Wyoming's Statewide Public-Safety Interoperable Radio Communications System

Project Manager's Report to the PSCC

Date: September 26, 2006

Mr. Chairman,

I can report that the WyoLink project is moving forward, though not without challenges.

PROJECT-25 STANDARDS

First, I have been tracking the status of Project-25 standards. Standards development, though painstaking, is progressing.

The Intra-Sub-System Interface (ISSI) has recently been approved. This standard defines how one Project-25 system communicates with another system and is an essential component for expanding interoperability. At the recent APCO conference one manufacturer was demonstrating a Project-25 infrastructure that employed the ISSI to bridge systems and provide interoperable communications.

Word from the standards committee is that with the completion of the ISSI the Console Interface standard is anticipated within a year. The standard will define how Project-25 radio systems and dispatch consoles communicate. Adoption of this standard will increase opportunities for competitive procurement, as it will allow multiple manufacturers to produce radio dispatch consoles that will communicate with a Project-25 network, like WyoLink.

SUBSCRIBER EQUIPMENT

Second, I've been in communication with a number of manufacturers of Project-25 subscriber equipment. Some have come to Cheyenne to employ the WyoLink Pilot Phase system to demonstrate the functionality of their new production equipment. Others have used the system to shake out their prototype trunking features. As a result, WyoLink users will be gaining more choices and more competitive pricing in selecting subscriber equipment to fit their specific needs and budgets.

This, and the previous development, serves to confirm the wisdom of selecting Project-25 digital technology for the WyoLink infrastructure.

ZONE 2 & VERSION UPGRADE

As mentioned in the July PSCC Newsletter —

On June 27th WyoLink Project leadership and stakeholders accepted Motorola's proposal to upgrade from Astro-25 version 6.5 to version 7.2.

It is very advantageous to implement this upgrade at this stage of the WyoLink Project. Only the Pilot Phase equipment needs to be upgraded. Waiting would increase the cost of upgrading to version 7, as more equipment would have to be changed. All new equipment will ship with

the latest version. By acting now, the cost of this upgrade remains within the current project budget.

This upgrade offers advantages to WyoLink. Among these advantages are:

- *An extended lifecycle and simplified system architecture, which combined to reduce long-term maintenance costs and increase reliability.*
- *Support for the new IP-based dispatch console technology, which can reduce the cost of interconnect between a dispatch center and WyoLink, and provide true end-to-end encryption.*
- *Support for future implementation of pending Project-25 standards, such as the Console Interface Standard and Intra Sub-System Interface.*
- *Additional network security and faster software upgrade capability.*
- *Support for future implementation of wideband-high-speed data communications.*
- *Support for "Over The Air Programming" (OTAP), an option that will allow remote adjustment of subscriber equipment programming.*

Upgrading to version 7.2 offers WyoLink users greater flexibility and features, while holding the line on current cost and offering a lower long-term cost.

I have received and am reviewing the Detail Design documents that address the installation of the zone controller at Casper and the upgrade of the zone controller at Cheyenne. This equipment is presently scheduled to stage at the Motorola factory in December, with installation to begin thereafter. To facilitate the upgrade, the WyoLink system will have a short down-time, but as only trial use is taking place the impact will be minimal.

FREQUENCY PLANNING

Motorola continues work on the WyoLink frequency plan.

The Preliminary Frequency Plan document was delivered in July. That plan employs a mix of frequencies from the Public Safety pool (Part-90), the Business & Industry pool (Part-90), the Maritime service (Part-80), and frequencies formally allocated to paging and mobile telephone (Part-22). Indications are that the waivers necessary to use the Part-22 frequencies involve a very lengthy process. Therefore, we will be requesting federal frequencies to replace the Part-22 frequencies. It is evident from the Preliminary Frequency Plan document that the decision to extend the search for WyoLink frequencies to the entire VHF band was necessary for project success.

The Preliminary Frequency Plan has been undergoing in-depth evaluation and further site-specific engineering study on its way to becoming the Final Frequency Plan. As such, the plan has been changing. It has been necessary to rework the frequency selection for a few radio sites when intermodulation studies identified conflicts. This rework will delay the delivery of the Final Frequency Plan, which was to be completed by the end of September. I have directed Motorola that delivery of a frequency plan that fully considers all interference conflicts was of greater importance than adherence to the September deadline. The delivery date of the Final Frequency Plan has not been established.

Federal agencies will be receiving a report detailing the current state of the WyoLink frequency planning effort and specifying the site-specific need for federal spectrum. I understand the Federal agencies will be meeting this Friday, September 29, to evaluate spectrum donations to WyoLink. The willingness of federal agencies to contribute spectrum, as a quid pro quo for using the WyoLink system, is the best assurance that a complete and workable frequency plan will be delivered.

INFRASTRUCTURE DEVELOPMENT

I have included with this report an updated map of the WyoLink radio sites. This map shows the geographic areas for each phase of the project.

The areas previously described as Phase-4 and Phase-5 have been combined, as work in both areas is slated for next year and they will be managed as a single phase, Phase-4.

There will be a Phase-5 for the WyoLink project. For lack of a better term, this will involve "straggler" radio sites. There are sites where land acquisition may delay development. Likewise, additional sites to address coverage deficiencies will be in Phase-5 if the site acquisition and planning cannot be accomplished in time for Phase-4.

The table below describes the status of the radio sites in each phase of the project. You will note that some sites listed at the bottom of the table are locations yet to be determined.

Count		Site Name	Status
		Phase 1 Sites	**ALL SITES COMPLETED**
1	1	85 South	COMPLETED. Currently active in wide area trunking.
2	2	Sherman Hill	COMPLETED. Currently active in wide area trunking.
3	3	North Albin	COMPLETED. Currently active in wide area trunking.
4	4	Russell Hill	COMPLETED. Currently active in wide area trunking.
5	5	Whitcomb Hill	COMPLETED. Currently active in wide area trunking.
		Phase 2 Sites	**DESIGN COMPLETED; Construction Underway — All sites waiting for Final Frequency Plan, then combiners will be ordered.**
6	1	77 Hill	Antennas and RF equipment installed.
7	2	9-Mile Hill	Antennas installed. Waiting on new generator, then batteries can be moved, and then RF equipment will be installed in the occupied space.
8	3	Baggs Hill	Waiting for new tower. Waiting for new building.
9	4	Casper Mountain	Antennas and RF equipment installed.
10	5	Casper POE	Antennas installed. Waiting for new building
11	6	Church Buttes	Antennas and RF equipment installed.
12	7	Divide Hill	Waiting for new tower. Waiting on new generator, then batteries can be moved, and then RF equipment will be installed in the occupied space.
13	8	First Divide	Waiting for new side arm brackets to complete antennas. RF equipment is installed.

Count		Site Name	Status
14	9	Jade Mountain	Antenna work waiting on structural analysis to ensure the tower safety. RF equipment is installed.
15	10	Morton Hill	Antennas and RF equipment installed.
16	11	Muddy Gap Hill	Antennas and RF equipment installed.
17	12	Pine Ridge	Antennas and RF equipment installed.
18	13	Shirley Mountain	Antenna work waiting on structural analysis to ensure the tower is safe. Waiting on new building.
19	14	Strouss Hill	Antennas and RF equipment installed.
20	15	Virgin Hill	Antennas and RF equipment installed.
21	16	Waltman Hill	Antenna work waiting on tower guy-wire adjustment to allow increased tower load. RF equipment is installed. Waiting on new generator.
22	17	Aspen Mountain	Antenna work waiting on structural analysis to ensure the tower is safe. Waiting for new building.
23	18	Delaney Rim	Antenna work waiting on structural analysis to ensure the tower is safe. Waiting on removal of old microwave and radio equipment racks to provide space for WyoLink installation. New generator will be installed.
		PHASE 3 Sites	**Design Completed; Construction Pending completion of building and tower upgrades. Site acquisition complete.**
24	1	Banner Ridge	
25	2	Chicken Creek	
26	3	Lonetree	
27	4	Mount Pisgah	
28	5	Pumpkin Buttes	
29	6	Rozet Hill	
30	7	Tisdale Divide	
31	8	Tisdale Mountain	
32	9	Warren Peak	
33	10	Dead Indian	
		PHASE 4 Sites	**Design Underway — Proposed as Motorola turn-key install. Site acquisition complete, except as noted.**
34	1	Sage	
35	2	Aspen Ridge	
36	3	Cedar Mountain	
37	4	Copper Mountain	
38	5	Hogsback Ridge	

Count		Site Name	Status
39	6	Oyster Ridge	
40	7	Snow King	Site modification request underway.
41	8	Torchlight Hill	
42	9	Windy Ridge	
43	10	Geneva Summit	Site acquisition underway.
44	11	Narrows Hill	Site acquisition underway.
45	12	Rattlesnake Ridge	Site acquisition underway.
46	13	Salt Pass (new)	Site acquisition underway.
47	14	South Pass	Site acquisition underway.
48	15	Winkleman Dome	Site acquisition underway.
49	16	3 Mile Hill	Site acquisition underway.
X	17	Rendezvous Peak	Microwave only site on USFS land. Will require a new tower. Site lease in the process. Site acquisition underway.
X	18	McCullough Peaks	Microwave only site on BLM land. Complete new site. Site lease in the process. Site acquisition underway.
50	19	Medicine Mountain	Recently approved. Site acquisition beginning. Needs frequency plan. May move to Phase-5 depending on progress.
51	20	Pinkham Mountain	Recently approved. Site acquisition beginning. Needs frequency plan. May move to Phase-5 depending on progress.
		Phase 5 Sites	**Acquisition still in process; construction forecasted for 2008**
52	1	Signal Mountain	Design and Acquisition in process. Frequency plan in process.
53	2	Pow Wow Point	Design and Acquisition in process. Frequency plan in process.
54	3	Clayton Mountain	Recently approved. Site acquisition beginning. Needs frequency plan.
		Non-Specified Sites	The location of these sites is undetermined.
55	1	TBD undesignated	*VHF-57 site deleted due to redundancy.*
56	2	TBD undesignated	*VHF-57 site deleted due to redundancy.*
57	3	TBD undesignated	*VHF-57 site deleted due to redundancy.*
58	4	TBD contingency	*Budgeted contingency to address coverage deficiencies.*
59	5	TBD contingency	*Budgeted contingency to address coverage deficiencies.*
60	6	TBD contingency	*Budgeted contingency to address coverage deficiencies.*
61	7	TBD contingency	*Budgeted contingency to address coverage deficiencies.*
62	8	TBD contingency	*Budgeted contingency to address coverage deficiencies.*