



## SUMMARY

The Intelligent Transportation Society of America (“ITS America”) hereby respectfully submits its Reply Comments regarding the *Further Notice of Proposed Rulemaking* (“*FNPRM*”) issued by the Federal Communications Commission (“FCC” or “Commission”) in ET Docket No. 19-138, as captioned above.

As evidenced by the Comments, public and private sector transportation safety experts, as well as radio communications experts, agree that the Commission’s spectrum reallocation and proposed emissions limits on unlicensed devices will fail to protect the 5.895-5.925 GHz band (“5.9 GHz band”) for intelligent transportation system (“ITS”) operations, allowing harmful interference to negatively impact Vehicle-to-Everything (“V2X”) communications. Commenters that have been deploying V2X or have been on the front line of making this technology a reality are asking for assurances that their safety technologies will work in the spectrum remaining available to them. In order for V2X’s potential to be fully realized, V2X deployers need confidence that the devices in which they are investing will continue to function properly under the new 5.9 GHz band allocation. To safely move forward, the FCC must work with the U.S. Department of Transportation (“USDOT”) and the transportation industry to ensure that the 30 MHz reserved for ITS operations is free of harmful interference and usable for V2X technologies.

In the *FNPRM*, the Commission requested comment on providing ITS licensees reasonable compensation of expenses resulting from the FCC’s decision to require relocation of ITS licensees out of the lower 45 MHz of spectrum. The record of this proceeding overwhelmingly supports a reimbursement mechanism. Commenters recognize that public agencies, which have invested significant funding in V2X technologies in the interest of public

safety, stand to lose the most in this proceeding – both the majority of the spectrum they had planned their investments to operate in, and, in Dedicated Short-Range Communications (“DSRC”) cases, the very ability to use the particular V2X technology that they were granted licenses to operate. Thus, the Commission should mandate compensation for reasonable costs incurred by incumbent licensees transitioning out of the lower 45 MHz and from DSRC to Cellular Vehicle-to-Everything (“C-V2X”) technology.

Further, the record in this Docket demonstrates that 30 MHz is not sufficient spectrum to implement the full range of safety applications that are possible with V2X technologies. A wide coalition of transportation safety stakeholders has repeatedly pointed to evidence demonstrating this, relying on their transportation safety expertise, to advise the Commission against moving forward with limiting the spectrum available for these technologies. A majority of Commenters expressed the view that, if the Commission were to move forward with this reallocation against the guidance of USDOT and the transportation safety community, then it has a responsibility to find additional spectrum to enable advanced V2X safety applications as part of its mission to promote public safety. Additional spectrum for ITS would also allow the U.S. to maintain its global leadership in intelligent transportation as other countries are expanding rather than reducing spectrum allocation for ITS.

Finally, the Commission sought comment on whether to limit use of the 5.9 GHz band to noncommercial services or safety-of-life applications. Any such limitation would be both inefficient and unrealistic. The priority of safety-of-life messages is embedded in the 5.9 GHz band regardless of the presence of non-safety-of-life messages. Additionally, numerous applications enhance the V2X ecosystem in ways that improve traffic efficiency, reduce congestion, and improve sustainability – many of which have secondary safety benefits, but also

improve the functionality of the entire traffic system. If it were to limit the use of the 30 MHz to safety-of-life applications, the Commission would continue to litigate issues in this spectrum for the indefinite future as it would have to determine which applications are safety-of-life.

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**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of )  
 )  
Use of the 5.850-5.925 GHz Band ) ET Docket No. 19-138  
 )

**REPLY COMMENTS OF THE  
INTELLIGENT TRANSPORTATION SOCIETY OF AMERICA**

The Intelligent Transportation Society of America (“ITS America”) hereby respectfully submits its Reply to Comments regarding the *Further Notice of Proposed Rulemaking* (“*FNPRM*”) issued by the Federal Communications Commission (“FCC” or “Commission”) in ET Docket No. 19-138, as captioned above.<sup>1</sup>

**I. Introduction**

The Commission received 41 Comments on the *FNPRM* representing State and local transportation authorities,<sup>2</sup> automakers and their suppliers,<sup>3</sup> equipment providers,<sup>4</sup> and others. The Comments in this proceeding establish that the Commission’s proposal for emissions limitations on out of band emissions (“OOBE”) from outdoor use of the lower 5.9 GHz band (5950-5895 MHz) will not adequately protect the use of the upper band by V2X services and will harm transportation safety. The Comments also overwhelmingly support the establishment of a reimbursement fund consistent with many years of Commission precedent to compensate the ITS

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<sup>1</sup> *In the Matter of Use of the 5.850-5.925 GHz Band*, ET Docket No. 19-138, First Report and Order, Further Notice of Proposed Rulemaking, and Order of Proposed Modification, 35 FCC Rcd 13440 (2020) (“*5.9 GHz Band Report and Order and FNPRM*”).

<sup>2</sup> See Comments of AASHTO, ET Docket No. 19-138 (filed June 2, 2021); Comments of City of New York, ET Docket No. 19-138 (filed June 2, 2021).

<sup>3</sup> See Comments of Continental, ET Docket No. 19-138 (filed June 2, 2021); Comments of Toyota, ET Docket No. 19-138 (filed Jun. 2, 2021).

<sup>4</sup> See Comments of Qualcomm, ET Docket No. 19-138 (filed Jun. 2, 2021).

licensees for their costs of displacement from the lower band. The record further establishes that 30 MHz is not sufficient to implement the full range of safety applications enabled by V2X technologies and that limiting the use of the 5.9 GHz band to safety-of-life applications would be inefficient and unrealistic.

## **II. Commenters Overwhelmingly Support Emissions Limitations on Unlicensed Devices Operating in the 5.850-5.895 GHz Band that Adequately Protect ITS Operations in the 5.9 GHz Band**

Throughout this proceeding, the question of interference protections has been discussed comprehensively – clearly, Commenters fit into one of two camps: transportation safety experts, transportation agencies, and communications organizations and experts that want strong enough OOB interference requirements to ensure that V2X safety communications are able to continue to function in the limited spectrum reserved for such purposes; and certain cable and Wi-Fi proponents that have sought lenient limits on unlicensed devices to maximize the commercial potential of the spectrum they have convinced the Commission to reallocate for their financial benefit. One side relies on evidence provided by transportation authorities, such as USDOT and the National Transportation Safety Board (“NTSB”),<sup>5</sup> and requests cautious implementation of interference rules to ensure that safety-of-life applications can function properly, while supporters of extremely limited interference protections rely on a CableLabs study funded by cable interests, which has been thoroughly debunked by many Commenters, particularly Ford Motor Company.<sup>6</sup> Those seeking a cautious approach to interference concerns have been unanimously endorsed by transportation and communications experts, including AT&T, LG Electronics, the 5G Automotive

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<sup>5</sup> See Letter from Secretary Elaine Chao, U.S. Department of Transportation, to Chairman Ajit Pai, FCC (Nov. 20, 2019). Available at: <https://www.highways.org/wp-content/uploads/2019/12/sec-chao-letter-5.9-11-20-19.pdf>; Comments of NTSB, ET Docket No. 19-138, at 3-5 (filed Mar. 4, 2020).

<sup>6</sup> Comments of Ford Motor Company, ET Docket No. 19-138, at 24-26 (filed Mar. 9, 2020).

Association (“5GAA”), and Qualcomm.<sup>7</sup> On the other hand, parties that have consistently prioritized the commercial benefits of this spectrum over the clearly-articulated safety benefits ask the Commission to believe they have seriously considered the threat of interference in the remaining spectrum and are confident that they have presented enough evidence that their limited interference protection proposals will adequately defend safety communications from harmful interference.

Despite their arguments that limited interference protections will be sufficient to protect V2X communications in the 30 MHz (arguments that repeatedly ignore transportation safety experts such as USDOT definitively stating the exact opposite), these proponents do not offer sufficient evidence to support their arguments nor do they have credibility on this issue – the Internet and Television Association (“NCTA”) continues to argue that “the Commission could realize even greater economic benefits by opening the entire 5.9 GHz band for unlicensed use.”<sup>8</sup>

Instead of adopting interference proposals from organizations that have been eager to limit the operations of public safety technology to free up spectrum for their own commercial economic benefit, the Commission should pay particular attention to Commenters that have been deploying V2X or have been on the front line of making this technology a reality – including transportation agencies, V2X developers, and communications experts. What these groups are asking for is far from extreme – simple assurances that their safety technologies will work in the spectrum remaining available to them. As Utah Department of Transportation (“Utah DOT”) commented, “ITS technologies for traffic safety applications require high-speed, low-latency communications to allow vehicles to communicate with other vehicles, infrastructure, and other

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<sup>7</sup> See Comments of AT&T, ET Docket No. 19-138, at 5-7 (filed Jun. 2, 2021); Comments of LG Electronics, ET Docket No. 19-138, at 1-2 (filed Jun. 1, 2021); Comments of 5GAA, ET Docket No. 19-138, at 11-18 (filed Jun. 2, 2021); Comments of Qualcomm, ET Docket No. 19-138, at 14-16 (filed Jun. 2, 2021).

<sup>8</sup> Reply Comments of NCTA, ET Docket No. 19-138, at 75 (filed Apr. 27, 2020).



travelers to avoid crashes, injuries and fatalities. To be effective, it is necessary to ensure that adjacent wireless operations do not interfere with these critical communications.”<sup>9</sup> They continue, urging the Commission to “reconsider the allowance of outdoor client-to-client operations in the U-NII-4 band. Outdoor use of these devices, in places like parking lots and stadiums, pose the potential for interference by their proximity to the roadway without the buffering influence of building walls and other barriers. Any potential interference with life-safety ITS operations should be treated skeptically and resolved based on thorough testing and close coordination with transportation experts.”<sup>10</sup>

Again, for as much as this issue has been discussed throughout this proceeding, cable and Wi-Fi advocates, and more importantly the Commission, have failed to demonstrate conclusively that their lenient proposed interference requirements will sufficiently protect V2X functions in the remaining 30 MHz. ITS America and others have routinely asked that the Commission coordinate with experts at USDOT to ensure that their concerns around this issue have been addressed.<sup>11</sup> In order for V2X’s true potential to be fully realized, V2X deployers need confidence that the devices they are investing in will continue to function properly under the new 5.9 GHz band allocation. Assurances that the lax protections proposed by cable and Wi-Fi proponents are sufficient to protect V2X safety communications are hardly compelling when they are in direct conflict with what USDOT and transportation researchers have presented throughout this proceeding. Without real and measurable coordination with USDOT, the Commission will fail both to rectify the significant regulatory uncertainty that they have caused to V2X deployers throughout this proceeding and to justify their decision to reallocate over half of the spectrum

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<sup>9</sup> Comments of UDOT, ET Docket No. 19-138, at 10 (filed June 1, 2021).

<sup>10</sup> *Id.*

<sup>11</sup> See Comments of ITS America, ET Docket No. 19-138, at 2, 15 (filed June 2, 2021); Comments of UDOT, ET Docket No. 19-138, at 10 (filed June 1, 2021).

used for V2X communications under the thin rationale that they would be able to maintain this next-generation transportation safety tool while overseeing a massive spectrum giveaway to corporate interests.

While ITS America believes it is vital that USDOT be a key partner in determining appropriate interference limits, there is additional benefit in highlighting an interference limit compromise that has been proposed by 5GAA. 5GAA rightfully noted that the “FNPRM proposes outdoor U-NII-4 access point and device-to-device operations at unprecedented unwanted emission levels. 5GAA’s technical analysis shows that these proposals would cripple Cellular Vehicle-to-Everything’s (“C-V2X”) ability to support significant safety applications”<sup>12</sup> and propose the following interference limits:<sup>13</sup>

- Indoor access points: -5 dBm/MHz at 5.895 GHz decreasing linearly to -27 dBm/MHz at 5.925 GHz, measured with RMS measurements;
- Client devices: -25 dBm/MHz at 5.895 GHz decreasing linearly to -47 dBm/MHz at 5.925 GHz, measured with RMS measurements; and
- Fixed outdoor access points: -25 dBm/MHz at 5.895 GHz decreasing linearly to -47 dBm/MHz at 5.925 GHz, measured with RMS measurements.

ITS America endorses these proposed limits as an appropriate interference compromise. ITS America also agrees with 5GAA that U-NII-4 rules should prohibit portable device-to-device and mobile hotspot operations for the reasons described in 5GAA’s comment.<sup>14</sup>

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<sup>12</sup> Comments of 5GAA, ET Docket No. 19-138, at 10 (filed June 2, 2021).

<sup>13</sup> *Id.*, at 16.

<sup>14</sup> *Id.*, at 18-20.

Further, ITS America supports Qualcomm’s suggestion that “[t]he Commission should consider delaying rules that permit any outdoor unlicensed use of the U-NII-4 band”<sup>15</sup> until such time as the potential for interference is better determined through realistic field testing.

Finally, ITS America disputes claims by Wi-Fi proponents such as the Wireless Internet Service Providers Association (“WISPA”) that the Commission’s Special Temporary Authorization (“STA”) grants in the 5.9 GHz band at the start of the COVID-19 pandemic are evidence that unlicensed devices can operate alongside V2X devices without harmful interference.<sup>16</sup> The STA grants that were issued by the Commission in response to the COVID-19 pandemic were intended to allow temporary use of the 5.9 GHz band to provide relief during stay-at-home orders, but importantly, the STA grant recipients were required to operate under band conditions which were entirely different from the permanent plan proposed by the Commission in the *FNPRM*.<sup>17</sup> In the case of the STAs, each applicant’s use of the 5.9 GHz band was authorized on a secondary, non-interference basis. This means that each applicant was responsible for ensuring that it does not cause interference to existing licensees. It had to review existing Dedicated Short-Range Communications (“DSRC”) licenses in this band to search for any nationwide, statewide, or countywide licenses that covered or were adjacent to its service area, as well as any site licenses that were near that service area. It could not operate within two kilometers of any site license, regardless of notification or actual interference. It then had to contact each of these affected licensees before beginning operation and provide its contact information so that the licensee could inform it of any interference issues. If a complaint of

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<sup>15</sup> Comments of Qualcomm, ET Docket No. 19-138, at 13 (filed Jun. 2, 2021).

<sup>16</sup> Comments of WISPA, ET Docket No. 19-138, at 3 (filed June 2, 2021).

<sup>17</sup> FCC Grants WISPs Temporary 5.9 GHz Spectrum Access for Rural Broadband, News Release (Filed Mar. 27, 2020). Available at <https://www.fcc.gov/document/fcc-grants-wisps-temporary-59-ghz-spectrum-access-rural-broadband>.

interference could not be timely resolved, operation under the STA was required to cease. If the Commission took these STA grant restrictions and applied them to unlicensed devices in the *FNPRM*, they would clearly alleviate many of the concerns of the transportation safety community, but that is not how the Commission has structured the proposal. Additionally, the STA grants did not restrict the amount of spectrum available to V2X technologies, while the FCC's *5.9 GHz Band First Report and Order* reduced that allocation by more than half. Accordingly, any success of the recent STA grants cannot be correlated with suggested similar success of the Commission's reallocation plan, as the two are categorically different.

### **III. Commenters Support the Establishment of a Reimbursement Fund for ITS Incumbent Licensees' Expenses Resulting from the 5.9 GHz Band Reallocation**

In the *FNPRM*, the Commission requested comment on providing ITS licensees reasonable compensation of expenses resulting from the FCC's decision to require relocation of ITS licensees out of the lower 45 MHz of spectrum, "including suggestions on which particular types of costs should be considered as appropriate for possible compensation ... as well as the process by which such compensation might be determined or implemented."<sup>18</sup> Throughout this proceeding, ITS America has consistently urged that, consistent with almost thirty years of precedent, any licensees displaced by the Commission's action be provided with reasonable compensation of their expenses incurred in complying with an otherwise unfunded mandate. ITS America suggested that an "unfunded transition to the new band plan would punish licensees who invested their resources, often public funding, in promoting traffic safety and is both bad policy and bad law," given the Commission's public safety responsibilities under the Communications Act of 1934.<sup>19</sup>

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<sup>18</sup> *FNPRM*, 35 FCC Rcd at 13507, para. 167.

<sup>19</sup> Comments of ITS America, ET Docket No. 19-138, at 8 (filed June 2, 2021).

In analogous circumstances, the Commission has authorized a third party to manage the band’s transition process as well as assess and collect clearing fees to pay for the cost of the relocation.<sup>20</sup> The record of this proceeding overwhelmingly supports a reimbursement mechanism. Commenters recognize that public agencies, which have invested significant funding in V2X technologies in the interest of public safety, stand to lose the most in this proceeding – both the majority of the spectrum they had planned their investments to operate in, and, in DSRC cases, the very ability to use the particular V2X technology that they were granted licenses to operate. The American Association of State Highway and Transportation Officials (“AASHTO”) noted that incumbents “have expended significant resources in building capabilities using that band and are now being forced to scrap and replace existing functioning deployments with new developments,” incurring significant additional costs.<sup>21</sup> Further, the Michigan Department of Transportation (“MDOT”) argued that “the consequences of the reallocation proposal—which will be borne by transportation agencies—undermine MDOT’s past and current technology investments. There will be transition costs in retrofitting existing installations. It is conceivable that some installations will have to be shut down because of practical transition issues.”<sup>22</sup>

ITS America was not alone in arguing in favor of a robust reimbursement mechanism to restore the public safety investments made by transportation agencies that stand to be stranded by the Commission’s recent actions in the 5.9 GHz band. A coalition of fifteen transportation safety stakeholders, primarily consisting of state and city departments of transportation, research institutions, and organizations representing those interests, commented in support of such a reimbursement plan.

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<sup>20</sup> *Id.*, at 9.

<sup>21</sup> Comments of AASHTO, ET Docket No. 19-138, at 5 (filed June 2, 2021).

<sup>22</sup> Comments of MDOT, ET Docket No. 19-138, at 2 (filed Jun. 2, 2021).

NCTA – representing parties who may be called upon to fund the reimbursement from the proceeds of their free spectrum windfall – presented opposition to the proposal.<sup>23</sup> Even NCTA acknowledges the significant funding spent by transportation agencies on the rollout of this technology – citing “millions and millions of dollars of state and federal grants”<sup>24</sup> – the very funding that the Commission’s actions in this spectrum have stranded. NCTA otherwise suggests that reimbursement, however, would be a corporate bailout of corporate DSRC interests seeking to purchase new equipment and re-tune their existing devices, ignoring both the extensive record in this proceeding that preceded the *Report and Order* as well as the Comments themselves from the State and local transportation authorities that have invested and will bear the brunt of an unreimbursed band and technology dislocation. These agencies have deployed V2X technologies with the goal of reducing the public burden of transportation fatalities and not to somehow profit from the deployment of V2X devices.

These investments should be reimbursed by those that are poised to financially benefit from this proceeding – any federal dollar spent on DSRC under the reasonable assumption that licensees would be able to fully operate for the length of their granted licenses are dollars that are now unable to be spent on other safety investments (including C-V2X deployment). Thus, to help ensure that this decision does not materially impact the safety of the traveling public, the scope of this reimbursement should include the “millions and millions of dollars of state and federal grants”<sup>25</sup> that NCTA itself identifies.

NCTA also states that “[p]arties intending to build out their pilots to full C-V2X deployments will have the same ability to do so they had before with DSRC. Further, unlike in

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<sup>23</sup> Comments of NCTA, ET Docket No. 19-138, at 21-24 (filed June 2, 2021).

<sup>24</sup> *Id.*, at 22.

<sup>25</sup> *Id.*

contexts such as the Commission’s recent repurposing of C-band spectrum for licensed 5G deployments, DSRC pilots here do not require new equipment or additional deployments in order to provide substantially the same service they currently do.”<sup>26</sup> This claim has been roundly rejected by transportation experts throughout this proceeding, including by Commenters such as the Institute of Transportation Engineers (“ITE”), which explained at length the numerous expenses that such a transition would entail.<sup>27</sup> The Georgia Department of Transportation (“Georgia DOT”) explained, for example, that it “estimates that it will be required to expend \$5,594,180 to comply with this *FNPRM*. This cost represents actual contract pricing to convert [Georgia DOT’s] existing connected vehicle infrastructure to meet the requirements set forth in the Commission’s *FNPRM*.”<sup>28</sup> This is just one example of real costs that NCTA suggests, with no basis, are either negligible or inaccurate to avoid paying minimal transition fees that are clearly well-supported by Commission precedent.

Other Commenters agree with ITS America that reimbursement “is particularly necessary because the Commission’s decision in this proceeding is effectively eliminating a series of investments by state and local departments of transportation to increase safety at a time when their funding is already limited by COVID-19-related revenue decreases.”<sup>29</sup> For example, The Maryland Department of Transportation (“Maryland DOT”) explained that, to comply with the Commission’s order, “technology deployments that were already underway had to shift resources, procure new technology, and delay project implementation due to the FCC’s actions. The cost

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<sup>26</sup> *Id.*, at 23.

<sup>27</sup> Comments of ITE, ET Docket No. 19-138, at 6-8 (filed June 2, 2021).

<sup>28</sup> Comments of Georgia DOT, ET Docket No. 19-138, at 5 (filed June 1, 2021).

<sup>29</sup> Comments of ITS America, ET Docket No. 19-138, at 14 (filed June 2, 2021).

impacts span beyond just MDOT – our local agencies also are shouldering the burden to shift out of the lower 45MHz and convert to [C-V2X] equipment.”<sup>30</sup>

Thus, absent an appropriate reimbursement mechanism, the ultimate victims of the Commission’s actions in this proceeding are the traveling public. The resources that were aimed at improving their safety would be stranded, materially undermining agencies’ efforts to mitigate traffic risks. The Utah DOT makes this point convincingly, commenting that “[i]rrespective of the source of those original funds, modification and replacement of the system will require funds not budgeted or anticipated. If those funds must be found within the agency’s budget, the use of those public funds diminishes from other planned, needed projects that provide direct public safety and benefit.”<sup>31</sup> As the Commission claimed in May 2021 that “there is no task at the FCC that is more important than keeping the American people safe,”<sup>32</sup> ensuring that these funds are reimbursed so they can continue to be spent in the public interest is of paramount importance, particularly when the reason that these funds were stranded in the first place was to provide a corporate handout for commercial purposes.

With the exception of NCTA, Commenters who discussed reimbursement also favor a comprehensive scope of costs that should be covered in a reimbursement program. ITS America noted in its Comments that this scope should “include expenses incurred through development, deployment, and relocation of V2X technologies [as well as] funding spent on V2X equipment, V2X vendors, staff overhead for all employees who manage V2X deployment administration (licensing, funding applications, communications, project management, etc.), staff overhead for employees who manage V2X devices on the ground (installation, testing, maintenance, etc.),

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<sup>30</sup> Comments of Maryland DOT, ET Docket No. 19-138, at 1 (filed June 2, 2021).

<sup>31</sup> Comments of UDOT, ET Docket No. 19-138, at 8-9 (filed June 1, 2021).

<sup>32</sup> Federal Communications Commission, 2022 Budget-in-Brief, at 9 (May 2021). Available at <https://docs.fcc.gov/public/attachments/DOC-372860A1.pdf>.



benefits for those employees, legal fees pertaining to V2X deployments, consultants advising these V2X deployments, and associated lifecycle costs (such as the costs that agencies will incur when they must pull buses out of their transit fleets to swap one V2X radio for another).”<sup>33</sup> The University of Michigan Transportation Research Institute (“UMTRI”) agrees, arguing that “this reimbursement should be broad in scope and include any expenses that deployers of V2X devices may incur as a result of this rulemaking,” noting that it would cost an estimated \$14,260,115 to transition from DSRC to C-V2X in the Ann Arbor Connected Environment.<sup>34</sup> These are hardly negligible costs for V2X deployers attempting to harness the promise of V2X technologies to improve public safety. The Commission must ensure that the full scope of the costs associated with its spectrum reallocation are recovered by the dislocated licensees, most of which the FCC has licensed as public safety, and available for reinvestment in transportation safety.

ITS America is aware of recent efforts in Congress to provide eligibility under limited existing transportation programs to provide funding for the transition of DSRC technologies operating in the lower 45 MHz to C-V2X technologies operating in the upper 30 MHz.<sup>35</sup> However, ITS America notes that none of the funding under these programs is required to be used for these projects and that the funding available under these programs is insufficient to cover the transition costs that will be required under the Commission’s reallocation proposal. Even if these efforts lead to enhanced eligibility for these projects, it does not absolve the Commission of its responsibility to follow its own precedent and to establish a reimbursement mechanism in this proceeding.

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<sup>33</sup> Comments of ITS America, ET Docket No. 19-138, at 10-11 (filed June 2, 2021).

<sup>34</sup> Comments of UMTRI, ET Docket No. 19-138, at 2 (filed Jun. 2, 2021).

<sup>35</sup> Surface Transportation Investment Act of 2021, S. 1931, 117th Cong. §§ 175, 3006 (2021).

#### **IV. Commenters Establish that the Commission Should Identify Additional Spectrum for ITS Operations, with Limited Opposition**

Throughout this proceeding, transportation experts and stakeholders and radio communications experts and organizations have been extremely clear – 30 MHz is not sufficient spectrum to implement the full range of safety applications that are possible with V2X technologies. ITS America, USDOT,<sup>36</sup> NTSB,<sup>37</sup> SAE International,<sup>38</sup> Qualcomm,<sup>39</sup> 5GAA,<sup>40</sup> LG Electronics,<sup>41</sup> as well as a wide coalition of transportation safety stakeholders have repeatedly pointed to evidence demonstrating this fact, all relying on their transportation safety expertise, to advise the Commission against moving forward with limiting the spectrum available for these technologies. The record of the original NPRM was clear on this, when 85 percent of Commenters opposed the Commission’s proposed reallocation. And existing pilot deployments of V2X applications already show that there is a need for more than 30 MHz of spectrum.<sup>42</sup> The record of this *FNPRM* is just as conclusive – 23 Commenters argued that, if the Commission were to move forward with this reallocation against the guidance of USDOT and the transportation safety community, then it has a responsibility to find additional spectrum to enable advanced V2X safety applications. Such responsibility is grounded in the Commission’s mission to promote public safety – by undertaking a spectrum reallocation that so clearly limited the potential of a promising transportation technology, that mission to promote public safety was equally undermined – and Commenters agreed that the Commission should work with USDOT to determine ways to mitigate this harm by providing additional spectrum elsewhere.

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<sup>36</sup> See Letter from Secretary Elaine Chao, U.S. Department of Transportation, to Chairman Ajit Pai, FCC (Nov. 20, 2019). Available at: <https://www.highways.org/wp-content/uploads/2019/12/sec-chao-letter-5.9-11-20-19.pdf>.

<sup>37</sup> Comments of NTSB, ET Docket No. 19-138 (filed Mar. 4, 2020).

<sup>38</sup> Reply Comments of SAE International, ET Docket No. 19-138 (filed Apr. 27, 2020).

<sup>39</sup> Comments of Qualcomm, ET Docket No. 19-138, at 11-12 (filed Jun. 2, 2021).

<sup>40</sup> Comments of 5GAA, ET Docket No. 19-138, at 20-21 (filed June 2, 2021).

<sup>41</sup> Comments of LG Electronics, ET Docket No. 19-138, at 1 (filed Jun. 1, 2021).

<sup>42</sup> Comments of ITE, ET Docket No. 19-138, at 11 (filed Jun. 1, 2021).

Some of the most vocal proponents of attempts to identify additional spectrum for V2X communications were C-V2X advocates, Commenters who were pleased that the Commission was opening up the 5.9 GHz band for C-V2X devices but who spoke clearly about the need for additional spectrum to realize the full potential of the technology. 5GAA spoke about advanced C-V2X applications such as extended sensor sharing and trajectory/intent sharing that are coming out of the Release 16 specification for 5G NR; they argue that both will enable real-time exchange of data gathered through local sensors, allowing vehicles to “see” through other vehicles, around turns, and in bad weather and other limited visibility traffic scenarios, and to share trajectory data and information about future intent (i.e., lane changes, etc.) with other vehicles and road infrastructure.<sup>43</sup> They commented that this information can be used by automated driving applications to better coordinate movements,<sup>44</sup> ultimately enhancing the safety of automated vehicles. They also pointed to Release 17 specifications for 5G NR that would allow features that would extend C-V2X’s safety benefits to pedestrians, bicyclists, and other vulnerable road users. All of the above features, they argue, require an additional 40 MHz of contiguous, mid-band spectrum.<sup>45</sup>

These arguments track with those presented by transportation agencies, transportation stakeholders, and radio communications organizations in this FNPRM proceeding. ITS America argued that the full range of automated vehicle safety and vulnerable road user safety applications would be unable to fit within a 30 MHz spectrum environment, based on extensive analysis by our Future of V2X Working Group.<sup>46</sup> Continental reiterated their argument, which has remained unanswered by cable and Wi-Fi proponents for over a year now, that Collective Perception

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<sup>43</sup> Comments of 5GAA, ET Docket No. 19-138, at 20 (filed June 2, 2021).

<sup>44</sup> *Id.*, at 20-21.

<sup>45</sup> *Id.* at 20.

<sup>46</sup> See ITS America’s website at <https://itsa.org/s/connected-transportation/>.

Messages (“CPM”) safety-of-life applications and Maneuver Coordination Messages (“MCM”) safety-of-life applications each require between 20 MHz and 30 MHz of spectrum,<sup>47</sup> and therefore will not be deployed in the United States unless additional spectrum is allocated to ITS.

These findings are entirely consistent with the arguments made by 5GAA and the rest of the transportation safety community – nobody has provided a solution to how these message types are supposed to operate in the remaining 30 MHz, leaving without answer the question of how vulnerable road user safety can otherwise dramatically improve at a time when pedestrian traffic fatalities have increased by 51 percent from 2009 to 2019.<sup>48</sup> Supporters of reallocating mid-band spectrum for unlicensed device use tend to suggest that these safety benefits can be provided by technologies that do not need dedicated spectrum,<sup>49</sup> ignoring the numerous occasions where the National Highway Traffic Safety Administration (“NHTSA”) has demonstrated that V2X technologies enable applications that cannot be performed by non-connected automated vehicles, such as communicating with vehicles that are outside of line-of-sight, providing road hazard warnings from roadside infrastructure, and allowing automated vehicles to coordinate actions rather than making decisions individually.<sup>50</sup>

Further, providing additional spectrum for ITS would allow the United States to maintain its global leadership in intelligent transportation. Indeed, as Qualcomm noted, “Europe also is working to open a path for C-V2X deployments and looking to expand its spectrum allocation for ITS to 80 MHz. Moreover, the ITU-R spectrum recommendation for ITS at WRC-19 was 70 MHz, and other major countries have allocated amounts of spectrum similar to the 75 MHz the

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<sup>47</sup> Comments of Continental, ET Docket No. 19-138, at 2 (filed June 2, 2021).

<sup>48</sup> Comments of ITS America, ET Docket No. 19-138, at 17 (filed June 2, 2021).

<sup>49</sup> Comments of New America’s Open Technology Institute and Public Knowledge, ET Docket No. 19-138, at 28 (filed June 2, 2021).

<sup>50</sup> Vehicle-to-Vehicle Communications: Readiness for V2V Technology for Application, NHTSA, at 287 (Aug. 2014).

FCC had allocated in the 5.9 GHz band for V2X communications,” and “China is studying the additional bandwidth necessary for advanced C-V2X Direct.”<sup>51</sup>

The limited number of comments that oppose providing additional spectrum for V2X appear to do so based on their unsurprising belief that the best use of any mid-band spectrum is to designate it for unlicensed applications. NCTA said this explicitly, arguing that “mid-band spectrum is now in high demand for important unlicensed applications and for flexible-use licensed services.”<sup>52</sup> Interestingly, they go on to argue that “[t]he only possible justification for licensees to gain access to this extremely valuable spectrum without an auction, and without any obligation to share the spectrum broadly with non-C-V2X users, is to deliver safety-of-life services.”<sup>53</sup> That is precisely what ITS advocates are seeking additional spectrum for – advanced safety applications that can protect vulnerable road users and improve transportation safety in systems involving automated driving. Thus, it would appear that NCTA themselves are justifying the allocation of additional spectrum for these safety purposes.

Ultimately, the record is clear that additional spectrum for advanced V2X safety services is of paramount importance for V2X to reach its full safety potential. The majority of Commenters offered proposals similar to ITS America’s, which urged the Commission to collaborate with USDOT to identify low-latency, mid-band spectrum for V2X, as “this need for additional spectrum would not be at hand if the Commission had not prioritized cable-industry desires over those of transportation operators, entertainment products over safety products, and demand from the cable industry over the safety of travelers.”<sup>54</sup> ITS America continues to believe that identifying this additional spectrum is an obligation of the Commission’s in order to uphold

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<sup>51</sup> Comments of Qualcomm, ET Docket No. 19-138, at 10 (filed Jun. 2, 2021).

<sup>52</sup> Comments of NCTA, ET Docket No. 19-138, at 24 (filed June 2, 2021).

<sup>53</sup> *Id.*

<sup>54</sup> Comments of ITS America, ET Docket No. 19-138, at 22 (filed June 2, 2021).

their basic commitment to the Commission’s prioritization of safety consistent with the fundamental mandate of the Communications Act.

## **V. Spectrum Use Limitations**

In the *FNPRM*, the Commission sought comment on “whether [it] should limit use of the 5.895-5.925 GHz band to noncommercial services or safety-of-life applications,” asking if [it] should “modify [its] rules to prohibit commercial operations in this spectrum or otherwise limit services to safety-of-life applications.”<sup>55</sup> Several parties that commented on this issue opposed any such limitation as both inefficient and unrealistic.<sup>56</sup> A few Commenters, including Open Technology Institute at New America and Public Knowledge (“OTI/PK”), however, support a usage limitation. OTI/PK, for example, suggests that safety applications are not being appropriately prioritized in the 5.9 GHz band. In this respect, OTI/PK has simply ignored the existing provisions of the FCC’s Rules that in fact require prioritization to ensure that safety messages are never undermined by non-safety-of-life messages using the 5.9 GHz band.<sup>57</sup> The Commission itself spoke favorably of this prioritization in the *FNPRM*: “[b]ecause the stated purpose of the ITS is to promote safety, our inclination is that this message prioritization system should be retained as it helps to ensure that the most important messages are successfully transmitted.”<sup>58</sup> Here, the Commission grasps what OTI/PK does not – the priority of safety-of-life messages is embedded in the 5.9 GHz band regardless of the presence of non-safety-of-life messages. Additionally, numerous applications enhance the V2X ecosystem in ways that improve traffic efficiency, reduce congestion, and improve sustainability – many of which have secondary

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<sup>55</sup> *FNPRM*, 35 FCC Rcd at 13507, para. 168.

<sup>56</sup> See Comments of Auto Innovators, ET Docket No. 19-138, at 9 (filed June 2, 2021); Comments of ITE, ET Docket No. 19-138, at 10 (filed Jun. 1, 2021); Comments of MEMA, ET Docket No. 19-138, at 1 (filed Jun. 1, 2021).

<sup>57</sup> Comments of OTI/PK, ET Docket No. 19-138, at 26 (filed June 2, 2021).

<sup>58</sup> *FNPRM*, 35 FCC Rcd at 13503, para. 156.

safety benefits (like quicker movement through traffic for first responders or improved air quality for residents living closer to roads), but also improve the functionality of the entire traffic system.

ITS America further cautions that the imposition of any spectrum utilization limitation not only would be at odds with years of Commission precedent encouraging spectrum efficiency but would at best be impractical. The Commission itself asks how it would determine which applications are safety-of-life, which is an appropriate question to ask. This would not only require additional rulemakings to determine which applications can be included in the 5.9 GHz band, but would also involve the Commission in on-going micromanagement of transportation safety – an area in which it has no expertise. The Commission would be in the position of continuing to litigate issues in this spectrum for the indefinite future, further lengthening the regulatory uncertainty for V2X deployers. Traditionally, these questions have been decided by groups that construct standards for these technologies – namely, USDOT, SAE International, or the Institute of Electrical and Electronics Engineers (“IEEE”). These groups have appropriately balanced the primacy of safety-of-life applications and the possibility of commercial applications that could incentivize the speed of deployment of V2X on-board-units in private vehicle fleets. The limitations suggested by OTI/PK would materially deter investment and deployment of V2X, thereby limiting the number of vehicles utilizing V2X safety measures – a concern raised repeatedly by the Commission throughout this proceeding. This limitation would thereby harm public interest, and bring with it no clear benefit.

Finally, OTI/PK’s arguments misunderstand how spectrum bandwidth is allocated in V2X settings – it is not allocated by application type, but message type – banning non-safety-of-life applications that use spectrum that has already been allocated to that message type in V2X standards would do nothing to resolve the issues that have arisen based on the newly limited

spectrum environment imposed on V2X communications by the Commission. As explained above, the additional spectrum needed for V2X services is for specific message types that interact with vulnerable road users or utilize collective perception or maneuver coordination – neither of which are commercially-focused. Thus, a usage limitation on the V2X spectrum would neither improve safety nor hasten the deployment of safety applications in the 30 MHz remaining for V2X and would lengthen the already considerable regulatory uncertainty that this proceeding has created.

## VI. CONCLUSION

ITS America encourages the adoption of Rules in response to the *FNPRM* consistent with its views expressed herein.

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