

Road usage in western North Dakota has changed considerably over time. Interstate, highway, and low volume unpaved roads have been used with greater frequency because of increased agricultural production and a growing energy sector. This evolution is especially evident in a 17-county region that encompasses a geographic formation where oil extraction methods have recently improved production economics. Roads once used only for local access and agricultural purposes are now being used at high volumes to serve energy interests, especially expanding oil production. Oil companies, oil workers, commercial trucks, and industrial equipment associated with oil and gas development all use these roads to access their oil drilling and production sites. This has led to not only an increase in the traffic volume, but an increase in the number of overweight and oversized vehicles on the road as well. The result is that a number of roads are in poor condition with many others deteriorating rapidly.

The 17 counties affected by oil development are shown in Figure 1. The oil region is home to three of the largest cities in the state: Minot, Dickinson, and Williston. The four highest producing counties—Mountrail, McKenzie, Dunn, and Williams—are considered to be the central core as defined by activity based on the North Dakota State Industrial Commission Oil and Gas Division.

A mail survey was selected as the method for the oil traffic safety survey. The survey was designed by blending questions related to traffic safety, "ProgressZone: Moving Forward Safely" goals, and issues specifically pertaining to oil traffic and development. Based on driver registration records, 779 valid responses were obtained.

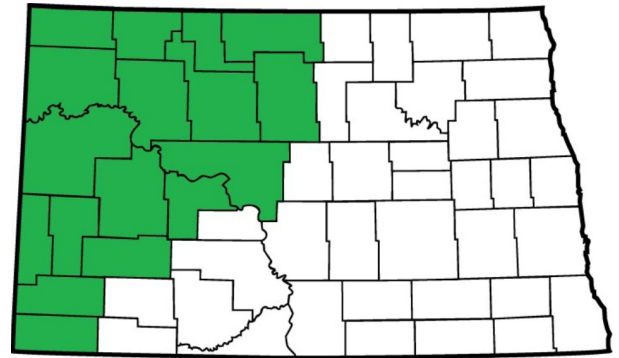


Figure 1. 17-County Oil Region of Western North Dakota

### RESULTS HIGHLIGHTS

- Roughly four in five drivers in the oil counties region meet or pass a large truck on a daily basis. A majority of drivers feel either "unsafe" or "very unsafe" when passing or being passed by large trucks.
- A majority of drivers were willing to travel at least five minutes out of the way in order to drive on roads that had either fewer large oil trucks or better sign and surface conditions. (Figure 2).
- There were noticeable differences in driver views when factoring for gender. Women were less likely to encounter trucks on the roadway than were men, but nonetheless, were more likely to feel less safe passing or being passed by large trucks than were males. Men were less likely to wear a seat belt while driving in town or while driving at least 30 mph. In addition to poor seat belt behavior, men were also more likely to drive faster than 70 miles per hour in a 65 mile per hour speed zone. Men were more likely to consider an increase in law enforcement presence as a viable tool for improving traffic safety.
- Drivers' perceptions of safety in the western North Dakota oil region shed light on how the energy sector has changed the lives of residents in this part of the state. A majority, 88.8%, felt either "less safe" or "much less safe" driving in their area compared to five years ago. Only 1.4% of drivers felt either "somewhat safer" or "much safer" in comparison. About three-quarters (73.3%) of drivers indicated they had to brake or swerve suddenly to avoid a crash and were more likely to believe that driving conditions on the roads were more dangerous than five years ago; this relationship was statistically significant.
- Just 26.6% of respondents were willing to pay for a messaging system that would alert drivers to heavy traffic or incidents on the roadway from oil development.

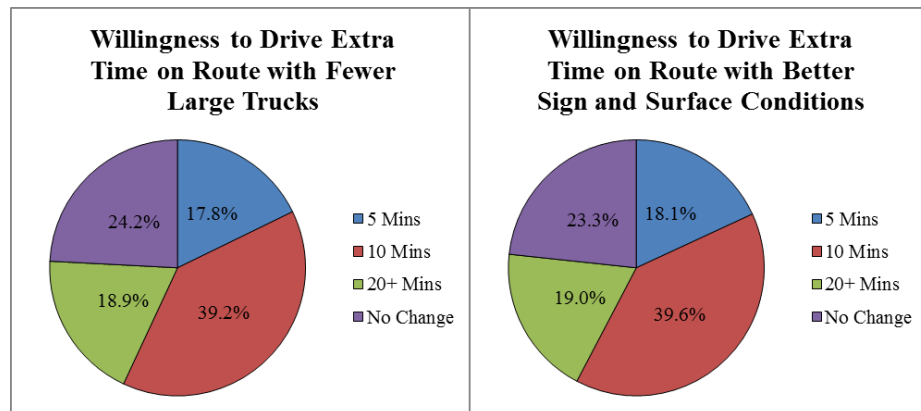


Figure 2. Willingness to Increase Travel Time, by Scenario

## PROGRESSZONE: MOVING FORWARD SAFELY

- Designed in 2011, "ProgressZone: Moving Forward Safely" is a safety campaign that urges motorists driving in North Dakota's oil country to be patient and exercise caution while driving along oil region roads. Messages were conveyed via billboards and other advertising. Drivers were surveyed about their exposure to the safety messages being promoted by the initiative (Figure 3), and whether they subsequently changed their driving behavior after seeing the ads. As a whole, 31.2% of respondents indicated that they had seen the bright yellow billboard advertisements. Among all drivers, 13.4% positively changed their driving behaviors as a direct result of the ads.
- Exposure to the safety messages varied based on the message at hand (Figure 4). Drivers were most likely to have exposure to messages relating to buckling up with 83.8% of respondents reporting positively. Drivers in this study were least likely to have had exposure to messages about sharing the road. Similar proportions of drivers were exposed to messages about slowing down and passing with caution (46.2% and 42.2% respectively).

## CRASH DATA

- In 2011, the number of fatalities and injuries in the oil counties outpaced the rest of the state of North Dakota. In the oil region there were 35.1 fatality and 437.8 injury crashes per 100,000 individuals compared to 10.7 fatality and 134.7 injury crashes per 100,000 in the rest of the state (Figures 5 and 6).
- The number of large trucks involved in crashes in the central core increased substantially between 2004 and 2011 (Figure 7), and appears to mirror that of an exponential growth curve (Figure 8).

ProgressZone Moving Forward Safely Exposure and Driving Behavior

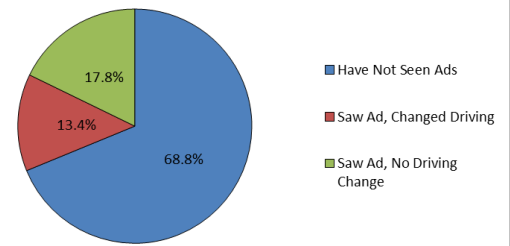


Figure 3. Exposure to Ads and Behavior Change

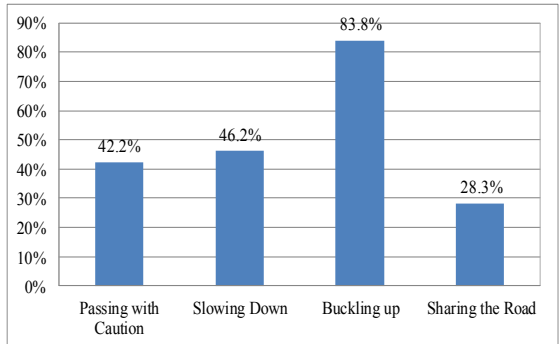


Figure 4. Exposure to Safety Messages

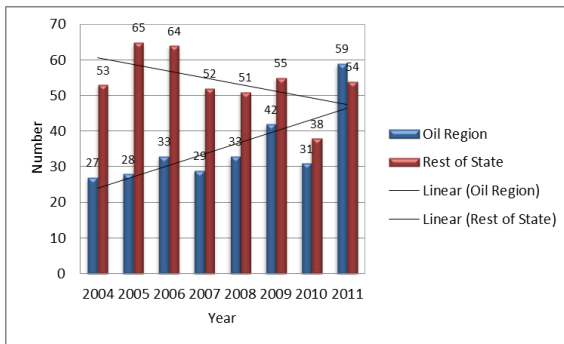


Figure 5. Total Number of Fatalities, 2004—2011

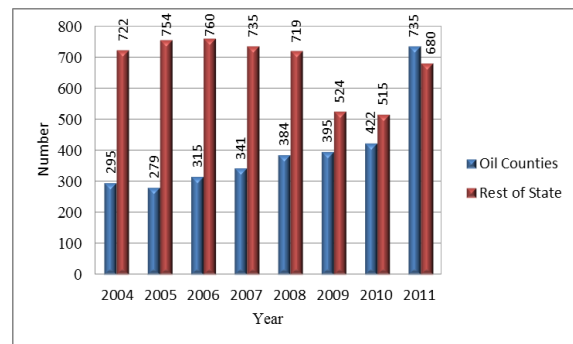


Figure 6. Total Number of Injuries, 2004—2011

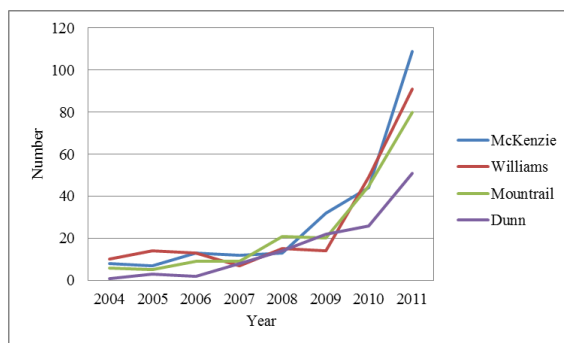


Figure 7. Central Core Truck Crash, by County

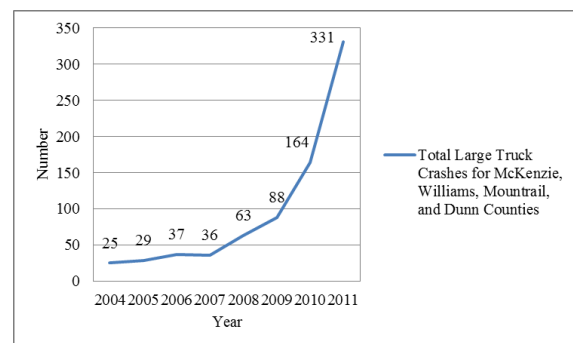


Figure 8. Truck Crash, Central Core

## CONCLUSION

The driving environment in the 17 western North Dakota counties is noticeably different than in other parts of the state. Although *ProgressZone: Moving Forward Safely* is recognized by drivers, there is still room to improve driver safety, views, and behavior. This particular area of the state has experienced growth surrounding one specific issue: the development of the oil industry. Residents in the region perceive driving conditions to be unsafe. All crashes, including injuries, fatalities, property-damage-only crashes, and those involving large trucks have increased substantially since 2004, with all major crash statistics spiking between 2009 and 2011.



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To read the entire research report and find references, please visit the RTSSC website: <http://www.ugpti.org/rtssc>

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