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National Pooling and P-ANI Administration

2016 ANNUAL REPORT

March 31, 2017

Ms. Kadian Ferguson
Contracting Officer
Enterprise Acquisition Center (EAC)
Office of the Managing Director
445 12th Street, SW, TW-A626
Washington, DC 20554

RE: 2016 Annual Report for FCC Contract No. FCC13C0007

Dear Ms. Ferguson:

Attached please find the *Thousands-Block Pooling Administration 2016 Annual Report,* submitted pursuant to Contract Data Requirements List referenced in Section 4.6.1 of the *Contract for Pooling Administration Services for the Federal Communications Commission*, FCC Contract No. FCC13C0007 (Contract). This report covers Pooling Administration (PA) and P-ANI Administration activities from January 1, 2016 through December 31, 2016, and is required by Attachment A of the Contract. Section 4, *Contract Data Requirements List*, specifically Section 4.6.1, *Annual*, directs that this report contain:

- A brief description of the PA and P-ANI Administrator,
- Highlights/significant milestones reached during previous year,
- Identification of existing and potential pooling areas,
- Aggregated total number by pool of the service providers participating in the pooled areas,
- Forecast results, as well as a review of past forecasts vs. actual block activation,
- System and performance metrics,
- The status of required transferable property,
- Industry issue identification/feedback
- The volume of reports produced aggregated by regulatory agency, NANC, NANPA, and service providers, and
- Additional informational offerings.

In 2016 we successfully and with minimal disruption to customers completed the migration of both the Pooling Administration (PA) and Routing Number Administration (RNA) systems to the Amazon Web Services (AWS) cloud platform. Since the move to AWS we have had only 8 minutes of unscheduled down time for PAS and 15 minutes for RNAS, which is a significant decrease from 2015. In addition, we have facilitated the implementation of the *Numbering Policies for Modern Communications, IP-Enabled Services, Telephone Number Requirements for IP-Enabled, Services Providers, Telephone Number Portability et al*. Report and Order, FCC No. 15-70, (VoIP order) and processed over 5,000 Part 3s for authorized VoIP service providers. We processed 123,629 Part 3s and continued to meet or exceed all performance metrics. We continued to maintain strict reporting compliance, and completed several special projects not required by our contract. We also had no formal complaints. Our extraordinary level of contract compliance and unwavering focus on customer support adds up to another exceptional year.

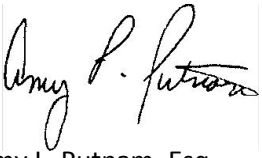
The PA met or exceeded all of its performance goals and objectives in 2016. The goals, most of which are outlined in the contract, include:

- System availability of 99.9% or better;
- 100% of received calls answered within one business day;
- 99% of pooling applications processed within seven calendar days;
- 99% of p-ANI applications processed within five business days;
- Unscheduled maintenance of the PAS and RNAS to be less than 9 hours in any 12 month period;
- Scheduled maintenance of the PAS and RNAS to be less than 24 hours in any 12 month period;
- 100% of the ad hoc report requests to be distributed within three business days;
- All required reports completed per Section 5.0;
- Strong customer focus;
- No formal complaints.

We continued to accurately and efficiently manage thousands-block number pooling services in a neutral manner that not only meets our contractual obligations, but continues to justify the confidence that the FCC and industry have placed in us. Our team is proud of our 2016 accomplishments and will continue to work cooperatively and productively with you, service providers, industry groups, and regulatory staff throughout our contract as we have for more than 15 years.

Should you have any questions about this report, please do not hesitate to contact me.

Respectfully submitted,



Amy L. Putnam, Esq.
Sr. Director, Pooling Administration
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Marilyn Jones, Esq., FCC
Myrva Freeman, COTR, FCC
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Section 1 -Description of Neustar Pooling and P-ANI Administration

1.1 Background.

In 1997, the Illinois Commerce Commission selected Neustar, Inc. [then an autonomous business unit known as Communications Industry Services (CIS) within Lockheed Martin Corporation] to administer the trial of thousands-block number pooling in the Illinois 847 Numbering Plan Area (NPA). This trial, the first of its kind, was successfully implemented in June 1998 and was backed by the Federal Communications Commission (FCC) in its *Memorandum Opinion and Order and Order on Reconsideration, CC 96-98, FCC 98-224*, known as "the *Pennsylvania Order*." In the *Pennsylvania Order*, the FCC granted limited authority to continue the Illinois pooling trial and encouraged other states to seek delegated authority to implement pooling trials. Shortly thereafter, Neustar began administering the trial in New York's 212 NPA.

On November 30, 1999, NeuStar, Inc. (Neustar) was divested from Lockheed Martin as a separate, privately-held company. As more states requested and received delegated authority to implement thousands-block pooling trials, Neustar was chosen as administrator in all but six states where trials were ordered. By the beginning of national pooling, in March 2002, Neustar was managing twenty-two state pooling trials in eighty-three NPAs. We transitioned over five thousand blocks to our then-newly-designed Pooling Administration System (PAS).

Neustar competitively bid for and was awarded the first federal contract to administer the national rollout and ongoing administration of thousands-block pooling on June 15, 2001, for a total of five years, renewable annually. Contract number CON01000016 expired on June 14, 2006. By the end of that contract Neustar was managing nearly 14,000 rate area pools in all fifty states, the District of Columbia and Puerto Rico. The FCC issued eight contract modifications between June 15, 2006 and July 12, 2007 to extend Neustar's pooling administration contract through August 14, 2007.

Neustar again competitively bid for and was awarded the second national pooling contract on July 31, 2007, for a possible total of five years, with a base period of two years renewable annually for the remaining three. This second contract became effective on August 15, 2007, with the base period ending on August 14, 2009. The FCC issued six contract modifications between August 15, 2009 and June 13, 2013 to extend Neustar's pooling administration contract through July 14, 2013.

In June 2013, Neustar successfully bid for its third and current national pooling contract which was awarded on July 12. This contract is for a base period of one year that began on July 15, 2013 with three possible one year extensions, ending in July 2017. The one-year base period expired on July 14, 2014. The FCC exercised Option Year One on June 25, 2014 and it expired on July 14, 2015. In 2015, the FCC exercised Option Year 2 on June 3, 2015 and it expired on July

14, 2016. On June 8, 2016, the FCC exercised Option Year 3 and it will expire on July 14, 2017 to end the contract.

1.2 Neutrality

Neustar Pooling Administration (PA) is an independent, neutral third party, as defined in Section H.3.3, *Neutrality Requirements*, of the pooling contract. As such, the PA is responsible for the fair and efficient overall administration of pooled numbering resources. The PA is a non-governmental entity that is impartial and not aligned with any particular telecommunication industry segment, and complies with 47 C.F.R. § 52.12.

Neustar Neutrality Compliance Procedures require Neustar to conduct neutrality refresher training in the first quarter of each year. All Neustar Board members, designated contractors, and all employees, including pooling employees, must participate in a training session.

Neustar is subject to a number of neutrality audits that are performed on a quarterly and semi-annual basis. In connection with these audits, all of its employees, including its directors, its officers, and pooling employees, must, on a quarterly basis, review the neutrality requirements and sign a neutrality certification stating that they are familiar with the neutrality requirements and have not violated them. Failure to comply with applicable neutrality requirements could result in government fines, corrective measures, curtailment of contracts, or even contract revocation. PA compliance with the FCC's neutrality rules is ensured by the Neustar Neutrality Officer John Manning and the FCC.

The PA also participates in the quarterly neutrality audits conducted by Ernst & Young, as more fully discussed in Section 1.5.

1.3 Description of National Pooling Administration (PA)

The PA performs the day-to-day number resource assignment and administrative activities with a long-term focus, which includes maintaining a system to support all day-to-day and long-term pooling functions.

As such, the PA:

- Provides a standardized application of all administrative pooling guidelines,
- Develops tools and has implemented a system containing both hardware and software to facilitate the assignment, tracking, and data reporting requirements,
- Maintains interfaces with the NANPA, the NPAC, service providers, industry forums, (e.g., INC, CIGRR, etc.) and regulatory agencies, and
- Maintains and plans for adequate pool inventory numbering resources.

The PA also interacts with the NANPA and the NPAC vendor, while impartially administering thousands-block number pools by assigning, managing, forecasting, reporting, and processing data that allows service providers in rate centers designated for thousands-block number pooling to receive telephone numbers in blocks of 1,000. In addition, we maintain accurate rate center designations.

For further information on the PA requirements, see Attachment A of FCC Contract No. FCC13C0007.

1.4 Description of Routing Number Administration (RNA)

In addition to pooling administration, the PA was the Interim Routing Number Administrator (IRNA) from 2006 to March 18, 2012. By letter dated September 8, 2006, the FCC directed the PA to begin assigning Emergency Service Query Keys (ESQKs) under certain limited circumstances as the Interim Routing Number Administrator (IRNA). When the FCC awarded the new PA contract in August 2007, it included the provision that the new national PA would act as the permanent Pseudo-Automatic Number Identification (p-ANI) Administrator (a/k/a Routing Number Administrator or RNA) once the FCC determined the permanent process.

On June 17, 2011, the FCC approved Neustar's Change Order Proposal #19 addressing implementation of the permanent Routing Number Administrator (RNA) function and we assumed the responsibility as of March 19, 2012. As the RNA, we are responsible for managing and assigning non-dialable p-ANIs, which are used to support the routing of wireless and VoIP 9-1-1 calls. The p-ANIs are assigned out of the 211 NXX and 511 NXX on a national basis, as well as in Puerto Rico and the Virgin Islands.

Upon approval of the Change Order in 2011, the RNA established a nine-month transition period, during which the new Routing Number Administration System (RNAS) and website www.nationalpani.com were developed, tested, and implemented. During the transition period, the RNAS inventory was populated with non-dialable p-ANI assignment data received from the p-ANI assignors and p-ANI users. At the end of transition, assignment of non-dialable 211/511 p–ANIs in all states, the District of Columbia and Puerto Rico transitioned to Neustar as the permanent RNA with no other entity administering or self-assigning 211/511 non-dialable p-ANIs. The Virgin Islands were added to the RNAS on September 24, 2012. The RNA functions are included in the current Pooling Administration Services contract, FCC13C0007.

In compliance with the current contract, the RNA:

- Provides processes for a standardized application of all administrative p-ANI guidelines;
- Maintains a system containing both hardware and software to facilitate the assignment, tracking, and data reporting requirements; and,
- Maintains and plans for adequate p-ANI inventory.

For further information on the RNA requirements, see Change Order 19 on our website, www.nationalpooling.com, under Documents.

1.5 Neutrality Audits

In April 2011, the PA began participating in the quarterly neutrality audits conducted by Ernst & Young (E&Y). This audit ensures that the PA is not treating one service provider or group of service providers unfairly by delaying action on their applications.

After the end of each quarter, the PA provides to E&Y a list of all assignments (initial, growth, and CO Code) that occurred within the previous quarter, as well as a list of all assignments that had a Part 4 due within the previous quarter. The auditors review the data and select 25 random assignments and 25 entries from the reclamation list for further review. For those selected, the PA provides the following documentation:

Assignments:

- Initial - the Part 1A and the Part 3
- Growth – the Part 1A, MTE and the Part 3
- CO Code – the Part 1, Part 1A, PA MTE, SP MTE, PA suspended Part 3 and Part 3 with an assignment

Reclamation:

- Part 4 form, reminder notice and 2nd overdue notice if applicable.
- Reminder notice(s), if applicable, and Part 3 if the block was returned.

E&Y then examines the documentation to ensure that the PA:

- Adhered to the seven calendar day processing window for block and CO Code applications,
- Has proper documentation on file for the applications,
- Followed reclamation notice procedures, and
- Took effective corrective actions when necessary.

In 2016, auditors found no issues with PA processing of block or code applications or reclamation activities.

1.6 Neustar Pooling Administration Organization Chart

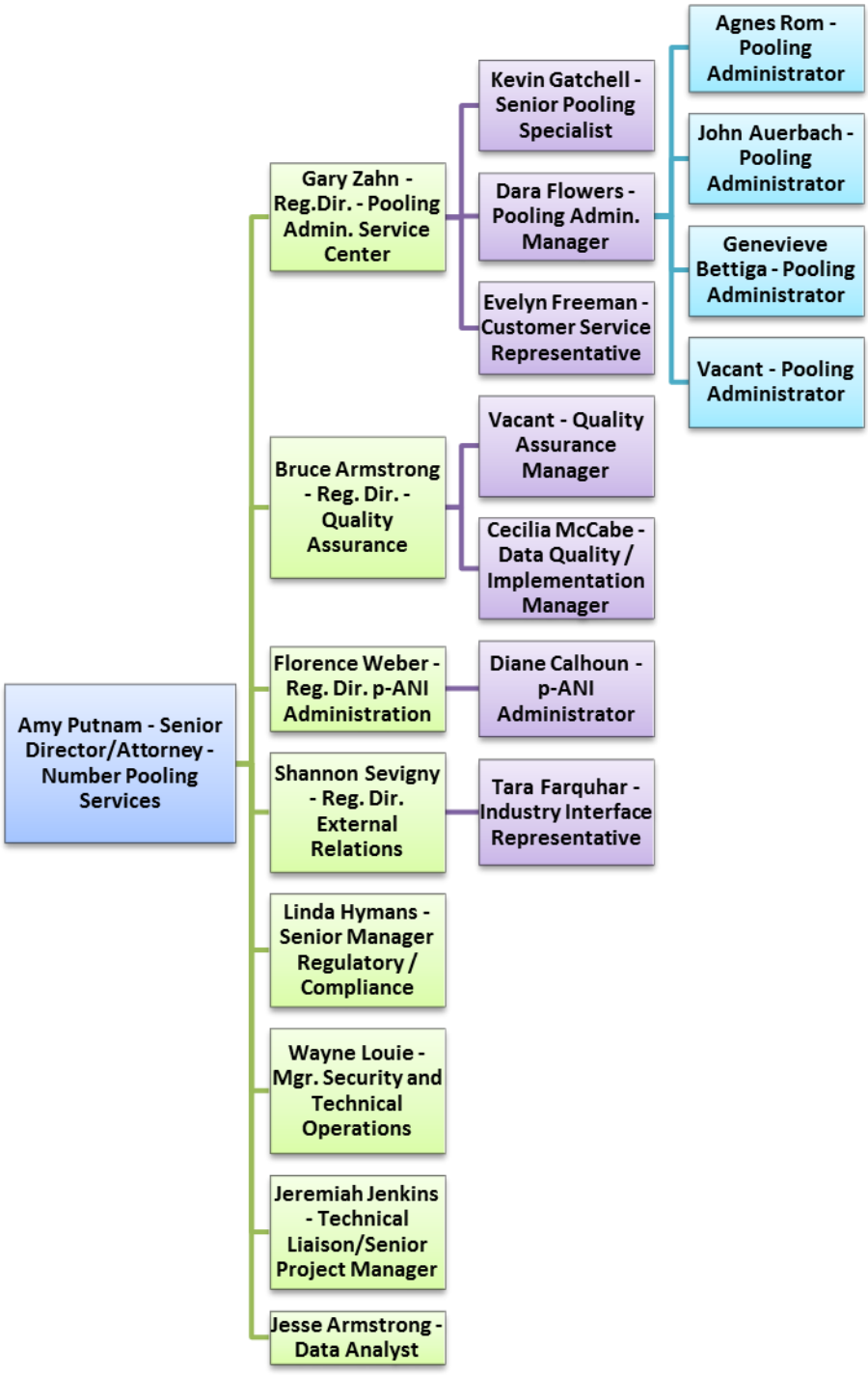

Figure 1: Neustar Pooling Administration Organization Chart

Section 2 - 2016 Neustar Pooling and P-ANI Administration Highlights and Significant Milestones

> "We would be lost w/o you."
>
> *2016 Customer Email Comment*

The following are Neustar Pooling Administration (PA) and P-ANI Administration (P-ANI) 2016 highlights and significant milestones:

- **Pooling Contract:**
  - On June 7, 2016, the FCC exercised its third one-year option period beginning July 15, 2016 and expiring July 14, 2017, which will end the current contract.

- **Pooling Administration Highlights for 2016:**

  - The PA staff processed:
    - 123,629 Part 3s.
      - This total is 15% lower than the 2015 previous record total of 145,828.
        - 99,199 approvals.
        - 18,806 suspensions.
        - 1,289 withdrawals.
        - 4,335 block or code request denials.
          - 384 were Red Light Rule denials.
      - 99.999% of those applications were processed within 7 calendar days.
    - 55,767 requests for new resources (containing both multiple block and code requests).
      - Assigned 45,978 blocks.
      - Opened 3,394 NXX codes.
    - 31,509 change requests.
    - 24,562 disconnect requests.
      - 11,628 actual block disconnects.
  - The PA staff was authorized to reclaim 4 blocks.
  - The PA staff answered and responded to 100% of the 1,973 received calls within 1 business day.
  - The Help Desk handled 875 calls.

- **Pooling Administration System (PAS):**

  - PAS was available for use 99.995% of the time, which exceeds the contract performance metric of 99.9%.

- We implemented the second half of Change Order #1 and migrated PAS to the Amazon Web Services (AWS) cloud platform on June 11 with only 4 hours 44 minutes of approved, scheduled down time.
- PAS was unavailable for only two instances of unscheduled down time for a total of 25 minutes.
- We conducted maintenance on PAS eight times and used none of the FCC-approved down time in conjunction with the maintenance activities.
- We submitted three new changes orders.
- We opened eight trouble tickets and closed 10.

- **Reporting:**

  - We produced a total of 676 reports for the FCC, states, the North American Numbering Council (NANC), North American Numbering Plan Administration (NANPA), service providers and others, of which 61 were *ad hoc* reports.
  - We produced all 61 requested *ad hoc* reports in less than one business day, although we are allowed up to three business days.
  - We submitted all 118 required Contract Data Requirements List (CDRL) reports on time and posted them to the website.
  - We submitted all 49 additional contract-required reports on time and posted them to the website.

- **Industry Support:**

  - We prepared for and implemented the FCC's Interconnected VoIP 15-70, *Order In the Matter of Numbering Policies for Modern Communications IP-Enabled Services Telephone Number Requirements or IP-Enabled Services Providers Telephone Number Portability Developing a Unified Intercarrier Compensation Regime Connect America Fund. (*VoIP order*)*
  - We participated in 90 industry meetings either in-person or by conference call.
  - We submitted 17 new issues and 19 new contributions at the Industry Numbering Committee (INC).
  - We provided 56 pooling status reports to the NANPA for its meetings.
  - We attended 20 NANPA meetings relating to NPA relief and jeopardy, providing an up-to-date pooling status for the affected NPAs.
  - We made 174 changes to rate center information, of which 60% changed the pooling status designation from Excluded to Optional.
  - The PA staff met monthly with the Numbering Oversight Working Group (NOWG) in 2016, providing updates on various PA activities and providing responses to questions. We also participated in the annual performance review and worked cooperatively with the NOWG to make suggested improvements while also meeting our contractual requirements.

- **Customer Focus:**
  - We continued sending Tips-of-the-Quarter.
  - We noted 164 significant PA and P-ANI customer focus items.
  - We had no formal complaints.
- **Training:**
  - We facilitated five state regulatory commission educational sessions on pooling issues.
  - The pooling training videos were accessed 216 times.
- **Special Projects:**
  - We completed an MSA-designations review project, which involved adding a new MSA to the top 100 MSAs, moving one out of the top 100 MSAs, and changing designations for three rate centers.
  - We continued the *Seeking Disconnects (formerly Donations) Project*.
  - We continued the Abandoned Codes/Blocks project.
  - JIT/ITN Testbed Proposal.
  - We completed an old overdue Part 4 project.
- **P-ANI Administration Highlights for 2016:**

  P-ANI Administration staff statistics:
  - 5,710 applications processed (Part 3s issued).
    - 100% of those applications processed on time.
  - 2,708 new P-ANI range assignments made.
  - 30 modifications made to existing P-ANI ranges.
  - 2,894 P-ANI range returns processed.
  - 8 requests to cancel P-ANI returns processed.
  - 11 requests denied.
  - 59 requests withdrawn.
  - 0 requests suspended.
- **Other P-ANI Activities in 2016:**
  - Worked with carriers to resolve data discrepancies.
  - Processed carriers' annual reports and semi-annual forecasts.

- Participated in the Emergency Services Interconnection Forum (ESIF).
- Completed and posted the P-ANI Activity and Projected Exhaust Report.
- Worked with carriers on supporting documentation issues.
- Continued publishing the P-ANI *Tip of the Quarter.*
- Developed and recorded nine instructional videos for which there were 46 views.

- **Routing Number Administration System (RNAS) information**:

  - RNAS was available for use 99.997% of the time, which exceeded the contract performance metric of 99.9%.
  - We implemented the first half of Change Order #1 and migrated RNAS to the Amazon Web Services (AWS) cloud platform on February 20 with only 55 minutes of approved, scheduled down time.
  - RNAS had only one instance of unscheduled down time, for 15 minutes.
  - We conducted maintenance on RNAS seven times and used none of the FCC-approved scheduled downtime.
  - RNAS had no trouble tickets opened.

Following is a synopsis of our major accomplishments during the 2016 reporting period. Details for these activities are found throughout the report.

2.1 Pooling Administration

2.1.1 Contract

The second year option period for Neustar's contract FCC13C0007 expired on July 14, 2016. In June 2016, the FCC exercised its third and final one-year option, for the period July 15, 2016 to July 14, 2017, which ends the contract.

2.1.2 Personnel

In July 2016, Quality Assurance Manager Jan Connally retired, and that position remains vacant. There were no other changes in PA personnel in 2016.

2.2 Pooling Administration

This section describes PA activity in 2016, including information about applications processed, blocks assigned, and NXX codes opened. Productivity statistics for the past five years can be found in Section 10, *Trends in Pooling Since 2012.*

2.2.1 Pooling Administration Productivity for 2016

In 2016, the PA continued its exceptional level of performance. Since national pooling began in 2002, the PA has processed over 100,000 Part 3s 11 times. Table 2-1 identifies areas of activity:

Table 2-1
2016 PA Productivity at a Glance

Activity	Total
Applications processed (Part 3s):	123,629
Applications not processed in 7 calendar days:	1
Blocks assigned:	55,767
Change requests to existing blocks or codes:	31,509
Disconnects processed (Part 3s):	11,628
Withdrawals:	1,289
Block or code requests denied:	4,335
Central office codes opened:	3,394
Red Light Rule denials:	384
Total blocks reclaimed:	3

Table 2-2 shows a breakdown of applications (Part 3s) by disposition type, including approvals, denials, suspensions, and withdrawals.

Table 2-2
Applications (Part 3s) Processed

Approvals	99,199
Denials	4,335
Suspensions	18,806
Withdrawals	1,289
TOTAL	**123,629**

Table 2-3 and Figure 2 contain the total number of applications processed by activity type.

Table 2-3
2016 Applications Processed by Type

	Approved	Denied	Suspended	Withdrawn	Total
Block Modifications	29,500	448	-	252	30,200
Block Disconnects	11,490	504	12,308	260	24,562
Block Cancel Disconnect	15	-	-	-	15
Individual Blocks	45,627	2,174	-	384	48,185
Block Reservations	44	21	-	1	66
Process/Cancel Block Reservations	44	2	-	-	46
Code Modifications	1,932	109	2,002	120	4,163
Code Disconnects	138	385	1,011	53	1,587
LRN Blocks	512	354	459	59	1,384
Dedicated Customer Blocks	1,700	57	164	6	1,927
Pool Replenishment Blocks	7,884	272	2,862	105	11,123
ISP Disconnects	42	-	-	-	42
ISP Modifications	77	-	-	10	87
ISP Blocks	194	9	-	39	242
Totals	**99,199**	**4,335**	**18,806**	**1,289**	**123,629**

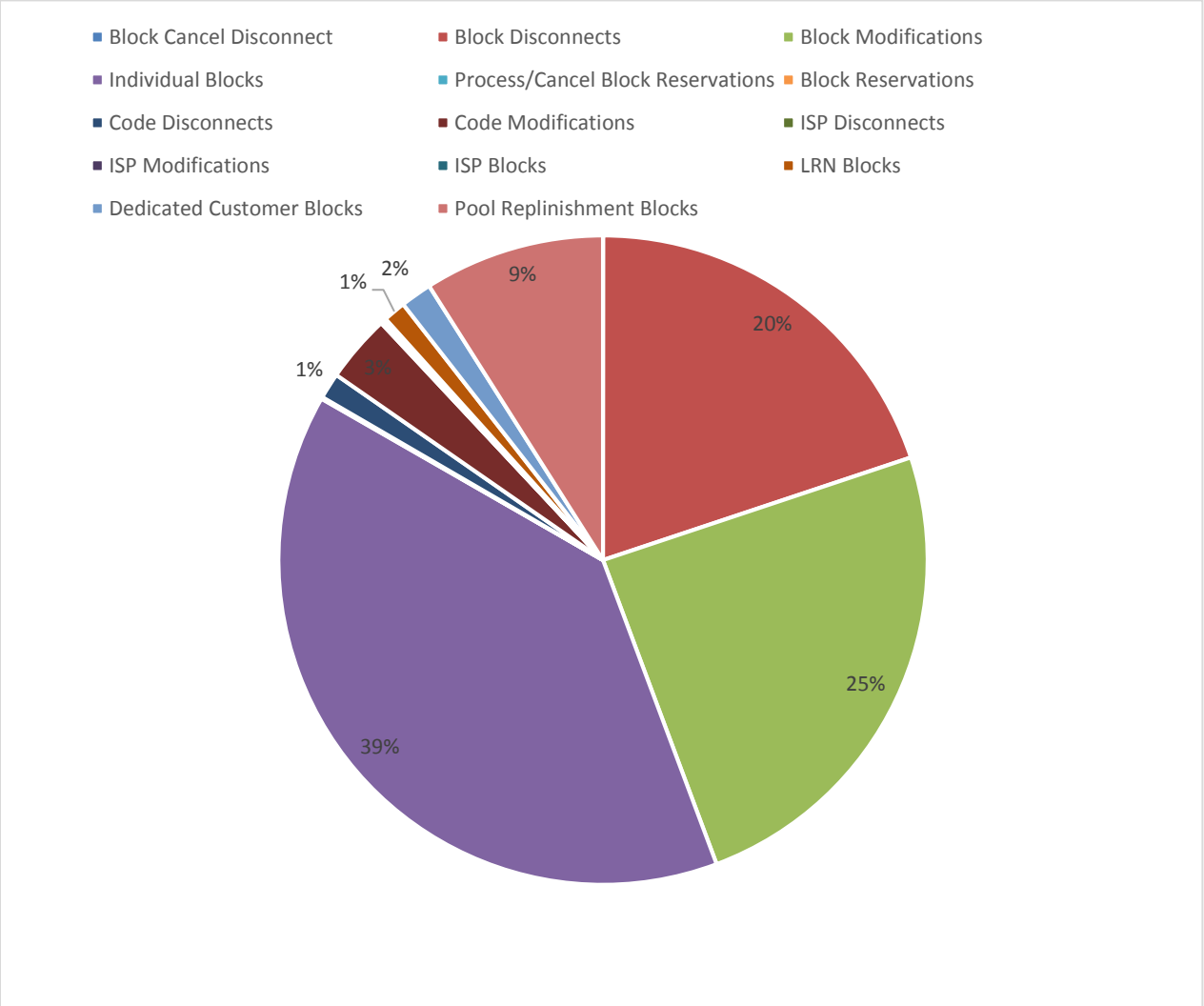

Figure 2: 2016 Pooling Applications by Type

Table 2-4 shows the number of NXX codes opened by the PA in 2016 and for what purpose.

Table 2-4
NXXs Opened by Purpose

Purpose	Total	Percent of Total
LRN	382	11%
Dedicated Customer	169	5%
Pool Replenishment	2,827	84%
TOTAL	3,378	100%

The PA also issued 11,726 Part 5s for block disconnects, reclamations, and exchanges during 2016, of which 11,628 were actual block disconnects.

The PA processed 99.999% of the 123,629 applications (Part 3s) within seven calendar days, missing only one. This exceeds the performance metric of 99%.

There were 540,560 assigned blocks in PAS at the end of 2016, as compared with 494,582 at the end of 2015, an increase of 45,978 assigned blocks -- a 9.3% increase in the number of assigned blocks in PAS at the end of 2016 as compared to 2015.

Figure 3 below shows the monthly cumulative number of assigned thousand-blocks in PAS for 2016.

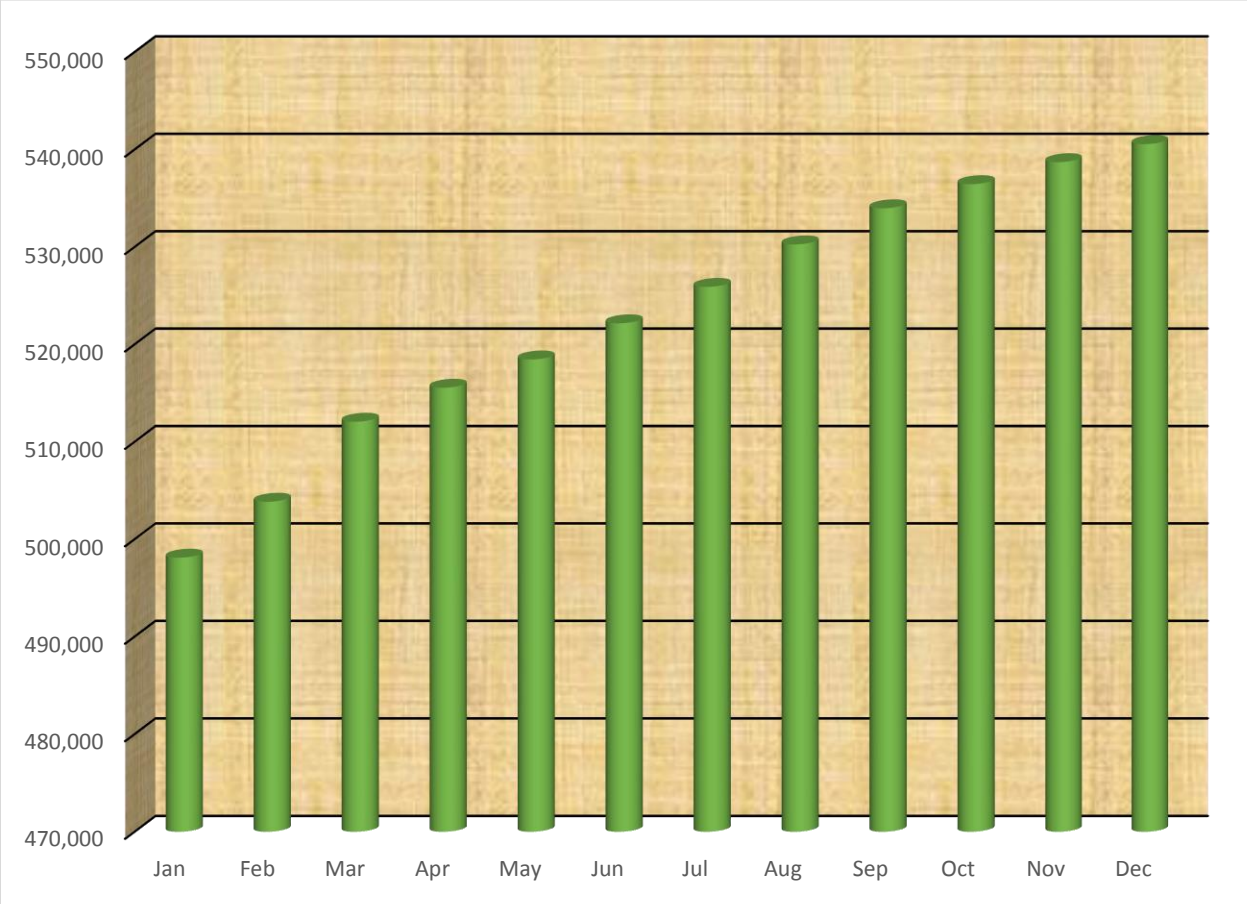

Figure 3: Monthly Cumulative Blocks Assigned in PAS in 2016

Figure 4 below depicts the monthly block assignments made by the PA during each month in 2016.

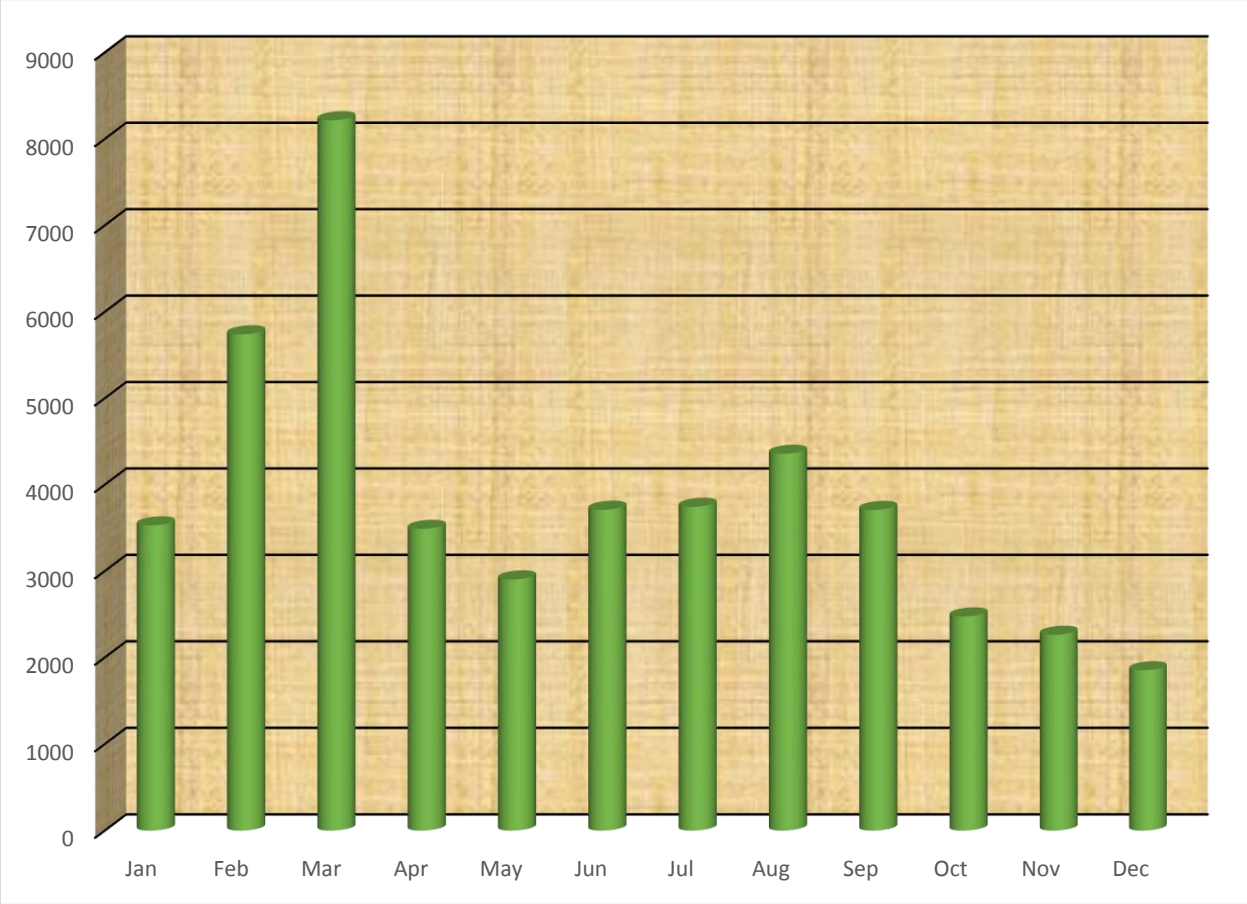

Figure 4: Blocks Assigned by the PA in Each Month in 2016

The total number of applications (Part 3s) processed is a measure of the actual processing work performed by the pooling administrators, because not every application results in the immediate assignment of a thousands-block. Although a large majority of applications for numbering resources are processed and approved immediately, some are suspended for future action, and some are denied or withdrawn entirely.

In addition to processing, as a routine part of their job performance, the PAs also:

- Respond to questions and requests for assistance from service providers,
- Review documentation to assure entitlement to initial requests,
- Interact with state commission staff about certification issues and answer questions about the pooling process,
- Assist service providers with questions relating to PAS,
- Walk new users through the pooling processes,
- Search for new block holders for blocks being returned with greater than 10% contamination,

- Search for new code holders for pooled codes being returned with blocks assigned,
- Search for new code holders for pooled codes and blocks that have been abandoned,
- Assist with answering Help Desk calls,
- Work closely with the NPAC Pooling Coordinators to ensure that block requests are handled in accordance with industry guidelines, and
- Work closely with the NANPA Code Administrators to ensure that NXX requests are handled in accordance with INC guidelines.

Figure 5 below provides a complete overview of all applications processed in PAS for 2016, including approvals, denials, withdrawals, and suspended applications.

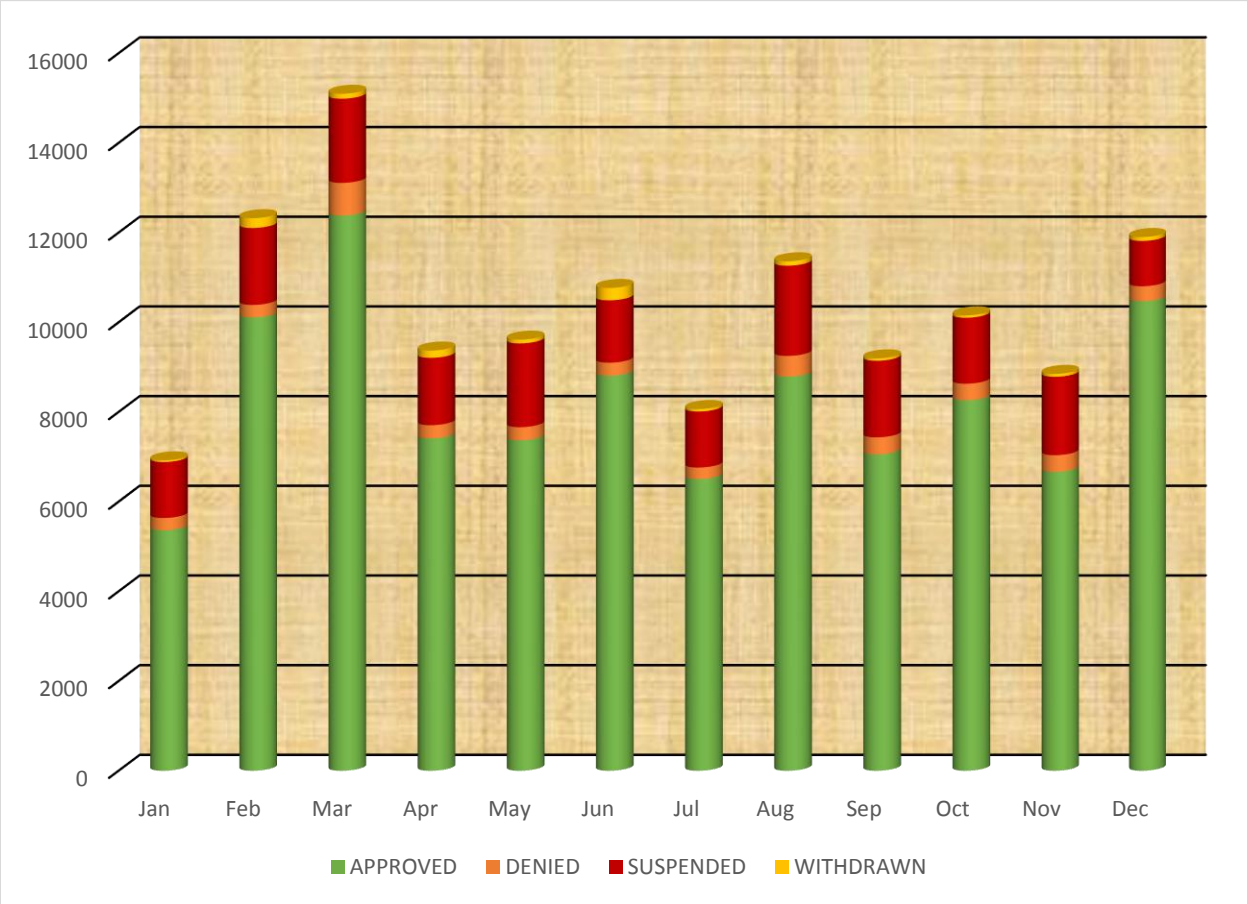

Figure 5: Overview of All 2016 Applications Processed by Status

Tables 2-5 and 2-6 list the ten states and Numbering Plan Areas (NPAs) for which the highest number of applications (Part 3s) occurred in 2016:

Table 2-5
Ten States with Highest Number of Applications (Part 3s)

State	Total Part 3s
CA	15,112
TX	11,029
PA	6,268
FL	6,163
NY	6,157
GA	5,588
IL	4,540
MA	4,217
MI	3,828
NJ	3,537

Table 2-6
Ten NPAs with Highest Number of Applications (Part 3s)

NPA	State	Total Part 3s
316	KS	1,916
678	GA	1,600
518	NY	1,276
832	TX	1,193
470	GA	1,137
267	PA	1,072
805	CA	1,068
484	PA	1,058
619	CA	950
662	MS	949

2.2.2 Pool Replenishment

During 2016, the PA continued to make pool replenishment options available to service providers when required to keep inventories adequate to meet forecasted demand.
The PA has no authority to actually replenish the inventory pools, because it is not authorized to obtain resources directly. However, we manage the process by determining when a pooling rate center inventory will either be equal to or fall below the aggregated six-month service provider forecasts, which establishes that it is necessary for service providers to replenish the pool. For replenishment, the PA has to rely on the service providers that can meet both the MTE (Months-to-Exhaust) and utilization requirements to open an NXX code and then have them provide blocks from that NXX code to the pool.

There was a 15% decrease in the number of applications for blocks for pool replenishment in 2016 with 3,165 applications, as compared to 3,710 applications in 2015. The number of codes opened for pool replenishments from those applications decreased by 11% in 2016 with 2,827 CO codes opened compared to 3,188 CO codes opened in 2015.

Table 2-7 is an overview of pool replenishment statistics in 2016.

Table 2-7
2016 Pool Replenishment Overview

Average number of rate centers per month that had less than a six-month inventory	1,206
Percentage of total number of rate centers per month that had less than a six-month inventory	6.5%
Average number of rate centers per month that had no blocks available with forecast	484
Number of CO code requests for pool replenishment	3,165
Number of CO codes opened for pool replenishment	2,827

Tables 2-8 and 2-9 show the ten states and NPAs which had the most pool replenishment activity in 2016.

Table 2-8
Ten States with the Most Pool Replenishment Activity

State	NXXs Opened
CA	476
TX	246
NY	202
FL	198
PA	110
MI	107
OH	97
IL	96
GA	75
TN	72

Table 2-9
Ten NPAs with the Most Pool Replenishment

NPA	State	NXXs Opened
929	NY	37
657	CA	36
909	CA	35
518	NY	33
415	CA	30
305	FL	28
586	MI	27
469	TX	26
949	CA	26
214	TX	25

2.2.3 Interconnected VoIP Direct Access Order

On June 22, 2015, the Federal Communications Commission (FCC) released the VoIP Direct Access order establishing a process to authorize interconnected VoIP (iVoIP) providers to obtain telephone numbers directly from the Numbering Administrators. While parts of the order were published in the Federal Register with an effective date of November 30, it was not until 2016 that the changes to the FCC numbering rules took effect.

On February 4, 2016, a notice was published in the *Federal Register* advising that the amendments to 47 CFR 52.15(g)(2) and (g)(3) published at 80 FR 66454, October 29, 2015, were effective immediately. These rules establish how iVoIP providers obtain numbering resources directly from the national administrators and outline the documentation needed in order to be assigned numbers.

In addition to the *Federal Register* notice, a *Daily Digest* notice on February 4 announced that the FCC would begin accepting applications from interconnected VoIP (VoIP) providers on February 18, for FCC authorization to obtain telephone numbers directly from the North American Numbering Plan Administrator (NANPA) and the Pooling Administrator (PA). The notice set out a process for the iVoIP providers to apply to the Wireline Competition Bureau for that authorization, which included docketing, and publication of an "Accepted for Filing Public Notice" seeking comment on the application. On the thirty-first (31st) day after the "Accepted for Filing Public Notice" is released, the application is deemed granted unless the Bureau notifies the applicant that the grant will not be automatically effective. Applications that have been accepted for filing, put out for comment, and approved for authorization can be found on the FCC website under *Wireline Competition, Competition Policy Division, Numbering Resources, VoIP Numbering*.

Once an iVoIP provider's (iVP) numbering authorization application is granted, the applicant can immediately provide states from which it intends to request numbers the required 30-days' notice. The FCC releases a "Grant Public Notice" announcing auto-granted applications, but the applicant need not wait for that notice to begin notifying states of its intent to obtain numbers. The information required in that 30-day notice to the state is described in 47 CFR § 52.15 (g) (3). The Industry Numbering Committee (INC) created a template for a 30-day state notification that can be found by accessing the Thousands-Block Number (NXX-X) Pooling Administration Guidelines (TBPAG-Appendix 7) and the Central Office Code (NXX) Assignment Guidelines (COCAG Appendix G).

Although some states had experience with the 30-day notifications after SBC Internet Services, Inc. (SBCIS) was granted a waiver of 47CFR§52.15(g)(2)(i) to obtain numbering resources directly from the administrators in February, 2005, we anticipated that many states would need education on the processes associated with the VoIP order. On February 9, we conducted an informational conference call for the states to review the provisions of the order, the 30-day notification process and the documentation required by the iVPs to obtain numbers. During that

call it became evident that while most states would accept the 30-day notification template created by the INC, some states would be creating their own. Therefore, we proactively created a "VoIP Provider 30-day notification state regulatory contact sheet" which contains information about the 30-day notification processes for the states that provided it, as well as contact information for each state, and posted it to our website.

In addition, we anticipated that the new iVPs would need education on processes, so we worked with the NANPA to develop a **"Getting started for interconnected VOIP providers**" quick sheet that was posted to our website on February 18. The "quick sheet" contains information on the following topics:

- iVoIP direct access authorization order information
- Instructions for 30-Day Notice to State
- Information to assist with applying for numbering resources after the 30-Day Notice
- Additional steps necessary prior to applying for numbering resources
- Website links for further support documents.

There were 17 applications submitted to the FCC for direct access authorization in 2016, with 10 approved. Table 2-10 shows each application in order of filing and its disposition through 2016.

Table 2-10
2016 Interconnected VoIP Direct Access Applications

	Company	Date Filed	Docket #	Daily Digest Notice	Comment Deadline	Effective Date
1	Vonage Holdings	2/18/16	16-49	3/1/16	3/15/16	3/31/16
2	Mix Networks	3/28/16	16-108	5/6/16	5/20/16	6/6/16
3	MetTel	4/13/16	16-134	6/17/16	7/5/16	7/18/16
4	ATT Services	4/15/16	16-135	5/12/16	5/27/16	6/13/16
5	Commio	4/26/16	16-196	7/1/16	7/18/16	8/1/16
6	Telnyx	5/15/16	16-172	6/17/16	7/5/16	7/18/16
7	Telebroad	6/3/16				
8	Local Access	6/16/16	16-198			
9	Edge Communications	6/30/16	16-220	8/2/16	8/16/16	9/1/16
10	AireSpring	8/1/16	16-248	8/23/16	9/7/16	9/23/16
11	Barr Tell	8/2/16	16-252			
12	Flowroute	8/15/16	16-265	9/15/16	9/30/16	10/17/16
13	FracTEL	8/22/16	16-282	9/19/16	10/4/16	10/20/16
14	Dialoga	8/23/16	16-280			
15	Telengy	9/21/16	16-297			
16	Backbone Communications	10/12/16	16-361			
17	VoIP Street	10/31/16	16-365			

The first numbering resources were assigned to an iVP in May. Since then, we have processed 5,279 Part 3s for iVPs, which is about 4% of our total Part 3s.

We continue educating iVPs on application processing requirements, proper supporting documentation, and the information needed in 30-day notification letters. As a courtesy to save the iVP's time and prevent the need to submit new letters or applications, we work with them to obtain the proper documentation. We have spent a tremendous amount of time with individual iVPs going over what documentation they need and how to submit applications through PAS.

We have been sending regular updates to the state commissions whenever new applications or filings are made and when the first applications are submitted in their states. In addition we have been working with the FCC on some more complex regulatory issues surrounding whether the iVPs have to follow individual state regulations for new carriers and must use state-developed 30-day notification forms. On September 28 we conducted a conference call for the states to gain further understanding about the contents of the 30-day notifications and general process questions.

We also continue to work through INC to update the applicable guidelines.

2.2.4 Reclamation in 2016

The PA initiates reclamation according to the *Thousands-Block Number (NXX-X) Pooling Administration Guidelines* (TPBAG), which directs that, "[a] thousands-block assigned to a service provider should be placed into service by the applicable activation deadline, that is, six-months after the original effective date returned on the Part 3 and entered on the BCD/BCR screen in BIRRDS." Each thousands-block assignment has an associated "Part 3 effective date," which is the date the individual numbers in the thousands-block become available to be assigned to customers. The block holder confirms that the thousands-block is in service by submitting a Part 4 to the PA. If the PA does not receive the Part 4 during the first five months following the original effective date identified on the Part 3, the PA sends a reminder notice to the block holder. The PA also sends a second reminder to the SP on the day after the Part 4 was due.

If the Part 4 is not received within six months of the original Part 3 effective date, the Part 4 is considered delinquent and the thousands-block is eligible to be reclaimed. By the 10th calendar day of each month, the PA sends a list of delinquent Part 4s for the thousands-blocks from the previous month to the appropriate state commission or FCC.[1] The PA had to address 2,840 blocks on the overdue Part 4 reports in 2016. This represents a slight increase from the 2015 total of 2,790. Of those, 1,081 blocks were new to the lists in 2016, which is 33% increase from the 2015 total of 815.

[1] The FCC Report and Order and Further Notice of Proposed Rulemaking released March 31, 2000 (1st NRO Order) delegated authority to the state commissions to determine whether a thousands-block should be reclaimed or not. The FCC makes reclamation decisions for those states that have opted not to exercise their reclamation authority.

The PA website provides detailed information about the reclamation process, as well as contact information for the participating state commissions and FCC.

The PA cannot reclaim a block without authorization from the appropriate regulatory body, which may authorize the PA to initiate block reclamation, but then may halt the reclamation process if, for example, it is determined that numbers in the blocks are actually in service. In 2016, regulators authorized the PA to initiate reclamation for 4 thousands-blocks with one each in Vermont and Virginia and two in Michigan.

Following is a table of all reclamation activity in 2016:

Table 2-11
Reclamation Activity in 2016

Month	Total Number of Blocks with Overdue Part 4s	Total Number of NEW blocks with Overdue Part 4s	Total Number of Blocks Reclaimed
January	275	107	0
February	302	126	1
March	242	23	0
April	284	79	0
May	284	110	0
June	319	107	0
July	309	62	0
August	249	46	2
September	303	107	1
October	270	78	0
November	284	105	0
December	316	131	0
TOTAL	**3,437**	**1,081**	**4**

2.2.5 Pooling Administration Customer Support / Help Desk

The Pooling Customer Support Representative (CSR or Help Desk) responds to both internal and external questions and requests for technical support, and attempts to promptly confirm the cause of a problem.

The CSR:

- Works with carriers to troubleshoot problems over the phone and at the desktop, to assist in resolving technical problems;
- Answers a variety of inquiries from customers, including questions regarding use of forms and the PAS, and assists users with locating documentation; and
- Creates, deletes, and maintains user accounts and passwords.

In 2016, the CSR handled approximately 875 calls from customers, which is a slight decrease from the 2015 total of 914 and the lowest total in five years. Table 2-12 shows the numbers of calls to the pooling Help Desk by year since 2012.

Table 2-12
Number of Help Desk Calls for Pooling Issues by Year from 2012 through 2016

Year	Number of Help Desk Calls
2012	1,895
2013	1,958
2014	1,118
2015	914
2016	875

2.3 Pooling Administration System (PAS)

2.3.1 PAS Performance

PAS was available 99.995% of the time in 2016, which means the PA once again notably exceeded the contract requirement of 99.9% availability. PAS was unavailable for two instances of unscheduled down time for a total of 25 minutes; on March 12, and October 24.

On June 11, as approved in Change Order #1, we migrated PAS to the Amazon Web Services (AWS) cloud platform. For details on the AWS migration see Section 6.4.

We conducted maintenance on PAS eight times; on January 22, February 18, July 22, August 26, September 23, October 21, October 28 and December 15. There was no down time associated with these maintenance activities. We also completed disaster recovery testing.

The PA opened eight trouble tickets and closed 10 in 2016. For details on trouble tickets for PAS see Section 6.1.4.

See more about PAS system performance in Section 6.

2.3.2 PAS Change Orders

Changes and improvements to PAS are generally driven by changes to FCC rules, industry guidelines, or specific service provider or regulatory requests. If changes or suggested improvements require a change to PAS, we submit a change order proposal to the FCC to modify the contract. The PA must provide a written assessment regarding the impact of scope of work, time and costs to the INC, the NANC and the FCC within 30 days of initial closure of any changes to the INC Guidelines that have such an impact.[2] Details about the change orders we submitted in 2016 can be found below.

The NOWG reviews PA change order proposals and provides recommendations to the FCC. To facilitate the review process, the Regional Director, External Relations serves as the liaison with the NOWG, and is available to address any questions that may arise from their review of any change order proposal.

The PA submitted three change order proposals to the FCC in 2016 that relate to the ongoing transition of the Number Portability Administration Center (the NPAC) from Neustar to iconectiv™, in accordance with FCC 15-35, due to the regular, real-time interaction between the PA and the NPAC that ensure that calls using numbers in pooled blocks are properly routed to their intended recipient.

[2] FCC contract No. FCC13C0007, Section 2.5.4 of Attachment A dated May 15, 2013

Table 2-13
Change Orders Submitted in 2016

Number	Type	Description	NOWG Recommendation	FCC Status
3	Regulatory Directive	Addressing the iconectiv™ proposals for connection to the PAS	Deny	Pending
3a	Regulatory Directive	Specifications for API	Approve	Approved
3b	Regulatory Directive	Development and Support of the PAS NPAC API	Deny	Pending

The FCC acted on two change orders in 2016, approving Change Orders #2 and 3a as shown in Table 2-14 provides details on each change order for which there was an FCC decision in 2016.

Table 2-14
Change Orders Approved by the FCC in 2016

Number	Type	Description	NOWG Recommendation	FCC Status
2	Industry	Changes to the INC forms based on Issue 497: *VoIP Service Providers' Access Requirements for NANP Resource Assignments and Issue 797: Updates to the INC Guidelines Forms*	Approve	Accepted-Contract Modification #006 on 1/28/16
3a	Regulatory Directive	Specifications for API	Approve	Accepted -- Contract Modification #008 on 8/1/16

We implemented three change orders in 2016.

Table 2-15
Change Orders Implemented in 2016

Number	Description	Implemented
1	Move RNAS and PAS into the Cloud	2/20/216 (RNAS) and 6/11/16 (PAS)
2	Changes to the INC forms based on Issue 497: *VoIP Service Providers' Access Requirements for NANP Resource Assignments and Issue 797: Updates to the INC Guidelines Forms*	5/20/16 (RNAS) and 6/11/16 (PAS)
3a	Specifications for API	9/30/2016

2.3.3 PAS Training Videos

Our training videos were first made available on our website for PAS on September 29, 2010, and were so popular that we subsequently assisted NANPA with development of its own training video program.

In 2016, there were 218 total views of the 14 PAS training videos which represents a 26% decrease from 2015. While we did not add any new videos in 2016, we continue to see robust viewing of the existing videos. By far, the most popular video remains "New to Pooling Quick Start," which accounted for 56% of the views.

Table 2-17 contains the 2016 training video names and the number of times each video was accessed. These totals do not include downloaded or shared videos as there is no method for tracking those.

Table 2-16
2016 PAS Training Video Views

	Training Video	Number of Times Viewed
1	New to Pooling Quick Start	121
2	Mass Modifications	2
3	Change Order 20	1
4	How to Complete the MTE Worksheet	22
5	PAS Effective Date Scenarios for Block Requests and Donations	6
6	PAS Password Reset	4
7	Change Orders 9 and 10	4
8	Change Order 11	0
9	Redesigned Nationalpooling.com Website Training video	9
10	Overview of PAS and the Pooling Website for Service Provider and Service Provider Consultant Users	5
11	Overview of PAS and the Pooling Website for Regulatory Users	12
12	Release of Enhancements to the PAS Training Session for Service Provider and Service Provider Consultant Users	23
13	Release of Enhancements to the PAS Training Session for Regulatory Users	7
14	Chrome Browser Release How it Affects PAS Drop Down Menus (temporary video)	2
	TOTAL VIEWS	218

2.4 Data Quality and Pooling Implementation Management

The Data Quality and Implementation Manager (DQIM) manages the quality control and maintenance of the rate center data located on the website, completes the semi-annual forecasting reports, updates PAS in the event of area code relief, and provides status updates for the industry at NANPA meetings. The DQIM also manages quarterly neutrality audits conducted by Ernst & Young (E&Y) to ensure that the PA is not treating one service provider or group of service providers unfairly by delaying action on their applications.

In 2016, the DQIM attended 20 NANPA meetings, and provided 56 pooling status reports to the NANPA for its meetings.

2.4.1 Rate Center Data Quality Control and Maintenance

The NPA/Rate Center Reports identify the pooling participation level status designation of all rate centers in each NPA, including where service providers are either required to participate in pooling (Mandatory), are required to participate when a second service provider enters the rate center (Mandatory Single Service Provider), where pooling is not required, but either the state or a carrier has requested that the rate center be opened in PAS (Optional), or where no carrier has chosen to pool (Excluded).

The six current status designations of rate centers as defined in the *NPA/Rate Center Reports* are: Mandatory (M), Mandatory State (M), Mandatory Single Service Provider (M*), Mandatory State Single Service Provider (M*), Optional (O) and Excluded (X). For status designation definitions see Section 3.

Table 2-18 shows the total number of distinct pooling rate centers in PAS that were maintained by the DQIM in 2016. For detail on these totals for the past five years, see Section 10.5.3.

Table 2-17
Total Number of Distinct Pooling Rate Centers in PAS

Status Designation	Total
M*	321
M	5,110
O	6,369
M	3,788
M*	743
X	2,176
Total	**18,507**
Total Pooling Rate Centers	**16,331**
Total Mandatory Pooling Rate Centers	**8,898**

2.4.2 Rate Center Information Changes

The DQIM is responsible for the accurate recording of all pooling information associated with every NPA, including the status designation for each rate center. In addition, the DQIM monitors and makes all of the changes related to pooling rate centers that occur as a result of FCC and state orders and Office of Management and Budget (OMB) directives.

2.4.2.1 Changes to Rate Center Information

Changes to rate center file information have been available in real-time through the website since September 2008. In 2016, the PA made 174 rate center information changes. Of those, 104 were rate center status designation changes, of which 60% were from Excluded to Optional.

Table 2-19 shows the type of information change and how many rate centers were changed during each month in 2016.

Table 2-18
Summary of Rate Center File Changes for 2016

RATE CENTER CHANGES 2016													
REASON	***JAN***	***FEB***	***MAR***	***APR***	***MAY***	***JUN***	***JUL***	***AUG***	***SEP***	***OCT***	***NOV***	***DEC***	***TOTALS***
Changes in Status:													
M* to M	2		2		3	1				2			10
M* to M	1	1		2				4	5	4		3	20
M to M*													0
M to M*													0
M to M					2								2
M* to M*													0
O to M					1								1
O to M*													0
O to M													0
O to M*													0
O to M*													0
X to M													0
X to M*													0
X to M*													0
X to O	5	1	7	7	17	25	4	6	21	11			104
													0
													0
New Rate													0
													0
Rate Center Name Change													0
													0
MSA Changes					37								37
TOTALS	**8**	**2**	**9**	**9**	**60**	**26**	**4**	**10**	**26**	**17**	**0**	**3**	**174**

2.4.2.2 Changes to Metropolitan Statistical Area (MSA) Rank and Name

If there are changes to Metropolitan Statistical Area (MSA) information, the OMB generally releases a bulletin about it early in the year. The PA monitors the website so that we know when bulletins are issued, and then investigates the impact on the status designations of rate centers in the pools. The OMB usually releases any updates to the definitions and/or composition (*i.e.,* counties or other political divisions) of Metropolitan Statistical Areas once per year. These bulletins can contain any or all of the following:

- Changes to the composition of a specific MSA
- Creation of new MSAs
- Deletion of an MSA where a political division has been reassigned to another or newly-created MSA
- Renaming of MSAs based on city populations (each MSA name contains up to three principal cities in decreasing order of population). This usually amounts to reordering of city names or the removal or addition of principal city names.

The PA completed one MSA project in 2016. See Section 2.6.3 for more details.

2.4.3 NRUF/Semi-Annual Forecast Report

The NRUF (Numbering Resource Utilization/Forecasting) report (Form 502) is used by the NANPA to monitor and project exhaust in individual area codes as well as in the NANP overall. Service providers participating in pooling are required by Section 6.0 of the TBPAG to submit their respective NRUFs to the NANPA on a semi-annual basis on or before February 1 for the period ending on December 31, and on or before August 1 for the period ending on June 30 of each year. Service providers also submit their Thousands-Block Forecast Report (Appendix 1 in the TBPAG) to the PA for each of their separate Operating Company Numbers (OCNs) at the thousands-block level, per rate center, for every NPA in which they have resources, as of June 30 and December 31, each year. This semi-annual report includes a five-year forecast of demand for blocks by year. The data provided by the service providers in these forecasts is treated as confidential by the PA.

During 2016, the PA aggregated this data provided by the service providers at the rate center level for all NPAs in pooling. We used this data to provide a rate center level NRUF to NANPA and to determine if a critical industry inventory insufficiency existed within any rate center. The PA forwarded its aggregated NRUF data to the NANPA, and provided a separate consolidated forecast report to the FCC according to the required deadlines, on February 11 and August 15. Table 2-20 contains the PA NRUF/forecast results for both semi-annual reporting periods in 2016.

Table 2-19
NRUF/Forecast Results for 2016

Date	NPAs	Jurisdictions	Blocks Forecasted	Blocks Available	Codes Forecasted
February	305	52	39,469	150,335	2,950
August	307	52	36,625	141,522	2,830

2.5 Regulatory and Compliance

2.5.1 Regulatory Update Conference Calls

In 2016, the PA participated in six regulatory update conference calls: on February 22, April 27, June 22, August 16, October 20, and December 12. Topics included updates on pooling administration activities, P-ANI administration, the FCC VoIP order, updates to RNAS and PAS, and relevant INC issues.

2.5.2 Regulatory Education

In addition to the PAS enhancement training in January, the PA conducted 5 educational sessions about pooling for state regulatory personnel in 2016. For details, see Table 2-21 below.

Our goal in conducting training sessions for regulators is to make it easier for them to understand and respond to thousands-block pooling issues in their states. During the pooling educational sessions, we reviewed various pooling processes and procedures such as reclamation, forecasting, and applications processing, in addition to the information and reports available through the website. This year we also conducted two conference calls for states about the iVoIP order.

Table 2-21 summarizes the regulatory educational sessions facilitated by the PA in 2016.

Table 2-20
Regulatory Educational Sessions in 2016

Date	State	Type	Description
February 9	All	Conference Call	iVoIP Order Process
February 16	New Jersey	Presentation	Pooling education
June 15	Nevada	Conference call	Pooling education
September 28	All	Conference Call	iVoIP Order Issues
October 6	Ohio	Conference call	Pooling education

2.5.3 Regulatory Support

The PA continued to provide support for state regulators as they addressed number conservation and NPA relief planning issues. We also attended NANPA meetings relating to NPA relief, and responded to emails and telephone inquiries regarding issues such as application processing, certification, and reclamation.

2.5.4 Debt Collection Improvement Act of 1996, FCC 04-72, MD Docket 02-339, adopted March 25, 2004 (Red Light Rule)

The "Red Light Rule" provides that anyone filing an application or seeking a benefit from the FCC or one of its components (including the Universal Service Administrative Corporation, the Telecommunications Relay Service, or the North American Numbering Plan Administrator) who is delinquent in debts owed to the FCC, will be barred from receiving a license or other benefit until the delinquency has been resolved. The FCC determined that numbering resources constitute a benefit, and has directed the PA to withhold assignment of numbering resources to any entity identified by the FCC as delinquent in its payments to them.

The PA processed 384 denials as a result of the Red Light Rule in 2016, which is a 140% increase from the 160 in 2015.

2.5.5 Reporting Compliance

The PA contract directs that certain Contract Data Requirements List (CDRL) reports be submitted each year.

2.5.5.1 Contract Data Requirements List (CDRL) – Recurring Reports

The following CDRL reports are submitted annually, semi-annually, quarterly, or monthly. Table 2-22 contains the CDRL recurring reports that were submitted by the PA during the 2016 calendar year according to the established deadlines. In 2016, the PA submitted 118 CDRL reports, which are available on the PA website.

Table 2-21
Recurring CDRL Reports Submitted in 2016

Report Name	Total Reports
Staffing Report	12
Thousands–Block Pooling Report	12
PAS Performance Report	12
Ad Hoc Reports	12
Pooling Matrices Report	4
Forecasted Demand	2
Rate Area Inventory Pool Status	2
Annual	1
By Request *(Ad Hoc)*	61
TOTAL	**118**

2.5.5.2 Other Required Reports

Table 2-23 lists the 49 other reports required by the contract that the PA submitted in 2016.

Table 2-22
Other Required Reports Submitted in 2016

Report Name	Total Reports
Staffing Report	12
Monthly Pooling Metrics	12
P-ANI Monthly Report	12
RNAS Performance	12
Inventory	1
TOTAL	49

2.5.5.3 Contract Data Requirements List Plan Review and Update

At the beginning of the new contract, the PA was required to submit eight Contract Data Requirements List (CRDL) plans that are enumerated in Section 4, (Deliverables) of Attachment A of the contract. Annually we review the Disaster/Continuity of Operations Plan (DRP) [CDRL 4.4] and Security Plan [CDRL 4.2] and no changes had been required to date. However, as a result of

the migration of PAS to the AWS cloud platform we determined that substantive changes may be required to several of the plans to bring them up-to-date with the different system performance and maintenance requirements. In September, 2016 we submitted an updated DRP to the FCC and plan to continue our review of the other plans in 2017.

2.6 Special Projects in 2016

2.6.1 Seeking Voluntary Disconnects (formerly Donations) Project

In a proactive effort to prevent the unnecessary opening of NXX codes, we developed a process beginning in late May 2010 that could conserve numbers in rate centers when an incoming service provider (SP) requests that the rate center designation be changed from "Excluded" to "Optional". In this circumstance, we seek voluntary block disconnects (formerly donations) from existing SP(s) in that rate center so that the incoming SP can request blocks instead of opening a new code.

In 2016, the PA attempted to secure voluntary block disconnects (formerly donations) for 49 rate centers being changed from Excluded to Optional. We were able to obtain disconnects (formerly donations) for 24 of those rate centers, thereby potentially saving the opening of 24 NXX codes.

At times a carrier will also contact us to request that we seek donations in a pooling rate center that has no blocks available but is already available for pooling, to prevent the opening an NXX code. This is especially useful in low population areas where blocks added to the available pool may never be utilized. In 2016, we were asked to request voluntary block disconnects (formerly donations) in 15 optional pooling rate centers that did not have any available blocks. We requested disconnects (formerly donations) and successfully received 34 blocks for 11 of the rate centers. This process saved 11 NXX codes from being opened.

2.6.2 Metropolitan Statistical Areas (MSAs) Designation Projects

On May 19, 2016, the United States Census Bureau released the 2015 population estimates for cities and towns. The national Pooling Administrator is obligated to maintain a current list of rate centers that are in the top-100 Metropolitan Statistical Areas (MSAs) in which carriers are required to pool under FCC orders. We analyzed the changes resulting from the 2015 census estimates and made the following changes:

- A new MSA was added to the top 100 MSAs (DURHAM-CHAPEL HILL, NC Metropolitan Statistical Area)

- An MSA (CHATTANOOGA, TN-GA Metropolitan Statistical Area) that was previously one of the top 100 MSAs has moved to 102. However, this MSA remains mandatory since the FCC directed that a rate center that has been in a top-100 MSA where pooling has been mandated will always be considered mandatory.
- Three rate centers will have a status designation change (see table 2-24 below).

Table 2-23
Pooling Rate Center Status Changes as a Result of 2015 Census Estimates

NPA	State	RC Full Name	Status	New Status
336/743	NC	MILTON	M	M
336/743	NC	ROXBORO	M	M
336/743	NC	TIMBERLAKE	O	M

These changes did not impact service providers, since pooling was already been implemented in all affected areas. We did notify the North Carolina commission staff about the changes.

2.6.3 Abandoned Codes/Blocks:

When we are made aware that a company has abandoned pooled codes and blocks, we work with state regulators to obtain permission to reclaim the numbering resources as abandoned. We also work with NANPA for pooled code reclamation and the NPAC to disconnect any LRNs or ported TNs from the NPAC for these companies. If there are customers on the codes or blocks, we seek new resource holders so that customers are not put out of service. The following is a summary of abandoned code/block activity for this period:

- 6 companies in 6 states abandoned pooled codes and/or blocks.
- 145 emails were sent out looking for new code or block holders.
- 68 pooled codes were transferred to new code holder.
- 61 pooled blocks were transferred to new block holders.
- 161 blocks were disconnected and put back into the available pool.

2.6.4 JIT/ITN Testbed Proposal:

Bruce Armstrong developed a proposal for a pooling JIT/ITN testbed trial that would allow service providers to get individual TNs in near real-time fashion, versus the existing 30-day block acquisition process. We presented the proposal to the ATIS Testbeds Landscape Team (TLT) subgroup Numbering Allocation Sub-Team - JIT/ITN Number Assignment for Individual TN & Block Allocation in late January. The group suggested that we share the contribution with our numbering contacts and that the subgroup participants should share this contribution with their numbering people for comments and questions. We sent the proposal to the NOWG and

conducted an informational conference call with them on February 17. On November 29, we met with the FCC to brief staff on the proposal, and address any contract-related issues that might be raised. We subsequently filed an ex parte.

2.6.5 Overdue Part 4s:

In an attempt to reduce the number of very old overdue Part 4s (some going back to 2012), we began a project to pare down the list. We contacted the 5 states with the highest number of old overdue Part 4s to find out if they were aware of them, and had any questions about how to get them completed and off the list or if we should reclaim them. We started with a list of 138 overdue Part 4s in these 5 states, of which 101 were due in 2015 or before. While we were not able to settle all of them, we received and approved 38 overdue Part 4s. In addition, five other blocks were disconnected as a result of this project, for a total of 43.

2.7 Routing Number Administration (a/k/a P-ANI)

2.7.1 Background

> "You Are AWESOME!! Thanks for making that super easy."
>
> *2016 P-ANI customer comment*

The PA assumed the responsibility of assigning Emergency Service Query Keys (ESQKs) under certain limited circumstances as the Interim Routing Number Administrator (IRNA) on September 8, 2006. When the FCC awarded the second PA contract in August, 2007, it included the provision that the PA would act as the permanent P-ANI Administrator (a/k/a Routing Number Administrator or RNA) at such time as the FCC would direct the permanent process.

The PA began the development process for the first national Routing Number Administration System (RNAS), the P-ANI Administration website, and P-ANI administration processes when the FCC approved the permanent process in Change Order 19 on June 17, 2011. RNAS went live on March 19, 2012, and is accessible from the dedicated P-ANI website. The website is not only the gateway to the RNAS but contains public information such as reports and documents. The P-ANI Administrator also trains users to understand what types of documentation are required to assure that applicants are eligible in the areas in which they are requesting P-ANIs, and responds to requests for ad hoc reports and inquiries.

2.7.2 P-ANI Administration Highlights:

2.7.2.1 Productivity for 2016:

In 2016, the P-ANI Administrator processed not only applications but also carriers' annual reports and forecasts. The forecasts are used to develop the *P-ANI Activity and Projected Exhaust Report* found in Section 2.8.4. We processed annual report files for 75 unique NENA ID/OCN combinations and three forecast files.

Table 2-25 addresses the count of P-ANIs requested, assigned, returned, or modified on a monthly basis. This is not to be confused with the number of applications processed, which can be found in Table 2-26.

Table 2-24
Total Number of P-ANIs by Activity Type

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Requested	2,448	3,088	4,053	1,890	949	2,483	694	1,117	8,384	15,790	3,008	1,971	45,795
Assigned	2,438	2,833	3,665	1,838	904	2,403	694	1,117	8,222	15,665	2,965	1,543	44,287
Returned	1,352	303	2,599	2,290	1,841	550	357	1,013	4,244	1,311	1,292	2,833	19,985
Modified	27	5	27	10	10	9	386	0	5	0	0	15	494

Table 2-25
Applications Processed by Request Type

	Approved	Denied	Suspended	Withdrawn	Total
Cancel P-ANI Return Request	8	0	0	0	8
P-ANI Modification Request	30	0	0	0	30
New P-ANI Request	2,708	11	0	59	2,778
P-ANI Return Request	2,894	0	0	0	2,894
Total	5,640	11	0	59	5,710

The following table is a summary of P-ANI inventory as of December 31, 2016.

Table 2-26
P-ANI Inventory as of December 31, 2016

Status	Total P-ANIs	211	511
ASSIGNED	735,478	360,282	375,196
AGING	2,952	1,088	1,864
AVAILABLE	5,485,155	2,742,701	2,742,454
UNAVAILABLE	16,415	15,929	486
TOTALS	6,240,000	3,120,000	3,120,000

2.7.3 Other 2016 P-ANI Administration Activities

In addition to processing requests for P-ANI ranges, the P-ANI Administrator performed many other functions during 2016.

2.7.3.1 Annual Report

P-ANI Assignees are required to report to the P-ANI Administrator on all of their assigned P-ANI ranges via the P-ANI Annual Report (Appendix 2) on an annual basis. For 2016, there were 75 unique NENA ID and OCN combinations that filed an Annual Report. During this process, we were able to identify P-ANI ranges that were never reported during the initial reports filing and show those P-ANI ranges as assigned. We also worked with the carriers to identify P-ANI ranges that were not in use and could be returned back to the available inventory as a result of this filing.

2.7.3.2 Duplicate Assignment Issues

In 2016, we were notified of 33 P-ANI ranges that were assigned by the P-ANI Administrator as already in use by another carrier. We worked with the affected carriers to determine if the range was actually in use or not. If the range was not in use, then it was removed from the applicable databases by the old carrier so that the new carrier can proceed with using the range. If the range was in use, then the assignment was replaced with a new range, and the original range was then updated to show as assigned to the other carrier.

2.7.3.3 Customer Support:

For all new P-ANI requests, a carrier must demonstrate that its company is permitted under applicable law to access P-ANI resources in the area for which the P-ANI resources are sought. If the carrier fails to provide the correct documentation with its request for P-ANIs, we send a courtesy email. We also work with carriers who are having difficulties locating the correct documentation to help alleviate any delays in obtaining these critical resources. In 2016, we sent courtesy emails for 224 requests and provided documents for 70 requests, which is consistent with 2015 figures.

2.7.4 P-ANI Activity and Projected Exhaust Report

The ATIS Industry Numbering Committee developed the *P-ANI Administration Guidelines*, which contain the following language:

"The RNA shall:

a) prepare and publish a "P-ANI Activity and Projected Exhaust Report" that includes the following information:

1. national P-ANI utilization information;
2. P-ANI utilization by NPA;
3. the number of P-ANIs requested on a monthly basis;
4. the number of P-ANIs assigned on a monthly basis;
5. the number of P-ANIs returned on a monthly basis;
6. the number of P-ANIs modified on a monthly basis;
7. the number of P-ANI requests processed and the disposition of each; and
8. forecast reports for projected future P-ANI resource usage."

This report contains the required information for January 1 – December 31, 2016. Table 2-28 addresses national P-ANI utilization, P-ANI utilization by NPA, and forecast reports for projected future P-ANI resource usage.

The RNA administrator posts this to the website www.nationalpani.com, notifies the INC and RNAS users that this information is available, and includes it in the subsequent annual report required by the FCC contract.

neustar

Table 2-27
Projected Exhaust of 211/511 P-ANIs[3]

NPA	State Abbreviation	Total P-ANI	Forecasted P-ANI	Exhaust Year	Exhaust Quarter
201	NJ	8,052	342	2,051	4
202	DC	618	508	2,054	1
203	CT	,8022	300	2,056	4
205	AL	3,223	194	2,102	2
206	WA	557	45	2,448	1
207	ME	7,312	250	2,067	4
208	ID	3,508	246	2,083	1
209	CA	5,201	880	2,033	4
210	TX	6,876	370	2,051	2
212	NY	4,272	204	2,093	1
213	CA	2,603	580	2,046	4
214	TX	5,104	374	2,056	4
215	PA	1,347	69	2,286	2
216	OH	1,269	200	2,110	3
217	IL	4,143	775	2,036	2
218	MN	2,748	605	2,045	3
219	IN	3,484	280	2,075	4
220	OH	50	0	N/A	N/A
224	IL	7,229	935	2,030	3
225	LA	947	94	2,219	3
228	MS	1,456	54	2,359	2
229	GA	1,480	634	2,045	1
231	MI	3,543	610	2,043	4
234	OH	50	0	N/A	N/A
239	FL	643	484	2,056	4
240	MD	528	538	2,052	1
248	MI	5,543	300	2,064	1
251	AL	1,004	69	2,291	2
252	NC	2,761	110	2,173	3
253	WA	1,223	115	2,179	2
254	TX	5,578	392	2,053	4

[3] Based on data as of 12/31/2016

NPA	State Abbreviation	Total P-ANI	Forecasted P-ANI	Exhaust Year	Exhaust Quarter
256	AL	1,954	79	2,244	2
260	IN	2,005	254	2,087	4
262	WI	72	30	2,680	2
267	PA	50	15	3,346	1
269	MI	1,309	348	2,070	3
270	KY	2,583	99	2,192	4
272	PA	50	15	3,346	1
276	VA	1,243	169	2,127	4
281	TX	8,066	499	2,040	4
301	MD	1,750	544	2,050	3
302	DE	1,754	54	2,354	4
303	CO	2,792	544	2,048	3
304	WV	7,218	219	2,074	2
305	FL	889	484	2,055	2
307	WY	2,251	79	2,241	3
308	NE	1,937	580	2,047	1
309	IL	3,560	659	2,041	4
310	CA	2,703	520	2,049	2
312	IL	2,628	685	2,041	2
313	MI	446	300	2,081	1
314	MO	8,241	142	2,099	4
315	NY	7,086	470	2,043	2
316	KS	4,208	129	2,138	2
317	IN	3,922	410	2,055	1
318	LA	2,508	84	2,224	1
319	IA	1,497	215	2,102	1
320	MN	1,546	369	2,066	1
321	FL	1,191	484	2,055	4
323	CA	3,528	404	2,057	4
325	TX	5,741	370	2,055	3
330	OH	4,926	152	2,115	1
331	IL	50	505	2,056	3
334	AL	3,753	85	2,207	1
336	NC	2,069	94	2,207	4
337	LA	1,356	84	2,238	4
339	MA	50	550	2,052	2
340	VI	350	15	3,326	1
346	TX	50	225	2,105	3

NPA	State Abbreviation	Total P-ANI	Forecasted P-ANI	Exhaust Year	Exhaust Quarter
347	NY	50	150	2,149	1
351	MA	50	550	2,052	2
352	FL	927	460	2,057	2
360	WA	2,244	154	2,131	2
361	TX	5,116	329	2,061	1
364	KY	50	25	2,814	1
380	OH	50	0	N/A	N/A
385	UT	50	30	2,681	1
386	FL	1,223	320	2,075	3
401	RI	1,401	198	2,110	4
402	NE	6,432	434	2,047	2
404	GA	1,597	634	2,045	1
405	OK	10,561	114	2,099	4
406	MT	2,557	74	2,252	3
407	FL	935	384	2,066	3
408	CA	2,564	620	2,044	1
409	TX	2,716	315	2,071	4
410	MD	3,216	504	2,049	2
412	PA	1,502	69	2,284	1
413	MA	3,738	947	2,033	1
414	WI	5,902	100	2,157	4
415	CA	1,764	504	2,052	1
417	MO	2,999	70	2,259	4
419	OH	4,183	80	2,214	3
423	TN	2,697	64	2,286	2
424	CA	50	350	2,073	1
425	WA	783	169	2,130	3
430	TX	1,152	279	2,084	3
432	TX	3,149	294	2,073	2
434	VA	2,369	129	2,153	3
435	UT	1,400	99	2,204	4
440	OH	1,340	54	2,362	3
442	CA	50	450	2,060	2
443	MD	60	450	2,060	2
458	OR	50	15	3,346	1
463	IN	50	300	2,082	3
469	TX	3,944	279	2,074	3
470	GA	168	580	2,050	1

NPA	State Abbreviation	Total P-ANI	Forecasted P-ANI	Exhaust Year	Exhaust Quarter
475	CT	1265	300	2,078	2
478	GA	984	634	2,046	4
479	AR	2,265	54	2,344	2
480	AZ	75	265	2,091	1
484	PA	70	69	2,305	4
501	AR	4,511	54	2,303	4
502	KY	1,210	79	2,254	4
503	OR	2,521	69	2,269	2
504	LA	1,507	84	2,236	1
505	NM	2,279	109	2,179	3
507	MN	2,708	435	2,056	4
508	MA	7,354	894	2,030	1
509	WA	2,209	245	2,089	3
510	CA	2,258	664	2,043	3
512	TX	7,164	335	2,054	2
513	OH	2,633	54	2,338	3
515	IA	5,768	315	2,061	1
516	NY	1,028	194	2,114	4
517	MI	366	354	2,071	2
518	NY	5,365	262	2,072	4
520	AZ	1,681	279	2,082	3
530	CA	7,405	880	2,030	2
531	NE	50	360	2,071	2
534	WI	50	30	2,681	1
539	OK	50	60	2,348	3
540	VA	4,988	149	2,117	4
541	OR	4,570	158	2,114	3
551	NJ	50	150	2,149	1
559	CA	3,768	604	2,043	4
561	FL	1,567	500	2053	4
562	CA	2,721	504	2,050	2
563	IA	1,443	215	2,102	2
567	OH	120	0	N/A	N/A
570	PA	5,405	69	2,228	3
571	VA	50	15	3,346	1
573	MO	1,797	69	2,280	4
574	IN	1,769	204	2,105	2
575	NM	1,386	394	2,063	1

NPA	State Abbreviation	Total P-ANI	Forecasted P-ANI	Exhaust Year	Exhaust Quarter
580	OK	892	114	2,184	3
585	NY	1,463	204	2,107	4
586	MI	50	300	2,082	3
601	MS	4,114	84	2,205	1
602	AZ	1,502	324	2,073	1
603	NH	1,208	54	2,364	1
605	SD	1,449	99	2,203	2
606	KY	1,631	169	2,125	3
607	NY	2,582	240	2,089	3
608	WI	3,098	140	2,137	3
609	NJ	8,519	240	2,064	4
610	PA	2,909	69	2,264	3
612	MN	2,635	569	2,047	3
614	OH	1,377	84	2,238	3
615	TN	2,943	90	2,206	3
616	MI	4,242	430	2,053	3
617	MA	1,063	1004	2,035	4
618	IL	8,684	735	2,031	2
619	CA	2,624	604	2,045	4
620	KS	2,194	99	2,196	4
623	AZ	100	265	2,091	1
626	CA	2,729	614	2,044	1
628	CA	50	550	2,052	2
629	TN	50	0	N/A	N/A
630	IL	3,523	715	2,039	1
631	NY	1,378	199	2,110	3
636	MO	1,248	69	2,288	4
641	IA	1,787	215	2,101	3
646	NY	50	150	2,149	1
650	CA	3,012	714	2,040	4
651	MN	579	529	2,053	3
657	CA	50	450	2,060	2
660	MO	1,330	106	2,192	1
661	CA	1,755	504	2,052	1
662	MS	6,116	109	2,143	2
667	MD	50	450	2,060	2
669	CA	50	350	2,073	1
678	GA	627	634	2,047	3

NPA	State Abbreviation	Total P-ANI	Forecasted P-ANI	Exhaust Year	Exhaust Quarter
680	NY	50	150	2,149	1
681	WV	50	0	N/A	N/A
682	TX	5,870	225	2,079	4
701	ND	1,009	119	2,176	3
702	NV	572	54	2,376	4
703	VA	1,583	69	2,283	4
704	NC	1,471	54	2,359	1
706	GA	2,798	634	2,043	1
707	CA	5728	804	2,034	4
708	IL	7,203	735	2,033	2
712	IA	1,544	225	2,098	1
713	TX	2,527	225	2,094	3
714	CA	3,969	614	2,042	1
715	WI	2,849	84	2,220	1
716	NY	1,684	234	2,094	2
717	PA	1,604	89	2,223	3
718	NY	3,926	150	2,123	1
719	CO	3,249	460	2,052	2
720	CO	612	480	2,056	2
724	PA	1,666	69	2,282	3
725	NV	50	0	N/A	N/A
727	FL	603	484	2,056	1
731	TN	1,588	64	2,304	3
732	NJ	8,464	214	2,070	4
734	MI	6,344	384	2,052	3
737	TX	50	225	2,105	3
740	OH	4,550	130	2,135	4
743	NC	50	0	N/A	N/A
747	CA	50	500	2,056	4
754	FL	118	430	2,062	1
757	VA	3,014	99	2,188	3
760	CA	5,356	560	2,042	1
762	GA	50	680	2,045	2
763	MN	506	519	2,054	3
765	IN	6,819	370	2,052	3
769	MS	1,022	0	N/A	N/A
770	GA	1,620	734	2,041	1
772	FL	293	484	2,057	3

NPA	State Abbreviation	Total P-ANI	Forecasted P-ANI	Exhaust Year	Exhaust Quarter
773	IL	50	605	2,049	4
774	MA	170	550	2,052	1
775	NV	1,690	64	2,302	1
779	IL	50	605	2,049	4
781	MA	2,507	925	2,035	4
785	KS	5,026	100	2,166	3
786	FL	202	484	2,057	4
787	PR	305	0	N/A	N/A
801	UT	1,420	94	2,214	3
802	VT	1,597	69	2,283	3
803	SC	2,101	54	2,347	2
804	VA	4,186	79	2,216	1
805	CA	3,946	804	2,036	4
806	TX	9,132	159	2,084	2
808	HI	1,393	54	2,361	3
810	MI	370	354	2,071	2
812	IN	4,557	364	2,058	2
813	FL	731	484	2,056	4
814	PA	3,024	72	2,252	4
815	IL	3,343	675	2,041	3
816	MO	4,053	129	2,140	3
817	TX	4,918	160	2,110	2
818	CA	1,021	504	2,054	3
828	NC	2,434	74	2,253	2
830	TX	2,417	279	2,079	1
831	CA	2,374	740	2,040	4
832	TX	5,651	295	2,065	3
843	SC	2,034	54	2,349	3
845	NY	2,545	204	2,102	3
847	IL	5,258	710	2,037	4
848	NJ	50	150	2,149	1
850	FL	1,552	484	2,054	1
854	SC	50	0	N/A	N/A
856	NJ	4,957	204	2,090	3
857	MA	50	550	2,052	2
858	CA	3,233	528	2,048	4
859	KY	2,407	169	2,120	1
860	CT	11,095	294	2,046	2

NPA	State Abbreviation	Total P-ANI	Forecasted P-ANI	Exhaust Year	Exhaust Quarter
862	NJ	50	150	2,149	1
863	FL	891	484	2,055	2
864	SC	1,546	54	2,358	3
865	TN	1,313	54	2,362	1
870	AR	4,137	54	2,310	4
872	IL	50	605	2,049	4
878	PA	50	15	3,346	1
901	TN	2,084	54	2,348	4
903	TX	10,341	315	2,047	3
904	FL	656	484	2056	4
906	MI	1,196	214	2,104	4
907	AK	1,696	69	2,281	2
908	NJ	6,896	214	2,077	1
909	CA	4,439	664	2,039	2
910	NC	2,182	54	2,346	4
912	GA	1,750	634	2,045	4
913	KS	2,025	84	2,230	4
914	NY	1,749	184	2,115	1
915	TX	705	279	2,085	1
916	CA	3,160	204	2,099	3
917	NY	50	150	2,149	1
918	OK	5,455	104	2,156	4
919	NC	1,885	54	2,351	2
920	WI	3,014	84	2,218	1
925	CA	2,569	214	2,097	2
928	AZ	1,851	329	2,071	1
929	NY	50	150	2,149	1
930	IN	50	300	2,082	3
931	TN	2,793	50	2,360	1
934	NY	50	150	2,149	1
936	TX	299	225	2,104	3
937	OH	2,757	57	2,319	3
938	AL	50	15	3,346	1
939	PR	50	0	N/A	N/A
940	TX	3,634	319	2,067	2
941	FL	561	484	2,056	1
947	MI	1,722	427	2,059	4
949	CA	1,405	204	2,107	1

NPA	State Abbreviation	Total P-ANI	Forecasted P-ANI	Exhaust Year	Exhaust Quarter
951	CA	2,963	604	2,044	1
952	MN	350	529	2,053	1
954	FL	1,116	484	2,055	1
956	TX	4,694	295	2,068	4
959	CT	50	250	2,096	4
970	CO	3,319	559	2,046	4
971	OR	50	15	3,346	1
972	TX	3,947	283	2,073	3
973	NJ	10,987	214	2,058	1
978	MA	3,785	915	2,034	3
979	TX	2,856	315	2,070	2
980	NC	90	0	N/A	N/A
984	NC	50	0	N/A	N/A
985	LA	1,103	84	2,241	4
989	MI	3,061	356	2,064	3

2.7.5 Routing Number Administration System (RNAS)

RNAS is the first national P-ANI database and is vitally important to our customers for obtaining and tracking e9-1-1 resources. Because RNAS stores all of the information relating to P-ANI administration and provides many essential reporting features that generally contain real-time data, reliability is essential. For details on RNAS performance see Section 6.2.

The RNA opened no trouble tickets for RNAS in 2016. For more details on trouble tickets for RNAS see Section 6.2.4.

2.7.6 Routing Number Administration (RNA) Customer Support /Help Desk

The p-ANI Administration Help Desk processes new user registrations and user profile updates, responds to p-ANI related questions, and questions regarding RNAS user accounts and passwords. In 2016, the p-ANI Administration Help Desk processed 27 new user registration requests, of which 21 were approved and 6 were denied; 45 profile updates, of which 44 were approved and one was denied, and handled approximately 72 phone calls.

Table 2-31 shows the numbers of calls to the pooling Help Desk for the past five years.

Table 2-28
Number of Help Desk Calls for P-ANI Issues by Year from 2012 through 2016

Year	Number of Help Desk Calls
2012	374
2013	143
2014	167
2015	81
2016	72

2.7.7 P-ANI Training Videos

New in 2016, the RNA developed 9 training videos to assist service providers and service provider consultants with requesting new P-ANIs and managing existing P-ANI assignments.

In all there were 46 total views of training videos in 2016. The most popular video is "Create/Modify P-ANI Forecasts," which accounted for 28% of the views.

Table 2-32 contains the 2016 P-ANI training video names and the number of times each video was accessed. These totals do not include downloaded or shared videos as there is no method for tracking those.

Table 2-29
2016 P-ANI Training Videos

	Training Video	Number of Times Viewed
1	**Create/Modify P-ANI Forecasts**	13
2	**New P-ANI Requests**	4
3	**P-ANI Modification Requests**	9
4	**P-ANI Return Requests**	5
5	**FCC License Search**	6
6	**Helpful Tools in RNAS**	3
7	**Types of Reports in RNAS**	1
8	**Filing P-ANI Annual Report in RNAS**	1
9	**Filing P-ANI Annual Report in Excel**	4
	TOTAL VIEWS	**46**

2.8 Continued Focus on Outstanding Customer Satisfaction

The PA is constantly focused on customer satisfaction. We strive to respond affirmatively to our customers' questions and suggestions for improvement, while meeting or exceeding contract requirements. Since 2006, we have provided the Numbering Oversight Working Group (NOWG) with an ongoing list of noteworthy specific ways we have responded to the more significant requests of our customers. This list does not include all the day-to-day questions and requests that the pooling staff members field as part of their daily workload. In 2016, we had 164 of these customer focus items, of which 107 were related to pooling activities and 57 were related to P-ANI activities.

A strong indication of our firm commitment to customer satisfaction is that we did not receive any formal complaints in 2016. Others include:

★ Processing all of the Applications (Part 3s) on Time

According to Section 7.4.4 of the *Thousands-Block Pooling Administration Guidelines* we are required to process applications within seven calendar days. According to Section 5.0 of Clause C.1 of our requirements, we have met our contractual obligation as long as 99% of the applications are processed within the seven-day timeframe. In 2016 we processed all but one of the 123,629 Part 3s, on time and usually well before the deadline, which is 99.999%.

★ Issuing Pooling and P-ANI Tips-of-the-Quarter

We continued to send the pooling *Tip of the Quarter* to our PAS and RNAS email distribution each quarter to help our customers understand pooling and P-ANI administration processes.

★ PAS and RNAS Exceptional Availability

Another area that shows our focus on customer support relates to PAS and RNAS performance and availability of our systems despite the need for builds and maintenance. Our contract allows us to have up to nine hours of *unscheduled* down time each year. However, we had only 25 minutes of PAS unscheduled down time, and only 15 minutes of unscheduled down time for RNAS in 2016. This is an availability improvement for both systems from 2015. Also our contract permits us to make the systems unavailable to our customers during maintenance but we work diligently to ensure that we complete the updates and builds with little-to-no down time. We used none of the FCC-approved time for *routine* maintenance in 2016, and less time than requested for the migrations of RNAS and PAS to the AWS cloud platform.

★ Exceeding Reporting Requirements for Responding to Requests for Ad Hoc Reports

We responded to all requests for ad hoc reports within 24 hours of each request rather than taking the permitted three business days to respond.

★ Training Videos

In 2016, interest remained high for the PAS training videos and we created nine instructional videos for P-ANI administration process. Details on PAS training videos can be found in Section 2.3.3 and for P-ANI in Section 2.7.7. This no-cost service makes it possible for every customer to access the training videos 24 hours a day, seven days a week.

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Section 3 - Identification of Existing and Potential Pooling Areas

In this section, Pooling Administration (PA) discusses the number of existing pooling areas. As of December 31, 2016, there are 16,331 distinct pooling rate centers (i.e., pooling areas), which constitute 88.2% of the 18,507 total distinct rate centers. There are currently 2,176 rate centers in which no carrier is pooling, and which could therefore be considered "potential" pooling areas. (See Section 3.2). A summary of total rate center by status designation can be found in Section 3.3.3.

The PA designates each rate center according to one of the following definitions:

1. **Mandatory (M)** - This rate center is located in a top-100 MSA and service providers with numbering resources in this rate center that have not been granted a specific exemption must pool in this rate center.

2. **Mandatory State (M)** - Pooling was implemented in this rate center pursuant to a state commission order. This rate center is not in a top-100 MSA, but has one or more pooling-capable service providers, and is considered a mandatory pooling rate center.

3. **Mandatory Single Service Provider (M*)** - This rate center is located in a top 100 MSA, but has only one service provider that has numbering resources. This rate center will be considered optional under these conditions and designated as M*. When a second service provider receives numbering resources in this rate center, the designation will be changed to M for Mandatory.

4. **Mandatory State Single Service Provider (M*)** - Pooling has been implemented in this rate center pursuant to a state commission order. This rate center is not in a top 100 MSA and has only one service provider that has numbering resources. This rate center will be considered optional under these conditions and designated as M*. When a second service provider receives numbering resources in this rate center, the designation will be changed to M for Mandatory State.

5. **Optional (O)** - This rate center is not in a top 100 MSA and any service provider with numbering resources in this rate center may elect to pool at its option. Service providers may voluntarily participate in thousands-block number pooling in an Optional rate center outside the top 100 MSAs.

6. **Excluded (X)** - This rate center is not in a top-100 MSA and no service provider is currently participating in pooling. This rate center is not included in the Pooling Administration System (PAS).

3.1 Identification of Existing Pooling Areas

Table 3-1 below identifies the 16,331 distinct pooling rate centers (*i.e.*, pooling areas), and their status designations, by state, as of December 31, 2016. Pooling rate centers are identified as either "mandatory" or "optional." Rate centers with a designation of "excluded" are not considered pooling areas.

Table 3-1
Summary of Existing Pooling Areas by Status Designation

State	Mandatory (M)	Mandatory State (M)	Optional	Mandatory Single SP (M*)	Mandatory State Single SP (M*)	Total
AK		69			191	**260**
AL	56	73	121	2	13	**265**
AR	46		262	1		**309**
AZ	27		44	20		**91**
CA	439	83	178	15		**715**
CO	21	5	134	3		**163**
CT	74	15				**89**
DC	1					**1**
DE	8		22			**30**
FL	129	14	120			**263**
GA	75		223	5		**303**
HI	1		5			**6**
IA	53	68	415	34		**570**
ID	16	79		3	47	**145**
IL	234		633	20		**887**
IN	216	256	12	9	26	**519**
KS	74		347	19		**440**
KY	46	134	136	1	29	**346**
LA	58		209	3		**270**
MA	234	30				**264**
MD	112	53				**165**
ME	50	101	89			**240**
MI	222	105	283	7	8	**625**
MN	58		346	5		**409**
MO	138	410		20	153	**721**
MS	38	88	87	6	15	**234**
MT		146			114	**260**
NC	146	19	233	8		**406**
ND			98			**98**
NE	28	171	170	4	78	**451**

State	Mandatory (M)	Mandatory State (M)	Optional	Mandatory Single SP (M*)	Mandatory State Single SP (M*)	Total
NH	32	92	25			**149**
NJ	188		21			**209**
NM	12		66	3		**81**
NV	22		43	3		**68**
NY	407	258	79		3	**747**
OH	379	163	162	4		**708**
OK	98	15	185	42		**340**
OR	36	103	72			**211**
PA	415	343	12		6	**776**
PR	47		36	1		**84**
RI	25					**25**
SC	91		119	21		**231**
SD			106			**106**
TN	120		179	8		**307**
TX	303	7	711	23		**1044**
UT	28		40	15	1	**84**
VA	121	182	66			**369**
VT		101	40			**141**
WA	54	149	1	3	16	**223**
WI	125	300	121	13	43	**602**
WV	7	156	59			**222**
WY			59			**59**
Grand Total	**5,110**	**3,788**	**6,369**	**321**	**743**	**16,331**

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3.2 Summary by State of "Potential" Pooling Areas

The chart below breaks down by state the 2,176 rate centers that were designated as "excluded" from pooling as of December 31, 2016, and could be considered "potential" pooling areas. These rate centers are not presently open for pooling in PAS, but can be made available at the request of a service provider or a state. This chart does not include any rate centers designated as "mandatory" or "optional." The 20 states with no excluded rate centers are listed in Section 3.3.2.

Table 3-2
Summary of Excluded Rate Centers by State

State	Excluded
AK	0
AL	34
AR	71
AZ	39
CA	24
CO	46
CT	0
DC	0
DE	0
FL	11
GA	57
HI	0
IA	241
ID	0
IL	99
IN	6
KS	134
KY	26
LA	7
MA	2
MD	0
ME	9
MI	9
MN	229
MO	0

State	Excluded
MS	5
MT	0
NC	26
ND	201
NE	0
NH	0
NJ	0
NM	82
NV	28
NY	0
OH	31
OK	189
OR	44
PA	0
PR	0
RI	0
SC	9
SD	163
TN	34
TX	233
UT	48
VA	0
VT	0
WA	0
WI	0

State	Excluded
WV	6
WY	33
Grand Total	2,176

3.3 Summarized Information about Existing and "Potential" Pooling Areas

3.3.1 Pooling Rate Center Facts:

Total Number of Distinct Rate Centers	18,507
Total Number of Distinct Rate Centers Available for Pooling	16,331
Percentage of Distinct Rate Centers Available for Pooling	88.24%
Total Number of Mandatory Distinct Rate Centers	8,898
Percentage of Distinct Rate Centers that are Mandatory	48.08%
Total Number of Distinct Mandatory Single-Service Provider Rate Centers	1,064
Percentage of Distinct Rate Centers that are Mandatory Single-Service Provider	5.75%
Total Number of Distinct Optional Rate Centers	6,369
Percentage of Distinct Rate Centers that are Optional	34.41%
Total Number of Distinct Rate Centers Excluded from Pooling	2,176
Percentage of Distinct Rate Centers that are Excluded from Pooling	11.76%
Total Number of Rate Center Designations Changed in 2016 (see Section 2.4.2.1 for detail)	174

3.3.2 Summary of State/Jurisdiction Pooling Status

States or jurisdictions where number pooling has been implemented.	All states, the District of Columbia and Puerto Rico
States or jurisdictions that have only mandatory pooling rate centers. (No change)	Alaska, Connecticut, District of Columbia, Idaho, Maryland, Missouri, Montana, and Rhode Island
States that have no mandatory pooling rate centers. (No change)	North Dakota, South Dakota, and Wyoming
States or jurisdictions that have no excluded rate centers. (No change)	Alaska, Connecticut, Delaware, District of Columbia, Hawaii, Idaho, Maryland, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, Pennsylvania, Puerto Rico, Rhode Island, Vermont, Virginia, Washington, and Wisconsin
States or jurisdictions that implemented additional mandatory pooling prior to December 31, 2016, either under delegated authority for state pooling trials prior to the rollout of national pooling, or as a result of additional delegated authority after the national rollout. (No change)	Alabama, Alaska, Arizona, California, Colorado, Connecticut, Florida, Idaho, Illinois, Iowa, Indiana, Kentucky, Massachusetts, Maryland, Maine, Michigan, Missouri, Mississippi, Montana, North Carolina, Nebraska, New Hampshire, New Jersey, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Utah, Virginia, Vermont, Washington, West Virginia, and Wisconsin

3.3.3. Complete Summary of all Rate Centers by Status Designation

The following chart combines the information contained in Sections 3.1 and 3.2. It summarizes the total for each status designation for all 18,507 rate centers in each state by their respective pooling status designations (mandatory, optional, or excluded) as of December 31, 2016.

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Table 3-3
Summary of total Rate Centers by Status Designation

State	Mandatory (M)	Mandatory State (M)	Optional	Mandatory Single SP (M*)	Mandatory State Single SP (M*)	Excluded (X)	Total
AK		69			191		**260**
AL	56	73	121	2	13	34	**299**
AR	46		262	1		71	**380**
AZ	27		44	20		39	**130**
CA	439	83	178	15		24	**739**
CO	21	5	134	3		46	**209**
CT	74	15					**89**
DC	1						**1**
DE	8		22				**30**
FL	129	14	120			11	**274**
GA	75		223	5		57	**360**
HI	1		5				**6**
IA	53	68	415	34		241	**811**
ID	16	79		3	47		**145**
IL	234		633	20		99	**986**
IN	216	256	12	9	26	6	**525**
KS	74		347	19		134	**574**
KY	46	134	136	1	29	26	**372**
LA	58		209	3		7	**277**
MA	234	30				2	**266**
MD	112	53					**165**
ME	50	101	89			9	**249**
MI	222	105	283	7	8	9	**634**
MN	58		346	5		229	**638**
MO	138	410		20	153		**721**
MS	38	88	87	6	15	5	**239**
MT		146			114		**260**
NC	146	19	233	8		26	**432**
ND			98			201	**299**

State	Mandatory (M)	Mandatory State (M)	Optional	Mandatory Single SP (M*)	Mandatory State Single SP (M*)	Excluded (X)	Total
NE	28	171	170	4	78		**451**
NH	32	92	25				**149**
NJ	188		21				**209**
NM	12		66	3		82	**163**
NV	22		43	3		28	**96**
NY	407	258	79		3		**747**
OH	379	163	162	4		31	**739**
OK	98	15	185	42		189	**529**
OR	36	103	72			44	**255**
PA	415	343	12		6		**776**
PR	47		36	1			**84**
RI	25						**25**
SC	91		119	21		9	**240**
SD			106			163	**269**
TN	120		179	8		34	**341**
TX	303	7	711	23		233	**1,277**
UT	28		40	15	1	48	**132**
VA	121	182	66				**369**
VT		101	40				**141**
WA	54	149	1	3	16		**223**
WI	125	300	121	13	43		**602**
WV	7	156	59			6	**228**
WY			59			33	**92**
Grand Total	**5,110**	**3,788**	**6,369**	**321**	**743**	**2,176**	**18,507**

Section 4 - Aggregated Total by Pool of the Service Providers Participating in the Pooled Areas

Following is a list of the aggregated total by pool of the service providers participating in the pooled areas in 2016. There are 1,091 distinct service providers* participating in 16,331 distinct pooled rate centers in 241 NPA and NPA complexes covering 52 jurisdictions -- 50 states, the District of Columbia, and Puerto Rico.

* This count of distinct service providers consolidates all Operating Company Numbers (OCNs) for a single company under one parent company.

Table 4-1
Aggregated Total by Pool of the Service Providers Participating in the Pooled Areas

NPA/NPA COMPLEX	Pooling OCNs	Pooled Rate Centers
201/551	53	22
202	47	1
203/475	36	32
205	46	66
206	41	5
207	54	240
208	52	145
209	39	56
210	37	1
212/646/917	58	1
213	48	3
214/469/972	69	43
215/267	52	36
216	34	4
217	42	228
218	41	112
219	35	45
220/740	49	187
224/847	41	42
225	36	34
228	30	11
229	32	70

NPA/NPA COMPLEX	Pooling OCNs	Pooled Rate Centers
231	41	91
234/330	40	116
239	29	11
240/301	62	63
248/947	44	20
251	40	32
252	35	89
253	36	10
254	42	105
256/938	41	91
260	29	76
262	33	60
269	45	76
270/364	54	170
272/570	55	180
276	39	78
281/346/713/832	59	45
302	34	30
303/720	46	14
304/681	37	222
305/786	51	5
307	26	59

NPA/NPA COMPLEX	Pooling OCNs	Pooled Rate Centers
308	31	170
309	43	146
310/424	47	16
312/872	43	1
313	40	6
314	33	7
315	50	149
316	27	14
317/463	40	36
318	36	117
319	37	98
320	48	101
321	31	5
321/407	43	17
323	45	12
325	32	60
331/630	40	25
334	41	76
336/743	59	82
337	35	70
339/781	34	40
347/718/917/929	56	11
347/718/929	41	2
351/978	37	58
352	32	47
360	56	75
361	37	68
380/614	36	16
385/801	29	20
386	37	28
401	26	25
402/531	59	281
404/470/678	54	1
405	36	82
406	44	260
408/669	48	11

NPA/NPA COMPLEX	Pooling OCNs	Pooled Rate Centers
409	39	47
410/443/667	54	102
412/878	39	23
413	30	61
414	28	4
415/628	52	14
417	43	155
419/567	47	175
423	51	70
425	35	14
430/903	55	161
432	24	38
434	33	66
435	33	64
440	40	62
442/760	55	83
458/541	46	150
470/678/770	57	41
478	40	37
479	26	59
480	29	1
484/610	54	90
501	30	57
502	36	35
503/971	53	61
504	34	5
505	36	29
507	44	170
508/774	38	85
509	52	119
510	43	13
512/737	48	35
513	35	25
515	40	72
516	49	11
517	53	77

NPA/NPA COMPLEX	Pooling OCNs	Pooled Rate Centers
518	55	135
520	33	27
530	51	116
534/715	77	253
539/918	44	130
540	50	117
559	39	57
561	45	7
562	45	9
563	30	78
571/703	51	19
573	43	216
574	37	53
575	30	52
580	37	128
585	40	77
586	37	11
601/769	45	101
602	28	1
603	42	149
605	28	106
606	38	99
607	39	105
608	60	159
609	44	39
612	40	1
615/629	42	49
616	41	36
617/857	44	20
618	46	212
619	41	11
620	54	198
623	26	1
626	46	10
631/934	48	53
636	32	46

NPA/NPA COMPLEX	Pooling OCNs	Pooled Rate Centers
641	39	155
650	41	15
651	45	12
657/714	46	13
660	38	224
661	50	32
662	45	122
682/817	55	24
701	35	98
702/725	36	16
704/980	47	56
706/762	67	102
707	47	75
708	36	32
712	45	167
716	48	79
717	47	107
719	36	55
724/878	48	162
727	39	5
731	38	59
732/848	45	36
734	49	33
747/818	42	16
754/954	45	5
757	29	34
763	50	10
765	51	138
772	38	8
773/872	39	10
775	34	52
779/815	56	191
785	46	194
787/939	14	84
802	27	141
803	56	79

NPA/NPA COMPLEX	Pooling OCNs	Pooled Rate Centers
804	35	55
805	52	40
806	31	107
808	17	6
810	38	47
812/930	53	171
813	48	8
814	47	178
816	43	73
828	39	70
830	46	80
831	39	24
843/854	46	89
845	61	96
850	38	65
856	46	32
858	36	8
859	41	42
860/959	28	57
862/973	57	42
863	45	22
864	42	63
865	34	33
870	33	193
901	33	14
904	36	19
906	20	93

NPA/NPA COMPLEX	Pooling OCNs	Pooled Rate Centers
907	20	260
908	46	38
909	47	21
910	42	71
912	45	52
913	38	34
914	52	28
915	28	7
916	45	16
919/984	49	38
920	55	126
925	40	17
928	35	61
931	41	82
936	41	66
937	42	123
940	53	71
941	42	11
949	43	7
951	43	20
952	45	3
956	36	34
970	41	94
979	45	52
985	34	44
989	45	135

Section 5 - Forecast Results and a Review of Forecasts versus Actual Block Activation in 2016

This section identifies forecast results by NPA, and contains a review of forecasts compared to actual block assignments for the current year and the previous years, as specifically required by the contract.

In 2016, 41.6% of the blocks forecasted were assigned. Table 5-1 below shows the top five years of assigned/forecasted blocks since pooling began in 2001.

Table 5-1
Top 5 Years of Assigned/ Forecasted Blocks since Pooling Began in 2001

RANK SINCE POOLING BEGAN	YEAR	PERCENTAGE OF ASSIGNED/ FORECASTED BLOCKS
1	2011	57.1
2	2010	48.6
3	2014	45.7
4	2015	43.9
5	2006	42.5

NOTE: 2016 does not reach the top 5.

The relevant numbers are:

- 241 NPA and NPA complexes;
- 12,674 distinct rate areas with forecasts;
- 134,021 forecasted blocks; and
- 55,720 blocks assigned.

5.1 Forecasted versus Actual Block Assignments by NPA or NPA complex for 2016

The table below shows 134,021 blocks were forecasted and 55,720 blocks were assigned in 241 NPA and NPA complexes during the 2016 calendar year which resulted in 41.6% of the forecasted blocks being assigned. The lowest historical percentage was 21.3% in 2004.

Carriers forecasted a need for blocks in 12,674 of the 16,331 pooling rate centers, or in 78% of them. In 3,657 pooling rate centers, no blocks were forecasted during 2016. When compared with 2015, the number of blocks assigned increased by 4% while the number of blocks forecasted increased by 10%. The Nebraska 308 NPA had the lowest percentage of blocks assigned compared to total forecast, at 10.1%, while the Mississippi 228 NPA had the highest ratio at 93.3%.

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Table 5-2
Forecasted versus Actual Block Assignments by NPA or NPA Complex for 2016

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
201/551	NJ	707	408	57.71%
202	DC	419	198	47.26%
203/475	CT	667	282	42.28%
205	AL	470	273	58.09%
206	WA	472	240	50.85%
207	ME	277	168	60.65%
208	ID	798	280	35.09%
209	CA	926	337	36.39%
210	TX	488	199	40.78%
212/646/917	NY	659	310	47.04%
213	CA	531	190	35.78%
214/469/972	TX	1,685	720	42.73%
215/267	PA	1,470	680	46.26%
216	OH	327	89	27.22%
217	IL	528	210	39.77%
218	MN	556	186	33.45%
219	IN	266	51	19.17%
220/740	OH	1,019	358	35.13%
224/847	IL	972	322	33.13%
225	LA	452	207	45.80%
228	MS	341	318	93.26%
229	GA	353	89	25.21%
231	MI	628	167	26.59%
234/330	OH	819	280	34.19%
239	FL	414	182	43.96%
240/301	MD	1,179	537	45.55%
248/947	MI	637	298	46.78%
251	AL	167	89	53.29%
252	NC	253	86	33.99%
253	WA	342	135	39.47%
254	TX	289	150	51.90%
256/938	AL	556	383	68.88%
260	IN	268	59	22.01%
262	WI	352	170	48.30%
269	MI	434	105	24.19%

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
270/364	KY	505	168	33.27%
272/570	PA	1,001	453	45.25%
276	VA	157	48	30.57%
281/346/713/	TX	1,944	731	37.60%
302	DE	376	149	39.63%
303/720	CO	803	304	37.86%
304/681	WV	525	186	35.43%
305/786	FL	1,035	515	49.76%
307	WY	208	64	30.77%
308	NE	840	85	10.12%
309	IL	700	354	50.57%
310/424	CA	961	351	36.52%
312/872	IL	428	237	55.37%
313	MI	580	121	20.86%
314	MO	569	206	36.20%
315/680	NY	662	346	52.27%
316	KS	1,041	405	38.90%
317/463	IN	604	267	44.21%
318	LA	485	358	73.81%
319	IA	462	152	32.90%
320	MN	439	114	25.97%
321	FL	157	86	54.78%
321/407	FL	621	315	50.72%
323	CA	792	265	33.46%
325	TX	165	98	59.39%
331/630	IL	597	240	40.20%
334	AL	273	161	58.97%
336/743	NC	546	182	33.33%
337	LA	272	173	63.60%
339/781	MA	629	284	45.15%
347/718/917/	NY	1,751	605	34.55%
347/718/929	NY	160	63	39.38%
351/978	MA	644	337	52.33%
352	FL	387	212	54.78%
360	WA	774	247	31.91%
361	TX	359	236	65.74%
380/614	OH	560	245	43.75%
385/801	UT	681	290	42.58%

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
386	FL	219	100	45.66%
401	RI	276	126	45.65%
402/531	NE	472	243	51.48%
404/470/678	GA	681	248	36.42%
405	OK	844	301	35.66%
406	MT	659	155	23.52%
408/669	CA	488	255	52.25%
409	TX	176	86	48.86%
410/443/667	MD	1,439	617	42.88%
412/878	PA	628	273	43.47%
413	MA	241	86	35.68%
414	WI	250	43	17.20%
415/628	CA	909	433	47.63%
417	MO	587	236	40.20%
419/567	OH	733	267	36.43%
423	TN	534	249	46.63%
425	WA	451	224	49.67%
430/903	TX	457	219	47.92%
432	TX	146	54	36.99%
434	VA	273	96	35.16%
435	UT	205	93	45.37%
440	OH	450	191	42.44%
442/760	CA	841	442	52.56%
458/541	OR	1,209	359	29.69%
470/678/770	GA	1,736	819	47.18%
478	GA	209	103	49.28%
479	AR	172	87	50.58%
480	AZ	663	186	28.05%
484/610	PA	1,186	551	46.46%
501	AR	281	140	49.82%
502	KY	460	204	44.35%
503/971	OR	651	241	37.02%
504	LA	599	98	16.36%
505	NM	482	193	40.04%
507	MN	650	200	30.77%
508/774	MA	930	481	51.72%
509	WA	905	230	25.41%
510	CA	695	270	38.85%

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
512/737	TX	733	303	41.34%
513	OH	471	125	26.54%
515	IA	512	194	37.89%
516	NY	372	198	53.23%
517	MI	511	146	28.57%
518	NY	1,631	734	45.00%
520	AZ	447	157	35.12%
530	CA	864	268	31.02%
534/715	WI	377	118	31.30%
539/918	OK	909	304	33.44%
540	VA	549	145	26.41%
559	CA	703	260	36.98%
561	FL	395	166	42.03%
562	CA	483	191	39.54%
563	IA	585	362	61.88%
571/703	VA	554	240	43.32%
573	MO	742	336	45.28%
574	IN	230	81	35.22%
575	NM	313	121	38.66%
580	OK	685	325	47.45%
585	NY	389	180	46.27%
586	MI	514	285	55.45%
601/769	MS	763	488	63.96%
602	AZ	506	112	22.13%
603	NH	363	146	40.22%
605	SD	470	178	37.87%
606	KY	446	252	56.50%
607	NY	336	144	42.86%
608	WI	463	161	34.77%
609	NJ	497	234	47.08%
612	MN	590	190	32.20%
615/629	TN	665	256	38.50%
616	MI	450	157	34.89%
617/857	MA	702	407	57.98%
618	IL	622	270	43.41%
619	CA	845	310	36.69%
620	KS	646	206	31.89%
623	AZ	500	89	17.80%

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
626	CA	547	228	41.68%
631/934	NY	771	230	29.83%
636	MO	326	166	50.92%
641	IA	358	102	28.49%
650	CA	471	251	53.29%
651	MN	291	100	34.36%
657/714	CA	1,338	585	43.72%
660	MO	349	165	47.28%
661	CA	464	169	36.42%
662	MS	634	464	73.19%
682/817	TX	684	358	52.34%
701	ND	514	173	33.66%
702/725	NV	635	346	54.49%
704/980	NC	870	327	37.59%
706/762	GA	590	249	42.20%
707	CA	670	305	45.52%
708	IL	553	215	38.88%
712	IA	365	159	43.56%
716	NY	594	310	52.19%
717	PA	838	311	37.11%
719	CO	546	139	25.46%
724/878	PA	824	318	38.59%
727	FL	290	143	49.31%
731	TN	551	482	87.48%
732/848	NJ	672	299	44.49%
734	MI	480	160	33.33%
747/818	CA	540	272	50.37%
754/954	FL	500	202	40.40%
757	VA	499	246	49.30%
763	MN	297	113	38.05%
765	IN	499	217	43.49%
772	FL	121	71	58.68%
773/872	IL	406	98	24.14%
775	NV	277	111	40.07%
779/815	IL	701	276	39.37%
785	KS	617	143	23.18%
787/939	PR	667	181	27.14%
802	VT	285	97	34.04%

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
803	SC	488	237	48.57%
804	VA	562	308	54.80%
805	CA	891	352	39.51%
806	TX	296	110	37.16%
808	HI	276	141	51.09%
810	MI	388	139	35.82%
812/930	IN	666	339	50.90%
813	FL	543	237	43.65%
814	PA	747	317	42.44%
816	MO	567	197	34.74%
828	NC	321	178	55.45%
830	TX	487	216	44.35%
831	CA	333	181	54.35%
843/854	SC	672	216	32.14%
845	NY	612	242	39.54%
850	FL	409	214	52.32%
856	NJ	576	263	45.66%
858	CA	295	143	48.47%
859	KY	414	170	41.06%
860/959	CT	446	217	48.65%
862/973	NJ	664	288	43.37%
863	FL	341	156	45.75%
864	SC	420	206	49.05%
865	TN	400	183	45.75%
870	AR	180	112	62.22%
901	TN	316	114	36.08%
904	FL	464	218	46.98%
906	MI	31	23	74.19%
907	AK	131	49	37.40%
908	NJ	313	166	53.04%
909	CA	893	387	43.34%
910	NC	440	242	55.00%
912	GA	375	154	41.07%
913	KS	578	162	28.03%
914	NY	302	130	43.05%
915	TX	200	92	46.00%
916	CA	509	230	45.19%
919/984	NC	564	233	41.31%

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
920	WI	445	231	51.91%
925	CA	436	195	44.72%
928	AZ	387	164	42.38%
931	TN	250	158	63.20%
936	TX	216	110	50.93%
937	OH	525	232	44.19%
940	TX	155	78	50.32%
941	FL	224	121	54.02%
949	CA	748	324	43.32%
951	CA	695	248	35.68%
952	MN	362	44	12.15%
956	TX	520	170	32.69%
970	CO	757	224	29.59%
979	TX	214	101	47.20%
985	LA	481	279	58.00%
989	MI	828	251	30.31%
Totals		**134,021**	**55,720**	41.58%

5.2 NPAs/States with Forecasted-Versus-Actual Blocks Assigned Below 25%

Table 5-3 below shows that there were 13 NPAs/NPA complex areas where fewer than 25% of the blocks forecasted were assigned in 2016. This is up from the 9 in 2015.

Table 5-3
NPAs/States with Forecasted versus Actual Blocks Assigned under 25%

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
308	NE	840	85	10.12%
952	MN	362	44	12.15%
504	LA	599	98	16.36%
414	WI	250	43	17.20%
623	AZ	500	89	17.80%
219	IN	266	51	19.17%
313	MI	580	121	20.86%
260	IN	268	59	22.01%
602	AZ	506	112	22.13%
785	KS	617	143	23.18%

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
406	MT	659	155	23.52%
773/872	IL	406	98	24.14%
269	MI	434	105	24.19%

5.3. NPAs/States with Forecasted Versus Actual Blocks Assigned Above 50%

Table 5-4 below shows that there were 56 NPAs/NPA complex areas where the ratio between blocks forecasted and blocks assigned was above 50% in 2016. This is a 25% decrease from 2015.

In 2016 there were 2 areas that had a percent assigned over 75%. In 2015, there were no areas over 75%.

Table 5-4
NPAs/States with forecasted versus actual blocks assigned above 50%
(Sorted from highest to lowest)

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
228	MS	341	318	93.26%
731	TN	551	482	87.48%
906	MI	31	23	74.19%
318	LA	485	358	73.81%
662	MS	634	464	73.19%
256/938	AL	556	383	68.88%
361	TX	359	236	65.74%
601/769	MS	763	488	63.96%
337	LA	272	173	63.60%
931	TN	250	158	63.20%
870	AR	180	112	62.22%
563	IA	585	362	61.88%
207	ME	277	168	60.65%
325	TX	165	98	59.39%
334	AL	273	161	58.97%
772	FL	121	71	58.68%
205	AL	470	273	58.09%
985	LA	481	279	58.00%
617/857	MA	702	407	57.98%
201/551	NJ	707	408	57.71%

NPA/NPA Complex	State	Blocks Forecasted	Blocks Assigned	Percent Assigned
606	KY	446	252	56.50%
828	NC	321	178	55.45%
586	MI	514	285	55.45%
312/872	IL	428	237	55.37%
910	NC	440	242	55.00%
804	VA	562	308	54.80%
352	FL	387	212	54.78%
321	FL	157	86	54.78%
702/725	NV	635	346	54.49%
831	CA	333	181	54.35%
941	FL	224	121	54.02%
251	AL	167	89	53.29%
650	CA	471	251	53.29%
516	NY	372	198	53.23%
908	NJ	313	166	53.04%
442/760	CA	841	442	52.56%
682/817	TX	684	358	52.34%
351/978	MA	644	337	52.33%
850	FL	409	214	52.32%
315/680	NY	662	346	52.27%
408/669	CA	488	255	52.25%
716	NY	594	310	52.19%
920	WI	445	231	51.91%
254	TX	289	150	51.90%
508/774	MA	930	481	51.72%
402/531	NE	472	243	51.48%
808	HI	276	141	51.09%
936	TX	216	110	50.93%
636	MO	326	166	50.92%
812/930	IN	666	339	50.90%
206	WA	472	240	50.85%
321/407	FL	621	315	50.72%
479	AR	172	87	50.58%
309	IL	700	354	50.57%
747/818	CA	540	272	50.37%
940	TX	155	78	50.32%

5.4. Analysis of Forecasted-versus-Actual-Blocks Assigned Percentage since 2012

For the five years since 2012, the 2016 forecasted-versus-actual-blocks-assigned percentage of 41.6% ranks third highest. The highest percentage during this period was 45.7% in 2014.

Table 5-5 below illustrates the ratio between forecasts and actual assigned blocks from 2012 through 2016, ranked from highest percentage to lowest.

Table 5-5
Summary of Forecasts and Actual Assigned Blocks from 2012 through 2016

Rank from Highest to Lowest	Year	Total Forecasted Blocks	Total Blocks Assigned	Percentage of Assigned/ Forecasted Blocks
1	2014	129,820	59,274	45.7%
2	2015	121,578	53,415	43.9%
3	2016	134,021	55,720	41.6%
3	2012	113,077	47,014	41.6%
5	2013	124,093	47,193	38%

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Section 6 - Pooling Administration (PA) and Routing Number Administration (RNA) Systems Performance

6.1. Pooling Administration System (PAS) Performance in 2016

6.1.1 Summary of PAS Performance in 2016

The Pooling Administration System (PAS) is the nucleus of the thousands-block pooling operation and is vitally important to our customers. Because PAS stores all of the information relating to thousands-block administration and provides many essential reporting features that contain real-time data, reliability is critical.

Section 3.3 of contract Attachment A, Thousands-Block Pooling Administrator *Technical Requirement,* states that the pooling system shall, at a minimum, adhere to the following availability and reliability requirements:

1. Available 24 hours a day, 7 days a week.
2. Availability shall meet or exceed 99.9% of scheduled uptime.
3. Unscheduled maintenance downtime in any 12-month interval shall be less than nine (9) hours.
4. The mean time to repair (MTTR) for all unscheduled downtime in any 12-month interval shall be less than one hour during core business hours and four (4) hours for non-core business hours.
5. Scheduled maintenance downtime in any 12-month interval shall be less than 24 hours.

In 2016, we continued our practice of exceeding the PAS performance metric of 99.9% scheduled uptime. PAS was available for use **99.995%** of scheduled uptime during the 12-month period. Of the 8,784 hours that PAS could be available in 2016, PAS users experienced only two instances of *unscheduled* down time for a total of 25 minutes 16 seconds. This is less than one third of the unscheduled down time reported in 2015. The PAS has exceeded the contract performance metric for every year since we began reporting in 2002.

On June 11, 2016, we successfully completed the implementation of Change Order #1 which moved PAS to the Amazon Web Services (AWS) cloud platform. While we were approved by the FCC for six hours of scheduled unavailability for this project, we completed the upgrade in four hours 44 minutes. For more detail on the move to AWS see Section 6.4 below.

Table 6-1 summarizes PAS system performance in 2016.

Table 6-1

Summary of Actual PAS Performance in 2016

MONTH	NUMBER OF POSSIBLE AVAILABLE HOURS	NUMBER OF HOURS AVAILABLE	TOTAL UNAVAILABILITY	SCHEDULED (S) OR UNSCHEDULED (U)
January	744	744	0	
February	672	672		
March	744	743 hours 42 minutes 44 seconds	17 minutes 16 seconds	U
April	720	720		
May	744	744		
June	720	719 hours 40 minutes	4 hours 44 minutes	S
July	744	744		
August	744	744		
September	720	720		
October	744	743 hours 52 minutes	8 minutes	U
November	720	720		
December	744	744		

6.1.2 PAS Performance Metrics

In 2016, as outlined in Table 6-2, PAS consistently met or exceeded the required performance metrics set forth in Attachment A of the contract:

Table 6-2

PAS PERFORMANCE METRICS

REQUIRED SERVICE	PERFORMANCE STANDARD	ACCEPTABLE QUALITY LEVEL	ACCOMPLISHMENT
PAS Availability (See PWS 3.3)	Pooling Administration System is available	99.9%	**EXCEEDED** THE REQUIREMENT WITH A SCHEDULED AVAILABILITY LEVEL OF 99.995%
Maintenance (See PWS 3.3)	Unscheduled maintenance of the PAS is less than 9 hours in any 12 month period	100%	MET THE REQUIREMENT WITH TWO INSTANCES OF UNSCHEDULED DOWNTIME FOR A TOTAL OF 25 MINUTES 16 SECONDS OF PAS UNAVAILABILITY IN 2016.
Maintenance (See PWS 3.3)	Scheduled maintenance of the PAS is less than 24 hours in any 12 month period	100%	MET THE REQUIREMENT WITH ONLY 4 HOURS 44 MINUTES DOWNTIME RELATED TO SCHEDULED MAINTENANCE DURING 2016

6.1.3 PAS Maintenance in 2016

We had a total of eight PAS maintenance updates in 2016. Although we requested and were approved for two hours of scheduled downtime outside of normal business hours for these activities, we did not use it, and PAS customers experienced no downtime during scheduled maintenance.

In our continuing focus on customer service, we provide detailed email notifications about upcoming PAS maintenance prior to the event to give our customers ample time to prepare for updates, and a second email notification the day of the scheduled maintenance.

6.1.4 Pooling Trouble Tickets Opened and Closed in 2016

The PA opened eight pooling trouble tickets and closed 10 in 2016. There was a 75% decrease over the total of 32 trouble tickets opened in 2015, when we rolled out an upgraded system in the context of a new contract. We responded to each issue as quickly as possible to ensure timely access to PAS for customer requests and found workarounds so that no customer was unable to complete their request. At no time was any user's information compromised.

We report trouble tickets details each month to the NOWG and in the "Monthly Pooling Metrics Report" posted on the website.

There are six reasons for opening a trouble ticket, as specified in Section 2.22.4 of the Pooling Work Statement:

- PAS deficiency
- Website deficiency
- Facsimile deficiency
- Voicemail deficiency
- Email deficiency
- Contractor ISP deficiency.

In 2014 we added a category of OTHER because the reason did not fall into any of the other categories.

All of the eight trouble tickets opened by the PA in 2016 were due to a PAS system issue. The overall average time that a trouble ticket was open until resolution was 46 days 8 hours 32 minutes.

Table 6-3 and Figure 6 show the total number of trouble tickets opened, by year, since 2012.

Table 6-3
Number of Pooling Trouble Tickets from 2012 through 2016

YEAR	NUMBER OF TROUBLE TICKETS
2012	3
2013	2
2014	6
2015	32
2016	8

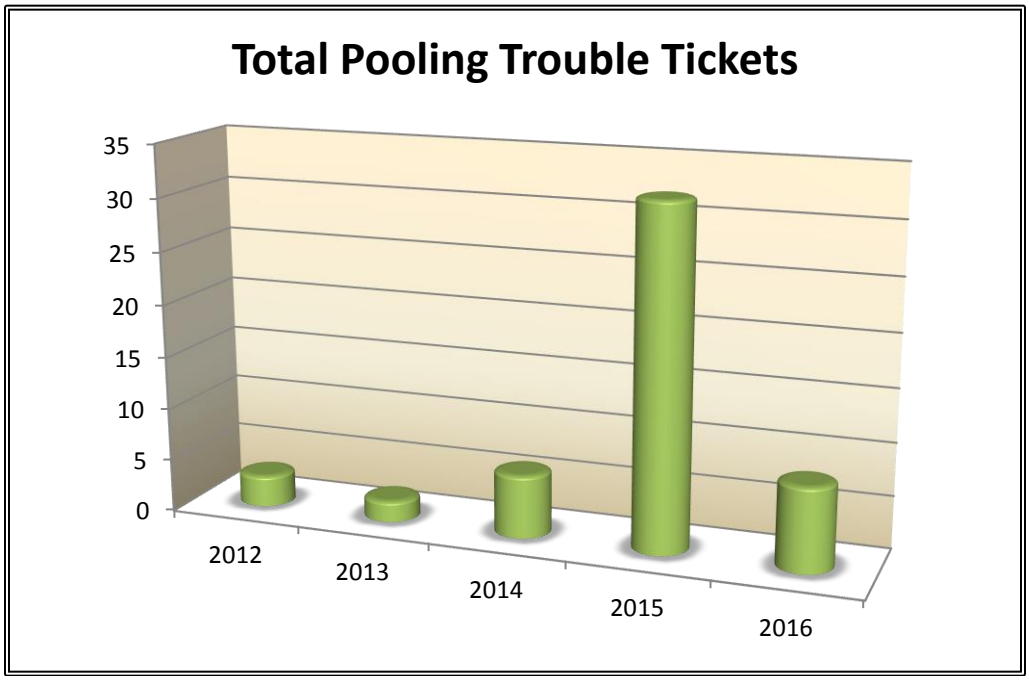


Figure 6: Total Pooling Trouble Tickets 2012 through 2016

6.2. Routing Number Administration System (RNAS) Performance in 2016

6.2.1 Summary of RNAS Performance in 2016

As with PAS, the Routing Number Administration System (RNAS) is the nucleus of the routing number (E9-1-1) administration (P-ANI) operation because RNAS stores all of the information relating to P-ANI administration. Because it provides essential reporting features that contain real-time data, reliability is essential. RNAS is subject to the same availability requirements as PAS.

In 2016, we continued to exceed the RNAS performance metric of 99.9% scheduled uptime. RNAS was available for use **99.997%** of the year. Of the 8,784 possible hours that RNAS could be available in 2016, RNAS users experienced only one 15-minute instance of *unscheduled* down time. This is one-half of the unscheduled down time reported in 2015. The RNAS has exceeded its performance metric every year since implementation in March 2012.

On February 20, 2016, we successfully completed the implementation of Change Order #1 which moved RNAS to the AWS cloud platform. We requested and were approved for six hours of scheduled unavailability for this project because it was the first of the two systems to be implemented. We completed the upgrade in 55 minutes. For more detail on the move to AWS see Section 6.4 below.

As outlined in Table 6-3, in 2016 RNAS exceeded the performance metrics set forth in Attachment C of the contract:

Table 6-4

Summary of RNAS Performance in 2016

MONTH	NUMBER OF POSSIBLE AVAILABLE HOURS	NUMBER OF HOURS AVAILABLE	TOTAL UNAVAILABILITY	SCHEDULED (S) OR UNSCHEDULED (U)
January	744	744		
February	672	672	55 minutes	S
March	744	744		
April	720	720		
May	744	744		
June	720	720		
July	744	744		
August	744	744		
September	720	720	15 minutes	U
October	744	744		
November	720	720		
December	744	744		

6.2.2 RNAS Performance Metrics

In 2016, as outlined in Table 6-4, RNAS met or exceeded the performance metrics as set forth in Section 3.3 of Attachment A of the contract for PA systems:

Table 6-5
RNAS PERFORMANCE METRICS

REQUIRED SERVICE	PERFORMANCE STANDARD	ACCEPTABLE QUALITY LEVEL	ACCOMPLISHMENT
RNAS Availability (See PWS 3.3)	Routing Number Administration System is available	99.9%	**EXCEEDED** THE REQUIREMENT WITH A SCHEDULED AVAILABILITY LEVEL OF 99.997%
Maintenance (See PWS 3.3)	Unscheduled maintenance of the RNAS is less than 9 hours in any 12 month period	100%	MET THE REQUIREMENT WITH ONLY ONE INSTANCE OF UNSCHEDULED DOWNTIME RESULTING IN A TOTAL OF 15 MINUTES OF RNAS UNAVAILABILITY IN 2016.
Maintenance (See PWS 3.3)	Scheduled maintenance of the RNAS is less than 24 hours in any 12 month period	100%	MET THE REQUIREMENT BY USING ONLY 55 MINUTES OF APPROVED DOWNTIME AS A RESULT OF SCHEDULED MAINTENANCE DURING 2016

6.2.3 RNAS Maintenance in 2016

We had a total of seven RNAS maintenance updates in 2016. Although we requested and were approved for three hours of scheduled downtime outside of normal business hours for these activities, we did not use it, and RNAS customers experienced no downtime during scheduled maintenance.

In our continuing focus on customer service, we provide detailed email notifications about upcoming RNAS maintenance two weeks prior to the event to give our customers ample time to prepare for updates, and a second email notification the day of the scheduled maintenance.

6.2.4 P-ANI Administration Trouble Tickets

The RNA opened no trouble tickets for RNAS in 2016. Since the initial implementation of RNAS in 2012, only two trouble tickets have been opened, both in 2014.

Table 6-6 shows the total number of trouble tickets opened, by year, since 2012.

Table 6-6
Number of P-ANI Trouble Tickets from 2012 through 2016

YEAR	NUMBER OF TROUBLE TICKETS
2012	0
2013	0
2014	2
2015	0
2016	0

6.3. PA and RNA Systems Disaster Recovery Testing

With the move to AWS, the PAS and RNAS Disaster Recovery Plan (DRP) testing paradigm has changed from years past. The current environments allow PAS and RNAS to be highly scalable and provide for more redundancy than we had in the previous configuration. While in the past we completed this exercise by failing over the system to the backup location and then failing back, we now validate our AWS environments by running through simulations by copying our data from the primary Amazon region (US-EAST-1) to our backup DRP region (US-WEST-2). We are able to do these tests without service interruption due to the redundancy provided with AWS services.

In addition to the system DRP testing, our Concord office also assesses evacuation procedures and the ability of personnel to access the system remotely during the year.

6.4 Moving RNAS and PAS to the Cloud

In our 2013 contract renewal proposal, Neustar proposed to maintain technological capability and flexibility while improving availability by refreshing and/or upgrading both systems' hardware at designated times during the contract by either virtualization or replacement. In lieu of the technology refresh identified in the proposal, Neustar proposed in Change Order #1 on November 10, 2015, to move the RNAS and PAS platforms to a qualified cloud platform, namely Amazon Web Services (AWS).

After extensive research, Neustar chose AWS as the vendor it would use to move PAS and RNAS to the cloud. AWS is a FedRAMP-compliant cloud service provider which has also been assessed through FCC authorization processes, and has agency-approved authority to operate. We

proposed to initially move RNAS to the cloud, because it is the less-complex system of the two and its user base is smaller. Once RNAS was successfully functioning in the cloud, we would migrate the PAS system. Our goals with this proposal were to significantly improve scalability, provide the reliability of geographically discrete instances, and improve recovery time in a true disaster scenario, should such a situation ever occur.

Advantages of migrating to AWS include:

- Use of *Infrastructure As A Service* (IAAS), which enables us to create code to automate routine maintenance tasks, quickly rebuild virtual servers in the event of a failure, and automatically deploy new builds. These are things that today require human intervention.
- A high level of scalability which lowers the need for infrastructure that accommodates peak usage at all times.
- Component isolation: an issue keeps one component from affecting others.
- Automation: the multiple automation options offered by AWS take advantage of component architecture

To mirror the redundancy and reliability of the Sterling and Charlotte data centers, Neustar configured the architecture so that RNAS and PAS are redundant in the primary region it operates out of (US-EAST-1), with a disaster recovery configuration in US-WEST-2. The multiple availability zone strategy provides improved failover times in the event of any unexpected interruption to the service, and is otherwise at least comparable to the two data centers configuration we previously operated. AWS also provides the ability to promptly use additional availability zones in its western region, should that be necessary. This will afford our customers an additional layer of protection against unavailability, as would AWS' other US locations available to Neustar in an emergency situation.

Prior to implementation of the new cloud-based infrastructure, Neustar performed extensive testing, including but not limited to:

- Saturation testing, which replicates the system being under load for a long period of time (several days) to assure that the infrastructure is resilient and fault tolerant;
- Monitoring and alerting processes and procedures, to validate that they operate as expected;
- Security confirmation that allows Neustar's risk management team to audit all security protocols; and
- Simulating failure scenarios, to assure business continuity.

Change Order #1 was recommended for approval by the NOWG on November 18, 2015 and approved by the FCC in contract modification #5 on December 19, 2015. We immediately went to work on scheduling and implementing the RNAS migration.

On Saturday, February 20, 2016, we successfully and efficiently moved RNAS to the AWS cloud. RNAS was unavailable for only 55 minutes of the FCC-approved 6 hours of down time during the

transfer and is working well in the new environment. During this maintenance window, we also updated the P-ANI website to *https* for greater security. RNAS has had only one instance of unscheduled unavailability of 15 minutes since the migration to the AWS platform.

With the success of the RNAS migration behind us, we immediately set to work to move the more complex PAS system to AWS. After several months of preparation and testing, we moved PAS to the AWS cloud platform on Saturday, June 11, 2016. PAS was unavailable for a total of four hours 44 minutes of the approved six hours of down time during the transfer and is working well in the new environment. We also completed implementation of Change Order #2 (Changes to the INC forms based on Issue 497: *VoIP Service Providers' Access Requirements for NANP Resource Assignments and Issue 797: Updates to the INC Guidelines Forms)* and updated the pooling website to *https* for greater security during this maintenance window. PAS has had only one instance of unscheduled unavailability of 8 minutes since the migration to the AWS platform.

Section 7 - Status of Required Transferable Property

Neustar Pooling Administration Services affirms that all equipment defined in the annual inventory report required per Section 3.21 of the contract is considered transferable property, and is available for transfer upon direction from the FCC. The transferable property inventory report is appropriately labeled with FCC asset tags, updated, reviewed, and certified quarterly by the Manager of Security and Technical Operations (MSTO) with the FCC Property Management Division.

Section 8 - Industry Issue Identification/Feedback

The PA works with the industry through several channels during the year: providing status reports at the North American Numbering Council (NANC) meetings, interaction with the Numbering Oversight Working Group (NOWG), participation in NANC subgroup meetings, and participation in industry forums. This section contains information on the industry forums the PA participated in, including the number of issues and contributions that the PA submitted, as well as the feedback the PA received from the NOWG for 2016, and quarterly *Tips*.

8.1 North American Numbering Council (NANC)

Neustar, as national PA, provided status reports in person at the four meetings of the North American Numbering Council (NANC) in 2016. The PA reports consist of the status of thousands-block pooling administration and routing number administration as well as events affecting the performance of the PA and RNA.

The PA also attended the scheduled meetings for three NANC subgroups; the Future of Numbering (FoN) Working Group, the Internet Protocol Issue Management Group, and the Testing Landscape Team.

8.2 Industry Forums

As the national PA, our participation at industry forums includes:

- Working on issues that affect pooling administration;
  - Answering questions relating to the thousands-block pooling process and the P-ANI administration process;
- Actively participating in discussions; and
  - Developing and submitting new issues based on input we received from the industry, regulators, and internal sources.

The PA participated in the following industry forums in 2016:

- **Industry Numbering Committee (INC)** – the PA participated in all 6 face-to-face meetings and 5 virtual meetings. The PA submitted 17 new issues and 19 new contributions. There were 14 issues and 15 contributions submitted in 2016 that were pooling-related. There were 3 issues and 4 contributions that were P-ANI-related.

- **Common Interest Group on Rating and Routing (CIGRR)** – the PA participated in the 4 CIGRR meetings and 8 conference calls. The PA closed the one active pooling issue in 2016. We continued to review

the BCRnoNXD and 3H validation reports monthly prior to the reports being sent to the Administrative Operating Company Numbers (AOCNs). We also reviewed the BCRnoNXD 3E report as needed. When requested we also researched other data comparison requests sent by iconectiv TRA. We continue to address issues and concerns in the committee from participants (some resulting in INC issues).

- **Local Number Portability Working Group (LNPA WG)** –The PA participated in five LNPA WG meetings and seven conference calls as a subject matter resource in 2016.

- **Emergency Services Interconnection Forum (ESIF)** – the PA, as the Routing Number Administrator, attended two ESIF meetings in 2016.

8.3 PA Interaction with the Numbering Oversight Working Group (NOWG)

The Numbering Oversight Working Group (NOWG) is a working group of the NANC. The NOWG's activities with the PA include:

- Reviewing PA Change Orders and providing a recommendation to the FCC for the disposition of the proposed change order;
- Completing the annual performance review of the PA and providing it to the FCC;
- Conducting a monthly meeting with the PA to review the previous month's performance.

The Regional Director, External Relations acts as the liaison between the PA and the NOWG, responding to pooling-related questions as they arise, and providing input to the NOWG on any issues or questions as necessary during the year. The PA participates with the NOWG in the monthly conference calls and during the annual performance review process, including the operational review.

Each month in 2016, the NOWG and PA met via conference call to discuss the PA's performance during the previous month. The 2016 meeting dates were: January 15, February 16, March 15, April 15, May 24, June 21, July 22, August 19, September 27, October 25, November 22, and December 13.

Prior to each monthly meeting, the PA updates an agenda and then reviews the information with the NOWG during the meeting. The standing agenda items are:

- Rate centers with less than 6 months inventory based on forecast
- Number of rate centers with no blocks available with blocks forecasted within 6 months
- Number of codes opened for pool replenishment
- Rate centers with blocks with a pending status.
- Applications – number of applications processed monthly (running 12 month total)
- Number of Part 1s passed thru from PAS to NAS (running 12 month total)

- Percent of applications (Part 3s) not processed within 7 calendar days
- Reasons that applications were not processed within 7 calendar days, when applicable
- Percent of calls returned within one business day
- Number of blocks on reclamation list (including the new blocks and the total number of blocks)
- Program Improvement Plan
- Formal complaints and corrective action plans to resolve complaints, if any
- FCC and/or NANC News
- INC read out
- P-ANI activity
- Change orders
- Pooling related activities
- Regulatory update
- Customer focus
- Tracking log
- Next meeting
- Other items of importance that do not fall into any of the above categories
- Open Discussion

In addition to the reporting details of the agenda items above, the PA provided the following reports for the NOWG for the monthly meetings:

- NOWG Blocks Report Information Summary
- NOWG Summary Data
- Trouble Tickets
- Performance Improvement Plan
- PA NANC Report

We also provided the NOWG with Mid-Year Highlights that presented a summary of PA performance for the first six-months of the 2016 calendar year. In all, the PA provided 56 reports for the monthly meetings in 2016.

Since 2006, as part of our monthly meetings, we have provided the NOWG with an ongoing list of noteworthy specific ways in which we responded to the more significant issues and requests from our customers during the year. This list only includes items that required extra time and effort on the part of the PA and P-ANI Administrator and does not include all the day-to-day questions and requests that the pooling staff members field as part of their daily workload. As shown in Table 8-7, we had 164 customer focus items in 2016.

Table 8-1
2016 Number of Customer Focus Items by Month

MONTH	POOLING	P-ANI	NUMBER OF CUSTOMER FOCUS ITEMS
January	7	4	11
February	5	5	10
March	4	4	8
April	6	9	17
May	11	5	16
June	12	5	15
July	12	4	16
August	10	3	13
September	13	4	17
October	10	6	16
November	8	2	10
December	9	6	15
TOTAL	**107**	**57**	**164**

Also in 2016, the NOWG completed the annual review of 2015 PA and Interim P-ANI Administrator performance and rated the performance as "Met" by using the following inputs:

- 2015 Performance Feedback Survey for PA and RNA
- Monthly Reports
- Annual Operational Review, and
- NOWG observations and monthly interactions with the PA.

As a result of the annual operational review of 2015 performance, which was held April 20 – April 21, 2016 in our Concord, CA office, the NOWG made four formal suggestions for continuous improvement of pooling administration that the PA took under consideration. (See Table 8-8) The PA worked, and continues to work, cooperatively with the NOWG to make desired industry improvements while also meeting our contractual requirements.

Table 8-2
NOWG Suggestions for PA improvements

NOWG Suggestion	PA improvement
Continue to have internal training sessions with the PA and RNA personnel to ensure consistency in understanding and communicating processes when responding to service providers and regulators.	The PA and RNA continually had training with the staff in 2016. If there was an issue or a process change, the staff reviewed that issue and/or the process. During staff meetings, Methods and Procedures (M & Ps) are reviewed, as are any changes to guidelines or processes. In 2016, there was substantial training for staff regarding iVOIP-related processes.
Create a Program Improvement Plan (PIP) document to capture and track performance improvements suggested by the NOWG. This will be a "living" document discussed with the NOWG during monthly joint meetings throughout 2016.	The PA created a Program Improvement Plan that is provided to the NOWG each month during our meetings. It tracks the PIP items identified by the NOWG and PA and also tracks customer focus items.
Create training videos for P-ANI applicants, such as a video similar to the PA's "New to Pooling Quick Start" video, or a video on how to locate FCC license information. Consider creating additional training videos that would assist P-ANI applicants/assignees as needed.	The RNA created nine instructional videos on the following topics: • Create/Modify P-ANI Forecasts • New P-ANI Forecasts • P-ANI Modification Requests • P-ANI Return Requests • FCC License Search • Helpful Tools in RNAS (Search Forms & P-ANI Look-up Tool • Types of Reports in RNAS • Filing P-ANI Annual Report in RNAS • Filing P-ANI Annual Report in Excel These videos were posted under Quick Links on the RNA home page and on the Tools page. This was also the topic of the October quarterly *TIP*.
Continue to provide high quality service to the industry.	The PA continues to provide high quality service to the industry as noted in all the customer focus items we do as well as compliments received from the industry.

The NOWG provides recommendations to the FCC on all PA change order proposals. The NOWG in 2016 provided 3 recommendations on our change orders. For details on change orders, see section 2.3.2.

The PA reviewed the content of the NOWG 2016 performance survey and prepared it for website posting and distribution on January 3, 2017.

8.4 Formal Complaints

Pursuant to Section 2.9.4 of Clause C.1 of the *Contract for Pooling Administration Services for the Federal Communications Commission,* if a performance problem is identified by a telecommunications industry participant, the PA must notify the FCC of the problem within one business day. The PA must then investigate the problem and report back within a period of not more than 10 business days from the date of the complaint, to the FCC and to the telecommunications industry participant on the results of such investigation and any corrective action taken or recommended to be taken.

1. In 2016, the PA received **no formal complaints**.

8.5 Tips

8.5.1 Pooling Tips of the Quarter

The PA has been offering *Tips* since 2004 and feedback from recipients continues to be positive. Topics for the *Tip* are generated from issues raised and suggestions received from regulators and service providers, INC action items, and internal intelligence, when processes need to be clarified. The *Tip* is sent via email to the PAS distribution list at the beginning of each quarter. The *Tip* provides helpful information regarding the PAS and thousands-block pooling process, as well as serving as a useful reference for all PAS users. Archive files for *Tips* from previous years can be found on our website.

Table 8-2 lists all of the Pooling *Tip* topics that were covered by quarter in 2016.

Table 8-3
2016 Quarterly Pooling Tips

Month	Topic
January	Part 4 Obligations
January - Supplemental	Completing the Months to Exhaust and Utilization Certification Worksheet-TN level for Growth Requests

April	Using the Back Arrow Button on your Internet Browser While in PAS
July	Block Preference
October	Pooling in a NPA that is in Jeopardy

8.5.2 P-ANI Tips of the Quarter

Building on the success of the Pooling *Tips*, the RNA began sending *P-ANI Tips* in April of 2012. The *P-ANI Tip* is sent via email to the RNAS distribution list on the first business day of each quarter. The *P-ANI Tip* provides helpful information regarding RNAS and the P-ANI request process, and serves as a useful reference for all RNAS users. Archive files for all *Tips* can be found on our website.

Table 8-3 lists all of the *P-ANI Tip* topics that were covered by quarter in 2016.

Table 8-4
2016 Quarterly P-ANI Tips

Month	Topic
January	New P-ANI Requests
April	Routing Number Administration System User Account Info
July	Returning or Modifying Part of an Existing P-ANI Range
October	Instructional Videos

Section 9 - Volume of Reports Produced in 2016

Aggregated by Regulatory Agency, NANC, NANPA, Service Providers and Metrics

This section identifies the volume of reports in 2016 related to pooling and p-ANI aggregated by regulatory agency, NANC, NANPA, and service providers in 2016. The total in each section includes standard contract reports as well as non-standard (ad hoc) reports. These totals *do not* include reports that were obtained directly from the Pooling Administration website, the Pooling Administration System (PAS), or the Routing Number Administration System (RNAS). We produced 676 reports in 2016, which is an average of 56 reports per month.

Table 9-1 shows the total number of reports produced during 2016 aggregated by regulatory agency, NANC, NANPA, service providers and monthly metrics. The total number of reports above includes:

FCC: Contract Data Requirements List (CDRL), *ad hoc*, and other reports required by the contract.

STATES: pooling status, reclamation, educational sessions, and miscellaneous *ad hoc* reports.

NANC: the pooling status reports for the four NANC meetings and the monthly report we provide.

NANPA: pooling status reports for NANPA industry meetings, *ad hoc* reports, and two NRUF-cycle reports.

SERVICE PROVIDERS: rate center change reports, implementation meeting reports, monthly meeting reports to the NOWG, and miscellaneous *ad hoc* reports.

MONTHLY METRICS: required by Section 2.22.4.5 of the requirements document and includes information about trouble tickets, change orders, communications, and forecasting data on a per-state basis and summaries of application processing on a monthly basis by the PA and RNA. This report is posted to the website only.

Table 9-1
Total 2016 Reports

	Total number of reports
FCC	97
STATES	379
NANC	16
NANPA	62
SERVICE PROVIDER	110
MONTHLY METRICS	12
TOTAL	**676**

Section 10 - Trends in Pooling Since 2012[4]

This section contains pooling statistics that illustrate the impacts and activity trends in the pooling environment between 2012 and 2016, with the exception of Section 10.1, which includes NXXs saved since pooling began.

10.1 NXXs Saved by Pooling

The PA calculates that 76,957 NXXs have been saved by pooling, which is the equivalent of almost 90 NPAs. (*See Section 10.1.1 below for further details*)

Table 10-1 illustrates by NPA/NPA complex[5] the 76,957 NXXs that have been saved in all NPA areas, in 50 states and the District of Columbia and Puerto Rico. Massachusetts 508/774 had the most with 1,051 and Arizona 623 had the least with 12.

Table 10-1
NXXs Saved by Pooling

NPA/NPA Complex	State	Quantity of NXXs Saved by Pooling
201/551	New Jersey	330
202	District of Columbia	27
203/475	Connecticut	304
205	Alabama	296
206	Washington	57
207	Maine	627
208	Idaho	306
209	California	459
210	Texas	21
212/646/917	New York	32
213	California	59
214/469/972	Texas	486
215/267	Pennsylvania	471
216	Ohio	54
217	Illinois	454
218	Minnesota	291
219	Indiana	288
220/740	Ohio	870
224/847	Illinois	598
225	Louisiana	203
228	Mississippi	80
229	Georgia	121
231	Michigan	614
234/330	Ohio	638
239	Florida	114
240/301	Maryland	600
248/947	Michigan	358
251	Alabama	119
252	North Carolina	357
253	Washington	119
254	Texas	254
256/938	Alabama	369
260	Indiana	300

[4] Except Section 10.1 and 10.2.3 which is since pooling began.

[5] An NPA complex is the combination of all NPAs tied to any specific geographic rate center, including overlay NPAs.

NPA/NPA Complex	State	Quantity of NXXs Saved by Pooling
262	Wisconsin	348
269	Michigan	579
270/364	Kentucky	375
272/570	Pennsylvania	802
276	Virginia	274
281/346/713/832	Texas	492
302	Delaware	336
303/720	Colorado	94
304/681	West Virginia	770
305/786	Florida	105
307	Wyoming	149
308	Nebraska	124
309	Illinois	307
310/424	California	308
312/872	Illinois	21
313	Michigan	109
314	Missouri	82
315	New York	703
316	Kansas	92
317/463	Indiana	320
318	Louisiana	462
319	Iowa	159
320	Minnesota	231
321	Florida	64
321/407	Florida	193
323	California	190
325	Texas	112
331/630	Illinois	343
334	Alabama	300
336/743	North Carolina	312
337	Louisiana	299
339/781	Massachusetts	535
347/718/917/929	New York	230
347/718/929	New York	40
351/978	Massachusetts	703
352	Florida	339
360	Washington	379
361	Texas	325
380/614	Ohio	178
385/801	Utah	159
386	Florida	196
401	Rhode Island	209
402/531	Nebraska	368
404/470/678	Georgia	28
405	Oklahoma	391
406	Montana	317
408/669	California	175
409	Texas	170
410/443/667	Maryland	896
412/878	Pennsylvania	305
413	Massachusetts	391
414	Wisconsin	46
415/628	California	220
417	Missouri	427
419/567	Ohio	818
423	Tennessee	342
425	Washington	142
430/903	Texas	528
432	Texas	99
434	Virginia	274
435	Utah	140
440	Ohio	399
442/760	California	755
458/541	Oregon	662

NPA/NPA Complex	State	Quantity of NXXs Saved by Pooling
470/678/770	Georgia	416
478	Georgia	138
479	Arkansas	117
480	Arizona	14
484/610	Pennsylvania	942
501	Arkansas	208
502	Kentucky	273
503/971	Oregon	277
504	Louisiana	45
505	New Mexico	163
507	Minnesota	271
508/774	Massachusetts	1,051
509	Washington	433
510	California	218
512/737	Texas	289
513	Ohio	175
515	Iowa	171
516	New York	172
517	Michigan	452
518	New York	762
520	Arizona	103
530	California	638
534/715	Wisconsin	349
539/918	Oklahoma	405
540	Virginia	465
559	California	382
561	Florida	145
562	California	134
563	Iowa	111
571/703	Virginia	238
573	Missouri	825
574	Indiana	200
575	New Mexico	205

NPA/NPA Complex	State	Quantity of NXXs Saved by Pooling
580	Oklahoma	408
585	New York	443
586	Michigan	179
601/769	Mississippi	526
602	Arizona	14
603	New Hampshire	627
605	South Dakota	106
606	Kentucky	274
607	New York	366
608	Wisconsin	301
609	New Jersey	547
612	Minnesota	22
615/629	Tennessee	309
616	Michigan	432
617/857	Massachusetts	304
618	Illinois	497
619	California	147
620	Kansas	445
623	Arizona	12
626	California	149
631/934	New York	667
636	Missouri	336
641	Iowa	161
650	California	231
651	Minnesota	91
657/714	California	215
660	Missouri	332
661	California	295
662	Mississippi	760
682/817	Texas	249
701	North Dakota	103
702/725	Nevada	57
704/980	North Carolina	451

NPA/NPA Complex	State	Quantity of NXXs Saved by Pooling
706/762	Georgia	454
707	California	766
708	Illinois	431
712	Iowa	220
716	New York	487
717	Pennsylvania	589
719	Colorado	208
724/878	Pennsylvania	996
727	Florida	81
731	Tennessee	343
732/848	New Jersey	542
734	Michigan	473
747/818	California	259
754/954	Florida	93
757	Virginia	273
763	Minnesota	46
765	Indiana	669
772	Florida	140
773/872	Illinois	147
775	Nevada	165
779/815	Illinois	791
785	Kansas	344
787/939	Puerto Rico	154
802	Vermont	349
803	South Carolina	379
804	Virginia	407
805	California	426
806	Texas	136
808	Hawaii	51
810	Michigan	498
812/930	Indiana	539
813	Florida	149
814	Pennsylvania	750
816	Missouri	316

NPA/NPA Complex	State	Quantity of NXXs Saved by Pooling
828	North Carolina	346
830	Texas	355
831	California	198
843/854	South Carolina	311
845	New York	769
850	Florida	239
856	New Jersey	446
858	California	104
859	Kentucky	223
860/959	Connecticut	484
862/973	New Jersey	602
863	Florida	219
864	South Carolina	407
865	Tennessee	238
870	Arkansas	342
901	Tennessee	86
904	Florida	177
906	Michigan	170
907	Alaska	28
908	New Jersey	342
909	California	314
910	North Carolina	446
912	Georgia	193
913	Kansas	124
914	New York	368
915	Texas	43
916	California	187
919/984	North Carolina	313
920	Wisconsin	488
925	California	271
928	Arizona	186
931	Tennessee	382
936	Texas	192
937	Ohio	576

NPA/NPA Complex	State	Quantity of NXXs Saved by Pooling
940	Texas	157
941	Florida	157
949	California	105
951	California	316
952	Minnesota	29
956	Texas	199

NPA/NPA Complex	State	Quantity of NXXs Saved by Pooling
970	Colorado	469
979	Texas	225
985	Louisiana	338
989	Michigan	762
Totals		**76,957**

10.2 Trends in Thousands-Block Number Pooling

The following sub-sections contain summaries of thousands-block number pooling statistics since 2012.

10.2.1 Pooling Charts

The following charts illustrate the trends in the numbering environment between 2012 and 2016. Table 10-4 shows NXXs opened for LRNs, dedicated customers, and pool replenishment, as well as blocks assigned by the PA during that year, total assigned blocks in the PAS at year end, and total applications processed at year end (Part 3s). Figures 7 through 12 are graphic representations of each individual category.

Table 10-2
Pooling Activity from 2012 through 2016 At-A-Glance

	2012 Statistics	2013 Statistics	2014 Statistics	2015 Statistics	2016 Statistics
NXXs Opened for LRNs	442	532	352	425	382
NXXs Opened for Dedicated Customers	75	57	79	103	169
NXXs Opened for Pool Replenishment	2,071	2,022	2,950	3,188	2,827
Blocks Assigned by PA During Year	47,074	47,326	59,440	53,416	55,723

	2012 Statistics	2013 Statistics	2014 Statistics	2015 Statistics	2016 Statistics
Total Assigned Blocks in PAS at Year End	368,661	401,186	451,859	494,582	540,560
Applications Processed	130,407	137,375	139,181	145,828	123,629

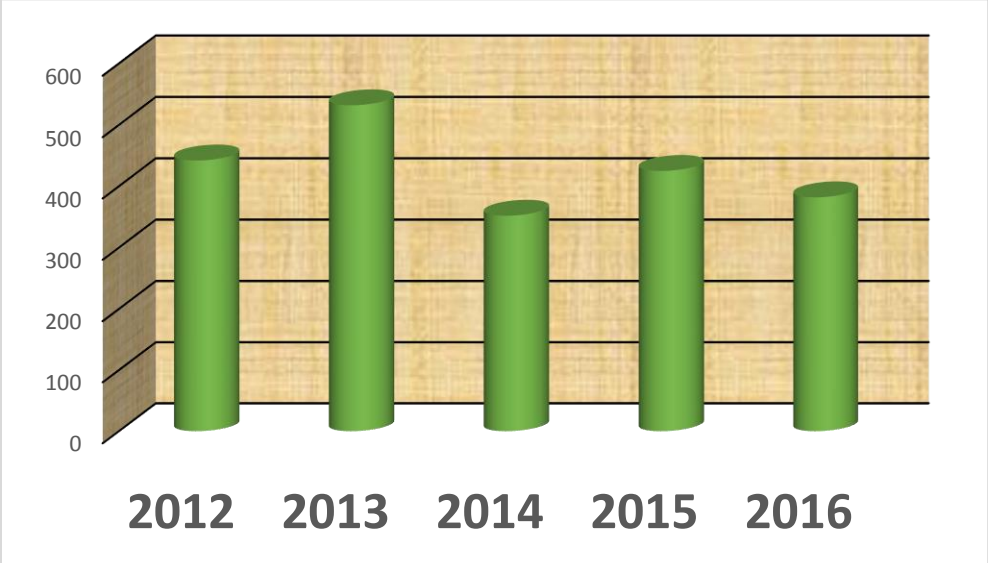


Figure 7: CO Codes Opened for LRNs from 2012 through 2016

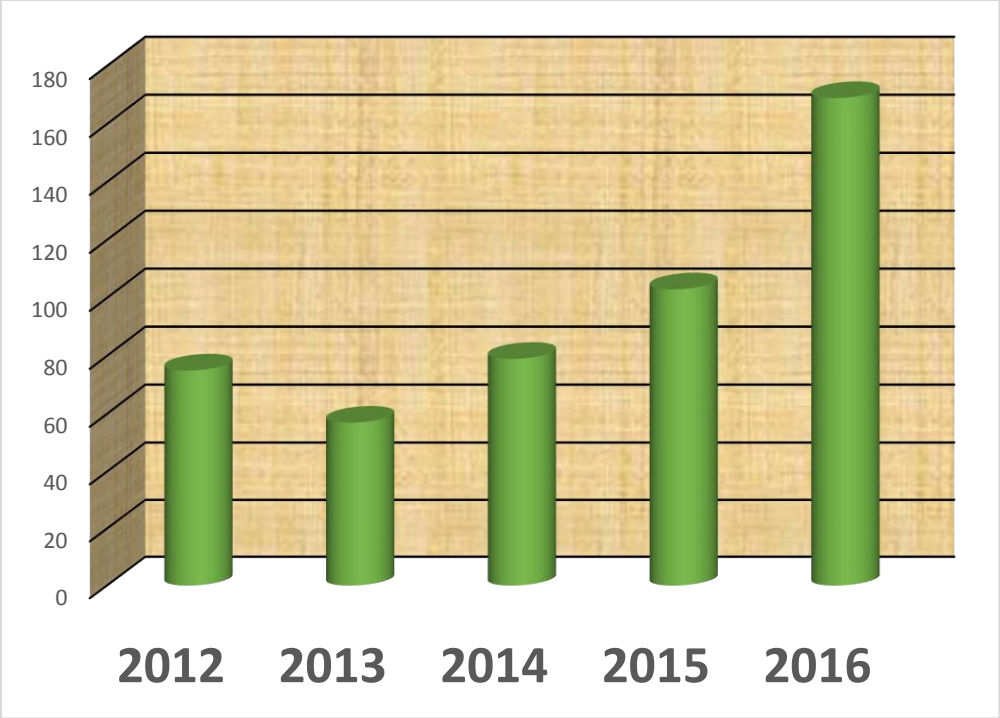


Figure 8: CO Codes Opened for Dedicated Customers from 2012 through 2016

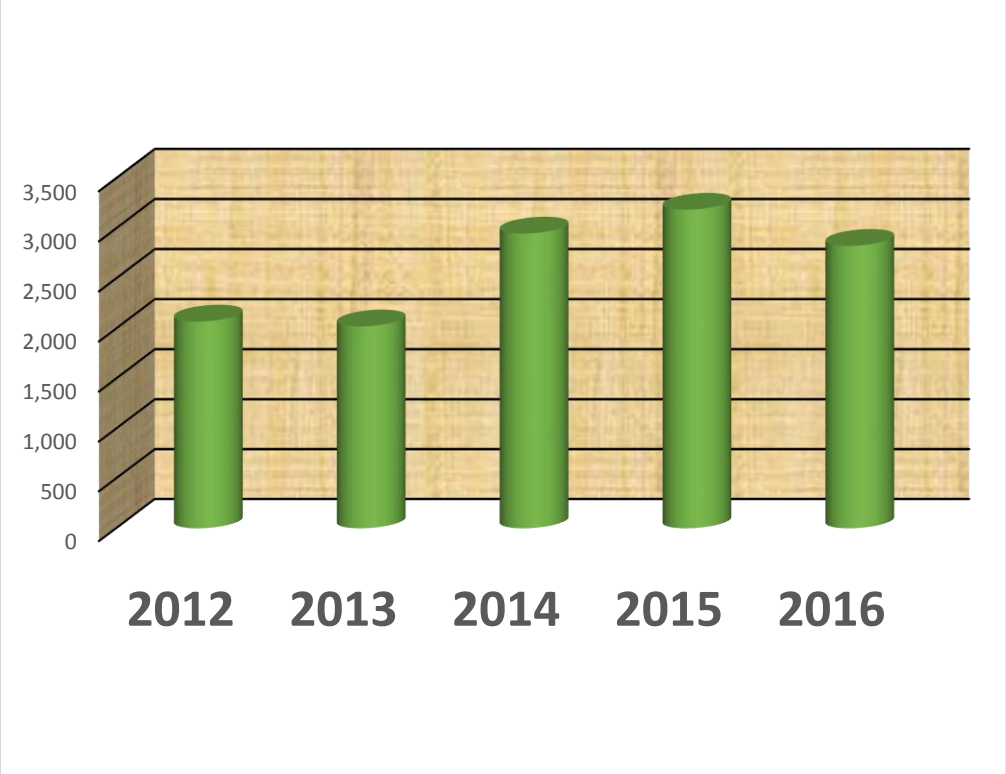


Figure 9: CO Codes Opened for Pool Replenishment from 2012 through 2016

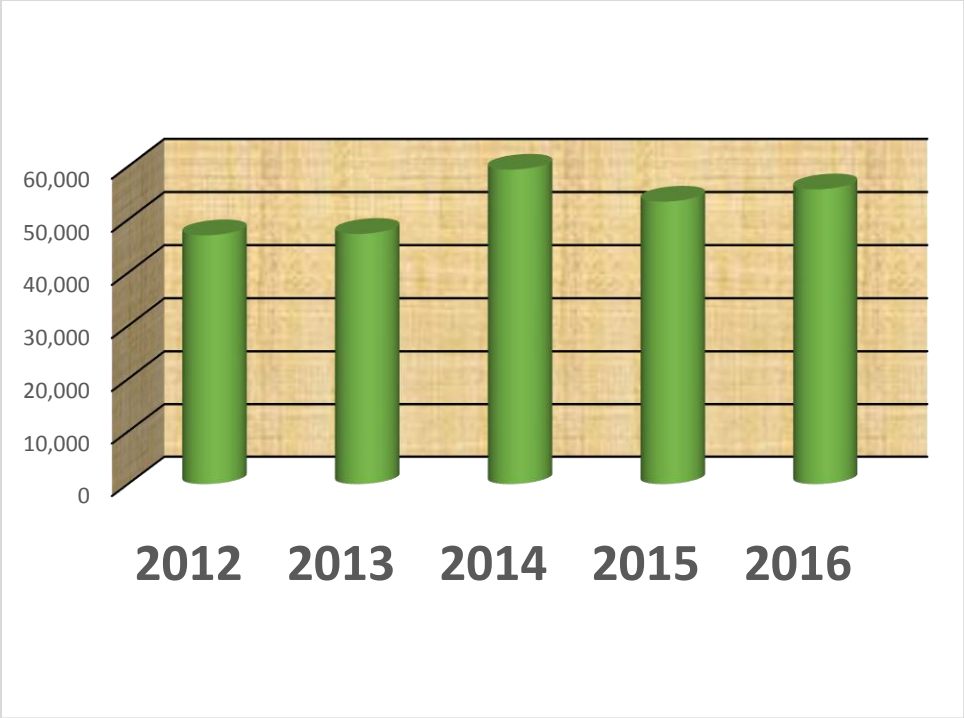


Figure 10: Blocks Assigned During Years 2012 through 2016

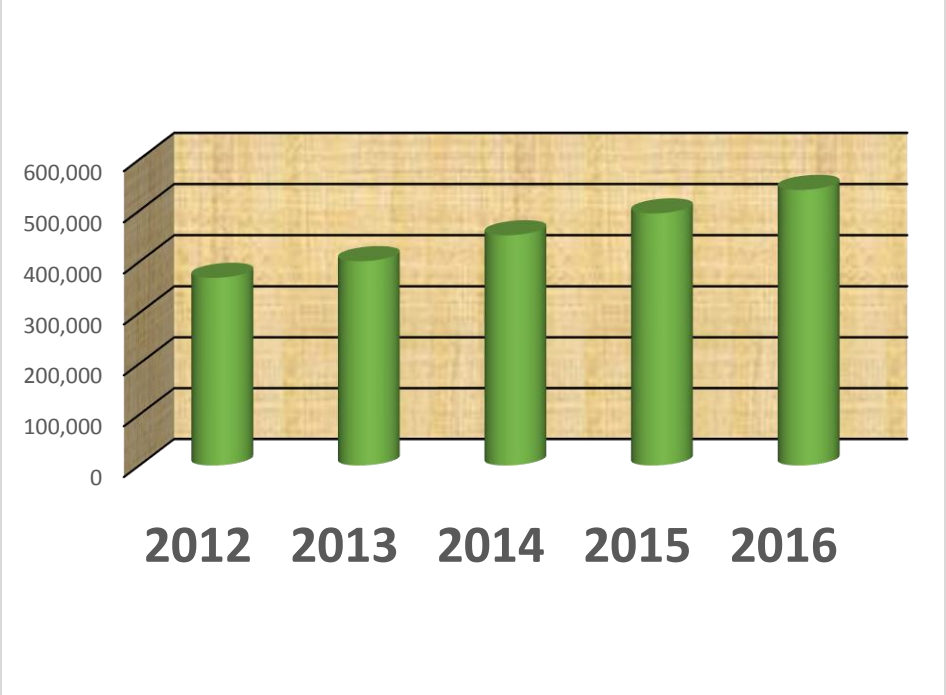


Figure 11: Assigned Blocks at End of Years 2012 through 2016

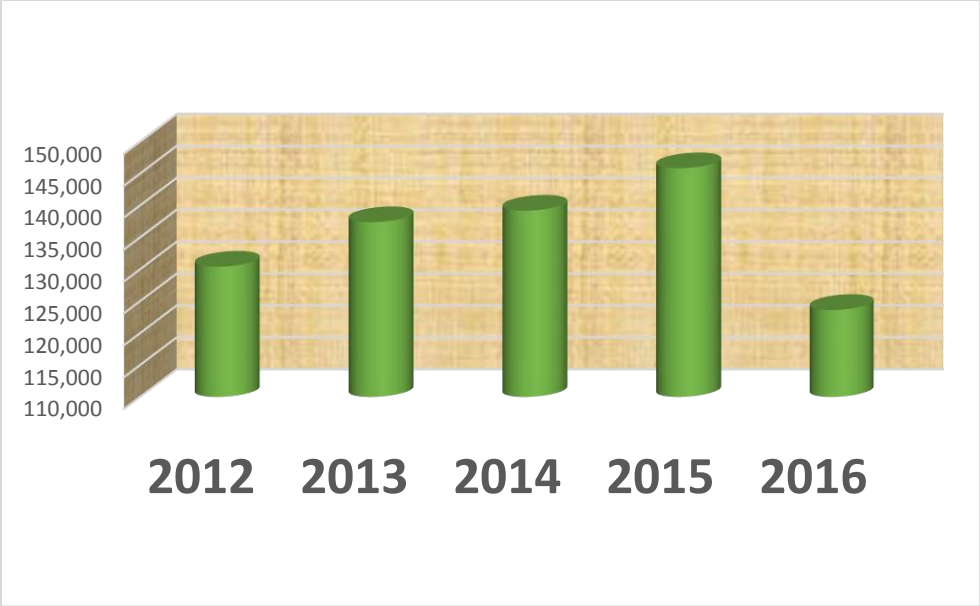


Figure 12: Applications (Part 3s) Processed From Years 2012 through 2016

10.2.2 Total Applications Processed (Part 3s) from 2012 through 2016

The total number of applications (Part 3s) processed is the best measure of the actual processing work performed by the pooling administrators. Although a large majority of applications for numbering resources are processed and approved immediately, some are suspended for future action, and some are withdrawn or denied entirely. Each of these activities generates a Part 3.

Table 10-5 contains the total numbers of Part 3s processed by month from 2012 through 2016.

Table 10-3
Total Applications Processed (Part 3s) Since 2012

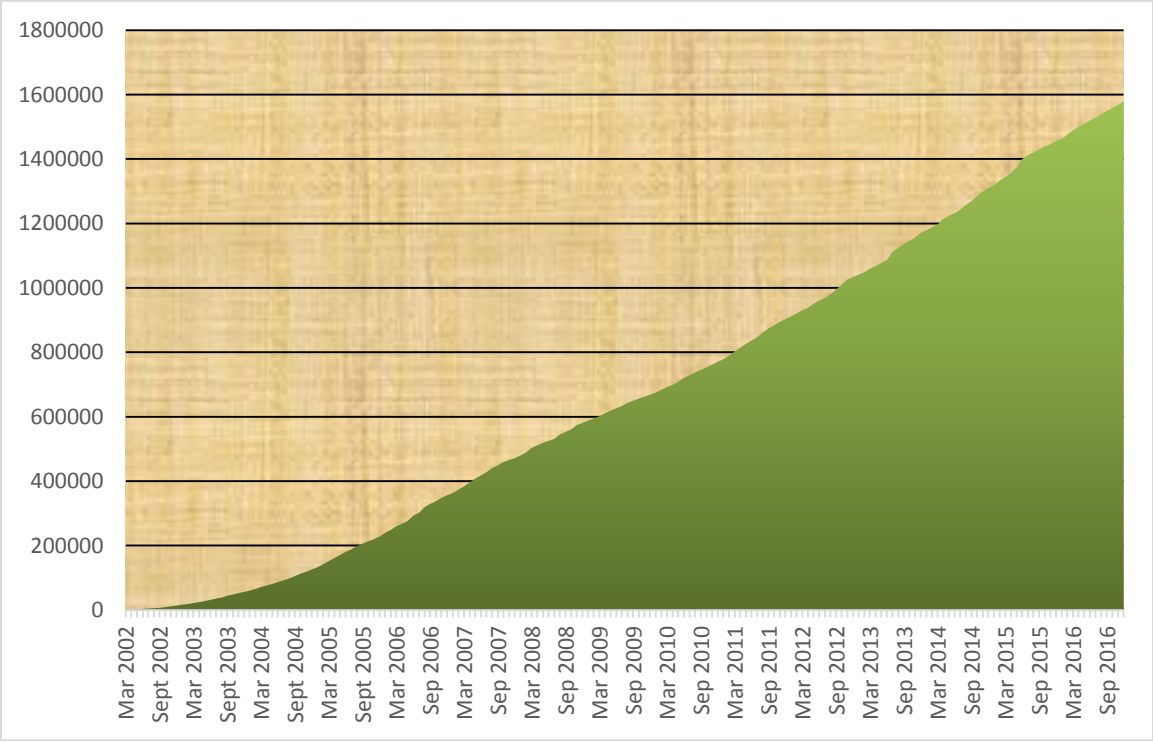
	2012	2013	2014	2015	2016
Jan	8,220	15,136	8,069	7,518	6,922
Feb	9,357	9,602	8,725	15,628	12,323
Mar	9,958	10,357	9,422	10,763	15,097
Apr	8,266	11,823	17,601	13,295	9,371
May	11,904	12,863	8,977	17,565	9,614
Jun	10,369	25,142	8,145	24,285	10,767
Jul	8,021	8,016	10,493	13,310	8,067
Aug	10,990	9,817	15,232	8,068	11,361

	2012	2013	2014	2015	2016
Sep	15,081	8,374	12,113	9,977	9,197
Oct	15,124	10,499	15,849	8,524	10.156
Nov	15,491	7,975	13,954	7,604	8,851
Dec	7,626	7,771	10,601	9,291	11,903
TOTAL	**130,407**	**137,375**	**139,181**	**145,828**	**123,629**

10.2.3 Cumulative Thousands Blocks Assigned Since 2002

The following graph illustrates the cumulative number of total blocks assigned since 2002.

Figure 13: Cumulative Pooling Administration Applications (Part 3s) from March 2002 through December 2016



10.3 Reclamation 2012 through 2016

The PA has been authorized to reclaim 232 blocks since 2012. Table 10-15 shows the total number of blocks reclaimed by state since 2012, ranked from highest to lowest.

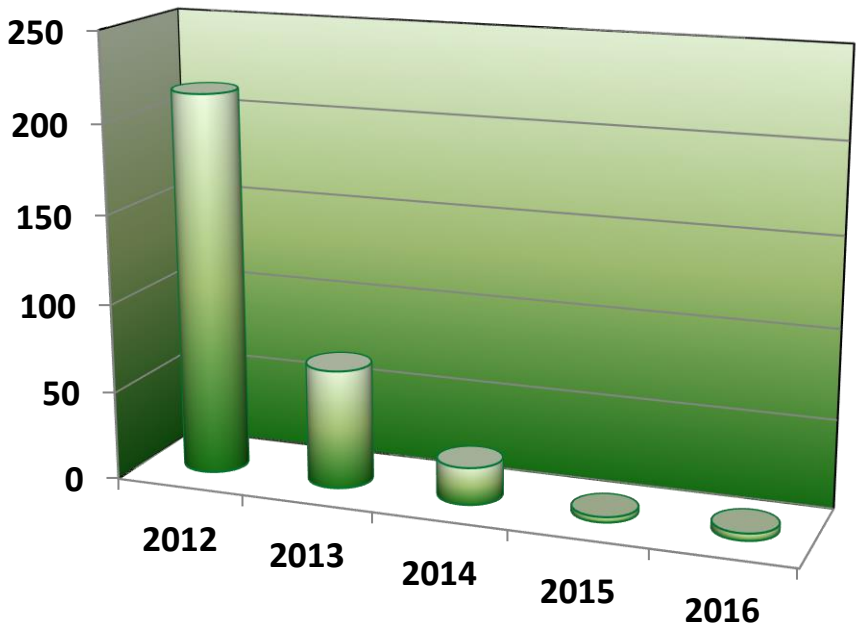
Table 10-4
Total Number of Blocks Reclaimed by State from 2012 through 2016

State	2012	2013	2014	2015	2016	Total
CALIFORNIA	124	3	15	1		143
COLORADO		17				17
NEW JERSEY		15				15
VIRGINIA		11			1	12
PENNSYLVANIA		9				9
WASHINGTON	2	4	1			7
MICHIGAN	1		1	1	2	5
WISCONSIN	5					5
MASSACHUSETTS		3				3
TEXAS	3					3
FLORIDA		1		1		2
HAWAII	2					2
ILLINOIS		2				2
OREGON		1	1			2
DISTRICT OF COLUMBIA		1				1
MISSISSIPPI			1			1
SOUTH CAROLINA			1			1
VERMONT					1	1
WEST VIRGINIA			1			1
TOTAL	**137**	**67**	**21**	**3**	**4**	**232**

Table 10-16 shows, by year since 2012, the cumulative number of blocks on the reclamation lists each month, the total number of those blocks that were new each month, and the percent of new blocks to cumulative blocks, as well as how many blocks for which reclamation has been initiated by year. The ratio of new blocks to cumulative blocks increased 9% in 2016 from 2015 and 2014. In addition, due to the overdue Part 4 project, we initiated reclamation for 40 blocks, the highest number since 2014.

Table 10-5
Summary of Reclamation from 2012 through 2016

Year	Number of Cumulative Blocks on the List	Number of New Blocks on the List[6]	Percent New Blocks to Cumulative Blocks on the List	Number of Blocks for which Reclamation was Initiated[7]
2012	7,631	2,508	33%	214
2013	6,145	1,921	31%	67
2014	5,407	1,577	29%	21
2015	2,790	815	29%	3
2016	2,840	1,081	38%	40



<u>Figure 14</u>: Blocks Reclaimed by Year from 2012 through 2016

[6] We added new overdue Part 4s to the cumulative list in 2009.
[7] While a state may authorize the PA to initiate block reclamation, not all blocks in this category have actually been reclaimed. In some cases the reclamation process is halted if it is determined that the blocks are actually in service. For example, in 2012, the reclamation of 122 blocks was halted by the state commission just prior to the actual reclamation taking place.

10.4 Summary of Pooled Areas since 2012

10.4.1 Aggregated Pooled Areas – 2012 through 2016

Table 10-17 shows the aggregated total of the number of pooling areas, those designated as mandatory or optional, as well as the number of distinct service providers participating in the pooled areas since 2011. In the past five years, the total number of rate centers in pooling has increased approximately 6.0%, from 15,329 to 16,331. The number of distinct service providers has increased approximately 12.8% from 951 at the end of 2011 to 1,091 at the end of 2016, which is consistent with previous years. However, this year we added a new type of service provider, Interconnected VoIP, to those needing to be educated and guided through the pooling processes every year.

Table 10-6
Aggregated Total Number of Service Providers and Pooling Areas from 2012 through 2016

Year	Total Number of Distinct Pooling Service Providers	Pooled Areas
2012	984	15,418
2013	1,020	15,819
2014	1,053	16,076
2015	1,073	16,248
2016	1,091	16,331

10.4.2 Pooling versus Excluded Rate Centers – 2012 through 2016

While there has been a slight decrease in the total number of rate centers due to some rate center consolidations, the number of pooling rate centers continued to increase in 2016 due primarily to carriers entering previously excluded rate centers. Of the 174 rate center designation changes we made in 2016, 60% were due to changes from excluded to optional status. Also 17% of the changes were due to service providers entering single-service provider rate centers causing decrease in the number of those rate centers.

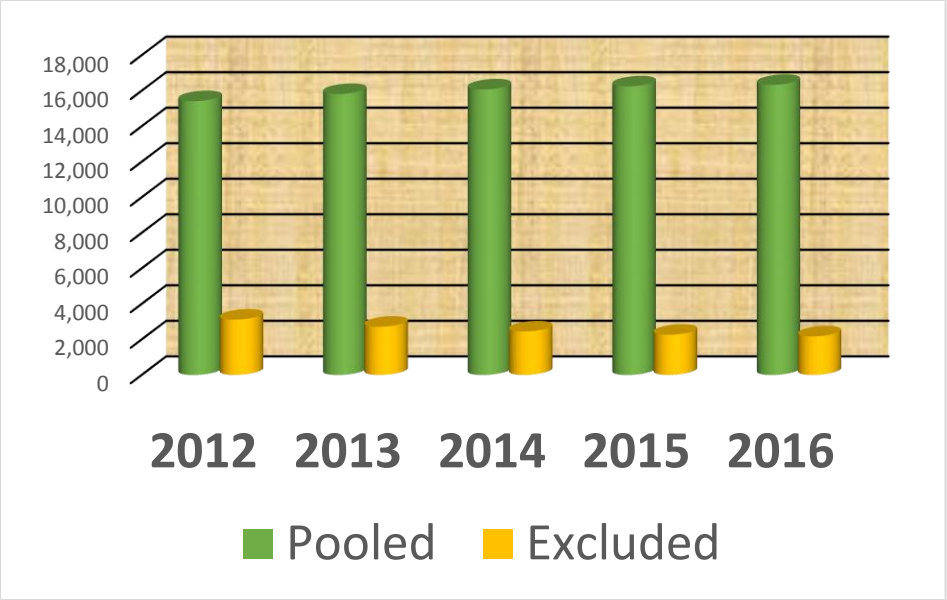


Figure 15: Pooling versus Excluded Rate Centers – 2012 through 2016

10.4.3 Total Number of Distinct Pooling Service Providers – 2012 through 2016

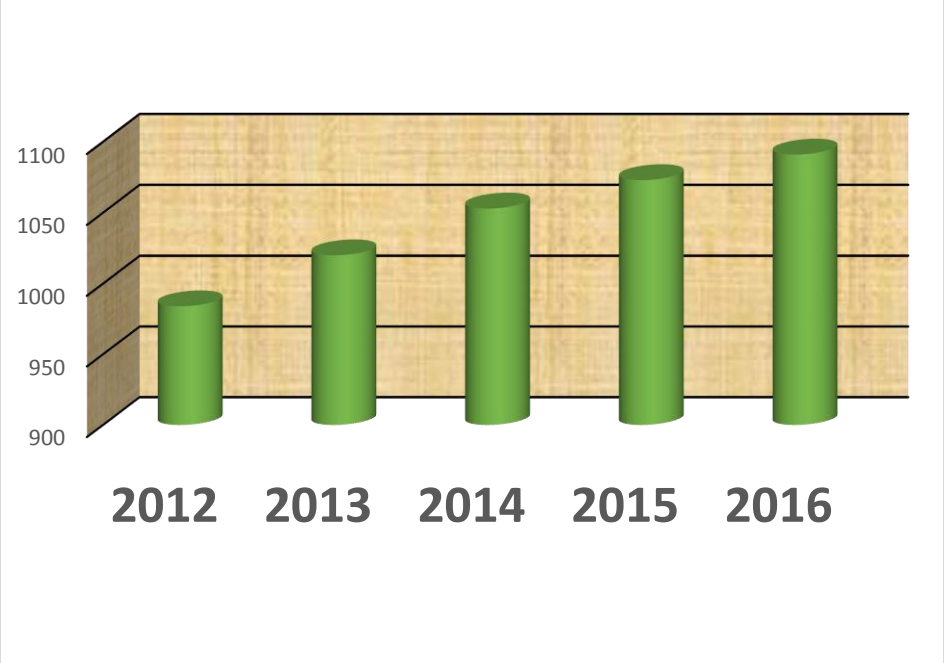


Figure 16: Total Number of Distinct Pooling Service Providers

Table 10-18 depicts the trends in rate center status between 2012 through 2016. These rate centers are maintained by the DQIM.

Table 10-7
Pooling Rate Center Facts Comparison by Year - 2012 through 2016

	2012	2013	2014	2015	2016
Total Number of Distinct Rate Centers	18,540	18,538	18,528	18,515	18,507
Total Number of Distinct Rate Centers Available for Pooling	15,418	15,819	16,075	16,248	16,331
Percentage of Distinct Rate Centers that are Available for Pooling	83.20%	85.30%	86.76%	87.75%	88.24%
Total Number of Mandatory Distinct Rate Centers	8,439	8,549	8,815	8,876	8,898
Percentage of Distinct Rate Centers that are Mandatory	45.50%	46.10%	47.58%	47.93%	48.08%
Total Number of Distinct Mandatory Single-Service Provider Rate Centers	1,205	1,181	1,163	1,088	1,064
Percentage of Distinct Rate Centers that are Mandatory Single-Service Provider	6.50%	6.40%	6.28%	5.87%	5.75%
Total Number of Distinct Optional Rate Centers	5,774	6,089	6,098	6,284	6,369
Percentage of Distinct Rate Centers that are Optional	31.10%	32.80%	32.91%	33.94%	34.41%
Total Number of Distinct Rate Centers Excluded from Pooling	3,122	2,719	2,452	2,267	2,176
Percentage of Distinct Rate Centers that are Excluded from Pooling	16.80%	14.70%	13.23%	12.24%	11.76%
Total Number of Rate Center Designations Changed (see Section 2.4.2 for detail)	170	703	753	298	174