

HEADQUARTERS
NORTH DAKOTA HIGHWAY PATROL
Bismarck, North Dakota

Presentation to Information Technology Committee
by Colonel Mike Gerhart, Superintendent
September 25, 2014

State Radio Communications Plan

Good afternoon, Mr. Chairman and committee members. For the record, I'm Mike Gerhart, superintendent of the North Dakota Highway Patrol. With me today is Major Brandon Solberg, my chief of staff, whom I may utilize as a resource to help answer any technical questions or provide clarification on any of the information I share today.

Mr. Chairman and committee members, we currently utilize State Radio as our primary dispatch center, and we value the services State Radio provides to our officers. The challenges we have experienced with our radio system are not unique to the Highway Patrol, and they are not driven by the services we receive from State Radio. Rather, the challenges we face as an agency seem to be the result of changes in technology.

The Federal Communications Commission (or FCC) mandated that VHF frequencies used by public safety agencies transition from wideband to narrowband on or before January 1, 2013. This mandate was implemented to relieve congestion and free up enough spectrum to meet future public safety radio needs.

At the same time narrowbanding was completed, our agency converted from analog to digital modulation. Digital technology was supposed to offer many benefits including enhanced voice quality, stronger coverage, background noise filtering, and the ability to send data such as unit IDs attached to voice transmissions, but issues surfaced shortly after implementation. Analog technology allowed officers to control most incoherent voice radio traffic by adjusting the squelch level in their mobile radio; but with our current digital radios, there is no option to squelch weak signals so bursts of noise and broken transmissions are received on our radios.

Due to problems with encoding digital voice traffic into a data packet and then decoding it on the other end and other possible interference, 44% of our officers report receiving multiple garbled transmissions every day. Less than 1% report never hearing garbled transmissions. In some cases officers receive no transmission at all, even when in line of sight of another unit.

Poor digital communications are problematic in law enforcement as well as other first responder agencies such as local fire and ambulance services. In law enforcement, the safety of our officers is compromised when there is a breakdown in communication. Officers rely on their radios daily, it truly serves as their lifeline, and the need for effective communication between officers and dispatchers is crucial. In an internal survey conducted by our agency, one officer stated, (quote) "If I were to get into a physical fight or a fight for my life outside my car, I do not believe with certainty that State Radio would hear my call for assistance" (unquote).

The citizens we serve, regardless of the nature of the call, expect a timely response. The ability to provide high quality law enforcement services is dependent on the ability of officers and dispatchers to relay information back and forth in real time without flaws. The need for law

enforcement services usually starts with a phone call to 911, and police radios should have the same reliability as a phone because both are equally important when it comes to summoning appropriate help during an emergency. In our survey, 37% of officers would rely on their cell phone to summon emergency assistance instead of their radio due to the challenges experienced with the current digital radio system.

Regardless of the future technology in voice radio communications, it is important that we have a fully functional land mobile radio system in place with enough redundancy to ensure operational continuity if there is ever a primary system failure or a dropped tower site. The ability for multiple public safety agencies to communicate with each other is also important. The current system worked great for a number of years, but it has been negatively impacted by the growth in first responders in our state and the changes in technology discussed today.

A list of our radio equipment and the results of the NDHP officer radio survey are provided below.

Thank you, Mr. Chairman and committee members, for the opportunity to present this testimony today.

Make and Model of Current Radio Equipment

- Motorola XTL 5000
- Motorola APX 6500
- Futurecom UHF digital vehicle repeater

NDHP Internal Radio Survey Results

- Very few had **no** issues when trying to transmit from the portable radio, and most officers experience problems several times each day.
- Quite a few officers made comments that if several cars are parked at a location the portables will not work.
- There was a request to add the ability to steer channels with the portable radio.
- 54% of those surveyed felt that the Futurecom repeater has improved radio communication, but that means 46% noticed no change.
- 44% of those surveyed indicated they heard multiple garbled transmissions each day, 23% reported once per day, 23% once per week, and less than 1% reported never hearing garble.
- 76% experienced fluctuations in range – for example, not hearing units within a few miles but hearing traffic from units in the next county.
- 67% of officers feel comfortable operating the radio, but 33% or 1/3 of our officers do not.
- 52% would like to receive more training – preferably hands on or on-site.
- 82% find the zone of local channels useful.
- 63% would rely on their radio to obtain emergency assistance, but 37% would rely on their cell phone as a primary method to summon help.

- A few quotes from officers are below:
 - “If I were to get into a physical fight or fight for my life outside my car, I do not believe with certainty that State Radio would hear a call for assistance.”
 - “I have tried to advise State Radio that I have a suspect in custody while at the back of my squad, the front of my squad, or alongside my squad and the transmissions rarely go through.”
 - “I understand every system has limits, but no cell reception or portable reception can be unnerving.”
 - “State Radio is unable to comprehend my transmissions, I have to run back to my car and use the (mobile radio) to respond.”
 - “Any time I am out of my vehicle I either have to call in on a phone or get back to my car.”