

Notice of Inquiry

Radio Spectrum Requirements of Commercial Agriculture, Forestry,  
Mining, and Rural Manufacturing

2019-04540

**COMMENTS  
OF THE  
ENTERPRISE WIRELESS ALLIANCE**

The Enterprise Wireless Alliance (“EWA” or “Alliance”) is pleased to submit its comments in response to the above-referenced Notice of Inquiry (“NOI”) issued by the Farm Service Agency, an agency of the United States Department of Agriculture (“USDA”). The NOI seeks input on current and anticipated non-Federal spectrum needs of entities engaged in agriculture, forestry, mining, and rural manufacturing. More specifically, it requests comments about the advanced technologies and applications that will enable farmers, ranchers, foresters, and others to operate with increased efficiency and thereby produce agricultural products to meet growing worldwide demand. The NOI notes, in particular, that wired and wireless broadband service has become essential to enterprises operating in rural areas whose need for access to high-speed connectivity is no less compelling than that of their urban counterparts, a conclusion with which the Alliance emphatically agrees.

**I INTRODUCTION**

EWA is a national trade association representing business enterprises, wireless sales and service providers, hardware and software system vendors, and technology manufacturers. Its members include a broad variety of entities engaged in agricultural, manufacturing, and other business activities in rural sections of the country. As a frequency advisory committee (“FAC”) certified by the Federal Communications Commission (“FCC”) to recommend spectrum ranging from low-band to 900 MHz for use by these entities in private, internal wireless systems, and

through its representation of the equipment vendors that serve this business community, the Alliance is well-versed in their spectrum needs. It welcomes any support USDA can provide in ensuring that spectrum will be available to address these requirements.

## **II COMMENTS**

The relationship between private enterprise wireless requirements in rural areas and spectrum availability in those areas is shifting. Historically, businesses engaged in activities such as farming, ranching, mining, and manufacturing in rural communities conducted mobile and fixed operations in support of those businesses on narrowband channels that were licensed by the FCC on a first-come, first-served basis. Because the demand for such channels in any particular rural area had been relatively limited, the supply generally had been adequate.

These systems typically operate in the VHF and UHF bands because of their favorable propagation and penetration characteristics. In recent years, many businesses have upgraded from analog to digital equipment. Doing so increases the number of communications paths available on the same amount of spectrum, thereby enhancing spectrum efficiency. It also facilitates a shift from voice-centric to voice and data operations.

As these industries become increasingly mechanized with technological solutions filling many, although certainly not all, functions that previously were performed by humans, the ability to run high-speed, low-latency data applications becomes paramount. The outdoor machinery used in farming, mining and other operations is in the vanguard of driverless vehicles with tractors, cranes, and other industrial machines operated and monitored remotely. Their locations are determined by GPS and their operations are managed via wireless data applications.

However, digital technology provides optimal results when channels are licensed exclusively to a single entity in its operating area. Since the FCC Part 90 VHF and UHF spectrum on which many of these systems operate traditionally had been assigned on a shared basis, identifying exclusive channels can be challenging. Creating additional opportunities to secure exclusive channels in these bands, in particular contiguous channels that could be combined to create a wideband communications path, would enhance their opportunity for data transmissions.

While a number of wireless requirements, including data applications, will continue to be addressed on narrowband and wideband spectrum, broadband has altered the balance in wireless communications. All businesses, wherever located, require access to secure, reliable broadband service to compete effectively in the modern economy. Some broadband applications can be accommodated on commercial wireless networks such as those operated by national and regional carriers. Some can be transmitted on unlicensed spectrum, at least until it becomes overly congested with non-business, consumer usage. Other activities are deemed sufficiently critical that they cannot rely on unlicensed spectrum and demand greater security, resiliency, and reliability than is offered on commercial networks, assuming there even is commercial coverage in the area, which too frequently is not the case.

Agriculture is an excellent example of an industry with an increasingly urgent need for broadband capabilities, particularly in parts of the country that remain underserved by commercial wireless networks. As farm properties consolidate and climactic issues become ever more challenging, remote device monitoring and control take on critical importance. Farmers are not only monitoring the location and growth of their crops, they are tracking and controlling: the volume and speed of the water that irrigates them, all conditions of the soil in which they are

growing, the prevalence of and response to insects that could harm them, the weed control process that facilitates improved crop output, plus the timely harvesting and efficient packing of their products that maximize crop yields. Conducting these varied tasks, plus real-time video monitoring of overall farm activities, in an integrated fashion requires broadband functionality.

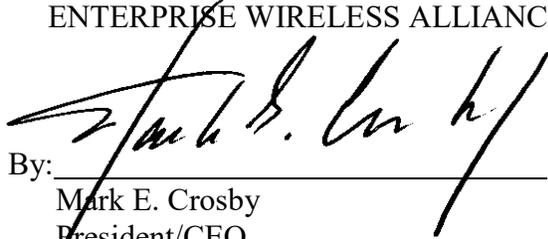
In many respects, the spectrum requirements of the agricultural community resemble those of utilities and other critical infrastructure industries. They need the same speed, low-latency, reliability, energy (and manpower) efficiency, mobility, and connection density that broadband offers and that is recognized as essential to support a modernized electric grid. Their communications cannot tolerate the outages and delays that can occur on commercial networks, as both present a serious threat to the safety of humans working near the machinery. They also could result in catastrophic economic losses if the machinery malfunctions due to a problem with wireless connectivity. These concerns become even more significant in rural areas where, if it is available at all, commercial coverage often lacks the redundancy required for true reliability.

EWA has supported a number of FCC initiatives with the potential to create broadband opportunities for private enterprise users. It endorsed 3.5 GHz Citizens Broadband Radio Service auctions for geographic areas that were smaller and better-suited for these businesses than the larger areas preferred by commercial wireless operators (WT Docket No. 17-258). It also filed jointly with pdvWireless, Inc. for a realignment of the Part 90 900 MHz spectrum to provide a 3/3 MHz broadband option focused on business entities that want to deploy their own systems, not another commercial service for the consumer market (WT Docket No. 17-200). EWA will continue to promote broadband spectrum opportunities that can address the requirements of the agricultural community, as well as those of other industries that increasingly

will need to use advanced technology for operations and management if they are to remain competitive in an international marketplace.

Respectfully submitted,

ENTERPRISE WIRELESS ALLIANCE

A handwritten signature in black ink, appearing to read "Mark E. Crosby", is written over a horizontal line.

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The **Farm Service Agency (FSA)** Notice: [Current and Anticipated Future Spectrum Requirements for Commercial Agriculture, Forestry, Mining, and Rural Manufacturing](#)

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