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

In the Matter of:	)	
	)	
Transition Process for 700 MHz Public Safety Broadband Waiver Recipients	)	PS Docket No. 12-94
	)	PS Docket 06-229
	)	
	)	

To: Chief, Public Safety and Homeland Security Bureau

Bay Area Regional Interoperable Communications Systems Authority, ("BayRICS") submits these additional comments in response to the Federal Communications Commission ("Commission") Public Notice ("PN") in the above-captioned proceeding.[1]

BayRICS provides these additional comments to explain why the San Francisco Bay Area cannot wait, and perhaps rely on existing commercial data services, until the nationwide public safety broadband network ("FirstNet ") is available. The Bay Area is a densely populated urban area with a high risk of the occurrence of natural or man-made disasters. Bay Area public safety has an urgent need now for access to valuable new broadband tools for public safety, and cannot wait for two years or longer until FirstNet is available. Existing commercial data services are not an adequate replacement for a dedicated public safety broadband network, even on a temporary basis. Because there is no acceptable alternative in the near term, BayRICS respectfully requests that the Commission extend the current waiver and spectrum rights to the public safety broadband spectrum and D Block spectrum to BayRICS until such time as FirstNet develops a more permanent solution.

[1] Public Notice: Public Safety and Homeland Security Bureau Seeks Comment on Transition Process for 700 MHz Public Safety Broadband Waiver Recipients, DA 12-555, released April 6, 2012.

I. THE BAY AREA IS AT HIGH RISK OF THE OCCURRRENCE OF A NATURAL OR MAN-MADE DISASTER THAT COULD RESULT IN CATASTROPHIC LOSS OF LIFE AND PROPERTY

The San Francisco Bay Area is comprised of 10 counties and the 3 major cities of Oakland, San Francisco and San Jose; and over 100 incorporated cities. The total population exceeds 7 million people who represent a variety of ethnic and cultural backgrounds. San Francisco has the 4th highest population density of any U.S. city. The San Francisco Bay Area is the fifth largest tourist destination in the world, attracting 15.7 million visitors annually and home to 38 foreign consulates. A major transportation hub, the Bay Area includes 3 international airports and over 23,000 miles of public highways and roads. Combined passenger traffic for the regions' airports is 50 million passengers annually. The population is heavily dependent on bridges, with over 418,000 vehicles crossing the regions bridge network daily. The region is served by an extensive public transit system that carries over 1 million passengers daily, including 6 overlapping bus transit agencies, 4 regional rail systems, the BART Transbay Tube and multiple ferry systems.

The Bay Area is home to five major oil refineries with a daily crude capacity of more than 800,000 barrels, and includes three major Ports with a constant stream of import and export traffic. The Port of Oakland is the 4th busiest Port in the U.S., handling over 2 million freight units annually. The region is also home to a high profile set of critical infrastructure including the Golden Gate Bridge, Silicon Valley, professional sports stadiums, commercial buildings such as the Pyramid Tower, and much more. Over 9 million people visit the Golden Gate Bridge every year, making it a national and international icon.

The United States Department of Homeland Security currently ranks the Bay Area as the fourth highest urban area in the nation for risk. The region has identified both terrorism and natural hazard incidents that pose significant threats to Bay Area population and infrastructure. These include terrorist use of explosives, cyber-attacks, biological agents, terrorist assault teams, floods, wildfires, and of course, earthquakes. The Bay Area is particularly vulnerable to earthquakes as it rests upon one of the longest

and most active earthquake fault systems in the world. This system includes the San Andreas Fault, the Hayward Fault and the Calaveras Fault. The U.S. Geological Survey estimates an 80% chance of a magnitude 6.7 or greater quake striking the Bay Area within the next 30 years. Based on the Bay Area's topography and history, risks from wild land fires and tsunamis are also of major concern.

II. THE BAY AREA PUBLIC SAFETY COMMUNITY HAS A CRITICAL NEED FOR A DEDICATED BROADBAND WIRELESS NETWORK TO HELP SAVE LIVES AND PROTECT PROPERTY

While the Bay Area has adequate and highly interoperable public safety voice communications services, public safety agencies have generally not adopted broadband data services on a wide scale, primarily due to security and reliability concerns for services dependent on existing commercial data networks. The Bay Area Wireless Enhanced Broadband Network ("BayWEB**")** project would address these critical Public Safety needs. Minimum public safety requirements include interoperability among all regional participants, system resiliency, and access to dynamic, mission- critical multimedia applications within a single cell site, such as mobile command and control and multiple sources of real-time mobile video. Existing commercial services cannot meet these requirements.

During a disaster existing commercial networks cannot provide critical and prioritized broadband capabilities, such as incident centric, real-time geo-location information to tens and potentially hundreds of in-vehicle modems, mobile laptops and PDAs operating within a small radius around a multiple casualty incident. First and second responders need instantaneous and extensive data, images, spreadsheets, and video about damage, potential dangers, road conditions, and personnel and vehicle locations. Only a dedicated, prioritized and secure network such as BayWEB will support coordinating hundreds or thousands of evacuations, high-bandwidth data needs for virtual command centers, and the capacity and reliability to provide front-line fire, police and EMTs the timely information they need.

Please imagine the chaos that a major quake will cause the Bay Area. Existing commercial networks will not support the level of real-time sharing of pictures and video of damage, dynamic routing of displaced victims to evacuation centers, medical triage, and the ability to share this data simultaneously

among Police, Fire and EMS first responders. At the same time, the system will give firefighters access to infrastructure maps, building floor plans and engineering system information about where electrical, mechanical and hazardous material systems are located in thousands of buildings, allowing triage-style classification, management and operational planning in the midst of public disarray.

Aside from major incidents, public safety requires the prioritized and secure information and data exchanges not currently available on commercial networks. BayWEB will enable needed information-sharing technologies, including regional notification/warning networks, automated license plate readers, automated citation devices, automatic vehicle location technology, public safety geo-spatial tools, control devices for traffic signals, automated fare collection, public safety mobile data applications, and next-generation 911 technology.

Law enforcement agencies have compiled extensive databases of photos, images and files, and anticipate using BayWEB to share files regionally, maintaining security and privacy for data such as mug shots and criminal histories of suspects. Devices will soon be available to digitally take fingerprints in the field and compare them instantly against comprehensive databases. Streaming video applications will assist SWAT teams and incident commanders by sharing streaming video of several building views simultaneously. Photos of abducted children and suspects can be "blasted" out to every law enforcement official in the region as an aid to quick and effective response.

Cost-saving efficiencies created by these tools will free up time and money for police and firefighters. BayWEB can be used to write and transmit reports in the field, relieving officers from making numerous trips back to the station. These cost saving measures are especially important for jurisdictions grappling with financial shortfalls, and the cost savings could eventually translate into more cops and firefighters in the field.

III. COMMERCIAL SERVICES ARE NOT AN ACCEPTABLE REPLACEMENT FOR BAYWEB, EVEN ON A TEMPORARY BASIS

Commercial data services are not an acceptable replacement for a dedicated data service, even on an interim or temporary basis. Commercial services are inadequate for many reasons, including:

1. Inadequate capacity/speed on commercial networks during major public safety incidents, such as the inability to prioritize public safety traffic, set up "on-the-fly" user groups and dedicated trunks or isolate particular cell sites for public safety only traffic. Commercial services are also unable to support incident-specific mobile command centers to manage all public safety traffic related to a major incident.

2. Lack of redundancy and signal availability outside of standard commercial cellular coverage areas. Commercial systems are engineered to "market efficient traffic capacity" meaning that the systems are incapable of absorbing sudden influxes of hundreds of additional public safety users served from a single cell site. While a public safety system is engineered to anticipate locational spikes in traffic caused by concentrations of user devices, commercial networks are engineered with the expectation that such spikes will simply result in dropped calls. Commercial networks are also engineered to provide coverage where the majority of commercial users are located, not necessarily where an emergency response incident occurs.

3. Sensitive information such as personal medical and criminal record information cannot be transmitted over commercial networks due to security and privacy concerns. Use of VPNs does not alleviate this problem because VPN's are bandwidth intensive and further reduce commercial networks' utility for large volumes of public safety traffic. In a major civil or terrorist disruption, public safety must have completely secure communications, which the commercial networks do not provide.

4. Sunk costs to acquire network cards and equipment that will function on the commercial networks. Any money spent buying equipment to remedy the above problems or to make public

safety equipment usable on commercial networks for an interim period of a few years will be lost by a later conversion to BayWEB or FirstNet.

Attempts by Bay Area public safety officials to use commercial services have been plagued with service disruptions caused by network congestion, especially during highly attended public events and other incidents in which the general public conducts high levels of wireless usage in concentrated areas. The Bay Area is home to four major sports/entertainment venues (Candlestick Park, AT&T Park, Oakland-Alameda County Coliseum Complex, and HP Pavilion), two Major League Baseball teams, two National Football League teams, one NHL team and one NBA team. These venues draw millions of people annually. During events, public safety often must rely on commercial carriers to transmit and receive data related to the safety and security of these venues. This data includes bulletins related to everything from missing and exploited children to specific and immediate threats related directly to the facility. Reliance on commercial carriers for the transmission of critical data at these venues during major events has been problematic due to the volume of commercial customer traffic using the same networks. When three or four hundred fans in a stadium attempt to download an instant replay of an umpire's call, the commercial network becomes totally useless for the transmission of high priority public safety data. At critical times, data sessions for police and EMTs within these facilities have been slow or impossible to initiate or have been terminated prior to completion. This has resulted in incident commanders having to rely on voice-only communications using traditional land mobile radio.

Specifically, City and County of San Francisco Police and Sheriffs officers have documented instances where text messages and data transmissions have been slowed or have not been received, including during the NFL playoff games in January 2012 and during the San Francisco Giants World Series victory parade in downtown San Francisco in November 2010.[2] Commercial network congestion

[2] See testimony of San Francisco Police Chief Greg Suhr before the San Francisco Board of Supervisors, Budget and Finance Subcommittee, January 25, 2012, viewed at http://sanfrancisco.granicus.com/ViewPublisher.php?view_id=7. See also San Francisco Examiner, *San Francisco Police have Trouble Communicating at 49ers Playoff Games* January 27, 2012, viewed at http://www.sfexaminer.com/news/2012/01/san-francisco-police-have-trouble-communicating-49ers-playoff-games.

has also been experienced on holiday occasions such as New Years Eve and Halloween when a high volume of revelers are densely congregated in specific locations.

We anticipate these same levels of high usage of commercial networks by the general public would occur during a significant natural or man-made emergency, and would result in similar network congestion during such incidents (assuming the non-hardened commercial networks are even operational during such incidents). Another example is the significant earthquake which hit the East Coast in 2011. During that incident, commercial network congestion became such a concern that FEMA issued a statement cautioning the public to use low bandwidth alternatives for non-critical or non-life threatening wireless communications, due to concerns that network congestion would limit or cut off critical 9-1-1 voice communications.[3]

In addition, commercial services are not hardened and lack security protections that may put sensitive law enforcement communications at risk. We believe, like many in the public safety community, that this lack of security or hardening makes commercial services susceptible to natural disasters, terrorist threats and hacking.

Although BayRICS expresses no opinion on the legality of the incident, on one occasion, the Bay Area Rapid Transit District (BART) felt the need to shut down underground cell service to prevent the organization of criminal attacks against the transit system.[4] This action effectively disabled the commercial networks for any public safety officials who may have been attempting to use the network. In the event of a significant terrorist threat, it may become necessary to restrict activity on commercial networks. For example, if Homeland Security has reason to believe a bomb could be triggered by a cell phone signal, jamming the commercial signals would also affect any public safety data users relying on

[3] See *Statement from FEMA Spokesperson Rachel Racusen on Earthquake*, August 23, 2011, viewed at http://www.fema.gov/news/newsrelease.fema?id=57351.

[4] BART has defended its action and others have commented pro and con in GEN Docket 12-52, Public Notice, DA 12-311, released March 1, 2012.

those commercial services. However, when BayWEB becomes available, first responders may continue using data applications during such commercial service interruptions.

Bay Area first responders are currently unable to access reliable higher bandwidth applications such as video to better manage events and incidents. In December 2011, during a five-alarm fire in San Francisco, 9-1-1 dispatchers in the Department of Emergency Management were watching the flames getting closer to firefighters on live TV broadcasts. However, Fire Department commanders on the scene were unable to see the video in the field.[5] Existing commercial services do not provide the bandwidth, prioritization or reliability to be used for such video streaming applications. Public safety in the Bay Area should not have to wait years for the development of FirstNet before a viable solution is ready for deployment and use by public safety officials today.

While the Bay Area welcomes and supports FirstNet, first responders need access to dedicated high speed broadband now to provide basic services during events or emergencies when there is high demand makes on commercial networks unreliable or unavailable.

IV. THE BAY AREA CANNOT WAIT FOR FIRSTNET

Bay Area public safety agencies have been preparing to migrate to BayWEB beginning less than 12 months from now. Agencies have developed two-year budget plans and have intentionally avoided procurement of commercial data service costs, anticipating BayWEB service availability beginning in the Second Quarter of 2013. The City and County of San Francisco alone has included funding in its Fiscal Year 2012-2014 budget for the migration to BayWEB of up to 600 devices in squad cars and emergency response vehicles.

[5] See testimony of San Francisco Fire Chief Joanne Hayes-White before the San Francisco Board of Supervisors Budget and Finance Subcommittee, February 1, 2012, viewed at http://sanfrancisco.granicus.com/ViewPublisher.php?view_id=7. See also San Francisco Examiner, *Public Safety Broadband Network: Boon or Boondoggle*, March 4, 2012, viewed at http://www.sfexaminer.com/local/bay-area/2012/03/public-safety-broadband-network-boon-or-boondoggle.

However, if the Bay Area loses its rights to use the spectrum and the BayWEB is delayed or terminated, such planning efforts of the Bay Area jurisdictions will be substantially delayed. According to the National Public Safety Telecommunications Council ("NPSTC") Comments in this proceeding (p.5), availability of FirstNet is at least two years away:

> Given the legislative direction to stand up the FirstNet Board and an associated advisory committee, receive input from the FCC's Interoperability Board, administer planning grants to states, develop a technical and business plan to deploy the network, provide states with pertinent information so they can make informed decisions whether to "opt-in" or seek to "opt-out," issue RFPs, select vendors, and finalize contracts to deploy the network, etc., it is likely to be a minimum of two years before First Net even can begin actual deployment of the nationwide network. Even then, there is no guarantee which jurisdictions would be the first to receive service or how long it will take to complete the various phases of deployment across the country.

Given the likely delays caused by design revisions, regulatory approvals, construction delays and other unanticipated challenges, this two year estimate seems overly ambitious for even the initial FirstNet deployments to become operational.

Bay Area public safety has waited patiently for the BayWEB network for almost five years, and public safety officials need access to these broadband tools as soon as possible. With a potential 6.7 magnitude earthquake predicted for the Bay Area, we simply cannot afford to wait several more years for these important tools. For these reasons, BayRICS respectfully requests that the Commission extend the current waiver and rights to use the public safety broadband spectrum and D Block spectrum to BayRICS until such time as FirstNet develops a more permanent solution.

Dated: June 8, 2012

Respectfully submitted,

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