

# The Center Line

North Dakota Local Technical Assistance Program • Upper Great Plains Transportation Institute • North Dakota State University

Vol. 25, No. 3

Spring 2009

## NDACE ANNUAL CONFERENCE

By *Vernon Monger*

The North Dakota Association of County Engineers (NDACE) held its 59th annual conference on Jan. 28-30 in Fargo. The approximately 120 included county commissioners, road department staff, consultants, vendors and other interested local transportation related individuals.

Various transportation-related issues were discussed relative to the agenda presented. Wendell Meyer, ND Federal Highway Administrator, discussed the federal highway funding and the expected stimulus package. The NDDOT local roads staff made presentations on their local transportation programs and the process for project development. Presentations were also made on roadway safety, emergency services, microsurfacing, road oils and EPA regulations related to new diesel engines.

Charles Glynn, Dickey County Highway Supervisor, assumed the president position. Other executive board members are Mike Rivinius, vice president; Kerry Johnson, secretary treasurer; Mike Zimmerman, 1st year director; Kevin Fieldsend, 2nd year director; Steve Mamer, 3rd year director (newly elected) and Dana Larsen, past president.

### In This Issue

NDACE Annual Conference	2
National Workzone Awareness Week	3
Training Accomplishments	5
“You Show Us How” Contest Entry	6
Enhancing Rural Road Safety	8
County and City New Shop in Bowman	9

NDACE Annual Conference continued on page 2



L to R: Dana Larsen, Charles Glynn, Kerry Johnson, Mike Rivinius, Mike Zimmerman, Kevin Fieldsend, Steve Mamer



(NDACE Annual Conference continued)

Four engineering scholarships were given to Bryce Wuori, Courtney Homan and Andrew Gottsman, all from NDSU and Paul Seifert from Bismarck State College.

Tim Schulte, Richland County Engineer, received the County Engineer/Road Superintendent of the Year Award.



Scholarship Award Recipients



Dana Larsen and Tim Schulte

Gary Berreth, NDLTAP director and Denise Brown, administrative assistant made the award presentations to the new road scholar designees in attendance. This was the first year for any participants to receive a Road Scholar Level III designation.

- Road Scholar Level I:**
- Ritch Gimbel, Bottineau County
  - Dennis Howey, City of Gwinner
  - Jeff Hagen, Dickey County
  - Keith Nelson, NDDOT
  - Scott Austin, Ramsey County
  - Wayne Bell, Walsh County
  - Richard Benz, Dunn County

**Road Scholar Level II:** Nick Kraft, Morton County

**Road Scholar Level III:** Kevin Fieldsend, Ramsey County  
Richard Urvand, Nelson County



Road Scholar participants present for awards include (l to r): Richard Urvand, Kevin Fieldsend, Wayne Bell and Keith Nelson

For more information on the Road Scholar Program visit the NDLTAP website:  
<http://www.ndltap.org/programs/scholar.php>

## NATIONAL WORK ZONE AWARENESS WEEK 2009 “DRIVE TO SURVIVE - OUR FUTURE IS RIDING ON IT”

April 6-10 marked the 10th anniversary of **National Work Zone Awareness**

**Week.** The national campaign is conducted every year at the start of the construction season to attract national attention to drive carefully through highway construction and repair sites. Each year, approximately 1,000 people are killed in roadway work zones and, with the recent enactment of the President’s economic recovery package which supports a good deal of highway repair and construction funding, 2009 could be one of the most active highway repair seasons in recent memory. The national kick-off media event took place Tuesday, April 7 at 10 a.m in the Washington, D.C. metropolitan area. The slogan for the 2009 event is “**Drive to Survive – Our Future is Riding on it**”.



### HOW SIGNIFICANT IS THE ROADWAY SAFETY PROBLEM?

Roadway safety is a serious, national public health issue. In 2007, there were 41,059 fatalities on our nation’s roads.

Of the total 41,059 fatalities in 2007, there were:

- 24,147 road departure fatalities (59%)
- 8,657 intersection fatalities (21%)
- 4,654 pedestrian fatalities (11%)

Of the 41,059 fatal crashes in 2007, there were:

- 13,040 speed related crashes (32%)

### HOW SIGNIFICANT IS THE WORK ZONE PROBLEM?

#### Safety

- Over the last 10 years, the annual number of persons killed in motor vehicle crashes in work zones has increased 45 percent (up to 1,010 in 2006).
- Eighty-five percent of those killed in a work zone are drivers or occupants.
- On average from 2002 to 2006 about 15 percent of the fatalities resulting from crashes in work zones were non-motorists (pedestrians – including workers and bicyclists).
- More than 40,000 people are injured each year as a result of motor vehicle crashes in work zones.
- Of the 1,010 work zone fatalities in 2006, an estimated 235 occurred in crashes involving large trucks.

#### In addition:

- Approximately half of all fatal work zone crashes occurred during the day.
- More than twice as many fatal work zone crashes occurred on weekdays as on weekends.
- Fatal work zone crashes occurred most often in the summer and the fall.

#### Exposure and Delay

- Today, we are primarily rehabilitating and reconstructing existing infrastructure while maintaining a very high volume of traffic on the very facilities we are working on.
- It is estimated that more than 20 percent of the National Highway System (NHS) is under construction during the peak construction season.
- More than 3,000 work zones are expected to be present on the NHS during the peak construction season.
- An estimated 12 billion vehicle miles of travel a year will be through active work zones.
- Motorists can expect to encounter an active work zone on one of every 100 miles driven on the NHS.
- Work zones on freeways are estimated to account for nearly 24 percent of non-recurring delay, and 10 percent of overall delay.

(national workzone awareness week continued on page 4)



(national workzone awareness week continued)

**Put This in Perspective:**

- One work zone fatality every 8.7 hours (almost 3 a day)
- One work zone injury every 9 minutes (160 a day)
- More than 60 million vehicles per hour of capacity lost to work zones each day during the peak construction period.

**10 Tips for Driving in Work Zones**

- **Expect the unexpected!** (Normal speed limits may be reduced, traffic lanes may be changed, and people may be working on or near the road.)
- **Slow down!** (Speeding is one of the major causes of work zone crashes; obey posted speed limits.)
- **Don't tailgate! Keep a safe distance between you and the car ahead of you.** (The most common crash in a highway work zone is the rear-end collision. So, don't tailgate)
- **Keep a safe distance between your vehicle and the construction workers and their equipment.**
- **Pay attention to the signs!** (Warning signs are there to help you and other drivers move safely through the work zone. Observe the posted signs until you see the one that says you've left the work zone.)
- **Obey road crew flaggers!** (The flagger knows what is best for moving traffic safely in the work zone. A flagger has the same authority as a regulatory sign, so you can be cited for disobeying his or her directions.)
- **Stay alert and minimize distractions!** (Dedicate your full attention to the roadway and avoid changing radio stations or using cell phones while driving in a work zone.)
- **Keep up with the traffic flow.** (Motorists can help maintain traffic flow and posted speeds by merging smoothly, and not slowing to "gawk" at road work equipment and crews.)
- **Schedule enough time to drive safely and check radio, tv and websites for traffic information.** (Expect delays and leave early so you can reach your destination on time. Check the national work zone safety information clearinghouse at: [www.workzonesafety.org](http://www.workzonesafety.org) - for information on work zone delays throughout the country.)
- **Be patient and stay calm.** (Work zones aren't there to personally inconvenience you. Remember, the work zone crew members are working to improve the road and make your future drive better.)

This article was condensed from three articles on the following FHWA web sites: [http://safety.fhwa.dot.gov/wz/wz\\_awareness.htm](http://safety.fhwa.dot.gov/wz/wz_awareness.htm), [http://safety.fhwa.dot.gov/facts/road\\_factsheet.htm](http://safety.fhwa.dot.gov/facts/road_factsheet.htm) and [http://safety.fhwa.dot.gov/wz/nwzaw\\_events/factsheet08.htm](http://safety.fhwa.dot.gov/wz/nwzaw_events/factsheet08.htm)

**Looking for your ideas and news articles**

Contact Denise Brown at  
(701) 328-9855 or [denise.brown.1@ndsu.edu](mailto:denise.brown.1@ndsu.edu)  
to share your ideas and articles for upcoming editions of The Center Line.



## A NOTE FROM THE DIRECTOR – GARY BERRETH ACCOMPLISHMENTS FOR NDLTAP IN 2008

The NDLTAP office had just celebrated its second year of operation at the Bismarck location. In reflecting back on this last year's accomplishments, we have compiled the following statistics on NDLTAP activities:

Training sessions	29
Hours of training	200
Number of participants	1,678
Local government participants	533
Local government site visits	90
Publications/videos distributed	55
Newsletter circulation	7,310

Although we are pleased with this past year's accomplishments our intentions are to continue to provide applicable training and technology transfer to our NDLTAP customers in a cost-effective manner. If you have any training ideas please feel free to share them with our office. We would like to thank you for your continued support of the NDLTAP program.

### COMING EVENTS ND LTAP/TLN EVENTS

To view previous sessions presented on TLN follow the instructions given on this link:  
<http://www.ndltap.org/events/downloads/2009videoconferences.pdf>  
 \* If you encounter problems with passwords call Denise at 701-328-9855

### OTHER EVENTS

**APWA Click, Listen & Learn**  
<http://www.apwa.net/education/CLL>



**Please email any unique photos of flooding that you may have.  
[denise.brown.1@ndsu.edu](mailto:denise.brown.1@ndsu.edu)**

## “YOU SHOW US HOW” 2008 CONTEST ENTRY

### STRUCTURAL PLATE PIPE FAILURE-REPAIR

COUNTY: McLean  
CONTACT PERSON: Ronald Wagner, Highway Supervisor  
TELEPHONE: 701-462-8541  
ADDRESS: PO Box 1108  
Washburn, ND 58577



### PROBLEM STATEMENT:

The floor of a structural plate pipe culvert bulged from two to three feet throughout the length of the 60-foot-long culvert from water pressure, with scour occurring beneath the pipe. The pipe, 18'- 1" X 11'- 10" SPP, is located on a county route 17.2 miles west of Washburn, ND. The roadway is hard surfaced with approximately 4 feet of fill over the pipe. During normal spring runoff, the pipe flow will be over half of the height of the pipe. The stream is spring fed and runs continually. Scour on the inlet side with water entering under the pipe and the freeze-thaw winter cycle, created upward pressure, causing the floor to bulge. Approximately two feet or more of scour occurred under the entire length of the pipe. The pipe was installed 50 years ago and was washed downstream 50 feet approximately 30 years ago. It was then reset in place. The pipe is in good condition other than for the bulging floor.

### SOLUTION:

Using several house moving jacks and a 100 ton air jack the county road crew was able to move the bottom of the pipe back to its original position. Prior to doing this, it was necessary to construct a coffer-dam because the stream is spring fed with a constant flow. The flow was then controlled with a small pipe laid in the culvert. Weather conditions were excellent during construction with limited rainfall occurring. An I-beam was placed on the top of the pipe, with a vertical I-beam to the floor jacks with pressure then applied to force the floor into place. Because of the pipe length, this involved three settings of the equipment. A headwall was placed on the inlet side. The headwall was placed to a 4 foot depth below the pipe, 1 foot wide and extending 4 feet beyond the sides of the pipe and set on a base foundation of 3 foot width.

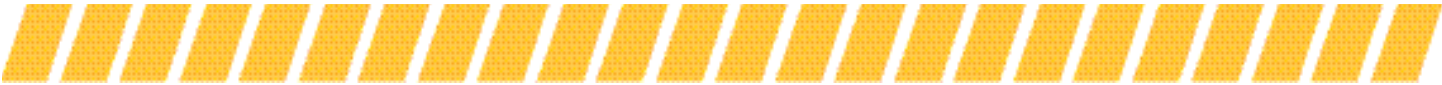
Approximately 40 holes were drilled into the floor of the pipe throughout the length. Four foot lengths of rebar (1-inch diameter) with a 2-inch cap welded on one end was inserted through the pipe and into the soil to assist in stabilizing the floor. Several other holes were then drilled in the pipe floor and a concrete slurry (8 bag mix) was pumped into the scoured areas to fill the voids and provide additional strength for the rebar. Approximately 34 tons of concrete slurry was used.

On the inlet side, wing walls were also constructed to protect the sides from future scour. Also on the inlet side, some material was excavated, replaced with imported clay and followed with rip rap for a distance of 50 feet. Only rip rap was placed on the outlet end.

The structure is also used as a cattle pass. A thin lift of concrete was placed on one side of the floor to assist with the cattle movements.



(“You Show Us How” continued on page 7)



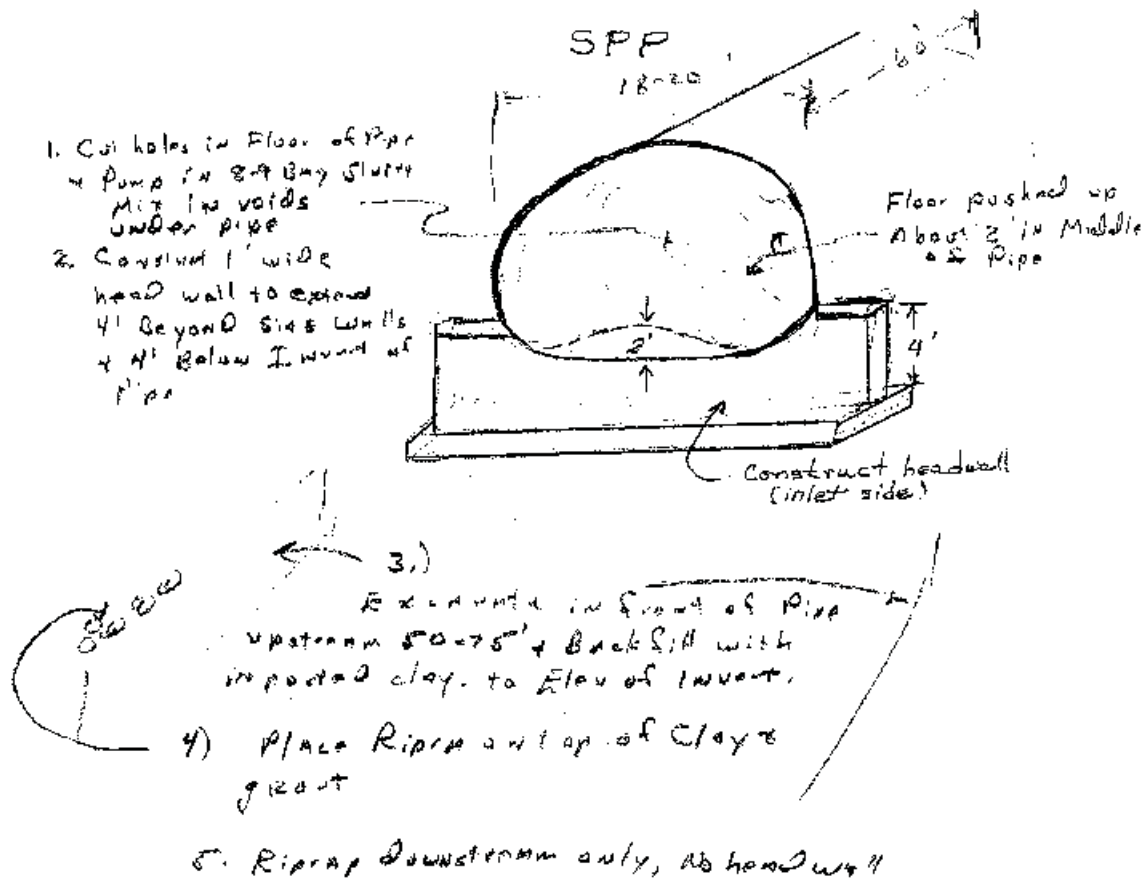
("You Show Us How continued")

### LABOR, MATERIALS AND COSTS

The work was done with our county maintenance forces. Three hundred fifty-four man hours were involved in completing the project. Materials involved were cement, rebar, aggregate, riprap. County equipment with some rental items were also used. Total cost of the project was \$18,615.

### SUMMARY:

Consideration was given to replacing the SPP with a double 10 X 8 concrete box culvert. Cost of a box culvert with installation would have been approximately \$150,000. The SPP is in good condition, other than the floor bulging in the center, and it was determined that the repairs could be done at much less cost than replacing it. The project was completed in 2005. While we have had limited snowfall and stream flows have been less than average since then, the structure floor remains in place and we see no evidence of any reoccurring problems other than the need for some additional riprap on the inlet end. By doing the repair procedures ourselves we realized a cost saving of approximately \$131,385.



# ENHANCING RURAL ROAD SAFETY - TRAFFIC SAFETY EVALUATIONS

by Kimberly Vachal (Program Director for the Rural Transportation Safety and Security)

The state's rural roads are a critical link in system mobility for economic and social connectivity. NDDOT crash facts show that 85 percent of fatal crashes in the state occurred on rural roads. The Upper Great Plains Transportation Institute (UGPTI) at NDSU is conducting empirical research to contribute to decisions made to improve road safety through investment, education, and policy.

In a presentation to the North Dakota Association of County Engineers, the UGPTI shared information about its upcoming Traffic Safety Evaluation (TSE) project, a fall roundabout event, and other efforts related to rural road safety. The presentation was made in cooperation with Keith Berndt, the Cass County Engineer and past NDACE president.

Counties were invited to take part in the TSE demonstration project. TSEs, which are modeled after the Road Safety Audit process, have emerged as an effective proactive tool for identifying and addressing roadway safety issues. A multidisciplinary group participates in a local road safety assessment which considers short- and long-term safety enhancements including factors such as signage, clear zone, and pavement markings. According to the Federal Highway Administration (FHWA), Road Safety Audits noticeably improve the safety performance of roadway facilities. For example, the South Carolina Department of Transportation recorded a 60% reduction in fatalities in a location at which a safety audit was conducted.

Several benefits can be achieved through the implementation of Road Safety Audits such as low-cost/high-value improvement opportunities, promoting the awareness of safe design and maintenance practices, and providing a means to tailor the resources of an agency to meet specific problems. Local road and street departments should contact ND LTAP if they are interested in learning more about TSEs or other activities related to rural road safety.







## COUNTY AND CITY SHARE NEW SHOP IN BOWMAN

*By Vernon Monger*

Bowman County and the city of Bowman recently moved into a new shop on the northeast corner of the city. This is a joint effort between the two entities to share common space. The shop is 100 feet by 300 feet in addition to an office complex with conference and rest rooms. The shop was constructed by the city and county participating equally at a total cost of approximately \$2.5 million.



Each entity has its own areas for equipment storage. Shared areas include a welding bay, an equipment washing area (25' by 100' drive through) and an area for equipment lubrication. Each entity's entrance has four entrance doors and two doors for exiting the drive-through facility. The facility has excellent air exchange with a pressurized air exchange system. Floor heating was installed, making it excellent for winter operations. The facility also has a fire alarm and sprinkler system, and workplace safety measures such as emergency hand and face wash stations.

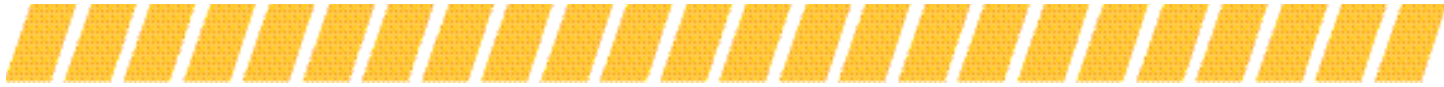
The office complex has three offices - one each for the county road foreman, city street superintendent and the water and sewer superintendent. In addition there are rest rooms and a conference/break room.

Neil Hofland, county road superintendent, says this facility will provide sufficient space for parking of seasonal equipment being used. The old shop on the west end of the city did not have sufficient space to get all desired equipment indoors. The old shop will be retained for storage of seasonal equipment and materials.

The old city facilities were located in the downtown area at several buildings. Terry Sarsland, street superintendent, says the new building is much more convenient and efficient for the city's operations. Bill Mason, water and sewer superintendent, will also provide services out of this facility.

The city and county road department and public works employees work together on various projects, particularly sealing streets and roadways and crack repair. Also there is an exchange of specialized equipment. The county has five employees, the city street department has five, and the water and sewer department has three. Both Hofland and Sarsland state the exchange of equipment and labor works out very well. Now, with everyone working out of the same facility, they expect there will be more opportunities to improve efficiency.





North Dakota Local Technical Assistance Program  
Upper Great Plains Transportation Institute  
North Dakota State University  
515 ½ E. Broadway, Suite 101  
Bismarck, ND 58502-1774

Non-Profit Org.  
U.S. POSTAGE  
**PAID**  
Permit No. 518  
BISMARCK,  
NORTH DAKOTA



## ND Local Training Assistance Program • [www.ndltap.org](http://www.ndltap.org)

515½ E. Broadway • Suite 101 • Bismarck, ND 58501

Denise Brown	(701) 328-9855	<a href="mailto:denise.brown.1@ndsu.edu">denise.brown.1@ndsu.edu</a>
Dave Levi	(701) 328-9857	<a href="mailto:dave.levi@ndsu.edu">dave.levi@ndsu.edu</a>
Gary Berreth	(701) 328-9856	<a href="mailto:gary.berreth@ndsu.edu">gary.berreth@ndsu.edu</a>
Vernon Monger	(701) 328-9858	<a href="mailto:vernon.monger@ndsu.edu">vernon.monger@ndsu.edu</a>
Russell McDaniel	(701) 328-9858	<a href="mailto:russell.mcdaniel@ndsu.edu">russell.mcdaniel@ndsu.edu</a>

Toll-free number (800) 726-4143

Fax: (701) 328-9866