Before the
United States Department of Commerce
National Institute of Standards

In the Matter of	)
	)
Soliciting Input on R&D	) Docket No. 110727437-1433-01
Priorities for Desirable Features of a Nationwide	)
Public Safety Broadband Network	)

COMMENTS OF APCO INTERNATIONAL

The Association of Public-Safety Communications Officials-International, Inc. (APCO) hereby submits the following comments in response to a request from the United States Department of Commerce National Institute of Standards and Technology (NIST) for input on various possible features of a new nationwide interoperable public safety broadband network.[1] NIST indicates that the information will be used to help determine Research and Development (R&D) priorities in anticipation of the President's Wireless Innovation Network (WIN) Fund being funded to help drive innovation of next-generation network technologies.

APCO appreciates the President's Fiscal Year 2012 budget submission to Congress to include $3 billion dollars for the WIN Fund, $500 million of which was specifically recommended for public safety broadband, as well as his request for allocation of the D block to public safety and more than $10 billion dollars in funding derived from other spectrum auction proceeds for the construction of a nationwide, mission-critical and interoperable public safety broadband network (PSBN). APCO supports inclusion of language within the Administration's comprehensive legislation, ***H.R. 12*** in the U.S. House of Representatives and ***S. 1549*** in the Senate, and both known as the ***American Jobs Act of 2011***, which would allocate the D block

[1] 76 Fed.Reg. 56165 (Sept 12, 2011).

spectrum within the 700 MHz band to public safety along with funding derived from other spectrum auction proceeds to help finance the build out and sustainment of a nationwide, mission-critical PSBN. This language is almost identical to legislation previously introduced by Senators John "Jay" Rockefeller and Kay Bailey Hutchison as ***S.911; Public Safety Spectrum and Wireless Innovation Act of 2011,*** which would create a Public Safety Broadband Corporation (PSBC) to oversee construction and sustainment of a nationwide fourth generation, long-term-evolution (LTE) broadband network, and would fund that Corporation at more than $10 billion dollars with the sale of other spectrum. The American Jobs Act provisions include establishing a Public Safety Trust Fund with up to $300 million for NIST to perform R&D for public safety network.

APCO recommends the following priorities, in no particular order, for any such R&D program:

- Mission-Critical Voice. Working with the public safety community and industry, develop the necessary open standards for commercial technologies that are capable of carrying public safety mission-critical voice (MCV) traffic on the Public Safety Broadband Network (PSBN). The National Public Safety Telecommunications Council (NPSTC) adopted a definition of MCV in August, 2011, which is presently under review by APCO for endorsement and standardization.

- Direct device communications. Develop the open standards for commercial technology capabilities that enable subscriber units that are authorized to operate on the PSBN to communicate directly, unit to unit, with voice and data, without being dependent upon cell towers or other centralized network infrastructure.

- Applications. Develop testing and certification processes and procedures to approve applications that will run on the PSBN. While some applications need to be nationwide, many will be local. There are many issues, including user interface, security, creating "well behaved" applications frugal with bandwidth, and management that need development and standardization. Overregulation of the applications riding along the PSBN will stifle innovation. Creation of a "swim lane" for application development that focuses on open standards will help ensure interoperability across devices and platforms.

- Incident Area Networks. Develop open standards to create reliable incident-area-networks (IAN) using mesh technologies, vehicle-mounted transmitters, or other means to allow reliable, mission-critical communications at an incident scene with and without network infrastructure, for both voice and data. Investment in portable infrastructure such as mobile base stations, repeaters and eNodeBs should be leveraged when possible to help with coverage while ensuring the most efficient use of the 700 MHz spectrum available to public safety. The IANs should be created in conjunction with band class 14.

- Multi-spectrum radio capability. Robust future emergency communications must include subscriber units that can communicate across multiple spectrum bands and potentially with multiple technologies. The PSBN will be built using 700 MHz spectrum in the public safety band with LTE, but LTE operates in many bands other than 700 MHz. Developing open standards for LTE devices that can operate on multiple spectrum bands will improve interoperable communication with public safety officials in other countries and reduce the cost of equipment that will operate on the PSBN. Open standards should also be developed for subscriber devices to take advantage of networks using protocols other than LTE.

    - In an effort to get the price of public safety chipsets down around the level of commercial prices, R&D should go toward removing limitations of two distinct bands under 1 GHz on a single chipset.

- Dynamic local control. Help ensure that dynamic management and control of the network, specifically including priority of subscribers and applications, are available to public safety at multiple levels, ranging from incident commanders to regionally. This can be best achieved through the development of open standards for common interfaces and specifically, Application Programming Interfaces (API's). Certain operations, including Computer-Aided Dispatch (CADs) are not put through the standards-making process of a 3GPP or ATIS, so funding toward common standard protocols would eventually allow first responders dynamic local control of both day-to-day and large scale, acute incident response.

    - Public safety lacks a real presence in the decision making process for an ATIS, ANSI or 3GPP. Increased funding could be directed toward the hiring of 10-20 engineers and subject matter experts with strong public safety backgrounds to work within NIST and with the international standards-making bodies as they develop public safety standards for devices, etc.

- Interoperability. Ensure interoperability between all equipment and subscriber units offered by commercial vendors to public safety; insofar as necessary, establish open standards and guidelines to help achieve this goal, especially during continuous software upgrades. NIST should also develop testing and certification process to ensure all authorized equipment and subscriber units that operates on the PSBN is interoperable.

    - In addition to the financing of existing interoperable endeavors, technology should be developed to create linkages that will carry mission critical-grade voice

(existing narrowbanded users on 700 MHz and other public safety voice networks) through an incident-level gateway to broadband users running through the infrastructure of the PSBN .

- Communications with the public (including NG911). A number of issues need research in this area, specifically:

    - Cybersecurity & Encryption. The only real issue is that there might be some issues above and beyond what a carrier might deal with on a daily basis that public safety might have to examine.
    - Protocols for transmitting video and data that may be received by the Public Safety Answering Point during a 9-1-1call to the field.

CONCLUSION

APCO supports the efforts of NIST to identify appropriate areas of R&D for the Nationwide Public Safety Broadband Network, consistent with the comments set forth above.

Respectfully submitted,

Gregg Riddle, President
APCO International
Government Affairs Office
1426 Prince Street
Alexandria, VA 22314

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