

The national Local Technical Assistance Program mission is to foster a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce and decision makers.

Wyoming Technology Transfer Center



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T² Roads on the Range

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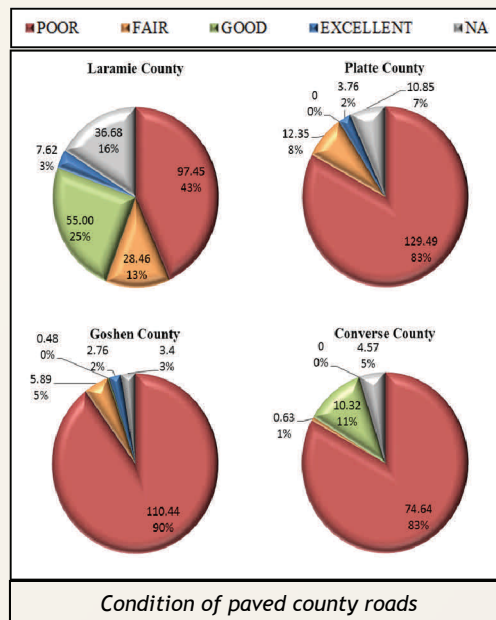
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2013, Issue 1

From the Desk of the Director

By Khaled Ksaibati

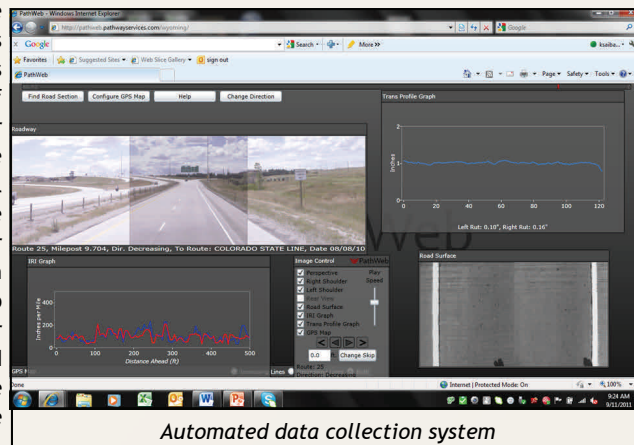
There are over 2000 miles of local paved roads around the state. Managing these local paved roads is a challenge for small local agencies. Each of the 23 counties in the state probably have a different way of establishing the conditions, and then working out maintenance and rehabilitation strategies for those local roads. A significant percentage of these roads were built 40 to 50 years ago. Some of these roads do not even receive the required routine maintenance due to lack of funding. The escalating prices of paving asphalt makes it difficult for county road and bridge departments to replace these roads when they fail. A recent study conducted by the Wyoming T²/LTAP center established a procedure for county roads to have conditions evaluated in a manner similar to WYDOT's procedure for the state highway system. It is not surprising to anyone that when the conditions of local roads in four counties were obtained, it was clear that a significant percentage of the paved roads were in poor condition. This would illustrate the need to determine the condition of all the county paved roads around the state. The Wyoming T²/LTAP center has been working closely with WACERS, WCCA, WYDOT, and FHWA to develop a uniform process to monitor the conditions of all county paved roads around the state. The expectation for the first year is for the



conditions of all roads to be established. Future conditions would be then determined every other year. Some of the benefits associated with such a statewide pavement management system are:

- Counties would be able to determine the current conditions of their paved roads and compare these conditions to other roads in the state. This is especially useful for counties with limited resources.
- Counties can identify the impact of any industrial activities on the conditions of their paved roads.
- Counties would have a systematic process to establish maintenance and rehabilitation strategies for their roads.
- Cost estimates for maintenance and rehabilitation needs can be established for all counties so that a comprehensive strategy to fund paving projects for county paved roads can be initiated.

I am really excited about the opportunity to provide all counties around the state with uniform pavement condition data and I am hoping that this project will be a reality next year.



Automated data collection system

18th Annual Transportation and Safety Congress

By George Huntington

This year we faced a predictable problem, that good, ol' Wyoming spring weather. Other than making the best of a snowy situation, there isn't much we can do to prevent these circumstances (other than holding Safety Congress in July or Hawaii). Not everyone who was registered was able to attend - we have a fairly high percentage of snow plow drivers who planned to attend but who

these elements of doing business was covered.

Opening Remarks

Del McOmie, WYDOT's Chief Engineer, and Joe Dailey, The FHWA's Wyoming Division Administrator, provided some overall views on the state of transportation and related funding within the state. Foremost among both their remarks was the good news that



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T² Roads on the Range



Parking lot at the Parkway Plaza, Casper, April 10, 2013.
Photo by George Huntington.

were otherwise engaged, not to mention those who wisely decided not to brave the storm. Surprisingly, the weather didn't prevent any of our speakers from showing up. Thank you all!

Two pre-sessions were held at the Parkway Plaza on April 9, the day prior to Safety Congress. Local Project Administration (LPA) training was held concurrently with Work Zone Traffic Control and ATSSA Flagger Certification. Though not everyone made it to these workshops thanks to the white stuff, those of us who were there carried on and the essential information relating to

highway fatalities are on the decline in Wyoming. McOmie noted that he receives weekly reports on fatalities on our highways. Seventy-percent (70%) of those fatalities are single car run-off-the-road crashes, leading to the conclusion that more rumble strips would be a good idea.

The big news from the recent session of the state legislature is that, with the passage of House Bill 69, the state's gasoline and diesel tax will increase from \$0.14 per gallon to \$0.24 per gallon effective July 1, 2013. This represents about \$60 million in

additional revenue, two-thirds of which will go to WYDOT for highway maintenance. The rest will go to counties and municipalities, with about \$6.8 million going to municipalities.

McOmie also discussed the new federal legislation, Moving Ahead for Progress in the 21st Century, referred to as MAP-21. He noted that it is a short-term bill - only two years - and that it is similar to its predecessor, SAFETEA-LU (Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users) in terms of funding for Wyoming. For some of the programs cut from the

Two feet of snow fell in Casper during this year's Safety Congress.

federal budget, the state legislature has funded them. McOmie said he will keep the counties informed through venues such as WACERS and WCCA.

Joe Dailey noted that, along with the good news that highway fatalities are down, the bad news is that there is increasing pressure to save more money on various aspects of road work such as widening. Dailey also discussed several elements of MAP-21, including the observation that some of the money authorized by MAP-21 may not be

appropriated by Congress. He also mentioned that risk management is becoming a more prevalent theme, with honest conversations within organizations being encouraged on topics such as overall prioritization, sign replacement, and safety hardware. The performance measures program for the national highway system was mentioned; WYDOT is okay, thanks to their pavement condition measures and



in Lakewood, Colorado, who was unable to present the results of the dust scan tour conducted in 2010 due to the federal sequester. Dr. Jones, originally from South Africa, is one of the world's leading gravel roads experts, and he participated in the dust scan tour conducted a few years ago. He described the dust scan tour along with some of the issues facing the road dust control and stabilization industries.

other management procedures. Another element mentioned was the provision that if a state's highway fatalities increase, the state must devote more of its federal funding to safety enhancements and activities. For more on the FHWA's assessments and descriptions of MAP-21, see the website, www.fhwa.dot.gov/map21.

Ken Muller, Wyoming Association of County Engineers and Road Supervisors (WACERS) President, spoke next, describing his participation in the National Association of County Engineers (NACE). One thing that struck him was the good relations between the counties and WYDOT, which is apparently rather unusual based on the experiences of counties in other states. He also mentioned that through WACERS and others' efforts, the speed limit legislation has been passed, as well as the reclaimed asphalt pavement program. Currently fourteen counties participate in WACERS, and he would like to see the other nine counties participate as well. For further information on MAP-21 from a variety of sources, see NACE's website, countyengineers.org/Pages/MAP21.aspx.

Sessions

Culvert Maintenance

Though all the speakers made it, there were some delays thanks to the treacherous conditions on I-25. The

weather, combined with a desire to get out of town with plenty of daylight and before the speaker got really soaked in, caused a rearrangement of the schedule. Therefore, our first presentation featured Ken Moulds describing various culvert maintenance and repair techniques. Moulds is the president of Subsurface, Inc., a drainage structure maintenance and repair company in Minnesota.

There are over 5 million culverts in the U.S.

Numerous problems ranging from lack of cleaning, to corrosion of metal pipes, to concrete pipe joint failure were discussed. Most of the problems relate back to an aging infrastructure built decades ago that now needs to be replaced or rehabilitated. The relative costs of maintenance and repairs were discussed, including potential loss of life, as has happened recently in Wyoming. Various techniques and the savings resulting from them were described, particularly those realized from using trenchless repair techniques.

Road Dust & Scan Tour

Dr. David Jones, University of California - Davis, was fortunately able to fill in for Roger Surdahl with the FHWA's Central Federal Lands Highway Division

Later in the afternoon, Dr. Jones described the basics of road dust and dust control, largely from a materials point of view. He discussed some of the newer and less common dust suppressants, the situations where they are most useful, along with overall procedures for selecting suppressants. The use of different suppressants and the necessity of matching them with various surfacing materials and climates were described.

Uniform Traffic Control Devices

Joel Meena, WYDOT's State Traffic Engineer, described some recent changes to the Manual of Uniform Traffic Control Devices (MUTCD), along with the general principles of consistency that guide the MUTCD and its application. (The legally binding edition of the MUTCD is the most current online file available at: mutcd.fhwa.dot.gov.) He described the changes in the FHWA's compliance

Safety Congress, continued p. 4



Safety Congress, continued from p. 3

dates shown in Table I.2 of the MUTCD. Also covered were the ways in which advisory signs and speed plaques are selected for horizontal curves, the use of flashing yellow turn signals, mandatory vests for everyone working within the highway right-of-way, and a number of other traffic operations issues. He closed by describing the positive downturn in fatality and accident rates throughout the state,



and the need for all agencies responsible for roads throughout the state to work together.

Sign Retroreflectivity

Allen Olsen with FHWA's Wyoming Division Office described the revised retroreflectivity compliance dates. The January 2012 deadline for implementing a sign management method has been pushed back to June 13, 2014. Also, only regulatory and warning signs now need to be managed. He pointed out that guide signs such as street name signs also need to meet visibility standards, usually retroreflectivity standards. When replacing street signs, they now need to be made with a combination of upper and lower case letters. Various acceptable methods for monitoring retroreflectivity were described, which include:

- Visual Nighttime Inspection
 - Comparison panel procedure
 - Calibration signs procedure
 - Consistent parameters procedure
- Measured Sign Retroreflectivity
- Expected Sign Life
- Blanket Replacement
- Control Signs
- A combination of methods

To learn more about acceptable methods for inspecting and assessing retroreflectivity, you may go to the FHWA's website at: safety.fhwa.dot.gov/roadway_dept/

night_vis or you may contact Greg Schertz with the FHWA's Central Federal Lands Highway Division in Lakewood, Colorado at greg.schertz@dot.gov.

Highway Safety

Matt Carlson, WYDOT's State Highway Safety Engineer, described the State Highway Safety Plan (SHSP) and efforts to make our state's roads safer. He listed six areas of emphasis:

- Lane departure
- Seat belt use
- Young drivers
- Curve crashes
- Speeding
- Impaired driving



He described the approach of attempting to reduce the frequency and severity of crashes throughout the state. Data is used to make decisions regarding project investments, law enforcement, and policy updates. From an infrastructure point-of-view, they

are looking at two crash types - lane departure and curves. Better warnings are the main focus of these infrastructure improvements, including the use of signs, delineators, rumble strips, pavement markings and appropriate speed limits. Finally, he discussed WYDOT's coordination with the T²/LTAP Center for setting speed limits and funding and performance of low cost safety improvements.

Poor sign retroreflectivity is one of the major causes contributing to nighttime vehicle fatalities.

Funding for Local Governments

Taylor Rosetti, who recently replaced Rich Douglass as WYDOT's Local Government Coordinator, listed the members of the local government coordination office. He described many programs available to local governments, including:

- Industrial Roads Program (IRP)
- Commission Road Improvement Program (CRIP)
- High Risk Rural Road Program (HRRRP)
- Transportation Alternatives Program (TAP)



Fire Fighting Policies

Rocky McWilliams of Fremont County Road and Bridge and Fremont County Fire along with Craig Haslam, Fremont County Fire Warden, gave a presentation describing their experiences. They discussed a wide variety of issues, including training, cooperation and communication between organizations, administrative responsibilities, and documentation.

ASCE Infrastructure Report Card

Greg Meinecke, Park County Engineer, gave a presentation and call to action regarding the American Society of Civil Engineers' (ASCE) efforts to evaluate the condition of our nation and state's infrastructure. He encouraged everyone to help put together a Wyoming infrastructure report card similar to the one prepared in 2012 for Idaho (see: sections.asce.org/sis/ReportCard/index.html). The national

- Congestion Mitigation/Air Quality (CMAQ)
- Cooperative Landscape Program (WYCLP)
- Planning Funds
- Bridge Repair - Off-System (BROS)
- Federal Lands Access Program (FLAP)
- Transit Programs
- Discretionary Programs

and state report cards (see: www.infrastructurereportcard.org) document the condition of our nation's infrastructure in a number of categories. The table shows those categories for which Wyoming was rated in 2009 (Wyoming's overall score was computed by the T² Center).

ASCE Infrastructure Report Cards

Infrastructure Type		America 2013	Idaho 2012	Wyoming 2009
Overall		D+	C-	C+
Aviation		D	C-	C-
Bridges	State	C-	D-	A-
	County			C-
Dams	Federal	D	C-	B
	Private			D
Drinking Water	Municipal	D	C-	A-
	Private			D
Energy		D-	C-	C
Hazardous Waste		D	--	A
Irrigation Delivery		--	--	D
Roads	State	D	D-	C
	County		--	C-
	Streets		--	C
	Local		C-	--
Schools		D	C-	B-
Solid Waste		B-	--	B
Wastewater		D	B-	A

Bridge Inspection

Randy Ringstmeyer with WYDOT's Bridge Program gave a presentation addressing bridges, with an emphasis on failure modes, inspection reports, and maintenance strategies. He described the national bridge inspection standards (NBIS), pointing out that they apply to bridges and culverts with over a 20' span. He described and defined the major bridge components, the deck, superstructure, substructure, and channel. He discussed the more common failure and deterioration modes for the various components and for various types of bridges and major culverts including steel and concrete girder bridges, truss bridges, timber bridges, and box and flexible metal culverts. He described how WYDOT's bridge inspection reports are generated and what they mean. Finally he pointed out that, by state law, any contract for bridge construction must be approved by WYDOT.

Safety Congress, continued from p. 5

The report also provides estimates of the economic impacts of failing to maintain our infrastructure. For example, they estimate that \$1.6 trillion in additional infrastructure funding is needed nationally by 2020, and that without this increased investment, the cost to business will be \$1.2 trillion and the cost to households will be \$0.6 trillion. Other estimates include the loss of 877,000 jobs in 2020



county paved roads' conditions which would both provide baseline data should any great increases in traffic cause significant damage to the state's county roads and it would provide uniform, consistent assessments of the conditions of the counties' paved road networks.

A panel discussion addressed approaches to managing local paved roads, including discussion of the monitoring of paved county roads as an

if current trends in surface transportation investment are maintained. In addition, one can download ASCE's policy statements from : www.asce.org/policystatements.



An ASCE economic study titled *Failure to Act: The Economic Impact of Current Investment Trends in Surface Transportation Infrastructure* found that by 2020 American businesses will be paying an additional \$430 billion in transportation costs, while American families will see an increase of \$1,060, and the American economy will underperform by \$897 billion.

Anyone who is willing and able to assist with putting together a Wyoming infrastructure report card, please contact either Greg Meinecke at gmeinecke@parkcounty.us; (307) 527-850 (office); or (307) 899-3107, or contact Dr. Khaled Ksaibati at Khaled@uwyo.edu.

Oil Impacts on Local Roads

Dr. Ksaibati, the Wyoming T²/LTAP Center's Director, described the Center's efforts to document the condition of four southeastern Wyoming counties' road networks. This project was conducted for the Wyoming State Legislature in anticipation of increased traffic on county roads in Converse, Goshen, Laramie, and Platte counties due to oil and gas drilling, largely in the Niobrara Shale. This formation is similar to the Bakken Shale in North Dakota, currently one of the most active oil fields in the nation. This study attempts to both provide a baseline condition survey of the counties' roads and to provide insights into the potential impacts of dramatic increases in oil and gas-related traffic.

Managing Local Paved Roads

A primary outcome of the oil impacts study is the recommendation that statewide evaluations of county paved roads be conducted on a cyclical basis. WYDOT already contracts with a road analysis company to monitor the conditions of state highways. They could add monitoring county paved roads to this contract. This would provide long-term documentation of the

addendum to WYDOT's annual monitoring of state highways. Martin Kidner, WYDOT's State Planning Engineer, described plans to use the automated data collection system used by WYDOT to evaluate the condition of paved county roads. This system provides both automated roughness and rutting data, along with videos of the roadside and road surface. These videos can be used to extract a variety of data including surface cracking indexes.

Three county road supervisors - Scott Pehringer with Johnson County, John Radosevich with Sweetwater County, and Ken Muller with Sheridan County - expressed their opinions on the management of paved county roads and possible monitoring of paved county roads. There was some discussion about the necessity of roughness and cracking data. It was pointed out that, once the monitoring van is already driving the roads, there is no additional cost for collecting rutting and roughness data. However, there are additional processing and analysis costs if cracking data is to be collected. There seemed to be a consensus that this overall plan would provide valuable information that would benefit the state's surface transportation network as a whole. As a follow up, Khaled Ksaibati, T²/LTAP Director, will be working with WACERS, WCCA, and WYDOT to coordinate the activities for managing local paved roads.

2013 Master Roads and Roads Scholars

Master Roads Scholars - 2013

John Canaday - Otero Junior College
John Radosevich - Sweetwater County
Raymond Richards - Sweetwater County
Robert Van Valkenburg - Sweetwater County

Roads Scholars - 2013

Jim Brandenburg - Crook County
Jeff Garman - Crook County



Raymond Richards John Radosevich John Canaday

Safety Congress continued...

The federal Clean Water Act provides that the discharge of any pollutants from a point source into surface water of the United States must be regulated under the Wyoming Pollutant

WDEQ Water Quality and Permitting Changes

Barb Sahl with the Wyoming Department of Environmental Quality's Water Quality Division discussed in very general terms the interactions between the WDEQ and local governments. She described typical facilities operated by local governments which need stormwater coverage and the types of permits required.

Barb also spoke at the WACERS meeting where she briefly described changes to the Wyoming pollution discharge elimination system, particularly how permit fees are administered, arising from the changes proscribed by recently passed HB 56. For more information, see the WDEQ - Water Quality Division's website: deq.state.wy.us/wqd/events/index.asp.

Were your speed limits set correctly?

A new law regulating setting speed limits came into effect July 1, 2011. As part of the law, local governments can now change the speed limits on local paved and unpaved roads as long as they follow the approved standards and guidelines. The standards, data collection forms, and spreadsheets for setting speed limits on paved and unpaved roads can be found on the Wyoming T²/LTAP Centers website at <http://www.eng.uwyo.edu/wyt2/index.php>. On the left side of the homepage there is a link that says "Setting Speed Limits". Under that tab, there are four categories: standards, data collection for paved roads, data collection for unpaved roads, and declaration of speed limits forms.

Any county and municipal technicians who will be collecting the speed data and other information associated with setting speed limits must receive a certificate that they have been trained to collect data for speed studies. Local technicians can be trained by attending a workshop on setting speed limits on local roads in Wyoming. As an alternative the Wyoming T²/LTAP Center can make a visit to your town, city, or county to conduct a hands-on training session. This will include going out on the roads with local technicians to set up traffic counts, conduct radar counts, and explain the type of information to collect when on the road. Contact the center with questions or to initiate a program for setting speed limits.



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Return Service Requested



Upcoming Workshop Schedule

2013

October 2: Speed Limits; Riverton
October 30: Concrete Design; Douglas
October 31: Concrete Design; Riverton
November 6: LPA; Douglas
December 3: All About Soils; Rawlins
December 5: All About Soils; Buffalo

2014

February 4-5: OSHA 10-hour Work
Safety Training; Casper
March 4: Asphalt Paving; Rock Springs
March 6: Asphalt Paving; Gillette
April 1-2: Safety Congress; Casper

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