FCC Proposal on the Use of the 5.9 GHz Band

COMMENT SYNOPSIS

INTRODUCTION

In February, the Federal Communications Commission (FCC) published a proposed rule to reallocate 45 MHz of the 5.9 GHz band for unlicensed devices. The proposal would significantly reduce the spectrum available for vehicle-to-everything (V2X) technologies, which have the potential to significantly reduce traffic crashes, fatalities, and injuries; congestion; and environmental impacts. The comments submitted by the March 9 deadline show that the FCC’s proposal is misguided and warrants reconsideration. Of the more than 200 comments, roughly 150 were from organizations focused on the discussion of V2X technologies and unlicensed device issues. Of those comments, the vast majority – more than 85 percent – opposed the FCC’s proposal and supported preserving the entire band for V2X technologies.

Comments opposing the FCC’s proposal came from organizations and stakeholders across the transportation and telecommunications industries and included: state departments of transportation (DOTs), automakers, suppliers, infrastructure providers, equipment manufacturers and developers, telecommunications carriers, and other public and private stakeholders. These comments uniformly expressed the view that the FCC proposal will harm transportation safety and does not consider the vast positive economic impacts of V2X technologies.

Below, please find a list of organizations that commented on the FCC proposal and select comment excerpts.

ORGANIZATIONS COMMENTING

Oppose the FCC Proposal

- U.S. Department of Transportation (USDOT)
- Intelligent Transportation Society of America (ITS America)
- 5G Americas
- 5G Automotive Association
- Alliance for Automotive Innovation
- Amateur Radio Emergency Data Network
- American Association of State Highway and Transportation Officials (AASHTO)
- American Automobile Association (AAA)
- American Highway Users Alliance
- American Honda Motor Co.
- American Public Transportation Association (APTA)
- American Public Works Association (APWA)
- American Road & Transportation Builders Association (ARTBA)
- American Society of Civil Engineers (ASCE)
- American Traffic Safety Services Association (ATSSA)
- American Trucking Associations (ATA)
- Arkansas Department of Transportation
- Association for Unmanned Vehicle Systems International (AUVSI)
- Association of Metropolitan Planning Organizations (AMPO)
- AT&T
- Automotive Safety Council
- Autotalks
- Baltimore Metropolitan Council
- BMW Group
- Caltrans
- CAR 2 CAR Communication Consortium
- Center for Auto Safety
- Central Ohio Transit Authority (COTA)
- Chairman Dan Howell, Transportation Committee, Tennessee House of Representatives
- Cisco Systems, Inc.
- City of Columbus, Ohio
- City of Fremont, California
- City of Frisco, Texas
- City of Arlington, Texas
- City of New York
- Colorado Department of Transportation
- Commercial Vehicle Safety Alliance
- Commercial Vehicle Training Association
- Commsignia
- Connecticut Department of Transportation
- Consumer Reports
- Continental Automotive Systems
- Contra Costa Transportation Authority
- Denso International America, Inc.
- DSRC Auto Safety Coalition
- European Automobile Manufacturers’ Association and the European Association of Automotive Suppliers
- Faller, Davis and Associates, Inc.
- Families for Safe Streets
- Fiat Chrysler Automobiles
- Ford Motor Company
- General Motors
· Georgia Department of Transportation
· Georgia Officials, led by Lt. Governor Geoff Duncan
· German Association of the Automotive Industry
· Government Wireless Technology & Communications Association Maryland Department of Transportation
· Governor Bill Lee, Tennessee
· Gwinnet County Department of Transportation
· HARMAN International
· Hawaii Bicycling League
· Hyundai Motor Company and Kia Motors Corporation
· Idaho Transportation Department
· IEEE 1609 Working Group
· IEEE 802 LAN/MAN Standards Committee
· Institute of Transportation Engineers (ITE)
· Intelligent Transportation Society of Michigan
· International Association of Fire Fighters
· International Bridge, Tunnel and Turnpike Association
· Jaguar Land Rover Limited
· Kentucky Transportation Cabinet
· LG Electronics
· League of American Bicyclists (signed by 23 bicyclist organizations)
· Macomb County Department of Roads
· Maricopa County Department of Transportation
· Michigan Department of Transportation
· Mineta Transportation Institute
· Minnesota Department of Transportation
· Mobility21 National University Transportation Center, Carnegie Mellon University
· Montana Department of Transportation
· Motor & Equipment Manufacturers Association
· NAFA Fleet Management Association
· National Association of City Transportation Officials (NACTO)
· National Electrical Manufacturers Association (NEMA)
· National Public Safety Telecommunications Council
· National Safety Council
· National School Transportation Association
· National Sheriffs' Association
· National Transportation Safety Board
· Nissan North America
· North Central Texas Council of Governments
· North Dakota Department of Transportation
· NXP Semiconductors
• Oregon Association of County Engineers and Surveyors
• Oregon Department of Transportation
• Omniair Consortium
• Orange County Transportation Authority
• Panasonic Corporation of North America
• Parkofon Inc.
• Pennsylvania Department of Transportation
• Qualcomm Incorporated
• Rep. Jim Cooper
• Robert Bosch LLC
• RS&H, Inc
• SAE International
• Safety Research Using Simulation University Transportation Center
• San Diego Association of Governments
• Securing America’s Future Energy
• South Dakota Department of Transportation
• T-Mobile
• Tampa Hillsborough County Expressway Authority
• Temple, Inc.
• Tennessee Department of Transportation
• TennSmart
• Texas A&M Transportation Institute
• Texas Department of Transportation
• Toyota Motor North America
• TransPort
• Transportation for America
• Truck and Engine Manufacturers Association
• U-blox America
• University of South Florida Center for Urban Transportation Research
• University of Minnesota Department of Mechanical Engineering
• United Parcel Service (UPS)
• US Technical Advisory Group (US TAG) to the International Organization for Standardization
  Technical Committee 204, Intelligent Transport Systems (ISO/TC 204)
• Utah Department of Transportation
• Virginia Tech Transportation Institute
• Vision Zero Network
• Volkswagen Group of America
• Volvo Car Corporation
• Volvo Group North America
• Walker Parking Consultants/Engineers, Inc.
• Washington State Department of Transportation
Support the FCC Proposal

- Broadcom and Facebook
- Center for Growth and Opportunity
- Citizens Against Government Waste
- Consumer Action for a Strong Economy, Inc.
- Comcast Corporation
- Competitive Enterprise Institute
- Dynamic Spectrum Alliance
- Free State Foundation
- Institute for Policy Innovation
- Joe Kane and Will Rinehart with The Center for Growth and Opportunity at Utah State University
- Microsoft Corporation
- NCTA – The Internet and Television Association
- New America Open Technology Institute
- R Street Institute
- Taxpayers Protection Alliance
- TechFreedom
- Wi-Fi Alliance
- Wireless Internet Service Providers Association

COMMENT EXCERPTS

**U.S. Department of Transportation:** “The preservation of the entire 5.9 GHz band for V2X communications offers the Nation an advantage for maintaining and extending leadership in the deployment of innovative V2X applications, including those related to automation. However, these safety innovations and improvements may be lost should the Commission proceed with its proposed reallocation of the 5.9 GHz band.”

**Intelligent Transportation Society of America:** “The proposed allocation reduces the spectrum available for transportation safety technologies from 75 MHz to 30 MHz, limiting the deployment of transportation safety applications and restricting the future development and deployment of more advanced safety applications. The FCC’s proposed reallocation of 45 MHz of spectrum would not only limit the spectrum available for safety applications, it may also render the remaining 30 MHz of spectrum unusable for transportation safety communications.”

**5G Automotive Association:** “The NPRM’s proposal to reallocate the bottom of the 5.9 GHz band for unlicensed use presents a serious threat of harmful interference to C-V2X Direct operations in the upper 30 MHz (i.e., the 5.895-5.925 GHz sub-band). 5GAA has documented on numerous occasions the critical
importance of protecting C-V2X Direct communications from harmful interference caused by unlicensed operations in adjacent bands.”

Alliance for Automotive Innovation: “The Commission’s band plan proposal in the NPRM neglects to consider several important factors. First, testing shows that the Commission’s proposal to reallocate the lower 45 MHz of the 5.9 GHz band for unlicensed uses would create pervasive harmful interference to V2X communications, which must operate in a reliable and secure environment to support constant communications between vehicles and infrastructure. The potential for harmful interference from unlicensed operations to V2X is so great that the Commission’s proposed band plan essentially eliminates the ability of V2X to utilize the band. Second, while ample other spectrum is available for unlicensed use, it is not feasible to reallocate V2X to spectrum outside of the 5.9 GHz band. Third, the FCC lacks authority to adopt and implement the proposed band plan. Fundamentally changing the incumbents’ 5.9 GHz licenses as the NPRM proposes would violate Sections 316 and 312 of the Communications Act. For these reasons, the full 75 MHz of the 5.9 GHz band must be retained for V2X.”

American Association of State Transportation Officials (AASHTO): “The FCC should continue to allocate the entire 5.850-5.925 GHz band for ITS purposes in order to further enable the deployment of connected and automated vehicles that will ultimately save lives and improve mobility. A decade of effort will need to be evaluated and possibly repeated as state DOTs and the private sector come to grips with channel realignment, new standards development, retooled device development, and relaunched proof of concept projects.”

American Automobile Association (AAA): “The highest and best use for our nation’s spectrum is saving lives, and AAA believes that the 5.9 GHz Band should remain a public asset dedicated to ensuring transportation throughout our country is as safe as possible.... AAA supports preserving the 5.9 GHz band for transportation safety applications only. As the FCC contemplates its proposal that would open the band for other uses, we request that it refrain from finalizing any actions until testing is completed and results clearly indicate that sharing with unlicensed devices can occur without harmful interference to the incumbent DSRC-based technologies, emerging CV2X applications, and other technologies as they are developed and deployed. The life-saving benefits of these technologies are too great in value to be potentially lost or delayed, and the FCC should encourage a technology-neutral approach to their development and deployment that places safety above all else.”

American Public Transportation Association (APTA): “APTA, including its Connected and Automated Vehicles Committee, is strongly opposed to the FCC’s proposal. This spectrum is essential for the current and future deployment of safety critical communications systems in all types of vehicles, including those serving the needs of public transportation. Public transportation providers are exploring the use of connected (CV) and automated vehicle (AV) technology for mainline operations. In fact, we are on the cusp of wider deployment of CV technology in the transit industry and at the state and local levels. And, upwards of 70 AV transit shuttles are opening the door for many more applications of this technology in the transit industry. It currently takes close to 15 years or more to bring new technologies to the market. It is crucial that the full 5.9 GHz spectrum remains available for the enhanced safety, capabilities, and accuracy that these new technologies will provide. APTA urges the FCC to withdraw the proposed rule and ensure that the 5.9 GHz band stays dedicated to transportation safety. To do otherwise would not only put our passengers at risk but
would also stem any progress made to deploy lifesaving transportation safety technology in our public transportation vehicles.”

**American Society of Civil Engineers (ASCE):** “In short, preserving the 5.9 GHz band of spectrum is critical to provide a dedicated platform for highspeed, secure, reliable and interoperable communication between vehicles, infrastructure, and road users. As the FCC examines the merits of allowing unlicensed devices to operate in the lower 45- megahertz portion of the band at 5.850-5.895 GHz, ASCE joins traffic safety agencies and many other associations to support preserving the entire 5.9 GHz band for interoperable V2X communication to save lives and support future research.”

**AT&T:** “[R]eallocating the lower 45 MHz of the 5.9 GHz band for exclusively unlicensed Wi-Fi use would deliver only incremental public benefits and have a minimal impact on investment in the unlicensed device ecosystem. 45 MHz would represent a small sliver of the large unlicensed spectrum pie available to developers, but that 45 MHz controls the fate of ITS development in the 5.9 GHz band. Finding equivalent spectrum in another band for V2V and V2I direct communications is unlikely in light of the intense competition for bandwidth. And, while some sensor functions initially contemplated for the 5.9 GHz band are now provided over other spectrum, those functions complement, not displace, V2V/V2I communications in the band. The full 75 MHz is needed for ITS, even if it eventually shares parts of the band with unlicensed devices subject to strict operating restrictions.”

**Automotive Safety Council:** “The Automotive Safety Council can not state strongly enough its disapproval of the proposed carving up of the 5.9 GHz frequency that would allow non-automotive safety use of portions of the frequency. Initial tests have shown that if this proposal is adopted, the leakage between bands at varying application distances will create a serious issue for the automotive safety use and capability. This proposal would eliminate the deployment and benefits of the V2V, V2I and V2X automotive communications. While it has been a long time coming, the industry is now poised to begin to utilize these dedicated frequencies that have been preserved and counted on by the automotive industry all these years. The technology has been developed to the point where it is now possible to standardize and move forward with these safety communications on these dedicated frequencies for enormous benefits to the public. Do not destroy this life saving benefit by carving up this frequency. If enacted, there will not be a way forward.”

**Autotalks:** “V2X requires the full 70MHz band to maximize safety, for addressing V2X upcoming use-cases, in particular cooperative perception and pedestrian protection.”

**Caltrans:** “Building a system of connected vehicles and infrastructure that can communicate with all road users is critical to California’s plan to create a safer transportation network for its citizens - and use of the full 75MHz of spectrum in the 5.9GHz band for vehicle communications is key to making that work.

**Central Ohio Transit Authority (COTA):** “The FCC has advanced this proposal despite providing no analysis or evidence to show that the proposed allocation would allow for the successful operation of V2X technologies in the remaining 30 MHz and without completing research to determine whether the lower 45 MHz of spectrum could be shared between V2X technologies and unlicensed devices. The Commission cannot render a reasoned decision on its proposal in the absence of such record support.”

**Cisco Systems, Inc.:** “To be clear, the Commission is not the transportation regulator. It is the regulator for how spectrum is allocated and used. Since the Commission is now on its own initiative changing the status
quo with respect to a core input to the transportation network, it must explain how the input it is responsible for – spectrum – will, in the changed environment it is proposing by repurposing the ITS band, support a safer transportation system and a more efficient one."

**City of New York:** “Nearly 40,000 people die on United States roads each year. The City’s Vision Zero program, of which connected vehicle technology is promising to become a major component, offers data driven solutions to this problem. Through speed management, improved enforcement, better roadway design, safety education, and interagency collaboration, City agencies have been able to reduce road traffic deaths by over 25 percent in 5 years while road traffic deaths have risen across the United States. However, improved vehicle design and technologies are needed to help the City reduce road traffic deaths to zero. Connected vehicles need to be part of that strategy and any delays caused by the NPRM’s proposed 5.9 GHz reallocation, the FCC’s application freeze, and the uncertainties involved in deployment of unproven technologies, threaten to undermine traffic safety at a time when it is desperately needed.”

**Commercial Vehicle Safety Alliance:** “Expert analysis has determined that the reduction in spectrum available for V2X suggested by the FCC does not leave enough spectrum for V2X technologies and would likely cause significant interference with V2X technologies operating in the remaining 30 MHz of spectrum. Analysis by the U.S. Department of Transportation (U.S. DOT) determines that such an increase in signal interference could render the remaining 30 MHz useless for V2X collision-avoidance applications. In addition to the threat of interference, V2X applications designed to use 75 MHz of spectrum cannot be compressed to operate in only 30 MHz.”

**Consumer Reports:** “By carving up this spectrum band, the NPRM implies that we can have our cake and eat it, too, but does not provide clear and convincing data indicating that its proposal will protect the ability to use V2X technology to save lives. The Commission asks many critical and appropriate questions in its proposed rulemaking that require sober answers based upon evidence. And time will be required to assess what is possible and not possible with this 75 MHz of valuable spectrum. Expanding consumer access to the internet through access to affordable WiFi is important, but that goal must come after auto safety needs are appropriately addressed. Specifically, the proposal does not answer the most critical question—will the significant reduction of spectrum assigned to ITS be enough to deliver the life-saving technologies this band was reserved for in 1999? Indeed, the NPRM begins with a general call for comment on its overall 45/30 megahertz split. We are skeptical and urge the Commission to assure us, consumers, and other auto safety stakeholders that its proposal will not severely limit the transportation safety benefits of V2X communications if enshrined as a rule.”

**Contra Costa Transportation Authority:** “Due to the potential of the V2I, V2V, and V2X technologies to reduce traffic crashes and save lives, CCTA strongly supports that the full 75 MHz of the 5.9GHz band be preserved for the transportation industry. This decision will delay our projects and programs. In fact, it’s possible that the entire CV and CAV programs could be delayed by 4 to 5 years.”

**Families for Safe Streets:** “As survivors and parents, children, spouses, and friends of those killed or severely injured in pedestrian crashes, Families for Safe Streets members are part of a growing national movement to eradicate this country’s epidemic levels of fatalities and severe injuries due to traffic crashes. In partnership with Walk San Francisco, the San Francisco Bay Area Families for Safe Streets chapter works to reduce the danger to pedestrians, bicyclists and operators of motor vehicles of all kinds on San Francisco’s streets....
WalkSF and Families for Safe Streets join the broad range of stakeholders who are opposed to this rule change, including local and state government agencies, industry, and safety experts. The FCC should withdraw its proposal, stop delaying the issuance of DSRC licenses and end market uncertainty, in favor of safety consideration. Instead, the federal government should encourage the rapid adoption of these technologies in new vehicles sold.

**Ford Motor Company:** “Given the potential safety and orchestration benefits that C-V2X can bring to our transportation eco-system, we believe current and future applications will require sufficient spectrum protected for ITS use. It is for these reasons that we believe the FCC should maintain all 75 MHz of the 5.9 GHz spectrum for ITS applications.”

**General Motors:** “[t]he Commission should abandon its proposal, which would decimate the current 75-megahertz allocation reserved for Intelligent Transportation Systems (“ITS”) usage, and preserve the entire 75 megahertz for V2X and transportation safety…. The plan would render the band, in effect, unusable for either DSRC or C-V2X communication protocols. As a result, several potential lifesaving V2X applications will be lost. This allocation is plainly inadequate…. Seemingly driven primarily by the cable industry, the NPRM is premised on a premature and sweeping conclusion: That a subset of the current allocation (30 megahertz) is adequate for all transportation’s needs and that an incremental expansion of unlicensed usage is in the best interest the country.”

**Hyundai Motor Company and Kia Motors Corporation:** “Research has shown that at least 47 MHz of spectrum is needed to provide safety critical communications to vehicle and roadway travelers including pedestrians, cyclists and other vulnerable road users in typical urban scenarios, and 77 MHz is needed in more challenging urban scenarios. In densely congested areas, decreased spectrum could exacerbate the likelihood that priority BSMs would be delayed or suppressed by other uses in the band. Although all future use-cases and V2X applications are unknown, it is undeniable that the advancement of services and evolution of technology will require bandwidth beyond 30 Mhz. Under either scenario proposed by the NPRM, whether designating one 20 MHz channel, or a combined total of 30 MHz for V2X technologies, it is implausible that all V2V and vehicle-to-infrastructure (V2I) safety applications, as well as other V2I mobility applications and public safety communications, can be accommodated in the 5.9 GHz band.”

**Institute of Transportation Engineers:** “ITE believes that giving away spectrum that has been set aside for life-saving communications is unwise. Any changes to the allocation today would have the effect of hitting the “reset” button and erasing a decade or more of valuable lessons learned - and significantly setting-back nationwide deployment of life-saving technology. A strong government role will be critical to ensure that the deployment of CAV improves the quality of life for all citizens. But the federal government’s role should be to support nationwide deployment of interoperable systems, and not put up barriers to this outcome.”

**Intelligent Transportation Society of Michigan:** “Transportation and safety advocates that make up the ITS Michigan organization believe V2X technology using the entire allocated 5.850-5.925 GHz Band (The Safety Band) is the next revolution in transportation and vehicle safety, having similar impacts on safety to integral vehicle technologies such as seat belts, air bags, and electronic stability control. The benefits of the technology enabled by the full spectrum Safety Band rapidly increase with high scale deployment of vehicle to everything (V2X) technologies and are critical to reducing highway fatalities and saving lives.”
**League of America Bicyclists:** “Bicyclist and pedestrian fatalities are on the rise, both in real numbers and as a percentage of overall fatalities. Currently one in every five roadway fatalities are a bicyclist or pedestrian. We are twenty percent of fatalities even though we make up twelve percent of transportation trips. Despite vulnerable user safety being identified as a priority by Congress, state Departments of Transportation, and the U.S. Department of Transportation, we have not been able to turn the tide. We believe that a safe systems approach is one that is “designed to anticipate and accommodate errors by drivers and other road users” and “designed to reduce or eliminate opportunities for crashes resulting in forces beyond human endurance.” Vehicle-to-everything (V2X) technology can be an incredible tool as part of a safe systems approach.” Expert analysis has determined that the reduction in spectrum available for V2X suggested by the FCC does not leave enough spectrum for V2X technologies and would likely cause significant interference with V2X technologies operating in the remaining 30 MHz of spectrum. Analysis by the United States Department of Transportation (USDOT) determines that such an increase in signal interference could render the remaining 30 MHz useless for V2X collision-avoidance applications. We oppose any action that would place commercial interests above safety on our roadways. The FCC’s proposed rule would permit unlicensed devices to operate in the lower 45 megahertz (MHz) portion of the band at 5.9 GHz, which is likely to undermine safety.”

**Michigan Department of Transportation:** “Protecting the entire 5.9GHz spectrum is critically important for the economic interests of Michigan’s automotive sector, especially its existing research and development of connected and automated vehicle technologies and services.”

**Minnesota Department of Transportation:** “MnDOT believes that the safety potential of this communication band is real and that the negative fiscal and emotional consequences to the citizens of our state far outweigh the economic drivers stated as a basis for this rulemaking.”

**National Association of City Transportation Officials (NACTO):** “V2X technologies are deployed in over 25 states and dozens of cities. Connected vehicle technologies offer the U.S. a powerful set of tools to save lives, but this potential can only be realized if these technologies are given the certainty of the 5.9 GHZ Safety Spectrum. NACTO supports maintaining the current 75 MHz allocation for transportation communications in order to preserve the promise and functionality of V2X technologies. We oppose any action to reallocate spectrum away from transportation communications without clear evidence that such an action will not negatively impact present and future V2X capabilities. We encourage the FCC to continue to identify safety as an important priority for spectrum policy, as they did when they first preserved this spectrum for vehicle communications. The FCC should not take any action that would risk jeopardizing a tool proven to mitigate fatalities on our roads.”

**National School Transportation Association:** “NSTA, and the contractor members the Association is comprised of, remain committed to the safe transportation of students. Our members pride themselves on leading the industry in providing the safest mode of transportation to students as they travel to-and-from school and school-related activities. Many of our members deploy the latest technology in their fleets, as part of their committed approach to ensuring the students they drive are in the safest form of transportation available. In addition, part of the school transportation industry’s success is due in part to the dedicated spectrum for high-speed safety communications – the 5.9 GHz safety band. Most newly manufactured school buses employ collision mitigation, emergency braking, and stability control technologies, and those systems
depend on the 75 MHz available to receive uninterrupted crash avoidance signals. As such, we encourage FCC to reconsider their proposal to reduce the safety band by 45 MHz to unlicensed devices. For V2X communications to work safely and effectively, the messages must travel fast and without interference. Delays in a school bus receiving a crash-avoidance message due to signal interference can mean the difference between a catastrophic crash, and a narrow miss. NSTA staunchly supports maintaining the current 75 MHz currently allocated to transportation communications in the 5.9 GHz safety band. Our members, and the children they transport, will continue to rely upon this dedicated band, and look forward to further enhancements. We also urge that the FCC resist in taking further action on the proposal to reallocate spectrum away from transportation communications.”

National Safety Council: “Today, we have millions of drivers behind the wheel, spend millions of dollars on education and enforcement campaigns and lose millions of hours sitting in traffic. NHTSA states that 36,750 people died in 2018 due to motor vehicle crashes – operating a motor vehicle remains one of the deadliest things we do on a daily basis in spite of much-improved, safer vehicle designs and record-setting seat belt use rates across the nation. The FCC should be part of the solution to saving lives. NSC urges the FCC to reject this proposed change to the 5.9GHz band.”

National Sheriffs’ Association: “With increased and improved technology, law enforcement will be increasingly dependent on the ability to communicate over frequencies in the 5.9 GHz band with an ever-growing number of devices in order to operate safely in an environment with other vehicles. With the existing system of a completely dedicated band, there will be significant enhancements in road safety to decrease vehicle collisions, vehicle-pedestrian crashes, and save lives – lives of our citizens and lives of first responders. As proposed, the band split would happen without any testing that safety systems would not be impacted by interference. We also understand that ongoing development of safety systems that are yielding promising innovations would likely be interrupted. We would encourage the federal government to not move to a new approach without giving consideration to issues that could and probably will delay or eliminate implementation of safety enhancements. Law enforcement works as a partner with the FCC for public safety and we ask that the FCC preserve the 5.9 GHz band for transportation safety to provide space for new technologies to be deployed so that the roadways of tomorrow are as safe as possible and lives are saved.”

National Transportation Safety Board: “Testing by the DOT shows that the FCC-proposed bandwidth of 30 MHz for transportation safety applications would make V2X applications functionally infeasible. Decades of research showing the benefits of CV technology, particularly as a complement to vehicle-based sensors, would not be implemented, which could further delay the development of automated vehicle technologies. Although the industry has been slow in adopting CV technology and has not reached a consensus regarding the type of communication technology that should be used (DSRC or cellular), by reducing the available radio spectrum for safety transportation applications to unusable levels, the FCC would hinder future adoption of CV technology for all vehicles. The NTSB urges the FCC not to allow sharing of the 75-MHz band with unlicensed Wi-Fi devices. Such action would be detrimental to safety and dramatically set back advancements in transportation safety, including automated vehicle technologies.”

Panasonic: “Panasonic emphasizes that retaining the full 75 MHz allocation for the 5.9 GHz “safety band” is crucial for realizing the enormous safety and public interest benefits V2X technologies provide. Rather than
the cursory study upon which the NPRM relies, Panasonic urges the FCC to undergo a more rigorous analysis that considers the billions of dollars in economic impact provided by lifesaving V2X technologies, for which there are no currently viable substitutes. Finally, the Commission should defer to the Department of Transportation’s expertise on connected vehicle issues.”

**Qualcomm Incorporated:** “The Commission should not adopt the NPRM’s proposal to authorize unlicensed use of the lower 45 MHz portion of the 5.9 GHz band because the agency is expected to soon open a massive amount of spectrum — a whopping 1200 MHz of spectrum — for unlicensed use in the 6 GHz band, just above the 45 MHz portion of spectrum in the 5.9 GHz band at issue in this proceeding. The 6 GHz band offers more than 25 times the amount of unlicensed spectrum identified in the 5.9 GHz band proceeding for potential unlicensed use. In contrast to the enormous amount of unlicensed spectrum to be opened just above the 5.9 GHz band, there is no other spectrum band allocated for V2V and V2I direct communications in the FCC’s rules. As a wireless company that develops chipsets and technologies that operate in unlicensed spectrum as well as chipsets that support C-V2X capabilities, Qualcomm believes reallocating any portion of the 5.9 GHz band for unlicensed use would be terribly shortsighted and unnecessary.”

**Securing America’s Future Energy (SAFE):** “[I]t is imperative that the FCC fully consider and discuss how this decision would contribute to the loss of American lives, personal injuries and reductions to quality of life, lost opportunities for innovation, stranded investments, increased energy consumption, and many other factors.”

**Society of Automotive Engineers V2X Core Technical Committee and Infrastructure Applications Technical Committee:** “V2X technologies require the full amount of their currently allocated spectrum to reach their potential in optimizing vehicle safety, and the Commission’s conclusion to the contrary is counter to the evidence. For V2X technology, insufficient spectrum capacity will result in loss of human life that otherwise could have been prevented, while in the case of Wi-Fi, the effect of less spectrum is slower file downloads.”

**T-Mobile:** “The Commission proposes to allocate the lower 45 megahertz of the 5.9 GHz band for unlicensed operations. T-Mobile continues to be a significant supporter and user of unlicensed spectrum. For instance, T-Mobile uses unlicensed spectrum for network offload and was one of the first carriers to offer customers cutting-edge technologies like next-generation Wi-Fi calling and to provide seamless integration of Wi-Fi with its wide-area network. The Commission, however, need not, and should not, reserve any portion of the 5.9 GHz band for unlicensed use. But the Commission should re-evaluate its proposals based on the amount of unlicensed spectrum that the Commission has already made available, or proposed to make available, for unlicensed devices. For example, the Commission has proposed to make 1200 megahertz of spectrum in the 6 GHz band available for unlicensed use. As CTIA and others have demonstrated, the U.S. is an outlier in making substantially more spectrum available on an unlicensed and shared basis than other countries. Indeed, in addition to the 5.9 GHz and 6 GHz bands, the U.S. has made available, or plans to make available, spectrum in the 3.55-3.7 GHz, 37-37.6 GHz, 57-64 GHz, and 64-71 GHz bands on an unlicensed or shared basis. In contrast, the Commission has a unique opportunity to more fully support the increased demand for vehicular communications.”
Texas A&M Transportation Institute: “The 5.9 GHz Safety Band is the technology currently in place for the implementation of V2X technologies. This must be safeguarded so that the university research community can continue to educate students through research. In this way we can prepare the workforce of the future for the advent of these lifesaving technologies. We cannot afford to lose a generation of students while we wait for the next V2X technology to mature.”

Texas Department of Transportation: “By not reserving the full 75 MHz of the Safety Band for transportation applications such as these, the FCC is endangering opportunities to save lives, reduce congestion and may be jeopardizing the deployment of autonomous vehicles, UAS and other novel technologies. All of this is in opposition to TxDOT’s agency goals and prompts us to offer our strong support to preserving the full spectrum as is - and maybe even request more in the future.”

Toyota Motor North America: “Stakeholders who are genuinely committed to improving transportation safety and reducing traffic crashes are united in believing that the entire 75 MHz of spectrum should be preserved for ITS.”

Truck and Engine Manufacturers Association: “We support maintaining the current 75 MHz allocation of the 5.9 GHz spectrum for transportation communications in order to preserve the promise and functionality of V2X technologies. We oppose any action to reallocate spectrum away from transportation communications without clear evidence that such an action will not negatively impact present and future V2X capabilities. The FCC should not take any action that would risk jeopardizing the development and deployment of V2X technologies in the full 5.9 GHz band…. V2X communications utilizing the 5.9 GHz band can significantly enhance the performance of Advanced Driver Assistance Systems by allowing those safety technologies to be aware of the location and trajectory of other vehicles that are beyond the line of sight.” OR “We oppose any action to reallocate spectrum away from transportation communications without clear evidence that such an action will not negatively impact present and future V2X capabilities. The FCC should not take any action that would risk jeopardizing the development and deployment of V2X technologies in the full 5.9 GHz band.”

United Parcel Service: “The central premise of the Commission’s proposal seems to be that ITS services in the 5.9 GHz band have been supplanted by other safety technologies that operate outside the 5.9 GHz band. UPS and the transportation industry, however, disagree with this assertion. While auto safety technologies in general have helped stem the loss of life, ITS technologies have the potential to do so much more. The National Highway Traffic Safety Administration estimated that the severity of up to 80% of non-impaired crashes could be eliminated or mitigated by safety applications enabled by DSRC and other ITS technologies. Achievement of this potential requires maintenance of the 5.9 GHz band for ITS uses.”

Utah Department of Transportation: “UDOT is demonstrating that connected vehicle technology offers real solutions to serious problems, and is committed to making use of this technology. To deploy at scale, the full 75-MHz spectrum is needed to meet our goals, especially if part of the spectrum is to be used by new technologies, like C-V2X.”

Volkswagen Group of America: “The technology has matured enough now to unlock a steady stream of use cases and deployments that will provide clues for the vast investments dedicated to the future of mobility. But it is abundantly clear that the cornerstone to it all is the availability of 75 MHz of contiguous
spectrum in the sub-7 GHz range, reserved for automotive purposes, and protected from harmful interference caused by unlicensed operations. This is why we have both hope and trepidation about the proposed rulemaking that threatens to disrupt traffic safety channels permanently, and put the United States out of alignment with spectrum policies taking form in other parts of the world.”

**Volvo:** “Volvo Cars believes the NPRM ignores the tremendous safety benefits of V2X services and that allocating only 30 MHz of spectrum for V2X technologies is wholly insufficient to improve motor vehicle safety in the US.”

**Washington State Department of Transportation:** “WSDOT requests the FCC to continue to allocate the entire 5.850-5.925 GHz band for ITS purposes in order to further enable the deployment of connected and automated vehicles that will ultimately save lives and improve mobility. Introducing other uses of the 5.9 Ghz spectrum would compromise WSDOT’s ability to effectively operate the State’s transportation system.”

**Wyoming Department of Transportation (with Idaho, Montana, North Dakota, and South Dakota Departments of Transportation):** “It is rare that the CEOs of all state departments of transportation join in a single letter, but concern that this proposed rule would be issued resulted in such a letter being sent to the FCC on August 19, 2019. The states emphasized the importance of preserving the full 75 MHz for safety purposes as well as that hundreds of millions of dollars already had been invested in technology in reliance on the current rules. In short, the proposal would reduce spectrum available to enhance transportation safety. Less spectrum means less safety and would be accompanied by significant negative economic consequences.”

**WSP USA:** “This isn’t a consumer convenience product; this is a lifesaving system. Years of thorough product development and testing is a necessity before these products can hit the market. The FCC unfairly compares the development cycle of in-home Wi-Fi devices in its determination that DSRC is “stuck in neutral.” … The US DOT has conducted extensive research in cooperation with the automotive industry to ensure safety applications will work 100% of the time, not 95% or even 98%. When lives are at stake, careful deliberation is a must. If your in-home Wi-Fi device encounters interference or congestion, you can reboot it and all you’ve lost is a few minutes of streaming your favorite movie. If your V2X device encounters interference or congestion, a crash could occur and lives could be lost.”