



ABBREVIATED SAFETY STUDY ERIE COUNTY, US 6, SLM 4.26-4.50

**OHIO DEPARTMENT OF TRANSPORTATION - DISTRICT 3
2015 MOTORCYCLE CRASH LOCATION
NO. 16**

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**OHIO DEPARTMENT OF
TRANSPORTATION**

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EXISTING CONDITIONS

Existing Conditions

BACKGROUND

The location of this study is a segment of US-6 (Venice Road/Fremont Avenue) in Erie County (District 3) at Straight Line Mile (SLM) 4.26-5.00 inside the City of Sandusky. The study location can be found in **Figure 1**.

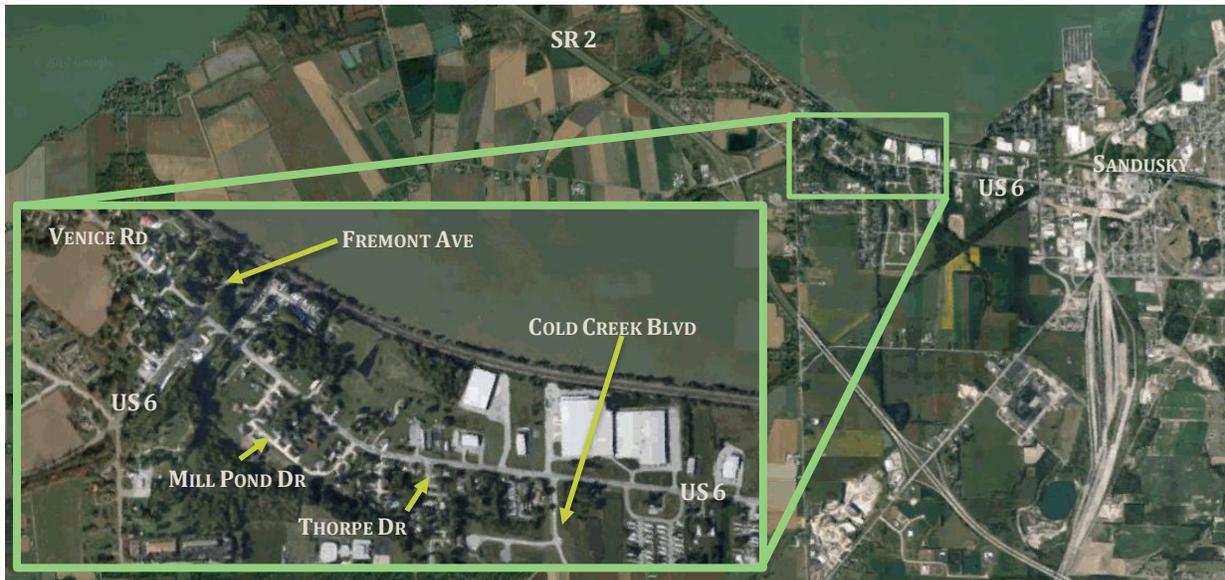


FIGURE 1: STUDY LOCATION

US-6 is a two lane roadway classified as a principal arterial. Surrounding land use is primarily residential, but mixed use with some industry to the east and shopping and entertainment to the west of the segment. Existing traffic volumes show the roadway carries an Annual Average Daily Traffic (AADT) of 7,467 to 11,477 vehicles.

No previous operational or safety studies were found on this segment, however the City of Sandusky did recently contact the district regarding a location to the east where US-6 and SR-6J diverge and US-6 widens to a four lane roadway. One of the city's concerns at this intersection was congestion westbound, and it is probable based on the existing traffic that the reduction in lanes at that location is acting as a bottleneck, and that this two lane segment of US-6 is over capacity. This study extended the segment eastbound to cover an area where US-6 operates as a two lane roadway without left-turn lanes. It is possible that by alleviating congestion along the corridor the segment would experience a reduction in crash frequency.

CONDITIONS

US 6 currently has several traffic control devices in place. The general area use is a mixed-use urban arterial with several access points along the segment, standard pavement markings, and standard signage. There is no established speed zone and the roadway is marked at the prima facie speed limit of 35 MPH.

CRASH ANALYSIS

Crash Analysis

CRASH DATA

Crashes were analyzed on US-6 from 2013 to 2016. The segment was found to have a crash rate of 185.5 crashes per 100-million vehicle-miles of travel. The location of crashes can be found in the **Crash Diagram** in **Appendix A**. Crash Data summary statistics can be found in **Table 1**.

TABLE 1- CRASH DATA 2013 – 2016

YEAR		SEVERITY		TYPE		ROAD CONDITION	
2013	6 (26.1%)	Injury	7 (30.4%)	Rear End	9 (39.1%)	Dry	21 (91.3%)
2014	5 (21.7%)	PDO	16 (69.6%)	Sideswipe-Passing	5 (21.7%)	Wet	2 (8.7%)
2015	10 (43.5%)			Animal	2 (14.5%)		
2016	2 (8.7%)			Pedal-cycles	1 (8.7%)		
				Left Turn	1 (4.3%)		
				Fixed Object	1 (4.3%)		
				Angle	1 (4.3%)		
				Other Object	1 (4.3%)		
				Other Non-Collision	1 (4.3%)		
TOTAL	23 (100%)			Sideswipe-Meeting	1 (4.3%)		

Crash data indicated a trend in congestion related crashes, the most frequent crash type being rear-end crashes and the second most frequent being sideswipe-passing crashes where motorists have illegally passed left turning vehicles using the available shoulder.

Observable trends in the crash data included over-representation of crashes involving motorcycles. This is likely related to the Sandusky and Lake Erie region being a popular location for leisure driving. One-third of all crashes having occurred in the months of June and July, one-third of all crashes having occurred on the day Tuesday, one-sixth having occurred on Saturday, and one-sixth having occurred on Thursday. It is probable that crashes during June and July and on Saturday are related to the increased demand the roadway experiences from recreational traffic for the city. Thursday traffic could be related to the bar located in the segment, or increased travel to this destination. Three crashes involved the driver under the influence of alcohol or drugs. Most crashes were caused due to vehicles slowing or stopped to make a turn or yielding to oncoming traffic and being rear-ended or sideswiped.

The number of crashes and type of those crashes were plotted by location in **Figure 2**. Most frequent to least frequent crash locations are as follows: 1. the intersection of US-6 and Thorpe Drive, 2. the intersection of

CRASH ANALYSIS

Fremont Avenue and Venice Road with US-6, 3. US-6 fronting “Sandusky Food & Wine” and “The Original Margaritaville”, and 4. the intersection of US-6 with Cold Creek Boulevard.

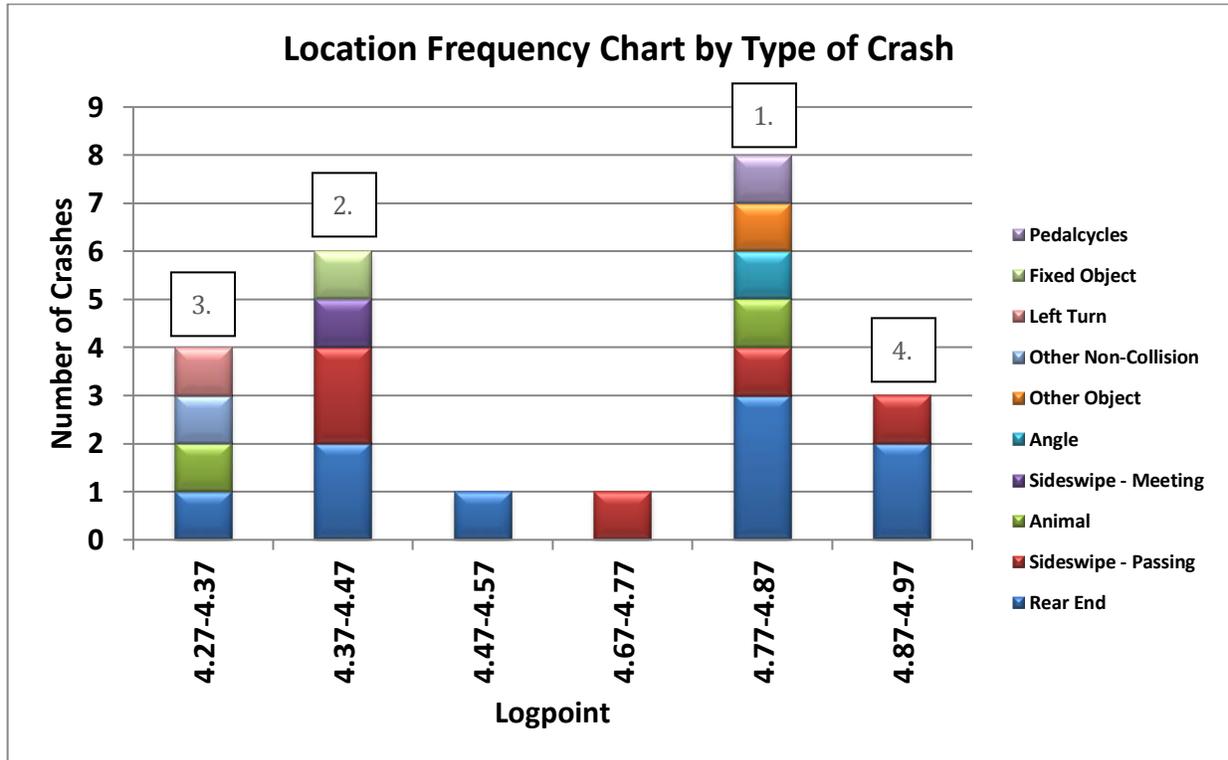


FIGURE 2: CRASH LOCATION VS. FREQUENCY BY TYPE

A majority of crashes occurred under dry road conditions, clear weather conditions, and during the day. Also, there did not seem to be any trend relating to driver age. Therefore, this study will not focus on lighting or pavement conditions. It also does not seem that inexperienced drivers, elderly drivers, or weather had major influence on crashes. Due to the tourism industry in Sandusky generating traffic from the greater region, driver familiarity is specifically not being considered in this study, considering that Sandusky is consistently subject to unfamiliar drivers.

CRASH ANALYSIS

The most predominant crashes recorded involved rear-end crashes and the illegal passing of turning vehicles. These crashes were most frequent during summer months and on weekends. This is expected to be, in part, due to increased demand for Cedar Point and other recreational activities along the coast. Several other crashes were also related to the Intersection of Venice Road and Fremont Avenue. It is possible that drivers at this intersection are misinterpreting this intersection as all-way stop control, which was noted in the crash reports. Poor access management has also been noted along the corridor with some access points being allowed open frontage.

IMPLEMENTATION PLAN

Crash Type

MOTORCYCLE:

Four motorcycle crashes were reported using crash data from 2013-2016. A narrative summary of these crashes is as follows:

1. 7/31/2013: A 50 year old male was stopped in the eastbound channelized right turn lane on US-6 at the intersection of Venice Road and Fremont Avenue where he misinterpreted the intersection as all-way stop control. He began to pull from the stop-bar, but then stopped, yielding to eastbound traffic on Venice Road approaching the intersection. A 49 year old female in a motorcycle behind him, failing to see that the motorcycle in front of her stopped, then caused a collision between the two vehicles. Both drivers were from Pennsylvania.
2. 10/28/2013: Two motorcyclists were traveling eastbound on US-6. A 46 year old male failed to maintain safe clear distance and rear-ended a 41 year old male on his motorcycle. The 46 year old male was found to be under the influence of alcohol.
3. 7/4/2015: A 54 year old male was traveling eastbound on Venice Road and began to turn right onto Fremont Avenue. The motorcyclist lost control on gravel and slid across both lanes of traffic, coming to rest in the channelizing island. The driver was found to be under the influence of alcohol.
4. 6/21/2016: A 64 year old male was traveling on Fremont Avenue when a vehicle appeared to be exiting a business along the segment (from the house number in the crash report it is likely the business was "The Original Margaretville" but this was not confirmed). The motorcyclist applied brakes, lost control, and "laid down" the motorcycle on the pavement.

PROBABLE CAUSES

When considering the most recent available crash data, the detail provided in these crash reports suggests congestion as one of the most likely factors influencing the number of crashes. Other crashes were observed due to the configuration at the intersection of Fremont Avenue and Venice Road or the open access to the roadway and frequency of access points. Finally, alcohol also seemed to play a major role in the number of crashes. This information supports the following potential countermeasures and improvements to the corridor:

- Access Management
- Widening of US-6
- Improved Signage

Implementation Plan

The following includes several strategies recommended to improve the operation and safety of the corridor. These strategies on US 6 are summarized in the following steps:

IMPLEMENTATION PLAN

LOW COST

1. *Increase Stop Sign Size:* It is recommended that the stop signs at the intersection of Venice Road and Fremont Avenue be increased in size. With the shape of the stop sign obscured, it is difficult for motorists on other approaches to discern when traffic must yield the right-of-way. Further guidance can be found in OMUTCD.2B.10.08. The site in question can be found shown in **Figure 3**.



FIGURE 3: STOP SIGNS ON CHANNELIZED RIGHT TURN

2. *Cross Traffic Does Not Stop Plaques Installation:* The installation of Cross Traffic Does Not Stop plaques is recommended to provide drivers with more information based on the operation of the intersection. It is possible that with the skew of the intersection and orientation of traffic, some drivers may have difficulty checking if all approaches to the intersection are stop controlled. OMUTCD.2C.59 can offer further information on the proper use of Cross Traffic Does Not Stop (W4-4P) plaques.
3. *Stop Bar Installation:* It is recommended, to reinforce the stop control of vehicles along the corridor, that stop bars be installed, again as shown in **Figure 3**. If reconfigured, the installation of yield lines, commonly referred to as “Shark’s Teeth”, is also recommended. Further information on this topic can be found in OMUTCD.3B.16.
4. *Continue to Monitor:* If current crash trends increase as traffic demand increases, the segment should be considered for further study.

MEDIUM/HIGH COST

1. *Widening of US 6:* Considering the relation between congestion and crashes along the corridor, it is suggested that the city consider widening US-6 from two lanes to a three lane segment. Depending on existing right-of-way, shoulder depths, shoulder widths, and pavement conditions the cost of this alternative would vary.
2. *Reconfigure the intersection of Venice Road and Fremont Avenue:* Traffic at the intersection should be counted and a study should be complete to explore alternatives to reconfigure this intersection, either

IMPLEMENTATION PLAN

changing the control at certain approaches or with the addition/change of approaches to yield control. With further study and the reconfiguration of this intersection, congestion and delay along the corridor could be alleviated.

3. *Access Management*: Consider the restriction of some “open-access” access points along the segment to drive access. Open access allows traffic to enter and exit at multiple points traveling on US-6, which can prove difficult for drivers to interpret and react to. Restricting access to one drive allows drivers to more readily react to drivers entering and exiting the roadway, and by allowing drive access drivers are expected to be able to more safely and efficiently travel the corridor.

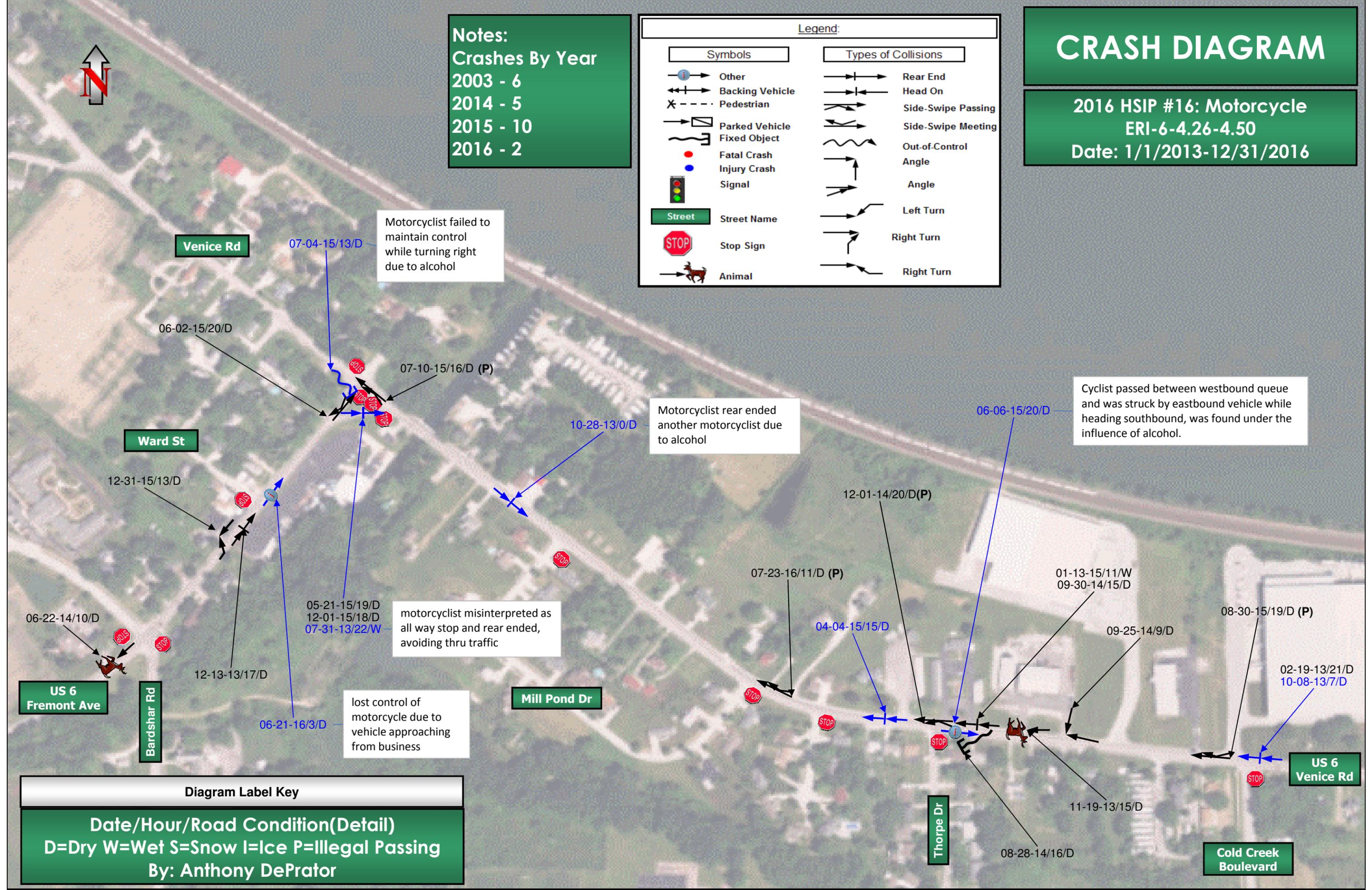
APPENDIX A: CRASH DIAGRAM

CRASH DIAGRAM

2016 HSIP #16: Motorcycle
 ERI-6-4.26-4.50
 Date: 1/1/2013-12/31/2016

Notes:
 Crashes By Year
 2003 - 6
 2014 - 5
 2015 - 10
 2016 - 2

Legend:	
Symbols	Types of Collisions
	Rear End
	Head On
	Side-Swipe Passing
	Side-Swipe Meeting
	Out-of-Control
	Angle
	Angle
	Left Turn
	Right Turn
	Right Turn
	Right Turn



Motorcyclist failed to maintain control while turning right due to alcohol

Motorcyclist rear ended another motorcyclist due to alcohol

Cyclist passed between westbound queue and was struck by eastbound vehicle while heading southbound, was found under the influence of alcohol.

motorcyclist misinterpreted as all way stop and rear ended, avoiding thru traffic

lost control of motorcycle due to vehicle approaching from business

Diagram Label Key
 Date/Hour/Road Condition(Detail)
 D=Dry W=Wet S=Snow I=Ice P=Illegal Passing
 By: Anthony DePrator