

Traffic Safety Evaluations: Bottineau County



Issue brief: Fall 2011

The economic and health-related impacts of crashes remain an important focus area for improving the transportation system. According to the Federal Highway Administration (FHWA) there are nearly 40,000 crash related fatalities every year, with an additional 3 million injuries.

Traffic Safety Evaluations

Traffic Safety Evaluations (TSEs), commonly referred to as Road Safety Audits (RSAs), are a tool used to assess the safety performance of a roadway facility. A TSE generally takes a proactive approach to addressing safety concerns, and can be done at any stage of a project from planning and design to existing facilities.

Purpose Traffic Safety Evaluations consist of a formal examination of the safety and performance of a roadway facility by an independent, multi-disciplinary team. The purpose of conducting a TSE is to identify potential safety issues and opportunities for safety improvements. A TSE looks to provide a proactive approach in identifying opportunities that eliminate or mitigate safety concerns.

Background/Observations Concerns have been raised regarding locations in Bottineau County, including the transition from Hwy 43 to 106th St., the intersection of CR 6 & CR 37, and Lake Loop Road & 108th St. NE. These safety concerns include:

1. Inadequate speed limits
2. Icy road conditions
3. Both paved and gravel roadway composition
4. Non-adherence to stop signs

Figure 1: Icy Road Conditions
(Lake Loop Road & 108th St NE)



Figure 2: Paved and Gravel Roadway
(CR 6 & CR 37)



Figure 3: Non-adherence to Stop Signs
(Hwy 43 to 106th St.)



Procedure The process of conducting a TSE is outlined by the FHWA, and consists of the following steps.

1. Identify the roadway facility or project to be evaluated
2. Select the independent, multidisciplinary evaluation team
3. Conduct a pre-evaluation meeting
4. Perform field reviews under various conditions
5. Conduct analysis and document the findings
6. Present findings to project owner/management
7. Prepare a formal response
8. Incorporate findings into the project when appropriate

Benefits of TSEs

1. Proactive approach to addressing safety
2. Results should produce fewer and less severe crashes
3. The process allows identification of low-cost/high-value improvements
4. Promotes a safety-conscious environment by improving the consistency of how safety is considered
5. Provides a continuous advancement of safety knowledge
6. Provides a benchmark for safety issues on future projects
7. Promotes an efficient use of time, money, and resources

TSE improvements can be divided into three categories:

- **Immediate safety improvements:** signage, vegetation, delineation in clear zone, etc.
- **Low-cost safety improvements:** signage, clearing the clear zone, etc.
- **High-cost safety improvements:** construction, reconstruction.

Figure 4: Intersection of CR 6 & CR 37



Implemented Improvements

Rumble Strips were installed at the intersection of CR 6 & CR 37 in October 2010 (Figure 4). At Lake Loop Road & 108th St. NE, chevrons were added to the roadway to aid drivers in visualizing the roadway. Also, a bike path was added to this site to provide a travel route to bikers and pedestrians off of the roadway (Figure 5).

Suggestions for Improvement

Lake Loop Road & 108th St. NE

More signs are needed to illustrate road curvature and highlight the speed limit of this roadway. Lower speed limits may also prevent crashes at this site; however, the current limit of 45 mph is ignored by traffic, so additional police enforcement along this roadway may be needed.

Highway 43 to 106th St.

Like Lake Loop Road & 108th St NE, the major recommendation by the

Figure 6: TSE Common Safety Issues and Countermeasures

Common Safety Issues

- Inadequate sight distance
- Insufficient signage
- Faded pavement markings
- Poor sign retroreflectivity
- Edge drop-offs/shoulder deterioration
- Missing/outdated features (eg. Guardrails)
- Short turn lane lengths
- Improper speed limits
- Poor lighting

Common Safety Countermeasures

- Install chevrons and advance warning signs on curves
- Improve pavement markings
- Install or modernize guardrails
- Improve traffic control at intersections
- Speed reduction
- Install edgeline and centerline rumble stripes

Figure 5: Lake Loop Road & 108th St NE



TSE to improve safety is increasing signage. Lower speed limits and additional police enforcement are also recommended. Further attention may be needed to this area due to expected increases in oil traffic.

CR 6 & CR 37

Reflective markers should be added to stop signs to make them more visible to drivers. Also, adding yellow and red blinking lights to mark the intersection may help warn drivers of the coming cross traffic.

Figure 7: Percentage of Crashes Occurring on Curves

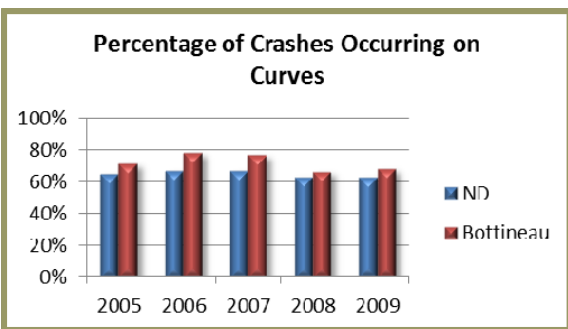


Figure 6 describes safety issues commonly seen in TSEs and the countermeasures most frequently recommended.

Significance Focusing on these types of roadways in Bottineau County is important. Bottineau County saw 63% of all crashes occurring on curves in 2009. This value is above the average for all North Dakota counties (Figure 7). By using improvements on roadway types mentioned previously, accident rates may be reduced in an efficient and cost-effective method.

In Conclusion...

- ◇ TSEs are a valuable tool for improving the safety of roadway facilities
- ◇ Limited resources are required to conduct a TSE
- ◇ TSEs are an efficient use of time, money, and resources



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