

Photographic Chronology of East Asphalt Edge Breakage at North Curve of Clarke Road North of Fanshawe Park Road

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Gorski Consulting has been involved in monitoring traffic situations at an S-Curve on Clarke Road, north of Fanshawe Park Road, in north-east London, Ontario since 2009. This site was selected because its unusual geometry led us to believe that there would be a higher number of loss-of-control events at this location. In the earlier years this was proven to be true. However, with the advent of electronic stability control mandated on new vehicles commencing in 2011, the numbers of loss-of-control events appeared to diminish.

Recently however, the scenario has changed. The east edge of the northbound lane at the north end of the S-curve began to break apart due to the many times that the right side wheels of vehicles slipped off that edge. An example of a vehicle falling off that edge is shown in the three figures below.



Figure 1: View showing a northbound pick-up truck approaching the north end of the S-Curve on Clarke Road. White markers set up in a grid pattern allowed a detailed assessment of the vehicle's position within the lane.



Figure 2: View, 1 second after the view shown in Figure 1. Here the right side wheels of the vehicle have fully fallen off the east asphalt edge.



Figure 3: View, 1-second after the view shown in Figure 2. Here the vehicle has almost re-emerged back onto the asphalt road surface.

The testing in the above figures was conducted in the fall of 2009. Figure 4 below shows a southward view of the east edge of the pavement at the location where the Pick-up truck in the above figures slipped off the asphalt edge. This photo was taken on May 25, 2015, or 5 1/2 years later, and we can see that the edge of the pavement has broken away.



Figure 4: View looking south on May 25, 2015

Figure 5 shows another view of the same location but slightly further south.



Figure 5: View looking south, of east asphalt edge on May 25, 2015

Figure 6 shows the same location looking westward.



Figure 6: View looking west, of condition of east asphalt edge on May 25, 2015.

Breakage of the asphalt edge at this location is a concern because, during our examination on May 25, 2015, we identified evidence of fresh collision events on the east roadside, north of the curve. For example, Figure 7 shows fresh tire marks in the east roadside caused by a large, northbound truck. Figures 8 and 9 also show evidence of a vehicle that rolled over after climbing a small embankment on the east roadside.

Given that we observed evidence of only 4 loss-of-control events in all of the year 2014, the presence of these two collision events raised some concern. In previous years collision events ranged between 12 and 22 per year therefore the presence of the broken asphalt could take away all the gains that might have been made from introduction of the mandated electronic stability control.

What lies ahead is difficult to say. Small numbers of events like these can easily be due to chance fluctuations in causation. However, one cannot ignore the common sense reality that the narrowing of the lane at this crucial location should be of concern.



Figure 7: View of fresh tire marks in the east roadside where a northbound truck travelled off the northbound lane of Clarke Road that the curve.



Figure 8: Fresh evidence of broken glass deposited on the east roadside as a result of a vehicle rollover.



Figure 9: Southward view showing the relationship between the broken glass from the rollover collision the north curve of Clarke Road.

The fact that we have examined this site for a number of years allows us to illustrate the progressive deterioration of the pavement which led to the breakage of the asphalt edge. Thus we present the following figures showing photos taken approximately every year since the spring of 2009.

Figure 10 shows a southward view of the east asphalt edge taken on June 2, 2014. We can see that there has been some breakage of the pavement edge and, comparing this to Figures 4 and 5 we can see what portion of the pavement eventually broke off by May 25, 2015.

Figure 11 shows a southward view from June 23, 2013. Here we see some curved cracks have formed but the pavement edge is still relatively intact.

Figure 12 takes us to June 2, 2012 and a southward view. Here we see two arcs of cracking in the pavement edge but the edge has not broken away.

Figure 13 is a southward photo taken on May 17, 2011. Two arcs of cracking in the pavement are visible near the east asphalt edge but the edge has not broken away.

Figure 14 shows a southward view from April 16, 2010, showing no evidence of any cracking along the pavement edge.



Figure 10: View, looking south, of east asphalt edge on June 2, 2014.



Figure11: Southward view from June 23, 2013.

Finally, Figure 15 shows the status of the east asphalt edge on April 28, 2009. There is no cracking of the pavement or breakage of its edge.

Video taken during a drive-through in August of 2008 indicated that the road surface was relatively new and therefore it may have been paved sometime during the spring or summer of 2008. Thus the yearly photos provide an indication of how the roadway deteriorated over the numerous incidents where the right side wheels of northbound vehicles slipped off the east asphalt edge. It has taken about 7 years to deteriorate from a new pavement to a scenario where the pavement edge has broken away and now possibly poses a threat to the safety of a larger number of drivers. The extent of this safety threat remains to be seen in light of the fact that so many vehicles are equipped with electronic stability control which would act to prevent loss of control after travelling over this deteriorated and broken asphalt edge.



Figure 12: Southward view from June 2, 2012.



Figure 13: Southward view from May 17, 2011.



Figure 14: Southward view from April 16, 2010.



Figure 15: View, looking south on April 28, 2009.

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