Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Implementing Kari's Law and Section 506 of RAY BAUM'S Act	)	PS Docket. No. 18-261
	)	
	)	
Inquiry Concerning 911 Access, Routing, and Location in Enterprise Communications Systems	)	PS Docket No. 17-239
	)	

JOINT REPLY COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION AND DECT FORUM

Andreas Zipp
Chairman of the DECT Forum

Ruth Wilson
Deputy-Chairperson of the DECT Forum

DECT FORUM

Wabernstrasse 40
3007 Bern
Switzerland

Cinnamon Rogers
Senior Vice President, Government Affairs

Colin Black Andrews
Policy Counsel, Government Affairs

TELECOMMUNICATIONS INDUSTRY ASSOCIATION
1320 N. Courthouse Road
Suite 200
Arlington, VA 22201
(703) 907-7700

January 9, 2019

TABLE OF CONTENTS

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Implementing Kari's Law and Section 506 of RAY BAUM'S Act	)	PS Docket. No. 18-261
	)	
	)	
Inquiry Concerning 911 Access, Routing, and Location in Enterprise Communications Systems	)	PS Docket No. 17-239
	)	

JOINT REPLY COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION AND DECT FORUM

The Telecommunications Industry Association ("TIA") and the DECT Forum respectfully submit these joint reply comments in response to the Federal Communications Commission's ("Commission's") *Notice of Proposed Rulemaking* ("*NPRM*")[1] in the above-captioned dockets.

I. INTRODUCTION AND SUMMARY

TIA and the DECT Forum strongly support the Commission's objectives in this proceeding and the laws it implements.[2] The importance of an effective emergency calling system cannot be denied, and we strongly support efforts to promote next-generation technology in the nation's 911 system. Public Safety Answering Points ("PSAP") and first responders need

[1] *Implementing Kari's Law and Section 506 of RAY BAUM'S Act; Inquiry Concerning 911 Access, Routing, and Location in Enterprise Communications Systems*, Notice of Proposed Rulemaking, FCC 18-132, (rel. Sept. 26, 2018) ("*NPRM*").

[2] Kari's Law Act of 2017, Pub. L. No. 115-127, 132 Stat. 326 (2018) ("Kari's Law"); Section 506 of the Repack Airwaves Yielding Better Access for Users of Modern Services Act of 2018, Pub. L. No. 115-141, 132 Stat. 348, 1095 (codified as a note to 47 U.S.C. § 615) ("RAY BAUM'S Act").

fast, accurate information if they are to do their job and provide the critical services that we all depend on. Our members, their customers, and public safety generally will only benefit from Congress and the Commission achieving their goals of a more advanced, efficient emergency calling system.

The members of TIA and DECT Forum represent industry manufacturers and providers of the technologies used by multiline telephone systems ("MLTS") systems and work with these technologies on a daily basis. We appreciate the need for in-depth understanding of the systems being regulated and wish to aid the Commission in addressing the serious problems addressed by Kari's Law and the questions raised by the RAY BAUM'S Act in a manner that is technically feasible and can be swiftly implemented by manufacturers and MLTS managers alike.

In order to produce effective rules implementing Kari's Law, the Commission must take steps to make sure any ambiguities in the initial *NPRM* are resolved. MLTS operators need flexibility with regard to notification requirements. The Commission should refrain from enacting a broad requirement for all forms of MLTS to deliver dispatchable location information at this time. The requirement is not technically feasible for some MLTS solutions. This requirement has a high probability for disrupting industry services to business and enterprise customers. Finally, the Commission should take steps to ensure that any final rule adopted in this proceeding will encourage technological growth and allow government-industry input.

It is our hope that we can aid the Commission in promulgating regulations that achieve the objective of improving the emergency calling system while avoiding unintended, undesirable consequences, distort markets or unnecessarily burdening the companies and customers that will be required to comply with the rules that are enacted.

II. THE COMMISSION'S RULES IMPLEMENTING KARI'S LAW MUST BE CLEAR AND FLEXIBLE IN ORDER TO ADEQUATELY REGULATE TECHNOLOGIES IN THE DIVERSE MLTS MARKETPLACE.

As TIA stated in their initial comments, in order to implement the direct dialing and notification requirements of Kari's Law, the Commission must make sure the rules are technically feasible and do not impose undue regulatory burdens on manufacturers and enterprises subject to those rules.[3] In order to be feasible, the Commission must ensure that the final rules adopted in this proceeding take into consideration the wide-ranging capabilities of different systems, and the broad array of technologically used in the diverse MLTS solutions that are on the market. In order to fit the diverse technological field of MLTS solutions, the Commission should adopt rules that clarify ambiguities raised by the *NPRM* and should offer flexibility with the content of notifications in order to avoid causing an undue burden to enterprises.

A. Commenters agree that the Commission must provide clarity to MLTS stakeholders regarding ambiguities raised by the *NPRM*.

The record in this proceeding underscores the need for the final rules adopted by the Commission to provide flexibility to MLTS stakeholders. In addition to both TIA and DECT Forum's initial concerns over the ambiguities raised by the *NPRM* concerning the effective date and enforcement mechanisms, numerous parties raised concerns or sought clarification on how the new MLTS rules would impact them.[4] The Commission must address these concerns by clearly identifying the roles and responsibilities of MLTS stakeholders for each requirement that

[3] TIA Comments at 1.

[4] *See e.g.* Ad Hoc Telecommunications Users Committee Comments ("Ad Hoc") at 7 (asking the Commission to clarify the requirements of legacy MLTS in use prior to the proposed compliance deadline); VON Coalition Comments at 12-13 (discussing how the proposed definition of MLTS offered by the Commission's blurs the lines between MLTS and interconnected VoIP services).

the Commission imposes, including what compliance will be required from manufacturers versus building owners and managers and how compliance will be evaluated. As commenters have argued, the Commission must make it clear to entities who will be responsible for each new requirement, and when compliance will be required, for example we agree with RingCentral, who argued that "MLTS owners and operators are in the best position to select the location" of MLTS systems and the Commission should adjust responsibilities accordingly.[5]

The number of ambiguities in the *NPRM* flagged by commenters underscores the need for the Commission to articulate clear goals and provide guidance to those who would be regulated under rules enacting Kari's Law and any dispatchable location requirement. If the Commission does not produce clear and unambiguous rules with guidelines, it will be up to individual enterprises to interpret the new rules. This scenario would likely result in multiple interpretations, which causes confusion and raises the burden of compliance on MLTS managers while hampering innovation by industry manufacturers.

In adopting final rules, it is important that the Commission addresses the various ambiguities raised in TIA's initial comments,[6] as well as the concerns other commenters raised with regard to the *NPRM*'s definition of "pre-configured." Numerous commenters raised concerns with the ambiguity of the *NPRM*'s definition of "pre-configured" to mean that MLTS

[5] RingCentral, Inc. Comments at 8-9; *see also* Bandwidth Inc. Comments at 5, AT&T Comments at 6.

[6] TIA Comments at 12-13 (discussing ambiguities regarding the *NPRM*'s Effective Date, who will bear responsibility for compliance, how complaint mechanisms will be established, and how the *NPRM* will affect equipment authorization).

must come "equipped with a default configuration or setting that enables users to dial 911 directly… so long as the system is operated and installed properly."[7]

As commenters have shown, not all MLTS solutions are able to be configured by manufacturers to dial 911 directly "out of the box," and instead must be configured by the MLTS manager during installation in order to be able to directly dial 911.[8] Given the technical reality for all MLTS solutions to comply with the *NPRM*'s definition of pre-configured, the Commission must ensure that whatever final definition that is adopted "recognizes the responsibilities of the customer with respect to implementation… of the service" and recognize that MLTS installers and operators are in the best position to ensure all MLTS solutions are configured to directly dial 911, and not the manufacturers.[9]

B. The Commission's Rules Should Provide Flexibility for Notifications.

Both TIA and DECT Forum are supportive of the Commission's efforts to quickly implement the notification requirement of Kari's Law. However, as TIA demonstrated in their initial comments, the MLTS market is extremely diverse, both in the technologies used but also in how systems are created and installed.[10] Based on the diversity of MLTS technologies available, we agree with those commenters who have provided strong support in the record for the Commission adopting a rule that provides MLTS managers or operators sufficient flexibility with regard to the content of notifications.[11] Such flexibility would be in line with congressional

[7] *NPRM* ¶ 31.

[8] Cisco Comments at 10-11; Microsoft Comments at 6; Panasonic Comments at 9.

[9] Microsoft Comments at 6.

[10] TIA Comments at 3-6.

[11] Cisco comments at 13-14; Panasonic Comments at 12; TIA Comments at 10-12.

intent, which clearly calls for the Commission to be flexible in defining the requirement of a notification in order to avoid undue burdens on businesses.[12]

In keeping with congressional intent, the Commission should refrain from mandating granular specifics that must be included in a notification, such as a callback number and a street address, as this will not be practicable in all scenarios. As other commenters have pointed out, not every enterprise has extensions registered with a Direct Inward Dialing Number that can provide a callback number and wireless off-premises VoIP solutions can create an issue where a caller's location information may match a central office, rather than the remote location where the employee is actually working.[13] These nuanced situations show that MLTS managers and operators are in the best situation to determine what notification would be the most useful for their particular MLTS, and a blanket mandate regarding the content of a notification might not only result in a burden on these enterprises, but result in the delivery of inaccurate information to local PSAPs.

III. THE COMMISSION SHOULD NOT ADOPT A REQUIREMENT FOR DISPATCHABLE LOCATION INFORMATION FROM ALL FORMS OF MLTS AT THIS TIME.

As TIA stated in their initial comments, it is important in this proceeding to differentiate between the mandates placed on the Commission under Kari's Law, and the permissive authority granted to the Commission under the RAY BAUM'S Act.[14] The record now makes clear that the

[12] TIA Comments at 11 (*citing* H.R. REP. NO. 114-579 (2016)).

[13] *See e.g.* Panasonic Comments at 12; AHLA Comments at 7.

[14] *Compare* RAY BAUM's Act § 506(a) ("Not later than 18 months after the date of the enactment of [RAY BAUM'S] Act, the Commission shall conclude a proceeding to *consider* adopting rules to ensure that the dispatchable location is conveyed with a 9-1-1 call, regardless of the technological platform used and including with calls from [MLTS]" (emphasis added)) *with* Kari's Law, 47 U.S.C. §§ 623(a), (b), (c) (affected entities "*may not* manufacture or import" and "*may not* install, manage or operate" MLTS absent direct dialing-rule adherence; affected

Commission is under no legislative mandate to adopt a final rule requiring dispatchable location information for all MLTS solutions by February 26, 2020. The record also clearly demonstrates that the requirement of delivering dispatchable location information with emergency calls varies from feasible to unrealistic based on the nature of the MLTS solution. Additionally, implementing a requirement for dispatchable location information across all forms of MLTS could have unintended economic consequences that the Commission should strive to avoid.

A. Arguments that the Commission should impose a one-size-fits-all rule that requires dispatchable location information with every MLTS call are misplaced.

Both TIA and the DECT Forum's initial comments highlighted the complexity of the broad array of technologies impacted by the Commission's definition of MLTS.[15] Due to the complexity of the technological solutions defined as MLTS, several commenters argued that for many technologies, a one-size-fits-all rule requiring dispatchable location information by the Effective Date is not technically feasible.[16]

---

entities "*shall* … configure [their MLTS] to provide a notification to a central location or facility" (emphases added)).

[15] TIA Comments at 3-6; DECT Forum Comments at 2-5.

[16] TIA comments at 17-19; Ad Hoc Comments at 13-14 (arguing that "the solutions available today are not as simple to deploy, reasonably priced, or universally effective for solving the challenge of identifying the precise location of a highly mobile workforce as the record may indicate"); American Hotel & Lodging Association Comments at 8-10 (stating that dispatchable location is "not a simple issue when it comes to individual guestrooms. This is a challenging requirement to meet, and most MLTS and PSAPs do not have the necessary technology to accommodate this."); AT&T comments at 6 ("End user solutions may include any or all of: softphones on laptops, desktops, and tablets, dedicated IP phones, traditional Time Division Multiplexing phones, cordless phones, and mobile wireless devices. We are not aware of a solution that can automatically locate *all* of these types of devices within a building to deliver a dispatchable location."); Sorenson Communications, LLC at 7-10 (arguing that the proposed rules do not provide sufficient flexibility and would not be technically feasible for all video relay services).

Only a few commenters argued in favor of a uniform mandate for the delivery of dispatchable location information across all MLTS technologies contemporaneously with the implementation of Kari's Law.[17] Those commenters, however, did not recognize the broad array of technologies that would be impacted by a one-size-fits-all rule – a rule that would raise nuanced issues that will be impossible to solve before the Effective Date. Moreover, suggestions that the Commission should adopt a universal rule and then deal with nuanced technologies via waivers should also be rejected,[18] as a waiver system will only serve to hamper technological innovation, raise the cost to consumers from a diminished MLTS marketplace, and create a burden on the Commission's resources by establishing a case-by-case waiver process. Further, the Commission is under no pressure to rush into a decision mandating a universal dispatchable location requirement from MLTS. Unlike the direct dialing and notification requirements of Kari's Law, there is no congressional mandate requiring all MLTS emergency calls to deliver dispatchable location information to PSAPs. Congress, through Section 506 of the RAY BAUM's Act, simply directed the Commission to *consider* the feasibility of such a requirement for MLTS and other technological platforms.[19]

As both TIA and DECT Forum argued in their initial comments, the difficulty of identifying a dispatchable location increases when dealing with nomadic, wireless solutions as opposed to traditional circuit-based fixed-location equipment.[20] Rather than rush into a mandate across all MLTS solutions, the Commission should implement a phased approach to mandate

[17] APCO comments at 4; NENA comments at 6; NPSTC at 6-7.

[18] APCO Comments at 5.

[19] *Supra* note 14.

[20] TIA Comments at 17; DECT Forum Comments at 6.

dispatchable location information from on-premises, fixed-location services that have readily available solutions and are the most likely to be used in an emergency situation, as several commenters have suggested.[21] For these more traditional-style MLTS, the Commission should require MLTS managers to include the street address of the caller's location, and grant managers the flexibility to include other information necessary to identify the emergency caller's location. This will allow the Commission to begin implementing the policy goal of the *NPRM*, i.e. providing dispatchable location information for the MLTS services that will most readily be used in an emergency, while allowing the Commission, and the industry through standards and best practices, to continue to work on the more complex issues raised by the *NPRM*.

B. The Commission Must Consider all Potential Impacts to the MLTS Industry

Both TIA and DECT Forum agree that the Commission's goal in this proceeding – to deliver the most effective information possible to PSAPs and first responders – is one shared by all MLTS industry equipment manufacturers, their customers, and MLTS operators. However, any final rule in this proceeding must also take into account the actual potential impact of the rule in achieving this goal, weighed with the costs of the rule. Estimates suggest that 80 percent of 911 calls are made from mobile phones.[22] In fact, analyzing the data in the Commission's

[21] Cisco comments at 15-20; Verizon Comments at 6 (noting that providing "dispatchable location uniformity for all IP-based MLTS… may take time for new technical standards and to incorporate the capability into new systems so that the format of address information is consistent across service providers."); Panasonic comments at 4 ("the agency should concentrate first on a baseline rule for hard-wired fixed telephony endpoints assigned a physical location.")

[22] *9-1-1 Statistics*, NENA https://www.nena.org/page/911Statistics (last visited Nov. 27, 2018); 911.GOV, 2017 NATIONAL 911 PROGRESS REPORT 2 (Nov. 2017).

own reports to Congress supports this approximation.[23] Reviewing the data of the Annual Report, compiled in Table 2 of the *Enclosure*, it can be determined that 911 calls from both wireline and wireless phones account for 87 – 95 percent of all 911 calls. This means that the remaining five to 13 percent come from technologies similar to VoIP or cloud-based technologies, which would make sense as these technologies are relatively new and are growing in availability and popularity in the MLTS marketplace over traditional wireline options.

Looking at the numbers, it can be seen that a rule requiring dispatchable location information from all forms of MLTS would only impact a small number of emergency calls, but has the potential to result in significant marketplace disruption and economic harms. When dealing with developing technology, such as the cloud-based and VoIP MLTS solutions that have more recently become available, the probability of unintended consequences is particularly high when dealing with fast evolving technology.

Similarly, startup companies with new products and innovative methods of providing cloud-based or remote MLTS solutions could be hampered by a broad mandate for dispatchable location information. The Commission should be mindful of this when adopting final rules in this proceeding to ensure that any rules do not hinder the technical evolution of MLTS solutions. In addition to harming innovation, strict rules that are different from other global markets could result in companies not introducing new products into the US, reducing the potential diversity in the MLTS marketplace. The Commission should minimize the impact of its rules to the MLTS marketplace. This should including the total cost and complexity of compliance, making efforts to minimize those costs.

[23] FCC, Annual Report to Congress on State Collection And Distribution of 911 And Enhanced 911 Fees and Charges. (available at: https://www.fcc.gov/general/911-fee-reports) (last accessed January 10, 2019) ("Annual Report").

IV. THE COMMISSION MUST ACCOUNT FOR TECHNOLOGICAL ADVANCEMENT AND INDUSTRY COLLABORATION

As discussed above, the MLTS marketplace represents a broad range of technologies that are continuing to evolve from more traditional, circuit-based solutions to wireless, cloud-based and VoIP solutions. Given the rapid pace that many of these solutions have developed, it is to be expected that innovative solutions will be deployed in coming years, both for achieving the objectives of this proceeding and evaluating compliance with any requirements the Commission establishes. The Commission should follow their long history of encouraging technological innovation and ensure that any final rules in this proceeding encourage future technological developments, both in the MLTS and location services marketplaces.

Improving location services is a very active area of research with new, innovative approaches currently being explored and introduced. The rules adopted should allow the 911 system to benefit from these developments without mandating specific technologies or the speed of adoption, as the form that these services may take is as of yet uncertain. Any rules requiring dispatchable location information must include flexibility for how new services will be operated and adopted, as well as how compliance will be measured. As we discussed above, the rules also need to be clear so that companies know exactly what is expected of them and allow for manufactures to self-evaluate their compliance in a cost-effective way.

The Commission, of necessity, will be establishing a conformity assessment system with this proceeding, and should consider how these rules will be evaluated based on their effectiveness, costs to consumers and manufacturers, and flexibility to allow new entrants to the markets. Evaluation could come from governmental and private sector partnerships, which are a

central part of various Commission public safety related goals.[24] Even prior to this proceeding and the passage of Kari's Law, collaboration between the hospitality sector, the cellular community, and the telecommunications industry produced significant improvements.[25] The fact that the Commission will now enact implementing rules does not end the role and value of private sector efforts, in fact it can be argued that those efforts become even more important.

The long history the Commission has of working with standards developing organizations, such as TIA and ANSI ASC C63, is one example of partnerships that will be useful to the objectives of this proceeding. Standards are needed to add technical specificity and translate the objectives of this proceeding into technologically actionable implementations. Measurement standards are needed to guide testing and compliance evaluation. Developing the necessary technical standards is essential to the successful achievement of the Commissions goals. As TIA stated in their initial comments, we are actively working with the ICT industry, Smart Building owners, and public safety representatives to form a working group to study this very issue.[26] Should the Commission request TIA's help, we look forward to working with its staff to develop supporting technical standards.

The rules the Commission will adopt in this proceeding are only one part of the set of actions the Commission should take to achieve the public interest objective of this proceeding. No company wants its employees or guests to be at risk due to deficiencies in its system, and the

---

[25] American Hotel and Lodging Association public statement, "American Hotel & Lodging Association Industry 911 Dial-Through Update January 2015." (*available at* http://cqrcengage.com/gfwc/file/Ucg9BB18NiH/AHLA%20Update.pdf) (last accessed January 9, 2019).

[26] TIA Comments at 19-21.

Commission should swiftly move to implement changes that will aid the public interest where technically feasible. Simultaneously, the Commission should work with industry, MLTS operators, and public safety representatives to determine the best solution for implementing dispatchable location requirements on the remaining MLTS solutions.

V. CONCLUSION

For the forgoing reasons, TIA and DECT Forum respectfully urges the Commission to move forward as expeditiously as possible with implementation of Kari's Law and with consolidation of its 911 rules, while delaying any dispatchable location requirements uniformly across all forms of MLTS in order to develop a full and robust record on the feasibility of this requirement.

Respectfully submitted,

By: __/S_Andreas Zipp_____

Andreas Zipp
Chairman of the DECT Forum

Ruth Wilson
Deputy-Chairperson of the DECT Forum

DECT FORUM

Wabernstrasse 40
3007 Bern
Switzerland

By: __/S/ Cinnamon Rogers_____

Cinnamon Rogers
Senior Vice President, Government Affairs

Colin Black Andrews
Policy Counsel, Government Affairs

TELECOMMUNICATIONS INDUSTRY
ASSOCIATION
1320 N. Courthouse Road
Suite 200
Arlington, VA 22201
(703) 907-7700

January 9, 2019
Enclosure

Table 1 – 911 calls by Technology Used[27]

State	Type of Service						Estimated Annual 911 Calls Per Capita
	Wireline	Wireless	VoIP	Other	Total	Reported "Unknown"	
AK	64,230	420,065			484,298		0.65
AL	Did Not Specify	2,534,374	Did Not Specify	Did Not Specify	2534374		
AR	Did Not Specify	Did Not Specify	Did Not Specify	Did Not Specify	Did Not Specify		0.52
AZ	714,436	3,345,113	~	~	4,059,549		
CA	4,656,858	22,344,045	1,121,364	7,660	28,129,927		Did Not Specify
CO	274,441	5,645,578	202,669	86,199	6,208,887		
CT	336,684	1,750,869	132,911		2,220,464		0.58
DE	130,720	541,286	62,110	9,970	744,086		
FL	2,315,578	11,820,930	862,869	260,052	15,259,429		0.71
GA	Unknown	Unknown	Unknown	Unknown	~	X	
HI	294,226	1,004,923	54,858	7,022	1,361,029		1.11
IA	195,865	902,348	22,146		1,120,359		
ID	~	~	~	~	~	X	0.62
IL	2,072,708	7,491,574	364,442	2,242	9,930,966		
IN	579,823	3,800,471	221,087	167,438	4,768,819		0.77

[27] FCC, Tenth Annual Report to Congress on State Collection And Distribution of 911 And Enhanced 911 Fees and Charges for The Period January 1, 2017 to December 31, 2017, Table 3.

Available at: https://www.fcc.gov/files/10thannual911feereporttocongresspdf

State	Type of Service						Estimated Annual 911 Calls Per Capita
	Wireline	Wireless	VoIP	Other	Total	Reported "Unknown"	
KS	311,979	1,257,438	49,549	3,510	1,622,476		
KY	742,961	2,457,215	Included in Wireline	Unknown	3,200,176		0.72
LA	801,646	2,822,631	174,080		3,798,357		0.81
MA	814,734	2,928,226	178,029		3,920,989		0.57
MD	1,346,997	4,007,892	~	~	5,354,889		0.88
ME	120,409	387,111	51,803		559,323		0.42
MI	1,114,894	5,050,435	328,503	5,329	6,499,161		0.65
MN	473,202	2,305,030	136,377	11	2,914,620		0.52
MO	~	~	~	~	~	X	~
MS	Did Not Specify	Did Not Specify	Did Not Specify	Did Not Specify	3,419,030		0.56
MT	Did Not Specify	Did Not Specify	Did Not Specify	Did Not Specify	NA		~
NC	1,265,256	5,407,309	607,263		7,279,828		0.71
ND	40,822	190,016	2,537	141	233,516		0.31
NE	212,756	847,380	14,170	2,198	1,076,504		0.56
NH	52,597	291,041	51,371	17,309	412,318		0.31
NJ	Did Not Specify	Did Not Specify	Did Not Specify	Did Not Specify	8,750,000		0.97
NM	234,437	1,248,089	31,317	5,635	1,519,478		0.73
NV	191,760	340,823	4,333	90,165	627,081		~
NY	7,651,491	11,198,366	650,983	7,090,563	26,591,403		1.34

State	Type of Service						Estimated Annual 911 Calls Per Capita
	Wireline	Wireless	VoIP	Other	Total	Reported "Unknown"	
OH	776,686	4,465,390	300,476	561,501	6,104,053		0.52
OK	925,943	2,092,388	42,628	141,546	3,202,505		0.81
OR	269,807	1,396,495	103,286	39,799	1,809,387		0.44
PA	2,459,559	6,072,375	486,156	6,251	9,024,341		0.70
RI	112,670	348,130			460,817		0.43
SC	Did Not Specify	3,854,468	Did Not Specify		3,854,468		0.77
SD	~	~	~	~	328,900		0.38
TN	~	~	~	~	~	X	~
TX	1,925,007	21,460,325	774,390	254,534	24,414,256		0.86
UT	103,193	925,621	36,044	163	1,065,021		0.34
VA	1,002,508	3,371,750	Did Not Specify	Did Not Specify	4,374,258		0.52
VT	40,515	132,392	19,772	6645 Unknown	199,791		0.32
WA	795,792	5,586,792	514,792	3,525	6,900,901		0.93
WI	~	~	~	~	~	X	~
WV	1,237,516	667,773	64,243	216,397	2,185,929		1.20
WY	26,500	223,000	2,400	8,400	260,300		0.45
Other Jurisdictions							
AS	9.672	34.943			44,615		~
DC	405,310	870,460			1,275,770		1.84
Guam	51,554	~	~	~	41,554		0.25
No. Mariana Is.	Did Not Specify	Did Not Specify	Did Not Specify	Did Not Specify	Did Not Specify		~

State	Type of Service						Estimated Annual 911 Calls Per Capita
	Wireline	Wireless	VoIP	Other	Total	Reported "Unknown"	
PR	78,926	1,388,438		481,701	1,949,065		0.58
USVI	Did Not Specify	Did Not Specify	Did Not Specify	Did Not Specify	Did Not Specify	X	~
Totals	**37,222,668**	**155,231,318**	**7,666,958**	**8,907,760**	**222,097,267**	**6**	**0.69**

Table 2 – 911 Call Volume by Technology[28]

Report	Year	Type of Service					
		Wireline	Wireless	VoIP	Other	Total	No Response
7th	2014	41,529,538	135,788,462	3,876,172	968,569	196,150,195	10
8th	2015	39,153,539	156,031,576	5,085,324	4,876,992	253,844,538	5
9th	2016	39,494,900	153,404,008	5,661,055	2,353,291	220,482,252	3
10th	2017	37,222,668	155,231,318	7,666,958	8,907,760	222,097,267	6
		Percent of Total					
7th	2014	21.2%	69.2%	2.0%	0.5%		7.1%
8th	2015	15.4%	61.5%	2.0%	1.9%		19.2%
9th	2016	17.9%	69.6%	2.6%	1.1%		8.9%
10th	2017	16.8%	69.9%	3.5%	4.0%		5.9%

[28] FCC, Annual Report to Congress on State Collection And Distribution of 911 And Enhanced 911 Fees and Charges. (available at: https://www.fcc.gov/general/911-fee-reports) (last accessed January 10, 2019).