This document is scheduled to be published in the
Federal Register on 08/22/2019 and available online at
https://federalregister.gov/d/2019-18062, and on **govinfo.gov**

6712-01

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 1 and 54

[WC Docket Nos. 11-10 and 19-195, FCC No. 19-79]

Establishing the Digital Opportunity Data Collection and Modernizing the FCC Form 477 Data Program

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) adopts a Report and Order and Second Further Notice of Proposed Rulemaking (*Second FNPRM*). This document seeks comment on certain aspects of the Digital Opportunity Data Collection to enhance its accuracy and usefulness. The *Second FNPRM* seeks comment on ways to develop location-specific data that could be used in conjunction with the polygon-based data in the new collection to precisely identify the homes and small businesses that have and do not have access to broadband services. With respect to mobile wireless coverage, the *Second FNPRM* seeks comment on how to align the Digital Opportunity Data Collection with changes in mobile broadband deployment technology, markets, and policy needs. The *Second FNPRM* also seeks comment on how to improve satellite broadband deployment data given the unique characteristics of satellites.

DATES: For the *Second FNPRM* comments are due on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, and reply comments are due on or before **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Written comments on the Paperwork Reduction Act information collection requirements must be submitted by the public, OMB, and other

interested parties on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: In addition to filing comments with the Commission's Office of the Secretary, as set forth below, a copy of any comments on the Paperwork Reduction Act information collection requirements contained herein should be submitted to the Commission via email to PRA@fcc.gov and to Nicole Ongele, FCC, via email to Nicole.Ongele@fcc.gov.

FOR FURTHER INFORMATION CONTACT: Wireline Competition Bureau, Kirk Burgee, at (202) 418-1599, Kirk.Burgee@fcc.gov, or, Wireless Telecommunications Bureau, Garnet Hanly, at (202) 418-0995, Garnet.Hanly@fcc.gov. For additional information concerning the Paperwork Reduction Act information collection requirements contained in this document, send an e-mail to *PRA@fcc.gov* or contact Nicole Ongele at (202) 418–2991.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Report and Order and Second Further Notice of Proposed Rulemaking* in WC Docket Nos. 11-10 and 19-195, FCC 19-79, adopted August 1, 2019 and released August 6, 2019. The full text of this document is available for public inspection during regular business hours in the FCC Reference Information Center, Portals II, 445 12th Street SW, Room CY–A257, Washington, DC 20554. It also is available on the Commission's website at https://www.fcc.gov/document/fcc-improves-broadband-mapping-0.

Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments and reply comments in response to the *Second FNPRM* on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- *Electronic Filers*: Comments may be filed electronically using the Internet by accessing the ECFS: https://www.fcc.gov/ecfs/.

- *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 9050 Junction Drive, Annapolis Junction, MD 20701. 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 e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

Synopsis

I. INTRODUCTION

1. Accurate broadband deployment data is critical to the Commission's efforts to bridge the digital divide. Effectively targeting federal and state spending efforts to bring broadband to those areas most in need of it means understanding where broadband is available and where it is not. The census-block level fixed broadband service availability reporting the Commission currently requires has been an effective tool for helping the Commission target universal service support to the least-served

areas of the country, but has made it difficult for the Commission to direct funding to the "gaps" in broadband coverage—those areas where some, but not all, homes and businesses have access to modern communications services.

2. We therefore initiate a new data collection, the Digital Opportunity Data Collection, that is distinct from the existing Form 477 collection and that will gather geospatial broadband service availability data specifically targeted toward advancing our universal service goals. Pursuant to the Digital Opportunity Data Collection, we require all broadband service providers to submit granular maps of the areas where they have broadband-capable networks and make service available. Given the Commission's ongoing investigation into the coverage maps of one or more major mobile operators, we limit the new data collection obligations to fixed broadband providers at present and seek comment on how best to incorporate mobile wireless coverage data into the Digital Opportunity Data Collection.

3. Service providers—who are uniquely situated to know where their own networks are deployed—must determine in the first instance the availability of broadband in their service areas, taking into account their individual circumstances and their on-the-ground knowledge and experience. At the same time, to complement this granular broadband availability data, we adopt a process to begin collecting public input, sometimes known as "crowdsourcing," on the accuracy of service providers' broadband deployment data. Through this new tool, State, local, and Tribal governmental entities and members of the public will be able to submit fixed broadband availability data, leveraging their experience concerning service availability. In addition, because we leave in place for now the existing Form 477 data collection, we make targeted changes to reduce reporting burdens for all providers by removing and clarifying certain requirements and modifying the collection.

4. In the *Second FNPRM*, we seek comment on certain aspects of the Digital Opportunity Data Collection to enhance the accuracy and usefulness of broadband deployment reporting. We also

seek comment on ways that we can develop location-specific data that could be overlaid onto the polygon-based data in this new data collection to precisely identify the homes and small businesses that have and do not have access to broadband services. With respect to mobile wireless coverage, we seek comment on how to align the Digital Opportunity Data Collection with changes in mobile broadband deployment technology, markets, and policy needs. The questions asked, and proposals made, in the *Second FNPRM* build a framework for addressing these and other issues. Finally, the *Second FNPRM* seeks comment on how we can improve the satellite broadband deployment data given the unique characteristics of satellites.

II. BACKGROUND

5. First established in 2000, the Commission's Form 477 began as a collection of subscription and connection data for local telephone and broadband services that helped the Commission to, among other things, meet statutory annual reporting obligations and monitor local voice competition. Over time, the Form 477 data collection has evolved into the primary data source for many Commission actions, including reporting to Congress and the public about the availability of broadband services, informing transaction reviews, and supporting our universal service policies. At the same time, it has become increasingly clear that the fixed and mobile broadband deployment data collected on the Form 477 are not sufficient to understanding where universal service support should be targeted and supporting the imperative of our broadband-deployment policy goals.

6. For purposes of broadband deployment reporting, the Commission currently requires fixed providers to report the census blocks in which their broadband service is available. Fixed broadband connections are available in a census block "if the provider does, or could, within a service interval that is typical for that kind of connection—that is, without an extraordinary commitment of resources—provision two-way data transmission to and from the Internet with *advertised* speeds

exceeding 200 kbps in at least one direction to *end-user premises* in the census block." However, census-block based fixed deployment data have limitations—providers report whether or not fixed broadband service is available in at least some part of each census block, but not whether there is availability at all areas within a block.

7. Providers of fixed voice and broadband service report on their end-user subscriptions by submitting the total number of connections in each census tract in which they provide service. Providers of mobile voice and broadband service report their total subscribers for each state in which they provide service to customers. Facilities-based providers of mobile broadband service report on deployment by submitting, for each technology and frequency band employed, polygons in geographic information system (GIS) mapping files that digitally represent the geographic areas in which a customer could expect to receive the minimum speed the service provider advertises for that area. In addition, mobile service providers must report the census tracts in which their service is advertised and available to potential customers.

8. In establishing the Form 477 as its primary vehicle for collecting information about the deployment of broadband services, the Commission predicted that the data from the Form 477 would "materially improve" its ability to develop, evaluate, and revise broadband policy, as well as provide valuable benchmarks for Congress, the Commission, other policymakers, and consumers. In its comments in this proceeding, the National Telecommunications and Information Administration (NTIA) states that its analysts "routinely refer to the Commission's Form 477 data, including both deployment and subscription data, to help inform policymakers and enhance [its] technical support of broadband infrastructure investment." The Commission has used aggregate broadband data reported by providers on Form 477 to, among other things: (1) meet our statutory obligation to annually report on the state of broadband availability; (2) update our universal service policies and monitor whether our universal service goals are being achieved in a cost-effective manner; (3) meet our public safety obligations; and

(4) maintain coverage maps to inform stakeholders, including industry and the public.

9. In an effort to collect and develop better quality, more useful, and more granular broadband deployment data, the Commission adopted the *2017 Data Collection Improvement FNPRM* in August 2017. In the *2017 Data Collection Improvement FNPRM*, the Commission sought comment on: (1) ways in which the Commission might increase the quality and accuracy of the broadband information we collect; and (2) ways in which the Commission might streamline its broadband reporting requirements and thereby reduce the burdens on filers. The Commission also noted that one of its primary objectives is to ensure that the data collected will be closely aligned with the uses to which they will be put, and sought comment on those uses to inform our analysis. In response, we received a voluminous amount of comments, reply comments, and ex parte presentations with specific recommendations on how best to improve our broadband reporting process.

III. SECOND FURTHER NOTICE OF PROPOSED RULEMAKING

10. We take steps today in the *Report and Order* to improve our broadband data collection and reporting by directing USAC, under the supervision of OEA, to undertake establishing the online portal for the Digital Opportunity Data Collection, an entirely new collection targeted specifically at identifying unserved areas with greater precision in order to advance our universal service goals. In this *Second FNPRM*, we seek comment on additional issues to continue our ongoing efforts to ensure that the Digital Opportunity Data Collection will evolve to align with changes to technology, markets, and policy needs.

A. Improving Broadband Data

11. Even with public input to improve the quality of the Digital Opportunity Data Collection over time, it is essential that we receive reliable fixed broadband availability data from filers of this new collection at the outset. Although we are cognizant of the potential burdens that greater precision in

reporting can entail, commenters have indicated in the record that the approach we adopt today —to collect coverage polygons of fixed-broadband service availability—will allow providers to submit more precise data with reasonable burdens. Nonetheless, we seek comment on steps the Commission can take to improve the quality of fixed broadband coverage polygons while minimizing the associated reporting burdens.

1. Additional Technical Standards for Fixed Broadband Reporting

12. As part of the Digital Opportunity Data Collection, the Commission is directing OEA to provide guidance to fixed providers regarding how to develop the polygons depicting fixed broadband coverage. Connected Nation expresses concern that small service providers in particular will struggle to comply with the new reporting requirements in the Digital Opportunity Data Collection unless they get assistance in creating their broadband coverage polygons. In the *Report and Order*, we identify help-desk support and clear instructions as ways we will assist fixed broadband providers with meeting the new filing obligations. We seek comment on what other steps the Commission and USAC can take to help fixed providers file accurate data as part of the new collection.

13. We seek comment on whether Commission staff should prescribe rules for reporting fixed wired broadband deployment that will provide consistently reliable results for similarly-situated filers? For example, should we establish fixed buffers around network facilities to define coverage for specific fixed technologies (e.g., 200-meter buffers around the location of distribution or coaxial plant)? Would this promote consistency and reliability among submissions? We note that applying such buffers or other constraints may foreclose consideration of individual network characteristics. Are there ways to mitigate or address this risk? What other methodologies for developing polygons should we permit fixed providers to use? For example, would polygons based on homes passed or addresses served by the fixed provider produce equally reliable polygons? How much flexibility should we afford fixed

providers in selecting a methodology to creating broadband coverage polygons? Would any globally-applied constraint be too likely to over- or under-state service availability? How should broadband coverage polygons account for transport capacity? That is, how should we ensure that fixed providers are capable of serving every location covered by a polygon? We recognize that determining the area served by a broadband network is highly idiosyncratic and determined by multiple factors. For example, different companies might take different approaches in the same circumstance, while a single company might take a different approach in different markets depending on the level of local government regulation (e.g., local franchise agreements that include build-out requirements). In addition, coverage can depend on very local conditions like access to rights-of-way along one route and not another or the ability to serve the edge of franchise or service areas. With the end goal of creating a single cohesive dataset and map representation of where coverage is and is not located, what measures, methods, and mechanisms should be implemented to ensure the greatest interoperability and least post-processing of the submitted data?

14. We also seek comment on establishing standards for reporting coverage polygons for terrestrial fixed wireless broadband service. In the *2017 Data Collection Improvement FNPRM*, the Commission sought comment on setting standards for mobile coverage polygons. Separately, it adopted a set of standards for determining mobile coverage using a propagation model for the Mobility Fund Phase-II (MF-II) LTE data collection. If the Commission adopts standards for reporting mobile broadband deployment, should we require terrestrial-fixed wireless providers to report broadband deployment using similar standards? Are there fundamental differences between fixed wireless and mobile technologies that would caution against using mobile wireless standards for fixed wireless deployment reporting (e.g., fixed wireless use of fixed, high-powered antennas that could result in a different link budget than for mobile service, or the use of unlicensed spectrum by some fixed wireless providers)? If so, would it be appropriate to adopt different standards (e.g., probability of cell-edge throughput) or

parameters (e.g., a different utilization rate for unlicensed spectrum) for fixed wireless? Further, what factors should Commission staff consider to independently validate the fixed wireless mapping methodology (e.g., cell-site and receive-site engineering and technical details and locations, RF propagation characteristics, signal strength)?

15. We also seek comment on whether fixed broadband providers should include latency levels along with the other parameters in reporting their coverage polygons. Latency is the time it takes for a data packet to travel across a network from one point on the network to another. The Commission considers latency levels as relevant in the provision of universal service support. If latency is to be included in reporting fixed broadband coverage, how should it be included? For instance, how and at what point in the network should the provider measure latency? Would we need to be more specific than how we considered latency in the context of awarding Connect America Fund Phase II support or would the same approach be appropriate?

16. We seek comment on what steps the Commission can or should take to support the production of high-quality data and ways the Commission can provide incentives to improve the quality of the data filed. Are there steps that fixed providers can take to ensure better quality broadband deployment data and, if so, what will the cost of those steps likely be? Does the technology deployed or the size of the fixed provider matter? If so, how? Is there a size or type of fixed provider that will be able to file high-quality data without any additional support or added cost? Are there unique burdens on smaller fixed providers that would not be burdens for larger fixed providers? In general, what will the cost be on the fixed broadband industry to produce reliable deployment data? Also, is there anything that can be done to lessen reporting burdens on all filers as part of the new collection, especially ways to harmonize filing procedures and requirements from other collections to reduce duplication of efforts? In addition, are there other relevant data that we should gather as part of a new collection of broadband deployment data?

17. We emphasize that the introduction of crowdsourced data does not alleviate a fixed provider's obligation to conduct thorough assessments of service availability before submitting broadband deployment data. We propose to use a variety of methods, including audits and statistical analyses, to confirm that the fixed broadband deployment data submitted by providers are accurate. Put simply, if a location falls within the coverage polygon submitted by a fixed provider, then it must either already receive fixed broadband service or be capable of receiving such service within ten business days and without extraordinary expense. We seek comment on the best method (or mix of methods) to ensure the submission of accurate fixed broadband deployment data, including the plans that USAC must develop for corroborating and spot-checking data submitted by fixed providers. What penalties would be appropriate upon a finding of inaccurate data and should there be more severe penalties for chronic filers of bad data? Should the Commission treat differently those coverage polygons submitted by providers that have a certain number of public filings disputing their accuracy? Is there an appropriate threshold or methodology to identify unreliable filings that should be treated differently, and if so, how should the Commission treat those filings? ACA argues that providers should not be sanctioned for submitting inaccurate data "unless there is clear evidence the provider intentionally and persistently did so." We seek comment on this approach, as well as how to handle situations in which the filer is negligent (but not intentional) in submitting inaccurate data.

18. The Digital Opportunity Data Collection will significantly improve our understanding of broadband deployment, and we want to ensure that its value is fully realized by the Commission, stakeholders, and ratepayers. We therefore seek comment on additional measures we can adopt to meet this objective. Can the maps and datasets derived from the Digital Opportunity Data Collection be used in connection with the other universal service programs, in particular E-Rate and Rural Health Care, to the extent they provide support for infrastructure build-out, to promote efficiency, minimize waste, and help avoid duplicative funding within the Fund? If so, how? Should we combine the Digital

Opportunity Data Collection datasets with other datasets, for example, locations where funding has been committed in Commission and other federal agency programs, even where deployment may not have occurred? We believe that the Digital Opportunity Data Collection represents a unique opportunity for integrating related but distinct data resources to produce a unified picture of broadband data. What data would be appropriate to include in this effort and how can it be used most effectively? What other issues should we consider as we evaluate this possibility?

19. *Improving Satellite Broadband Data.* We seek comment on how, for purposes of the Digital Opportunity Data Collection, we can improve upon the existing satellite broadband data collection to reflect more accurately current satellite broadband service availability. The Commission has recognized there are issues with the quality of the satellite broadband data that are currently reported under the existing Form 477. For instance, according to currently reported data, satellite service offering 25 Mbps/3 Mbps speeds is available to all but 0.03% of the U.S. population. However, while satellite signal coverage may enable operators to offer services to wide swaths of the country, overall satellite capacity may limit the number of consumers that can actually subscribe to satellite service at any one time. Given that the coverage geographies reported by satellite providers based on satellite beams are likely to remain larger than those reported by terrestrial fixed providers based on their network facilities, we seek comment generally on how to improve the satellite broadband data reported in the new data collection. Geostationary orbit (GSO) satellites are unique in that they have the relatively large beam coverage area over which service is provided, have inherent flexibility in using wide-area beams and spot beams, and face relative difficulty in adding new capacity. For instance, given these characteristics of GSO satellite service, should the Commission require GSO satellite providers to report network capacity as well? Would additional information, including the number and location of satellite beams, the capacity used to provide service by individual satellite to consumers at various speeds, and the number of subscribers served at those levels, improve the quality and usefulness of the

satellite broadband availability data?

20. We also seek comment on whether we could rely on other data to improve the reliability of the satellite broadband availability data reported in the new data collection. For example, would examining the presence of existing subscribers provide greater insight into where satellite broadband service is available than does satellite beam coverage data alone? Could we meaningfully validate a satellite provider's availability data based on the presence of subscribers above a *de minimis* level in the census tract in which the census block is located? For instance, should we use an absolute number and/or percentage of households or subscribers in a census tract? We seek comment on these methods and any other analysis to obtain a more meaningful representation of the deployment of satellite capacity in a geographic area.

21. We also seek comment on whether there are any other limitations that we should place on the reporting of fixed satellite broadband service. Current fixed satellite broadband service relies on GSO satellites, and customers' satellite earth stations therefore need a clear view of the southern sky to connect to such services. Should satellite broadband providers that rely on GSO satellites exclude from their reported coverage polygons any area where terrain blocks a clear view of their satellites (i.e., where it is not physically possible to deliver the service)? We note that the Commission has recently authorized several non-geostationary satellite constellations (NGSOs) that contemplate providing low-earth-orbit, low latency satellite broadband services in the future. What issues should be addressed for these satellite services in the new data collection as they begin to be offered?

2. Use of Crowdsourcing

22. In the *Report and Order*, the Commission directs USAC to begin collecting information from state governments, including state public utility commissions, and local and Tribal governmental entities, as well as members of the public, about the accuracy of the coverage polygons gathered from

fixed providers and to make certain data publicly available. In this section, we seek comment about steps the Commission and USAC can take to make the best use of such data to improve the quality of the service-availability dataset going forward.

23. At a high level, we propose that USAC track coverage disputes, follow-up with providers to ascertain whether there is agreement that there is a problem with the data and ensure that providers refile updated and corrected data in a timely fashion. We propose that USAC create a system to track complaints about the accuracy of fixed broadband coverage polygons. This functionality could be similar to the Commission's existing consumer-complaints database. Having a tracking system would allow USAC to pass the complaints along to the appropriate provider and track whether the person filing the complaint received a response. In instances where the provider agrees that its original filing was in error, USAC could track the error and ensure that the provider corrects its data. Alternatively, USAC could simply publish the complaints it receives and require providers to periodically check complaints about their filings. Is this a reasonable burden to place on providers? How could USAC efficiently track which of the complaints should be and ultimately are addressed through data corrections?

24. We also seek comment on the appropriate time period (if any) for fixed providers to respond to a complaint. ACA argues that it would be "onerous if a smaller provider had to respond immediately to each and every submission from an individual or government entity" and recommends that small providers be allowed to account for any inaccurate data at its next Digital Opportunity Data Collection filing. Connected Nation recommends that there be "a cyclical, scheduled feedback process in which there are defined windows for receiving feedback, analyzing and validating feedback, and updating the map after feedback has been adjudicated." We seek comment on the best approach to timing for the crowdsourcing process, not only for small providers but for all filers.

25. We propose to have USAC collect the following data from entities disputing coverage:

the address of the location at which coverage is disputed and/or its coordinates (latitude and longitude); the fixed provider whose service coverage is in dispute; the download and upload speeds available for subscription; the technology reported at that location by the provider; and contact information from the submitting party (e-mail address and/or phone number). Are these types of data appropriate for this collection and are there other types of data USAC should ask for to make this collection an effective tool for USAC, the Commission, industry, and the public? We also propose to require that individuals disputing coverage certify that they have requested service from the provider and that the provider either refused, or failed, to provide service within the applicable 10-business day period. Would this establish a reasonable threshold for disputing coverage? Are there other requirements we could establish to ensure that disputes raise a valid question about coverage in individual locations? How should we handle disputes that do not meet these criteria (such as those admitting availability but alleging that a service falls short of expectations based on service provider's reported coverage)? Would it be helpful to gather information about nearby areas where service is available (if the individual knows)?

26. The Commission has noted that overall broadband deployment in Indian country remains significantly behind deployment on non-Tribal lands due to several long-recognized barriers to broadband deployment on Tribal lands. Given these additional challenges, we recognize the importance of Tribal participation in the Digital Opportunity Data Collection's public feedback mechanism. We seek comment on how best to incorporate input of Tribal governments on broadband coverage maps, given the special importance of collecting accurate and complete broadband availability information for Tribal lands. For example, we propose to have USAC or Commission staff conduct outreach directly with Tribal governments to facilitate their involvement in the dispute process and to provide technical assistance to them as needed. We seek comment on these proposals and how we could implement them most effectively. We also seek comment on any additional issues specific to Tribal governments that we

should take into account in connection with any disputes concerning coverage data. Finally, we seek comment on whether we should expand these proposals to include other Tribal entities, such as inter-Tribal organizations.

27. We seek comment about how quickly fixed providers should be required to correct any data where they do not refute the alleged lack of coverage. Should USAC require that fixed providers either establish coverage or file updated coverage polygons within a specific number of days following submission of an uncontested dispute? If so, what number of days would provide a reasonable balance between the burden placed on fixed providers and the need for policy-makers to have the most accurate data possible? On the other hand, would it be overly burdensome for fixed providers to re-file data addressing each individual error, particularly if the provider's coverage is the subject of multiple pending complaints? Should USAC allow for fixed providers to batch any corrections into weekly or monthly updates, as needed? How can USAC balance the need for corrected data against provider burden? We note that NCTA proposes that fixed providers would correct the data in the next filing opportunity, which could leave the original data possibly in place for many months even after an agreement that the original filing was in error. Is that approach reasonable?

28. When the public files a complaint about the fixed broadband coverage polygons, there is a time lag between the date of the filing under the new collection and the date that the complaint is filed. We believe there are only very limited circumstances in which a provider would have previously had broadband service of a given quality (technology, upload speed and download speed) but removed it (e.g., copper retirement). Thus, if there is a complaint that the fixed broadband coverage polygons are incorrect, we believe it is likely that the data are incorrect for earlier time periods as well. Is this a reasonable assumption and should we require providers to resubmit all earlier datasets for the affected areas to conform to any corrections? Doing so would provide a more accurate view on the evolution of service-availability coverage over time. On the other hand, it will also involve a greater burden for

providers. In addition, it is unclear whether the time-series data would be useful in targeting USF support. We seek comment on the relative benefit (better time series data) compared to the provider burden.

29. We also seek comment on what standards and processes the Commission should establish to govern the resolution of cases in which providers and the stakeholders disagree about whether the broadband coverage polygons are correct—that is, whether service is actually available at a given location. NTCA argues that crowdsourced reports should not be treated the same as general consumer complaints, requiring a provider response in all cases. NTCA suggests that providers should be required to respond to reports or adjust their maps only in situations where "material trends develop in vetted information that indicate a systemic problem with a provider's reporting in a given area." Are these reasonable approaches? What dispute resolution process would be appropriate? Providers should have a period of time within which to refute any complaint and, in the absence of a timely and compelling response, USAC could require the fixed provider to submit a coverage polygon that excludes the disputed location. What types of evidence would be appropriate for providers to submit? What framework should the Commission establish to ensure that USAC reliably and efficiently adjudicates conflicting claims in such circumstances? What evidentiary standard should the Commission establish to resolve such disputes: preponderance of evidence, clear and convincing evidence, or another standard? In situations indicating pervasive reporting errors, bad faith, or a refusal to refile a coverage polygon that has been found to contain an inaccurate location, USAC could take additional steps, such as referring the matter to the FCC for enforcement action. What remedies would be appropriate in such an enforcement action? If one possibility were monetary forfeitures, what would be an appropriate base forfeiture amount and what would be appropriate increments in the case of repeated or more egregious violations? Are there other approaches the Commission should take to areas where there is disagreement?

30. We believe there could be instances of dispute between a member of the public filing a complaint and a fixed provider where both parties can credibly claim that they are correct. For example, a consumer may find a fixed provider is not available in its building because the building owner is not allowing that provider entry into the building. If the excluded provider could meet the service-reporting requirements (e.g., with respect to time to service), should the Commission consider such a location as served by that provider or not? Would it be beneficial to identify, as part of any tracking process for public feedback on the data collection, instances where a provider is willing and able to provide service but is not able to do so due to circumstances beyond its control? Would USAC need to verify or validate such claims and, if so, how? Or, in the alternative, should the Commission require that providers remove from the coverage polygons they file small areas to represent those buildings in which they are prohibited from offering service for any reason?

31. Finally, we seek comment on whether the Commission should direct USAC to accept the upload of bulk complaints data. We want to avoid bad-faith or malicious challenges to coverage data, such as a dispute to every address in a fixed provider's footprint via an automated tool or bot. In order for this tool to be effective, it is essential that we safeguard the integrity of the data submitted through it. On the other hand, we can see there could be value in allowing Tribal, local, or state governments to provide data in bulk where they have already investigated and so want to consider whether and how to permit USAC to allow for the collection of bulk data. Would establishing a certification requirement, similar to what we have proposed for individuals, help to ensure the validity of bulk challenge data?

32. To address these issues, should the Commission limit permissible bulk filings to certain authenticated users, such as states or state commissions, local governments, and Tribal entities? If so, how should it approach authentication? What entities should be entitled to be come authenticated users—for example, should the Commission limit it to just state government entities? Are there parts of state governments, like public-utility commissions, or mapping or broadband offices, that would be

more likely to provide meaningful input? Should USAC track and resolve disputes involving bulk complaints in the same manner as individual complaints? Or, in the alternative, should USAC accept complaints as accurate and shift the burden of proof onto providers to submit convincing data to refute the crowdsourced data? We seek comment on these issues.

3. Incorporating Location Information into the Digital Opportunity Data Collection

33. In the accompanying *Report and Order*, we adopt the reporting of coverage polygons for fixed-broadband services, a step that will result in more precise deployment data. Parties have correctly pointed out, however, that simply knowing what parts of a census block lack broadband service does not provide enough information by itself to identify the specific locations within that census block that lack fixed broadband availability. We agree that there are likely benefits to incorporating nationwide location data into the Digital Opportunity Data Collection and we propose to adopt such an approach, informed by comments on how USAC can collect and incorporate such data. What data does USAC need and how could it get access to them? We believe that broadband coverage polygons submitted by service providers could be overlaid on nationwide location data in order to precisely identify the homes and small businesses that have and do not have access to broadband services, and seek comment on this view.

34. We note that the first step in incorporating location data is to establish a process where all broadband-serviceable locations (e.g., houses, businesses, structures) are mapped using a single methodology, providing a harmonized reference point for fixed broadband reporting. Toward that end, the Broadband Mapping Coalition is in the process of testing a "Broadband Serviceable Location Fabric" to demonstrate the viability of a location-based proposal. The Broadband Mapping Coalition's testing represents a concrete effort to identify the issues facing USAC in moving to a location-based collection.

35. We propose to create and integrate a broadband-serviceable location tool into the Digital Opportunity Data Collection. As an initial matter, we seek comment on Alexicon's claim that a broad definition of location lowers both the reporting burden for providers and the underlying cost of identifying locations. We also seek comment on what kinds of locations we should include as broadband-serviceable. For example, we could designate a parcel as the definition of a location on the theory that a fixed provider that offers service to one part of the parcel would be willing to serve anywhere on that parcel. We seek comment on how to define the location of a parcel (e.g. as the centroid of a parcel or as the location of a building on a parcel). Alternatively, we could determine that a broadband addressable location should be defined as a building. The Broadband Mapping Coalition work has shown that it is generally possible to identify individual buildings as locations. We note, however, that there can be multiple buildings on a parcel and question whether it would be advisable to treat each of those buildings as a distinct location. We believe a provider is likely to run a single connection (drop) from its network to, for example, a farm, rather than individual connections to all of the structures on the parcel (e.g., the farmhouse and each garage, barn, chicken coop, storage shed, etc.). We seek comment on alternatives for defining a broadband-serviceable location.

36. Should we decide that, for residential users, the location would be the individual housing unit? For residential Multi-Tenant Environments (e.g., apartment buildings), this could mean treating each individual apartment or unit as a separate broadband-serviceable location. We do not believe this approach is appropriate for determining fixed broadband coverage in a Multi-Tenant Environment—fixed providers likely would not offer service only to some units in a Multi-Tenant Environment. Additionally, we are concerned that the added complexity—far more locations and the need to differentiate not just latitude and longitude, but also potentially altitude—would outweigh any benefits. We seek comment on this assumption.

37. With regard to defining a location, we propose to have the database record a single

point, defined by latitude and longitude, for that location. We anticipate that this would be the coordinates of a building on a parcel. We believe that recording each location as a single point has an advantage over reporting the outlines of each building (i.e., a polygon for each location), the latter of which will increase the difficulty of creating the database and the amount of data required, without meaningfully improving the quality of the database. We seek comment on this approach.

38. We also seek comment on how we would approach the quality of such a broadband-serviceable location database. We note that there are different types of errors possible in such a database, for example incorrectly counting a structure that does not need a broadband connection as a broadband-serviceable location, such as an abandoned house or a shed. Including such locations might lead us to mistakenly direct USF support to a location that does not need broadband service. Another type of error could be to exclude locations that should be included, such as a home in a heavily forested area that does not appear on satellite imagery. Such missed locations would not appear in the data collection at all and could be excluded from any USF support. Finally, there also could be errors about the characteristics of a location, for example, designating a residential location as a business or identifying the wrong building from among several on a given property. We seek comment on how best to account for these and other possible challenges in building an accurate location-based database.

39. We note that there are a limited number of data sources against which USAC could check such a dataset. The U.S. Census Bureau publishes block-level data, including the number of housing units, but only every ten years and Census data do not generally include business locations. We seek comment on whether the less granular county-level housing estimates the Census publishes yearly could be used as a data source for dataset verification. Furthermore, if we define a location as a parcel or building (rather than a housing unit), we would not expect the counts to match the Census data. The National Address Database and Open Address Database each provide a list of addresses and point locations for areas where they have coverage. Neither is a complete nationwide dataset, though they

could be useful for checking areas where they have data. Each of these datasets has challenges, however. For example, the data in the National Address Database do not appear to be updated on a regular schedule and often have multiple points for a given address (e.g., from state, county and local government), making it hard to get a count of points in a given area. We seek comment on whether or how we can make use of such data sources. We also seek input on whether there are other sources we should be aware of that could be useful as a check of a broadband-addressable location database.

40. As an alternative, we could take a statistically valid sample of the data points as a way to keep the database updated and accurate. We seek comment on how to stratify such a sample (are there distinct categories in the data—urban, suburban, rural, residential, business, Tribal, non-Tribal—that warrant distinct samples?). We also seek comment about how to evaluate the quality of the sampled data. Is it sufficient to look at satellite imagery or would we need to inspect locations in person?

41. In addition, the Commission must consider the level of quality that it seeks to attain in using any database. How should the Commission consider the trade-off between the time to improve the database's accuracy against the risks posed by any inaccuracies in the data? Would any of these approaches or sources identified above, or others, be helpful in determining particular types of errors in the location database? Should we incorporate public feedback, as we are doing with regard to broadband service availability polygons, in order to improve the accuracy of such a broadband-serviceable location database? And if so, how should we incorporate that data effectively?

42. With regard to the Broadband Mapping Coalition's proposal to integrate location data into the Digital Opportunity Data Collection, we seek comment on the use of two distinct data products used by the Broadband Mapping Coalition: a database of broadband-serviceable locations and a "lookup" tool for integrating provider addresses data into the locations database. We seek comment on

whether the lookup tool would be necessary given our adoption of availability-map reporting in the accompanying *Report and Order*. In other words, if fixed providers have invested the resources to create accurate polygons that depict the areas where their service is available, is an address-based lookup necessary at all? In the event such a lookup is necessary, should USAC be responsible for creating that lookup? And if USAC does develop a lookup, how can it ensure its accuracy? The Broadband Mapping Coalition has noted that there are reliability problems with geocoders, particularly in rural areas. What steps can USAC take to ensure that this lookup avoids some of the pitfalls the Broadband Mapping Coalition has observed? For example, matching a provider's address data to the Broadband Mapping Coalition's address data might require matching several data fields, such as the street number and name, any prefix or suffix, the city or town, state, and zip code, each with substantial possible variations. Should USAC accept only strict matches in order to avoid making mistakes, such as suggesting that a provider offers service in a location where it does not because of a too-loose matching approach? Is the risk greater of accepting low-quality matches, that is, identifying that service is available when it is not, or in rejecting too many matches for failing to meet quality criteria, potentially understating providers' reach? If USAC is matching only a relatively small fraction of provider addresses to the Broadband Mapping Coalition's database, should it be USAC's responsibility to improve the lookup or the providers' responsibility to improve their source data?

43. The Broadband Mapping Coalition pilot also raises several methodological and technical questions. For example, the Broadband Mapping Coalition chose which data sources to use, including negotiating the data rights associated with those sources; the fields from those data sources used to help make determinations about what constitutes a location in the database; and the logic used. For purposes of its pilot program, the Broadband Mapping Coalition also established, for example, a method for determining if a single structure that spans multiple parcels is a row house that should be split into multiple locations and how to choose which building location to use as part of the database, when there

are multiple buildings on a parcel, or whether there are certain circumstances when one might have more than one building, such as in a trailer park. Are there determinations made by the Broadband Mapping Coalition as part of its pilot that the Commission should approach differently?

44. We also seek comment on whether, when, and how, after establishing a location-based fabric, USAC should implement incorporating the fabric into the Digital Opportunity Data Collection. We seek comment on USTelecom's proposal that the creation of a location-based fabric run in parallel with the establishment of the online portal for our polygon-based approach. Is this a reasonable approach or would it be more reasonable to adopt a different transition time for implementation? Will collecting locations for use as part of the Digital Opportunity Data Collection impose additional burdens on filers, especially smaller providers, and (if so) would such burdens be outweighed by the benefits of using locations as part of the new collection? In addition, ACA argues that fixed providers not accepting Universal Service support should not be required to "publicly disclose individual location information since such information is considered to be competitively-sensitive." We seek comment on ACA's proposal.

45. In addition, we seek comment on the extent to which any location-based database should be fully accessible by the public. Should the full dataset be made available to the public or just the aggregate results from the filings? To what extent should such location information be shared with all providers? Would full disclosure aid the Commission and USAC in gathering location-specific information from the public? Would securing such rights lead to higher costs for the Commission than for the Broadband Mapping Coalition? Are there some data sources or fields that should not be made public? Should members of the public be granted access to the actual database? Should there be restrictions on who should be granted such access (e.g., governmental entities, other providers)? We seek comment on these issues.

B. Improving Mobile Broadband and Voice Data

46. We seek comment on incorporating mobile wireless voice and broadband coverage into the Digital Opportunity Data Collection and what additional steps the Commission should take to obtain more accurate and reliable mobile broadband deployment data. Obtaining accurate mobile broadband deployment data is challenging because measuring performance on mobile broadband networks is inherently variable even though coverage is generally reliable. Mobile network speed at a particular location and the coverage area of any specific cell site can vary depending on a wide variety of factors, including: (1) the spectrum band employed; (2) cell traffic loading and network capacity in different locations; (3) the availability and quality of cell site backhaul; (4) the capability of consumers' devices; (5) whether a consumer is using a device indoors or outdoors; (6) terrain and the presence of obstacles between a consumer's device and the provider's nearest cell site (e.g., buildings, trees, and other local structures); and (7) weather conditions. This inherent variability has two dimensions—temporal and spatial. For example, a consumer's handset may not receive a strong enough signal at a given location to maintain a reliable broadband speed, or the network may be overloaded at one moment, and then suddenly acquire a signal strong enough, or the network traffic load lightens enough, to maintain a connection at speeds of 5 Mbps or more. This makes the measurement of mobile broadband service at any specific location complex, as many factors can affect a user's experience, making it difficult to develop a coverage map that provides the exact mobile coverage and speed that a consumer experiences. Although no mobile broadband map will consistently reflect consumer experience with complete accuracy, wireless service providers must improve the quality of the data they submit.

47. *Standardized Predictive Propagation Maps*. In the *2017 Data Collection Improvement FNPRM*, the Commission sought comment on requiring the submission of coverage maps generated by propagation modeling software using standardized parameters for 4G LTE and later-generation technologies. It also sought comment on whether to specify possible eligible models and to standardize

to some extent the output of those models and certain input parameters, with the goal of allowing more meaningful comparisons among providers' mobile broadband deployment. The Commission asked, for instance, whether it should require deployment maps to represent coverage at median speeds as well as speeds at the cell edge and, if so, how it should determine those speeds. The Commission inquired about a range of potential input parameters, including: (1) the location of cells in decimal degrees latitude and longitude; (2) channel bandwidth in megahertz; (3) signal strength; (4) signal quality with signal to noise ratio; (5) cell loading factors; and (6) terrain provided at a minimum resolution of three arc-seconds.

48. In response to the *2017 Data Collection Improvement FNPRM*, several commenters expressed support for requiring providers to submit coverage maps based on standardized technical parameters. AT&T, for example, recommended requiring parameters "with a standard cell edge probability of attaining specific download speeds for each technology (3G/4G, 4G LTE and 5G)," and a "standard cell loading factor based on the geographic service area (e.g., 30% for rural areas; 50% for urban/suburban areas)." AT&T further argued that the reporting of other parameters, such as signal strength and clutter factors, was unnecessary. The City of New York supported standardized parameters for median and edge speeds and stated that a median download speed of 10 Mbps with an edge speed of 3 Mbps "may be sufficient for current 4G LTE deployments, but is unlikely to be sufficient for future-generation deployments." Deere & Company commented that propagation models should reflect "a signal strength of -85 dBm RSSI (Relative Signal Strength Indicator)," because a signal strength parameter would "accurately [reveal] where service quality is insufficient." Other commenters urged the Commission to adopt the same parameters that it adopted for data collected in the Mobility Fund Phase II (MF-II) proceeding.

49. In 2017, in the MF-II proceeding, the Commission separately instituted a new, one-time collection of data to determine the deployment of 4G LTE for purposes of establishing the areas eligible

for universal service support in the MF-II auction. Broadly consistent with an industry consensus proposal, the Commission standardized a number of technical parameters for the data collection to be used for MF-II. In December 2018, the Commission suspended the subsequent phase of the MF-II challenge process, in which providers that filed coverage maps and data regarding their 4G LTE coverage could respond to challenges, and launched an investigation into potential violations of MF-II challenge process rules by one or more major providers. The investigation remains ongoing.

50. We ask commenters to refresh the record on the potential use of RF signal prediction, including the mutual use (by the Commission and stakeholders) of a standardized RF propagation prediction model, and standardized coverage maps for mobile services. We observe that at least one other national regulator is considering a standardized RF propagation prediction method as a basis for verifying geographic coverage. Commenters should specifically discuss their experience in the MF-II proceeding. Do commenters believe that requiring the submission of coverage maps using standardized RF propagation model(s) and parameters was or would be useful in demonstrating mobile broadband coverage? What insights should the Commission draw from the standardized parameters it established in that proceeding? Do commenters view standardized RF signal strength prediction and technical parameters regarding download speed, cell loading, probability of coverage or confidence intervals as sufficient to demonstrate coverage? If not, what additional parameters would generate better data that will allow meaningful comparisons of coverage between providers? Should the Commission, for example, specify an upload speed parameter? Should it specify a standardized signal strength level? Alternatively, should the Commission establish fewer or different parameters? Would 5G technology require different standardized parameters? Given that cell traffic loading and network capacity varies with time and in different locations, how representative of loading do commenters view the 30% loading factor for rural areas established in the context of the MF-II proceeding as compared to standard network loading conditions at various locations? Should we adopt a higher standard loading factor for

urban areas? Should we instead require mobile wireless service providers to maintain and report historical cell loading over a given reporting period?

51. Coverage models predict speed and coverage using assumptions that are based on a combination of geographical and network information, including the location of network infrastructure and the power and capacity of network equipment. Although providers continually refine models by adding additional data, the inherent variability of mobile broadband performance will always affect their ability to predict an individual consumer's experience at a particular time and location. We seek commenters' views on how best to specify technical parameters that would account for the variability of mobile broadband performance. Do commenters agree that all parameters must be subject to a specified probability standard or confidence interval? Assuming a probability factor is necessary for describing coverage, do commenters view the 80% probability factor at the cell edge established in the context of the MF-II proceeding as reasonable or would a higher probability parameter such as 90% be more appropriate?

52. *GIS Data Format*. We ask commenters to refresh the record on whether providers should submit coverage maps as vector-formatted or raster-formatted GIS data. In the *2017 Data Collection Improvement FNPRM*, the Commission sought comment on requiring the submission of raster data, noting that because deployment maps are typically developed in raster format and then converted into vector-formatted GIS data, the submission of raster data would appear to be less burdensome for filers than the submission of vector data. The Commission also stated that, unlike vector data, raster data would allow the Commission to "check the resolution of the submissions and to apply standard parameters, including simplified outputs and smoothing, when converting the rasters to shapefiles for analysis." Some commenters supporting such an approach argued that allowing the submission of raster data instead of vector data would help reduce the burdens associated with broadband data collection by allowing providers to skip the step of converting deployment data into vector format. We

seek additional comment on whether requiring the submission of raster-formatted rather than vector-formatted data would improve the ability to verify the accuracy of deployment data, and what file format is the least burdensome. Would raster-formatted or vector-formatted data be preferable if the Commission decides to require providers to submit standardized coverage maps? Should the Commission require, or in the alternative, permit filers to submit data using another file format, such as ESRI Geodatabase? Additionally, we seek comment as to what GIS standards, file formats, and technical specifications should be used to facilitate the most efficient and effective collection of data.

53. *Infrastructure Information*. We propose to require that, upon the Commission's request, providers submit infrastructure information sufficient to allow for verification of the accuracy of providers' broadband data. A growing number of parties have suggested that mobile broadband coverage maps are inaccurate and have urged the Commission to implement mechanisms to verify provider data. To date, however, the Commission has not had the information necessary to examine the methodologies used by providers in generating coverage data, or whether these propagation models reflect actual consumer experience. In light of issues raised about the accuracy of coverage maps even after the Commission standardized some technical parameters in the MF-II proceeding, we anticipate that collecting accurate and recent network infrastructure information would be necessary to independently verify providers' data. Therefore, we propose to require that the provider submit, upon Commission request, the following information: (1) the geographic location of cell sites; (2) the height (above ground and sea level), type, and directional orientation of all transmit antennas at each cell site; (3) operating radiated transmit power of the radio equipment at each cell site; (4) the capacity and type of backhaul used at each cell site; (5) all deployed spectrum bands and channel bandwidth in megahertz; (6) throughput and associated required signal strength and signal to noise ratio; (7) cell loading factors; (8) deployed technologies (e.g., LTE Release 13) and (9) any terrain and land use information used in deriving clutter factors or other losses associated with each cell site. We propose to require that a

provider submit its infrastructure information within 30 days of receiving a request from the Commission. We ask for commenters' views on our proposal.

54. At the outset, we recognize that providers may view the infrastructure information we propose to collect as commercially sensitive information and we agree that such information should be treated as highly confidential. We seek comment on this view. Do commenters agree that collecting network infrastructure information would be necessary to verify the accuracy of provider coverage map filings? If not, without such data, what mechanisms are available to validate that providers' coverage maps reflect reasonable predictions of consumer experience? Do commenters view the infrastructure information included in our proposal as sufficient to evaluate providers' mobile coverage and speed claims? If not, we ask commenters to discuss any additional infrastructure information we should require. Alternatively, does our proposal include any information that is not necessary? We seek comment on the potential burden associated with requiring such information, particularly for small providers, and on steps we could take to minimize the potential burden.

55. *Supplement Data Collections with On-The-Ground Data*. In addition to seeking comment on whether to require the submission of coverage maps based on standardized parameters, the *2017 Data Collection Improvement FNPRM* sought comment on whether to require the submission of "on-the-ground" data as part of the broadband data collection. The Commission asked whether collecting on-the-ground data from providers, such as drive test data or tests taken from stationary points, would allow it to better evaluate consumer experience. It noted that collection of on-the-ground data could supplement the model-based data, improving the understanding of how the theoretical data relates to actual consumer experience. The Commission asked whether it should require speed test data, how it could impose such a requirement without being unduly burdensome to small providers, and whether providers generate data of this kind during their ordinary course of business.

56. We ask commenters to refresh the record on these questions. In their comments on the *2017 Data Collection Improvement FNPRM*, some commenters supported a requirement that providers supplement their current broadband data with on-the-ground data. Other providers opposed collecting on-the-ground data; they argued that such a requirement would impose unnecessary burdens on providers, especially since the Commission already had access to such information from third-party providers. Some also argued that speed test data generally had limited value given variations in providers' speed test methodologies. What steps could the Commission take to address concerns about the meaningfulness and statistical validity of providers' on-the-ground data? Should the Commission specify the methodology that providers must use to collect and provide on-the-ground mobile network performance data? If so, what parameters should the Commission establish for specific methodologies? Should the Commission consider requiring use of a specific set of measurement equipment or software applications enabling measurement of mobile broadband speeds? What measurement scenarios (i.e., indoor, outdoor, in-vehicle, stationary, mobile, height, etc.) should the Commission specify? To what extent do providers already collect any such data in their ordinary course of business?

57. *Crowdsourced Data.* Consistent with the public feedback mechanism we adopt for fixed providers in the Digital Opportunity Data Collection, we propose to collect similar crowdsourced data for purposes of improving the quality of mobile broadband deployment data and seek comment on how to incorporate such data into data quality analysis. Crowdsourced data are generated by mobile broadband users who voluntarily download speed test apps on their mobile devices. The Commission has used crowdsourced data in assessing service availability and in various Commission reports. For example, in its most recent Broadband Deployment Report, the Commission supplemented Form 477 data with Ookla crowdsourced speed test data in assessing the deployment of advanced telecommunications capability for mobile services. Crowdsourced data can serve as an inexpensive tool to validate speed and coverage claims by providing independent measurements of actual consumer

experience on a mobile network across a variety of times and locations. Crowdsourced data have certain limitations, however. For example, speed tests that consumers usually initiate manually and perform only at specific times or places may introduce bias into the data and provide a less accurate picture of overall broadband performance. More generally, the methods by which different speed test apps collect data vary and may not use techniques that control for geographic location, type of device, whether the test is performed indoors or outdoors, and traffic along the network path not controlled by the wireless provider. In addition, there may be a small sample problem with respect to some crowdsourced data, especially in rural areas where there may sometimes be very few speed tests. And, given the probabilistic nature of mobile wireless service in general, we note that crowdsourced data may not indicate an inaccuracy in the data from the coverage map as much as a difference in conditions.

58. We seek comment on developments in crowdsourcing applications and on ways in which the Commission can make greater use of third-party crowdsourced data to create more accurate and reliable mobile broadband maps. While we recognize the potential limitations, we nonetheless believe that crowdsourced data can serve as an important supplement to the information we collect from providers by independently measuring mobile broadband speed and availability. We ask parties to discuss potential sources of crowdsourced data as well as alternatives to crowdsourced data that can provide similar benefits. How should the Commission make greater use of third-party crowdsourced data? How should the Commission determine which data to use, what limitations affect the use of such data, and how can they be resolved? How can we best make use of the Commission's own crowdsourcing application—the Measuring Mobile Broadband speed test? Are there particular areas, such as rural areas, Tribal areas, or urban areas, or situations, such as hours of peak capacity, in which the Measuring Mobile Broadband speed test app would perform particularly well? How else can the FCC's own crowdsourcing application be better used? How can the Commission make greater use of crowdsourced data collected by local, state, or Tribal governmental entities? What steps should the

Commission take to ensure that the crowdsourced data it uses are statistically valid and provide accurate information? How should the Commission handle cases in which crowdsourced data show that service is unavailable in an area where a provider claims broadband availability?

59. *Sampling Methodologies*. We also seek comment on other potential approaches for verifying submitted mobile broadband deployment data. Should the Commission establish a structured sampling process to verify the information it collects from providers? The Commission has used third-party structured sample data to assess service availability in its analysis of the mobile wireless industry. Structured sample data help ensure statistical validity by controlling for the location and time of the tests as well as for the devices used in the test and may be collected using stationary indoor or outdoor tests or drive tests. But structured sample data can be expensive and involve judgments about when and where to run tests. Structured sample data may not include sufficient testing at indoor locations or in rural areas. We seek comment on whether the Commission should expand the use of structured sample data or even establish its own structured sample testing program to verify provider filings regarding mobile broadband coverage and speed? If so, then how can the Commission create a program that will produce a rich and useful dataset?

60. In response to the *2017 Data Collection Improvement FNPRM*, the California PUC supported the Commission's adoption of a structured sample approach. It argued that collecting drive test data at the state level provides "the most effective measure of actual mobile broadband service speeds." It suggested that the Commission designate a defined set of points nationwide and contract with a third party to deliver speed test data from those locations. We seek commenters' views on such an approach. Assuming the Commission establishes its own testing process, how should it design a process that will produce a useful dataset? Should the Commission establish partnerships to collect drive test information? For example, should the Commission explore creating a pilot program with the United States Postal Service or other delivery organization with a nationwide fleet, to gather mobile

performance data? Under such an approach, postal trucks could be equipped to collect mobile deployment and speed data as they travel on their routes in rural areas. We seek comment on the feasibility of creating such a program. What other partnerships should the Commission explore?

61. *Drones and Other Testing Technologies*. We seek comment on the use of aerial drone testing, and other technologies, such as satellites, to verify data accuracy, with a particular emphasis on using such technologies to conduct sample audits of provider-submitted mobile deployment data. For example, drone testing, like drive testing, measures signal strength and coverage using various software solutions (e.g., crowdsourcing and network performance applications) loaded onto smartphones mounted to a testing platform. Service providers have begun using drones to measure coverage and signal strength of their networks, demonstrating that drones are a viable mobile network performance testing method. We note that both drive and drone testing have significant limitations due to the inherent probabilistic nature of mobile network performance testing.

62. We seek comment generally on the cost elements of drone and other types of testing technologies and the relative contribution of each element to overall cost. For instance, drones may need fuel or battery replacements more frequently than vehicles used in drive testing platforms. Are these costs significant? How do roadway density, population, weather and natural and man-made terrain features affect the cost of drone testing? How does flight duration affect costs? Are there cost-effective ways to mitigate survey time? What proportion of costs are attributable to the drone operator? What other costs are significant?

63. We also seek comment on unique barriers that may affect the usefulness and practicality of conducting network performance testing using drones and other technologies. USAC recently performed drone and drive tests to measure mobile wireless coverage and quality in Puerto Rico post-hurricanes. USAC's initial analysis shows that drone and drive-tests can provide a comparable

picture of network coverage and service quality in a given area, although drone tests are subject to specific variables that the test design should take into account. What specific testing parameters should apply to drone data collection compared to drive testing, satellites, and crowdsourcing to ensure uniform results across methods? Are there any specific technical requirements (e.g., antenna, on-board processing) necessary to ensure uniform results across testing methods? Are there places and/or terrain where specific technologies are either uniquely suited to surveying or, alternatively, currently unable to perform a valid network performance test, regardless of the cost?

64. We seek comment on future technological advances that may increase drone efficiency. Are advanced drone technologies ready and available today, at sufficiently low costs, to use widely? If not, what is a likely timeframe for their widespread adoption? Finally, we seek comment on whether there are other technologies in addition to drones that can be used to measure signal strength and data accuracy.

65. *Availability of Mobile Broadband Deployment Data*. Finally, we seek comment on ways we can make mobile broadband deployment data more available to the public. Currently, the Commission makes available on its website both coverage shapefiles, by provider and technology, as well as the deployment data represented in those shapefiles disaggregated to census blocks, based on two different methodologies. In addition, the Commission has created a limited number of visualizations of the mobile deployment data including a map of nationwide mobile wireless coverage and a map of LTE coverage by number of providers. As the Commission works to improve its data collection, we seek comment on whether we should provide additional visualizations of mobile broadband deployment data. Now that we have determined in the *Report and Order* that, going forward, we will publish nationwide provider-specific coverage maps that depict minimum advertised or expected speed data, what additional maps or other visualizations would help provide useful information to the public? Should we make this data available to the public in any other formats? We

seek comment on how the proposals described in this *Second FNPRM* would affect the Commission's ability to provide additional visualizations of mobile broadband data.

66. *Changes to the Collection of Mobile Voice and Broadband Subscription Data*. We seek comment on other changes to improve the collection of subscription data. For example, should we combine the mobile voice and broadband subscription data filing requirements? Consolidating these data could provide a better understanding of the marketplace, as consumers increasingly subscribe to both broadband and voice service. In the current form, providers are required to include subscriptions to mobile broadband plans purchased "on a standalone basis, as an add-on feature to a voice subscription, or bundled with a voice subscription." We propose to require providers to report whether subscriptions are data only, voice only, or provided as a bundle. These data could provide us with a better understanding of whether and how consumers purchase and use mobile services, in addition to allowing us to continue to track those who only subscribe to voice service.

67. We propose to require facilities-based mobile broadband and/or voice service providers to report whether subscriptions are enterprise, government, wholesale, prepaid retail, or postpaid retail. These data serve an important purpose in understanding the marketplace for mobile services, that aid in competitive analysis, particularly in transaction review. Should we require providers to submit data about Internet of Things (IoT) or Machine-to-Machine (M2M) subscriptions? Do these subscriptions make up enough of the marketplace for mobile services that they should be tracked? Would a combined subscription filing—as opposed to the current separate filings—likely reduce or increase the burden on filers? We also propose to eliminate the requirement to report mobile broadband subscription data by minimum upload and download speed given that this information is already submitted with broadband deployment data.

68. We also seek comment on how best to assign prepaid and reseller subscribers to a particular census tract. CTIA observes that, while place of primary use address is technically feasible for postpaid-customer subscription data at the census-tract level, the primary place of use methodology is "challenging for mobile providers when applied to prepaid customer and reseller data." CTIA states that the Mobile Telecommunications Sourcing Act, which defines primary place of use, does not apply to prepaid customers, as those customers are taxed at the point of sale, and using place of primary use for prepaid customers is likely infeasible. We seek comment regarding how best to assign prepaid subscribers to census tracts, based on CTIA's concern. In the *Report and Order*, we require mobile providers, on an interim basis, to assign prepaid and resold mobile voice and broadband subscribers to a census tract, based on their telephone number. Is there a methodology that can measure more accurately where these customers use their service, particularly for those mobile broadband subscribers that may only have an IP address? Should we require providers to attribute prepaid subscribers to the census tract where they purchased the service? Is this approach feasible, and does it increase the accuracy of the data? Could mobile providers submit aggregated data that samples where the device is primarily used without raising privacy or other concerns? Is there another consistent methodology that could be applied to postpaid and prepaid subscribers that accurately attributes those subscribers to a census tract?

C. Sunsetting the Form 477 Broadband Deployment Data Collection

69. Over the long term, we expect the Digital Opportunity Data Collection will largely displace the Form 477 process, at least with respect to the collection of granular deployment data. We therefore seek comment on discontinuing the broadband deployment data collection that is part of Form 477 at some point after the new collection has been established. Under what conditions would eliminating that part of the broadband data collection be appropriate? What would be an appropriate timetable for sunsetting both the mobile and fixed Form 477 broadband data collections? Are there

other portions of the Form 477 collection we should consider sunsetting as well?

IV. Initial Regulatory Flexibility Analysis

70. As required by the Regulatory Flexibility Act of 1980, as amended (RFA), the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities from the policies and rules proposed in this *Second FNPRM*. The Commission requests written public comment on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Second FNPRM*. The Commission will send a copy of the *Second FNPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA). In addition, the *Second FNPRM* and IRFA (or summaries thereof) will be published in the Federal Register.

A. Need for, and Objectives of, the Proposed Rules

71. The Commission continues its ongoing efforts to ensure that the new collection for fixed broadband deployment reporting and crowdsourcing of that reporting as adopted in the *Report and Order* and the Form 477 collection will evolve to align with changes to technology, markets, and policy needs. In the *Second FNPRM*, the Commission raises issues for consideration and seeks comment on additional steps we can take to obtain more accurate and reliable fixed and mobile broadband deployment data. The probabilistic nature of mobile networks and the many factors that impact a user's experience make it difficult to predict with precision mobile coverage and speed or to develop a coverage map that always provides predictability for consumers. Although no mobile broadband map will consistently reflect consumer experience with complete accuracy, we recognize that we must take steps to improve the quality of the data we collect. Therefore, we seek further comment on the tradeoffs among different potential approaches for developing more accurate and reliable mobile broadband data. We also seek comment on additional technical standards for fixed broadband

reporting as part of the Digital Opportunity Data Collection, steps that USAC and the Commission can take to make the best use of crowdsourced data, and ways that we can incorporate the filing of location-specific fixed broadband deployment data in the Digital Opportunity Data Collection.

B. Legal Basis

72. The proposed action is authorized pursuant to Sections 1-5, 201-206, 214, 218-220, 251, 252, 254, 256, 303(r), 332, 403, and 405 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151-155, 201-206, 214, 218-220, 251, 252, 254, 256, 303(r), 332, 403, and 405.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Would Apply

73. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted. The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction." In addition, the term "small business" has the same meaning as the term "small-business concern" under the Small Business Act. A small-business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).

1. Total Small Entities

74. *Small Businesses, Small Organizations, Small Governmental Jurisdictions*. Our actions, over time, may affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three broad groups of small entities that could be directly affected herein. First, while there are industry-specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the SBA's Office of Advocacy, in general a small business is an

independent business having fewer than 500 employees. These types of small businesses represent 99.9% of all businesses in the United States, which translates to 28.8 million businesses.

75. Next, the type of small entity described as a "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field." Nationwide, as of August 2016, there were approximately 356,494 small organizations based on registration and tax data filed by nonprofits with the Internal Revenue Service (IRS).

76. Finally, the small entity described as a "small governmental jurisdiction" is defined generally as "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand." U.S. Census Bureau data from the 2012 Census of Governments indicate that there were 90,056 local governmental jurisdictions consisting of general purpose governments and special purpose governments in the United States. Based on this data, we estimate that at least 49,316 local government jurisdictions fall in the category of "small governmental jurisdictions."

2. Broadband Internet Access Service Providers

77. To ensure that this IRFA describes the universe of small entities that our action might affect, we discuss in turn several different types of entities that might be providing broadband Internet access service.

78. *Internet Service Providers (Broadband).* Broadband Internet service providers include wired (e.g., cable, DSL) and VoIP service providers using their own operated wired telecommunications infrastructure fall in the category of Wired Telecommunication Carriers. Wired Telecommunications Carriers are comprised of establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based

on a single technology or a combination of technologies. The SBA size standard for this category classifies a business as small if it has 1,500 or fewer employees. U.S. Census Bureau data for 2012 show that there were 3,117 firms that operated that year. Of this total, 3,083 operated with fewer than 1,000 employees. Consequently, under this size standard the majority of firms in this industry can be considered small.

79. *Internet Service Providers (Non-Broadband).* Internet access service providers such as Dial-up Internet service providers, VoIP service providers using client-supplied telecommunications connections, and Internet service providers using client-supplied telecommunications connections (e.g., dial-up ISPs) fall in the category of All Other Telecommunications. The SBA has developed a small business size standard for All Other Telecommunications, which consists of all such firms with gross annual receipts of $32.5 million or less. For this category, U.S. Census Bureau data for 2012 show that there were 1,442 firms that operated for the entire year. Of these firms, a total of 1,400 had gross annual receipts of less than $25 million. Consequently, under this size standard, a majority of firms in this industry can be considered small.

3. Wireline Providers

80. *Wired Telecommunications Carriers.* The U.S. Census Bureau defines this industry as "establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired communications networks. Transmission facilities may be based on a single technology or a combination of technologies. Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services, wired (cable) audio and video programming distribution, and wired broadband internet services. By exception, establishments providing satellite television distribution services using

facilities and infrastructure that they operate are included in this industry." The SBA has developed a small business size standard for Wired Telecommunications Carriers, which consists of all such companies having 1,500 or fewer employees. U.S. Census Bureau data for 2012 show that there were 3,117 firms that operated that year. Of this total, 3,083 operated with fewer than 1,000 employees. Thus, under this size standard, the majority of firms in this industry can be considered small.

81. *Local Exchange Carriers (LECs).* Neither the Commission nor the SBA has developed a size standard for small businesses specifically applicable to local exchange services. The closest applicable NAICS Code category is Wired Telecommunications Carriers. Under the applicable SBA size standard, such a business is small if it has 1,500 or fewer employees. According to Commission data, U.S. Census data for 2012 show that there were 3,117 firms that operated that year. Of this total, 3,083 operated with fewer than 1,000 employees. Thus, under this category and the associated size standard, the Commission estimates that the majority of local exchange carriers are small entities.

82. *Incumbent Local Exchange Carriers* (*Incumbent LECs*). Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent local exchange services. The closest applicable NAICS Code category is Wired Telecommunications Carriers. Under the applicable SBA size standard, such a business is small if it has 1,500 or fewer employees. According U.S. Census Bureau data for 2012, 3,117 firms operated in that year. Of this total, 3,083 operated with fewer than 1,000 employees. Consequently, the Commission estimates that most providers of incumbent local exchange service are small businesses that may be affected by our actions. According to Commission data, 1,307 Incumbent LECs reported that they were incumbent local exchange service providers. Of this total, an estimated 1,006 have 1,500 or fewer employees. Thus, using the SBA's size standard, the majority of Incumbent LECs can be considered small entities.

83. *Competitive Local Exchange Carriers (Competitive LECs), Competitive Access Providers*

(CAPs), Shared-Tenant Service Providers, and Other Local Service Providers. Neither the Commission nor the SBA has developed a small business size standard specifically for these service providers. The appropriate NAICS Code category is Wired Telecommunications Carriers and under that size standard, such a business is small if it has 1,500 or fewer employees. U.S. Census Bureau data for 2012 indicate that 3,117 firms operated during that year. Of that number, 3,083 operated with fewer than 1,000 employees. Based on these data, the Commission concludes that the majority of Competitive LECs, CAPs, Shared-Tenant Service Providers, and Other Local Service Providers, are small entities. According to Commission data, 1,442 carriers reported that they were engaged in the provision of either competitive local exchange services or competitive access provider services. Of these 1,442 carriers, an estimated 1,256 have 1,500 or fewer employees. In addition, 17 carriers have reported that they are Shared-Tenant Service Providers, and all 17 are estimated to have 1,500 or fewer employees. Also, 72 carriers have reported that they are Other Local Service Providers. Of this total, 70 have 1,500 or fewer employees. Consequently, based on internally researched FCC data, the Commission estimates that most providers of competitive local exchange service, competitive access providers, Shared-Tenant Service Providers, and Other Local Service Providers are small entities.

84. *Interexchange Carriers (IXCs).* Neither the Commission nor the SBA has developed a definition for Interexchange Carriers. The closest NAICS Code category is Wired Telecommunications Carriers. The applicable size standard under SBA rules consists of all such companies having 1,500 or fewer employees. U.S. Census Bureau data for 2012 indicate that 3,117 firms operated during that year. Of that number, 3,083 operated with fewer than 1,000 employees. According to internally developed Commission data, 359 companies reported that their primary telecommunications service activity was the provision of interexchange services. Of this total, an estimated 317 have 1,500 or fewer employees. Consequently, the Commission estimates that the majority of interexchange service providers are small entities.

85. *Operator Service Providers* (*OSPs*). Neither the Commission nor the SBA has developed a small business size standard specifically for operator service providers. The closest applicable size standard under SBA rules is the category of Wired Telecommunications Carriers. Under the size standard for Wired Telecommunications Carriers, such a business is small if it has 1,500 or fewer employees. U.S. Census Bureau data for 2012 show that there were 3,117 firms that operated that year. Of this total, 3,083 operated with fewer than 1,000 employees. Thus, under this size standard, the majority of firms in this industry can be considered small.

86. According to Commission data, 33 carriers have reported that they are engaged in the provision of operator services. Of these, an estimated 31 have 1,500 or fewer employees and two have more than 1,500 employees. Consequently, the Commission estimates that the majority of OSPs are small entities.

87. *Other Toll Carriers*. Neither the Commission nor the SBA has developed a definition for small businesses specifically applicable to Other Toll Carriers. This category includes toll carriers that do not fall within the categories of interexchange carriers, operator service providers, prepaid calling card providers, satellite service carriers, or toll resellers. The closest applicable size standard under SBA rules is for Wired Telecommunications Carriers and the applicable small business size standard under SBA rules consists of all such companies having 1,500 or fewer employees. U.S. Census data for 2012 indicate that 3,117 firms operated during that year. Of that number, 3,083 operated with fewer than 1,000 employees. According to Commission data, 284 companies reported that their primary telecommunications service activity was the provision of other toll carriage. Of these, an estimated 279 have 1,500 or fewer employees. Consequently, the Commission estimates that most Other Toll Carriers are small entities.

4. Wireless Providers – Fixed and Mobile

88. The broadband Internet access service provider category covered by this Order may cover multiple wireless firms and categories of wireless services. Thus, to the extent the wireless services listed below are used by wireless firms for broadband Internet access service, the proposed actions may have an impact on those small businesses as set forth above and further below. In addition, for those services subject to auctions, we note that, as a general matter, the number of winning bidders that claim to qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments and transfers or reportable eligibility events, unjust enrichment issues are implicated.

89. *Wireless Telecommunications Carriers (except Satellite*). This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular services, paging services, wireless internet access, and wireless video services. The appropriate size standard under SBA rules is that such a business is small if it has 1,500 or fewer employees. For this industry, U.S. Census data for 2012 show that there were 967 firms that operated for the entire year. Of this total, 955 firms had employment of 999 or fewer employees and 12 had employment of 1000 employees or more. Thus, under this category and the associated size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small entities.

90. The Commission's own data—available in its Universal Licensing System—indicate that, as of August 31, 2018, there are 265 Cellular licensees that will be affected by our actions. The Commission does not know how many of these licensees are small, as the Commission does not collect

that information for these types of entities. Similarly, according to internally-developed Commission data, 413 carriers reported that they were engaged in the provision of wireless telephony, including cellular service, Personal Communications Service (PCS), and Specialized Mobile Radio (SMR) Telephony services. Of this total, an estimated 261 have 1,500 or fewer employees, and 152 have more than 1,500 employees. Thus, using available data, we estimate that the majority of wireless firms can be considered small.

91. *Wireless Communications Services*. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission defined "small business" for the wireless communications services (WCS) auction as an entity with average gross revenues of $40 million for each of the three preceding years, and a "very small business" as an entity with average gross revenues of $15 million for each of the three preceding years. The SBA approved these small business size standards. In the Commission's auction for geographic area licenses in the WCS there were seven winning bidders that qualified as "very small business" entities, and one that qualified as a "small business" entity.

92. *1670–1675 MHz Services*. This service can be used for fixed and mobile uses, except aeronautical mobile. An auction for one license in the 1670–1675 MHz band was conducted in 2003. One license was awarded. The winning bidder was not a small entity.

93. *Wireless Telephony*. Wireless telephony includes cellular, personal communications services, and specialized mobile radio telephony carriers. The closest applicable SBA category is Wireless Telecommunications Carriers (except Satellite). Under the SBA small business size standard, a business is small if it has 1,500 or fewer employees. For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year. Of this total, 955 firms had fewer than 1,000 employees and 12 firms had 1000 employees or more. Thus, under this category and the

associated size standard, the Commission estimates that a majority of these entities can be considered small. According to Commission data, 413 carriers reported that they were engaged in wireless telephony. Of these, an estimated 261 have 1,500 or fewer employees and 152 have more than 1,500 employees. Therefore, more than half of these entities can be considered small.

94. *Broadband Personal Communications Service.* The broadband personal communications services (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission initially defined a "small business" for C- and F-Block licenses as an entity that has average gross revenues of $40 million or less in the three previous calendar years. For F-Block licenses, an additional small business size standard for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years. These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA. No small businesses within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that claimed small business status in the first two C-Block auctions. A total of 93 bidders that claimed small business status won approximately 40% of the 1,479 licenses in the first auction for the D, E, and F Blocks. On April 15, 1999, the Commission completed the reauction of 347 C-, D-, E-, and F-Block licenses in Auction No. 22. Of the 57 winning bidders in that auction, 48 claimed small business status and won 277 licenses.

95. On January 26, 2001, the Commission completed the auction of 422 C and F Block Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in that auction, 29 claimed small business status. Subsequent events concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant. On February 15, 2005, the Commission completed an auction of 242 C-, D-, E-, and F-Block licenses in Auction No. 58. Of the 24 winning bidders in that auction, 16 claimed small business status and won 156 licenses. On

May 21, 2007, the Commission completed an auction of 33 licenses in the A, C, and F Blocks in Auction No. 71. Of the 12 winning bidders in that auction, five claimed small business status and won 18 licenses. On August 20, 2008, the Commission completed the auction of 20 C-, D-, E-, and F-Block Broadband PCS licenses in Auction No. 78. Of the eight winning bidders for Broadband PCS licenses in that auction, six claimed small business status and won 14 licenses.

96. *Specialized Mobile Radio Licenses.* The Commission awards "small entity" bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than $15 million in each of the three previous calendar years. The Commission awards "very small entity" bidding credits to firms that had revenues of no more than $3 million in each of the three previous calendar years. The SBA approved these small business size standards for the 900 MHz Service. The Commission held auctions for geographic area licenses in the 800 MHz and 900 MHz bands. The 900 MHz SMR auction began on December 5, 1995, and closed on April 15, 1996. Sixty bidders claiming that they qualified as small businesses under the $15 million size standard won 263 geographic area licenses in the 900 MHz SMR band. The 800 MHz SMR auction for the upper 200 channels began on October 28, 1997, and was completed on December 8, 1997. Ten bidders claiming that they qualified as small businesses under the $15 million size standard won 38 geographic area licenses for the upper 200 channels in the 800 MHz SMR band. A second auction for the 800 MHz band was held on January 10, 2002, and closed on January 17, 2002, and included 23 BEA licenses. One bidder claiming small business status won five licenses.

97. The auction of the 1,053 800 MHz SMR geographic area licenses for the General Category channels was conducted in 2000. Eleven bidders won 108 geographic area licenses for the General Category channels in the 800 MHz SMR band and qualified as small businesses under the $15 million size standard. In an auction completed in 2000, a total of 2,800 Economic Area licenses in the lower 80 channels of the 800 MHz SMR service were awarded. Of the 22 winning bidders, 19 claimed

small business status and won 129 licenses. Thus, combining all four auctions, 41 winning bidders for geographic licenses in the 800 MHz SMR band claimed status as small businesses.

98. In addition, there are numerous incumbent site-by-site SMR licenses and licensees with extended implementation authorizations in the 800 and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR service pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than $15 million. One firm has over $15 million in revenues. In addition, we do not know how many of these firms have 1,500 or fewer employees, which is the SBA-determined size standard. We assume, for purposes of this analysis, that all of the remaining extended implementation authorizations are held by small entities, as defined by the SBA.

99. *Lower 700 MHz Band Licenses*. The Commission previously adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits. The Commission defined a "small business" as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years. A "very small business" is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years. Additionally, the lower 700 MHz Service had a third category of small business status for Metropolitan/Rural Service Area (MSA/RSA) licenses—"entrepreneur"—which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years. The SBA approved these small size standards. An auction of 740 licenses (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)) commenced on August 27, 2002, and closed on September 18, 2002. Of the 740 licenses available for auction, 484 licenses were won by 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business, or entrepreneur status and won a total

of 329 licenses. A second auction commenced on May 28, 2003, closed on June 13, 2003, and included 256 licenses: 5 EAG licenses and 476 Cellular Market Area licenses. Seventeen winning bidders claimed small or very small business status and won 60 licenses, and nine winning bidders claimed entrepreneur status and won 154 licenses. On July 26, 2005, the Commission completed an auction of five licenses in the Lower 700 MHz band (Auction No. 60). There were three winning bidders for the five licenses. All three winning bidders claimed small business status.

100. In 2007, the Commission reexamined its rules governing the 700 MHz band in the *700 MHz Second Report and Order*. An auction of 700 MHz licenses commenced January 24, 2008, and closed on March 18, 2008, which included 176 Economic Area licenses in the A Block, 734 Cellular Market Area licenses in the B Block, and 176 EA licenses in the E Block. Twenty winning bidders, claiming small business status (those with attributable average annual gross revenues that exceed $15 million and do not exceed $40 million for the preceding three years) won 49 licenses. Thirty-three winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed $15 million for the preceding three years) won 325 licenses.

101. *Upper 700 MHz Band Licenses*. In the *700 MHz Second Report and Order*, the Commission revised its rules regarding Upper 700 MHz licenses. On January 24, 2008, the Commission commenced Auction 73 in which several licenses in the Upper 700 MHz band were available for licensing: 12 Regional Economic Area Grouping licenses in the C Block, and one nationwide license in the D Block. The auction concluded on March 18, 2008, with 3 winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed $15 million for the preceding three years) and winning five licenses.

102. *700 MHz Guard Band Licensees*. In 2000, in the 700 MHz Guard Band Order, the Commission adopted size standards for "small businesses" and "very small businesses" for purposes of

determining their eligibility for special provisions such as bidding credits and installment payments. A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years. Additionally, a very small business is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years. SBA approval of these definitions is not required. An auction of 52 Major Economic Area licenses commenced on September 6, 2000, and closed on September 21, 2000. Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13, 2001, and closed on February 21, 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.

103. *Air-Ground Radiotelephone Service*. The Commission previously used the SBA's small business size standard applicable to Wireless Telecommunications Carriers (except Satellite) for this service. The appropriate size standard under SBA rules is that such a business is small if it has 1,500 or fewer employees. For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year. Of this total, 955 firms had fewer than 1,000 employees and 12 had employment of 1,000 employees or more. There are approximately 100 licensees in the Air-Ground Radiotelephone Service, and we estimate that almost all of them qualify as small entities under the SBA definition.

104. For purposes of assigning Air-Ground Radiotelephone Service licenses through competitive bidding, the Commission has defined "small business" as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding $40 million. A "very small business" is defined as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding

$15 million. The SBA approved these definitions. In May 2006, the Commission completed an auction of nationwide commercial Air-Ground Radiotelephone Service licenses in the 800 MHz band (Auction No. 65). On June 2, 2006, the auction closed with two winning bidders winning two Air-Ground Radiotelephone Services licenses. Neither of the winning bidders claimed small business status.

105. *Advanced Wireless Services (AWS) (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3))*. For the AWS-1 bands, the Commission defined a "small business" as an entity with average annual gross revenues for the preceding three years not exceeding $40 million, and a "very small business" as an entity with average annual gross revenues for the preceding three years not exceeding $15 million. For AWS-2 and AWS-3, although we do not know for certain which entities are likely to apply for these frequencies, we note that the AWS-1 bands are comparable to those used for cellular service and personal communications service. The Commission has not yet adopted size standards for the AWS-2 or AWS-3 bands but proposes to treat both AWS-2 and AWS-3 similarly to broadband PCS service and AWS-1 service due to the comparable capital requirements and other factors, such as issues involved in relocating incumbents and developing markets, technologies, and services.

106. *3650–3700 MHz band*. In March 2005, the Commission released a *Report and Order and Memorandum Opinion and Order* that provides for nationwide, non-exclusive licensing of terrestrial operations, using contention-based technologies, in the 3650 MHz band (i.e., 3650–3700 MHz). As of April 2010, more than 1,270 licenses have been granted and more than 7,433 sites have been registered. The Commission has not developed a definition of small entities applicable to 3650–3700 MHz band nationwide, non-exclusive licensees. However, we estimate that the majority of these licensees are Internet Access Service Providers (ISPs) and that most of those licensees are small businesses.

107. *Fixed Microwave Services*. Microwave services include common carrier, private-operational fixed, and broadcast auxiliary radio services. They also include the Local Multipoint Distribution Service (LMDS), the Digital Electronic Message Service (DEMS), and the 24 GHz Service, where licensees can choose between common carrier and non-common carrier status. At present, there are approximately 36,708 common carrier fixed licensees and 59,291 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services. There are approximately 135 LMDS licensees, three DEMS licensees, and three 24 GHz licensees. The Commission has not yet defined a small business with respect to microwave services. The closest applicable SBA category is Wireless Telecommunications Carriers (except Satellite), and the appropriate size standard for this category under SBA rules is that such a business is small if it has 1,500 or fewer employees. For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year. Of this total, 955 firms had fewer than 1,000 employees and 12 had employment of 1,000 employees or more. Thus, under this SBA category and the associated size standard, the Commission estimates that a majority of fixed microwave service licensees can be considered small.

108. The Commission does not have data specifying the number of these licensees that have more than 1,500 employees, and thus is unable at this time to estimate with greater precision the number of fixed microwave service licensees that would qualify as small business concerns under the SBA's small business size standard. Consequently, the Commission estimates that there are up to 36,708 common carrier fixed licensees and up to 59,291 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services that may be small and may be affected by the rules and policies adopted herein. We note, however, that the common carrier microwave fixed licensee category does include some large entities.

109. *Broadband Radio Service and Educational Broadband Service.* Broadband Radio Service systems, previously referred to as Multipoint Distribution Service (MDS) and Multichannel Multipoint

Distribution Service (MMDS) systems and "wireless cable," transmit video programming to subscribers and provide two-way high speed data operations using the microwave frequencies of the Broadband Radio Service (BRS) and Educational Broadband Service (EBS) (previously referred to as the Instructional Television Fixed Service (ITFS)). In connection with the 1996 BRS auction, the Commission established a small business size standard as an entity that had annual average gross revenues of no more than $40 million in the previous three calendar years. The BRS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas (BTAs). Of the 67 auction winners, 61 met the definition of a small business. BRS also includes licensees of stations authorized prior to the auction. At this time, we estimate that of the 61 small business BRS auction winners, 48 remain small business licensees. In addition to the 48 small businesses that hold BTA authorizations, there are approximately 392 incumbent BRS licensees that are considered small entities. After adding the number of small business auction licensees to the number of incumbent licensees not already counted, we find that there are currently approximately 440 BRS licensees that are defined as small businesses under either the SBA or the Commission's rules.

110. In 2009, the Commission conducted Auction 86, the sale of 78 licenses in the BRS areas. The Commission offered three levels of bidding credits: (1) a bidder with attributed average annual gross revenues that exceed $15 million and do not exceed $40 million for the preceding three years (small business) received a 15% discount on its winning bid; (2) a bidder with attributed average annual gross revenues that exceed $3 million and do not exceed $15 million for the preceding three years (very small business) received a 25% discount on its winning bid; and (3) a bidder with attributed average annual gross revenues that do not exceed $3 million for the preceding three years (entrepreneur) received a 35% discount on its winning bid. Auction 86 concluded in 2009 with the sale of 61 licenses. Of the ten winning bidders, two bidders that claimed small business status won 4 licenses; one bidder that claimed very small business status won three licenses; and two bidders that claimed entrepreneur status won six

licenses.

111. In addition, the SBA's Cable Television Distribution Services small business size standard is applicable to EBS. There are presently 2,436 EBS licensees. All but 100 of these licenses are held by educational institutions. Educational institutions are included in this analysis as small entities. Thus, we estimate that at least 2,336 licensees are small businesses. Since 2007, Cable Television Distribution Services have been defined within the broad economic census category of Wired Telecommunications Carriers; that category is defined as follows: "This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies." The SBA has developed a small business size standard for this category, which is: all such firms having 1,500 or fewer employees. To gauge small business prevalence for these cable services we must, however, use the most current census data that are based on the previous category of Cable and Other Program Distribution and its associated size standard: all such firms having $13.5 million or less in annual receipts. For this industry, U.S. Census data for 2012 show that there were 3,117 firms that operated that year. Of this total, 3,083 operated with fewer than 1,000 employees. Thus, the majority of these firms can be considered small.

5. Satellite Service Providers

112. *Satellite Telecommunications Providers.* This category comprises firms "primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications." Satellite telecommunications service providers include satellite and earth station operators. The category has a small business size standard of $32.5

million or less in average annual receipts, under SBA rules. For this category, U.S. Census Bureau data for 2012 show that there were a total of 333 firms that operated for the entire year. Of this total, 299 firms had annual receipts of less than $25 million. Consequently, we estimate that the majority of satellite telecommunications providers are small entities.

113. *All Other Telecommunications.* The **"**All Other Telecommunications" category is comprised of entities that are primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation. This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems. Establishments providing Internet services or voice over Internet protocol (VoIP) services via client-supplied telecommunications connections are also included in this industry. The SBA has developed a small business size standard for "All Other Telecommunications," which consists of all such firms with gross annual receipts of $32.5 million or less. For this category, U.S. Census Bureau data for 2012 show that there were 1,442 firms that operated for the entire year. Of these firms, a total of 1,400 had gross annual receipts of less than $25 million. Consequently, a majority of "All Other Telecommunications" firms potentially affected by our action can be considered small.

6. Cable Service Providers

114. Because Section 706 of the Act requires us to monitor the deployment of broadband using any technology, we anticipate that some broadband service providers may not provide telephone service. Accordingly, we describe below other types of firms that may provide broadband services, including cable companies, MDS providers, and utilities, among others.

115. *Cable and Other Subscription Programming.* This industry comprises establishments

primarily engaged in operating studios and facilities for the broadcasting of programs on a subscription or fee basis. The broadcast programming is typically narrowcast in nature (e.g., limited format, such as news, sports, education, or youth-oriented). These establishments produce programming in their own facilities or acquire programming from external sources. The programming material is usually delivered to a third party, such as cable systems or direct-to-home satellite systems, for transmission to viewers. The SBA size standard for this industry establishes as small, any company in this category which has annual receipts of $38.5 million or less. According to 2012 U.S. Census Bureau data, 367 firms operated for the entire year. Of that number, 319 operated with annual receipts of less than $25 million a year and 48 firms operated with annual receipts of $25 million or more. Based on this data, the Commission estimates that the majority of firms operating in this industry are small.

116. *Cable Companies and Systems (Rate Regulation).* The Commission has developed its own small business size standards for the purpose of cable rate regulation. Under the Commission's rules, a "small cable company" is one serving 400,000 or fewer subscribers nationwide. Industry data indicate that there are currently 4,600 active cable systems in the United States. Of this total, all but nine cable operators nationwide are small under the 400,000-subscriber size standard. In addition, under the Commission's rate regulation rules, a "small system" is a cable system serving 15,000 or fewer subscribers. Current Commission records show 4,600 cable systems nationwide. Of this total, 3,900 cable systems have fewer than 15,000 subscribers, and 700 systems have 15,000 or more subscribers, based on the same records. Thus, under this standard as well, we estimate that most cable systems are small entities.

117. *Cable System Operators (Telecom Act Standard).* The Communications Act of 1934, as amended, also contains a size standard for small cable system operators, which is "a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1% of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate

exceed $250,000,000." There are approximately 52,403,705 cable video subscribers in the United States today. Accordingly, an operator serving fewer than 524,037 subscribers shall be deemed a small operator if its annual revenues, when combined with the total annual revenues of all its affiliates, do not exceed $250 million in the aggregate. Based on available data, we find that all but nine incumbent cable operators are small entities under this size standard. We note that the Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed $250 million. Although it seems certain that some of these cable system operators are affiliated with entities whose gross annual revenues exceed $250 million, we are unable at this time to estimate with greater precision the number of cable system operators that would qualify as small cable operators under the definition in the Communications Act.

7. All Other Telecommunications

118. *Electric Power Generators*, *Transmitters*, *and Distributors.* This U.S. industry is comprised of establishments that are primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation. This industry also includes entities primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems. Entities providing Internet services or voice over Internet protocol (VoIP) services via client-supplied telecommunications connections are also included in this industry. The closest applicable SBA category is "All Other Telecommunications". The SBA's small business size standard for "All Other Telecommunications," consists of all such firms with gross annual receipts of $32.5 million or less. For this category, U.S. Census data for 2012 show that there were 1,442 firms that operated for the entire year. Of these firms, a total of 1,400 had gross annual receipts of less than $25 million. Consequently, we estimate that under this category and the associated size standard the majority of these firms can be considered small

entities.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

119. The potential modifications proposed in the *Second FNPRM* if adopted, could, at least initially, impose some new reporting, recordkeeping, or other compliance requirements on some small entities. Small entities and other providers could potentially be required to submit coverage maps based on standardized parameters. Commenters have been asked to refresh the record from the *2017 Data Collection Improvement FNPRM* on the potential use of standardized coverage maps for mobile services in the context of Form 477 and to specifically discuss their experience with the approach used in the MF-II proceeding. Commenters also have been asked to refresh the record on whether to require on-the-ground data as part of the Form 477 data collection. In particular, the Commission asked whether it should require some actual speed test data, how it could impose such a requirement without being unduly burdensome to small providers, and the extent to which providers already collect on-the-ground data in their ordinary course of business.

120. In the *Second FNPRM*, the Commission also seeks comment on a requirement for providers to submit infrastructure information sufficient to allow us to verify the accuracy of providers' Form 477 filings. Anticipating that the collection of accurate and recent network infrastructure information would help the Commission to verify providers' filings, we propose to require small entities and other providers to submit, as part of their Form 477 filing, the following information: (1) the location of cell sites in decimal degrees; (2) the height (above ground and sea level), type, and directional orientation of transmit antennas at each cell site; (3) maximum radiated transmit power of the radio equipment at each cell site; (4) the capacity and type of backhaul used at each cell site; (5) deployed spectrum band and channel bandwidth in MHz; (6) throughput and the required signal

strength and signal to noise ratio; (7) cell loading factors; (8) deployed technologies (e.g., LTE Release 13) and; (9) any terrain and land use information used in deriving clutter factors or other losses associated with each cell site. Additionally, the Commission also requests updated comments on adopting a requirement that coverage maps be submitted in raster format, noting that such a requirement might be less burdensome than shapefiles.

121. As means of improving accuracy and reliability of mobile broadband filings, the Commission seeks comment on whether we should establish a challenge process similar to the MF-II challenge process to verify Form 477 filings. The adoption of such a process would allow states, local governments, Tribal entities, or other interested parties an opportunity to challenge providers' mobile broadband filings and could subject small entities and other providers to additional submission and compliance requirements. In addition, while the Commission has adopted the GIS reporting format for fixed broadband services, the Commission seeks comments on how to move to a location-based data requirement for small entities and other providers.

122. In addition, we seek comment on how best to ensure the collection of high-quality fixed broadband coverage data as part of the Digital Opportunity Data Collection. Although we are cognizant of the potential burdens that greater precision in reporting can entail, commenters have indicated in the record that the approach we adopt today—to collect coverage polygons of fixed-broadband service availability—will allow providers to submit more precise data with reasonable burdens. Nonetheless, we seek comment on steps the Commission can take to improve the quality of fixed broadband coverage polygons while minimizing the associated reporting burdens. In addition, as part of the Digital Opportunity Data Collection, the Commission is directing OEA, in consultation with WCB, WTB, and IB, to provide guidance to fixed providers regarding how to develop the polygons depicting fixed broadband coverage. Connected Nation expresses concern that small service providers in particular will struggle to comply with the new reporting requirements in the Digital Opportunity Data Collection unless they get

assistance in creating their broadband coverage polygons. In the *Report and Order*, we identify help-desk support and clear instructions as ways we will assist fixed broadband providers with meeting the new filing obligations, and we seek comment on what other steps the Commission and USAC can take to help small fixed providers file accurate data as part of the new collection.

123. We also seek comment on whether to require fixed providers to provide latency reports, whether to impose penalties for entities that chronically file bad data, and how we can improve the existing satellite broadband collection to reflect more accurately current satellite broadband coverage availability. Additionally, we seek comment on how best to collect information relating to service availability data gathered from fixed providers. For example, we seek comment on how to establish a crowdsourced tracking system through USAC, how quickly fixed providers should be required to correct any data where they do not refute the alleged lack of coverage, and how we should instruct USAC to handle cases in which providers and the stakeholders disagree about whether service is actually available at a given location. ACA argues that it would be "onerous if a smaller provider had to respond immediately to each and every submission from an individual or government entity" and recommends that small providers be allowed to account for any inaccurate data at its next Digital Opportunity Data Collection filing. As a result, we seek comment on the best approach to timing for the crowdsourcing process, not only for small providers but for all filers. Finally, if a location-based process is adopted for fixed broadband deployment reporting, we ask about an appropriate transition time, especially for smaller providers.

124. The issues raised for consideration and comment in the *Second FNPRM* may require small entities to hire attorneys, engineers, consultants, or other professionals. At this time, however, the Commission cannot quantify the cost of compliance with any potential rule changes and compliance obligations for small entities that may result from the *Second FNPRM*. We expect our requests for information on potential burdens on small entities associated with matters raised in the *Second FNPRM*

will provide us with information to assist with our evaluation of the cost of compliance on small entities of any reporting, recordkeeping, or other compliance requirements we adopt.

E. Steps Taken to Minimize the Significant Economic Impact on Small Entities and Significant Alternatives Considered

125. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include (among others) the following four alternatives: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.

126. To assist the Commission's evaluation of the economic impact on small entities, as a result of actions that may result from proposals and issues raised for consideration in the *Second FNPRM*, and to better explore options and alternatives, the Commission has sought comment from the public. More specifically, the Commission seeks comment on what burdens are associated with the potential requirements discussed in the preceding section and how such burdens can be minimized for small entities. For example, the Commission has sought comment on the potential burdens associated with requiring providers to submit on-the-ground data and/or mobile broadband and voice subscription data at the census tract level, particularly for small providers, and on steps the Commission could take to minimize the potential burdens.

127. In addressing possible changes to the Digital Opportunity Data Collection, we seek comment on lessening the burdens associated with the stringent timeliness and completeness requirements for the broadband coverage data to be submitted by smaller broadband providers. In

addition, we seek comment on the burdens of a proposal for USAC to publish crowdsourced complaint data without directly informing the affected providers, which would require the provider to regularly check for pertinent complaints. Further, any requirement to timely submit corrected broadband deployment data may impose a burden on small providers, so we seek comment on ways to ease that burden. Finally, the creation of a new online portal for use with the Digital Opportunity Data Collection , generally, has the potential for errors to the disadvantage of small providers seeking USF funds, and we seek comment on how to lessen the potential for such errors.

128. More generally, the proposals and questions laid out in the *Second FNPRM* were designed to enable the Commission to understand the benefits, impact, and potential burdens associated with the different approaches that the Commission can pursue to achieve its objective of improving accuracy and reliability of its data collections. Before reaching its final conclusions and taking action in this proceeding, the Commission expects to review the comments filed in response to the *Second FNPRM* and more fully consider the economic impact on small entities and how any impact can be minimized.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

129. None.

V. PROCEDURAL MATTERS

130. *Ex Parte Rules.* This proceeding shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules. 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, then 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 47 CFR § 1.1206(b). In proceedings governed 47 CFR § 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.

131. *Paperwork Reduction Act*. The *Second FNPRM* contains proposed new and modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget to comment on the information collection requirements contained in the *Second FNPRM*, as required by the PRA. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198 (44 U.S.C. 3506(c)(4)), we seek specific comment on how we might further reduce the information collection burden for small business concerns with fewer than 25 employees.

132. *Initial Regulatory Flexibility Analysis*. Pursuant to the Regulatory Flexibility Act (RFA), the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the policies and actions considered in this *NPRM.* The IRFA is set

forth above. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Second FNPRM.* The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of the *Second FNPRM,* including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.

133. People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

VI. CLAUSES

134. Accordingly, IT IS ORDERED that, pursuant to Sections 1-4, 7, 201, 254, 301, 303, 309, 319, and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151-154, 157, 201, 254, 301, 303, 309, 319, and 332, this *Report and Order and Second Further Notice of Proposed Rulemaking* IS ADOPTED.

135. IT IS FURTHER ORDERED that the Commission's Consumer & Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Report and Order and Second Further Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene Dortch.

Secretary

[FR Doc. 2019-18062 Filed: 8/21/2019 8:45 am; Publication Date: 8/22/2019]