

# Traffic Safety Evaluations: Stark County



Issue brief: Summer 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 (TSE) or Road Safety Audits (RSA) as defined by the Federal Highway Administration is “a formal safety examination of an existing or future road or intersection by an independent multidisciplinary team.” The reason for conducting a TSE is to review road characteristics in an attempt to prevent crashes. The purpose of the TSE is to identify potential safety issues and identify safety improvements that account for all road users.

**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. Figure 1 describes safety issues commonly seen in TSEs and the countermeasures most frequently recommended.

**Background/Observations** A location was identified for a TSE in Dickinson, ND at the intersection of 10th Ave East and E. Villard Street. The intersection was chosen for a TSE because of the complexity that exists for drivers. The number of access points to E Villard St. at the 10th Ave intersection cause drivers to have to look in a number of directions before deciding if it is safe to enter (Figure 2). Problems identified in this TSE included:

1. Poor pavement markings
2. Insufficient signage
3. Too many access points to Villard Street
4. Clear zone obstructions
5. Poor surfacing conditions

**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

Figure 1:

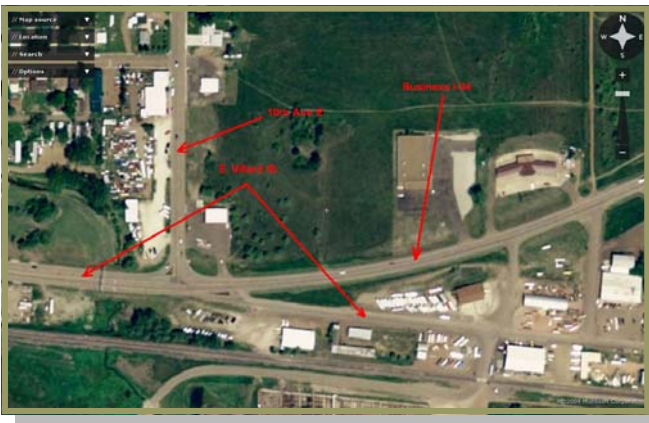
### Common Safety Issues

- 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 2: Intersection of E Villard St. and 10th Ave East



**Figure 3: Suggested Driveway Removal**



**Figure 4: Changing Access to the Intersection by Moving Villard to Business I-94 Connection.**



**Figure 5: Example of Suggested Lane Striping**



**Figure 6: View of Southbound on 10th Ave E with Suggested Solution Markings**



**Suggestions for Improvement**

Suggestions for improvement were made by the participants in the TSE, who include business owners, Dickinson city officials, law enforcement agents, engineers, and others. A suggestion by TSE participants is to reduce access to Villard St. on the east side of 10th Ave E. by removing access from the convenience store on the NE side of the intersection (Figure 3). Another common suggestion is to remove access from Villard onto the Business Loop side of the intersection (Figure 4).

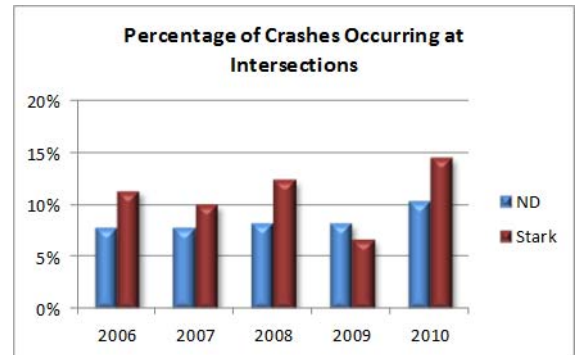
The east approach to the intersection is one lane which changes to two lanes on the west side of the intersection (Figure 5 - shown in blue). Additional striping and pavement markings to create a separate lane on Villard for vehicles to turn into from 10th Ave E. is recommended (shown in red). Removal of parking and adding left and right turn lanes on 10th Ave E. may also be useful (Figure 6).

Other feedback includes that heavy equipment on the slope between Villard and 94 presents a clear zone obstruction and possible recommendation for guardrail analysis. Poor surface conditions during winter may present a problem as roads become icy in winter. Brush on the NW corner of the intersection may obstruct the view of drivers making a left from 10th Ave E onto the Business Loop.

**Significance**

Focusing on this intersection is important to enhancing roadway safety. Thirty crashes occurred at or within 75 meters of the 10th Ave East and E. Villard Street site from 2002 to 2010. Twenty five of the crashes were within 25 meters of the intersection (North Dakota Crash Statistics,). One crash reported injuries while the rest were property damage only. This is a great example of a city and county being productive before a serious injury or fatal crash occurs. Stark County has an intersection crash history that is higher than North Dakota. In 2010, 14.6% of all accidents in Stark County happened at intersections. This is above the average in North Dakota (10.4% in 2010) (Figure 7).

**Figure 7: Percentage of Crashes Occurring at Intersections**



**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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