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Wyoming Public Safety Communications Commission

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Education Session Minutes

An education session was held for the Public Safety Communications Commission (PSCC) in the I-80 Room of the Wyoming Department of Transportation (WYDOT) Training Building at 2 p.m. on Tuesday, October 24, 2023.

The following commission members were present, constituting a quorum.

Mark Harshman, Chairman	Phillip Franklin, Commissioner
Monte McClain, Vice Chairman	Karl Germain, Commissioner
Dwane Pacheco, Secretary	Cindi Shank, Commissioner
Paul Bertoglio, Commissioner	Matt Waldock, Commissioner
Matt Carr, Commissioner	John Wetzel, Commissioner
Mike Choma, Commissioner	Darin Westby, Ex Officio

Commissioner Owen St. Clair were absent.

The following WYDOT staff and guests were present and participated in the session.

Nathan Smolinski, <i>Chief Technology Officer</i>	Vince Garcia, <i>Geographic Information Systems (GIS) and Intelligent Transportation Systems (ITS) Program Manager</i>
Mark Kelly, <i>Emergency Communications Manager</i>	Suzie Roseberry, <i>GIS/ITS Developer</i>
Neil Gardiner, <i>WyoLink Support Manager</i>	Kimberly Chapman, <i>Commission Secretary</i>

WYDOT/County Collaboration for Road Reporting & Blow Over Risk Messaging

Mr. Garcia and Ms. Roseberry presented information to the commission on road condition reporting and the new blow over program. Ms. Roseberry reported that a major issue during the previous winter(s) was navigation systems routing travelers onto impassable or closed county roads when [highway] road closures are in effect. Travelers were stranded on impassable roads and had to be rescued by county staff and first responders.

Ms. Roseberry is working with the counties to identify roads that will automatically show as closed on the WyoRoads map when WYDOT closes highways. WYDOT will then provide this same information to third party navigation companies via a centralized data feed.

Following a question from Commissioner Choma, Ms. Roseberry stated that WYDOT is working with all of the counties to identify specific county road closures in relation to closures on certain segments of highways. In response to a question from Commissioner Shank, Mr. Garcia shared that it only takes a few seconds for information from WYDOT's centralized data feed to be shared with third party companies and integrated into their maps.

Ms. Roseberry reported that WYDOT provides data to the Situational Data Exchange (SDX), which hosts information for the Connected Vehicle project and for third party navigation companies. The SDX, which originated with the U.S. Department of Transportation (USDOT) and is now controlled by Trihydro, is a nationwide information source for data providers and consumers. WYDOT provides information on road conditions and closures, construction, and incidents to the SDX. WYDOT provides information to Sirius XM, Google (Waze), and TomTom through the SDX.

The navigation companies need certain pieces of information from WYDOT such as roadway line work and limits of a closure, begin and end time of closure, a reason for the closure, and who is included in the closure.

WYDOT met with the counties last spring to discuss proposals for improved information sharing and to collect local needs and concerns. The department must have a memorandum of understanding (MOU) in place with a county to document expectations and customizations for the program.

Ms. Roseberry reported that program participation is at no cost to the counties, but the counties must agree to share GIS data with WYDOT. The department has also requested that counties document all incidents of navigation companies misrouting drivers onto impassable county roads, especially if the incident necessitates a search and rescue operation. This will help determine if WYDOT should contact the navigation company responsible for the event about further information sharing.

Ms. Roseberry reported that 14 Wyoming counties have agreed to participate in the program to date. MOUs have been received from two counties, with an additional five counties working to complete a MOU. Following a question from Commissioner Carr, Mr. Garcia and Ms. Roseberry shared that they contacted county emergency/risk management officials and county road and bridge departments about participation in the program.

Following a question from Vice Chairman McClain, Mr. Garcia said that the preference is for counties to notify WYDOT of county road closures as soon as possible for weather or incident related closures, and well in advance of seasonal closures. For seasonal closures, Mr. Garcia prefers that counties work with WYDOT the summer before the closure goes into effect to identify what roads will be closed and discuss contingencies for closures. In response to a question from Commissioner Wetzel, Mr. Garcia said that that counties have the option to leave roads open to local traffic.

High Wind Blow Over Briefing

Mr. Garcia provided the commission with information on WYDOT's new Blow-over Safety System and the research used to develop the program. Mr. Garcia reported that WYDOT alerts drivers to wind events through pre-trip information systems such as the WYDOT website, the Commercial Vehicle Operator Portal (CVOP), the 511 phone system and mobile application, text and email alerts, YouTube video forecasts, and social media.

Drivers are also alerted to wind events on roadside information systems—dynamic message signs (DMS), highway advisory radios, and road weather information systems. In-vehicle systems such as Google, TomTom, and Sirius XM can alert drivers of high winds.

Ms. Roseberry shared 2022 statistics on the pre-trip information systems usage.

- The 511 Notify system sent 31 million messages to 118,000 subscribers.
- The Wyoming Travel Information Service (WYOROAD) website received 2.2 billion hits.
- The 511 phone system received over 250,000 calls, but that total is similar to previous years as other systems continue to grow in usage.
- The CVOP shares specialized weather forecasts—including surface visibility and wind forecasts—with 2,600 registered users.
- The 511 mobile app has over 530,000 unique users. Website usage continues to increase dramatically every year.

Ms. Roseberry shared statistics on roadside information systems for the same period.

- There were 129,188 updates to 162 dynamic message signs and 42,851 updates to 218 variable speed limit signs/devices.
- The record low temperature recorded by the road weather information system indicators was -43.6 degrees Fahrenheit in Deer Haven.
- The 224 webcams in the state captured 126 million images in 2022, which is 14 terabytes of data.
- Snowplow drivers and road maintainers submitted over 214,000 condition reports in 2022.

Mr. Garcia detailed the history of the blow over risk messaging program. In 2011, the department noted an increase of multi-vehicle blow over events. This prompted staff to perform historical reviews and analysis of similar events in specific locations. For example, staff found that every time winds reached 65 miles per hour in Bordeaux there was at least one blow over incident.

The staff began to consider strategies to decrease blow over incidents and implemented the first use of closures to light, high-profile vehicles in 2011. The early closures were limited to wind speeds of 60 miles per hour or stronger in consideration of commercial operators.

Mr. Garcia reported that despite these efforts, blow over incidents continued to increase. During the May meeting of the Joint Transportation, Highways, and Military Affairs Committee (JTC) meeting, legislators discussed this issue and asked WYDOT to more clearly define what constitutes a light, high profile vehicle. Mr. Garcia shared that it is very difficult to set a definition as a number of factors can affect blow over risk including the loading and weight of a vehicle, wind gust speeds, wind direction, roadway geometry, roadway surface condition, the shape of the vehicle, and the driver's experience level.

Mr. Garcia reported that there are other reasons that high wind blow over events are increasing. Blow over incidents are occurring more often because strong wind events are increasing in intensity and frequency. Newer models of light-weight tractor-trailers are designed and manufactured for greater fuel efficiency, but the trailers are more likely to blow over and clean-up time is increased. There are also more empty trucks on Wyoming highways because of the new distribution centers in Cheyenne and Laramie. Another reason is human complacency, which is due to the nebulous definition of light, high-profile vehicles and the increased frequency of general warnings on strong wind events.

Dr. Noriaki Ohara, a professor at the University of Wyoming, recently conducted research on blow over risk on Interstate 25, south of Cheyenne. The data from his research may be extrapolated to other locations and it provides risk levels for tractor-trailer combinations—the typical 53-foot box truck. Mr. Garcia reported that WYDOT data indicates that tanker trucks and flatbed trailers are less likely to blow over during strong wind events.

Mr. Garcia shared that several new insights were gained from Dr. Ohara's research. The data showed that cross slope, or superelevation, increases blow over risk. Dr. Ohara found that a slight head-wind is more dangerous to trucks than a direct, broadside gust. The research also confirmed that lighter vehicles are more prone to blowing over regardless of wind direction.

Based upon the research, WYDOT contracted Dr. Ohara to create tables that calculate blow over risk based on superelevation and wind speed. He created several tables for vehicles of different weights, in 5,000-pound increments.

WYDOT will use Dr. Ohara's research to enhance operational systems through the department's current capabilities—pre-trip, roadside, and in-vehicle information. The department will create an operational pre-event system to provide forecasts with predicted timings of wind events, locations, and classes of vehicles (by weight) subject to closures.

Additionally, WYDOT will create an operational system to improve enforcement of closures. The department will utilize the dynamic message signs to clearly target weight limits and discontinue general warnings. WYDOT will also create a tool for drivers to self-assess blow over risk through a web application. The program is currently developing a full evaluation process.

WYDOT will initially focus on implementing weight-based closures only on interstate highways. The interstates have more dynamic message signs to alert the traveling public and adequate environmental sensors to analyze real-time wind data. The interstates also have a higher volume of truck traffic, which have a higher blow over risk.

Mr. Garcia reported that segments of highways will be closed during wind events. Major communities along the interstates—where there are adequate resources for halted traffic—will serve as decision points for the segmented closures. There is adequate electronic signage around each of the 13 chosen communities to provide up-to-date information to drivers.

The messages will be specific and targeted to different classes of vehicles, and updated hourly to avoid frequent disruptions. Messaging will eliminate the ambiguous phrase “light, high profile vehicles,” but will retain “extreme blow over risk.” WYDOT will post weight-based closures on pre-trip travel information systems and third party navigation companies through the SDX.

Mr. Garcia reported that current state laws do not penalize drivers who violate wind closures. The JTC is considering legislation that would enact fines up to \$2,500 for weight-based closure violators and a potential loss of the operator's commercial driver's license.

Mr. Garcia informed the commission that WYDOT has contracted Dr. Ohara to conduct a two-year study of the new program. Dr. Ohara will evaluate the efficacy of the strategies,

determine if the frequency of blow over events decreased, and make recommendations for further operational improvements.

Mr. Garcia and Ms. Roseberry reported that the new strategies should be implemented during the next high wind event. The messaging will initially appear only on the dynamic message signs. The team should have the most commonly used public information systems updated to display the weight-based closures by early 2024.

Compact Rapid Deployable (CRD) and High Frequency (HF) Trailer Demonstrations

A CRD unit and the HF trailer were set up outside the WYDOT-U Training building for a live demonstration. The commission was able to inspect both units and Mr. Smolinski explained their operation and conditions for deployment. Mr. Smolinski requested that commissioners think about recommended locations for placement of the second CRD and providing guidance on public messaging for the CRD units.

Overview and Tour of WyoLink Office

Messrs. Smolinski, Gardiner, and Kelly gave the commissioners a tour of the WyoLink office in the basement of the Planning Building. Commissioners were shown the control and equipment rooms for WyoLink, and Telecomm offices and equipment.

Mr. Gardiner demoed the WyoLink control systems for the group. The live map of statewide tower sites was of particular interest as it allowed commissioners to see real-time WyoLink radio traffic and call volume.

The education session adjourned at 4:40 p.m.