the previously described assessment criteria to compare the suggested alternatives. The comparison is qualitative, describing the impacts as "high (H)", medium (M)", and "low(L). If a given proposal has no impact on a specific criterion, an entry of "none (N)" is indicated.

COMPARISON OF PROPOSALS

	TPM	NXX-X	Consolidated Rate Center	Inconsistent Rate Center	Current Environment	LNP With Number Pooling (6)
Potential for Accelerated CO/NXX Exhaust	L	L	L	L	H	N/L
Rating	H	N	M	N	N	N/L
Routing	N/L (1)	H/M (2)	N	N	N	M (7)
Local/Toll	H	N	M	N	N	N
End User	H	N	M	H	N (9)	N/L
OSS	H	H	L	L	N	H
CPE	H	L/M (5)	L	L	N	N/L
Industry Documentation	M	H	M	N	N	M
Number Assignment	N/L	H	N	N	N	H
Out of Area	L	M	N	N	N	L
E911	N (3)	N (4)	N	N	N	N (4)
Number Flexibility	M	M	N	N	N	(8)
Operator Services -RTR	H	N	M	L	N	N/M
Operator Services - ABS	N	H	N	N	N	L (10)
Timing	H	H	M	L	N	H

Notes:

1 - There should be no routing impacts for inter-network calls. There many, however, be some low level impact for intra-network call routing.

2 - The impact of routing is mitigated in the infrastructure for the support of service provider portability is in place. This application, however, requires the population of all numbers, rather than just ported numbers, in the SCP, and may, consequently, require greater capacity in both SCPs and the SMS.

3 - Assumes NXX does not serve multiple 911 areas.

4 - Assumes all switches sharing NXX access the same 911 tandem.

5 - Seven digit translation required for ARS and MERS.*

6 - Requires LNP in place.

7 - Potentially impacts capacity of SMS/SCP/SS7; no impact on process.

8 - Flexibility is dependent upon method of pooling and development of assignment guidelines.

9 - End users may be impacted if CO code assignments create the need for NPA relief

10 - Additional queries required for support of numbers that are pooled but not ported.

* ARS = Automatic Route Selection; MERS =

12.0 QUALITATIVE EVALUATION

12.1 TPM - The TPM proposal requires changes to industry documentation and significant modification to downstream rating processes. In addition, some customer confusion may result if end users are no longer able to rely on NPA-NXX to identify the location of the called party and determine if the call is local or toll. Further, where presubscription for intraLATA toll calls is mandated, switch modifications are necessary for the identification of an intraLATA toll call and the routing of the call to the presubscribed carrier. No change is required in call routing mechanisms for internetwork call completion and current number (CO/NXX code) assignment processes can be maintained.

It is estimated that the necessary modifications to support the TPM proposal would require 2-3 years to implement after completion of firm requirements. From a technical perspective, it is possible to selectively deploy the TPM solution even if all service providers do not modify their rating systems. That is, if some service providers choose not to recognize the added granularity provided by the TPM proposal, calls made by customers of these providers will be completed, but rated to a default V&H coordinate associated with the NPA NXX of the switch serving the called party.

Such flexibility, however, may be subject to regulatory oversight and the ability of a given carrier to selectively accommodate TPM may be limited. Specifically, regulatory directives may mandate that all service providers, both incumbent and new entrant alike, use TPM.

12.2 NXX-X - It is estimated that the necessary modifications to support the NXX-X proposal would require 2-3 years to implement after completion of firm requirements. Significant changes in call routing mechanisms as well as changes to number assignment processes are required by this alternative. Current call rating mechanisms are maintained and no conflict arises with the need to accommodate presubscription for intraLATA toll calls. The NXX-X proposal may be considerably more viable after the deployment of permanent service provider portability, which could provide the capability required to route these calls.

12.3 CONSOLIDATED RATE CENTERS - This proposal preserves current rating and routing mechanisms and procedures, but requires extensive data entry changes (e.g. tables within switches , operator services systems and rating systems). Additionally, call rating changes will cause customer confusion regarding where and when charges will be applied.

Most importantly, the consolidation of rate centers requires regulatory oversight and approval, and may be difficult and time consuming to achieve. If, however, the regulatory hurdle is overcome, this proposal may be implementable earlier than the TPM, NXX-X and Number Pooling proposals. The specific time required for implementation will be dependent upon the complexity of the existing rate structure and the extent of changes made to that structure and associated network elements to accommodate rate center consolidation.

12.4 INCONSISTENT RATE CENTERS - The use of inconsistent rate centers has minimal impact on existing rating and routing mechanisms. The major impact of this alternative is on end users who would be subject to unexpected charges and confusing information in call detail records presented as part of their bill. The use of inconsistent rate centers is subject to regulatory discussion and approval. Since rating and routing changes are minimal, the use of inconsistent rate centers, with regulatory approval, could potentially be implemented with minimal delay. ***(Requires further discussion and validation.)***

12.5 "STATUS QUO" PROPOSAL - MAINTENANCE OF THE CURRENT ARRANGEMENT - Maintaining current rating and routing methods does not require any network or billing system changes. However, these rating and routing methods do not address the potential difficulties associated with increased near term CO/NXX code demand and possible accelerated NPA code exhaust. Some companies suggest that this demand for CO/NXX codes will abate after the initial requirements are met.

12.6 NUMBER POOLING WITH LNP - Number pooling provides an effective alternative to the need for a code per carrier, per rate center, and could also provide significant improvement in the utilization of numbers. Number pooling is only useable with permanent number portability, requires changes in assignment methods and procedures, is likely to demand additional infrastructure and, therefore, could not be available in the very near term.

13.0 CONCLUSIONS/RECOMMENDATIONS

Number pooling should be considered as the number assignment process to be used when permanent service provider portability is available. Efforts should be initiated to develop the necessary methods and procedures required, and to identify the network infrastructure needed to support pooling. (See section 8.6.)

The time and effort associated with the implementation of either the TPM or NXX-X proposals appear to be significant and should be carefully considered

and weighed against the time in which number pooling with LNP could be available. If LNP is available but it is determined that number pooling at the line level is not desirable or could not be implemented until the distant future, the use of the NXX-X proposal -- itself a form of pooling -- should be further considered.

The consolidated rate center proposal would appear to be implementable in a shorter time frame than the TPM, NXX-X or number pooling proposals, assuming regulatory approval of a change in rate center boundaries is obtained without extensive delay. Careful examination of rate center consolidation within a given area should take place to determine the potential number of codes that might be conserved and the number of months/years -- based upon an estimated code assignment rate -- that the consolidation might extend the life of an existing or future NPA code.

The maintenance of the status quo -- the assignment of a code per carrier, per rate center and the continued use of current rating and routing methods -- might be considered in some areas. The areas where this arrangement may be applicable are where the CO/NXX demand expected from new entrants is (1) thought not to significantly impact CO/NXX code availability or advance the date of NPA relief or (2) where NPA relief is not of concern.