

# Inter-City Transit Bus Rollovers - A Continued Threat To Passenger Safety

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Gorski Consulting has expressed continued concern over the number of multi-fatal, inter-city transit bus collisions that have occurred over recent years. In March of 2016 we uploaded article to this website entitled "Multiple-Fatal Highway Transit Bus Collisions - The Facts No One Want To Know". We have also provided various news items on the News page of this website. It should be abundantly clear to anyone interested in road motor vehicle safety that a genuine and serious danger exists. Up to now no one has expressed a similar concern whether in officials news items, documentaries, in various forums from road safety researchers or from investigating police.

The latest crash of an inter-city bus occurred October 14, 2016 but received essentially no attention from official news media or from any pronouncements from investigating police. Brief mentions were made on CBC News and The Canadian Press. These articles simply indicated that a school bus transporting 50 seniors rolled over on Highway 28 near the Town of Denbigh in eastern, Ontario. It was reported that 10 persons were injured.

With respect to the CBC News article, it also indicated that the bus rolled "on Bridge Street in Denbigh". Thus it would not be clear where the collision occurred, whether on Highway 28 or on Bridge Street. In fact all indications suggest that the rollover occurred on Highway 28 and likely close to Bridge Street. Never-the-less, no photos were provided of the location on the road nor of the involved bus. So little can be learned about what happened and why. While police reported that none of the injuries were considered life-threatening, one only needs to recognize the fragility of seniors to understand that, what appears to be a non-life-threatening injury to a younger person can be much more serious when the elderly are involved.

Without any specifics about what happened we can only examine the general location of the event and comment on the probabilities. A look at Google Maps shows the area around Denbigh in Figure 1. Without specific information we would suspect that the most likely location for a bus rollover would be at the most challenging curves, those being just east of Denbigh as high-lighted in Figure 1.

Figure 2 shows a view looking west as one approaches Denbigh on Highway 28. We can see the left curve that exists. Figure 3 shows an additional view looking west further along the highway and here we also see a guardrail with a Trinity ET Plus terminal.



Figure 1: Google Maps view of the Denbigh showing the sharper curves on the east edge of the town.



Figure 2: View looking west of the left curve of Highway 28 at the east edge of Denbigh.

The Google Maps view shows the area at the time that the roadway was freshly paved and the guardrail and terminal look like they were recently installed. The view in Figure 3 was taken in late September of 2015 and we can see that the pavement no longer looks as fresh and the guardrail looks more aged. Therefore the Google Maps view was taken perhaps a year or more earlier than what is seen in Figure 3.

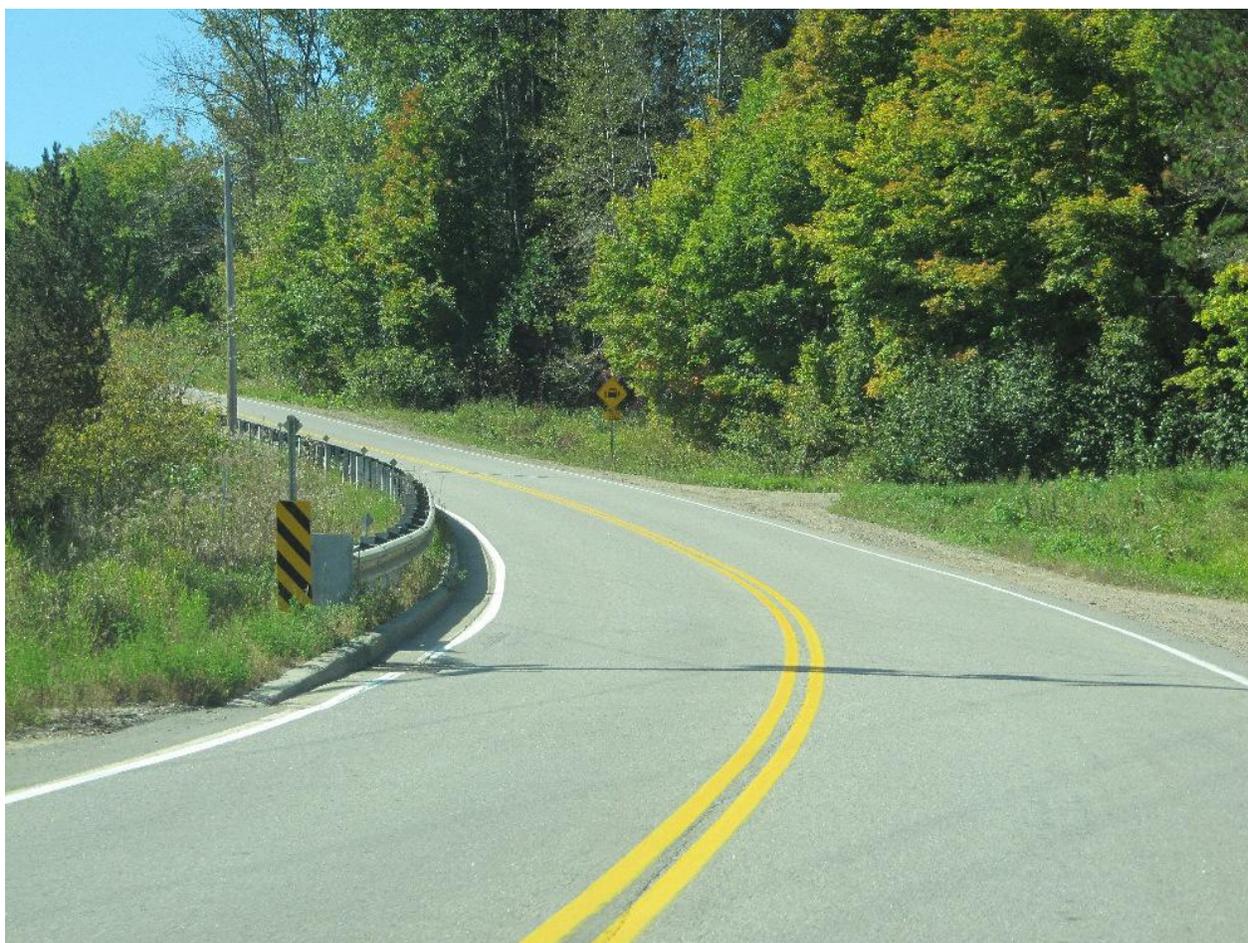


Figure 3: View looking west at a left curve on the eastern outskirts of Denbigh.

Figure 4 shows a view looking west further up the highway and we see the western end of the guardrail with another ET-Plus terminal. While some authorities claim that there is no evidence that ET-Plus terminals are any less safe than others, it is clear that many municipalities in Ontario are replacing the units with ones from different manufacturers. If a large vehicle such as a bus were to strike this terminal there is no doubt, in our opinion, that the terminal would not perform in the manner under which it was tested in controlled conditions. Generally the controlled testing was with smaller cars and light trucks. Even if a bus struck the guardrail itself at a speed of over 50 km/h it is highly likely that the bus would roll over top of the rail. Thus the presence of the guardrail would do little in protecting passengers from a rollover, in fact, it might even accentuate the probability of a rollover.



Figure 4: View looking further west along Highway 28 toward the end of the guardrail is which equipped with an ET-Plus terminal.

This presents a concern that has been expressed by Gorski Consulting on a number of previous occasions. The present state of guardrails, terminals and other roadside barriers and attenuators is not compatible with large trucks and buses. An impact at any significant speed by a large truck or bus will cause that vehicle to plow through the device or will cause such a taller vehicle to rollover.

The rollover of a bus loaded with many passengers becomes that much more dangerous because of the potential for multiple fatalities. This is especially dangerous when the passengers of a bus are frail seniors. In recent years there has been an increase in the use of intercity busing of seniors to casinos. This is happening throughout Canada and the U.S. and represents a major business interest. Thus the level of risk has increased.

Yet, there continue to be conditions that increase that risk. Inter-city buses travelling at high speeds along incompatible highways are also not safely maintained.

As an example, Figure 5 shows a view of an inter-city bus travelling along Highway 401 in eastern Ontario. Strangely the bus is tilted to the left side. Does the bus have a major

suspension problem? Is it over-loaded on one side? Whatever the reason this cannot be a good scenario if this bus ever travels around a significant curve at highway speed.



Figure 5: View of an inter-city bus leaning toward its left side as it travels along Highway 401 eastern Ontario.

As another example, a Go transit bus is seen in Figure 6, also travelling along Highway 401. However the bus is a double-decker. At highway speeds this vehicle could easily tip over in any marginal emergency were a rapid change in direction might be required. Driving such a vehicle at highway speeds where no infrastructure is compatible with its high centre-of-gravity is a recipe for disaster.

In summary, inter-city travel on buses is a dangerous situation that is not being publicized. Rollovers are particularly dangerous for occupants of these buses. The roof structures of these massive vehicles are comparatively soft. When a bus rolls over it exposes that weak roof to whatever objects may be present and very often those objects are stiffer and no yielding resulting in major intrusion into the occupant space. This is a scenario that must be explained to those travellers who need to be informed of what dangers exist.

It is also essential that road safety organizations and governments make it a priority to improve the safety of inter-city bus travel. Bus travellers must be informed of those

situations that threaten their lives and incidents such as the recent bus rollover near Bindigh, Ontario need to be high-lighted in the news to explain how easily the incidence of a bus rollover can result in multiple fatalities.



Figure 6: View of a Go Transit bus changing lanes on Highway 401. Such vehicles with high centres of gravity are not compatible with the roadsides of such a highway and the high speed can only increase the danger.

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