

# Gorski Consulting Website

## Archived News - 2014 - May

May 29, 2014

### CAA's Worst Roads Campaign for 2014 – A Continuation of Confusion to the Travelling Public



The eastern portion of Sunningdale Road in London, Ontario has had major structural problems in wintertime yet it has never been mentioned in the CAA listings as a bad road, likely because there are few residents in the area that would complain.

The listing of Ontario's "Worst Roads" has been published again for 2014 and its results continue to display the problems that plagued the campaign in previous years. While being touted by CAA and news media as a way of focusing attention and money toward the need of repairing Ontario's roads, it also creates confusion and problems by calling roads the "Worst" when there is no justification to do so. The problem is that the campaign is based solely on the reports of persons calling in their complaints and the number of those received complaints is used as the calculator of what is good and bad. If

there was some way to be assured that the worst roads truly received the most complaints then there might be some merit in this exercise, even though it would still be imprecise and possibly inaccurate. But it is quite likely that certain roads get complaints for completely different reasons which are unknown.

Only the CAA knows how many complaints it receives and whether the numbers justify the process, but the news media report the results without any apparent questioning of the methodology. When a road becomes publicized as the worst in Ontario, pressures become applied to local politicians and road works departments to immediately repair the gigantic hazard. Yet, there could be other roads in worse condition that could become unrepaired because the money was shifted toward appeasing the squeaky wheel of propaganda. Surely there must be a better way for CAA and Ontario's media to get needed road work done without causing this confusion.

**May 26, 2014**

### **Crossing of Bridge Junctions & Railway Tracks – Effect on Vehicle Motion**

In continuation of our exploration of the effects of various roadway features on the motion of a passing vehicle we have now completed an article that presents the results of our testing of the effects of bridge junctions and railway tracks on the motion our 2007 Buick Regal. This data provides further expansion and explanation of the differences in the data from various testing that has been reported in previous articles. We have now reported on the data obtained when driving over longer segments or roads; we have reported the effects of incomplete road repairs and now we have data on the effects of bridge junctions and railway tracks. The full complement of data should provide an indication of what one might expect and accept from a roadway and will enable one to compare a certain road, or road feature, to a large number of others.

We invite you to review our article uploaded to the Articles page of this website.

**May 23, 2014**

## **Characteristics of Local Collisions in April, 2014**

We have conducted a brief review of the characteristics of collisions that have occurred in South-Western Ontario last month.

Two serious collisions, one involving a death occurred between large trucks and motorized e-bikes and scooters. On April 11, a disabled man operating a 4-wheeled scooter sustained injuries after a collision with a large truck at the intersection of Egerton and Hamilton Roads. This intersection is not only busy but it contains narrow lanes that would make it difficult to accommodate a truck and scooter. Meanwhile, in Tillsonburg, Ontario, on Friday, April 25th, at approximately 0910 hours, a 52-year-old man was killed when his e-bike was in collision with an environmental recycling truck. While media presented the opinion that this was time for e-bike riders to be licensed, the premature conclusion that it was somehow the deceased rider's fault was not borne out as the truck driver was later charged by police with careless driving. There have been plenty of calls for licensing of e-bikes while there has been little, detailed study to confirm that it is the lack of licensing that is causing the collisions.

On April 16th a 25-year-old, Kitchener area woman was killed on Hespeler Road in Cambridge, Ontario after she reportedly attempted to make a left turn and was struck by the front end of a tractor-trailer. There was severe damage to the right side of the deceased's 2007 Toyota and a substantial distance between the final rest positions of the two vehicles. Since the truck's direction of travel would not be affected by the small mass of the car, it would suggest that the car was propelled back in the direction that it came, leading to questions about the speed of the truck.

On April 30th, a fatal collision occurred on Highway #2, west of Thamesford, Ontario when a westbound car reportedly travelled into the eastbound lane where it collided with the front end of a large truck. This glancing impact to the left portion of the car suggested that the car driver was attempting to return to the westbound lane when the impact occurred. The close proximity of the area of impact to the intersection of Oxford County Road 31, just to the east, would make it important to evaluate whether interference or some other factor at the intersection led to the westbound driver's actions.

Concerns about the safety of the intersection of Embro Road (Perth Road Road 113) and Line 26, south of Stratford, Ontario, continued as another intersection collision occurred there on April 2nd. A northbound vehicle on Road 113, governed by a stop sign, was struck by a westbound vehicle travelling on Line 26. The rather high traffic volumes on both roads and the high rural speeds on Line 26 continue to make this intersection a high collision producer.

On April 11th, a single vehicle collision occurred near Blenheim, Ontario, resulting in the death of a 28-year-old, local man. His Ford F-250 pick-up truck reportedly rolled several times and came to rest in a field. The collision on Cundle Line continues to demonstrate the relationship between light trucks and local roads where the surface conditions may not be ideal and the suspensions of such trucks lead to a greater propensity for loss-of-control.

A continuing problem with submerged vehicles was demonstrated on April 5th on Grey Road 4 in the Flesherton, Ontario area when a woman became trapped in her vehicle after it left the road and came to be upside down in swampy water. Fortunately a citizen was there to jump in the water and free the woman. A Chevrolet SUV would be more prone to loss-of-control, however, the main issue resides with the fact that little attention is being paid to the number of times that persons drown in submerged vehicles, often upside down, while wearing their seat-belts. It remains politically charged to discuss the disadvantages of seat-belts in these circumstances and therefore a needed remedy is not being addressed.

Meanwhile, the benefits of being restrained remain. For example, a rollover collision occurred on Highway 402 near Camlachie Road, near Sarnia, Ontario, on April 19th. A mother and her child were both properly restrained, the child in a car seat. Both were taken to hospital but sustained non-life threatening injuries. Similarly, on April 7th, a 1-year-old girl sustained minimal injuries while being properly restrained in a child seat and her mother sustained some injuries when their mini-van was struck in the side at the intersection of Perth Road 180 and Line 36 in the Stratford area. It demonstrates that overall, seat-belts and child seats provide far more protection than the few instances where they may be a detriment, however, we should recognize the problems and work to correct them, not hide them.

The unfortunate consequences of lack of seat-belt use and subsequent ejection in rollover collisions was demonstrated again on April 18 in the area of Mitchell, Ontario when a 19-year-old male driver was ejected and killed in a single vehicle collision on Perth Line 24. While the exact circumstances are unknown, this result has repeated itself for decades as ejection from a vehicle is highly dangerous.

A male driver also died when his vehicle crashed onto a parked vehicle at the Ford dealership on Thames Road in St Marys, Ontario.

There is a continual problem in southern Ontario of regular highway vehicles being involved in collisions with farm machinery. This was exemplified on April 2nd when an eastbound tractor was struck in the rear by an eastbound Honda Civic on Perth Line 43 northeast of Stratford, Ontario. The 78-year-old driver of the Civic sustained major injuries.

**May 21, 2014**

### **How Fast Must You Travel to Elevate One to Two Metres in A distance of 80 Metres?**

The title of our news item would seem to make no sense. On a flat road, one could travel any speed and not elevate. So why would a vehicle elevate one to two metres and then crash into two houses, killing one person and critically injuring two others?

We do not raise this question to place any legitimacy on the actions of a driver who, on the morning of May 10, 2010, decided to speed through a stop sign while eastbound on Langarth Street while passing through the intersection of Cathcart Street in London, Ontario. The driver, Mitchell Riley, survived his reportedly drunken rampage, and now he has just be sentenced to 21 months in jail as a result of a trial in Milton, Ontario. The evidence would suggest that Mr. Riley had stolen the Honda Accord in which he and his buddies were transported to the crash site.

But going back to that elevation matter, there was absolutely nothing mentioned about it. Unless the stolen vehicle was equipped with some type of Bat-mobile device, or something new in Agent 007's spy package, it is difficult to explain why a witness claimed to have seen the vehicle elevate to that height 80 metres from where it

eventually crashed. Would it not seem reasonable that there was something about the road that might have launched the vehicle to that height?

There is little excuse for speeding through a stop sign so why would we even mention this issue? Well, drunken robbers are not the only ones who speed through stop signs. When there is an emergency, police vehicles speed through stop signs, and sometimes even ambulances and fire trucks, when deemed appropriate. The ground does not give way no matter how heavy the fire truck or how brightly coloured are the emergency lights or how loud the sirens. So the character of the road that propelled Mr. Riley's vehicle into the air would equally propel a police vehicle, fire truck or ambulance. So would one of these emergency vehicles crash if it was propelled one to two metres above the pavement? We would suggest that no test be performed to find out as the consequences would be dramatic.

If one Googles the accident site one will note that the image is from 2012 and the roadway has been completely re-built, including new curbs and sidewalks. So one cannot see the character of the road which would have done the propelling. It is interesting however that not a single mention was made of this issue.

**May 16, 2014**

### **E-Bikes, Motorized Bicycles and Moped Riders – In Danger Not Dangerous**

It is possible to argue that almost anything is dangerous.

A common observation we have heard in the past is that it is possible to drown oneself with just a table spoon of water. The unfortunate reality is that some persons would actually take a truism like this and act unrealistically to avoid the danger. Sometimes akin to avoiding water altogether and dying of thirst simply because they possess an unrealistic understanding of the priority of dangers. As bazaar as this example might seem we do not recognize that we possess misunderstandings about what we are told, leading to another truism: We do not know about the things that we do not know about.

It is in this context that we introduce a new article published in the Toronto Star newspaper of today, May 16th, entitled "Carnage on China Roads Shows Dark Side of Electric Bikes". It describes how it is estimated that 200 million people in China use e-

bikes “zipping along sidewalks and narrow alleyways at up to 40 km/h”. It also indicated that recent research indicated that, in one study area, “e-bikes were involved in 57 per cent of serious nonfatal road accidents”. The article also reported an estimate by the World Bank that “China had about 282,576 deaths from road injuries in 2010”. An apparently staggering amount.

While all these truisms may be true, they are also not true. A truly confusing statement, but true.

In our opinion, the positive side of the equation is that e-bikes are eco-friendly, using battery power instead of petroleum, in a massive Chinese society where pollution must be considered one of its largest problems. Secondly, if e-bikes were not used, what would take their place? More expensive passenger cars that take up more room on the road system while likely not carrying very many more occupants? Bicycles that are arguably no safer than e-bikes?

What about the actual speed of the e-bike, a whopping maximum of 40 km/h. An old Swedish study that argued the importance of seat-belts claimed that a person had died from a change-in-velocity (Delta-V) of just 12 mph (about 19 km/h). So once again, those of us who would die of thirst (as per the previous example) would also argue that 40 km/h is very fast and we can be assured of death, so let us not ride e-bikes. Well, no, no, no.

Granted, a small-massed object like an e-bike will not win the battle when it tangles with almost any 4-wheeled, or larger, vehicle. But in very many instances it is not the change-in-velocity that kills the rider. It is because they are exposed to dangers such as getting run over, making head contact with a stiff portion of the other vehicle’s exterior, or being propelled onto the pavement, head first, while not wearing a proper helmet. These problems are not due to the “enormous” speed of 40 km/h, they are due to other issues such as lack of conspicuity, their quiet motion, and the rider’s general lack of protection from the external environment that they share with higher-speed motorcycles and lower-speed bicycles. It is not that e-bikes kill people, it is that riders of e-bikes are killed.

Along that regard there are many issues to be addressed in North America. Our road system was designed for the 8-cylinder, 1950’s hotrods, where there were only three

auto manufacturers and acceleration was all that mattered. There were no bikes, just tricycles on sidewalks...for kids. Now we are faced with the worldwide fact that burning petroleum is like taking a bill out of our wallet and using it to light our cigarette, both activities will soon join the dinosaurs. We are faced with the reality that we must change. Bicycles and e-bikes are here for the foreseeable future, while we are still working on that “back to the future machine” that is just around that development corner. Until that time arrives, we must work on changing our road system to accommodate all those two-wheeled machines: motorcycles, e-bikes and bicycles.

One additional danger that our Ontario politicians have developed, is the idea that e-bikes must have “pedals” that stick out of the sides near the ground. A bad and dangerous decision. In the tight quarters where e-bikes will share the lane with larger vehicles it is only a question of time before we will recognize that those pedals are striking curbs, the pavement in pot-holed and construction areas and causing riders to lose control and crash.



Pedals, hanging out and down to the road surface are a danger to motorized bicycles and scooters.

May 15, 2014

## GM Ignition Switch Defect – How Would We Detect It As A Fatal Source?



Drivers, chained to bad habits, may make it difficult to detect that something other than driver error led to a crash.

Going back to the numerous serious collisions that have occurred over the last several years, what is the likelihood that the GM ignition switch defect would have been detected as the source of some of these collisions? It would appear that the primary, reliable witness to that happening would be the event data recorder of the vehicle, although that seems rather unlikely.

The event data recorder in GM vehicles are called the “Sensing Diagnostic Module (SDM)” There are several types of modules but generally, the quantity and quality of available data in them has increased with newer model years. In the case of a 2009 vehicle for example, there is an item in the “black box” report entitled “Vehicle Power Mode Status” that should display “Run”, presumably if the ignition switch was in the run position. There is also another item entitled “Run/Crank Ignition Switch Logic Level” which might be “Active”. Other tell-tale signs reside in the Pre-Crash data for Engine Speed and Percent Throttle. The “Supplemental Inflatable Restraint (SIR)” item entitled “SIR Warning Lamp Status” might also read “ON” as well as the number of seconds prior to the event that the lamp was illuminated.

The problem may not reside with the event data recorder’s ability to identify that such a pre-crash ignition shut off occurred but rather the improbability that police, insurance or other investigators might go through the process of downloading the available data. In the case of a single-vehicle, loss-of-control collision where the driver is suspected to have been impaired by alcohol, speeding, or both, there would be little inclination for anyone to go beyond the obvious fact that the collision was likely caused by the driver’s actions. In fact this is precisely what occurs on a regular basis in police investigations in southern Ontario. Once a driver is found to be impaired by alcohol or speeding there is little effort to probe any further.

There is a cost associated with probing the contents of an event data recorder that is prohibitive. For police investigations it would be unlikely to be employed unless the collision results were life-threatening or there was a fatality such that technical investigators or reconstructionists would become involved. However there are far more numerous serious collision events that result in permanent and costly injuries that are not life-threatening and which do not receive a full investigation. Many serious and permanent consequences, such as paraplegia, for example, are not life-threatening.

If police do not conduct a download then the next deep pocket would be the insurer. In the case of a single vehicle event, where the driver is suspected of being the cause of his/her own misfortune there is unlikely to be much effort for the adjuster to call in an expert who owns a “Crash Data Retrieval” kit to conduct the download, due to the costs associated with the request. Even if a driver complains that “something” about the vehicle caused the crash, it is unlikely that the driver would be able to provide a

statement that might lead to the suspicion that a vehicle's ignition shut down resulting in the crash.

Thus the GM ignition switch defect is an example of the hidden sources, or contributors to collisions, that are likely never found because, the first and most popular source, driver error, leads to a shutdown of an investigation before a full understanding of the all the factors is developed.

**May 9, 2014**

### **Fatal Rear-End Collision on Highway 401 West of Dorchester Road East of London, Ontario**

Rarely does the public obtain any useful information with respect to fatal collisions that they can use to avoid them. News reports typically indicate that a collision has occurred, that the police are investigating, followed by identification of the deceased, and then silence. At some later date there is publicity surrounding a speed enforcement, seat-belt, alcohol, or driver distraction blitz. Never are the attempted education or enforcement programs tied to an actual collision whereby the public can understand the consequences of doing something they should not. It is just one of the peculiarities of our society that we would value issues like privacy, and sympathy to/from the deceased or families involved over the opportunity to prevent a future tragedy by speaking to persons when we likely have their attention.

This morning, May 9, 2014, another unfortunate fatality occurred on Highway 401 just west of Dorchester Road, just east of London, Ontario. Apparently, a Chevrolet passenger car drove into the rear end of a trailer of a tractor-trailer that was parked on the north side of the Highway. There were a few photographs of the car shown at its final rest position, pressed against the back of the trailer. Undoubtedly, if the pattern is followed, nothing further will be made of this.

However, was there something about this incident that the public should be made aware of? Why did this car end up driving into the back of this parked trailer? The news media reported that the collision occurred at about 0616 hours and today's sunrise was at 0609 hours. So the lighting conditions were essentially dawn. Were there emergency markers placed around the trailer to warn drivers of its presence? We are unlikely to know.

Why did the driver of the Chevrolet die? Certainly rear end collisions are not known for resulting in fatalities when compared to others. The news media never showed a photo of the front end of car so it is of no use to most persons to know if the impact into the trailer was at high speed. Well, we can likely help in that regard. Having examined the destruction from the rear view of the car we can say that the car likely did strike the trailer at high speed, likely close to highway speed. But it is not possible to determine this with any high degree of precision given the vacuum of useful information.

The vehicle appeared to be of a relatively modern vintage, so we would expect that it was equipped with air bags that should have deployed. We can say that air bags have increased the likelihood of survival in broad frontal impacts to a tremendous degree compared to the days when persons rode in ancient, non-energy-absorbing “tanks” and complained about being forced to wear seat belts. So even an impact at highway speed can result in good news on a number of occasions.

So why did this good news not come about in the present case? Well, we could help if we knew a little more from (at least) a brief inspection of the Chevrolet. However, we need to know the obvious: that tractor-trailers are heavy and when they are struck they do not move. So the smaller object that ends up striking the massive truck will do essentially all of the slowing down, and that becomes a problem. Because when a car is travelling at 80 km/h, or about 22 metres every second, it will come to a stop in a very short time, or often a little more than a 10th of a second. In that 10th of a second the car must reduce its speed from 22 metres per second to zero. That is a tremendous task because you, as the driver, must also slow down in the approximate same amount of time. The time in which we change our speed is what we technically call acceleration, or what some of us would call “deceleration”. To keep the discussion short, we simply want to add that the rate at which this acceleration changes is called “jerk” and we would ideally like to keep this rate constant rather than “jerky”. So what happened in the present case? Was the acceleration simply too high or did we have problems controlling the jerk?

When cars strike taller things like trucks they can under ride the structure and provide a late signal of the severity of the impact to the “brain” of the air bag system resulting in a possible late deployment. This is bad because, in the early portion of that 10th of a second your body might already have started moving forward in relation to the vehicle interior, and toward the air bag. Your presence, usually your head, in the zone where the air bag is exploding can be a very bad result and manufacturers are working to detect

when this happening occurs, to adjust the explosion, or to prevent it altogether. So was there anything in this collision that related to air bag problems? We will never know.

Trailers are supposed to come with under-ride protection via a bracket system located beneath the floor of the trailer, at its rear end, that hangs down to the level of the bumper of a typical car. This is supposed to provide some protection from under-ride but many such guards are poorly designed and often provide little protection. So what happened in the present case? Was there an issue with the under-ride protection? Did the bracket fail and cause the car to under-ride the trailer? While conducting a brief examination of the site about eight hours after its occurrence, we noted several bolt heads lying on the ground as shown in the photos below.



Bolt heads, lying at the collision site could have come from the under ride guard beneath the rear end of the struck trailer. These bolts exhibit overload fracture characteristics.



Bolts of a similar type would be used to secure the under ride guard to the trailer. If the anchorages of the guard failed then we would want to be assured that it did so after using up its full ability to absorb as much kinetic energy as the design could withstand. However, a bolt like this that shows minimal evidence of deformation, does not provide us with that needed assurance. However, we are unlikely to know what actually occurred nor is any member of the public.

There are additional concerns when tractor trailers are parked near the edges of exit and entrance ramps of a high speed expressway. Drivers using the ramps need to be directed away from those massive barriers. In the case of the ramp at the Dorchester Road entrance ramp the road markings could be improved.

The following two photos were taken on the Highway 401 entrance ramp at the Dorchester exit. They show a tractor-trailer parked on the paved shoulder. However, the width and characteristics of the paved shoulder could make it appear to be a travel lane of a two-lane highway.



View of tractor-trailer parked on the north shoulder of the Hwy 401 entrance ramp. Note the wide, paved shoulder that resembles the width of a typical lane of a highway. In situations of limited visibility drivers may believe that the shoulder is a lane and the white edge line a the roadway centre-line.



Most drivers should be able to detect the difference between the paved shoulder and the actual ramp lane, however, in situations of deteriorated visibility, fatigue, lack of attention, or drug impairment some drivers could be confused.

We take pains to place various hatched lines to designate paved areas where vehicles should not travel. We also install rumble strips on the sides of highways to warn drivers that they are travelling out of a marked lane. Yet, on a ramp road like this there are no such warnings. Although the collision in the present case occurred several hundred metres further along the ramp lane one can never tell if confusion of a driver might cause interference with other traffic and thus leading to a collision several hundred metres ahead.

There is another danger with parked tractor trailers that is more likely to have been a factor in the present collision. Driver's travelling along an expressway entrance ramp will eventually need to take their eyes off the ramp lane ahead of them and look to the left to observe what traffic exists in the nearest lane of the expressway into which they want to merge. While doing so for too long these drivers can lose track of their position within the ramp lane. When looking to the left there is a tendency for drivers to counter the motion of the head and shoulders by applying a force with the right hand on the steering wheel and therefore, inadvertently steering the vehicle to the right – and into a parked tractor-trailer.

The photo below shows a view along the entrance ramp leading to the Highway 401 with our parked car positioned on the right (north) shoulder. The area of impact between the Chevrolet car and tractor-trailer was about 100 metres beyond the parked position of our car.



View, looking west, along the Dorchester Road entrance ramp onto Highway 401. The collision site is located about 100 metres passed our parked car on the right (north) shoulder.

The photo below shows a westward view of the area of impact.



View, looking west, toward the area of impact along the right (north) shoulder just as the entrance ramp merges with the westbound lanes of Highway 401.

One should appreciate from the previous photos that the tractor-trailer was parked in a dangerous location at the end of the entrance ramp, when merging vehicles would be accelerating and its drivers' attention would likely be toward the left rather than to the right where the truck was positioned. Such actions are not uncommon and need to be identified because of their consequences. However, what has been done to inform the public of the presence of these circumstances? None of the news articles even mentioned the fact that this collision occurred at the entrance ramp. So far as the public is concerned they would believe it just happened on a straight section of Highway 401. Where is the education to inform the public of this important danger? If the public was truly aware of the problem there could be more effort to make sure that truck drivers understand where it is dangerous to park their trucks. It would also make drivers more

vigilant to the possibility that their vehicle could wander to the right when they are scanning the highway to the left. It is correct that we do not know what happened in the present circumstance, but the scenario is one that is not uncommon and needs to be brought forth.

These are important issues that could save a future life. But instead we want to focus on the importance of privacy and sympathy for the persons involved. We fail to understand, at times, that importance is relative. Everything is important but it has its priorities. Some things are more important than others and we must have a firm, reasonable understanding that, when we emphasize the importance of one thing, we minimize the importance of another. If we had warned drivers of the potential of such traffic conflicts we might not need to concern ourselves with privacy or sympathy because we might have prevented such a tragedy from occurring in the first place.

Gorski Consulting  
London, Ontario, Canada

*Copyright © Gorski Consulting,  
All rights reserved*