

WASHINGTON STATE INTEROPERABILITY EXECUTIVE COMMITTEE  
December 18, 2014 - Meeting Highlights



**Summary of Significant Results:**

- Clallam County Commissioner Mike Doherty did not run for re-election and will retire from the Commission at the end of the year. Doherty is also resigning from the SIEC, which recognized him for his many years of service in support of wireless interoperability.
- The \$40 million project to upgrade the land-mobile radio (LMR) network used by the Washington State Patrol (WSP) is proceeding. WSP and Motorola just finished upgrading District 2, King County, with 160 mobile and 146 portable radios updated
- 800 MHz Rebanding of the Washington State Department of Transportation's (WSDOT's) LMR network is proceeding, with the Northwest, Southwest and Olympic regions now complete.
- Work for rebanding of the Department of Corrections (DOC) 800 MHz network is under stop work order depending on the results of testing of work recently completed.
- The SIEC endorsed the Washington State Patrol's (WSP's) Dispatch Consolidation Study as meeting the requirements of ESSB 5024, which required WSP to work with the SIEC on study. (This was done by email in November.)
- The SIEC endorsed the need for an upgrade of the Washington State Department of Transportation (WSDOT) wireless networks. This plan would be executed only if WSDOT obtains comprehensive funding for a variety of projects during the upcoming legislative session. No specific funding level is specified. WSDOT's network, like WSP's, covers the major highways of the state. WSDOT and WSP have extensively cooperated to share radio sites and other infrastructure.
- The SIEC endorsed the need for the first portion of a six-year planned upgrade of the Washington Department of Natural Resources (DNR) land-mobile radio (LMR) network.
- The [Governor's Commission on the State Route 530 Landslide](#) has rendered its final report. The report contains two recommendations for action by the SIEC which we will discuss in the future.
- The SIEC support staff will attempt to prepare key bullets / takeaways (i.e., this document) from each meeting to help support members in interacting with their associations or constituencies.

**Links to Materials online:**

- SIEC Website: [www.siec.wa.gov](http://www.siec.wa.gov)
- [All Meeting Materials](#)
- [Presentations, Part 1](#) – WSP, 800 MHz Rebanding, Dispatch Consolidation and WSDOT
- [Presentations, Part 2](#) – DNR, OneNet Update

## **Additional Details**

### **1) Call to Order Welcome, announcements and introductions:**

- a) The SIEC presented a commemorative clock to retiring Clallam County Commissioner Mike Doherty (not in attendance) for his years of service to the SIEC. We believe Commissioner Doherty was an original member of the SIEC.
- b) SIEC members signed a card for Chief Batiste.
- c) The SIEC discussed Roles and Responsibilities of members, which include both representing and disseminating information to their constituencies. The SIEC support staff will attempt to prepare key bullets / takeaways from each meeting to help support this effort.

### **2) Narrowbanding (WSP Upgrade of their LMR Network) Progress Report**

- a) Bob Schwent, Washington State Patrol, reporting.
- b) State Patrol Districts 2, 4, & 5 are complete. Significant progress: King County District 2 was completed since the previous meeting
- c) Upcoming activities include implementation of trunking in Districts 1 & 3.
- d) Overall project end-date is now June 27, 2016. More detail is available from Mr. Schwent.
- e) Presentation is [online here](#), at page 5.

### **3) 800 MHz Rebanding:**

- a) WSDOT: SW, Olympic and NW WSDOT regions are complete. Remaining exceptions will be addressed in 2015.
- b) WSDOC: Stop work order remains in place pending post reporting of test results by Motorola.
- c) Wave 1 reconciliation is anticipated January 2015. (The rebanding project nationwide occurred in four “waves” or phases. The project in Washington proceeded in two phases – Wave 1 and Wave 4.)
- d) Presentation is [online here](#), at page 11.

### **4) SIEC Advisory Workgroup (SAW)**

- a) The SAW met on December 9<sup>th</sup>. WSDOT and DNR presented proposed radio system upgrades. The SAW approved moving them forward for SIEC consideration.
- b) The SAW is reviewing the Statewide Numbering Plan for Trunked Radio System proposal. A report will be presented to the SIEC at the February 2015 Meeting.
- c) Presentation is [online here](#), at page 14.

### **5) Washington State Patrol Dispatch Consolidation Study**

- a) The SIEC, in an email vote in November, agreed that report meets the requirements of ESSB 5024 (2013) in that WSP worked with the SIEC to produce the report.
- b) The study recommends no further consolidation of WSP Emergency Communication Centers due to the potential loss of qualified personnel who decline to relocate, loss of geographic knowledge in the dispatchers, radio coverage limitations and the need for redundancy.

- c) WSP consolidated in 1983 from 27 centers to 9, and in 1993 consolidated again to the current 8.
- d) Further evaluation of potential efficiencies within state dispatch services should be considered.
- e) Presentation is [online here](#), at page 17.

## 6) WSDOT Wireless Network Upgrade

- a) A motion was made and approved to support this this project

*Motion: The SIEC agrees with WSDOT's conclusion that its wireless networks are aging, difficult to support, and pose significant risk of failure. The SIEC endorses the WSDOT Wireless infrastructure upgrade plan as presented at the SIEC's December 18 meeting as consistent with the SIEC's 2005 Technical Implementation Plan and current policies. The SIEC recognizes this plan also makes good use of the recent replacement of \$13 million in new radios procured for WSDOT through the rebanding process. The SIEC further recognizes that WSDOT and WSP have worked together to share wireless network sites and facilities, thereby reducing overall costs of operations, maintenance and this upgrade to WSDOT and WSP funding sources. The SIEC, exercising its authority for oversight of state government land-mobile-radio networks, requests WSDOT keep the SIEC informed as funding, RFP issuance, procurement, and implementation proceed.*

- b) WSDOT has 409 wireless locations, 138 of which support land-mobile radio and 75 of which are towers owned by WSDOT. The wireless network supports both LMR and intelligent transportation system (ITS – traffic control and management technology). Over 3,700 radios are used by WSDOT employees to support day-to-day operations. WSDOT has six regional and two satellite traffic management centers.
- c) The network infrastructure is over 20 years old, and is no longer supported by the vendor – parts are purchased on the secondary market (resellers) to keep it operating.
- d) WSDOT especially needs to support expansion of its ITS networking capabilities as this technology is rapidly advancing.
- e) 79% of WSDOT sites are shared with one or more of 19 local, state or federal agencies.
- f) Several years ago WSP and WSDOT completed a study of potential consolidation. That study identified 31 efficiencies and recommendations – 6 of those have been completed and 16 are in progress. Nine are unfunded our outside the agencies' control.
- g) WSDOT has already invested over \$4 million in upgrades to dispatch positions and microwave paths which link radio sites. In addition it has obtained over \$12 million in replacement portable and mobile radio equipment via the 800 MHz rebanding project. The proposed upgrade will be compliant with the SIEC's P25 standard and the SIEC's Technical Implementation Plan.
- h) In response to a question about coverage: WSDOT would welcoming partnering with tribes for use of tower space.
- i) Presentation is [online at page 28 here](#).

## **7) DNR Wireless Network Upgrade Project**

- a) A motion was made, amended and approved to support this project:  
*Motion: The SIEC agrees with DNR's conclusion that its wireless voice network is aging, difficult to support, and pose significant risk of failure. The SIEC recognizes that such failure will place DFW, Parks and DNR operations, especially wildland firefighters, at significant risk of harm. The SIEC further recognizes that the coverage areas of DNR's network are significantly different than the state-highway coverage areas of the WSDOT and WSP networks. The SIEC therefore endorses the infrastructure upgrade plan presented by DNR at the SIEC's December 18 meeting, and endorses that plan as consistent with the SIEC's 2005 Technical Implementation Plan and current policies. The SIEC further supports DNR's plan to leverage existing contracts for this upgrade, if at all feasible.*
- b) DNR is requesting \$2,770,400 in the next biennium for the replacement of aging radio equipment – largely microwave backhaul, base stations and System Control and Data Acquisition (SCADA). The DNR Commissioner is a separately elected official; this money may not be in the Governor's proposed budget.
- c) This is part of a six year, \$10,661,460 replacement plan.
- d) The proposed upgrade will be compliant with the SIEC's P25 standard and the SIEC's Technical Implementation Plan.
- e) DNR's network has a different purpose than WSP's and WSDOT's. DNR's network is intended to primarily cover parts of the state which are forested and not necessarily near state highways.
- f) Presentation material is [online at page 1 here](#).

## **8) SR530 Landslide Final Report Excerpts**

- a) See the [full report of the Governor's Commission here](#).
- b) Recommendations 13 and 14 directly address the work of the SIEC and FirstNet
- c) To be discussed at a future meeting

## **9) FirstNet Update**

- a) Washington OneNet is the group within the Office of the CIO which is managing the work of outreach, education and data collection to support the development of FirstNet in Washington.
- b) OneNet will start to use the "govdelivery" platform to communicate with the SIEC and stakeholder community.
- c) OneNet is in the process of redeveloping its webpage at [www.onenet.wa.gov](http://www.onenet.wa.gov) to include a new format and navigation
- d) There was a brief update on stakeholder, technical committee's activity.
- e) SCIP workshop is scheduled for a small-core group on February 12. The draft will be forwarded to the larger constituency prior to review and adoption by the SIEC.
- f) Joint Tribal Summit with Washington, Oregon & Idaho is in the planning Phase.

## **10) We briefly discussed future Agenda Items**

- a) Presentation material is [online at page 27 here](#).

## **Lexicon for the Washington State Interoperability Executive Committee**

This lexicon is a work in progress and an attempt to explain the technical work of the SIEC in a fashion more easily understood by citizens and elected officials.

Note about the FCC. The Federal Communications Commission (FCC) licenses radio spectrum for use in the United States. Radio spectrum is denominated in Hertz, from 3000 (3 kHz) to 300,000,000,000 (3GHz). Different parts of spectrum are allocated for different uses, e.g. FM radio stations, television, public safety radio, cellular radio and broadband data. For example, the FCC has allocated the spectrum from 52 kHz to 72 khz for use by AM radio broadcasting. A [chart of the allocations can be found here](#).

**800 MHz Rebanding** – This is the process of exchanging one set of channels used by a public safety agency for another set, all within the 800 MHz band. When radio channels in the 800 MHz radio band were originally assigned by the FCC in the 1980s, the FCC allowed the use of the band by multiple users, e.g. public safety voice networks and Nextel’s cellular network. This meant that a channel for a Nextel cell site could be right next to a channel used by a police agency. As cell networks were built, this caused problems, especially right next to a cellular radio transmitter. Close to the cell tower, the power of the cell signal would interfere or block the use of the public safety officer’s radio, placing the officer at risk. In July, 2004, the FCC adopted a plan to exchange channels between Nextel and the public safety agencies operating in each area nationwide. Nextel agreed to pay for the costs of making this exchange. This exchange requires significant replacement of radio equipment including the portable and mobile radios used by public safety agencies. Rebanding is occurring in four phases or “waves”, and, as of 2014, is largely complete nationwide. The entire process is governed by an FCC-authorized 3<sup>rd</sup> party called the “[transition authority](#)” or TA. See [more information here](#). In Washington, DOC and WSDOT each operate 800 MHz radio networks which are being rebanded. The Office of the CIO (OCIO) project manages this work, which is done by Motorola and its subcontractors. Many County and regional radio systems, e.g. SERS in Snohomish County and King County’s 800 MHz system, where also rebanded.

**Broadband** – Technically, “broadband” just refers to radio channels which use more bandwidth than narrowband. In general use, “broadband” channels are used for transmission of data, rather than voice. Data transmission could be video streams, computer aided dispatch text, images/photos and so forth. Voice can also be transmitted over broadband. Broadband channels typically might be 5, 10 or 20 megahertz wide.

**DOC** – Washington State Department of Corrections

**DNR** – Washington State Department of Natural Resources

**Hertz** – Radio spectrum or frequency is divided into units called hertz. One hertz (Hz) is equal to one cycle per second. A kilohertz (kHz) is 1000 cycles per second and a megahertz (MHz) is a million cycles per second and a gigahertz (GHz) is one billion cycles per second. The range of human hearing, for comparison, is 20 to 20,000 Hz. Generally a voice radio channel takes about 25 kHz (25,000 hertz) of bandwidth, although recent technology advances allow channels in 12.5 kHz and 6.25 kHz as well. See also narrowbanding. More information here: <http://en.wikipedia.org/wiki/Hertz>

**kHz** – kilohertz – one thousand hertz.

**MHz** – megahertz – one million hertz.

**Mobile units** – “Mobile units” are two-way radios mounted in vehicles, as opposed to “portable” ones which are handheld. “Mobile units” usually have greater range and battery life is less of a problem.

**Narrowband.** Narrowband channels have relatively small allocations of bandwidth, e.g. 12.5 kilohertz or 25 kilohertz. In general use “narrowband” often means channels used for transmission of voice, e.g. dispatch of firefighters by a public safety answering point (PSAP). Technically data (e.g. images) can also be sent over narrowband channels, but very slowly. The FCC often restricts the use of narrowband channels to voice uses.

**Narrowbanding.** Narrowbanding is the process of reducing the amount of bandwidth used by voice radio channels, for example moving from 25 kHz of bandwidth to 12.5 kHz. This is done to improve the efficiency of spectrum use. If, for example, a public safety agency needs 10 channels to operate, those 10 channels, after narrowbanding, will use only 125 kHz of spectrum rather than 250 kHz, leaving the remainder to be used for other purposes. However narrowbanding is expensive, as typically all the radio equipment at transmitter/receiver sites and also all portable and mobile radio equipment in vehicles must be replaced. More information on [the FCC website here](#).

**OCIO** – State of Washington Office of the Chief Information Officer. The SIEC is constituted under the authority of the Chief Information Officer per the Revised Code of Washington. See also [www.ocio.wa.gov](http://www.ocio.wa.gov).

**Portable units.** “Portable” generally refers to two-way radios which are handheld – can be carried by an individual person, as opposed to mobile radios, which are vehicle-mounted. Battery life is typically an issue with portable radios compared to mobile radios. Portable radios also have less transmission power and therefore less range.

**RCW** – Revised Code of Washington

**SIEC** – State Interoperability Executive Committee. Almost every state and territory has an SIEC or another SIGB which oversees the improvement of radio systems interoperability statewide. See also [www.siec.wa.gov](http://www.siec.wa.gov) .

**SIGB** – State Interoperability Governing Board. Another term for SIEC. Some states refer to their SIGB rather than their SIEC.

**WSDOT** – Washington State Department of Transportation

**WSP** – Washington State Patrol

### **Frequently Asked Questions**

Why are police and fire radios so large? There are multiple reasons for the larger size of these two-way radios compared to cell phones. First, public safety radios have more transmitting power, often 3 to 5 watts of power, compared to 250-300 milliwatts (about one-tenth as much) for a cell phone. This gives the public safety radios more range and better ability to broadcast out from inside buildings. But more power also requires a larger battery in the device. Next, a handful of public safety radio sites can typically cover a county. The City of Seattle, for example, is covered by about 10 public safety radio sites, compared to 80 or more cell sites. But this also requires the portable and mobile radios to transmit with more power to reach the more distant radio site. The larger radio also allows larger button and knobs, which accommodates public safety officers (e.g. firefighters) who may have to operate them with gloves.