

of the rules, [including] whether data collection and reporting should be reduced or eliminated for certain providers or classes of providers.”² Consistent with those instructions, the Bureau issues this Report.

2. Based on the Bureau’s analysis of the first eight sets of quarterly reports, taking the data as reported, we find the following:

- The aggregate call answer rate in rural areas (64.3 percent) was slightly lower than in nonrural areas (68.8 percent), and the difference in covered providers’ median call answer rates in rural and nonrural areas was approximately two percent.
- At the same time, however, there was wide variation in performance among covered providers in rural areas (as well as in nonrural areas), which suggests that rural call completion may be more a function of individual provider performance than a systemic problem.
- The aggregate call answer rate in rural areas did not increase over the course of the reporting period. This finding suggests that the requirement to report data, in and of itself, has not caused providers in the aggregate to improve their performance in rural areas during the reporting period.

In presenting these findings, we caution that a number of data quality issues impact the reliability of the data collection and preclude us from drawing firm conclusions from the data. These issues include not only variations in how covered providers report their data (e.g., how they categorize their call attempts) but also variations in the type of data they report (e.g., most covered providers do not segregate autodialer traffic in their reporting and some covered providers include intermediate provider and/or wholesale traffic in their reports). Even if accepted at face value, the data provides a less than clear understanding of the overall state of rural call completion performance.

3. Based on our examination of the data and our experience with the data collection, we recommend that the Commission seek comment on eliminating the recording, retention, and reporting rules and replacing them with new rules for covered providers that could more directly address rural call completion problems. While the Commission could endeavor to address the data quality issues identified in this Report, it nonetheless is not clear that the benefits of any such modifications would outweigh the costs. Moreover, the necessary modifications could impose substantial burdens on covered providers and would, at best, permit the Commission to identify areas with potential rural call completion problems weeks or months after such problems occur.

II. BACKGROUND

4. *Recording, Retention, and Reporting Rules.* In the *2013 RCC Order*, the Commission established data recording, retention, and reporting rules in an effort to improve its ability to monitor the delivery of long-distance calls to rural areas and to aid enforcement action in connection with providers’ call completion practices as necessary.³ The recording, retention, and reporting rules apply to providers of long-distance voice service that make the initial long-distance call path choice for more than 100,000 domestic retail subscriber lines, “counting the total of all business and residential fixed subscriber lines and mobile phones and aggregated over all of the providers’ affiliates.”⁴ These “covered providers” include local exchange carriers (LECs), interexchange carriers (IXCs), commercial mobile radio service (CMRS) providers, and VoIP service providers.⁵

² *Id.*, 28 FCC Rcd at 16198, para. 105.

³ *Id.* at 16155, para. 2.

⁴ 47 CFR § 64.2101; *see also* *2013 RCC Order*, 28 FCC Rcd at 16164-66, para. 20.

⁵ *2013 RCC Order*, 28 FCC Rcd at 16164, para. 19.

5. Covered providers are generally required to record information about each call attempt⁶ to a rural operating company number (OCN)⁷ from subscriber lines for which the covered provider makes the initial long-distance call path choice, and retain the information in a readily retrievable form for a period that includes the six most recent complete calendar months.⁸ Covered providers also must report to the Commission certain information about call attempts from subscriber lines for which the covered provider makes the initial long-distance call path choice. Specifically, covered providers must report the following information for each rural OCN and for nonrural OCNs⁹ in the aggregate, separated by interstate and intrastate call attempts: (a) the total number of call attempts; (b) the total number of answered calls; and (c) the number of call attempts that were not answered, reported separately for call attempts signaled as “busy,” “ring no answer,” or “unassigned number.”¹⁰ The certified reports must be filed electronically with the Commission (using FCC Form 480)¹¹ on a quarterly schedule with call attempts separated out by month, i.e., on February 1, reflecting monthly data from October through December; on May 1, reflecting monthly data from January through March; on August 1, reflecting monthly data from April through June; and on November 1, reflecting monthly data from July through September.¹²

6. The *2013 RCC Order* stated that the reported information would enable the Commission to calculate both the call answer rate and the network effectiveness ratio,¹³ a metric similar to the call completion rate, for each rural OCN, for all rural OCNs in the aggregate, and for nonrural OCNs in the aggregate.¹⁴ The call answer rate is the rate of call attempts to assigned numbers that are answered. Stated differently, the call answer rate excludes call attempts to unassigned numbers and is calculated as follows:¹⁵

⁶ See 47 CFR § 64.2101 (defining “call attempt”). However, call attempts handed back to an upstream provider and call attempts to toll-free numbers are excluded from these requirements. *Id.*, 28 FCC Rcd at 16181-82, paras. 57-59. Certain intraLATA toll calls are also excluded from these requirements. *Rural Call Completion*, Order on Reconsideration, 29 FCC Rcd 14026, 14032, para. 14 (2014).

⁷ The term “OCN” means a four-place alphanumeric code that uniquely identifies a local exchange carrier. 47 CFR § 64.2101. The term “rural OCN” means an operating company number that uniquely identifies an incumbent LEC that is a rural telephone company as that term is defined in Section 51.5 of the Commission’s rules. *Id.*; see also *id.* § 51.5 (defining “rural telephone company”); 47 U.S.C. § 153(44) (same).

⁸ 47 CFR § 64.2103(a); see also *2013 RCC Order*, 28 FCC Rcd at 16182-84, paras. 61-65.

⁹ The term “nonrural OCN” means an operating company number that uniquely identifies an incumbent LEC that is not a rural telephone company. 47 CFR § 64.2101. For purposes of the Commission’s recording, retention, and reporting requirements, the National Exchange Carrier Association (NECA) provides the definitive lists of rural OCNs and nonrural OCNs. *Id.*; see also Nat’l Exch. Carrier Assn., Inc., Rural ILEC OCN List (Nov. 7, 2016), available at <https://www.neca.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=11187&libID=11207> (last visited June 16, 2017) (NECA OCN List). There are approximately 1350 rural OCNs and approximately 90 nonrural OCNs nationwide. See NECA OCN List.

¹⁰ *2013 RCC Order*, 28 FCC Rcd at 16184-85, paras. 65, 68; 47 CFR § 64.2105(b).

¹¹ See FCC, Form 480 Filer Resources, <https://www.fcc.gov/general/form-480-filer-resources>.

¹² 47 CFR § 64.2105(a).

¹³ The network effectiveness ratio “expresses the relationship between the number of seizures and the sum of the number of seizures resulting in either an answer message, or a user busy, or a ring no answer, or in the case of ISDN a terminal rejection/unavailability” *2013 RCC Order*, 28 FCC Rcd at 16185, n.186 (internal citation omitted).

¹⁴ *Id.* at 16185, para. 68.

¹⁵ See *id.*, Appendix C; see also *id.* at 16185, paras. 68-69 & n.186.

$$\text{Call Answer Rate} = \frac{\text{Answered Calls}}{(\text{Total Call Attempts} - \text{Call Attempts to Unassigned Numbers})}$$

The call completion rate is the rate of call attempts to assigned numbers that are completed and is calculated as follows:¹⁶

$$\text{Call Completion Rate} = \frac{(\text{Answered Calls} + \text{Busy Call Attempts} + \text{Ring No Answer Attempts})}{(\text{Total Call Attempts} - \text{Call Attempts to Unassigned Numbers})}$$

7. While the Commission required covered providers to submit information that would permit it to calculate both the call answer rate and the call completion rate, it found that the call answer rate was “the data point least susceptible to variations in data reporting or to differences in the quality or accuracy of signaling.”¹⁷ That is, “the called party either answered the call or did not answer the call.”¹⁸ By contrast, the Commission explained, the call completion rate, by itself and viewed only from the originating provider’s perspective, “does not similarly validate whether the call ultimately reached its destination.”¹⁹ For instance, because the call completion rate treats “user” cause code signals (e.g., busy, ring no answer, unassigned number) as a completed call, any incorrect or falsified signals could mask potential rural call completion problems while maintaining a high call completion rate.²⁰

8. With respect to the scope of traffic reported, the Commission (1) required covered providers to include autodialer traffic but permitted them to report such traffic separately from other traffic, accompanied by an explanation of the method used to identify the autodialer traffic;²¹ (2) held that covered providers that also serve as intermediate providers for other providers are permitted but not required to segregate their originated traffic from their intermediary traffic;²² and (3) noted that covered providers who do not have retail subscribers—for example because they only provide wholesale services—should determine whether they make the initial call path choice for more than 100,000 originating domestic retail subscriber lines in the aggregate, and if so, report data to the Commission.²³

9. *Safe Harbor.* The 2013 RCC Order adopted the Managing Intermediate Provider Safe Harbor (Safe Harbor) to allow covered providers that have practices consistent with the Commission’s call completion objectives to file annual certifications and qualify for reduced retention and reporting obligations.²⁴ These reduced obligations include compliance with the reporting requirements for only one year.²⁵

10. *Duration of Rules.* In the 2013 RCC Order, the Commission declined to adopt a specific sunset for the recording, retention, and reporting rules.²⁶ However, it directed the Bureau to:

[A]nalyze the eight sets of reports submitted during the first two years of the data collection’s effectiveness (as well as any other information the Commission receives

¹⁶ See *id.*, Appendix C; see also *id.* at 16185, paras. 68-69 & n.186.

¹⁷ *Id.* at 16186, para. 71.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.* at 16179-80, para. 54.

²² *Id.* at 16165, n.64.

²³ *Id.* at 16165, n.63.

²⁴ *Id.* at 16191-92, para. 86.

²⁵ *Id.*; 47 CFR § 64.2107(c).

²⁶ 2013 RCC Order, 28 FCC Rcd at 16198, para. 105.

during that period regarding the causes of and solution to rural call completion) and to publish for public comment a report on the effectiveness of the rules, whether data collection and reporting should be reduced or eliminated for certain providers or class of providers (including those that meet a performance-based standard over four consecutive quarters), whether the Commission should extend data collection and reporting requirements to certain intermediate providers, and how the Commission can incorporate industry best practices, such as those developed through ATIS, into its work.²⁷

The Commission also instructed the Bureau to publish the report “no more than 90 days after the last reports are due for that two-year period” (i.e., by Monday, July 31, 2017).²⁸ Further, to ensure that the recording, retention, and reporting rules “do not last without review in perpetuity,” the Commission committed to complete a proceeding to “reevaluate whether to keep, eliminate, or amend the data collection and reporting rules three years after they become effective” (i.e., by April 2, 2018).²⁹

11. *2015 Declaratory Ruling.* In February 2015, the Bureau issued a declaratory ruling clarifying that the signaling codes to describe “answered” calls and “busy,” “ring no answer,” and “unassigned number” call attempts in Appendix C to the *2013 RCC Order* serve as examples rather than exclusive definitions of those categories.³⁰ The Bureau also clarified that covered providers may count as answered calls only call attempts that meet the definition of “answered calls” in the *Order*, that is “a call that was answered by or on behalf of the called party (including calls completed to devices, services, or parties that answer the call such as interactive voice response, answering service, voicemail, or call-forwarding system), causing the network to register that the terminating party is prepared to receive information from the calling user.”³¹

12. *Submission of Form 480 Data.* The recording, retention, and reporting rules took effect on March 4, 2015, and covered providers were required to begin recording and retaining the required data on April 1, 2015.³² Covered providers were required to file their first quarterly reports on August 1, 2015 (reflecting monthly data from April 2015 through June 2015).³³ The most recent set of quarterly reports were filed on May 1, 2017 (reflecting monthly data from January 2017 through March 2017). Approximately 55 covered providers file Form 480 reports each quarter, although, as discussed further below, pursuant to the Safe Harbor, two of the largest covered providers ceased filing Form 480 after August 1, 2016.³⁴

III. DISCUSSION

A. Analysis of the First Eight Sets of Form 480 Reports

13. Consistent with the Commission’s instructions to the Bureau in the *2013 RCC Order*, this Report analyzes the eight sets of quarterly Form 480 reports filed from August 2015 through March 2017, which contain data covering the period from April 1, 2015 through March 31, 2017 (hereinafter, “the reporting period”). In presenting these findings, we note our concerns about the reliability of the data

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.* at 16198, para. 106.

³⁰ *Rural Call Completion*, Declaratory Ruling, 30 FCC Rcd 1243, 1246, para. 6 (WCB 2015) (*2015 RCC Declaratory Ruling*).

³¹ *Id.* at 1246, para. 5.

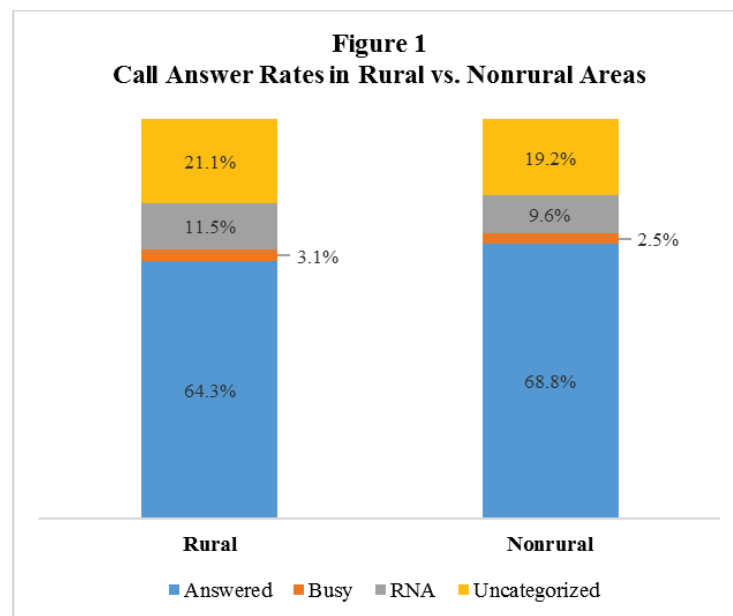
³² *Wireline Competition Bureau Announces that Certain Long Distance Providers Must Begin Recording Data Required for Rural Call Completion Reporting*, Public Notice, 30 FCC Rcd 2058, 2059 (2015).

³³ *Id.*

³⁴ See *infra* para. 36.

collected due to the data quality issues discussed in Part III.B below. We also note that our analysis focuses primarily on the call answer rate rather than the call completion rate consistent with the Commission's finding in the *2013 RCC Order* that the call answer rate is a better indicator of whether a call ultimately reached its destination.³⁵

14. *Comparison of Call Answer Rates in Rural and Nonrural Areas.* The data collected show that the aggregate call answer rate for all covered providers' call attempts to rural OCNs during the reporting period was 64.3 percent. By comparison, the aggregate call answer rate for all covered providers' call attempts to nonrural OCNs for the same period was 68.8 percent. This difference of 4.5 percent in call answer rates between rural and nonrural areas is shown in Figure 1 below.³⁶



15. Figure 1 also shows similar rates of busy, ring no answer, and “uncategorized” call attempts in rural areas compared to nonrural areas.³⁷ Uncategorized call attempts are those that were reported as attempted but not categorized as answered, busy, ring no answer, or unassigned number.³⁸ As is the case with the call answer rate, the rates of busy, ring no answer, and uncategorized call attempts are calculated by excluding call attempts to unassigned numbers.³⁹

³⁵ See *supra* para. 7.

³⁶ In Figure 1, “RNA” stands for ring no answer. The sum of the rates of answered, busy, ring no answer, and uncategorized call attempts in nonrural areas in Figure 1 does not equal 100 percent due to rounding.

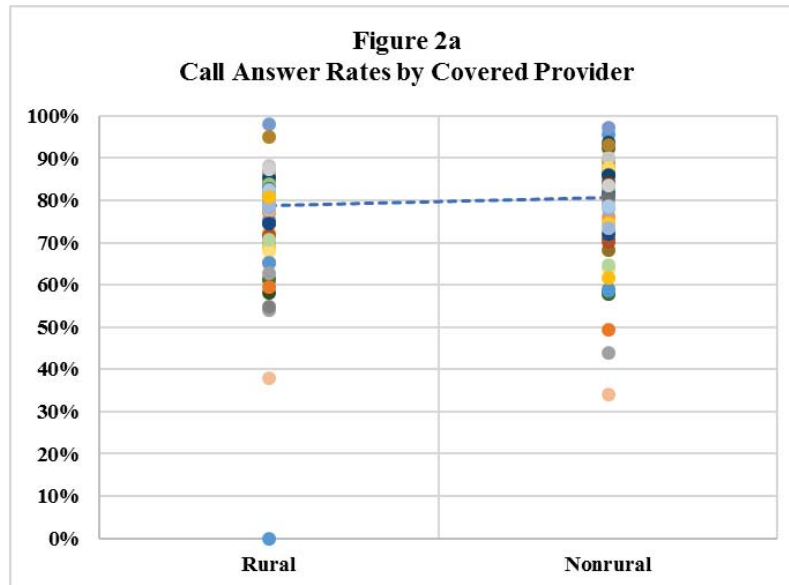
³⁷ The rate of each of these categories is slightly higher in rural areas than in nonrural areas (i.e., a busy rate of 3.1 percent vs. 2.5 percent, a ring no answer rate of 11.5 percent vs. 9.6 percent, and an uncategorized call attempt rate of 21.1 percent vs. 19.2 percent, respectively) over the reporting period. However, in light of the data quality issues raised in Part III.B below, it is not possible to conclude that those differences are meaningful.

³⁸ Uncategorized call attempts are discussed further in Part III.B.1 below.

³⁹ For example, the busy rates in rural and nonrural areas that are depicted in orange in Figure 1 are calculated as follows:

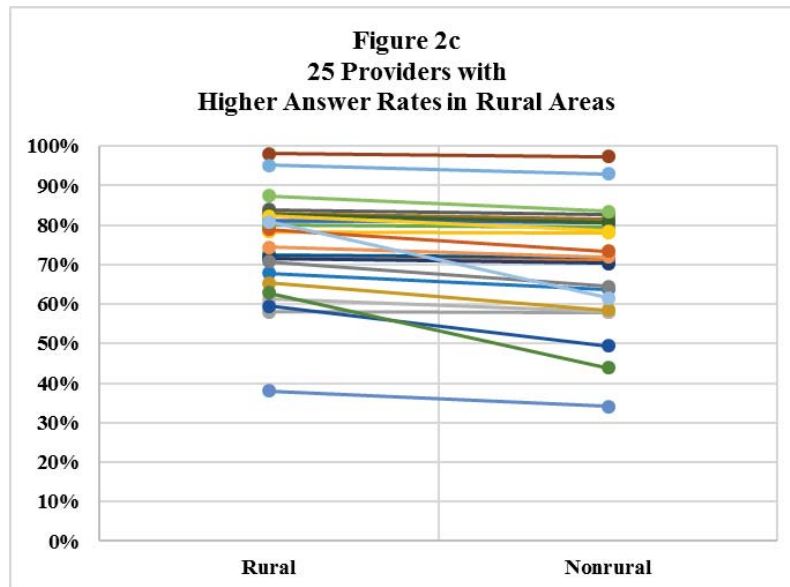
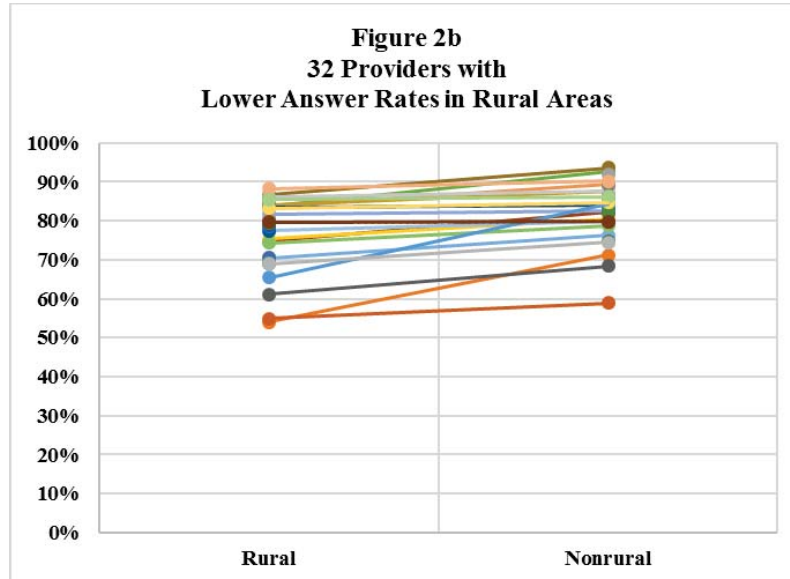
$$\text{Busy Rate} = \frac{\text{Busy Call Attempts}}{(\text{Total Call Attempts} - \text{Call Attempts to Unassigned Numbers})}$$

16. *Comparison of Call Answer Rates by Provider in Rural and Nonrural Areas.* Figure 2a below compares the call answer rates for each covered provider in rural areas and nonrural areas based on their total call attempts to rural OCNs in the aggregate and nonrural OCNs in the aggregate, respectively, during the reporting period. Each covered provider is represented by one dot on the left side of the chart (depicting its rural call answer rate) and one dot in a corresponding color on the right (depicting its nonrural call answer rate). The dashed line, which connects dots representing the median rural call answer rate and the median nonrural call answer rate, shows that the difference in covered providers' median call answer rates in rural and nonrural areas is approximately two percent. At the same time, the two scatter plots in Figure 2a illustrate the wide variation in performance among covered providers in rural areas and in nonrural areas based on the reported data. They show that most covered providers' call answer rates in rural areas and in nonrural areas range from approximately 55 percent up to nearly 100 percent.⁴⁰



17. Moreover, as depicted in Figures 2b and 2c below, the data show that, while 32 covered providers have lower call answer rates in rural areas than in nonrural areas, 25 covered providers have higher call answer rates in rural areas than in nonrural areas. Together, Figures 2a to 2c suggest that individual provider performance is a significant factor in assessing rural call completion problems; that is, rural call completion may be more a function of individual provider performance than a systemic problem.

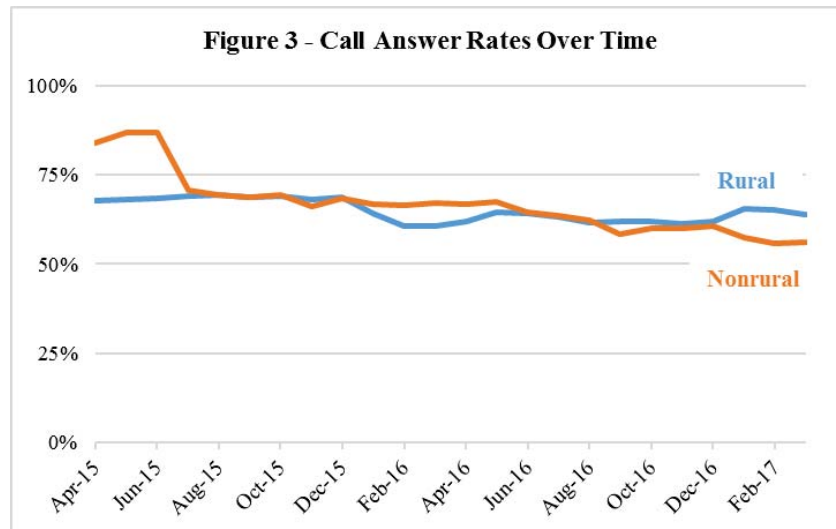
⁴⁰ One covered provider reported zero call attempts to rural areas during the reporting period. Therefore, this provider's rural call answer rate in Figure 2a is depicted as zero percent and this provider is not depicted in Figures 2b or 2c.



18. *Comparison of Call Answer Rates in Rural and Nonrural Areas Over Time.* Figure 3 below shows the change in call answer rates in rural and nonrural areas based on all covered providers' call attempts to rural OCNs in the aggregate and nonrural OCNs in the aggregate over the course of the reporting period. While it cannot be determined with certainty, the significant drop in performance in nonrural areas from June 2015 to July 2015 is likely attributable to errors in some covered providers' initial quarterly reports (which were filed on August 1, 2015 for the period from April 2015 through June 2015). Since the second set of quarterly reports were filed on November 1, 2015 (for the period from July 2015 through September 2015), aggregate call answer rates in both rural and nonrural areas have decreased over time, but remained relatively stable. Over that time period, the aggregate call answer rate

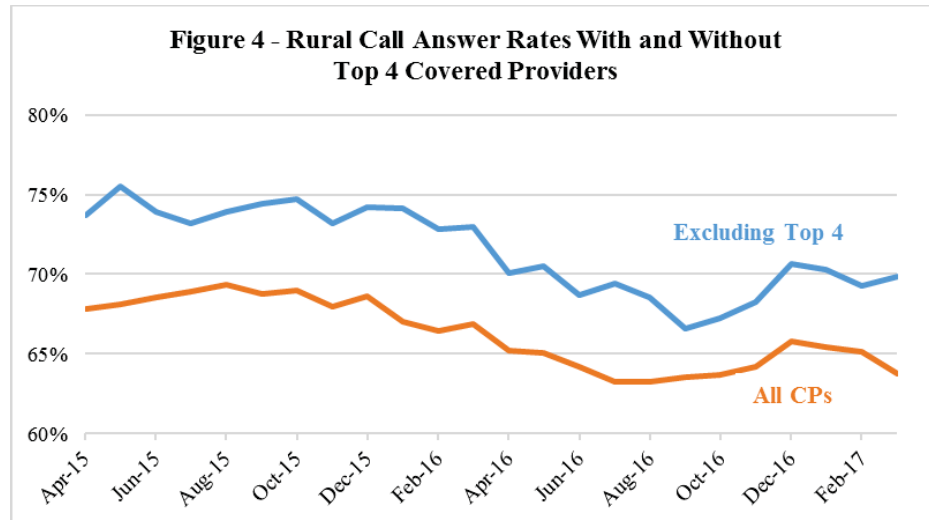
in rural areas has ranged from 61 percent to 69 percent. Notably, the aggregate call answer rate in rural areas has been higher than that in nonrural areas over the last seven months of the reporting period.

19. Figure 3 also shows that the aggregate call answer rate in rural areas has not increased over the two-year reporting period. This fact suggests that the requirement to file Form 480 data, in and of itself, has not caused covered providers as a whole to improve their performance in rural areas during this period. An increase in the aggregate rural call answer rate would have been expected to the extent that the very existence of the reporting requirement incentivizes covered providers to monitor and improve their rural call completion performance. It is also possible, however, that covered providers' *actual* performance as a whole did in fact improve over the reporting period, but that their performance *as reported on Form 480* did not improve. Further, it is possible that there may have been improvement in covered providers' aggregate performance during the reporting period compared to the pre-reporting period.⁴¹ Notably, rural call completion complaints to the Commission decreased from 2015 to 2016 (by 57 percent for complaints filed by consumers and by 45 percent for complaints filed by rural carriers).



20. *Comparison of Call Answer Rates Excluding the Top Four Covered Providers.* The data collected reveals that four covered providers account for approximately 75 percent of all call attempts reported to rural OCNs. Not surprisingly, these four providers have a disproportionate impact on reported call answer rates. As shown in Figure 4 below, excluding these four providers from the data set results in a marked increase in the call answer rate in rural areas over the course of the reporting period. For instance, excluding these providers increases the rural call answer rate from approximately 68 percent to 74 percent in April 2015 and from approximately 64 percent to 70 percent in March 2017. At the same time, for the reasons discussed below relating to data quality, it is difficult to draw any firm conclusions about the performance of each of these four providers. In particular, it is unclear whether the lower aggregate call answer rate that results from the inclusion of these four providers in the data collection represents poor performance by one or more of these providers, or for example, differences in how they reported the required data relative to other covered providers. Additionally, the disproportionate share of call attempts reported by these top four covered providers likely reflects differences in the nature of the calls reported (e.g., the inclusion of substantial amounts of intermediate provider and wholesale traffic) relative to the other covered providers in the data collection.

⁴¹ More than one year elapsed between adoption of the recording, retention, and reporting rules in November 2013 and when covered providers were required to begin recording data in April 2015. This time period allowed covered providers time to begin monitoring and improving their performance prior to the reporting period.



21. *Comparison of Intrastate and Interstate Call Answer Rates.* The data collected indicate that the aggregate call answer rate for all covered providers' intrastate call attempts to rural OCNs during the reporting period was slightly lower than that for all covered providers' interstate call attempts to rural OCNs during the same period. Specifically, the aggregate rural intrastate call answer rate was 67.1 percent while the aggregate rural interstate call answer rate was 62.9 percent. By contrast, the aggregate nonrural intrastate call answer rate (71.4 percent) was higher than the aggregate nonrural interstate call answer rate (66.0 percent).

22. *Comparison of Call Completion Rates in Rural and Nonrural Areas.* The data collected show that the call completion rate for all covered providers' call attempts to rural OCNs in the aggregate during the reporting period was 78.9 percent. By comparison, the call completion rate for all covered providers' call attempts to nonrural OCNs in the aggregate during the same period was 80.4 percent.

B. Data Quality Issues

23. In this section, we discuss a number of data quality issues that the Bureau finds may impact the reliability and utility of the Form 480 data collection. These issues include, among others: (1) how covered providers categorize their call attempts as "answered," "busy," "ring no answer," and "unassigned number"; and (2) the inclusion of autodialer traffic, intermediate provider traffic, and wholesale traffic in the reporting.

1. Call Categorization

24. The retention rule, Section 64.2103, adopted in the *2013 RCC Order*, states that an indication of whether the call attempt was signaled as busy, ring no answer, or unassigned number "may take the form of an SS7 signaling cause code or SIP signaling message code associated with each call attempt," without specifying any particular codes.⁴² In 2015, the Bureau clarified that the *2013 RCC Order* did not require the use of specific signaling codes as the exclusive method for categorizing call attempts because doing so would conflict with the Commission's stated intent in the *Order* to give covered providers flexibility in reporting the required data.⁴³ The Bureau further stated its expectation

⁴² 47 CFR § 64.2103(e)(8), (e)(9).

⁴³ *2015 RCC Declaratory Ruling*, 30 FCC Rcd at 1246-47, para. 7 (citing *2013 RCC Order*, 28 FCC Rcd at 16187, para. 71 & n.195) (expressing the Commission's intent to "accommodat[e] differences in the specific cause codes or other data that providers may have, to give them flexibility to report such data based on their own network configurations," and "to accommodate differences in signaling technology"). Integrated Services Digital Network

that covered providers' descriptions of the methodologies used to categorize their reported call attempts will help ensure that the Bureau is able to interpret the reported data accurately.⁴⁴

25. *Differences in Call Categorization Based on Signaling.* Covered providers' descriptions of how they identify a call attempt as "answered," "busy," "ring no answer," and "unassigned number" show that providers are defining these categories in numerous different ways, making it difficult to compare performance across providers and reliably draw conclusions based on the data. For example, among covered providers that relied on ISUP cause codes to define "answered" calls, some categorized call attempts with ISUP 16 ("normal call clearing") plus any duration (i.e., conversation time) as answered while others also included call attempts with ISUP 31 ("normal unspecified") plus conversation time in that category. Among covered providers that relied on SIP response messages to define answered calls, some categorized call attempts with SIP BYE as answered, while others also included call attempts with SIP CANCEL in this category, and still others included only those call attempts with SIP BYE or CANCEL plus conversation time. And among providers that relied solely on the duration of call attempts to categorize them as answered, some used a duration of greater than zero seconds and others used a duration of 14 or 15 seconds.

26. The differences in how covered providers categorize call attempts based on ISUP cause codes or SIP response messages are exacerbated by the fact that the same cause code may be sent in response to multiple call attempt scenarios and may be interpreted differently by covered providers. For example, while ISUP cause code 16 may be returned to indicate the release of an answered call, it may be also be returned where the calling party hangs up before the called party answers.⁴⁵ To account for the latter scenario, some covered providers report call attempts with both ISUP cause code 16 and no conversation time as "ring no answer" calls. However, other covered providers report such call attempts but do not include them in any of the four categories specified by the retention and reporting rules.⁴⁶ Similarly, because the SIP response message BYE may be sent after the normal release of an answered call as well as after the called party is alerted but before the call is answered,⁴⁷ a few covered providers that report all call attempts with SIP BYE as "answered" may be overstating their answer rates.

27. *Call Categorization Based on Inaccurate Signaling.* In the 2013 RCC Order, the Commission required covered providers to report information that would allow the Commission to calculate the call answer rate in part because the call answer rate is less susceptible than other metrics to differences in the quality or accuracy of signaling.⁴⁸ However, record evidence suggests that inaccurate signaling may affect the categorization of call attempts reported and the resulting answer rates. For example, Verizon has found that signaling cause codes cannot be used to reliably identify all calls to

User Part (ISUP) cause codes are used by the Signaling System 7 (SS7) for TDM-based telephony and equivalent codes or response messages are used by the Session Initiation Protocol (SIP) for IP-based telephony. See, e.g., *Rural Call Completion*, Notice of Proposed Rulemaking, 28 FCC Rcd 1569, 1578, para. 29 n. 54 (2013) (2013 RCC NPRM) (citing RFC 3398 *Integrated Services Digital Network (ISDN) User Part (ISUP) to Session Initiation Protocol (SIP) Mapping*, Camarillo *et al.*, Internet Engineering Task Force, December 2002, at § 7.4.2.1, <https://tools.ietf.org/pdf/rfc3398> (last visited June 16, 2017)).

⁴⁴ 2015 RCC Declaratory Ruling, 30 FCC Rcd at 1246-47, para. 7.

⁴⁵ CenturyLink May 13, 2014 Comments at 2; Letter from Thomas Goode, General Counsel, ATIS, to Marlene H. Dortch, Secretary, FCC, at 2 (May 27, 2014) (ATIS May 27, 2014 *Ex Parte*).

⁴⁶ See *infra* para. 29 for more discussion of call attempts that are reported but are not categorized by covered providers as "answered," "busy," "ring no answer," or "unassigned number."

⁴⁷ ATIS May 27, 2014 *Ex Parte* at 2.

⁴⁸ 2013 RCC Order, 28 FCC Rcd at 16186-87, para. 71; see also *supra* para. 7.

unassigned numbers.⁴⁹ In particular, many call attempts to unassigned numbers result in an ISUP cause code other than the industry standard of 1.⁵⁰ Relying solely on cause code 1 to identify call attempts to unassigned numbers thus undercounts such call attempts⁵¹ and thereby artificially depresses call answer rates.⁵² For instance, out of 168 internal investigations of rural OCNs with monthly low answer rates⁵³ that Verizon conducted from April to December 2015, Verizon found that 137 investigations were the result of not having received a cause code of 1 for call attempts to unassigned numbers.⁵⁴

28. Furthermore, record evidence suggests that call categorization based on signaling information may also be complicated by misalignment in the mapping of ISUP cause codes to SIP response messages.⁵⁵ In particular, a single SIP response message can correspond to multiple ISUP cause codes. For instance, SIP response message 404 (“Not Found”) corresponds to three different ISUP cause codes (i.e., 1 for “unallocated (unassigned) number,” 2 for “no route to network,” and 3 for “no route to destination”).⁵⁶ Covered providers that categorize all call attempts with SIP 404 as “unassigned number” call attempts may therefore be over-reporting such call attempts.

29. *Uncategorized Call Attempts.* A substantial amount of the call attempts reported by covered providers fall outside of the four categories specified by the retention and reporting rules. As illustrated in Figure 1 above, the rate of uncategorized call attempts in rural areas and in nonrural areas is approximately 20 percent. The prevalence of these uncategorized call attempts limits the utility of the data collection. While uncategorized call attempts drive down call answer and call completion rates, the extent to which these call attempts are not completed due to rural call completion problems is unclear. The descriptions of call categorization methodologies provided in Form 480 submissions suggest that some covered providers’ uncategorized call attempts include completed call attempts (e.g., calls where the calling party hung up before the called party answered) as well as uncompleted call attempts that are not necessarily indicative of call completion problems (e.g., call attempts with ISUP cause code 28 for “address incomplete” where the called party cannot be reached because the number dialed is not a valid format or not complete).⁵⁷ At the same time, to the extent that uncategorized call attempts are the result of rural call completion problems, the data does not enable the Bureau to identify such call attempts or determine their cause. The 2013 RCC Order did not require covered providers to report the cause codes they record for each call attempt. However, even if the Commission had done so, it is not clear that such

⁴⁹ Letter from Maggie McCready, Vice President, Federal Regulatory and Legal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, Attachment at 10 (filed April 26, 2017) (Verizon Second RCC Workshop *Ex Parte*).

⁵⁰ *Id.*

⁵¹ *Id.* at 14-15.

⁵² The call answer rate can be expressed as Answered Calls / (Total Call Attempts – Call Attempts to Unassigned Numbers). Therefore, undercounting call attempts to unassigned numbers increases the total call attempts in the denominator of the call answer rate and thereby decreases the call answer rate.

⁵³ Verizon defined such OCNs as those for which the call answer rate fell below 80 percent of the aggregate rural answer rate in the prior month. Verizon Second RCC Workshop *Ex Parte* at 6.

⁵⁴ *Id.* at 14.

⁵⁵ ATIS May 27, 2014 *Ex Parte* at 2. Such mapping is necessary, for example, when a call originated in TDM and terminates in IP or *vice versa*, or when a call originates and terminates in TDM but is transported in IP. *See, e.g., RFC 3398 Integrated Services Digital Network (ISDN) User Part (ISUP) to Session Initiation Protocol (SIP) Mapping*, Camarillo *et al.*, Internet Engineering Task Force, December 2002, at § 1, <https://tools.ietf.org/pdf/rfc3398> (last visited June 16, 2017).

⁵⁶ *See, e.g., id.*, at § 7.4.2.1.

⁵⁷ *See, e.g.,* ATIS-0300019 NGIIF Reference Document, Attachment H, SS7 Cause Code and Tones & Announcements, v. 12, § 9 (SS7 Cause Code Matrix), https://www.atis.org/01_committ_forums/NGIIF/docs/refdoc12.0/atis0300019.doc (last visited June 16, 2017).

cause codes could help accurately identify OCNs with potential rural call completion problems because of the signaling issues discussed above as well as the other data quality issues discussed below.

2. Inclusion of Autodialer Traffic

30. In the *2013 Rural Call Completion Order*, the Commission anticipated that autodialer traffic⁵⁸ generally has a lower call answer rate,⁵⁹ and that reports that segregate autodialer traffic may therefore be useful if such traffic can be reliably excluded.⁶⁰ However, the Commission required covered providers to include autodialer traffic in their retention and reporting because the record was unclear on the degree to which providers could reliably identify and segregate autodialer calls.⁶¹

31. The Commission also gave covered providers the option to submit data segregating autodialer traffic from other traffic, accompanied by an explanation of the method the provider used to identify the autodialer traffic.⁶² Five covered providers segregated the autodialer traffic in all of their Form 480 submissions for the first eight quarters of reporting; two other providers did so for nearly all eight quarters; and one provider did so for its October and November 2016 data due to a noticeable increase in autodialer traffic coinciding with the general election. These providers used various methods for identifying autodialer traffic, including proxies based on originating numbers that had a specific number of call attempts in a defined period (e.g., at least 1,000 call attempts in a day; more than 720 call attempts in any day of the reported month; more than 360 call attempts per hour in a 24-hour period and a call answer rate of less than 25 percent; at least 5,000 call attempts in a month with an average call duration of less than or equal to 18 seconds).

32. While the Commission required covered providers to include autodialer traffic in their retention and reporting, it projected that to the extent that autodialers send more calls to unassigned numbers,⁶³ any effect on the call answer rate should be addressable by examining how many call attempts overall were made to unassigned numbers.⁶⁴ However, in practice, this assumption appears to have been proven incorrect because, as discussed above, record evidence suggests that inaccurate signaling can cause unassigned number calls to be undercounted and thereby depress call answer rates.⁶⁵ Moreover, even if calls to unassigned numbers were accurately counted, the data collected suggests that the inclusion of autodialer traffic can nevertheless significantly affect call answer rates. Specifically, as shown in the second and third columns of Figure 5 below, the five covered providers that segregated their autodialer traffic from their other traffic over the entire reporting period had substantially more ring no answer,

⁵⁸ An autodialer is “equipment which has the capacity to store or produce telephone numbers to be called using a random or sequential generator and to dial such numbers.” 47 U.S.C. § 227(a)(1); 47 CFR § 64.1200(f)(2).

⁵⁹ *2013 RCC Order*, 28 FCC Rcd at 16180, n.154.

⁶⁰ *Id.* at 16205, para. 121.

⁶¹ *Id.* at 16179-80, para. 54.

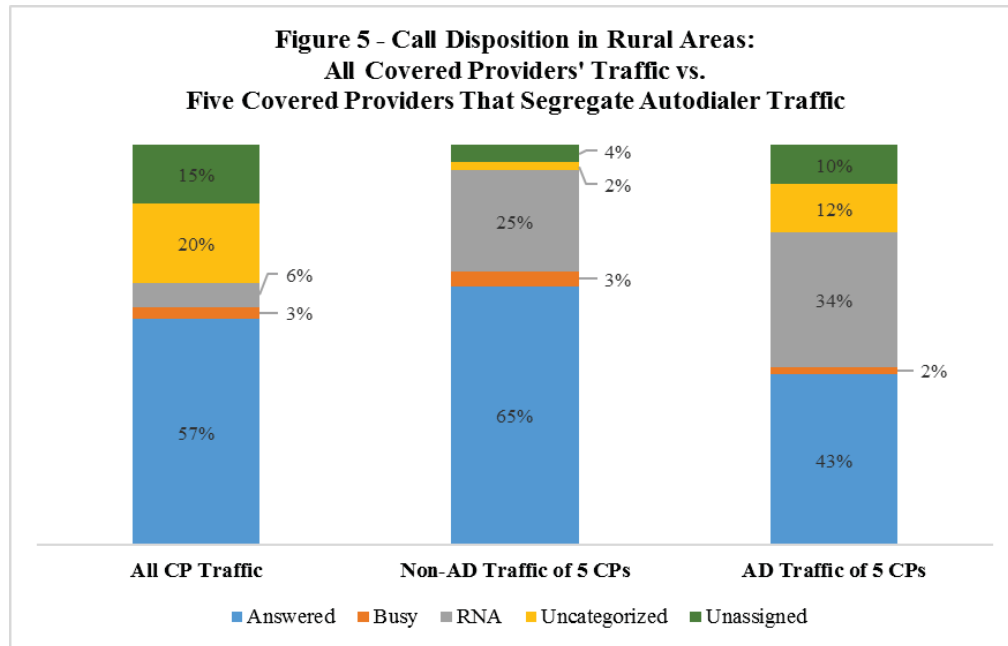
⁶² *Id.*

⁶³ For example, autodialers may walk through numbers sequentially, thereby resulting in more calls to numbers that have not been assigned to subscribers.

⁶⁴ *Id.* at 16180, n.155; *see also id.* at 16175, n.122 (“Requiring covered providers to record calls to unassigned numbers separately will help address commenter concerns that autodialer traffic distorts call answer rates in rural areas due to a higher percentage of unassigned numbers there.”).

⁶⁵ This problem may be exacerbated with respect to autodialer calls placed to rural incumbent LECs, which often are assigned 10,000 numbering blocks but, unlike more populous areas, have low number utilization. When autodialer calls are placed to numbers in sequence, call answer rates will be depressed if calls to unassigned numbers are recorded as unanswered calls. This can result in lower call answer rates reported in less populous rural areas than in areas with higher number utilization.

uncategorized, and unassigned number call attempts (and thus, fewer answered calls) in rural areas for their autodialer traffic than for their non-autodialer traffic.⁶⁶



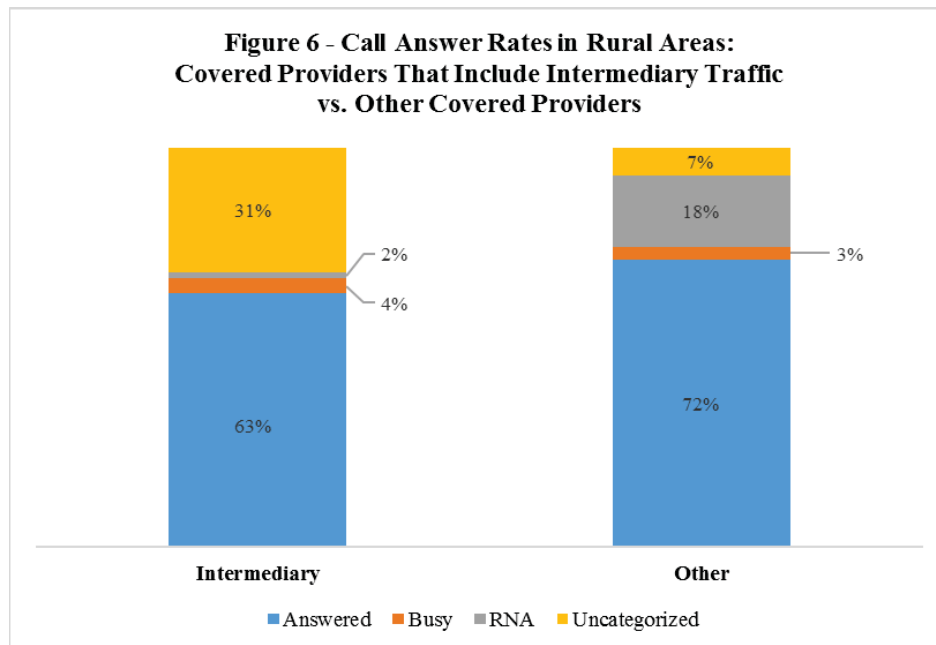
At the same time, however, we are unable to draw firm conclusions from the data about the impact of including autodialer traffic because the data also suggests that there may be significant differences in the way that one or more of these five covered providers categorize their call attempts relative to covered providers overall. Specifically, as shown in the first two columns of Figure 5, the call dispositions of these five covered providers' non-autodialer traffic in rural areas are significantly different from the call dispositions for all covered providers' traffic (both non-autodialer and autodialer traffic) in rural areas. For example, these five providers had substantially more ring no answer call attempts and substantially fewer unassigned number and uncategorized call attempts for their non-autodialer traffic in rural areas compared to all covered providers' traffic in such areas. These substantial differences in the first two columns suggest that at least some of the disparity between the non-autodialer traffic and autodialer traffic in the second and third columns may be due to differences in call categorization and reporting between the five providers (or a subset thereof) that consistently segregate their autodialer traffic and those that do not. Nevertheless, because there remain differences between autodialer and non-autodialer traffic among those providers that make such a distinction in all of their reports, it appears that the inclusion of autodialer traffic has an effect on call answer rates. To the extent that a similar pattern holds among providers that do not segregate their autodialer traffic, their call answer rates are likely depressed by including autodialer traffic, though the data collection does not provide any insight into whether this is in fact the case.

⁶⁶ The numbers in each of the three columns in Figure 5 do not equal 100 percent due to rounding. Figure 5 includes calls to unassigned numbers given the relevance of such calls to the examination of autodialer traffic. Given that the call answer rate is calculated by excluding calls to unassigned numbers (*see supra* para. 6), the percentage of calls answered in the first column of Figure 5 appears lower than the aggregate rural call answer rate shown in Figure 1 above.

3. Inclusion of Intermediate Provider Traffic

33. In the *2013 RCC Order*, the Commission held that “a covered provider that also serves as an intermediate provider for other providers may – but need not – segregate its originated traffic from its intermediary traffic in its recording and reporting, given the additional burdens such segregation may impose on such providers.”⁶⁷ Eight covered providers indicated that they included intermediary traffic in their reporting and these eight providers together account for approximately 70 percent of the total number of call attempts to rural OCNs in the data collection.

34. As is the case with autodialer traffic, the discretion to include or not include intermediary traffic in the required reporting affects the reliability and utility of the data collection. First, an individual call attempt may be reported multiple times—once by the covered provider for the call and one or more times by any covered providers that (1) are serving as intermediate providers for that call and (2) do not segregate their original traffic from their intermediary traffic. Second, the exclusion of intermediary traffic from some but not all covered providers’ reporting makes it difficult to compare performance across providers. Third, as shown in Figure 6, together, the covered providers that included intermediary traffic in their reporting had a lower call answer rate and a substantially higher rate of uncategorized call attempts than those that did not, although the data collection does not provide any insight into whether there is a relationship between the reporting of intermediary traffic and those rates.



4. Inclusion of Retail Traffic Reported by Wholesale Providers

35. In the *2013 RCC Order*, the Commission held that “[i]f a covered provider does not have retail subscribers – for example because it only provides wholesale services – then it should determine whether it makes the initial call path choice for more than 100,000 originating domestic retail subscriber lines in the aggregate.”⁶⁸ However, the Commission does not require a covered provider making the initial long distance call path choice for the domestic retail subscriber lines of its wholesale customers to identify the wholesale customers at issue. Nor do the Form 480 submissions of covered providers that

⁶⁷ *2013 RCC Order*, 28 FCC Rcd at 16165, n.64.

⁶⁸ *Id.* at 16165, n.62.

make the initial long distance call path choice for both their own retail subscriber lines and their wholesale customers' subscriber lines distinguish between the wholesale and retail call attempts reported. This lack of information limits the effectiveness of the data collection. For example, where a covered provider reports very low numbers of call attempts to rural OCNs relative to its number of retail voice subscribers as reported on FCC Form 477, it is unclear whether this is the case because a portion of the covered providers' retail long distance voice traffic is being reported by its wholesale provider or because of some other reason (e.g., the covered provider is failing to report all of the required data).

5. Lack of Safe Harbor Provider Data

36. Under the *2013 RCC Order*, a covered provider that qualifies for the Safe Harbor is obligated to comply with the rural call completion data reporting requirement for only one year after it first files its Safe Harbor certification.⁶⁹ Two covered providers, AT&T and CenturyLink, certified Safe Harbor compliance on July 31, 2015,⁷⁰ and consistent with the Section 64.2107(c) of the Commission's rules, ceased complying with the reporting requirement after one year.⁷¹ As a result, the data collection no longer includes call attempts from two of the largest covered providers in the country—providers that also employ practices pursuant to the Safe Harbor (i.e., reducing the number of intermediate providers in the call path and managing those intermediate providers) that the Commission expects to result in fewer rural call completion problems.⁷² Thus, while the Safe Harbor incentivizes covered providers to adopt positive rural call completion practices, it also creates a situation in which the data collection lacks a significant amount of data that would otherwise help provide a baseline against which to compare the performance of all other covered providers.

6. Other Data Quality Issues

37. Anomalies in the data also decrease our confidence in the reliability of the data collection. For instance, according to the data, seven rural OCNs received only 20 call attempts total over the two-year reporting period. In addition, the data show that several covered providers reported extremely high or extremely low rates of call attempts in certain categories (e.g., busy or ring no answer) relative to all other covered providers. For instance, one provider reported a ring no answer rate of nearly 50 percent in rural areas during the reporting period and another provider reported a busy rate of only 0.31 percent to rural areas over the first half of the reporting period.

IV. RECOMMENDATIONS

38. Based on the foregoing analysis and our experience with the Form 480 data collection, we recommend that the Commission consider eliminating the recording, retention, and reporting rules and replacing them with new rules for covered providers that may more effectively address rural call completion problems. We make this recommendation for several reasons. First, the Commission adopted these rules to improve its ability to monitor rural call completion and to aid enforcement action when necessary,⁷³ but the data quality issues discussed above impede the achievement of these goals. In particular, the Commission cannot consistently rely on the data to accurately identify areas with potential rural call completion problems. Additionally, these data quality issues have hindered the Enforcement Bureau's ability to initiate enforcement action against covered providers based solely on the data

⁶⁹ 47 CFR § 64.2107(a) & (c).

⁷⁰ See Letter from Brian J. Benison, Director, Federal Regulatory, AT&T, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 13-39, Attachment at 1-2 (filed July 31, 2015); Letter from John E. Benedict, Vice President, Federal Regulatory Affairs & Regulatory Counsel, CenturyLink, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 13-39, Exhibits 1-2 (filed July 31, 2015).

⁷¹ 47 CFR § 64.2107(c).

⁷² See, e.g., *2013 RCC Order*, 28 FCC Rcd at 16193, para. 90.

⁷³ *Id.* at 16155, para. 2.

collected. Moreover, as discussed above, the data shows no improvement in covered providers' reported performance since the start of the data collection. This finding suggests that retaining the reporting requirement, in and of itself, will not necessarily result in improved call completion performance.

39. Second, even if the Commission were to modify the reporting, recording, and retention rules, it is not clear that the benefits of such modifications would outweigh the costs. The necessary modifications—including requiring all covered providers to categorize their call attempts using a consistent methodology and excluding autodialer traffic, intermediary traffic, and wholesale traffic from their reporting—would likely impose additional burdens on covered providers, and those burdens may be substantial. For example, the Commission declined to require segregation of autodialer traffic because the record was unclear on whether covered providers have methods to reliably do so.⁷⁴ And as discussed above, the Commission permitted covered providers to include intermediary traffic in their reporting because of the additional burdens that excluding such traffic may impose on providers.⁷⁵

40. Furthermore, even if the Commission were able to modify its rules to improve data quality, the modifications would, at most, enable the Commission to reliably identify areas with potential rural call completion problems weeks or months after those problems occur. The Commission may be able to more directly address rural call completion problems by requiring covered providers to take measures, such as the adoption of industry best practices, to prevent rural call completion problems from occurring in the first place. For example, the Commission could require covered providers to monitor the performance of each of their intermediate providers and hold them accountable for such performance, including by temporarily or permanently removing the intermediate provider from the routing path if necessary.⁷⁶

41. While the Bureau recommends elimination of the recording, retention, and reporting rules, the Bureau notes that rural call completion issues remain a significant issue, that must be addressed. Therefore, as an alternative the Bureau recommends the Commission seek comment on the following issues with respect to modifying the data collection: (1) whether and how to modify the call disposition categories specified in the rules (i.e., answered, busy, ring no answer, and unassigned) to reduce or eliminate the problem of uncategorized calls; (2) whether and how to account for inaccuracies in signaling, which affect call categorization and the resulting call answer rates; and (3) whether and how to require covered providers to exclude autodialer traffic, intermediate provider traffic, and wholesale traffic from their Form 480 reports. The Commission should also seek comment on how to improve the Form 480 filing system to ensure consistency in the form and content of providers' filings (e.g., ensuring that all cells in the template are completed), and, alternatively, whether to eliminate the reporting requirement but retain the recording and retention requirements, which individual covered providers may find informative about the comparative performance of each of their intermediate providers.⁷⁷

⁷⁴ *Id.* at 16179, paras. 52-54. We note that during its investigations conducted under the compliance plan in its 2015 Consent Decree with the Commission's Enforcement Bureau, Verizon has developed methodologies to isolate both autodialer calls and calls to unassigned numbers and to remove them from the metrics used to flag rural areas for investigation. See Verizon Second RCC Workshop *Ex Parte* at 29, 32.

⁷⁵ 2013 RCC Order, 28 FCC Rcd at 16165, n.64.

⁷⁶ See ATIS, Intercarrier Call Completion/Call Termination Handbook § 6.1 (2015), <https://www.atis.org/docstore/product.aspx?id=26780>.

⁷⁷ Cf. 2013 RCC Order, 28 FCC Rcd at 16170, para. 29 (“[A]s providers collect data . . . , many will have greater insight into their performance and that of their intermediate providers than they have had in the past.”). The retained data may also be valuable in any rural call completion investigations conducted by the Commission's Enforcement Bureau. See, e.g., *Matrix Telecom, Inc.*, Order and Consent Decree, 29 FCC Rcd 5709, 5713-14, paras. 7-10 (EB 2014) (explaining that in the time period after the Enforcement Bureau requested and obtained months of call completion data from Matrix's retail and wholesale operations, Matrix significantly reduced the number of

42. Finally, the *2013 RCC Order* requires the Bureau to address “whether data collection and reporting should be reduced or eliminated for certain providers or classes of providers (including those that meet a performance-based standard over four consecutive quarters)” and whether to “extend data collection and reporting requirements to certain intermediate providers.”⁷⁸ In light of the data quality issues discussed above, we do not recommend that the Commission use a performance-based standard to relieve certain covered providers from the existing requirements or that the Commission extend these requirements to intermediate providers.

V. REQUEST FOR COMMENT

43. Consistent with the *2013 RCC Order*,⁷⁹ the Bureau invites comment on this *Report*. To provide adequate time, comments on this *Report* will be due on August 3, 2017.

VI. PROCEDURAL MATTERS

A. *Ex Parte* Rules

44. This proceeding shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission’s *ex parte* rules.⁸⁰ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by Rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission’s *ex parte* rules.

B. Comment Filing Procedures

45. Pursuant to Sections 1.415 and 1.419 of the Commission’s rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments on or before the date indicated on the first page of this document. Comments may be filed using the Commission’s Electronic Comment Filing System (ECFS).⁸¹

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://apps.fcc.gov/ecfs/>

intermediate providers it used to deliver long-distance calls to rural areas, and, as a result, its rural call completion performance improved substantially).

⁷⁸ *2013 RCC Order*, 28 FCC Rcd at 16198, para. 105.

⁷⁹ *Id.*

⁸⁰ 47 CFR §§ 1.1200 *et seq.*

⁸¹ See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 Fed. Reg. 24121 (1998).

- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.
- People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an email to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

C. Contact Person

46. For further information about this proceeding, please contact Alex Espinoza, FCC Wireline Competition Bureau, Competition Policy Division, Room 5-C323, 445 12th Street, S.W., Washington, D.C. 20554, at (202) 418-0849 or Alex.Espinoza@fcc.gov.

VII. ORDERING CLAUSES

47. Accordingly, IT IS ORDERED that, pursuant to the authority delegated pursuant to Section 0.91 of the Commission's rules, 47 CFR § 0.91, and pursuant to the delegation in paragraph 105 of the *2013 RCC Order*, this Report in WC Docket No. 13-39 IS ADOPTED.

FEDERAL COMMUNICATIONS COMMISSION

Kris Anne Monteith
Chief, Wireline Competition Bureau