

# T<sup>2</sup> Roads on the Range

## FROM THE DESK OF THE DIRECTOR By Khaled Ksaibati

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Another year is already behind us. 2015 was a busy and productive year for us at the Wyoming T2/LTAP Center. During this year, we were able to analyze the data for all county paved roads and pavement condition reports were submitted to all counties. The statewide pavement condition report was presented to the Wyoming County Commissioners Association as well as the Transportation, Highways and Military Affairs Legislator Committee. It is hoped that raising the awareness about the conditions of the 2,444 miles of counties paved roads would result in a comprehensive strategy to maintain and upgrade this important infrastructure which supports not only local residential traffic but also the energy/industrial traffic in the state. Although that energy traffic is decreasing due recent drop in oil prices, this is a golden opportunity for us to get caught up and to upgrade our pavement infrastructure so that we are ready for the next cycle of energy activities. It is not a matter if it will happen, it is a matter of when it will happen. The analysis of the condition of our county paved roads Cleary show that a high percentage of

these roads is in a poor condition. Bringing these county paved roads to acceptable conditions should be our priority for the coming few years. Billions of dollars were invested in the construction of these roads and a little maintenance and rehabilitation should keep these roads serviceable for decades to come. The

sitting in your shop. I would appreciate letting us know at the center when your signs are all installed so that we can do the final inspection and inform WYDOT that the project is completed.

Three counties indicated that they want to participate in the next round of the Wyoming Rural Roads Safety Program. As you are aware, this program provides more than 90% of the cost toward low cost safety improvement and your county will match less than 10 percent of the cost. It is not too late to get on board for the next round. Please contact me or Bart to get signed up.



performance of the roads in the western side of the state has been collected in the summer of 2015 but we have not received it to begin the data reduction and analysis. We will share the findings of the evaluation with the counties as soon as they are available.

On a different note, the statewide sign program is in full swing. All warning signs requested by counties have been delivered and counties should be busy installing these signs. Remember, these signs will not help in reducing crashes if they are

Our speed limit program is still up and running. Several counties have taken advantage of this program. We can train your staff to conduct the speed studies so that all of your speed limits are legally established. You can contact me or Josh for help with speed studies.

As far as our upcoming training agenda, please check out the training section of this newsletter. We are planning for several exciting workshops. We hope to see you at as many workshops as possible during this upcoming training season. Enjoy 2016.

### Contact us!

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## DESIGNING MAIN STREETS IN WYOMING TOWNS

By Josh Jones

New Mobility West held a community mobility workshop in Lander, Wyoming on October 14<sup>th</sup> to the 16<sup>th</sup>, 2015. New Mobility West is an initiative that provides communities across the intermountain west with tools and resources to integrate their transportation systems with their community development efforts by creating safer and more connected neighborhoods, stronger and more vibrant downtowns and a healthier local economy. Six teams attended the workshop that included members from the cities of Lander, Gillette, Casper, Sheridan Jackson, and Laramie.

The workshop focused on providing communities with the tools needed to develop action plans for creating more livable communities. New directions in transportation and economic development were presented, and teams relayed success stories from their towns as well as goals for the workshop. A major point of the workshop was working closely with WYDOT on state highways in your community. The teams hit the streets in Lander, Wyoming to look at the pros and cons of their main street, Highway 287. Using the tools and advice from the team of experts with New Mobility West, each team left the workshop with an action plan for their strategic goals. The following is a summary of the highlights of the presentations.

### Not Your Father's Transportation System

This session discussed emerging concepts in economic development as well as changes in transportation as well as changes in transportation trends.

There has been a convergence of transportation and information in autonomous vehicles, ITS, big data, sharing economy and virtual transactions. Big data has started to replace traffic counts by recording data from cell phones, tire pressure sensors, and GPS data. This has

created a platform for the use of real-time traffic data, crowd sourced data, performance monitoring, and travel behavior. By replacing phone surveys, paper surveys, web surveys, origin and destination studies, travel time studies, and walk/bike detection equipment.

The city of Phoenix has recently installed a traffic signal system integration that includes integrated management, Wi-Fi-equipped traffic signals, connected video cameras, wireless mesh network, and performance monitor. This has allowed the city to reduce congestion by having traffic signals change phases depending on the amount of vehicles.

In 1955, the population in the United States was 166 million and people drove 600 Vehicle Miles Traveled (VMT) a year. In 2005, the US population had risen by 1.6 times to 262 million people but drove 5 times more to 3 trillion VMT a year.

For Wyoming, the VMT per year increased from 2000 to 2013 by 15% as shown in Figure 1. If VMT per capita is used, Wyoming had a 3% decrease as well as Colorado and Idaho as shown in Figure 2. When type of vehicle is analyzed with VMT per capita in 2006, all vehicles decreased by 6% and personal vehicles decreased by 9%. But the US VMT per capita for trucks increased

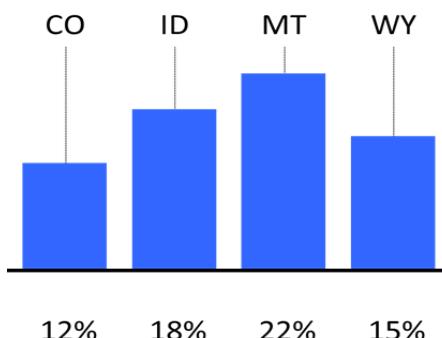


Figure 1: CMT Trends – Interior West States 2000 – 2013

by 15%. This has been exacerbated by the amount of oil by rail. In 2009, 21,000 barrels a day were being transported by rail but in 2014, 1.1 million barrels a day were being transported by rail. This has increased the number of goods transported by trucks since trains are full of oil.

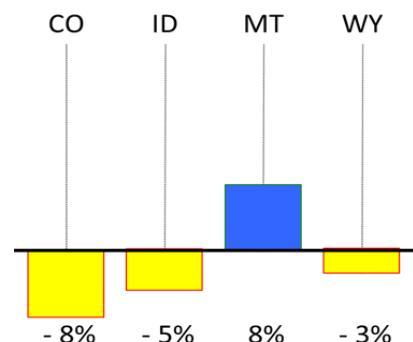


Figure 2: Per Capita VMT – Interior West States 2000 - 2013

### New Directions for Transportation and Economic Development

This session was led by Clark Anderson, Executive Director, Community Builders, and looked at place value and new directions in economic development.

Recently, companies have been moving to smaller cities for the quality of life they offer. Some examples include Altos Photonics, City Pass, and Backbone Media. This has shown a new direction in economic development. Conventional thinking was to attract firms from the outside, bigger is better (large firms), look for growing revenues, incentives and subsidies. With the changing economy, the new thinking is to retain/expand existing businesses, better is better (even if smaller), attract and develop talent, strategic investments, and growing good jobs. The internet has allowed companies to start anywhere there is a connection.

The 2011 community preference survey "What Americans are looking

# DESIGNING MAIN STREETS IN WYOMING TOWNS

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for when deciding where to live" was a survey of 2,071 American adults conducted for the National Association of Realtors. As shown in Figure 3, when starting a business, 70% responded that they already lived in the community and decided to start a business at a later date. When asked how important were the 26 factors in locating or remaining in a community, the top 5 were safe community, overall quality of the community, recreation access, close proximity to trails and open space, and neighborhood character. The bottom 5 factors were dealing with student loans/debt, "I've lived here all my life," proximity to an airport with easy connections, walking distance to shops and restaurants, and "my dream job was there". 83% of people would sacrifice salary for an ideal community.

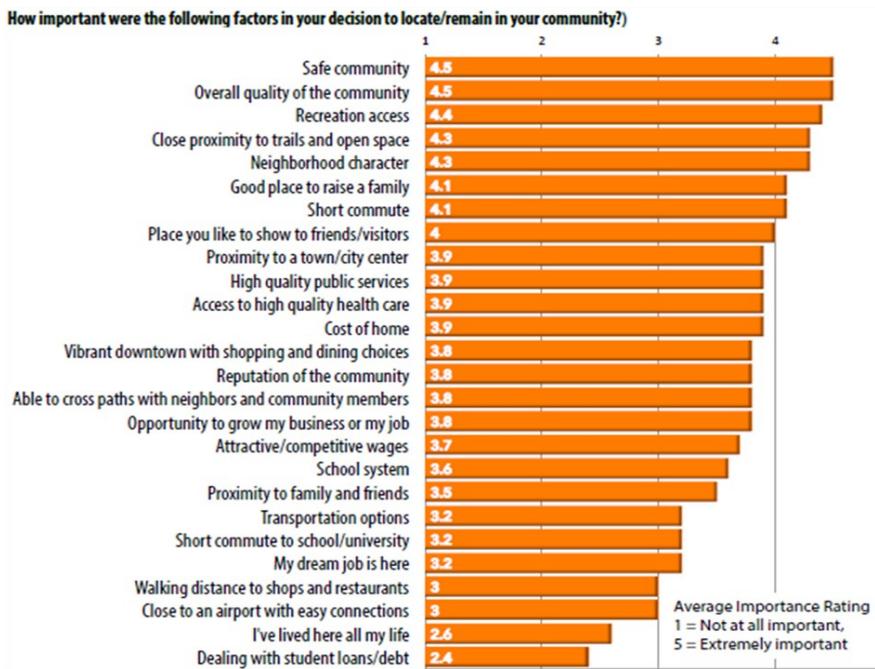


Figure 3: 2011 Community Preference Survey - "What Americans are Looking for When Deciding Where to Live"

### Creating Streets as Places

This session, led by Gary Toth, Senior Director of Transportation Initiatives with Project for Public Spaces, explored how community and

economic development goals can be integrated into transportation processes by creating our streets as places. Gary highlighted the achieved outcomes from some national examples, and shared evidence for success including improved performance from both a community perspective and overall functionality.

We have been building transportation through-communities, not communities-through-transportation. Streets need to be created as places to encourage participation from the public. This can be done by re-tuning streets for other uses and layering in place making.

*"The space needs to be carefully planned and designed. But more than that, to be successful it must be actively programmed and managed on an ongoing basis and funds need*

*districts are unused except by skateboarders and the homeless; if you build it they will come, only if there is something to do there and a comfortable place to sit while you do it."* -Gary Toth

One way to change the characteristics of the road is Rightsizing (road diet). Rightsizing is when a travel lane each direction is removed to allow for bike lanes, added pedestrian safety or a turning lane. The most typical road diet is when a 4-lane roadway is reduced to 2 with a turn lane in the middle as shown in Figure 4. This allows room on the side of the road for bike lanes or added pedestrian areas. Also, islands can be installed for safer pedestrian crossing areas and areas for added landscaping. An analysis of 45 road diet sites in California, Iowa, and Washington showed a 29 percent reduction in total crashes. A road diet can provide operational benefits like separating lefts, side-street traffic crossings and speed differential reductions.

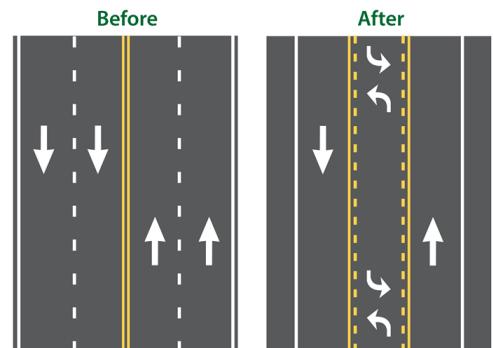


Figure 4: Typical Rightsizing (Road Diet) of a Roadway

There are multiple traffic calming techniques. Vertical speed control measures include speed humps, speed tables, raised crosswalks, and raised intersections. Horizontal speed control measures include traffic circles, roundabouts, lateral shifts, and chicanes. Narrowing the road can be done with neckdowns, center island narrowings, and chokers. Bulbouts can

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## DESIGNING MAIN STREETS IN WYOMING TOWNS

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be installed at intersections to provide more security for pedestrians and narrow the road without removing parking. FHWA released a report "factors influencing operating speeds and safety on rural and suburban roads." Some techniques are speed limit pavement legend (-1 mph), lateral shift (up to -11 mph), speed feedback sign (-2 to -7 mph), speed-activated speed limit reminder sign (-5 mph), and speed table (-4 to -9 mph). "We need to begin to view solving vehicular congestion and building vibrant communities as a tradeoff. The answer will be different in every town." - Jim Charlier

#### State Highways in Your Community

Jim Charlier provided a framework for addressing the conflicts inherent in the various roles we ask our state highways to perform when they are also streets running through the heart of community: from carrying regional traffic, to serving as parade routes, handling heavy trucks, and providing access to storefront businesses.

When looking at pedestrian survival rates and vehicle speeds, 95% of pedestrians survive when the vehicle speed is 20 mph. But the survival rate is only 15% when the vehicle speed is 40 mph as shown in Figure 5.

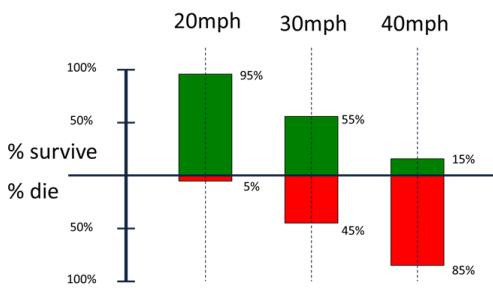


Figure 5: Pedestrian Survival Rates and Vehicle Speed

When looking at the safety impact of the number of lanes, two type of streets were analyzed: residential land use and commercial land uses as shown in Figure 6. With residential land use the 2-lane configuration has

the lowest collision rates and the 4-lane undivided has the highest collision rate. With commercial land use the 2-lane configuration has the highest collision rate while the 3-lane road with a turning lane has the lowest collision rate.

There are multiple reasons to avoid over-widening which include: higher speeds reduce safety, wide streets are pedestrian barriers and wider streets are more expensive. Communities should seek optimum outcomes by relying on networks not corridors and embracing lower

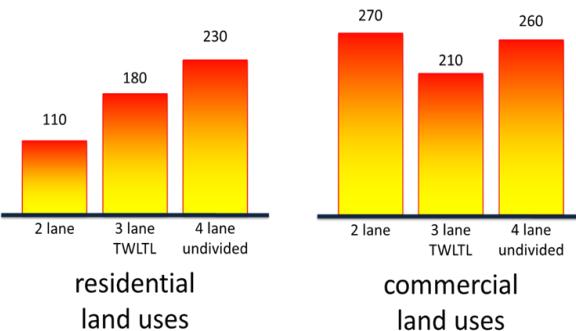


Figure 6: Safety Impact: Number of Lanes

speeds. The AASHTO Greenbook, A Policy on Geometric Design of Highways and Streets, 6th Edition, 2011 states "For rural and urban arterials, lane widths may vary from 10 to 12 feet. 12-foot lanes should be used where practical on higher-speed, free-flowing, principal arterials. However, under interrupted-flow (signalized) conditions operating at lower speeds (35 MPH or less), narrower lane widths are normally quite adequate and have some advantages." Multimodal networks can help alleviate congestion and create better pathways for pedestrians and bicycles. Some of the dividends include walkability, public health, safety, service redundancy, market appeal, resiliency, efficiency, and capacity for growth.

The traditional Level of Service (LOS) approach was to build roads for peak hour. LOS A is free flow of traffic at

all times where as a LOS D approaches unstable flow. The street LOS reality is much different where a LOS D would be optimal but with unstable flow at peak hour traffic. The Florida Department of Transportation uses the LOS D capacity as a model for all their roadways. The only exceptions are when the road is backlogged, constrained corridors, and if the road is core/multimodal.

There is no silver bullet when determining the correct strategies to designing Main Street for all modes of traffic. Some of the big moves include building a bypass, transferring jurisdiction, creating a one-way couplet, or converting a one-way couplet back to a two-way. Breckenridge, CO was able to build a bypass around downtown to help reduce congestion and to make Main Street safer.

Newer design strategies include curb extensions, crosswalks, rightsizing, traffic calming/reducing posted speeds, providing/protecting on-street parking, widening sidewalks, creating furnishings zone, and driveway elimination/consolidation. Another community mobility workshop will be held in Casper on February 25th, 2016. The workshop will look at new directions in transportation and innovative ways for different modes of transportation. Pedestrian and bicycle facilities will be highlighted with design, maintenance, best practices, and case studies around Wyoming presented.

This workshop should be attended by city and county engineers, elected officials, consultants, WYDOT personnel, street maintenance personnel, and construction technicians.

The Wyoming T2/LTAP Center can help in providing supporting materials if your community is tackling main street design issues or pedestrians/bicycles facilities.

## LESSONS LEARNED FROM THE 29TH ANNUAL REGIONAL LOCAL ROAD CONFERENCE 2015 *By Bart Evans*

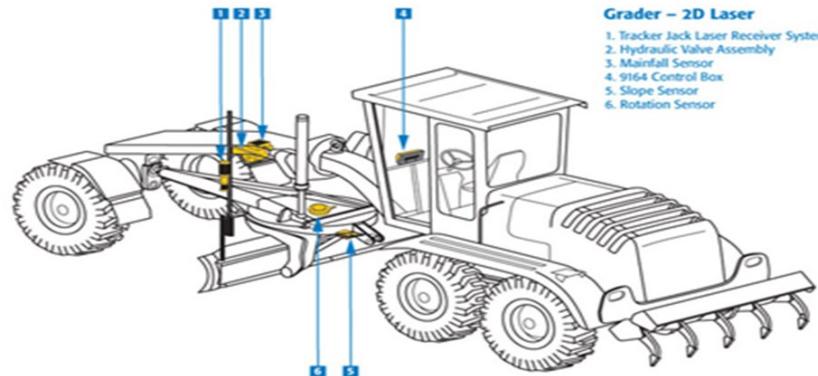
The regional local road conference is held once a year in Rapid City during the third week of October. This year, the conference began with opening remarks from the program manager of the South Dakota LTAP, Ken Skorseth (which is his last conference, as he is retiring). He thanked everybody involved with the conference and mentioned that the conference keeps growing and this year there was a record 335 people attending.

Some very innovative ideas were then presented as part of the **"You Show Us Awards"** The annual "You Show Us" contest is held to solicit best practices & inventions implemental by transportation agencies considering efficient use of funds and materials, as well as application of innovative safety techniques.

Each LTAP center in the North Central Region submits their state winning project to compete in our regional contest. The state and regional winners are presented with awards at the Annual Regional Local Road Conference. The Regional winner will then compete at the national level in the "Build a Better Mousetrap" Contest. This year's regional winner was Dickey County North Dakota building a Service Truck Tire Carrier.



An interesting topic was **When Should I turn this paved (kind of) road back to gravel? Should we pave this gravel road? Should we do dust control?** On a daily basis, local road agencies in South Dakota face the challenge of how to cost effectively maintain low-volume roads. Specifically, decision makers are faced with the challenge of determining when it is most economical to maintain, upgrade, or downgrade a road's existing surface. In order to assist decision makers facing these types of challenges, the South Dakota Department of Transportation (SDDOT) initiated a research study in 2002 to investigate surfacing criteria for low-volume roads (LVR). The overall objective of this research study is to create a process that allows the user to compare the costs associated with different types of roads in order to provide assistance in deciding which surface type (hot-mix asphalt, blotter, gravel, or stabilized



gravel) is most economical under a specific set of circumstances. In addition to incorporating economic factors into the analysis, the process also allows the user to consider non-economic factors that are more subjective and difficult to quantify, such as politics, growth rates, housing concentration, mail routes, and industry/truck traffic.

A very innovative idea on the agenda was a **presentation on the 2D motor grader systems** which represent a giant leap in motor grader grade control. Completely user friendly, user definable and upgradeable, they're flexible enough to apply to even the most difficult jobs. 2D motor grader platform can complete automatic motor grader control. The control system includes slope, rotation and main fall sensors to measure the blade's slope and a sonic tracker attached to the blade. The tracker itself will present the desired elevation to the operator via indicator lights or even send corrections directly to the machine's hydraulics. With 2D motor grader control, you'll eliminate over cutting and control material usage saving you time and money. With these systems the operator is really in

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## LESSONS LEARNED FROM THE 29TH ANNUAL REGIONAL LOCAL ROAD CONFERENCE 2015 Continued from Page 5

control. Slope, elevation, speed and efficient. Besides string lines, sidewalks and other references are often used to fix elevation with the 2D motor grader systems. With the addition of GPS and software you will realize the freedom and production that only the most advanced GNSS capabilities can bring as well as the usage of standard survey total stations.

The concluding presentation was on **"What Happens When Industry Moves In"**. David St. John, Assistant Foreman with Converse County Road and Bridge Department sat on a panel with three other professionals to present on the topic.

Dave's presentation is below:

### **1. Notice of Industrial Activity**

- In most case the company has a meeting with the commissioners.
- Prior to the significant construction or expansion of mineral, oil or gas extraction facilities, the owner/operator must complete a Notice of Industrial Activity (NOI) Form. This Form must be completed thirty (30) days in advance of the anticipated operations.
- We do not have Zoning it was voted down several years ago.

### **2. NOI Brings A Meeting with the Commissioners these are items discussed**

- County Road Usage ,Leads to road use agreement, Access Permits, Projected Travel Impacts, Dust Mitigation, Will the company help with Dust Mitigation?, Any Other Anticipated Impacts.

### **3. Road and Bridge Impacts**

- It seems every company coming believes they are your first priority

### **4. Access Permits**

- We require they install high visibility stop signs.
- Our County Commissioners wanted us to install sign and charge a fee. I started just telling the companies that it was a requirement if they wanted a permit to access the county roads.

- We specify the size of the culvert to be put in. We require an 18" steel culvert.

- We require a line of sight of 750' for all access to county roads..

- We do go out and inspect the locations.

### **5. Bore, Cut, and Public Utilities Right of Way Permit**

-There are different fees charged

including an inspection fee.

- Land owner Signature is required
- The County Commissioners must sign off on these permits.

### **6. Biggest Problems**

- We are the same as everyone. It just happens faster with a Boom.
  - What shows up in traffic counts?
- 2011 Traffic count from the same road showed:

Cars: 5 Day, average 25

Trucks: 5 Day, average 4

September 26, 2014 to October 02, 2014:

Cars:	4007
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Trucks:	4353
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Total:	8360
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### **7. Dust**

- Use dust suppressant attempt to have the companies help to pay or supply water to help with the projects.

### **8. Auto Gates, culverts destroyed no real answer**

- One Company has realigned the ditch and set the culvert back several feet and this does seem to help with the culvert and signs being destroyed.

### **9. Speed combined with Overweight Trucks destroys roads**

- Try and get the Sheriff's Office involved
- Encourage companies to tell



Ross Road Accident – Oil Tanker Roll Over. Converse County had a few of these accidents.

## LESSONS LEARNED FROM THE 29TH ANNUAL REGIONAL LOCAL ROAD CONFERENCE 2015 Continued from Page 6



Damage to Road that had been chip sealed over gravel. It appears that a low boy made a short turn and bottomed out, scraping away the road surface.

contractors and employees to slow down.

### 10. Oversize and Overweight Permits

<http://conversecounty.org/gov-admin/permit-reg>

- We have overweight permits
- Our system now generally follows Wyoming Gold Book Standards Revenue.

Year 2013:	\$120,817
Year ending 6/1/15:	\$146,825
6/1/15 – 10/16/15:	\$164,817

### 11. What was the Difference

- Our permits have changed and gotten better.
- Law Enforcement Hired a Retired State Trooper who had experience in Trucking.
- He patrols, stops and weighs trucks daily.

### 12. Companies and Contractors

- Once companies have Road use agreement they tend to believe they can do as they please.
- We have no answers other than communication. Sometimes you just have to say no.
- Develop a plan for contractors:

Are they insured? Do you have the needed copy of the insurance? What do they want to do? How are they going to do it? Does it meet your

needs?

- Snow plowing by Contractors: We have a no bare earth policy. Too much gravel goes into the ditch.

### 13. Ending the Boom is going away

- An email from the Court House Last Week

- The County Treasurer gave this presentation yesterday and the Commission shared with the departments at the DH meeting on Wednesday. I am sharing with all of you as the Commissioners asked that we be aware that we could be \$1.2 under our revenue budget projection; therefore, please spend wisely for the current year and plan on the possibility of cuts in the next fiscal year.

### 14. What are we doing for this?

- We are trying to get caught up from the last 5 years before the next boom starts.

The Annual Road Conference is a great opportunity to get new ideas and meet other Road and Bridge folks around the area. It is always in Rapid City and around the third week of October. Hope to see you next year.



Sign run over, oil tankers come to this intersection and have to turn right. Damaged a couple of times.

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*Return Service Requested*



## UPCOMING EVENTS AND WORKSHOPS

Name	Date	Location
Building Community Through Transportation - Pedestrian and Bicycle	February 25, 2016	Casper
Low Cost Safety Improvements	March 16, 2016	Thermopolis
Low Cost Safety Improvements	March 17, 2016	Casper
LPA	April 5, 2016	Casper
Work Zone Safety/ATSSA Flagger	April 5, 2016	Casper
Safety Congress	April 6-7, 2016	Casper
Work Zone Safety/ATSSA Flagger	TBD May 2016	TBD
Gravel Roads	May 24, 2016	Buffalo
Gravel Roads	May 25, 2016	Riverton

If you would like more information or to register please visit <http://www.uwyo.edu/wyt2/>.

### **North Central Region Annual Regional Meeting**

Wyoming LTAP is excited to host the 2016 annual regional North Central NLTAPA meeting June 1st and 2nd, 2016 in Laramie Wyoming. This meeting allows members of the region's LTAP programs to come together and share their highlights and challenges.