WISCONSIN INTEROPERABILITY
SEAMLESS STATEWIDE PUBLIC SAFETY RADIO COMMUNICATIONS

Interoperable Communications Update

2013 Governor's Conference on Highway Safety

Stevens Point

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Session Purpose

- Communications Interoperability
  - Wisconsin overview
  - WISCOM Information
  - Public Safety Wireless broadband
- Answer questions

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Interoperable Communications

- Wisconsin has established and enforces standard communications channels and methods
- Wisconsin continues to generate above-average compliance with Federal and State interoperability initiatives

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Interoperable Communications

- Statewide Mutual Aid Frequency Plan
  - Otherwise known as “Annex K” of SCIP
  - This plan establishes common frequencies on VHF, UHF and 700/800 MHz
  - Plan compliance required for grant funds

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VHF Interop Plan

WISCONSIN STATEWIDE PUBLIC SAFETY COMMON FREQUENCY CHART

VHF Band

Mobile Receive Frequency	RX Tone	Mobile Transmit Frequency	TX Tone	State Name	National Name	State Callsign	Primary Use
155.4750	CS	155.4750	156.7	VLAW31	VLAW31	KA6570	Law Enforcement
155.3700	CS	155.3700	146.2	POINT	None	KA6570	Law Enforcement
151.2800	136.5	153.8450	136.5	MARC1	None	WNPG812	All Public Safety
151.2800	136.5	151.2800	136.5	MARC2	None	WNPG812	All Public Safety
154.0100	71.9	154.0100	71.9	MARC3	None	KO2099	All Public Safety
154.1300	82.5	154.1300	82.5	MARC4	None	KO2099	All Public Safety
156.0000	136.5	156.0000	136.5	WEM CAR	None	KGT483	Emergency Mgt.
155.3400	CS	155.3400	D156	EMS B	None	KH4762	EMS
155.2800	D156	155.2800	D156	EMS C	None	KH4762	EMS
155.4000	CS	155.4000	D156	EMS A	None	KH4762	EMS
154.2650	210.7	154.2650	210.7	IFERN	None	KO2099	Fire
153.8300	69.3	153.8300	69.3	FG RED	None	KO2099	Fire
154.2800	74.4	154.2800	74.4	FG WHITE	None	KO2099	Fire
154.2950	85.4	154.2950	85.4	FG BLUE	None	KO2099	Fire
153.8375	91.5	153.8375	91.5	FG GOLD	None	KO2099	Fire
154.2725	94.8	154.2725	94.8	FG BLACK	None	KO2099	Fire
154.2875	136.5	154.2875	136.5	FG GRAY	None	KO2099	Fire
154.3025	67.0	154.3025	67.0	IFERN2	None	KO2099	Fire
155.1600	127.3	155.1600	127.3	NATSAR	SAR	KO2099	Search & Rescue
155.7525	156.7	155.7525	156.7	VCALL10	VCALL10	KO2099	All Public Safety
151.1375	156.7	151.1375	156.7	VTAC11	VTAC11	KO2099	All Public Safety
154.4525	156.7	154.4525	156.7	VTAC12	VTAC12	KO2099	All Public Safety
158.7375	156.7	158.7375	156.7	VTAC13	VTAC13	KO2099	All Public Safety
159.4725	156.7	159.4725	156.7	VTAC14	VTAC14	KO2099	All Public Safety
151.1375**	N293*	151.1375	N293	VTAC11DG	None	KO2099	All Public Safety
154.4525**	N293*	154.4525	N293	VTAC12DG	None	KO2099	All Public Safety
158.7375**	N293*	158.7375	N293	VTAC13DG	None	KO2099	All Public Safety
159.4725**	N293*	159.4725	N293	VTAC14DG	None	KO2099	All Public Safety
151.1375**	156.7	159.4725	136.5	VTAC36	None	KO2099	All Public Safety
151.1375**	N293*	159.4725	N293	VTAC36DG	None	KO2099	All Public Safety

All channels are narrowband. * = Mixed Mode Receive N = P25 NAC **These channels are *not* required in new grant-funded radios.

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Wisconsin Interoperable System for Communications (WISCOM)

How we got here...

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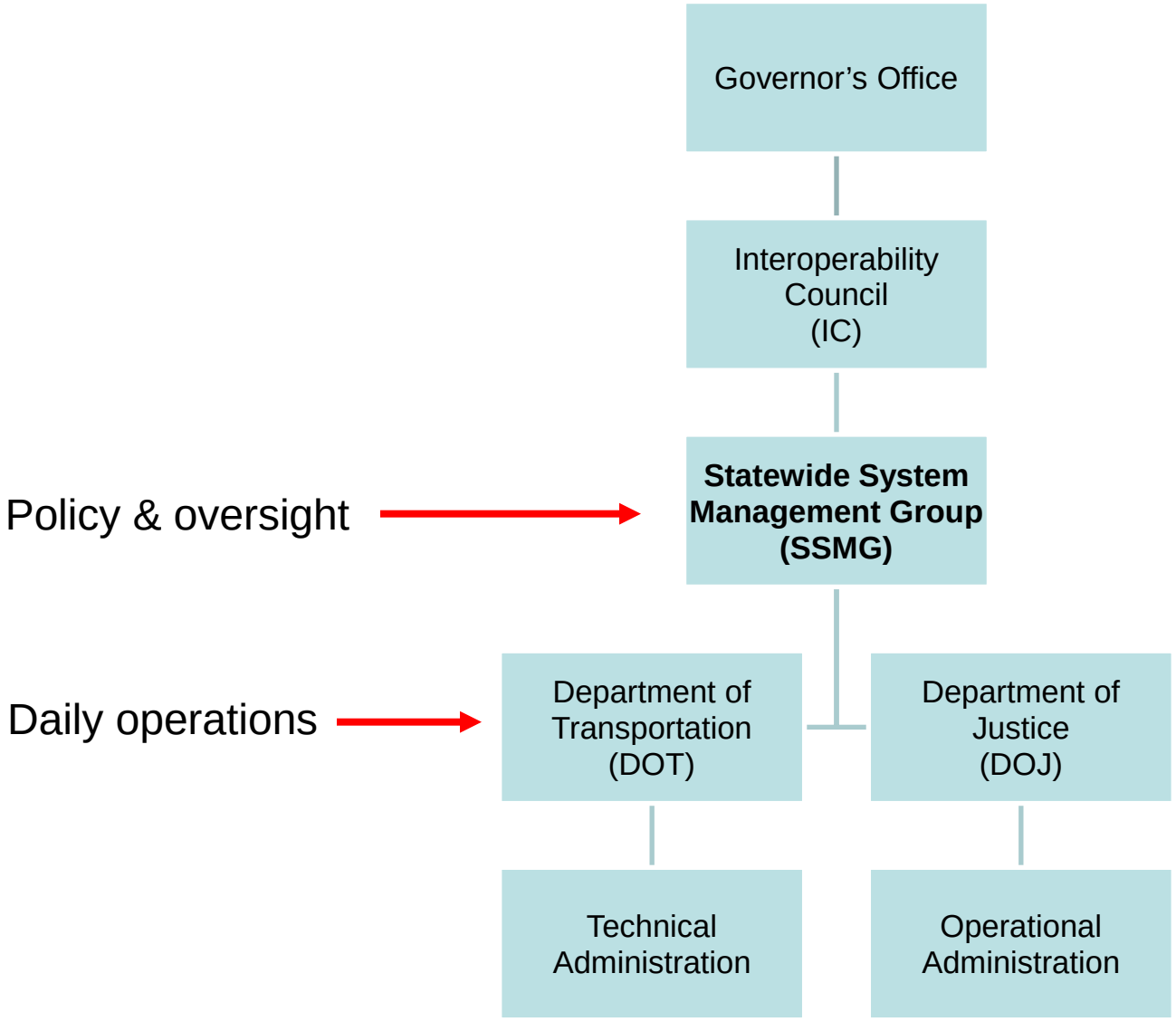

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System Overview

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What is WISCOM?

- Statewide Trunked Radio System
  - VHF backbone + 800 MHz in select areas
- APCO Project 25 (P25) digital
- 77 core / 88 total sites active
- 95%+ statewide mobile coverage
  - Many areas of portable coverage but not guaranteed from core sites

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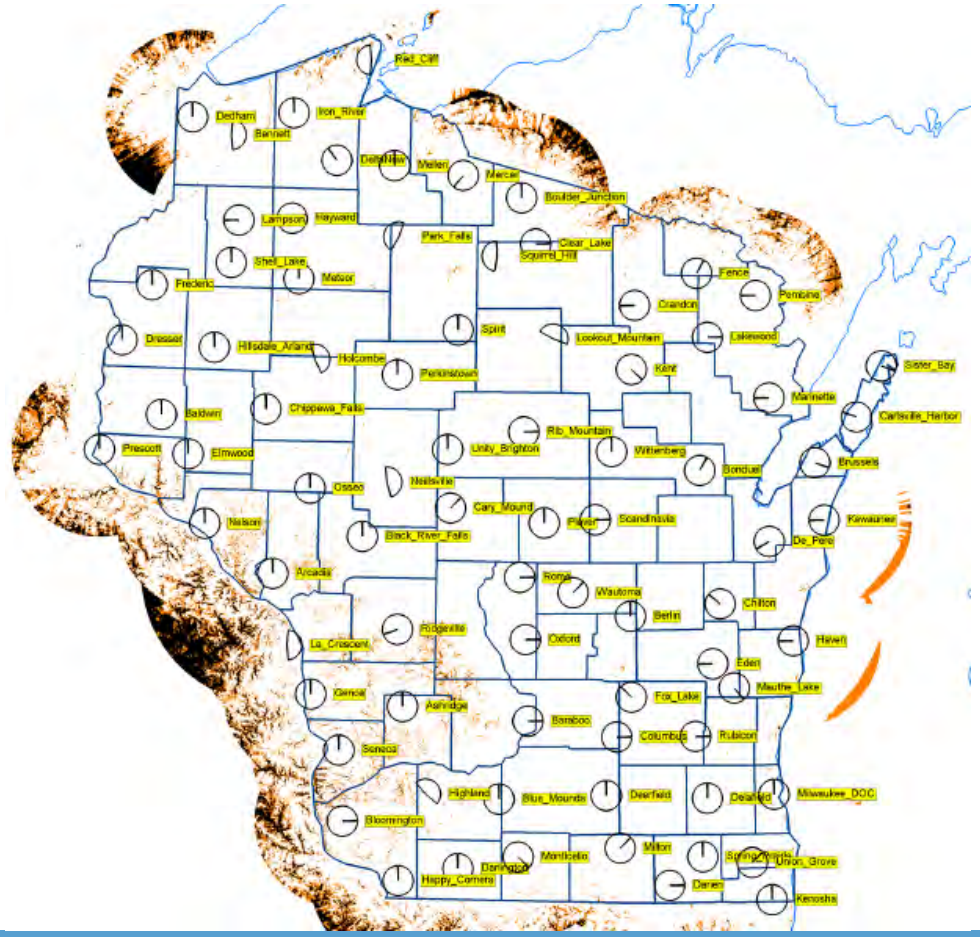
Mobile Coverage Map

50w & unity gain antenna at 5.5 feet AGL



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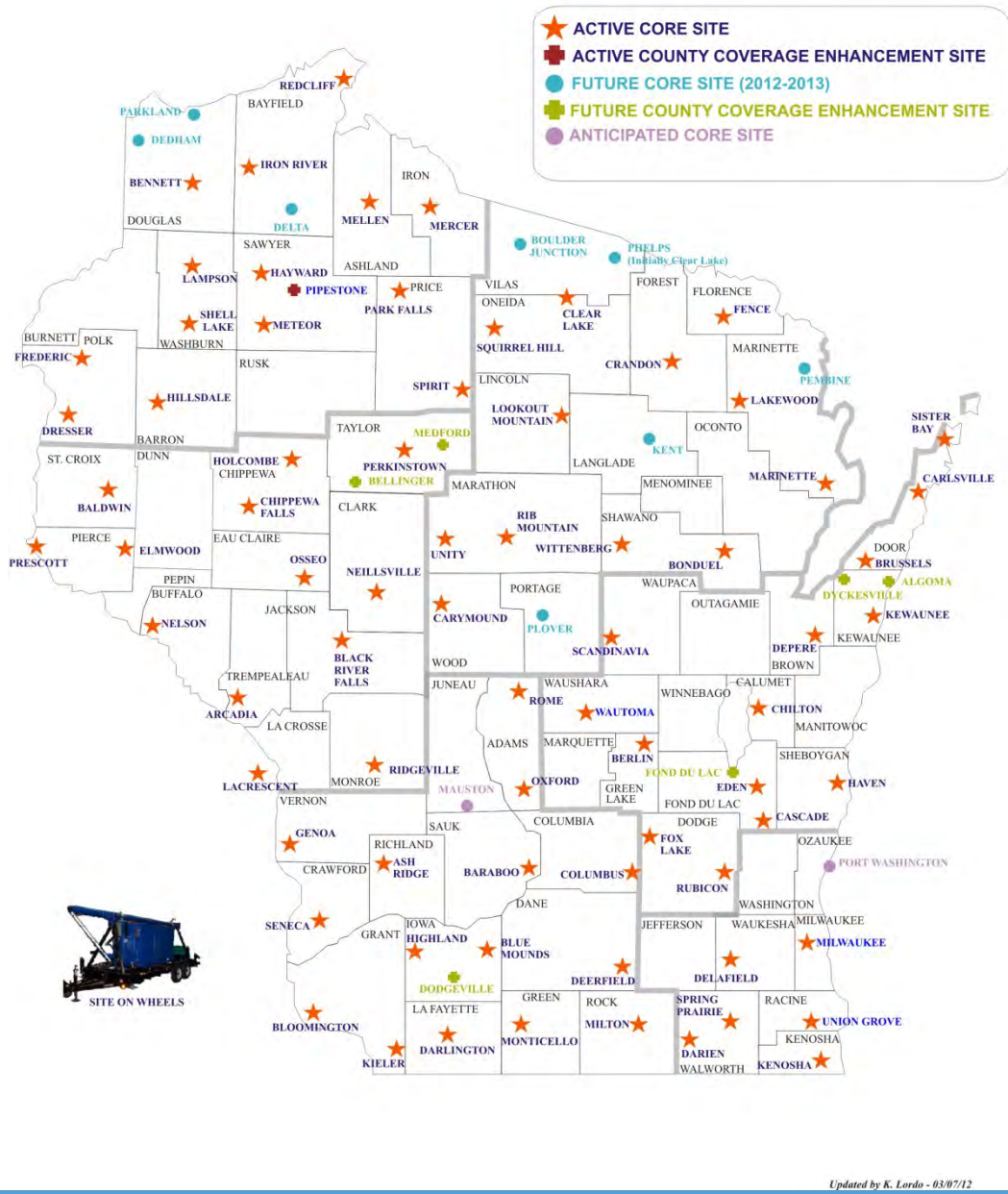
Site Map



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Site on Wheels (SOW)

- VHF WISCOM site
- VHF and 800 MHz mutual aid repeaters
- Site can be used as stand-alone or as part of network
- Requested through WI State Patrol at (608)2WISCOM

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What Can WISCOM Do?

- WISCOM exists to serve
  - Can be used for local or wide-area communications
  - Can be tied into bordering state systems
  - Integrated capability not found elsewhere
    - Local/State/Federal agencies
    - National Guard/State EOC, Statewide Traffic Operations Center, Air Medical

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Interoperability Benefits

- Regional or Statewide radio communications
  - Prisoner transports
  - Travel for training or mutual aid
  - Disasters/Critical Incidents
- PSAP Connectivity
  - 65+ Primary County PSAPs and many others
- Provides rapid communications scalability
  - Several hundred agencies have access and growing

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User Overview

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Current Usage

- As of July 2013
  - 13,000+ subscriber units enabled on system
  - 400+ agency applications
  - Local, State and Federal agencies
  - Users across Wisconsin, Minnesota & Iowa
- Several counties and/or agencies migrating to system for daily use
- System live as of 1 May 2012

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User Structure

- **Two Basic Types**
  - Interoperability only
  - Daily use
- **Open to many Disciplines**
  - Public Safety (Law/Fire/EMS/EM)
  - Federal/Military
  - Other governmental units
  - Sponsored NGO's
- **Provides a common communications platform**

Access Types

- No-cost access
  - Level 1 – Interoperability
  - Level 2 – Travel/Itinerant
- Fee-based access*
  - Level 3 – Daily Use
  - Level 4 – Affiliated subsystem
  - Level 5 – Integrated build-out
  - Level 6 – Data (future, in development)

*Fees waived by SSMG until June 2015 for eligible LOCAL public safety users

*Non-public safety and Federal or private entities subject to fees immediately

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WISCOM
Interoperability Talkgroups

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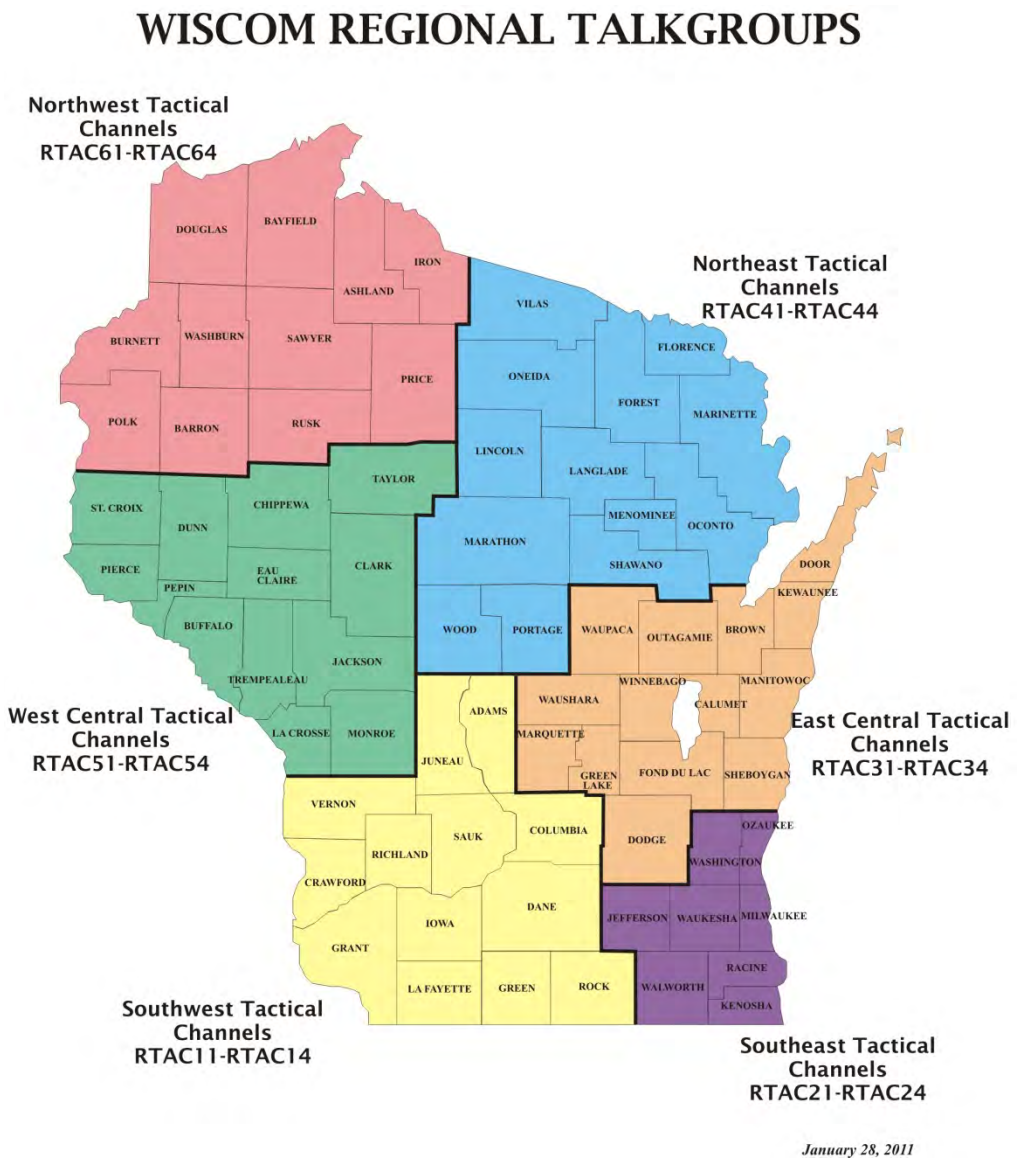
Interop TG's

- 8 Statewide
  SCALL1, STACx
- 4 per Region
  RCALLx1
  RTACx2-x4
- 2 per County
  xxCOM, xxTRVL



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Specialty Interop Talkgroups

- MABAS1 / MABAS2
  - Available for inter-divisional MABAS coordination and control
- EPS1
  - Available for EPS callouts or other multi-agency law events
- COLLAPSE
  - Available for team use or coordination
- HAZMAT
  - Available for team use or coordination

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Interop Talkgroup Guidelines

- Plain language only
  - No 10 codes, ciphers or encryption allowed
  - Per WISCOM Admin Policy 201.00
- Interoperable communications only
  - Not for routine traffic
- Patching is permissible as allowed in the WISCOM Administrative Manual

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Daily User Talkgroups

- Each Daily User agency is eligible for up to fifteen (15) talkgroups at no upcharge
- Total number of agency talkgroups subject to system capacity
  - Determined by System Admins and SSMG
  - Will vary on case-by-case basis
- Only available on tower(s) that cover your area

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Mandated Programming

- All radios on system required to have:
  - SCALL1/STAC2-8
  - Regional RCALL/RTAC set
    - all 6 sets recommended

- These talkgroups provide common interoperability platform for all system radios

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Technical Overview

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What is Trunking?

- Trunked radio systems are complex, computer-controlled radio systems
- All users share available radio channels and infrastructure rather than dedicated channels and infrastructure for each agency/user
- Radios are allocated a voice channel only for the duration of a voice call
- Voice channels are allocated automatically, on demand

Trunking Advantages

- Talkgroups allow specific groups in an agency to have private communications, and encryption can be enabled for maximum security
- Trunking allows a large geographical area to use the same talkgroup(s)
- Controlled system access
- Ability to disable rogue or lost radios

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Differences To Users

- WISCOM is Project 25 (P25) digital
  - No static…voice is either heard or not
- WISCOM is statewide
  - Radios roam from site to site as you travel
  - Similar to how cell phones function
- WISCOM enhances connectivity
  - Any public safety agency or other authorized entity may use the system

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Differences To Users

- WISCOM is Multicast
  - Each site has unique frequencies
  - Site will only carry most traffic if a radio is affiliated to it
  - Scanning works much differently
  - This is different than simulcast trunked or conventional systems

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Programming Agreement

- Any person who will program WISCOM into subscriber units is required to sign agreement
- Signed agreement required per person, not per shop or agency
- Requires endorsement of a user agency
- Agreement kept on file with system administration
- Non-transferrable authorization

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Tested Radios

Portable Radios	Mobile Radios
EF Johnson 5100 series	EF Johnson 5300 series
(5100 ES/51SL ES)	(5300 ES/53SL ES)
Harris P5400 series (Scan or System)	Harris M7100 series (Scan or System)
Harris P5500 series (Scan or System)	Harris M7300 series (Scan or System)
Harris Unity series (XG75, XG100)	Harris Unity series (XG75, XG100)
Kenwood TK5210 and TK5220	Kenwood TK5710 and TK5720
Motorola XTS series (1500/2500/5000)	Motorola XTL series (1500/2500/5000)
Motorola APX portables (APX6000, 7000)	Motorola APX mobiles (APX6500, 7500)
Relm KNG P150	Relm KNG M150, B150
Tait TP9100 series	Tait TM9100 series

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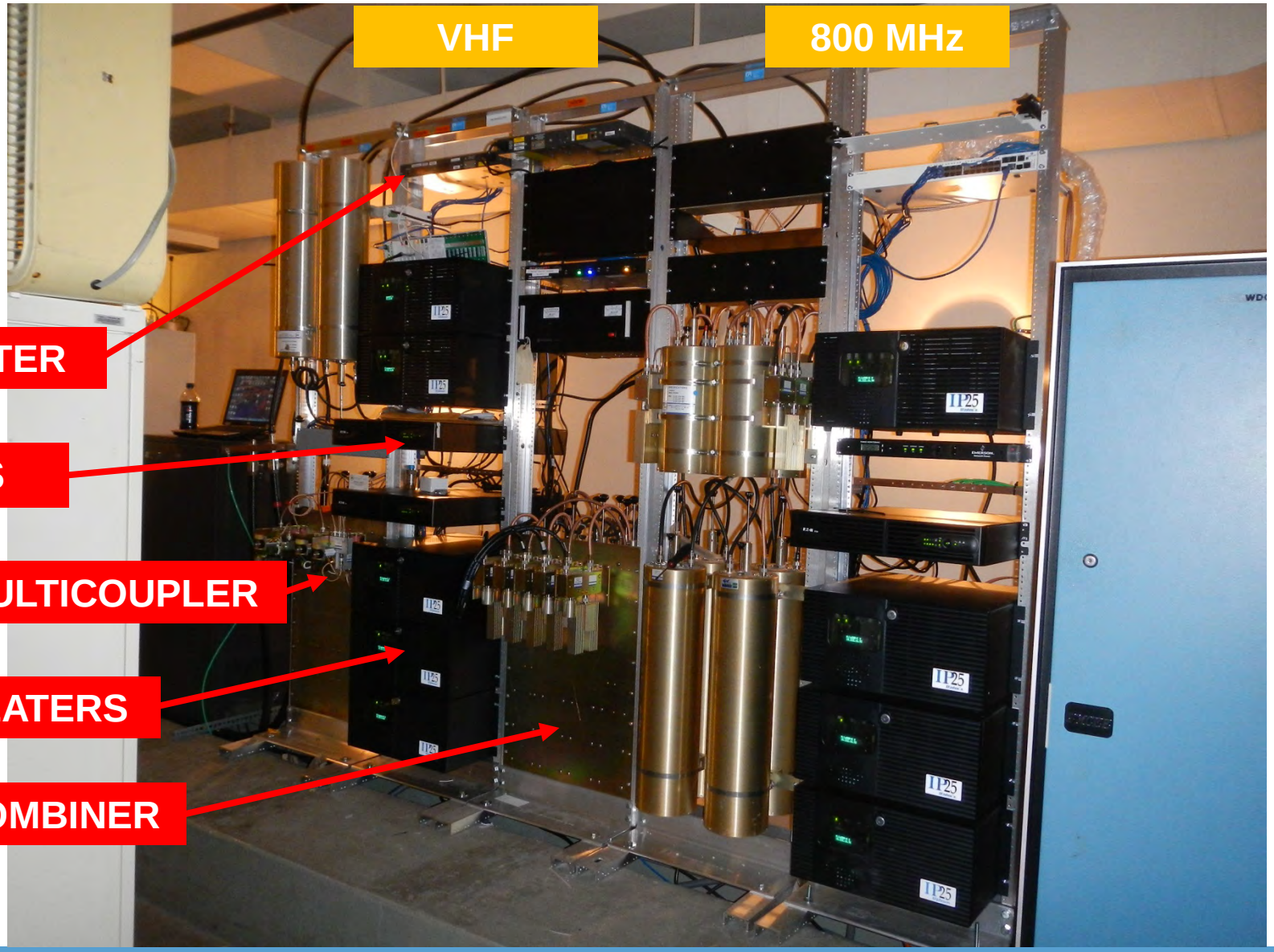
Milwaukee Site – VHF and 800



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Current WISCOM Initiatives

- Daily Users
  - Iowa and Sawyer Counties, City of Fond Du Lac operational
  - Douglas, Kewaunee, and Taylor Counties in process of switching
- Future
  - Juneau and Dunn Counties
  - City of Greenfield

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Current WISCOM Initiatives

- County Scan
  - Most are active
  - Can be remote controlled via StarGate console
- ISSI connections
  - Several projects in process
  - Network-level connection merges systems
- Gateway connections
  - Will allow limited TG capability

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Rumor Control

- WISCOM does not mandate local FCC licenses to be relinquished to the State
- Locally-owned subsystems can be managed by local staff
- WISCOM does not charge user fees to locally-owned subsystems
- WISCOM can provide support to local subsystems as needed, but doesn't require it
- WISCOM is NOT building out a statewide 800 MHz layer
  - 800 MHz is only being installed where existing 800 MHz local users will benefit and where Wisconsin DOC already uses it

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WISCOM End User Training

- Training required per SSMG
  - Basic operation
  - System overview
- Options available
  - Regional or departmental sessions
  - Train-the-trainer sessions
  - Web-based
- WISCOM video available on web

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Reporting Problems

- By Phone: (608) 2WISCOM
- By Email: wiscomtech@dot.wi.gov

- Phone support available 24/7 and should be used to report critical outages or problems

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WISCOM Web Site

http://interop.wi.gov/wiscom

System Administrators

Carl Guse carl.guse@dot.wi.gov

Jim Westover jamesl.westover@wi.gov

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Up Next….

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Nationwide Public Safety Wireless Broadband Network Plan

Tim Pierce

– Lead Facilitator
– SW Wisconsin Regional Interoperability Coordinator (RIC)

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The NPSBN Proposal

- Create next generation nationwide public safety wireless network
- Adopt fourth generation (4G) cellular technology to leverage fast pace of commercial development
- Leverage commercial equipment economies of scale while maintaining public safety's unique requirements
- Provide high data rates to enable advanced applications
- Use industry standards to enable interoperability for public safety

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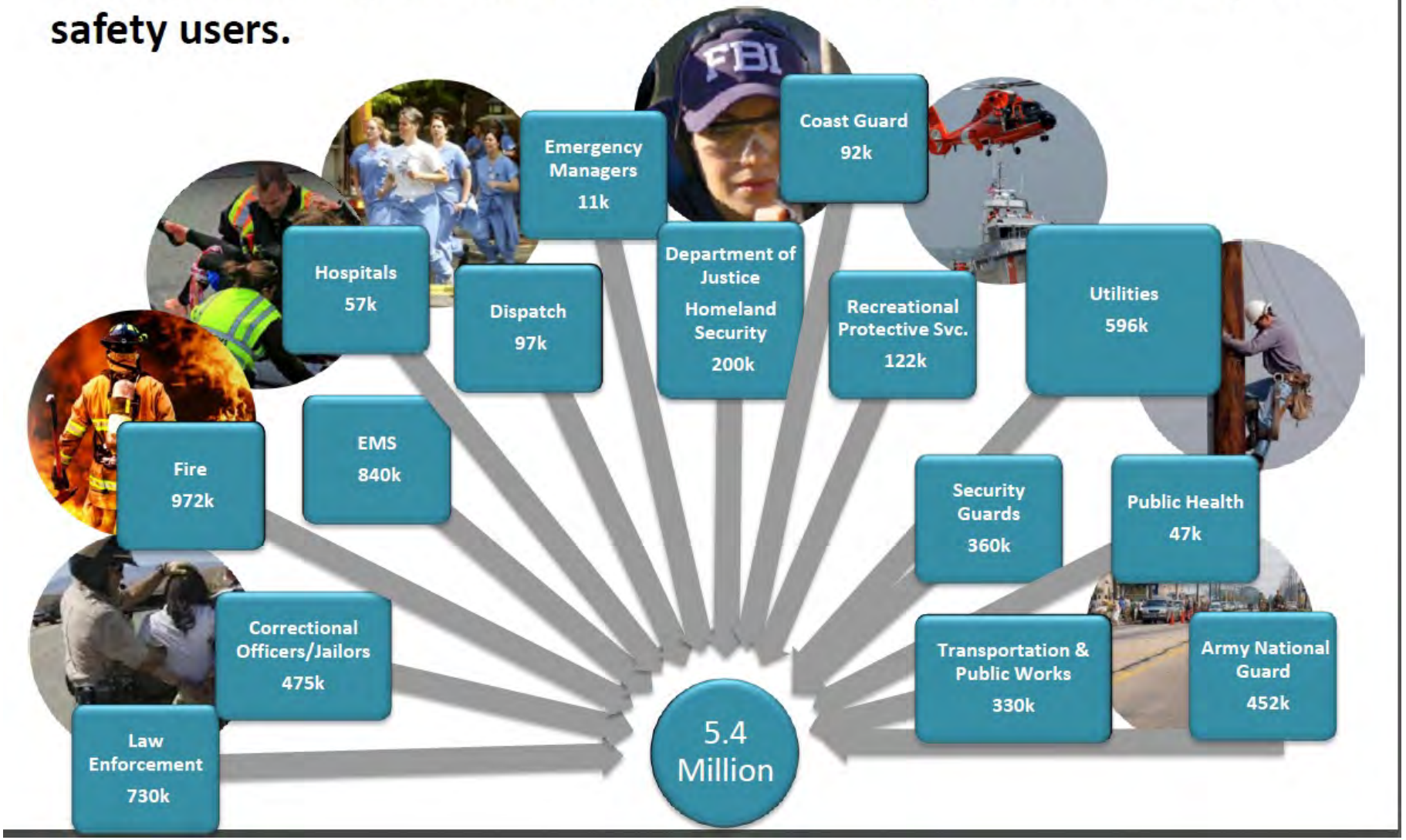
FirstNet has the potential to support a broadly defined set of public safety users.



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NPSBN = FirstNet?

- FirstNet is not a network per se, but rather a 15-member independent agency that will oversee the design, deployment and ongoing operations of a nationwide public safety wireless broadband network.

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FirstNet Responsibilities

1. Hold the spectrum license for FirstNet.
2. Develop a plan for network buildout, maintenance and sustained operations in each state.
3. Ensure nationwide standards for network use and access.
4. Deliver economies of scale for public safety entities.
5. Negotiate roaming agreements with commercial networks.
6. Formulate a fee collection system to ensure self-sufficiency.
7. Consult with local, state, tribal, territorial and federal entities.

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2012 Overview

- Governor identifies the Interoperability Council (IC) as the state's NPSBN coordinator and POC with FirstNet
  - 2005 Executive Order 87 Established IC
  - Mission: Improve statewide interoperable communications
- Public Safety Wireless Broadband Workgroup (PSWBW) established

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Public Safety Wireless Broadband Workgroup

- Jeff Stauber – Chair (East-Central RIC)
- Composed of multi-stakeholder/discipline members
- Develop recommendations to IC related to NPSBN initiative

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2013 So Far

- Initial Broadband Workshop for the NPSBN Facilitation Team
- Submitted State and Local Implementation Grant Program (SLIGP) planning grant to NTIA – WI to Receive 2.3 million
- In Process of completing a NPSBN Facilitation Plan

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2013 Continued

- Attended Regional FirstNet Consultation
  - http://www.ntia.doc.gov/page/firstnet-state-consultation

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SLIGP Details

- Phase One Activities
  - Establish, Modify or Enhance Governance
  - Hire Staff/Contractors
  - Facilitation Team Training
  - Education/Outreach
  - Identify PS Users/Networks
  - Identify Other Networks
  - Develop MOA/Contract Language

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SLIGP Details continued

- Phase Two Activites
  - Continuation of Phase One Activities
  - Prioritizing Users and Build out
  - Training Local Users
  - Identify Coverage Areas
  - Tower Placement
  - Data Collection

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Implementation

- Once planning is completed, PSWBW will make a recommendation to IC regarding Opt-in or Opt Out. This recommendation will then be presented to the governor.

- Implementation plan and funds TBD – 2016 and beyond

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WI Facilitation Team

- Staff

Deputy SWIC	James Westover
Program Manager	Shannon Ladwig
Lead Facilitator	Tim Pierce
BB Program Project	TBD
A. Lead Facilitator	Gene Oldenburg
PSWG Chair/Facilitator	Jeff Stauber
Facilitator	Eric Anderson
Facilitator	Andy Faust
Facilitator	Tad Matheson

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Education/Outreach Events

- Regional SCIP Councils
- Public Safety Community – 20%
- Other Government Agencies (Users)
- Non-Governmental Agencies
- Community Members and Elected Officials

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Other RIC Activities

- Tactical Interoperable Communications Plan (TICP) Development – County Level
- Communications Assets Survey and Mapping data entry
- Exercise Support
- http://publicsafetytools.info

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Thank You

- Tim Pierce – SW Regional SCIP Coordinator
  NPSBN Lead Facilitator
  pierce.timothy@countyofdane.com

- Shannon Ladwig – Interoperable Communications PPA
  NPSBN Assistant Manager
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- James Westover – Deputy Statewide Interoperability Coordinator
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