THE COLORADO STATEWIDE DIGITAL TRUNKED RADIO SYSTEM: An Overview

The Governor's Office of Information Technology
Kristin D. Russell, Secretary of Technology and Chief Information Officer

ABOUT DTRS

- The Colorado Statewide Digital Trunked Radio System (DTRS) provides a near seamless statewide wireless system that enables direct communications between first responder/public safety agencies across jurisdictional and regional boundaries. Ownership is shared among jurisdictions.

- DTRS replaces multiple disparate and obsolete radio systems operated by state and local agencies with a single integrated system. This was made possible through partnerships between state, local, regional, tribal and federal government agencies.

- DTRS is available to all public safety, public service and other governmental agencies who may choose to use the system either as their primary radio system or for interoperability only.

    - Over **88,000 subscriber radios** operating on DTRS (and increasing on average by 400 per month), representing over **1,000 local, regional, tribal, state and federal agencies**. Approximately 1/6 of these users are from state government and the remainder are from local, regional, tribal and federal government agencies.
    - **216 active radio sites** operating on **four Zone Switch Controller**s and 45+ dispatch sites.
    - Mobile radio coverage is provided to approximately **93%-95% of state roadways.**
    - In 2012, the system averaged over **14,000 hours of talk time each month** and handled over **99 million calls**.
    - State of Colorado OIT engineers and technicians are responsible for the service and maintenance of roughly 2/3 of the statewide network with local government agencies being responsible for the remainder.

- This system is available with 7x24x365 maintenance and support from local, state and vendor partners.

- DTRS supports wireless voice communications and is planned to also support future data communications and meets the highest level of interoperability for Technology on the SAFECOM Interoperability Continuum.

DTRS MATTERS TO COLORADANS

DTRS is a critical public safety tool and is an exceptional representation of successful partnerships between all levels of government using advanced technologies to achieve a singular goal: ***effective interoperable public safety communications during times of emergency, as well as daily operations***.

DTRS provides the communication support for mutual aid agreements across jurisdictional boundaries throughout the state including federal, state, tribal, county and local municipalities. Without this cooperation, critical aid to Colorado residents would be delayed. Agencies rely on the interoperability and flexibility of the system for both emergency and daily operations.

Because of DTRS, public safety agencies are able to communicate across boundaries in real time and upon demand. The following are just three examples of the importance of this critical, interoperable public safety communications system:

1. ***Buckhorn:*** The Buckhorn DTR site resources were used by state, local and limited federal government agencies for mutual aid communications during last summer's fire. DTRS allowed state agencies, such as the Colorado State Patrol, CDOT, the Division of Parks & Wildlife, etc., to communicate directly with local responders including the Larimer County Sheriff, the Poudre Fire Authority, the Incident Command Staff as well as other local responders. The Buckhorn site handled 188,946 calls between June 9 and 19, 2012. The total air time for all calls was 365 hours, 23 minutes and 8 seconds.

2. ***Dougherty Gang:*** DTRS enabled federal agents and local law enforcement agencies to communicate together on one channel during the chase that ultimately led to the arrest of the Dougherty Gang. An article in The Pueblo Chieftain cited Undersheriff JR Hall as stating "information flowed smoothly in Colorado thanks to regular crime bulletins and post-9/11 technology of digital radios..."

3. ***Aurora Theatre Shooting:*** Although first responders in Denver and Aurora are not primary users of the DTR system, they were able to have reliable interoperability with the Arapahoe County Sheriff and other responding agencies who are primary users of the DTR system.

This award winning system is recognized as one of the most successful public safety communications networks in the nation. It has also received national recognition. In 2010, nine delegates from the Royal Malaysian Police visited OIT to learn more about DTRS and challenges in deploying such a large system so they can build upon our experiences as they build out their own network.

PAST, PRESENT, AND FUTURE FUNDING STRATEGIES

PAST

- In July 2008 and April 2009, DTRS benefitted from $7.9 million in hardware and software upgrades funded through State capital construction funds.
- DTRS has received funding through the "Public Safety Trust Fund" created by HB98-1068 and more recently through Homeland Security, Colorado Wireless Interoperability Network (CWIN), Energy and Mineral Impact, Public Safety Interoperable Communications (PSIC) and other federal grants.

PRESENT

OIT is currently seeking ***approximately $14 million for critical DTRS software and some hardware updates*** ($3,726,190 for the first financing installment). The State is ***five years behind in critically needed upgrades***. If funding is made available, the project will be accomplished in four phases over a period of nearly two years. A phased approach to the project is absolutely necessary to ensure uninterrupted availability of this mission critical service to all public safety first responders and to ensure system stability through multiple software upgrades. Below is a summary of each of the four required phases.

- **Phase One**: Estimated to begin in July 2013 and complete in January 2014. This phase upgrades the system from the current v.7.5 to v 7.7. The most urgently needed accomplishment of this phase will be to immediately re-institute the provision of Cyber Security and current anti-virus

protection.

- **Phase Two**: Estimated to begin in February 2014 and complete in June 2014. This phase accomplishes the next required software jump from v 7.7 to v 7.9. The DTRS in its current state has surpassed capacity for system ID's and is limiting the addition of badly needed first responder radio equipment. The most urgent need for Phase Two is to increase capacity for DTR system ID's to 128,000 to accommodate the requests for the addition of first responder radio equipment.

- **Phase Three:** Estimated to begin July 2014 and complete in November 2014. This phase accomplishes the next required software jump from v 7.9 to v 7.13. The DTRS in its current state has reached capacity for Master Zone channel capacity. The most urgent need for Phase Three is to increase channel capacity at the Master Zones to 1,000 for planned network growth.

- **Phase Four:** Estimated to begin and complete in December 2014. This phase will upgrade software from v 7.13 to v 7.14, bringing the DTRS to the most current version of software available.

FUTURE

During the 2012 legislative session, the Colorado General Assembly passed HB12-1224, which created the Consolidated Communications System Authority (CCSA) made up of 20 stakeholders and first responders from across Colorado tasked with advising the legislature and Governor on the operations, maintenance, and capital expenditure upgrade needs of the DTRS. OIT is a member of the CCSA but does not govern its activities.

The CCSA kickoff meeting was held October 19, 2012, and the Authority has since formed three core committees to carry out its duties and responsibilities:

1. ***Funding Committee*** -- focused on assessing the future total cost of operations and developing a long-term, sustainable funding model.
2. ***Technical Committee*** -- focused on identifying current and future capabilities and needs from a technology standpoint.
3. ***Outreach Committee*** -- focused on outreach and education of DTR system stakeholders and users with regard to the importance of the mission-critical system, the critical need for the sustainment of the system, and the value to DTR system users.

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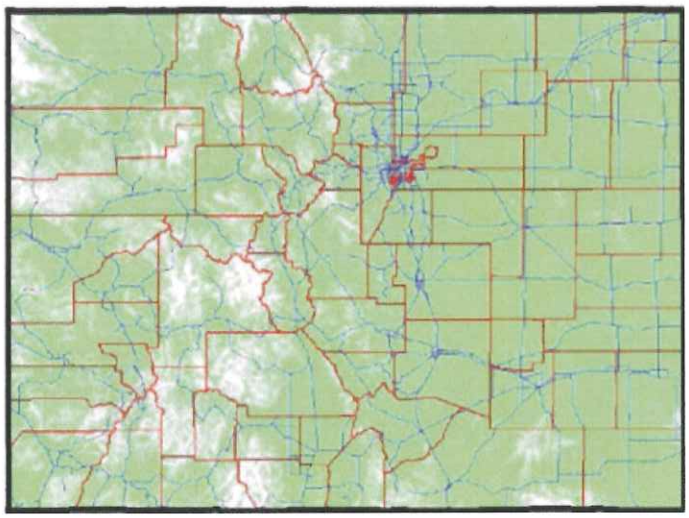
Above: The DTRS team at OIT's Pearl Plaza headquarters briefs Governor John D. Hickenlooper's Chief of Staff, Roxane White, and Secretary of Technology and Chief Information Officer, Kristin Russell. ***(August, 2012)***

Above: Squaw Mountain after a rain storm with low lying clouds in distance.

Above: Coledale DTR Transmitter Site in South Central Colorado

DTRS Coverage Map

Green = covered areas
White = no coverage
(Last updated December, 2012)



Right: A Colorado State Patrol Officer uses his DTRS portable radio in a snowstorm

Below: South Metro Fire Rescue District/Greenwood Village Police – Mobile Command Communications Unit (Local Government Partner)