**North American Numbering Council**

Numbering Oversight Working Group

January 25, 2012

Honorable Betty Ann Kane

NANC Chairman

1333 H Street, N.W., West Tower 7th Floor

Washington, DC 20005

# RE: NOWG action item response for NANC distribution

Dear Madam Chair,

The Numbering Oversight Working Group (NOWG) provides the following information in response to an action item assigned to the NOWG at the December 15, 2011 NANC meeting. At the meeting, a document, State Commission Staff Numbering Concerns Related to the Federal Communications Commission’s Universal Service-Intercarrier Compensation Order and FNPRM, was presented to the NANC, expressing concern about potential expanded use of numbering resources:

If the current [point of interconnection (POI)] standards were to change, and multiple POIs in each LATA were eventually required to accommodate ICC issues, it would exacerbate the existing inefficiencies of the current numbering system, dramatically impacting the rate of area code exhaust across the country and accelerating the anticipated exhaust of the North American Numbering Plan (NANP).[[1]](#footnote-1)

The state commission staff requested that NANC direct the North American Numbering Plan Administrator (NANPA) to “review the USF-ICC Transformation Order and FNPRM documents and report back all potential effects this order will have on the NANP, including any changes to the anticipated exhaust date.” The NANC directed the NOWG to work with the NANPA to provide a response to this request by February 1, 2012. Due to the broad nature of the request, the NANPA sought clarification on its scope. On January 5, 2012, Cary Hinton, Policy Advisor to NANC Chairman Kane, clarified via email the scope of the action item by narrowing the NOWG’s and NANPA’s review to the impacts of Section N of the USF/ICC Reform Order (pages 452-457, paragraphs 1315-1325) on numbering resources.

The NOWG held conference calls with the NANPA to discuss possible impacts of the issues raised by the Federal Communications Commission (“FCC”) in section N. As part of these discussions, the NOWG requested NANPA supply the attached NANP Exhaust Analysis, which explainsthe basis and assumptions upon which the anticipated exhaust date of the NANP is calculated. As NANPA notes, analysis of the anticipated NANP exhaust is sensitive to the yearly central office (CO) code demand rate, and a modification to any of the underlying assumptions of the analysis could change the anticipated exhaust date in any sensitivity analysis.

Due to the uncertain nature of the issues raised in Section N, the NOWG believes that presuming any modification to these assumptions would be premature and highly speculative at this time. Section N contains a number of undefined parameters and raises issues about interconnection arrangements, the impact of which is unknown. For example, the FCC seeks comment on whether new or revised rules for POIs may be necessary to implement recently adopted intercarrier compensation rules. Additionally, the FCC seeks comment on the definition of the network edge for purposes of exchanging traffic. The NOWG does not believe that further in-depth analysis by NANC or NANPA would be appropriate while these issues remain open. Moreover, due to the requirement for NANPA to remain neutral regarding policy issues pending before the FCC, requesting NANPA to speculate on these policies or possible outcomes would be inappropriate.

Once the FCC resolves these issues, further in-depth impact analysis would be possible; however, the NOWG believes NANPA would need additional guidance from NANC regarding other relevant issues. For instance, the analysis may be impacted by factors such as: (1) the location of service providers’ existing POIs; (2) the ability of service providers to utilize existing numbering resources to fulfill any potential need for additional location routing numbers (LRNs); (3) service providers’ needs for additional numbering resources based on expansion plans into new and/or existing markets; (4) adjustments to traffic routing patterns of service providers; (5) expansion of next generation networks (NGN). Industry guidance would preclude any expectation for NANPA to independently modify the underlying assumptions for the anticipated exhaust calculation and would lead to a more meaningful analysis.

Please feel free to contact any one of the NOWG co-chairs shown below if you have any questions or require additional information.

Thank you,

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Attachment: NANPA Exhaust Analysis

**NANP Exhaust Analysis**

The North American Numbering Plan Administrator (NANPA) projects the exhaust of the North American Numbering Plan (NANP) on a semi-annual basis. Using utilization and forecast data submitted by service providers via the Numbering Resource Utilization and Forecast (NRUF) process, combined with a set of assumptions that have been reviewed and approved by the North American Numbering Council (NANC), NANPA publishes the NANP exhaust projection at the end of April and October of each year. The results of the analysis are shared with the NANC and the FCC, included in the NANPA Annual Report and posted on the NANPA website.

The assumptions used for this analysis have remained the same for the past ten years. These assumptions are as follows:

1. The NANP exhaust study uses as its basis the CO code demand, which includes service provider and Pooling Administrator forecasts, historical CO code assignments and other NPA-specific information, calculated for each respective NPA. The monthly CO code demand as calculated in the NPA exhaust analysis is straight-lined to determine demand outside the five-year time frame included in NRUF submissions.
2. For NPAs in rationing, NANPA compared the actual CO code demand over the past year(s) with the rationed amount. In addition, NANPA compared the forecasted CO code demand provided by service providers and/or the Pooling Administrator to the rationed amount. Based upon this analysis, NANPA identified an average annual CO code demand rate for the NPA.
3. A new NPA will be required when the number of assigned and unavailable CO codes reaches 800.
4. It is assumed that each new NPA will require the same number of unassignable codes as the current NPA. It appears that most of the unassignable codes in the existing NPAs are duplicated in the new NPA. There are also times when additional codes in the new NPA are marked unassignable.
5. No assumptions were made with regard to the relief method implemented (i.e., NPA split vs. overlay). However, it was assumed that the selected relief method did not require the duplication or protection of central office codes above those identified in number 4 above.
6. The CO code demand for an exhausting NPA will be continued after relief. By doing so, the demand for both the existing and new NPAs will be taken into account for the geographic area covered by the original NPA.
7. The total quantity of available NPA codes will be 669 NPAs. This figure is derived as follows: 800 NPAs less NPAs reserved for NANP expansion (80), N11 codes (8), 555 and 950 NPAs (2), toll-free NPAs (9)[[2]](#footnote-2) and non-geographic NPAs (32)[[3]](#footnote-3).
8. To account for the variability of demand, a sensitivity analysis was performed to the CO code demand (i.e., demand will be increased and decreased by increments of 10%) to understand the impact on NANP exhaust.

The exhaust analysis is sensitive to the yearly central office (CO) code demand rate. In the October 2011 analysis, the average yearly demand rate was 5,000 CO codes. This yearly demand rate was compared with U.S. demand rates from 2004 through 2010. The average annual demand rate in the U.S. over this time period was approximately 3,000 CO codes. The annual net CO code demand, which accounts for returned codes, equated to approximately 2,400 CO codes per year.

In 2011, nearly 2,900 codes were assigned in U.S NPAs. Net annual demand was approximately 2,300 codes. Both of these figures track very closely with the average rate calculated over the past seven years. Further, in examining Canadian NPAs, the average annual demand from 2004 through 2010 was 800 CO codes, with annual net demand of 750 codes. Combining U.S and Canadian assignment data, the average demand ranges from 3,000 to 3,800 codes per year.

Using an average CO code demand rate of 5,000 codes assigned per year, the October 2011 analysis projected NANP exhaust time frame beyond 2041, assuming the quantity of NPAs available remained 669. A sensitivity analysis was performed that increased in the average annual CO code demand to 5,500 CO codes, which represented a 10% increase in demand. This resulted in a projected exhaust beyond 2041.

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As stated above, the NANP exhaust analysis is sensitive to CO code demand. As such, varying the annual CO code demand has a direct impact on projected NANP exhaust. Using a simple model based upon the number of NPAs available for assignment, an interested party can input an average annual CO code demand to calculate the potential impact on the exhaust of the NANP.

The October 2011 NANP exhaust analysis was based upon 669 available NPAs (Assumption #7). Subtracting the total number of NPAs in-service as of 1/1/12, approximately 300 NPAs remain available for assignment and could be used for relief of existing geographic area codes. Assuming each NPA averages 770 codes available for assignment[[4]](#footnote-4), NANP exhaust can be calculated by multiplying the quantity of available CO codes per NPA by the number of NPAs available for assignment and dividing by the average annual CO code demand.

Using the October 2011 analysis as an example, the calculation would result in the following:

300 NPAs x 770 CO codes = 231,000 total CO codes divided by 5,000 avg. annual demand = 46 years to exhaust

It is recognized that the above calculation is limited in terms of reflecting the unique circumstances of individual geographic area codes. For example, an NPA is assigned to a geographic area and thus the CO codes within the area code are only available for assignment within that specific area. Further, a CO code must also be associated with a rate center within the NPA. Understanding these limitations, the above calculation is intended to provide an approximation in terms of NANP exhaust and permit a simple variation on the average annual code demand to see the impact on exhaust. Readers may modify the demand based on their own projections and assumptions.

1. State Commission Staff Numbering Concerns Related to the Federal Communications Commission’s Universal Service-Intercarrier Compensation Order and FNPRM, dated December 12, 2011. [↑](#footnote-ref-1)
2. NPAs 880, 881, 882, 883, 884, 885, 886, 887 and 889. [↑](#footnote-ref-2)
3. These include the 26 codes reserved for future PCS expansion (522, 566, 577, 588, 521, 523, 524, 525, 526, 527, 528, 529, 532, 538, 542, 543, 545, 547, 549, 552, 553, 554, 556, 569, 578 and 589) and 6 of the codes reserved for Canada (622, 633, 644, 655, 677 and 688). [↑](#footnote-ref-3)
4. The average quantity of unavailable codes per U.S. geographic NPA is approximately 26 codes. [↑](#footnote-ref-4)