

Double Fatal On La Salette Road North of Delhi Ontario Prompts Question Why A Roadside Barrier Was Not Installed

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As it has become typical of reports regarding fatal collisions in Southern Ontario, important questions regarding factors that could have led to the deaths of road users have not been answered, nor have they even been posed by the news media upon which the public relies to inform them. This refers to the most recent single-vehicle collision that occurred on the evening of Saturday, March 23, 2013 on La Salette Road, just north of Delhi, Ontario. Two young women, Meagan Lofthouse, 19, and Brittany Wardle, 21, were killed when their eastbound vehicle travelled off the north roadside and struck a tree. While the various news media focused the public's attention on the personal lives and history of the two, the more important questions about what caused the collision, or how it could have been prevented were never brought forth.

We examined the collision site on Sunday afternoon, March 24, 2013 and provide the following facts that have not been disclosed.

Figure 1 on Page 2 is a view looking east along La Salette Road from a few hundred metres west of the collision site. As can be seen by observing the right and left edges of this road its surface is aged and there is some sagging of the pavement taking place near those right and left edges.

In the background of Figure 1 it is possible to distinguish a sag in the roadway and this is where the eastbound vehicle left the roadway and struck a tree. From this vantage point one can recognize that the road surface cannot be seen in this sag but that it reappears on the other side. So one can appreciate that this is a significant, local, elevation change that is often experienced in the vicinity of a creek or river. Such sags are not unique but exist all over Southern Ontario and throughout North America such that those responsible for the road maintenance must be aware of what signage, roadside protections and surface maintenance are typically required. It is not a unique circumstance that vehicles travelling along such roadways might travel at a speed that is higher than the posted speed. On typical rural roads where the speed limit is 80 km/h it is not unusual for average speeds to be in the range of 90 km/h. At the same time, encountering a steep down-slope has been known to be associated with loss-of-control events as the additional force of the acceleration due to gravity prevents a vehicle from travelling at a constant speed and braking may sometimes be needed to prevent acceleration to a higher speed. Also, maintenance personnel should also be aware that such sags will contain steep grades on the roadsides as the level of the creek is often

substantially lower than the road surface which is often built up for the purposes of a bridge or culvert.



Figure 1: View, looking east, from just west of a sag in the La Salette Road where an eastbound vehicle travelled off the north roadside and struck a tree.

So all these issues should raise a red flag to those responsible for such a road location that they must take note of any needs to prevent vehicles that travel out of control from falling over any steep embankments at such a sag. This issue is not new.

Figure 2 is another view looking eastbound after we have crested the edge of the sag and have progressed partway down into it. There are a number of straight, black tire marks on the road surface in the background and these are typically caused by police investigators as they attempt to determine the "co-efficient of friction" of the surface. Typically police may have an accelerometer on board the test vehicle (often a Vericom) which provides a reading of the average "aggressiveness" of the surface or what tire force it is able to generate which might keep the vehicle stable or give the vehicle an ability to slow down or speed up.

Those black skid marks were produced precisely in the area where we first detected the typical "yaw" marks of the collision-involved vehicle. So it would make some sense for police to conduct the testing in the region where the vehicle laid down the first tire mark evidence of its loss-of-control. In reality most events that generate a loss-of-control are often well prior to the point where such visible yaw marks are produced so the police testing would be of limited usefulness.



Figure 2: View, looking east, on the downslope of the sag, looking at some skid marks likely produced during the police investigation.



Figure 3: Eastward view of the police skid marks where the first evidence of yaw tire marks was found.

Figure 3 shows a closer, eastward view of the area within the police skid marks. It is within this area that we observed the first evidence of yaw tire marks which were generated by the collision-involved vehicle. This evidence is quite faint but it indicated that the vehicle was rotating clock-wise approximately in the middle of the road.

As we move further eastward, past the police skid marks, it is possible to see in Figure 4 the darker yaw marks as the vehicle then began to rotate counter-clockwise from the south lane toward the north roadside in the background.



Figure 4: Eastward view of counter-clockwise yaw marks caused as the vehicle travelled from the eastbound lane toward the north roadside.

In Figure 5, we see how the yaw marks continue to travel across the roadway and toward the north roadside.



Figure 5: View looking at the yaw marks travelling toward the north roadside.

In Figure 6 we see how the tire marks exit the north roadside and we can see the evidence of an impact to a tree in the background.



Figure 6: View of yaw marks exiting into the north roadside.

The issue that should be apparent from observing Figures 5 and 6 is that there no barrier to prevent a vehicle from exiting over the steep embankment on the north side of the road. Figure 6 shows the extent of the drop and the severity of the slope. These characteristics are no different than any roadside next to a bridge that might span a similar creek or small river.



Figure 7: View of north roadside and struck tree.

Looking at the level portion of the roadside next to the hard top road surface there would appear to be sufficient lateral width on which to erect a guardrail or similar barrier to prevent vehicles from this deep drop.

Figure 8 shows a view of the struck tree. Evidence at the site confirmed that the vehicle travelled only a short couple of metres past this tree therefore almost all of the vehicle's speed was lost from this impact and therefore the impact force was applied close to its centre of gravity. This would indicate a higher severity of impact than if the vehicle was able to be deflected from impact with some residual velocity. Since the two occupants would be seated close to the vehicle's centre-of-gravity it is less surprising that both sustained fatal injuries.



Figure 8: View of struck tree.

However, it must be questioned why a barrier was not installed to prevent such an impact. Figure 9 shows a view looking from the north toward the roadway and we can see the extent of the steep slope above the bed of the stream. The stuck tree is located at the left centre of this view.



Figure 9: View, looking south, from the north roadside of La Salette Road, demonstrating the large vertical drop and the steepness of the embankment where the collision occurred.

The reports from the official news media indicated "Police haven't determined what caused the crash but said alcohol isn't suspected". It may be understandable that the objective evidence indicating why the vehicle began to rotate so violently near the top of the downgrade may be missing or difficult to identify. But there is obviously more to this story than what caused the original loss-of-control.

If there had been a barrier erected at this site the collision could have resulted in minor injuries or no injuries at all. It can be understood that not all roadways can receive the same level of service and that level must be increased on roadways with a high traffic volume so that the expenses benefit the greatest number of road users. However, during the time that we examined the site on a Sunday afternoon we were cognizant of the number of vehicles passing the location and it would not be surprising to us if the Average Daily Traffic Volume (ADTV) for this road segment was above 1000 vehicles.

Thus the observed volume of traffic passing through did not give us the indication that this was some isolated back road. The distance of roadway from the settlement of La Salette in the west to the accident location was lined with many single family homes and only a smaller amount of rural farm land. This would explain the reason for the larger traffic volume than a simple, low-volume road. As such there should be an explanation provided to the public, as well as the families and friends of the deceased individuals, why there was no protection provided to prevent vehicles from exiting the roadway at this unsafe location.

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