Findings

The Model projects NANP exhaust in 2008.

Sensitivities to the NANP exhaust date were run using a range of CO Code Demand assumptions using the analysis methods discussed in the Sensitivity Analysis Appendix. The probability analysis projects, with 80% confidence, that the NANP will exhaust between 2005 and 2012 with an expected exhaust date of 2008.

The Model designates 17 NPA areas that will become overlays because of high CO Code assignment rate. The Model automatically calculates an overlay relief for NPAs with very high CO Code Assignment rates (three additional NPAs required by YE2005). The Model designates another 50 NPA areas that could be either split or overlay (at most one additional NPA required prior to NANP exhaust). The Model assumes that the remaining 139 NPA areas use a split relief method when required. Sensitivities were run to understand the effects of various relief methods on overall NANP exhaust with no appreciable shortening or lengthening of expected NANP life.

3.3 Methodology

NANP Exhaust Baseline Data

The Model profiles each of the 206 NPAs in service at YE98 to establish 206 surrogate NPAs. The surrogate NPAs are intended to be actual representations of actual NPA areas. However, because of the simplifying assumptions of the Model, it would not be appropriate to use this Model to estimate exhaust of a specific NPA.

A regression analysis using data points from NANPA CO Code assignment data from April 1, 1998 to December 31, 1998, provides a raw monthly CO Code assignment rate for each surrogate NPA. If the actual NPA was in relief or rationing during the regression period, the CO Code demand rate would have been impacted. To compensate for this effect the Model uses the average CO Code assignment rate for that specific NPA. The Model also determines if an area has a very high monthly CO Code

assignment rate. If so, the Model limits that growth to three times the average CO Code growth rate for an area to ensure that potentially abnormally high growth rates do not skew the results.

Specific NPA CO Code Consumption Calculations

The Model uses a proportion of the normalized assignment rate per NPA divided by the total CO Codes assigned to ensure that the total of all 206 equals the 1999 CO Code consumption projection from the CO Code Demand Model. The derived proportional ratio of the CO Code demand represents the specific area's share of annual CO Code assignment.

The Model applies the CO Code demand share by NPA to each year's CO Code Projection from the first module of the CO Code Demand Model to give new CO Codes per year by specific NPA.

NPA Relief Calculation

The Model then predicts expected relief by using the cumulative CO Codes assigned by specific NPA and dividing by the maximum CO Codes in use before the relief. Relief is implemented 18 months prior to exhaust. For the purposes of the Model NPA, exhaust is defined as the date that 713 CO Codes are assigned. The 79 remaining codes represent codes that are unassignable and codes available for demand spikes during the relief period. The Model assumes that, on average, NPA relief activities will require a relief period of 18 months to account for variable exhaust windows, implementation activities, and permissive dialing periods.[8] The relief period ramps from a negative timeframe in 1999 (relief six months after exhaust) and 2000 (relief three months after exhaust) to account for the high rate of Jeopardies and rationing expected in 1999 and 2000. The planning period continues to ramp to a moderate period in 2001 (relief six months prior to exhaust) to the normal period in 2002. The relief period is defined as the amount of time required to minimize Jeopardies given the variability and the

[8] INC NPA Code Relief Planning & Notification Guidelines (INC 97-0404-016, Reissued January 27, 1999) specify that an "exhaust window" and relief plan be developed for each NPA. Using the earliest possible exhaust date in the exhaust window, the date of mandatory dialing should be 6 to 12 months prior to that date. Also, a 90 day period should be set aside for intercept once permissive dialing has ended to ensure accurate billing and messaging. Permissive dialing periods have been as short as 4 months to as long as 2 years. An NPA test number should be activated 4 to 6 weeks prior to relief date.

magnitude of the CO Code assignment rate. The resulting calculation indicates expected relief activity by year.

The Model assumes that the descendents of an NPA grow at the same rate as the parent NPA. Under the split scenario the demand rate is divided evenly between both NPAs. The Model does not explicitly account for the probable event that descendants will grow at different rates. The model also assumes that four split NPAs have the same life expectancy as four overlay NPAs. The only difference between splits and overlays in the Model is the third and fourth NPAs get assigned when the first two peer NPAs exhaust.

4.0 1KB POOLING MODEL

4.1 Introduction

The 1KB Pooling Model (Pooling Model) projects the impact of Thousands Block Pooling (1KB Pooling) on NANP resources. 1KB Pooling provides TN resources to participating SPs in blocks of 1,000 rather than in CO Code blocks of 10,000. The Pooling Model captures this fundamental change in how NANP resources are doled out to SPs. CO Codes are only issued to SPs as required to replenish the 1KB Pool in a rate center or for Local Routing Number (LRN) assignments. Pooling Model illustrates the impact of 1KB Pooling on CO Code demand, NPA life extension, and NANP exhaust.

The new 1 KB Pooling Model applies the 1KB Pooling factors to the specific 206 NPA areas using the same assumptions as the CO Code Demand Model. The pooling impacts presented at the February 18 NANC meeting used the old "Model NPA" pooling model that was not directly integrated into the CO Code Demand Model. The new Pooling Model ties directly into the CO Code Demand Module and NANP Exhaust Module. It changes the CO Code demand that is generated in the CO Code Demand Module due to the assignment of 1KBs. It then determines NPA life and NANP exhaust in the same manner as the non-pooling scenarios in the NANP Exhaust Module. A pooling scenario summary reports key pooling indicators for each scenario.

The Pooling Model accommodates various 1KB initiation dates, donation rates, WTN inventory factors, and 1KB Pool inventory factors. The Pooling Model assumes that all NPAs begin pooling at the same time.

4.2 Findings

With all industry segments participating in 1KB Pooling, the expected date for NANP Exhaust is in the 2094 timeframe versus the 2008 timeframe without 1KB Pooling. Table 4-1 summarizes the pooling scenarios using the new Pooling Model.

Summary of 1KB Pooling Impacts (Table 4-1)

1KB Pooling Scenario	NANP Exhaust Timeframe
No Pooling – NANPA base scenario	2008
All segments participate (ILEC, CLEC, CMRS, and Paging) in 2000 with donation	2094
All segments participate in 2000 without donation	2058
CLEC, ILEC, and CMRS participate in 2000 (no Paging) with donation[1]	2048

NANPA's base pooling scenario assumes that all users of NANP resources initiate 1KB pooling in 2000.[2] NANPA assumes that SPs donate seven 1KBs out of the Equivalent CO Codes for Footprint to the 1KB Pool. This represents approximately 50% of the unused 1KB resource in SP inventories.

Since NANPA does not have reliable utilization data, donation rates are somewhat speculative. A case was run to show the impact of 1KB pooling in a scenario in which no 1KBs are donated by SPs nor are any 1KBs reclaimed by the Pooling Administrator. NANP exhaust with all industry segments participating in 1KB Pooling in 2000 but no 1KB donation is in the 2058 timeframe.

Industry Participation In Pooling

An important finding regarding pooling participation was first analyzed for the 847 1KB Pooling implementation in Illinois and is validated here. SPs who do not pool must use whole CO Codes for TN growth and Footprint expansion rather than using 1KBs from the 1KB Pool. CO Codes become shareable by pooling participants but not by non-participants. Full participation in pooling reduces CO Code consumption to less than 25% of the original CO Code demand rate without pooling. An industry

[1] It was felt by various industry members of the Review Team that Paging would not participate in NXX-X assignments because Paging is not currently "LNP-capable." Paging would require modifications to network equipment to receive LRN dipped calls or special interconnection arrangements in order to accommodate NXX-X assignments.

[2] An alternative pooling scenario was discussed by industry members on the Review Team. The alternate pooling scenario included CLEC and ILEC participation in 2001 and CMRS in 2003 and no Paging participation with donation. It projected NANP exhaust in 2042 but used different assumptions for CO Code demand and donation than NANPA's case. Therefore, 2042 can not be directly compared to the dates in Table 4-1.

segment (e.g., ILEC or Paging) that uses only 10% of the CO Code demand rate can have a significant impact if every other industry segment combined only uses 20% of the original CO Code demand rate.

For illustration: In a pooling scenario without Paging participation and without donation, Paging is projected to demand 1,723 CO Codes in 2001. The rest of the industry combined demands only 4,491 CO Codes (for 1KB Pool replenishment and LRN assignments.) Paging alone demands 30% of the CO Codes assigned in 2001. The Paging segment demanded 9% of the CO Codes assigned in 1998.

NANP TN Utilization at Exhaust in the Pooling Model

NANPA analyzed the TN utilization of the NANP at exhaust in 2094 to determine how aggressively the Pooling Model applied 1KB Pooling parameters. TN utilization at exhaust should illustrate the potential for stranding NANP resources in slow growth rate centers or NPAs. The analysis shows that the Pooling Model projects very *conservative* 1KB Pooling assumptions. At NANP exhaust in 2094, 1.6B TNs are in service out of 3.3B TNs available in assigned CO Codes and 1KBs. This indicates that 1.7B TNs or 52% could be stranded in 1KBs in slow growth rate centers in NPAs with pooling and in CO Codes in (NPAs) without pooling.

4.3 Methodology

Baseline Data

Baseline data is input directly from the CO Code Demand Model. Additional inputs are required for the Year of 1KB Pooling initiation by industry segment, 1KB donation rate by industry segment, and TN Inventory Factor.

The Pooling Module relies on the following data from the CO Code Demand Model:

To determine...	Use...
Potential 1KBs available for donation	• Total CO Codes for Footprint by industry segment
1KBs for TN Growth	• TN Inventory Factor • Incremental TNs by industry segment
1KBs for Footprint	• Incremental CO Codes for Footprint
CO Codes for LRNs	• CO Codes for Nodes/LRNs • Incremental New Entrants by Industry Segment
CO Codes required in non-pooling scenarios or years	• Incremental CO Codes by Industry Segment

Pooling Model Description

The Pooling Module has the capability to run the following scenarios:

Initiation

1. The Pooling Model can vary the Year of 1KB Pooling initiation by industry segment. The valid years to initiate 1KB pooling are 2000, 2001, 2002, 2003 or not applicable ("NA"). NA indicates that an industry segment does not participate in 1KB Pooling.

1KB Donation

2. The number of donated 1KBs blocks per industry segment from footprint CO Codes can be modified from zero to 10 1KBs. The NANPA default value is seven 1KBs donated for each Footprint CO Code assigned to an industry segment in the year prior to 1KB Pooling initiation. [3]

[3] Seven 1KBs out of the 10 1KBs unused in the Equivalent CO Codes for Footprint was selected by NANPA to be a conservative assumption. Seven 1KBs represents approximately 50% of the unused resource (Equivalent CO Codes for Footprint plus Equivalent CO Codes for Inventory) in a typical SP inventory. Utilization studies where 1KB Pooling is underway have experienced greater than 70% donation of unused 1KBs.

TN Inventory

3. Similar to the CO Code Demand Model, the Pooling Model assumes some allowance for TN inventory beyond the amount for working TNs. For example: a 80% TN inventory factor (i.e., 80% WTNs and 20% in inventory/aging uses 10 1KBs to serve 8,000 working telephone numbers ("WTNs") and 2,000 in aging or inventory. The NANPA default assumes that the normal situation has the same TN Inventory factor for 1KBs as the CO Code Demand Model assumes for CO Codes.

Equivalent SP Demand

4. The Pooling Model assumes that an Equivalent new entrant SP or expanding SP requires one 1KB per rate center entered in any given year for Footprint.

LRN Assignment

5. The Pooling Model assumes that a new entrant, new switch, or point of interconnection (POI) in an NPA requires one new CO Code assignment for a Local Routing Number (LRN). If the new entrant SP, switch, or POI is in an industry segment that participates in pooling, then that SP contributes nine 1KBs from the new CO Code to the 1KB pool.

1 KB Pooling Administration

6. The Pooling Model administers 1KBs separately from CO Codes. It administers an ongoing 1KB pool that can be shared by all 1KB Pooling SPs. The Pooling Model calculates demand for 1KBs for TN growth and 1KBs for footprint.

7. The Pooling Model calculates whether there is adequate 1KB inventory to serve the current demand for 1KBs. The 1KB Pooling administrator uses 1KB pool carryover from the prior year and the current 1KBs made available by new CO Code assignments to 1KB Pooling participant SPs to

calculate additional 1KB requirements. The Pooling Model obtains new 1KB resources by obtaining new CO Codes and adding those resources to the pool.[4]

CO Code Consumption

8. The Pooling Model calculates the CO Code Demand by industry segment based on whether that industry segment is participating in 1KB Pooling or needs a new CO Code for a new switch, POI or new entrant

9. The Pooling Model tracks the new CO Codes opened for 1KB Pool administration.

10. The Total CO Code Demand is input into the NANP Exhaust Module to determine the impact of 1KB Pooling on the CO Code assignment rate, NPA relief, and NANP exhaust.

[4] 1KB Pooling issues the CO Code to an SP to act as a code holder. The 1KB Pooling administrator issues the new CO Code to SPs in a given rate center. Nine 1KBs are returned to the 1KB Pool to be issued to other SPs participating in the pool.

Sensitivity Analysis Appendix

Introduction

A sensitivity analysis was conducted on the CO Code Demand Model to determine the impact of various assumptions on the cumulative CO Codes required by year and the projected date for NANP exhaust. The range of findings in the CO Code Model's first module was input into the second module to determine the probability distribution for likely NANP exhaust outcomes.

The sensitivity analysis produces a ranking of assumptions that have the most impact on CO Code demand and NANP exhaust. The assumptions that most influence the outcome were varied given reasonable ranges of expected values.

The CO Code Demand Model has over 475 independent variables that drive the outcome. Due to the nature of sensitivity analysis, it is only practical to focus on the key drivers for CO Code consumption and NANP exhaust. The sensitivity analysis focuses on the top 20 drivers to determine the probability of the predicted outcomes.

The sensitivity analysis focused on the key driving assumptions for TN demand and Footprint demand in order to produce the broadest potential range. For example, a large variation in one independent variable, the definition of an Equivalent CLEC SP, has broad impact on many of the assumptions for Equivalent CLEC CO Codes for the Footprint through the study period. A smaller variation in each of the 100+ independent variables dealing with CLEC Footprint demand has less overall impact.

Findings

The sensitivity and probability analyses provided likely ranges of outcomes for CO Code Consumption and NANP exhaust as depicted in Exhibits A-1, A-2, and A-3.

CO Code Demand Scenarios (Exhibit A-1)

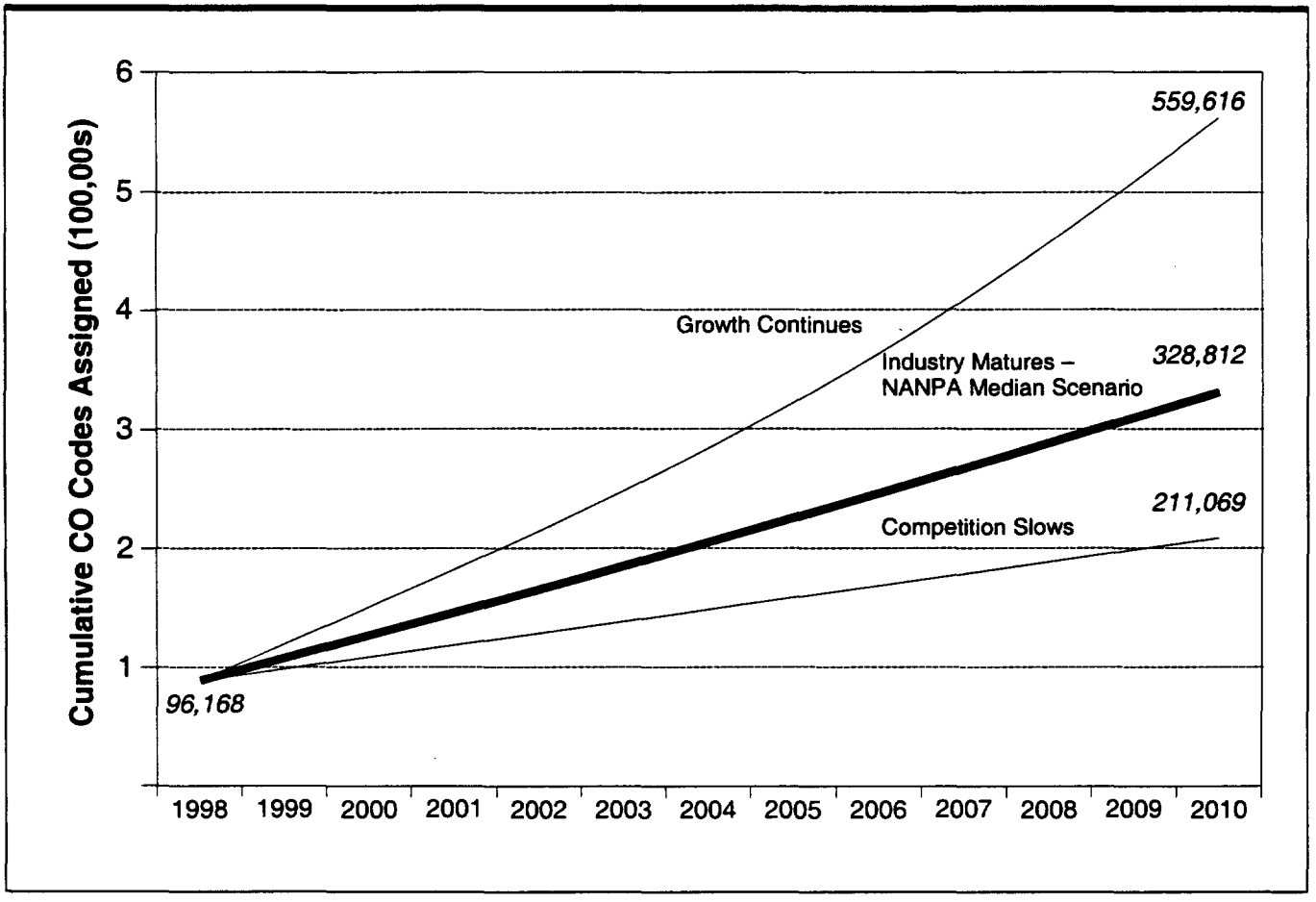
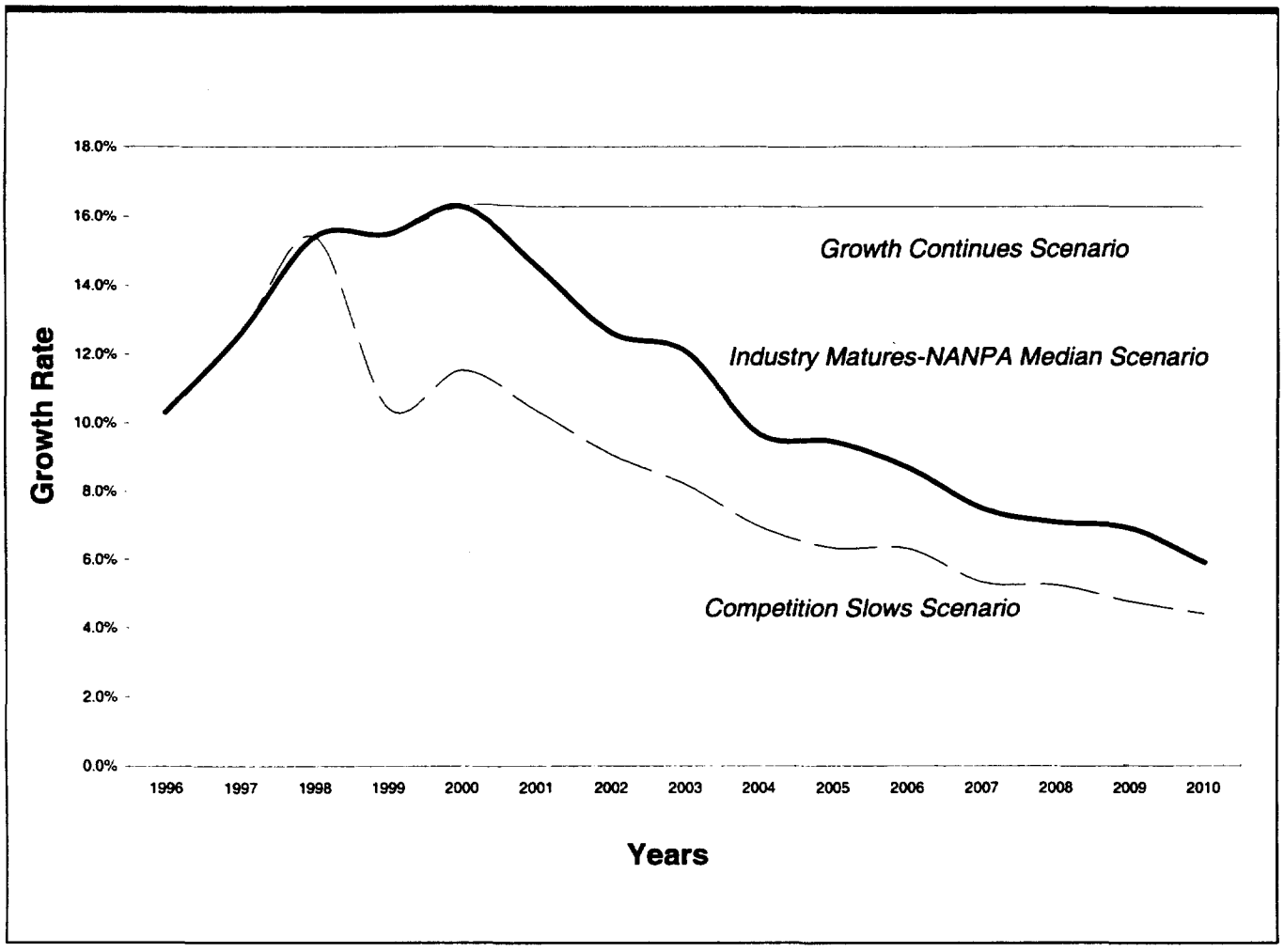


Exhibit A-1 shows the CO Code demand for three scenarios that were produced by the sensitivity analysis. The CO Code demand resulting in 328,812 CO Code assignments by 2010 was used by NANPA as the median scenario. The Growth Continues Scenario assumes that code demand continues at its current rate. The Competition Slows Scenario assumes a rapid reduction in CO Code demand. The CO Code Demand growth rates are shown in Exhibit A-2.

Annual CO Code Assignment Growth Rate Scenarios (Exhibit A-2)



NANP Exhaust Projection (Exhibit A-3)

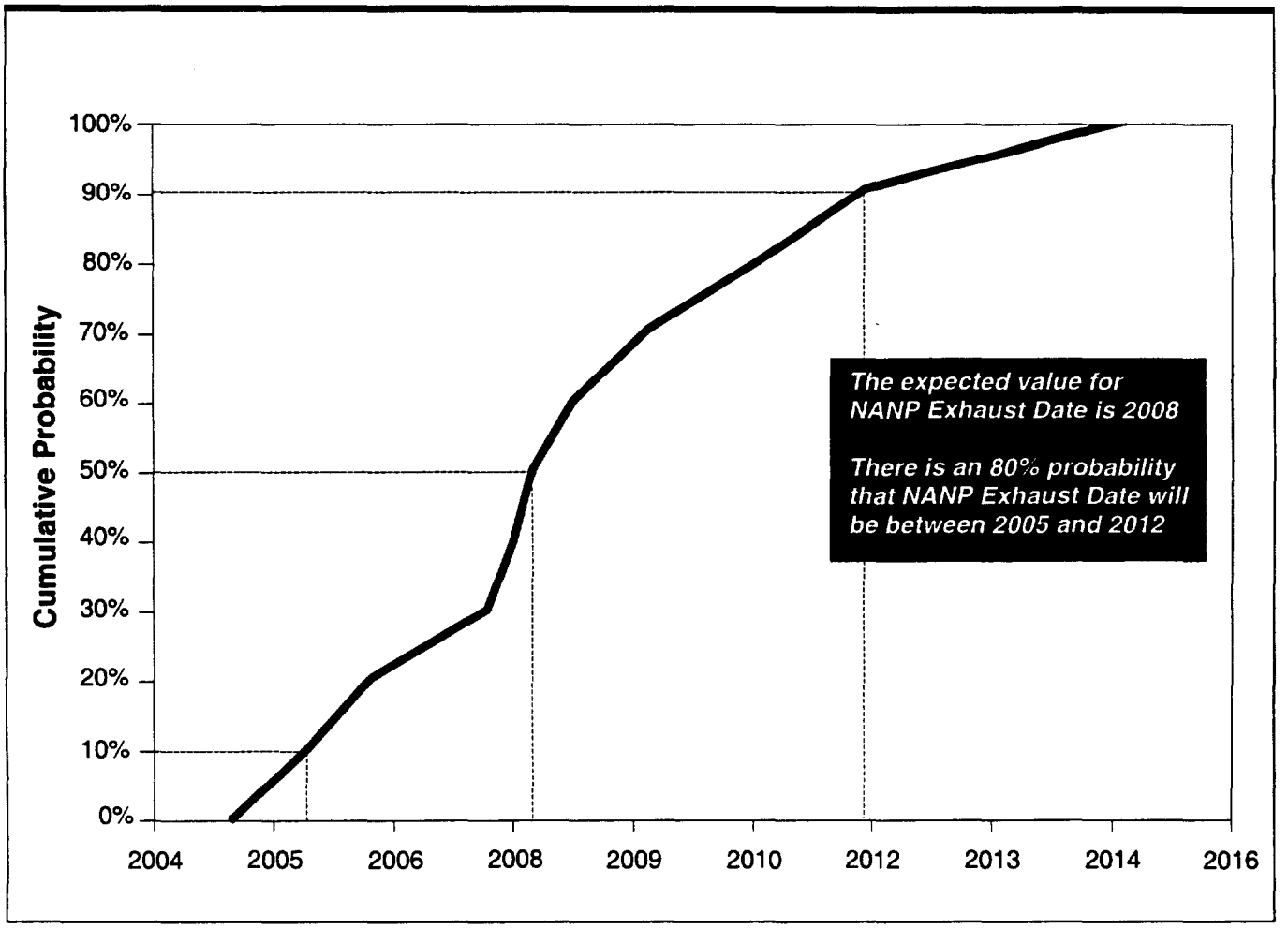


Exhibit A-3 shows the probability of NANP exhaust given various ranges in the sensitivity analysis.

Sensitivity Analysis Methodology

An arbitrary variation range is applied to each of the 475 input variables to see which variables drive CO Code consumption. The impact on CO Code demand or NANP exhaust is determined for the spread of the results of the top 20 variables, which are used to determine the categories that truly drive demand.

The top 20 variables are given a reasonable range that is plus or minus the median assumption that NANPA used for the NANP Exhaust Study.

The sensitivity analysis tool runs an analysis on the top 20 variables to determine the impact of each assumption on CO Code consumption and NANP exhaust. A tornado diagram is used to visualize the impact of each of the top 10 or 20 assumptions. The top 20 variables can be modified to capture either better assumptions or a stronger feeling of uncertainty or discomfort.

Probability Analysis Methodology

Once the top-ranking variables and their likely ranges are determined, the sensitivity analysis tool runs a Modified Monte Carlo Simulation to determine the probability of various outcomes. The Modified Monte Carlo Simulation runs every combination of high case, median case, and low case against each of the top variables in the sensitivity analysis. The probability analysis assumes that the median case has a 50% probability of occurring and the high and low case each have a 25% probability of occurring.

The probability analysis tool creates a list of possible combinations. The resulting probability of each result case equals the product of the probabilities of each assumption case (high, median, or low).

- The cases are sorted based on the likely NANP exhaust date from the earliest date to the latest date. The cumulative probability of each probability case is plotted on the probability distribution curve.

- The probability distribution curve shows the 10% likelihood on the low end and the high end as well as the 50% median likelihood.

Sensitivity Analysis Appendix

Introduction

A sensitivity analysis was conducted on the CO Code Demand Model to determine the impact of various assumptions on the cumulative CO Codes required by year and the projected date for NANP exhaust. The range of findings in the CO Code Model's first module was input into the second module to determine the probability distribution for likely NANP exhaust outcomes.

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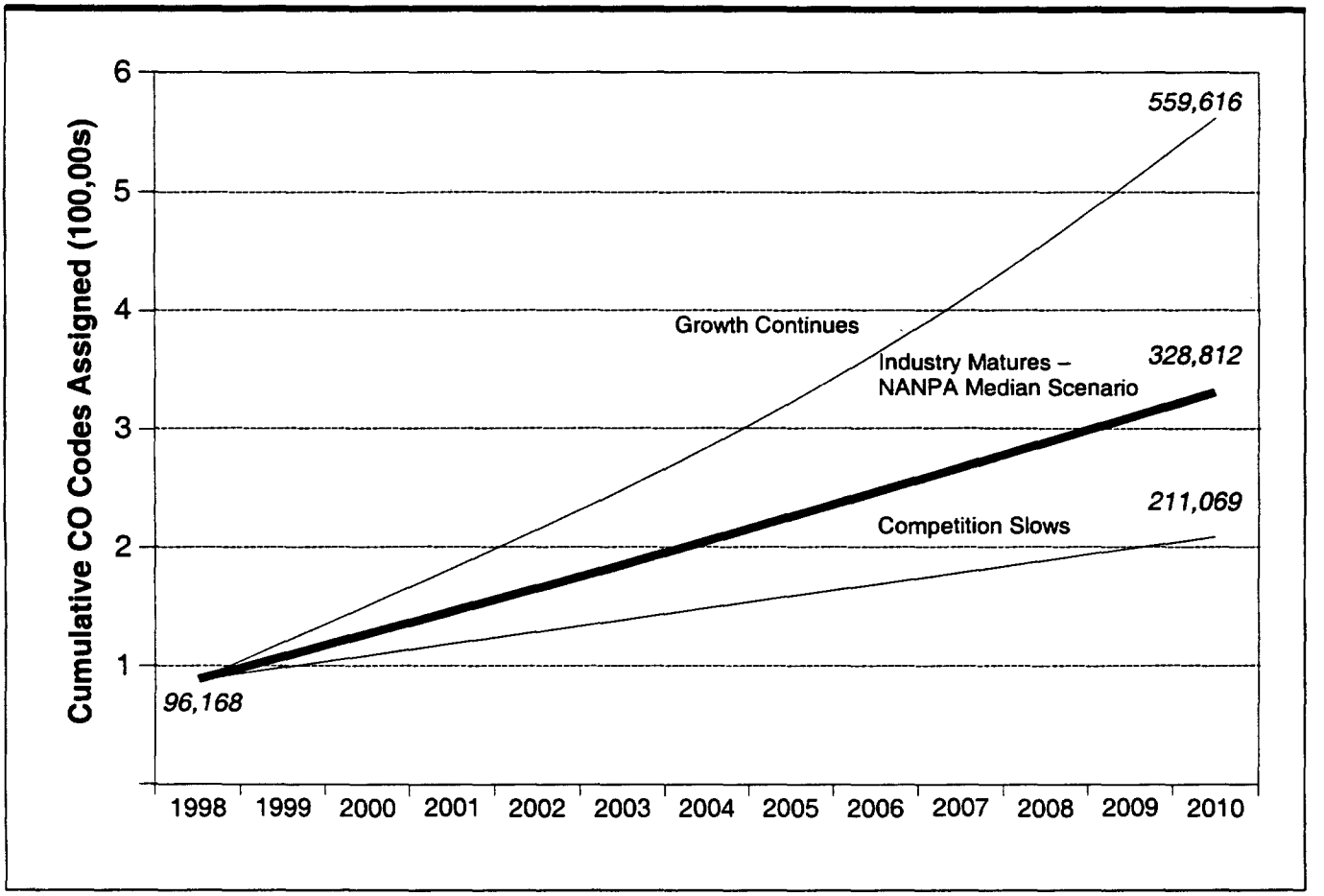
The sensitivity analysis focused on the key driving assumptions for TN demand and Footprint demand in order to produce the broadest potential range. For example, a large variation in one independent variable, the definition of an Equivalent CLEC SP, has broad impact on many of the assumptions for Equivalent CLEC CO Codes for the Footprint through the study period. A smaller variation in each of the 100+ independent variables dealing with CLEC Footprint demand has less overall impact.

Findings

The sensitivity and probability analyses provided likely ranges of outcomes for CO Code Consumption and NANP exhaust as depicted in Exhibits A-1, A-2, and A-3.

CO Code Demand Scenarios (Exhibit A-1)



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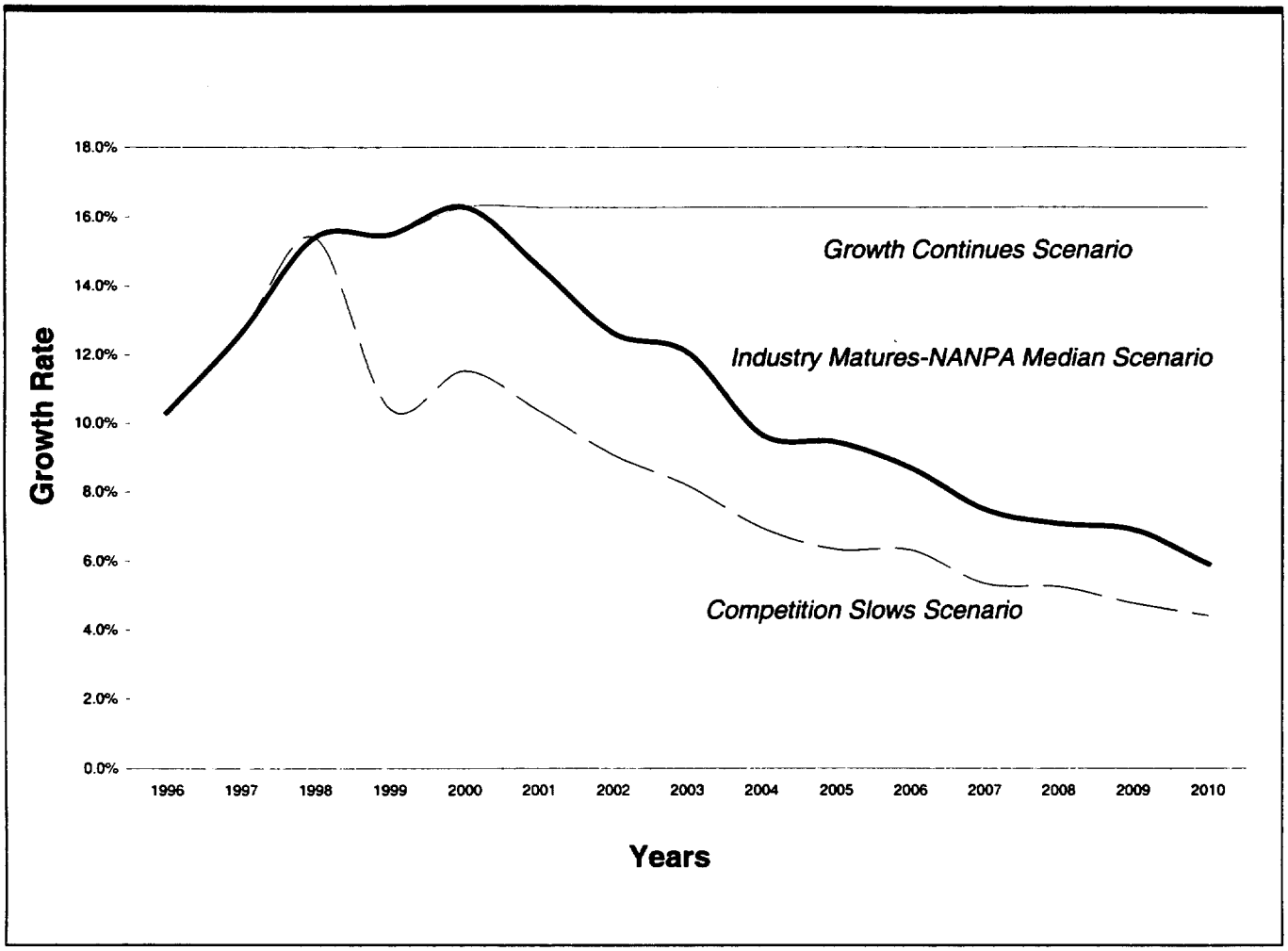
Annual CO Code Assignment Growth Rate Scenarios (Exhibit A-2)



NANP Exhaust Projection (Exhibit A-3)

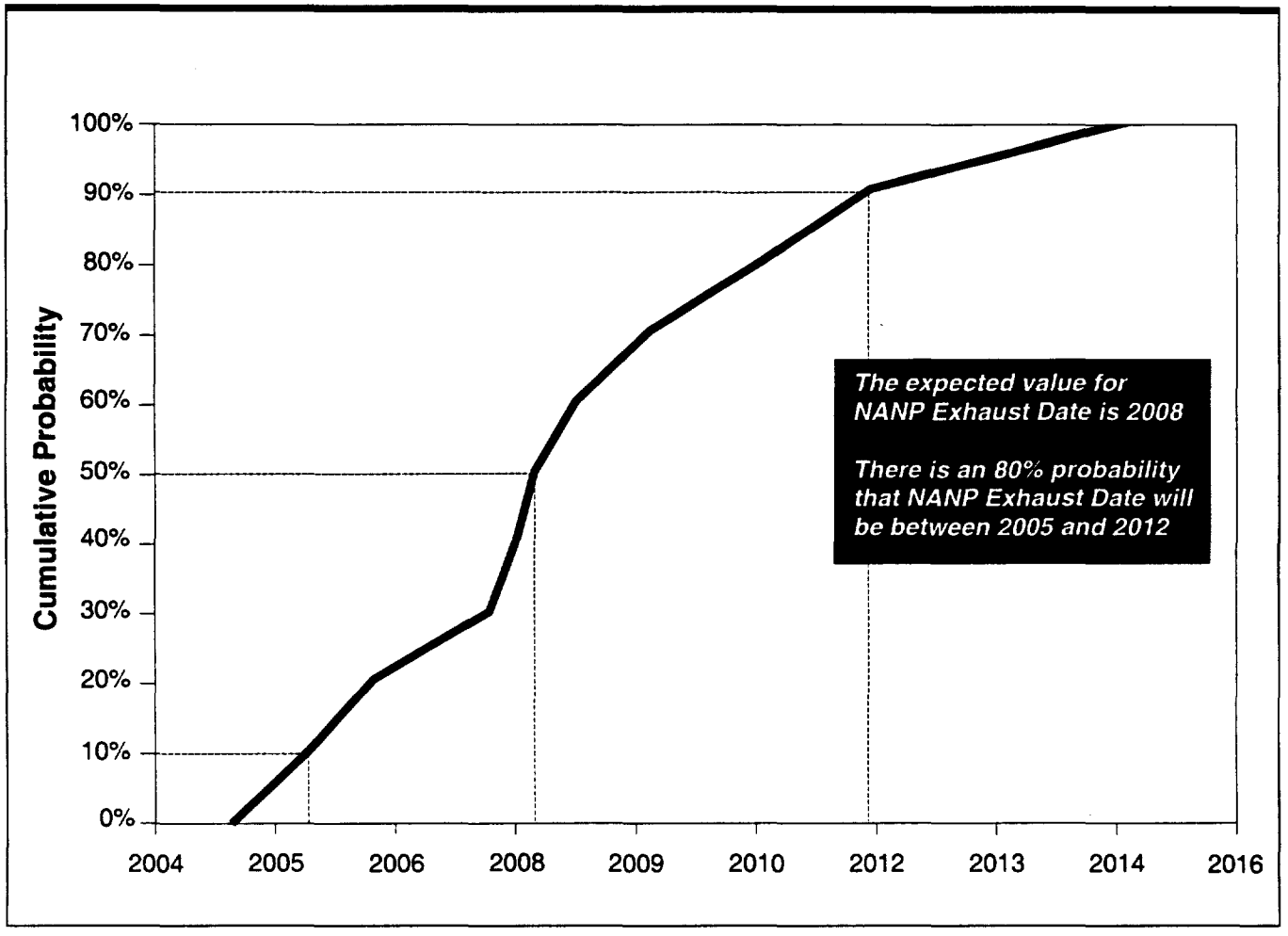


Exhibit A-3 shows the probability of NANP exhaust given various ranges in the sensitivity analysis.

Sensitivity Analysis Methodology

An arbitrary variation range is applied to each of the 475 input variables to see which variables drive CO Code consumption. The impact on CO Code demand or NANP exhaust is determined for the spread of the results of the top 20 variables, which are used to determine the categories that truly drive demand.

The top 20 variables are given a reasonable range that is plus or minus the median assumption that NANPA used for the NANP Exhaust Study.

The sensitivity analysis tool runs an analysis on the top 20 variables to determine the impact of each assumption on CO Code consumption and NANP exhaust. A tornado diagram is used to visualize the impact of each of the top 10 or 20 assumptions. The top 20 variables can be modified to capture either better assumptions or a stronger feeling of uncertainty or discomfort.

Probability Analysis Methodology

Once the top-ranking variables and their likely ranges are determined, the sensitivity analysis tool runs a Modified Monte Carlo Simulation to determine the probability of various outcomes. The Modified Monte Carlo Simulation runs every combination of high case, median case, and low case against each of the top variables in the sensitivity analysis. The probability analysis assumes that the median case has a 50% probability of occurring and the high and low case each have a 25% probability of occurring.

The probability analysis tool creates a list of possible combinations. The resulting probability of each result case equals the product of the probabilities of each assumption case (high, median, or low).

- The cases are sorted based on the likely NANP exhaust date from the earliest date to the latest date. The cumulative probability of each probability case is plotted on the probability distribution curve.

- The probability distribution curve shows the 10% likelihood on the low end and the high end as well as the 50% median likelihood.

- The 80% "confidence interval" is the range between the 10% cumulative probability and the 90% cumulative probability.

The projected CO Code consumption ranges for the 10% likelihood "high-end" probability cases and the 10% likelihood "low end" cases are plotted with the 50% likely median case to show the range of values.

Sensitivity Analysis Outcomes

The most sensitive assumptions directly drive CO Code consumption and NANP exhaust. The 23 key assumptions that have the biggest impact are broken down in three categories: CO Codes for Footprint, TNs in Service, and Remaining NPAs for US Geographic Assignments.

CO Codes for Footprint (Rank of assumption with greatest impact)

Assumption	CLEC	CMRS	Paging	ILEC
Equivalent SP definition	1	2	4	NA
Rate Center Growth per Year	3	5	9	NA
New node assumption	16	14	15	17

TNs in Service (Rank of assumption with greatest impact)

Assumption	CLEC	CMRS	Paging	ILEC
Working TNs ratio	12	20	23	6
Inventory TN Factor	13	10	19	11
Subscriber/Access Line Starting Point	7	21	22	18

NPAs for US Geographic Assignment (Rank of assumption with greatest impact)

Assumption	Rank
Average International and Service NPAs Assigned per year	8

Range of Assumptions Detail

Rank	Assumption	Low (25%)	Median (50%)	High (25%)
1	Equivalent CLEC SP	2,000	**4,386**	8,000
2	Equivalent CMRS SP	1,000	**2,749**	5,000
3	Rate Center Growth/Year CLEC	0%	**2%**	3%
4	Equivalent Paging SP	1,000	**1,806**	4,000
5	Rate Center Growth/Year CMRS	0%	**2%**	3%
6	Ratio of Working TNs to Subs/Access Lines ILEC	1.10	**1.20**	2.00
7	Subscriber/Access Line Starting Point CLEC	3,000,000	**4,000,000**	8,000,000
8	Average Intl. NPAs Assigned per Year	1	**2**	3
9	Rate Center Growth/Year Paging	0%	**2%**	3%
10	Working TNs to CO Codes for TN Growth CMRS	60%	**80%**	90%
11	Working TNs to CO Codes for TN Growth ILEC	50%	**70%**	80%
12	Ratio of Working TNs to Subs/Access Lines CLEC	1.50	**2.00**	3.00
13	Working TNs to CO Codes for TN Growth CLEC	50%	**70%**	80%
14	New Node Assumption for CMRS	0	**1**	1
15	New Node Assumption for Paging	0	**1**	1
16	New Node Assumption for CLEC	0	**1**	1
17	New Node Assumption for ILEC	0	**1**	1
18	Subscriber/Access Line Starting Point ILEC	160,000,000	**165,500,000**	185,000,000
19	Working TNs to CO Codes for TN Growth Paging	60%	**80%**	90%

Rank	Assumption	Low (25%)	Median (50%)	High (25%)
20	Ratio of Working TNs to Subs/Access Lines CMRS	1.01	**1.01**	1.10
21	Subscriber/Access Line Starting Point CMRS	67,000,000	**69,000,000**	71,000,000
22	Subscriber/Access Line Starting Point Paging	50,000,000	**54,500,000**	56,000,000
23	Ratio of Working TNs to Subs/Access Lines Paging	0.85	**0.90**	0.95

CO Code Demand Model

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TN Assumptions

Subscriber/Access Line Starting Point	Subscribers/ Access Lines
CMRS	80,000,000
Paging	54,000,000
CLEC	4,000,000
ILEC	166,000,000

Industry Growth Rate Assumption	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
CMRS	24.7%	20.3%	17.6%	13.8%	11.3%	8.9%	7.8%	6.9%	6.1%	5.6%	5.2%
Paging	4.8%	5.9%	6.6%	7.0%	5.7%	4.7%	4.6%	4.6%	4.5%	4.2%	4.0%
CLEC	69.0%	45.0%	35.0%	28.0%	24.0%	20.0%	17.0%	15.0%	14.0%	13.0%	13.0%
ILEC	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

Ratio of Working TNs to Subs/Access Lines	TN Ratio
CMRS	1.61
Paging	6.50
CLEC	2.00
ILEC	1.30

New Services Assumptions

[A new service introduced by only one of the current SPs]

New Service Introduction	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
CMRS (e.g., CPP, 3G, Satellite, etc.)	-	-	-	-	-	-	-	-	-	-
Paging	-	-	-	-	-	-	-	-	-	-
CLEC (e.g., ISP, Data, etc.)	-	-	-	-	-	-	-	-	-	-
ILEC	-	-	-	-	-	-	-	-	-	-

New Services Adoption Curve	Year 1 Penetration	Year 2 Growth	Year 3 Growth	Year 4 Growth	Year 5 Growth	Out Year Growth Rate
CMRS	0%	0%	0%	0%	0%	0%
Paging	0%	0%	0%	0%	0%	0%
CLEC	0%	0%	0%	0%	0%	0%
ILEC	0%	0%	0%	0%	0%	0%

Working TNs to CO Codes for TN Growth Assumption

Working TNs to CO Codes for TN Growth	Fill Rate
CMRS	80%
Paging	80%
CLEC	100%
ILEC	70%

CO Code Demand Model

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Footprint Baseline Assumptions

CO Code Assignment Starting Point	YE1998 CO Codes
CMRS	10,276
Paging	9,533
CLEC	13,000
ILEC	66,563

Rate Center Starting Point	1998 Rate Centers
CMRS	2,740
Paging	1,806
CLEC	4,300
ILEC	19,340

Service Provider and New Entrant Pipeline

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Service Providers														
Cellular	2	2	2	2	2	2	2	2	2	2	2	2	2	2
PCS	-	2	2	3	3	4	6	6	7	7	8	8	8	8
ESMR/Satellite, etc	1	1	1	1	1	1	2	2	2	2	2	3	3	3
CMRS	3	5	5	6	6	7	9	10	11	11	12	13	13	13
Paging	9	10	11	11	11	12	12	12	12	12	12	13	13	13
Paging	9	10	11	11	11	12	12	12	12	12	12	13	13	13
National CLEC	1	2	2	2	2	3	3	4	4	4	6	6	6	6
LMDS CLEC	-	1	1	2	2	3	3	3	4	4	4	4	4	4
CATV CLEC	-	-	-	-	1	1	1	1	1	1	1	1	1	2
ISP	-	-	-	-	1	2	3	3	3	4	4	5	5	5
Local CLEC	1	1	2	2	3	3	4	4	5	5	6	6	7	7
CLEC	2	4	5	6	9	12	14	15	17	18	21	22	23	25
ILEC	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ILEC	1	1	1	1	1	1	1	1	1	1	1	1	1	1

New Entrant Buildout Curve Assumption

New Entrant Buildout Curve	Year 1	Year 2	Year 3	Year 4	Year 5
CMRS	40%	55%	70%	85%	100%
Paging	40%	55%	70%	85%	100%
CLEC	20%	40%	60%	80%	100%
ILEC	5%	10%	15%	20%	25%

Rate Center Coverage Assumptions

Rate Center Buildout	Rate Ctr. Growth/Year
CMRS	2%
Paging	2%
CLEC	2%
ILEC	0%

New Switch/Point of Interconnection Assumption

New Switch Calculator			
CMRS	*Every*	1	*Year(s) per NPA*
Paging	*Every*	1	*Year(s) per NPA*
CLEC	*Every*	1	*Year(s) per NPA*
ILEC	*Every*	1	*Year(s) per NPA*

CO Codes for TNs

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TN Projection

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
TN Growth Rate Assumption											
CMRS (DLJ)	24.7%	20.3%	17.5%	13.8%	11.3%	9.3%	7.8%	6.9%	6.1%	5.5%	5.2%
Paging (DLJ)	4.8%	5.9%	6.5%	7.0%	5.7%	4.7%	4.6%	4.5%	4.5%	4.2%	4.0%
CLEC (FCC)	69.0%	45.0%	36.0%	28.0%	24.0%	20.0%	17.0%	15.0%	14.0%	13.0%	13.0%
ILEC (FCC)	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
TN Projection (Existing Services)											
CMRS	69,690,000	83,830,000	98,475,000	112,110,000	124,735,000	136,350,000	146,955,000	157,055,000	166,650,000	175,740,000	184,830,000
Paging	49,050,000	51,943,950	55,320,307	59,192,728	62,566,714	65,507,349	68,540,339	71,651,453	74,847,552	78,023,104	81,171,711
CLEC	8,000,000	11,600,000	15,776,000	20,193,280	25,039,667	30,047,601	35,155,693	40,429,047	46,089,113	52,080,698	58,851,189
ILEC	198,600,000	204,558,000	210,694,740	217,015,582	223,526,050	230,231,831	237,138,786	244,252,950	251,580,538	259,127,954	266,901,793
Total TNs (Existing Services)	325,340,000	351,931,950	380,266,047	408,511,590	435,867,431	462,136,781	487,789,818	513,388,449	539,167,203	564,971,756	591,754,692

New Services Introduction

		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
New Service Introduction	*[A new service introduced by only one of the current SPs]*										
CMRS (e.g., CPP, 3G, Satellite, etc.)		-	-	-	-	-	-	-	-	-	-
Paging		-	-	-	-	-	-	-	-	-	-
CLEC (e.g., ISP, Data, etc.)		-	-	-	-	-	-	-	-	-	-
ILEC		-	-	-	-	-	-	-	-	-	-
Total New Service Introduction	-	-	-	-	-	-	-	-	-	-	-

	Year 1 Penetration		Year 2 Growth	Year 3 Growth	Year 4 Growth	Year 5 Growth	Out Year Growth Rate
New Services Adoption Curve							
CMRS	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Paging	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CLEC	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ILEC	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
TN Projection (New Services)											
CMRS	-	-	-	-	-	-	-	-	-	-	-
Paging	-	-	-	-	-	-	-	-	-	-	-
CLEC	-	-	-	-	-	-	-	-	-	-	-
ILEC	-	-	-	-	-	-	-	-	-	-	-
Total TNs (New Services)	-	-	-	-	-	-	-	-	-	-	-

Total TNs Projected

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total TNs Projected											
CMRS	69,690,000	83,830,000	98,475,000	112,110,000	124,735,000	136,350,000	146,955,000	157,055,000	166,650,000	175,740,000	184,830,000
Paging	49,050,000	51,943,950	55,320,307	59,192,728	62,566,714	65,507,349	68,540,339	71,651,453	74,847,552	78,023,104	81,171,711
CLEC	8,000,000	11,600,000	15,776,000	20,193,280	25,039,667	30,047,601	35,155,693	40,429,047	46,089,113	52,080,698	58,851,189
ILEC	198,600,000	204,558,000	210,694,740	217,015,582	223,526,050	230,231,831	237,138,786	244,252,950	251,580,538	259,127,954	266,901,793
Total TNs Projected	325,340,000	351,931,950	380,266,047	408,511,590	435,867,431	462,136,781	487,789,818	513,388,449	539,167,203	564,971,756	591,754,692

CO Codes for TNs

CO Codes For TNs

	Fill Rate	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
CO Codes for Existing Services TNs												
CMRS	80%	8,712	10,480	12,311	14,016	15,595	17,047	18,373	19,636	20,836	21,973	23,110
Paging	80%	6,132	6,494	6,917	7,402	7,824	8,192	8,572	8,961	9,361	9,758	10,152
CLEC	100%	800	1,160	1,578	2,020	2,505	3,006	3,517	4,045	4,612	5,212	5,890
ILEC	70%	28,372	29,224	30,101	31,004	31,935	32,893	33,880	34,897	35,944	37,023	38,134
Total CO Codes Existing Svc TNs		**44,016**	**47,358**	**50,907**	**54,442**	**57,859**	**61,138**	**64,342**	**67,539**	**70,753**	**73,966**	**77,286**

	Fill Rate	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
CO Codes for New Services TNs												
CMRS	80%	-	-	-	-	-	-	-	-	-	-	-
Paging	80%	-	-	-	-	-	-	-	-	-	-	-
CLEC	100%	-	-	-	-	-	-	-	-	-	-	-
ILEC	70%	-	-	-	-	-	-	-	-	-	-	-
Total CO Codes for New Svc. TNs		-	-	-	-	-	-	-	-	-	-	-

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
CO Codes for TNs											
CMRS	8,712	10,480	12,311	14,016	15,595	17,047	18,373	19,636	20,836	21,973	23,110
Paging	6,132	6,494	6,917	7,402	7,824	8,192	8,572	8,961	9,361	9,758	10,152
CLEC	800	1,160	1,578	2,020	2,505	3,006	3,517	4,045	4,612	5,212	5,890
ILEC	28,372	29,224	30,101	31,004	31,935	32,893	33,880	34,897	35,944	37,023	38,134
Total CO Codes for TNs	**44,016**	**47,358**	**50,907**	**54,442**	**57,859**	**61,138**	**64,342**	**67,539**	**70,753**	**73,966**	**77,286**

CO Codes for Footprint

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Serivce Provider and New Entrant Footprint Assumptions

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Service Provider Summary														
CMRS	3	5	5	6	6	7	9	10	11	11	12	13	13	13
Paging	9	10	11	11	11	12	12	12	12	12	12	13	13	13
CLEC	2	4	5	6	9	12	14	15	17	18	21	22	23	25
ILEC	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Service Provider Footprint	15	20	22	24	27	32	36	38	41	42	46	49	50	52

	Rate Ctr. Growth	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Rate Centers												
CMRS	2%	2,749	2,804	2,860	2,917	2,976	3,035	3,096	3,158	3,221	3,285	3,351
Paging	2%	1,806	1,842	1,879	1,917	1,955	1,994	2,034	2,075	2,116	2,158	2,202
CLEC	2%	4,386	4,474	4,563	4,654	4,748	4,842	4,939	5,038	5,139	5,242	5,347
ILEC	0%	19,240	19,240	19,240	19,240	19,240	19,240	19,240	19,240	19,240	19,240	19,240

Additional Nodes/LRNs Installed by Segment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Incremental Nodes/LRNs in U.S.											
CMRS		206	247	287	329	371	415	456	499	542	582
Paging		206	247	287	329	371	415	456	499	542	582
CLEC		206	247	287	329	371	415	456	499	542	582
ILEC		206	247	287	329	371	415	456	499	542	582

CO Codes for Footprint

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
CO Codes for Footprint											
CMRS	7,564	9,562	12,409	16,191	19,787	23,550	26,651	30,698	34,504	37,168	39,478
Paging	3,201	4,285	6,179	7,416	8,460	9,560	10,719	11,863	13,507	14,880	16,310
CLEC	13,196	21,455	31,007	40,968	51,258	62,852	73,029	83,739	93,871	104,342	115,260
ILEC	28,191	28,397	28,644	28,931	29,260	29,631	30,046	30,502	31,001	31,543	32,125
Total CO Codes for Footprint	52,152	63,699	78,238	93,506	108,765	125,593	140,446	156,803	172,882	187,933	203,174

Total CO Code Growth

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Total CO Codes

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
CO Codes Consumed											
CMRS	16,276	20,042	24,720	30,207	35,382	40,597	45,024	50,334	55,340	59,141	62,588
Paging	9,333	10,779	13,096	14,818	16,284	17,752	19,291	20,624	22,868	24,638	26,462
CLEC	13,996	22,615	32,585	42,988	53,763	65,858	76,546	87,784	98,483	109,554	121,150
ILEC	56,563	57,621	58,745	59,935	61,195	62,524	63,926	65,399	66,945	68,566	70,259
Total CO Codes	**96,168**	**111,057**	**129,145**	**147,948**	**166,624**	**186,731**	**204,788**	**224,142**	**243,635**	**261,899**	**280,460**
Incremental CO Codes Assigned		14,889	18,088	18,803	18,676	20,108	18,056	19,354	19,493	18,264	18,561
Annual CO Code Assignment Rate	*15.4%*	*15.5%*	*16.3%*	*14.6%*	*12.6%*	*12.1%*	*9.7%*	*9.5%*	*8.7%*	*7.5%*	*7.1%*

NANP Exhaust Module (Sample Data)

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NANP Exhaust Baseline Data

	National	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
NPA Profile																		
YE 1998 CO Code Assignments		547	446	568	428	433	542	460	698	480	98	742	531	740	380	478	358	562
YE1998 Adjusted CO Code Assignment Rate		7.4	4.1	5.7	5.7	7.6	4.9	2.2	7.6	5.7	5.7	6.2	6.8	5.7	5.7	1.2	1.9	3.0
NPT CO Code Assignment Share		***0.53%***	***0.29%***	***0.41%***	***0.41%***	***0.54%***	***0.35%***	***0.16%***	***0.54%***	***0.41%***	***0.41%***	***0.44%***	***0.48%***	***0.41%***	***0.41%***	***0.09%***	***0.13%***	***0.21%***

Annual CO Code Assignments	National	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1999	14,889	78	43	61	61	81	51	23	81	61	61	66	71	61	61	13	20	32
2000	18,088	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2001	18,803	99	55	76	76	102	65	30	102	76	76	83	90	76	76	16	25	40
2002	18,676	98	54	76	76	101	65	29	101	76	76	82	90	76	76	16	25	40
2003	20,108	106	58	82	82	109	70	32	109	82	82	88	96	82	82	17	27	43
2004	18,056	95	53	73	73	98	62	28	98	73	73	79	87	73	73	16	24	38
2005	19,354	102	56	79	79	105	67	30	105	79	79	85	93	79	79	17	26	41
2006	19,493	103	57	79	79	106	67	31	106	79	79	86	93	79	79	17	26	41
2007	18,264	96	53	74	74	99	63	29	99	74	74	80	88	74	74	16	24	39
2008	18,561	98	54	75	75	101	64	29	101	75	75	82	89	75	75	16	25	39
2009	19,390	102	56	79	79	105	67	30	105	79	79	85	93	79	79	17	26	41
2010	17,756	93	52	72	72	96	61	28	96	72	72	78	85	72	72	15	24	38
2011	18,598	98	54	76	76	101	64	29	101	76	76	82	89	76	76	16	25	39
2012	16,379	86	48	67	67	89	57	26	89	67	67	72	79	67	67	14	22	35
2013	17,155	90	50	70	70	93	59	27	93	70	70	75	82	70	70	15	23	36
2014	17,179	90	50	70	70	93	59	27	93	70	70	76	82	70	70	15	23	36
2015	17,961	95	52	73	73	98	62	28	98	73	73	79	86	73	73	16	24	38
2016	16,422	86	48	67	67	89	57	26	89	67	67	72	79	67	67	14	22	35
2017	17,924	94	52	73	73	97	62	28	97	73	73	79	86	73	73	15	24	38
2018	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2019	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2020	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2021	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2022	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2023	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2024	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2025	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2026	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2027	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2028	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2029	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2030	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2031	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2032	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2033	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2034	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2035	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2036	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2037	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2038	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2039	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2040	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2041	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2042	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2043	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2044	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2045	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2046	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2047	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2048	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2049	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2050	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2051	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2052	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2053	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2054	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2055	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2056	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2057	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2058	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2059	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2060	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2061	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2062	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2063	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2064	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2065	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2066	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2067	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2068	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38

NANP Exhaust Module (Sample Data)

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2069	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2070	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2071	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2072	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2073	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2074	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2075	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2076	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2077	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2078	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2079	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2080	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2081	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2082	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2083	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2084	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2085	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2086	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2087	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2088	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2089	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2090	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2091	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2092	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2093	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2094	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2095	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2096	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2097	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2098	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38
2099	18,118	95	53	74	74	98	63	28	98	74	74	80	87	74	74	16	24	38

Cumulative CO Code Demand	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1999	625	489	629	489	514	593	483	779	541	159	808	602	801	441	491	378	594
2000	720	542	703	563	612	656	511	877	615	233	888	689	875	515	507	402	632
2001	819	597	779	639	714	721	541	979	691	309	971	779	951	591	523	427	672
2002	917	651	855	715	815	786	570	1,080	767	385	1,053	869	1,027	667	539	452	712
2003	1,023	709	937	797	924	856	602	1,189	849	467	1,141	965	1,109	749	556	479	755
2004	1,118	762	1,010	870	1,022	918	630	1,287	922	540	1,220	1,052	1,182	822	572	503	793
2005	1,220	818	1,089	949	1,127	985	660	1,392	1,001	619	1,305	1,145	1,261	901	589	529	834
2006	1,323	875	1,168	1,028	1,233	1,052	691	1,498	1,080	698	1,391	1,238	1,340	980	606	555	875
2007	1,419	928	1,242	1,102	1,332	1,115	720	1,597	1,154	772	1,471	1,326	1,414	1,054	622	579	914
2008	1,517	982	1,317	1,177	1,433	1,179	749	1,698	1,229	847	1,553	1,415	1,489	1,129	638	604	953
2009	1,619	1,038	1,396	1,256	1,538	1,246	779	1,803	1,308	926	1,638	1,506	1,568	1,208	655	630	994
2010	1,712	1,090	1,468	1,328	1,634	1,307	807	1,899	1,380	998	1,716	1,593	1,640	1,280	670	654	1,032
2011	1,810	1,144	1,544	1,404	1,735	1,371	836	2,000	1,456	1,074	1,798	1,682	1,718	1,356	686	679	1,071
2012	1,896	1,192	1,611	1,471	1,824	1,428	862	2,089	1,523	1,141	1,870	1,761	1,783	1,423	700	701	1,106
2013	1,986	1,242	1,681	1,541	1,917	1,487	889	2,182	1,593	1,211	1,945	1,843	1,853	1,493	715	724	1,142
2014	2,076	1,292	1,751	1,611	2,010	1,546	916	2,275	1,663	1,281	2,021	1,925	1,923	1,563	730	747	1,178
2015	2,171	1,344	1,824	1,684	2,108	1,608	944	2,373	1,736	1,354	2,100	2,011	1,996	1,636	746	771	1,216
2016	2,257	1,392	1,891	1,751	2,197	1,665	970	2,462	1,803	1,421	2,172	2,090	2,063	1,703	760	793	1,251
2017	2,351	1,444	1,964	1,824	2,294	1,727	998	2,559	1,876	1,494	2,251	2,176	2,136	1,776	775	817	1,289
2018	2,446	1,497	2,038	1,898	2,392	1,790	1,026	2,657	1,950	1,568	2,331	2,263	2,210	1,850	791	841	1,327
2019	2,541	1,550	2,112	1,972	2,490	1,853	1,054	2,755	2,024	1,642	2,411	2,350	2,284	1,924	807	865	1,365
2020	2,636	1,603	2,186	2,046	2,588	1,916	1,082	2,853	2,098	1,716	2,491	2,437	2,358	1,998	823	889	1,403
2021	2,731	1,656	2,260	2,120	2,686	1,979	1,110	2,951	2,172	1,790	2,571	2,524	2,432	2,072	839	913	1,441
2022	2,826	1,709	2,334	2,194	2,784	2,042	1,138	3,049	2,246	1,864	2,651	2,611	2,506	2,146	855	937	1,479
2023	2,921	1,762	2,408	2,268	2,882	2,105	1,166	3,147	2,320	1,938	2,731	2,698	2,580	2,220	871	961	1,517
2024	3,016	1,815	2,482	2,342	2,980	2,168	1,194	3,245	2,394	2,012	2,811	2,785	2,654	2,294	887	985	1,555
2025	3,111	1,868	2,556	2,416	3,078	2,231	1,222	3,343	2,468	2,086	2,891	2,872	2,728	2,368	903	1,009	1,593
2026	3,206	1,921	2,630	2,490	3,176	2,294	1,250	3,441	2,542	2,160	2,971	2,959	2,802	2,442	919	1,033	1,631
2027	3,301	1,974	2,704	2,564	3,274	2,357	1,278	3,539	2,616	2,234	3,051	3,046	2,876	2,516	935	1,057	1,669
2028	3,396	2,027	2,778	2,638	3,372	2,420	1,306	3,637	2,690	2,308	3,131	3,133	2,950	2,590	951	1,081	1,707
2029	3,491	2,080	2,852	2,712	3,470	2,483	1,334	3,735	2,764	2,382	3,211	3,220	3,024	2,664	967	1,105	1,745
2030	3,586	2,133	2,926	2,786	3,568	2,546	1,362	3,833	2,838	2,456	3,291	3,307	3,098	2,738	983	1,129	1,783
2031	3,681	2,186	3,000	2,860	3,666	2,609	1,390	3,931	2,912	2,530	3,371	3,394	3,172	2,812	999	1,153	1,821
2032	3,776	2,239	3,074	2,934	3,764	2,672	1,418	4,029	2,986	2,604	3,451	3,481	3,246	2,886	1,015	1,177	1,859
2033	3,871	2,292	3,148	3,008	3,862	2,735	1,446	4,127	3,060	2,678	3,531	3,568	3,320	2,960	1,031	1,201	1,897
2034	3,966	2,345	3,222	3,082	3,960	2,798	1,474	4,225	3,134	2,752	3,611	3,655	3,394	3,034	1,047	1,225	1,935
2035	4,061	2,398	3,296	3,156	4,058	2,861	1,502	4,323	3,208	2,826	3,691	3,742	3,468	3,108	1,063	1,249	1,973
2036	4,156	2,451	3,370	3,230	4,156	2,924	1,530	4,421	3,282	2,900	3,771	3,829	3,542	3,182	1,079	1,273	2,011
2037	4,251	2,504	3,444	3,304	4,254	2,987	1,558	4,519	3,356	2,974	3,851	3,916	3,616	3,256	1,095	1,297	2,049
2038	4,346	2,557	3,518	3,378	4,352	3,050	1,586	4,617	3,430	3,048	3,931	4,003	3,690	3,330	1,111	1,321	2,087
2039	4,441	2,610	3,592	3,452	4,450	3,113	1,614	4,715	3,504	3,122	4,011	4,090	3,764	3,404	1,127	1,345	2,125
2040	4,536	2,663	3,666	3,526	4,548	3,176	1,642	4,813	3,578	3,196	4,091	4,177	3,838	3,478	1,143	1,369	2,163
2041	4,631	2,716	3,740	3,600	4,646	3,239	1,670	4,911	3,652	3,270	4,171	4,264	3,912	3,552	1,159	1,393	2,201
2042	4,726	2,769	3,814	3,674	4,744	3,302	1,698	5,009	3,726	3,344	4,251	4,351	3,986	3,626	1,175	1,417	2,239
2043	4,821	2,822	3,888	3,748	4,842	3,365	1,726	5,107	3,800	3,418	4,331	4,438	4,060	3,700	1,191	1,441	2,277
2044	4,916	2,875	3,962	3,822	4,940	3,428	1,754	5,205	3,874	3,492	4,411	4,525	4,134	3,774	1,207	1,465	2,315

NANP Exhaust Module (Sample Data)

Copyright Lockheed Martin CIS 1999 - CO Code Demand Model — *No Pooling*

2045	5,011	2,928	4,036	3,896	5,038	3,491	1,782	5,303	3,948	3,566	4,491	4,612	4,208	3,848	1,223	1,489	2,353
2046	5,106	2,981	4,110	3,970	5,136	3,554	1,810	5,401	4,022	3,640	4,571	4,699	4,282	3,922	1,239	1,513	2,391
2047	5,201	3,034	4,184	4,044	5,234	3,617	1,838	5,499	4,096	3,714	4,651	4,786	4,356	3,996	1,255	1,537	2,429
2048	5,296	3,087	4,258	4,118	5,332	3,680	1,866	5,597	4,170	3,788	4,731	4,873	4,430	4,070	1,271	1,561	2,467
2049	5,391	3,140	4,332	4,192	5,430	3,743	1,894	5,695	4,244	3,862	4,811	4,960	4,504	4,144	1,287	1,585	2,505
2050	5,486	3,193	4,406	4,266	5,528	3,806	1,922	5,793	4,318	3,936	4,891	5,047	4,578	4,218	1,303	1,609	2,543
2051	5,581	3,246	4,480	4,340	5,626	3,869	1,950	5,891	4,392	4,010	4,971	5,134	4,652	4,292	1,319	1,633	2,581
2052	5,676	3,299	4,554	4,414	5,724	3,932	1,978	5,989	4,466	4,084	5,051	5,221	4,726	4,366	1,335	1,657	2,619
2053	5,771	3,352	4,628	4,488	5,822	3,995	2,006	6,087	4,540	4,158	5,131	5,308	4,800	4,440	1,351	1,681	2,657
2054	5,866	3,405	4,702	4,562	5,920	4,058	2,034	6,185	4,614	4,232	5,211	5,395	4,874	4,514	1,367	1,705	2,695
2055	5,961	3,458	4,776	4,636	6,018	4,121	2,062	6,283	4,688	4,306	5,291	5,482	4,948	4,588	1,383	1,729	2,733
2056	6,056	3,511	4,850	4,710	6,116	4,184	2,090	6,381	4,762	4,380	5,371	5,569	5,022	4,662	1,399	1,753	2,771
2057	6,151	3,564	4,924	4,784	6,214	4,247	2,118	6,479	4,836	4,454	5,451	5,656	5,096	4,736	1,415	1,777	2,809
2058	6,246	3,617	4,998	4,858	6,312	4,310	2,146	6,577	4,910	4,528	5,531	5,743	5,170	4,810	1,431	1,801	2,847
2059	6,341	3,670	5,072	4,932	6,410	4,373	2,174	6,675	4,984	4,602	5,611	5,830	5,244	4,884	1,447	1,825	2,885
2060	6,436	3,723	5,146	5,006	6,508	4,436	2,202	6,773	5,058	4,676	5,691	5,917	5,318	4,958	1,463	1,849	2,923
2061	6,531	3,776	5,220	5,080	6,606	4,499	2,230	6,871	5,132	4,750	5,771	6,004	5,392	5,032	1,479	1,873	2,961
2062	6,626	3,829	5,294	5,154	6,704	4,562	2,258	6,969	5,206	4,824	5,851	6,091	5,466	5,106	1,495	1,897	2,999
2063	6,721	3,882	5,368	5,228	6,802	4,625	2,286	7,067	5,280	4,898	5,931	6,178	5,540	5,180	1,511	1,921	3,037
2064	6,816	3,935	5,442	5,302	6,900	4,688	2,314	7,165	5,354	4,972	6,011	6,265	5,614	5,254	1,527	1,945	3,075
2065	6,911	3,988	5,516	5,376	6,998	4,751	2,342	7,263	5,428	5,046	6,091	6,352	5,688	5,328	1,543	1,969	3,113
2066	7,006	4,041	5,590	5,450	7,096	4,814	2,370	7,361	5,502	5,120	6,171	6,439	5,762	5,402	1,559	1,993	3,151
2067	7,101	4,094	5,664	5,524	7,194	4,877	2,398	7,459	5,576	5,194	6,251	6,526	5,836	5,476	1,575	2,017	3,189
2068	7,196	4,147	5,738	5,598	7,292	4,940	2,426	7,557	5,650	5,268	6,331	6,613	5,910	5,550	1,591	2,041	3,227
2069	7,291	4,200	5,812	5,672	7,390	5,003	2,454	7,655	5,724	5,342	6,411	6,700	5,984	5,624	1,607	2,065	3,265
2070	7,386	4,253	5,886	5,746	7,488	5,066	2,482	7,753	5,798	5,416	6,491	6,787	6,058	5,698	1,623	2,089	3,303
2071	7,481	4,306	5,960	5,820	7,586	5,129	2,510	7,851	5,872	5,490	6,571	6,874	6,132	5,772	1,639	2,113	3,341
2072	7,576	4,359	6,034	5,894	7,684	5,192	2,538	7,949	5,946	5,564	6,651	6,961	6,206	5,846	1,655	2,137	3,379
2073	7,671	4,412	6,108	5,968	7,782	5,255	2,566	8,047	6,020	5,638	6,731	7,048	6,280	5,920	1,671	2,161	3,417
2074	7,766	4,465	6,182	6,042	7,880	5,318	2,594	8,145	6,094	5,712	6,811	7,135	6,354	5,994	1,687	2,185	3,455
2075	7,861	4,518	6,256	6,116	7,978	5,381	2,622	8,243	6,168	5,786	6,891	7,222	6,428	6,068	1,703	2,209	3,493
2076	7,956	4,571	6,330	6,190	8,076	5,444	2,650	8,341	6,242	5,860	6,971	7,309	6,502	6,142	1,719	2,233	3,531
2077	8,051	4,624	6,404	6,264	8,174	5,507	2,678	8,439	6,316	5,934	7,051	7,396	6,576	6,216	1,735	2,257	3,569
2078	8,146	4,677	6,478	6,338	8,272	5,570	2,706	8,537	6,390	6,008	7,131	7,483	6,650	6,290	1,751	2,281	3,607
2079	8,241	4,730	6,552	6,412	8,370	5,633	2,734	8,635	6,464	6,082	7,211	7,570	6,724	6,364	1,767	2,305	3,645
2080	8,336	4,783	6,626	6,486	8,468	5,696	2,762	8,733	6,538	6,156	7,291	7,657	6,798	6,438	1,783	2,329	3,683
2081	8,431	4,836	6,700	6,560	8,566	5,759	2,790	8,831	6,612	6,230	7,371	7,744	6,872	6,512	1,799	2,353	3,721
2082	8,526	4,889	6,774	6,634	8,664	5,822	2,818	8,929	6,686	6,304	7,451	7,831	6,946	6,586	1,815	2,377	3,759
2083	8,621	4,942	6,848	6,708	8,762	5,885	2,846	9,027	6,760	6,378	7,531	7,918	7,020	6,660	1,831	2,401	3,797
2084	8,716	4,995	6,922	6,782	8,860	5,948	2,874	9,125	6,834	6,452	7,611	8,005	7,094	6,734	1,847	2,425	3,835
2085	8,811	5,048	6,996	6,856	8,958	6,011	2,902	9,223	6,908	6,526	7,691	8,092	7,168	6,808	1,863	2,449	3,873
2086	8,906	5,101	7,070	6,930	9,056	6,074	2,930	9,321	6,982	6,600	7,771	8,179	7,242	6,882	1,879	2,473	3,911
2087	9,001	5,154	7,144	7,004	9,154	6,137	2,958	9,419	7,056	6,674	7,851	8,266	7,316	6,956	1,895	2,497	3,949
2088	9,096	5,207	7,218	7,078	9,252	6,200	2,986	9,517	7,130	6,748	7,931	8,353	7,390	7,030	1,911	2,521	3,987
2089	9,191	5,260	7,292	7,152	9,350	6,263	3,014	9,615	7,204	6,822	8,011	8,440	7,464	7,104	1,927	2,545	4,025
2090	9,286	5,313	7,366	7,226	9,448	6,326	3,042	9,713	7,278	6,896	8,091	8,527	7,538	7,178	1,943	2,569	4,063
2091	9,381	5,366	7,440	7,300	9,546	6,389	3,070	9,811	7,352	6,970	8,171	8,614	7,612	7,252	1,959	2,593	4,101
2092	9,476	5,419	7,514	7,374	9,644	6,452	3,098	9,909	7,426	7,044	8,251	8,701	7,686	7,326	1,975	2,617	4,139
2093	9,571	5,472	7,588	7,448	9,742	6,515	3,126	10,007	7,500	7,118	8,331	8,788	7,760	7,400	1,991	2,641	4,177
2094	9,666	5,525	7,662	7,522	9,840	6,578	3,154	10,105	7,574	7,192	8,411	8,875	7,834	7,474	2,007	2,665	4,215
2095	9,761	5,578	7,736	7,596	9,938	6,641	3,182	10,203	7,648	7,266	8,491	8,962	7,908	7,548	2,023	2,689	4,253
2096	9,856	5,631	7,810	7,670	10,036	6,704	3,210	10,301	7,722	7,340	8,571	9,049	7,982	7,622	2,039	2,713	4,291
2097	9,951	5,684	7,884	7,744	10,134	6,767	3,238	10,399	7,796	7,414	8,651	9,136	8,056	7,696	2,055	2,737	4,329
2098	10,046	5,737	7,958	7,818	10,232	6,830	3,266	10,497	7,870	7,488	8,731	9,223	8,130	7,770	2,071	2,761	4,367
2099	10,141	5,790	8,032	7,892	10,330	6,893	3,294	10,595	7,944	7,562	8,811	9,310	8,204	7,844	2,087	2,785	4,405

NPA Relief Calculator

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Geographic Relief Indicator																	
1998 Starting Point	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1999	1	1	1	1	1	1	1	2	1	1	2	1	2	1	1	1	1
2000	1	1	1	1	1	1	1	2	1	1	2	1	2	1	1	1	1
2001	2	1	2	1	2	2	1	2	2	1	2	2	2	1	1	1	1
2002	2	2	2	2	2	2	1	2	2	1	2	2	2	2	1	1	2
2003	2	2	2	2	2	2	1	2	2	1	2	2	2	2	1	1	2
2004	2	2	2	2	2	2	1	3	2	1	2	2	2	2	1	1	2
2005	2	2	2	2	2	2	1	3	2	2	3	2	2	2	1	1	2
2006	3	2	2	2	2	2	2	3	2	2	3	2	3	2	1	1	2
2007	3	2	2	2	3	2	2	3	2	2	3	3	3	2	1	1	2
2008	3	2	3	2	3	2	2	3	2	2	3	3	3	2	1	1	2
2009	3	2	3	2	3	2	2	3	3	2	3	3	3	2	1	1	2
2010	3	2	3	3	3	2	2	3	3	2	3	3	3	2	1	1	2
2011	3	2	3	3	3	3	2	4	3	2	3	3	3	3	1	2	2
2012	3	2	3	3	3	3	2	4	3	2	3	3	3	3	2	2	2
2013	3	2	3	3	3	3	2	4	3	2	3	3	3	3	2	2	2
2014	4	2	3	3	4	3	2	4	3	2	3	3	3	3	2	2	2
2015	4	2	3	3	4	3	2	4	3	3	4	4	3	3	2	2	2
2016	4	3	3	3	4	3	2	4	3	3	4	4	4	3	2	2	2
2017	4	3	3	3	4	3	2	4	3	3	4	4	4	3	2	2	2

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2018	4	3	4	3	4	3	2	4	3	3	4	4	4	3	2	2	2
2019	4	3	4	3	4	3	2	5	3	3	4	4	4	3	2	2	2
2020	4	3	4	4	4	3	2	5	4	3	4	4	4	3	2	2	3
2021	5	3	4	4	4	3	2	5	4	3	4	4	4	4	2	2	3
2022	5	3	4	4	5	3	2	5	4	3	4	4	4	4	2	2	3
2023	5	3	4	4	5	4	2	5	4	3	4	4	4	4	2	2	3
2024	5	3	4	4	5	4	2	5	4	3	5	5	4	4	2	2	3
2025	5	3	4	4	5	4	2	5	4	4	5	5	4	4	2	2	3
2026	5	3	4	4	5	4	2	6	4	4	5	5	5	4	2	2	3
2027	5	3	4	4	5	4	2	6	4	4	5	5	5	4	2	2	3
2028	5	3	5	4	5	4	2	6	4	4	5	5	5	4	2	2	3
2029	6	4	5	4	6	4	2	6	5	4	5	5	5	4	2	2	3
2030	6	4	5	5	6	4	2	6	5	4	5	5	5	4	2	2	3
2031	6	4	5	5	6	4	3	6	5	4	5	5	5	5	2	2	3
2032	6	4	5	5	6	4	3	6	5	4	6	6	5	5	2	2	3
2033	6	4	5	5	6	4	3	6	5	4	6	6	5	5	2	2	3
2034	6	4	5	5	6	5	3	7	5	5	6	6	5	5	2	2	3
2035	6	4	5	5	6	5	3	7	5	5	6	6	6	5	2	2	3
2036	7	4	5	5	7	5	3	7	5	5	6	6	6	5	2	2	3
2037	7	4	5	5	7	5	3	7	5	5	6	6	6	5	2	2	3
2038	7	4	6	5	7	5	3	7	5	5	6	6	6	5	2	2	4
2039	7	4	6	5	7	5	3	7	6	5	6	6	6	5	2	2	4
2040	7	4	6	6	7	5	3	7	6	5	6	7	6	6	2	2	4
2041	7	4	6	6	7	5	3	8	6	5	7	7	6	6	2	3	4
2042	7	4	6	6	7	5	3	8	6	5	7	7	6	6	2	3	4
2043	7	5	6	6	7	5	3	8	6	5	7	7	6	6	2	3	4
2044	8	5	6	6	8	5	3	8	6	6	7	7	6	6	2	3	4
2045	8	5	6	6	8	6	3	8	6	6	7	7	7	6	2	3	4
2046	8	5	6	6	8	6	3	8	6	6	7	7	7	6	2	3	4
2047	8	5	7	6	8	6	3	8	6	6	7	7	7	6	2	3	4
2048	8	5	7	6	8	6	3	9	7	6	7	8	7	6	2	3	4
2049	8	5	7	7	8	6	3	9	7	6	7	8	7	6	2	3	4
2050	8	5	7	7	8	6	3	9	7	6	8	8	7	7	2	3	4
2051	9	5	7	7	9	6	3	9	7	6	8	8	7	7	2	3	4
2052	9	5	7	7	9	6	3	9	7	6	8	8	7	7	2	3	4
2053	9	5	7	7	9	6	3	9	7	6	8	8	7	7	2	3	4
2054	9	5	7	7	9	6	3	9	7	7	8	8	7	7	2	3	4
2055	9	5	7	7	9	6	3	10	7	7	8	8	8	7	2	3	4
2056	9	6	7	7	9	7	3	10	7	7	8	8	8	7	2	3	4
2057	9	6	8	7	9	7	4	10	7	7	8	9	8	7	3	3	5
2058	9	6	8	7	10	7	4	10	8	7	8	9	8	7	3	3	5
2059	10	6	8	8	10	7	4	10	8	7	9	9	8	8	3	3	5
2060	10	6	8	8	10	7	4	10	8	7	9	9	8	8	3	3	5
2061	10	6	8	8	10	7	4	10	8	7	9	9	8	8	3	3	5
2062	10	6	8	8	10	7	4	10	8	7	9	9	8	8	3	3	5
2063	10	6	8	8	10	7	4	11	8	8	9	9	8	8	3	3	5
2064	10	6	8	8	10	7	4	11	8	8	9	9	9	8	3	3	5
2065	10	6	8	8	11	7	4	11	8	8	9	10	9	8	3	3	5
2066	11	6	8	8	11	7	4	11	8	8	9	10	9	8	3	3	5
2067	11	6	9	8	11	7	4	11	8	8	9	10	9	8	3	3	5
2068	11	6	9	9	11	8	4	11	9	8	10	10	9	8	3	3	5
2069	11	7	9	9	11	8	4	11	9	8	10	10	9	9	3	3	5
2070	11	7	9	9	11	8	4	12	9	8	10	10	9	9	3	3	5
2071	11	7	9	9	11	8	4	12	9	8	10	10	9	9	3	4	5
2072	11	7	9	9	11	8	4	12	9	8	10	10	9	9	3	4	5
2073	11	7	9	9	12	8	4	12	9	9	10	11	9	9	3	4	5
2074	12	7	9	9	12	8	4	12	9	9	10	11	10	9	3	4	5
2075	12	7	9	9	12	8	4	12	9	9	10	11	10	9	3	4	5
2076	12	7	10	9	12	8	4	12	9	9	10	11	10	9	3	4	6
2077	12	7	10	9	12	8	4	13	10	9	11	11	10	9	3	4	6
2078	12	7	10	10	12	8	4	13	10	9	11	11	10	9	3	4	6
2079	12	7	10	10	12	9	4	13	10	9	11	11	10	10	3	4	6
2080	12	7	10	10	13	9	4	13	10	9	11	11	10	10	3	4	6
2081	13	7	10	10	13	9	4	13	10	9	11	12	10	10	3	4	6
2082	13	7	10	10	13	9	5	13	10	9	11	12	10	10	3	4	6
2083	13	8	10	10	13	9	5	13	10	10	11	12	11	10	3	4	6
2084	13	8	10	10	13	9	5	14	10	10	11	12	11	10	3	4	6
2085	13	8	10	10	13	9	5	14	10	10	11	12	11	10	3	4	6
2086	13	8	11	10	13	9	5	14	10	10	12	12	11	10	3	4	6
2087	13	8	11	10	14	9	5	14	11	10	12	12	11	10	3	4	6
2088	13	8	11	11	14	9	5	14	11	10	12	12	11	11	3	4	6
2089	14	8	11	11	14	9	5	14	11	10	12	13	11	11	3	4	6
2090	14	8	11	11	14	10	5	14	11	10	12	13	11	11	3	4	6
2091	14	8	11	11	14	10	5	14	11	10	12	13	11	11	3	4	6
2092	14	8	11	11	14	10	5	15	11	11	12	13	11	11	3	4	6
2093	14	8	11	11	14	10	5	15	11	11	12	13	12	11	3	4	6
2094	14	8	11	11	15	10	5	15	11	11	12	13	12	11	3	4	6
2095	14	8	12	11	15	10	5	15	11	11	13	13	12	11	3	4	7
2096	15	9	12	11	15	10	5	15	11	11	13	13	12	11	3	4	7
2097	15	9	12	12	15	10	5	15	12	11	13	13	12	11	3	4	7
2098	15	9	12	12	15	10	5	15	12	11	13	14	12	12	3	4	7

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2099		15	9	12	12	15	10	5	16	12	11	13	14	12	12	3	4	7

Overlay vs. Split Determination																		
Count of Overlay Areas	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count of Either	50	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1
Count of Overlay or Either	67	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1
Count of Split NPA Areas	139																	
Total NPA Areas	**206**																	

Specific NPA Relief Calculator	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Either 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Either 15	Either 16	Either 17
1998 Starting Point	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1999	1	1	1	1	1	1	1	2	1	1	2	1	2	1	1	1	1
2000	1	1	1	1	1	1	1	2	1	1	2	1	2	1	1	1	1
2001	2	1	2	1	2	2	1	2	2	1	2	2	2	1	1	1	1
2002	2	2	2	2	2	2	1	2	2	1	2	2	2	2	1	1	2
2003	2	2	2	2	2	2	1	2	2	1	2	2	2	2	1	1	2
2004	2	2	2	2	2	2	1	4	2	1	2	2	2	2	1	1	2
2005	2	2	2	2	2	2	1	4	2	2	4	2	2	2	1	1	2
2006	4	2	2	2	2	2	2	4	2	2	4	2	4	2	1	1	2
2007	4	2	2	2	4	2	2	4	2	2	4	4	4	2	1	1	2
2008	4	2	4	2	4	2	2	4	2	2	4	4	4	2	1	1	2
2009	4	2	4	2	4	2	2	4	4	2	4	4	4	2	1	1	2
2010	4	2	4	4	4	2	2	4	4	2	4	4	4	2	1	1	2
2011	4	2	4	4	4	4	2	4	4	2	4	4	4	4	1	2	2
2012	4	2	4	4	4	4	2	4	4	2	4	4	4	4	2	2	2
2013	4	2	4	4	4	4	2	4	4	2	4	4	4	4	2	2	2
2014	4	2	4	4	4	4	2	4	4	2	4	4	4	4	2	2	2
2015	4	2	4	4	4	4	2	4	4	4	4	4	4	4	2	2	2
2016	4	4	4	4	4	4	2	4	4	4	4	4	4	4	2	2	2
2017	4	4	4	4	4	4	2	4	4	4	4	4	4	4	2	2	2
2018	4	4	4	4	4	4	2	4	4	4	4	4	4	4	2	2	2
2019	4	4	4	4	4	4	2	8	4	4	4	4	4	4	2	2	2
2020	4	4	4	4	4	4	2	8	4	4	4	4	4	4	2	2	3
2021	8	4	4	4	4	4	2	8	4	4	4	4	4	4	2	2	3
2022	8	4	4	4	8	4	2	8	4	4	4	4	4	4	2	2	3
2023	8	4	4	4	8	4	2	8	4	4	4	4	4	4	2	2	3
2024	8	4	4	4	8	4	2	8	4	4	8	8	4	4	2	2	3
2025	8	4	4	4	8	4	2	8	4	4	8	8	4	4	2	2	3
2026	8	4	4	4	8	4	2	8	4	4	8	8	8	4	2	2	3
2027	8	4	4	4	8	4	2	8	4	4	8	8	8	4	2	2	3
2028	8	4	8	4	8	4	2	8	4	4	8	8	8	4	2	2	3
2029	8	4	8	4	8	4	2	8	8	4	8	8	8	4	2	2	3
2030	8	4	8	8	8	4	2	8	8	4	8	8	8	4	2	2	3
2031	8	4	8	8	8	4	3	8	8	4	8	8	8	8	2	2	3
2032	8	4	8	8	8	4	3	8	8	4	8	8	8	8	2	2	3
2033	8	4	8	8	8	4	3	8	8	4	8	8	8	8	2	2	3
2034	8	4	8	8	8	8	3	8	8	8	8	8	8	8	2	2	3
2035	8	4	8	8	8	8	3	8	8	8	8	8	8	8	2	2	3
2036	8	4	8	8	8	8	3	8	8	8	8	8	8	8	2	2	3
2037	8	4	8	8	8	8	3	8	8	8	8	8	8	8	2	2	3
2038	8	4	8	8	8	8	3	8	8	8	8	8	8	8	2	2	4
2039	8	4	8	8	8	8	3	8	8	8	8	8	8	8	2	2	4
2040	8	4	8	8	8	8	3	8	8	8	8	8	8	8	2	2	4
2041	8	4	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2042	8	4	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2043	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2044	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2045	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2046	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2047	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2048	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2049	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2050	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2051	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2052	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2053	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2054	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2055	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2056	8	8	8	8	8	8	3	8	8	8	8	8	8	8	2	3	4
2057	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2058	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2059	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2060	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2061	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2062	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2063	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2064	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2065	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5

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2066	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2067	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2068	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2069	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2070	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	3	5
2071	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	5
2072	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	5
2073	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	5
2074	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	5
2075	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	5
2076	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	6
2077	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	6
2078	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	6
2079	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	6
2080	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	6
2081	8	8	8	8	8	8	4	8	8	8	8	8	8	8	3	4	6
2082	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2083	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2084	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2085	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2086	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2087	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2088	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2089	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2090	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2091	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2092	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2093	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2094	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	6
2095	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	7
2096	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	7
2097	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	7
2098	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	7
2099	8	8	8	8	8	8	5	8	8	8	8	8	8	8	3	4	7

NANP Exhaust

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Area Codes Required															
Area Codes Required	206	231	269	322	381	414	457	503	549	574	602	637	653	704	737
Incremental U.S. Area Codes		25	38	53	59	33	43	46	46	25	28	35	16	51	33
Total Area Codes for US Geographic	616	614	612	610	608	606	604	602	600	598	596	594	592	590	588
Remaining Area Codes	*410*	*383*	*343*	*288*	*227*	*192*	*147*	*99*	*51*	*24*	*(6)*	*(43)*	*(61)*	*(114)*	*(149)*
NANP Exhaust by CO Codes	Oct-2008	-	-	-	-	-	-	-	-	########	-	-	-	-	

NANP Resource Report and 1KB Pooling Model Summary

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1KB Pooling Scenario

1KB Pool Scenario *No Pooling*

1KB Pooling Initiation

1KB Pool Assumptions	Year Pooling Initiated	1KB Footprint Donation Rate
CMRS	NA	0
Paging	NA	0
CLEC	NA	0
ILEC	NA	0

Note: Year pooling initiated can be 2000, 2001, 2002, 2003 or NA (not pooling)

Note: Number of 1K Blocks donated from Equivalent CO Codes for Footprint that were assigned to an industry segment in the year prior to pooling (7 KBs donated is default, 0 indicates no donation)

1KB Pooling Reclamation

1KB Pool Creation	Donated 1K Blocks	2000	2001	2002	2003
CMRS	-	0	0	0	0
Paging	-	0	0	0	0
CLEC	-	0	0	0	0
ILEC	-	0	0	0	0
Total 1KB Pool Available	-	-	-	-	-

1KB Pooling Utilization Efficiency Assumption

1KB Pooling Utilization Rate	CO Code Inventory Rate by TN Growth	1KB Assignment Rate	1KBs Consumed per Equivalent CO Codes for TNs
CMRS	80%	80%	10
Paging	80%	80%	10
CLEC	100%	100%	10
ILEC	70%	70%	10

1KB Inventory Factor

1KB Inventory Calculator	
Rate Centers in Study Area	19240
Minimum 1KBs in Reserve per Rate Center	5
Total 1KBs in Inventory	96,200

NPA Demand Indicators

International/Service Growth NPAs	
International NPAs Required per Year	2

Key NPA Demand Indicators	
New NPAs Required 1999 to 2005	297
NANP Exhaust	Oct-2008
Average CO Code Assignment Rate to 2010	10.9%

NANP Resource Report and 1KB Pooling Model Summary

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1KB Pooling Scenario

1KB Pool Scenario *All Segments Pooling w/ Donation*

1KB Pooling Initiation

1KB Pool Assumptions	Year Pooling Initiated	1KB Footprint Donation Rate
CMRS	2000	7
Paging	2000	7
CLEC	2000	7
ILEC	2000	7

Note: Year pooling initiated can be 2000, 2001, 2002, 2003 or NA (not pooling)

Note: Number of 1K Blocks donated from Equivalent CO Codes for Footprint that were assigned to an industry segment in the year prior to pooling (7 KBs donated is default, 0 indicates no donation)

1KB Pooling Reclamation

1KB Pool Creation	Donated 1K Blocks	2000	2001	2002	2003
CMRS	86,860	86860	0	0	0
Paging	43,249	43249	0	0	0
CLEC	217,049	217049	0	0	0
ILEC	200,508	200508	0	0	0
Total 1KB Pool Available	*547,666*	*547,666*	-	-	-

1KB Pooling Utilization Efficiency Assumption

1KB Pooling Utilization Rate	CO Code Inventory Rate by TN Growth	1KB Assignment Rate	1KBs Consumed per Equivalent CO Codes for TNs
CMRS	80%	80%	10
Paging	80%	80%	10
CLEC	100%	100%	10
ILEC	70%	70%	10

1KB Inventory Factor

1KB Inventory Calculator	
Rate Centers in Study Area	19240
Minimum 1KBs in Reserve per Rate Center	5
Total 1KBs in Inventory	**96,200**

NPA Demand Indicators

International/Service Growth NPAs	
International NPAs Required per Year	0.5

Key NPA Demand Indicators	
New NPAs Required 1999 to 2005	47
NANP Exhaust	Dec-2094
Average CO Code Assignment Rate to 2010	3.0%

NANP Resource Report and 1KB Pooling Model Summary

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1KB Pooling Scenario

1KB Pool Scenario *All Segments Pooling without Donation*

1KB Pooling Initiation

1KB Pool Assumptions	Year Pooling Initiated	1KB Footprint Donation Rate
CMRS	2000	0
Paging	2000	0
CLEC	2000	0
ILEC	2000	0

Note: Year pooling initiated can be 2000, 2001, 2002, 2003 or NA (not pooling)

Note: Number of 1K Blocks donated from Equivalent CO Codes for Footprint that were assigned to an industry segment in the year prior to pooling (7 KBs donated is default, 0 indicates no donation)

1KB Pooling Donation

1KB Pool Creation	Donated 1K Blocks	2000	2001	2002	2003
CMRS	-	0	0	0	0
Paging	-	0	0	0	0
CLEC	-	0	0	0	0
ILEC	-	0	0	0	0
Total 1KB Pool Available	-	-	-	-	-

1KB Pooling Utilization Efficiency Assumption

1KB Pooling Utilization Rate	CO Code Inventory Rate by TN Growth	1KB Assignment Rate	1KBs Consumed per Equivalent CO Codes for TNs
CMRS	80%	80%	10
Paging	80%	80%	10
CLEC	100%	100%	10
ILEC	70%	70%	10

1KB Inventory Factor

1KB Inventory Calculator	
Rate Centers in Study Area	19240
Minimum 1KBs in Reserve per Rate Center	5
Total 1KBs in Inventory	**96,200**

NPA Demand Indicators

International/Service Growth NPAs	
International NPAs Required per Year	0.5

Key NPA Demand Indicators	
New NPAs Required 1999 to 2005	116
NANP Exhaust	Sep-2058
Average CO Code Assignment Rate to 2010	5.9%

NANP Resource Report and 1KB Pooling Model Summary

Copyright 1999: Lockheed Martin CIS | *CLEC, ILEC, CMRS (No Paging) Pooling with Donation* | PRESS F9 to Calculate

1KB Pooling Scenario

1KB Pool Scenario *CLEC, ILEC, CMRS (No Paging) Pooling with Donation*

1KB Pooling Initiation

1KB Pool Assumptions	Year Pooling Initiated	1KB Footprint Donation Rate
CMRS	2000	7
Paging	NA	0
CLEC	2000	7
ILEC	2000	7

Note: Year pooling initiated can be 2000, 2001, 2002, 2003 or NA (not pooling)

Note: Number of 1K Blocks donated from Equivalent CO Codes for Footprint that were assigned to an industry segment in the year prior to pooling (7 KBs donated is default, 0 indicates no donation)

1KB Pooling Donation

1KB Pool Creation	Donated 1K Blocks	2000	2001	2002	2003
CMRS	86,860	86860	0	0	0
Paging	-	0	0	0	0
CLEC	217,049	217049	0	0	0
ILEC	200,508	200508	0	0	0
Total 1KB Pool Available	*504,417*	*504,417*	-	-	-

1KB Pooling Utilization Efficiency Assumption

1KB Pooling Utilization Rate	CO Code Inventory Rate by TN Growth	1KB Assignment Rate	1KBs Consumed per Equivalent CO Codes for TNs
CMRS	80%	80%	10
Paging	80%	80%	10
CLEC	100%	100%	10
ILEC	70%	70%	10

1KB Inventory Factor

1KB Inventory Calculator	
Rate Centers in Study Area	19240
Minimum 1KBs in Reserve per Rate Center	5
Total 1KBs in Inventory	**96,200**

NPA Demand Indicators

International/Service Growth NPAs	
International NPAs Required per Year	0.5

Key NPA Demand Indicators	
New NPAs Required 1999 to 2005	71
NANP Exhaust	Aug-2048
Average CO Code Assignment Rate to 2010	4.0%

GLOSSARY

CIC – Carrier Identification Code

CLEC – Competitive Local Exchange Carriers

CMRS – Competitive Mobile Radio Service Providers

CO Code – Serves two purposes; provide working telephone numbers (WTNs), or as a network address for billing and routing purposes

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

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

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.

ERC – Easily recognizable codes

Footprint – For the purpose of this study, "footprint" serves as a term for CO codes used as a network address for billing and routing purposes

GRC – Geographic Relief Codes

GPC – General Purpose Codes

ILEC – Incumbent Local Exchange Carriers

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

LERG – Local Exchange Routing Guide

Mandatory Dialing Date – The date where permissive dialing ends and the new NPA must be dialed to complete the call.

NANC – North American Numbering Council

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

NANPA – North American Numbering Plan Administration. 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.

NECA – National Exchange Carrier Association

New Entrant Pipeline – Defines the rate of entry of new service providers

NPA – Numbering Plan Area, also called an area code. An NPA is the three digit code that occupies the A, B and C positions in the ten digit NANP format that applies throughout the areas served by the NANP. 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 either geographic or non-geographic.

A. **Geographic NPAs** are NPAs which correspond to discrete geographic areas served by the NANP.

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

NPA Code Relief – NPA code relief refers to an activity that must be performed when an NPA nears exhaust of its 792 NXX capacity. Relief is typically provided to an NPA about a year before its capacity is reached. Providing code relief to such an NPA normally takes the form of assigning a new NPA for an NPA split or overlay. Another option is changing the boundary of the existing NPA.

NPA Relief Coordinator – The organization responsible for the overall coordination of the NPA relief activity.

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

Permissive Dialing Period – The time frame beginning with the introduction of the new NPA whereby both the old and new NPA can be dialed. The beginning of permissive dialing is coincident with the relief date and ends with the mandatory dialing date. The year an NPA goes into service.

Rate Center Coverage – Defined in this study as at least one member of an industry segment held a code in the rate center.

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

Service Providers (SPs) – Any entity that is authorized, as appropriate, by local governmental, state, federal or governmental authorities covering areas served by the NANP to provide communications services to the public.

(WTNs) –The quantity of telephone numbers within existing CO codes. WTNs are defined for this study as telephone numbers that are either, assigned to end users or assigned for administrative purposes within telecommunications networks

Telephone Numbers (TNs) – (NXX-XXXX) 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