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SAFETY PERFORMANCE ON THE REGIONAL ROAD NETWORK

The Transportation Services Committee recommends:

- 1. Receipt of the presentation by Staff Sergeant Brad Bulmer, assisted by Inspector Heidi Schellhorn, York Regional Police and Steven Kemp, Director, Traffic Management and Intelligent Transportation, Transportation Services;**
- 2. Adoption of the recommendation contained in the following report dated November 2, 2011, from the Commissioner of Transportation Services; and**
- 3. Staff report back to Committee in April 2012 regarding red light camera technology, photo radar and the Road Watch program.**

1. RECOMMENDATION

1. It is recommended that this report be received for information.

2. PURPOSE

This report provides information on the traffic safety performance of the Regional road network and an overview of marketing and communication activities for a 2011/2012 pedestrian safety campaign.

3. BACKGROUND

At the Transportation Services Committee meeting of April 6, 2011, staff was requested to report on the traffic safety performance of the Regional road network.

Regional statistics show an increasing trend in collisions over the past decade. The data also identifies the need to improve pedestrian safety in York Region

Traffic safety has always been a major concern for traffic engineers, members of the public and elected officials. The total number of collisions in the Region has increased slightly year over year while the number of fatal collisions remained relatively constant

or decreased slightly. This trend is consistent with provincial statistics (See Figures 1 and 2).

Figure 1
York Region Collision Statistics
Between 2001 and 2010

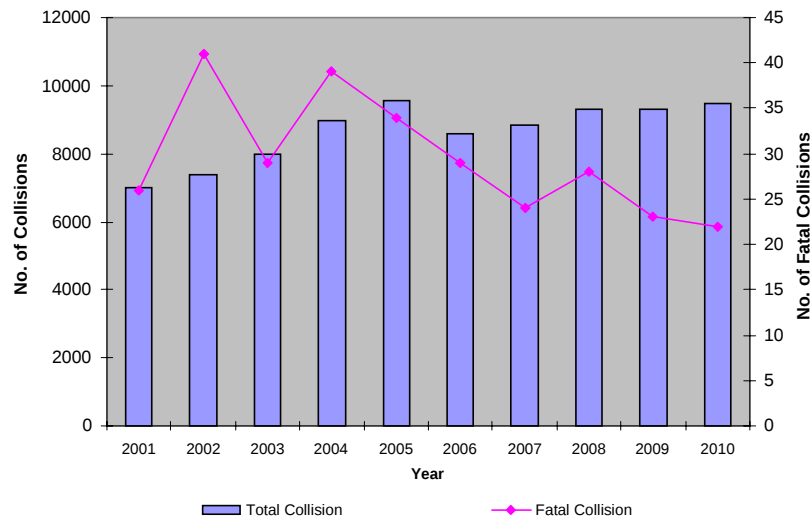
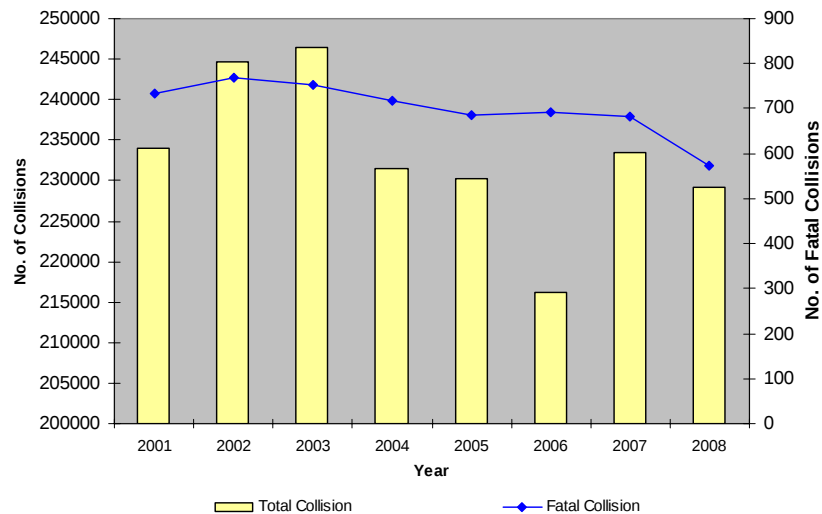


Figure 2
Ministry of Transportation of Ontario Collision Statistics
Between 2001 and 2007

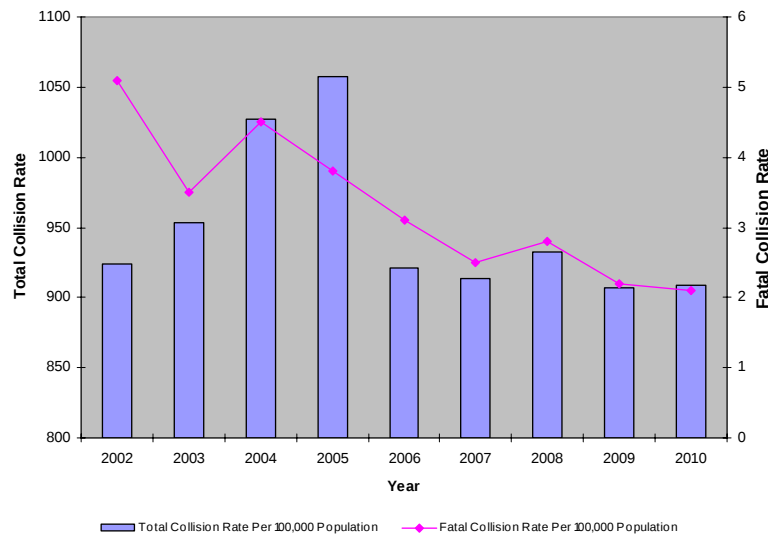


* The 2008 Ontario collision statistics is the most recent data published by The Ministry of Transportation of Ontario.

The increase in collisions is comparable to the population increase in York Region

In the past decade, all collisions on the Regional network increased by approximately 2.6 percent per year while the population in York Region increased by approximately 2.5 percent per year. The total collision rate per 100,000 population has remained relatively constant for the past five years while the fatal collision rate per 100,000 population has decreased slightly (See Figure 3).

Figure 3
York Region Total and Fatal Collision Rate Statistics
Between 2002 and 2010



The decrease in motor vehicle fatalities is generally attributed to advancements in vehicle safety and legislation

Advancements in vehicle safety and new technology have reduced the likelihood of fatalities for motorists and passengers. One example is the use of winter tires, which prevents snow build up and helps maintain traction on icy roads. Having four winter tires on a vehicle reduces braking distances by up to 25 percent (2 to 3 car-lengths) on a snow-covered road. This could be the difference between worry-free stopping and a near miss, or at worse, a severe collision. Other examples of improved vehicle technology include all-wheel drive systems, which provide motorists better control of the vehicle over the traditional front or rear wheel drive vehicles on many road surfaces. In addition, airbag devices prevent occupants from striking interior objects such as the steering wheel or a window during a collision.

New legislation has also been introduced to the Highway Traffic Act, aimed to promote traffic safety and minimize driver distraction, including the following:

- On October 26, 2009, the use of electronic hand-held devices - including cell phones - when driving was banned on all Ontario's highways, streets, and roads. In accordance with the Section 78 of the *Highway Traffic Act*, the maximum fine is \$1,000 and six demerit points.
- On May 1, 2009, a toughened drinking and driving law was adopted. In accordance with the Section 48 of the *Highway Traffic Act*, if the driver's blood alcohol concentration level is over 0.05 percent, the license will be suspended three days for the first offence. The license suspension will increase to seven days for the second offence and 30 days for the third and subsequent suspension.
- On December 1, 2006, a toughened seat belt law that requires everyone riding in a vehicle to wear a seat belt or use a child safety seat was adopted. In accordance with the Section 106 of *Highway Traffic Act*, the fine was increased from a minimum and maximum of \$60 to \$500 to a fine of not less than \$200 and not more than \$1,000.

4. ANALYSIS AND OPTIONS

Motor-vehicle collisions are the leading cause of accidental death, and the third leading cause of injury-related hospitalizations in York Region

In York Region, motor-vehicle collisions account for approximately 35 percent of all accidental deaths, and are the most frequent cause of accidental death for residents aged below 34 years. Motor-vehicle collisions are also the third leading cause of hospitalization, which account for 13 percent, of all injury-related hospitalizations.

Driver behaviour, visual and auditory acuity, decision-making ability, driver reaction time, and driver perception to the road are all part of human factors that can contribute in a collision

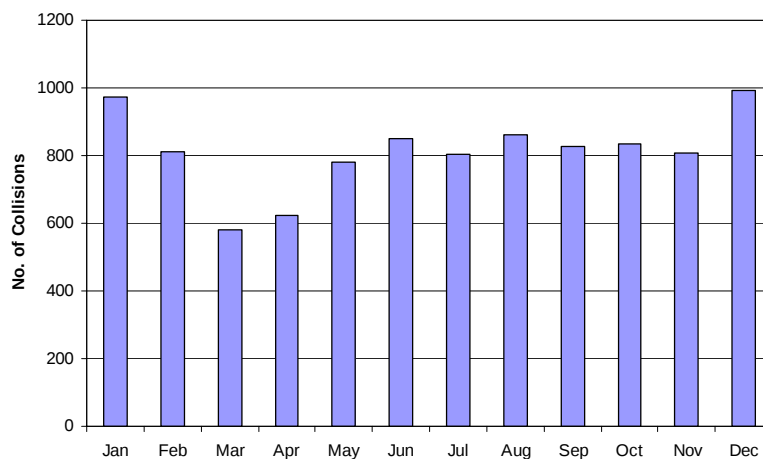
There are a number of factors that contribute to the risk of vehicle collisions, including vehicle design, operating speed, road design, road environment and human factors. Many places that look dangerous might have fewer collisions than other locations. This is in part due to drivers' better behaviour, as they perceive the road is being hazardous and they are more alert and pay more attention to react to the road environment. Some key elements of being a good driver include:

- Alertness and anticipating the behaviour of other road users on the road
- Controlling the vehicle with a good awareness of the vehicle's size and capabilities
- Reading and reacting to road conditions, weather, road signs and the environment

A review of collision data on the Regional road network indicates that collisions are most likely to occur during winter months, on a weekday, during evening traffic rush hours

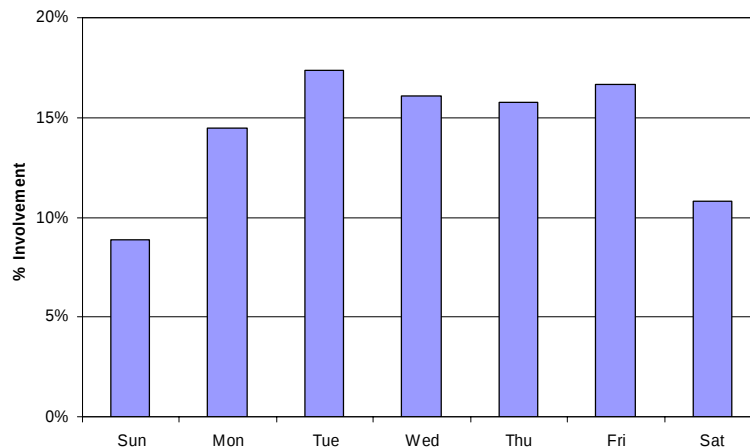
There is a higher risk of motor-vehicle collisions occurring during the winter months, on a weekday, and during the evening hours of the day. Figure 4 illustrates that collisions follow a seasonal trend with higher frequencies during the winter months between November and February.

Figure 4
Collision Frequency by Month
Three-Year Average Between 2008 and 2010



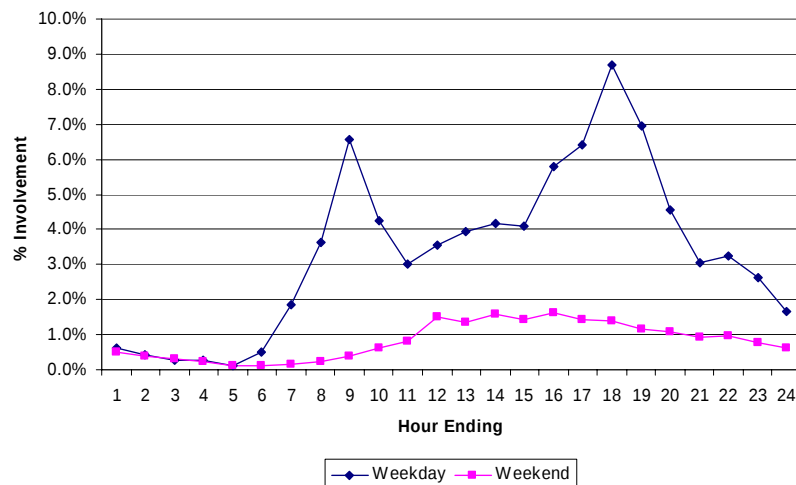
As shown in Figure 5, the day-of-week collision pattern correlates closely with typical day-of-week traffic volume patterns.

Figure 5
Collision Involvement by Day-of-Week
Three-Year Average Between 2008 and 2010



As shown in Figure 6, the by-hour collision trend correlates closely with typical daily traffic volume patterns.

Figure 6
Collision Involvement by Time-of-Day
Three-Year Average Between 2008 and 2010



Collision frequencies during the evening hours of the day between 3 p.m. and 6 p.m. are significantly higher than during the morning hours between 6 a.m. and 9 a.m.

A general overview of collision characteristics on the Regional road network indicates that a motorist in York Region is most likely to be involved in a rear-end collision at a signalized intersection

An average motorist in York Region is most likely to be involved in a rear-end collision at a signalized intersection. Figure 7 shows that about 48 percent of all collisions resulted in a rear-end collisions.

Figure 7
Collision Involvement by Impact Type
Three-Year Average Between 2008 and 2010

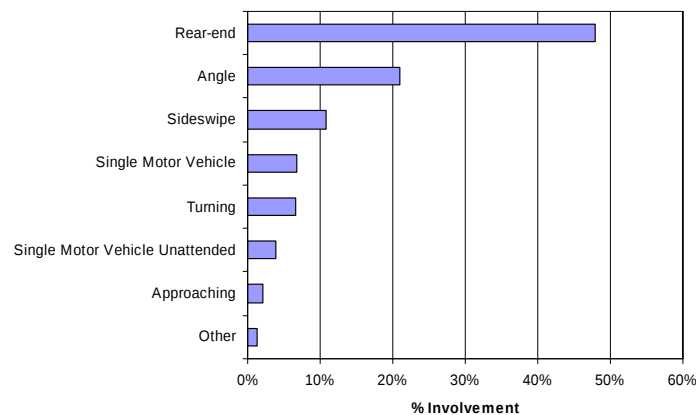
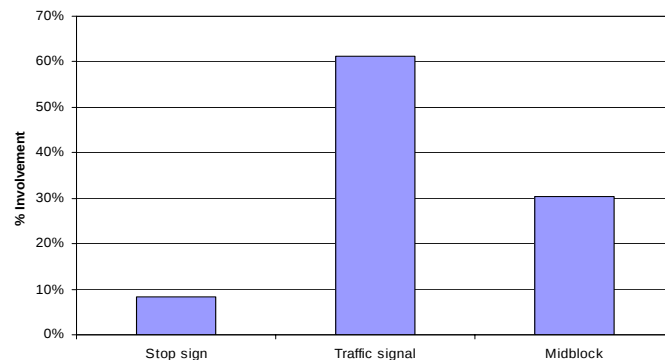


Figure 8 shows that 60 percent of intersection related collisions occurred at signalized intersections.

Figure 8
Collision Involvement by Traffic Control Type
Three-Year Average Between 2008 and 2010

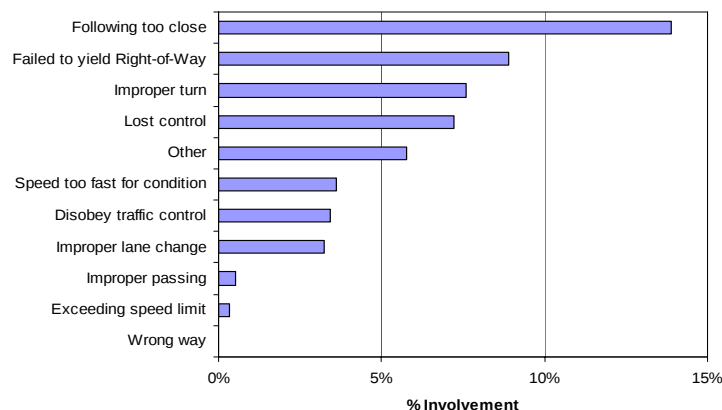


As motor vehicle collisions, increase with growth of population and employment, the responsibility of motorists, pedestrians and cyclists to obey the rules of the road and look out for one another increases as well

York Region data shows that the attending police officer at collisions only noted “driving properly” in 45% of cases. From this, it would appear as if 55% of collisions are due to someone’s improper driving.

As shown in Figure 9, acts of aggressive driving including, ‘Speeding’, ‘Following too close’, ‘Improper passing’ and ‘Improper lane change’ were associated with about 22 percent of all collisions. This highlights the extent to which driver responsibility plays a significant role in overall safety on the Regional road network.

Figure 9
Collision Involvement by Driver Action
Three-Year Average Between 2008 and 2010



The intersection of Highway 7 at Weston Road experiences the highest number of collisions on the Regional road network

Table 1 lists the intersections that had the highest number of collisions for the 3-year period between 2008 and 2010. As expected, the majority of high collision intersections are situated on the high-volume arterials of Highway 7, Rutherford Road, and Major Mackenzie Drive. A location map is appended to this report as *Attachment 1*.

Table 1
High Collision Frequency Intersections
Three-Year Total Between 2008 and 2010

Description	Total Collisions	Property Damage	Injury and Fatal Collisions
Highway 7 @ Weston Rd	214	186	28
Jane St @ Major Mackenzie Dr W	178	157	21
16th Ave @ Yonge St	173	147	26
Highway 7 @ Jane St	158	135	23
Highway 7 @ Islington Ave	155	128	27
Jane St @ Rutherford Rd	153	131	22
Rutherford Rd @ Weston Rd	146	120	26
Highway 7 @ Leslie St	144	132	12
Highway 7 @ McCowan Rd	143	117	26
Highway 7 @ Keele St	141	122	19

Regional staff has identified 10 concern areas and road users based on the Regional road collision experience

Based on the review of available data analysis, Regional staff have identified concern areas and road users that are overrepresented in collision statistics. Tables 2 and 3 outline the ten most common concern areas and road users in York Region.

Table 2
Lists of Concern Areas
Three-Year Average Between 2008 and 2010

Rank	Concern Areas	Total Collisions	Injury and Fatal Collisions	% Change – Three-Year Average to 2010
1	Rear End at Traffic Signals	2962	418	+16
2	Speeding	1896	509	+9
3	Winter Driving	1015	140	-21
4	Left Turn at Traffic Signals	920	291	+11
5	Single Vehicle	715	141	-1
6	Red Light Running	292	137	-1
7	Impaired Driving	112	36	-11

Winter driving collisions have significantly decreased between 2008 and 2010 due to a 73 percent reduction in snowfall. Reduced snowfall can also be attributed to the decrease in single vehicle collisions as most single vehicle collisions occur in winter driving conditions.

Table 3
Lists of Road Users
Three-Year Average Between 2008 and 2010

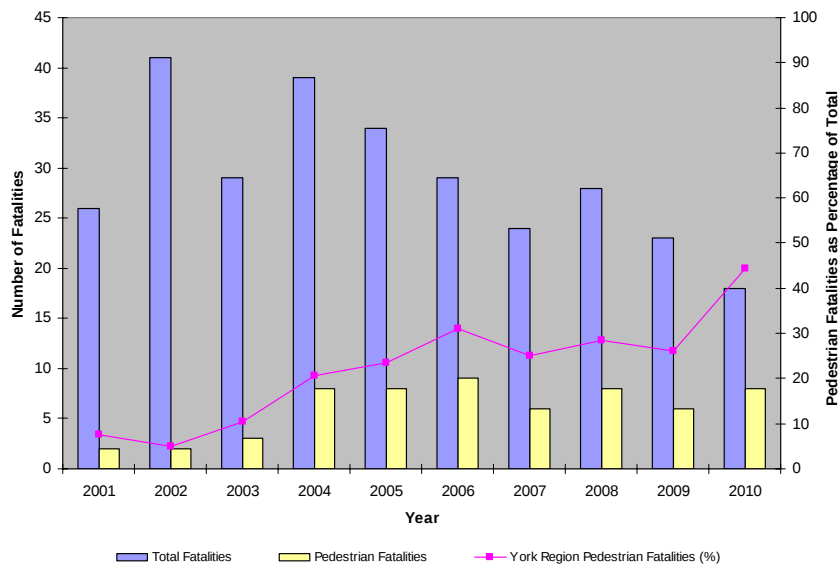
Rank	Road Users	Total Collisions	Injury and Fatal Collisions	% Change – Three-Year Average to 2010
1	Younger Drivers (≤ 25)	1861	390	+7
2	Senior Driver (≥ 65)	648	160	+13
3	Pedestrians/Cyclists	184	169	+6

The Transportation Services Department, in partnership with York Regional Police, aligns traffic safety programs to the collision areas identified above. In addition, targeted enforcement is conducted by the York Regional Police in the concern areas. The targeted enforcement program aims to allow York Regional Police to focus at a limited number of high risk violations and to get a maximum value from the limited resources.

The Region's collision statistics identify that pedestrian and cyclist collisions make up 18 percent of all fatal collisions, 9.2 percent of all injury collisions, and 5.3 percent of all collisions

A review of the Region's collision statistics shows that the number of roadway fatalities has decreased; however, the percentage of fatalities involving pedestrians has been on the rise in the Region, as well as in other jurisdictions, over the last decade (See Figure 10).

Figure 10
York Region Fatal Collision Statistic
Between 2001 and 2010



The increase in pedestrian fatalities is attributed to the increase in pedestrian activity, as the Region continues to urbanize, more trips are being made on foot. The increased interaction between pedestrians and vehicles unfortunately increases the likelihood of pedestrian fatalities. Growing transit usage also means more people are walking on our streets because every transit trip includes a trip on foot. The advancements in vehicle design and new technology have also reduced the likelihood of fatalities for motorists and passengers. Unfortunately, there are few options to provide pedestrians with the same safety benefits. In addition, a large proportion of pedestrians are seniors who are susceptible to serious injury or death in the event of a vehicle-pedestrian collision.

The Region's collision statistics also show that collisions involving cyclists have increased by 23 percent from the previous year. The implementation of shared-use bicycle facility increases the interaction between cyclists and vehicles, which unfortunately increases the likelihood of collisions.

On January 27, 2011, Regional Council approved measures to educate and promote pedestrian safety

Pedestrian safety initiatives that have been approved by Regional Council and are currently underway include:

- Audible pedestrian warning system pilot project on YRT/VIVA buses
- Increased pedestrian crossing time at traffic signals
- Pedestrian countdown signal installations
- Public Safety campaign to commence on November 6, 2011 to coincide with Daylight Savings Time returning to Eastern Standard Time
- Public education campaigns will target children, teens, and seniors to help reduce pedestrian injuries and fatalities
- Revised speed limit policy
- Zebra crosswalk marking installations

A collaborative partnership with York Regional Police has been developed to implement a pedestrian safety campaign in York Region

In February 2011, four focus groups were conducted with pedestrians, motorists, cyclists, and transit riders representing teens, parents, and seniors across the Region to gather input and test some initial creative concepts for the campaign. The results of the focus groups revealed that all participants viewed traffic safety as a shared responsibility among motorists and pedestrians. There was a strong sense of community and a desire for a community based approach. Integrating communications with a police presence was identified as an important tactic for resident buy-in.

York Regional Police attended one of the focus group sessions as well as a meeting with the Consultant regarding the proposed marketing and communications strategy. York Regional Police has embraced the program and has offered to help support it as required.

A comprehensive strategy targeting all road users has been developed

The objective of the proposed program is to create awareness around three key issues affecting pedestrians, including visibility, motorists leaving space between the car and the pedestrian, and speeding and aggressive driving. York Region collision statistics indicate that pedestrians are most vulnerable during the fall in around the time when Daylight Savings Time returns to Eastern Standard Time, which occurs this year on Sunday, November 6.

Several strategies will be implemented to create awareness for the campaign, which will build around improving the *relationship* between pedestrians and motorists. The campaign will target all road users including motorists, pedestrians, cyclists, and transit riders.

The strategies include:

- The Region's website and social media channels
- Formal media releases through Corporate Communications
- Online ads on the Weather Network, ads on buses, in transit shelters, on the sides of Regional snow plows and in York Works
- Online contests to help track awareness levels throughout the campaign period
- Community outreach in high schools (YRT/Viva's Youth On-board program) and community events throughout the Region
- Partnership opportunities with York Regional Police and local municipalities including media events to kick off each of the three main campaigns

Link to Key Council-approved Plans

Vision 2026 Towards a Sustainable Region - Vision 2026: Responding to the needs of our residents: Supporting Safe and Secure Communities; Addressing the Safety Needs of Vulnerable Groups

5. FINANCIAL IMPLICATIONS

Costs associated with the described safety initiatives are included in the approved 2011 Transportation Services budget. Marketing and communications funds were included in the 2011 budget to create a strategy and plan. In future years, the budget will need to include funds to provide communications to residents, build awareness of the campaign and to continue to effectively market the message.

6. LOCAL MUNICIPAL IMPACT

There are no local municipal implications associated with this report. However, Regional staff will work closely with local municipalities to provide information through partnerships and attendance at local municipal events.

7. CONCLUSION

As motor vehicle collisions, increase with growth of population and employment, the responsibility of motorists, pedestrians and cyclists to obey the rules of the road and look out for one another increases as well

The number of motor-vehicle collisions is increasing each year due to increased population and employment growth, the increased number of vehicle trips and an increase of urbanization of York Region. As the Region continues to urbanize, there will

be a common challenge of accommodating higher volumes of pedestrians and motorists as safely as possible. York Region data shows that almost ¼ of collisions (22%) are due to aggressive driving alone.

The Region will put forth continuing efforts to improve pedestrian and cycling safety on the Regional road system including, a comprehensive strategy targeting all road users to create awareness and improve the relationship between pedestrians and motorists.

The Transportation Services Department will continue to employ state-of-the-art safety standards for design and traffic control measures on the transportation network and will continue to work collaboratively with York Regional Police to promote safe and efficient traffic operations on the Regional road system.

For more information on this report, please contact Steven D. Kemp, Director, Traffic Management and Intelligent Transportation Systems at Ext. 5226.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause is attached to this report.)



Safety Performance on the Regional Road Network

Transportation Services
Committee

Steven Kemp
Staff Sergeant Brad Bulmer
November 2, 2011

Outline

- ❑ Some Good News
- ❑ The Concern
- ❑ Collision Statistics and Trends
- ❑ Solutions
- ❑ Conclusion

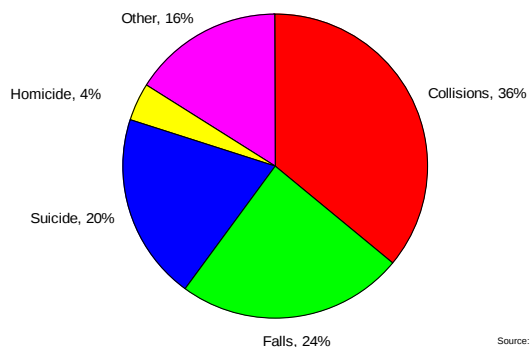


More Drivers = Fewer Fatalities

Can we do better?

The Concern

Major Causes of Accidental Death, 1986 to 1999



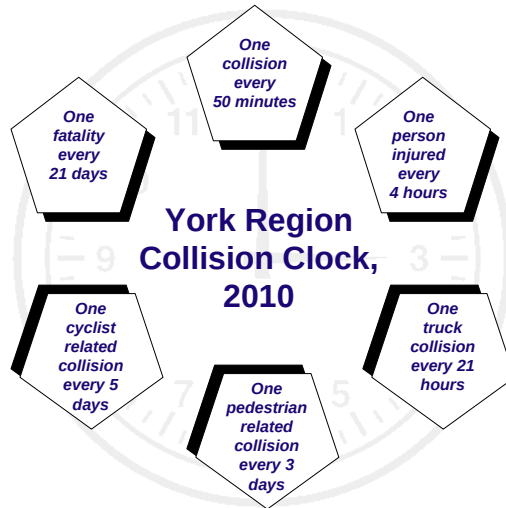
Source: York Region Health Status Report 2002

Motor vehicle collisions are the leading cause of accidental death.

2009 / 2010 Comparison

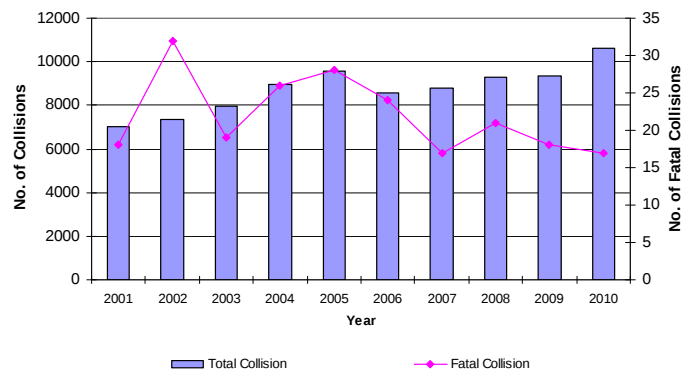
	2009	2010	% change
Total	9338	10590	+13
Property Damage Only	7477	8569	+15
Injury	1843	2004	+9
Collisions Involving Trucks	348	408	+17
Collisions Involving Pedestrians	123	125	+2
Collisions Involving Cyclists	57	70	+23
Fatal	18	17	-6
Fatal Collisions Involving Pedestrians	5	7	+40

2010 Collision Clock



York Region Collision Trends

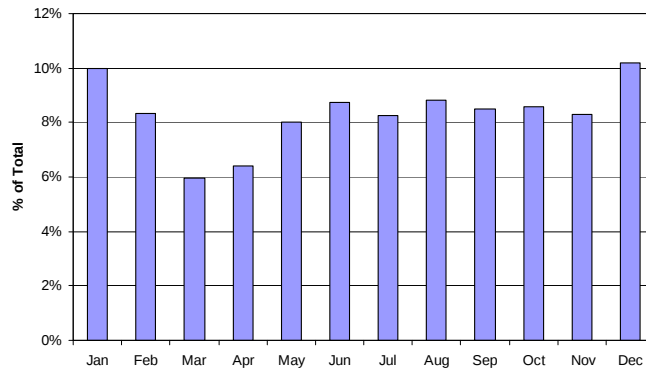
York Region Collision Statistics, 2001 to 2010



York Region trend is consistent with provincial statistics.

Collision Summary by Month

Three-Year Average, 2008 to 2010



Collisions are most likely to occur during winter months.

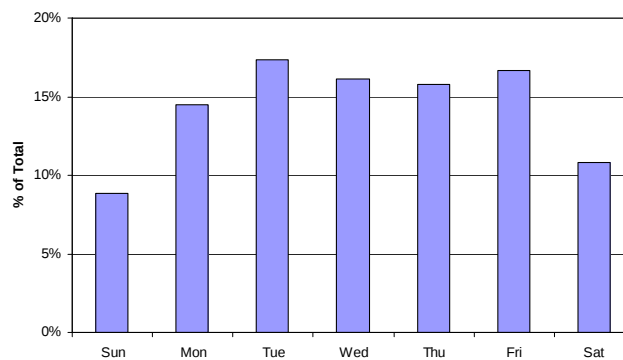


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Slide 9

Collision Summary by Day-of-Week

Three-Year Average, 2008 to 2010



Collisions are most likely to occur on a weekday.

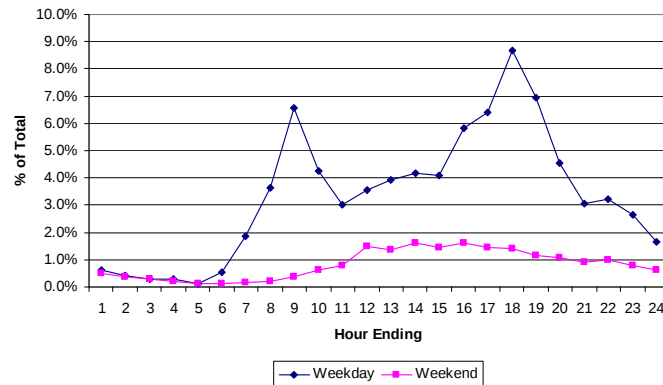


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Slide 10

Collision Summary by Time-of-Day

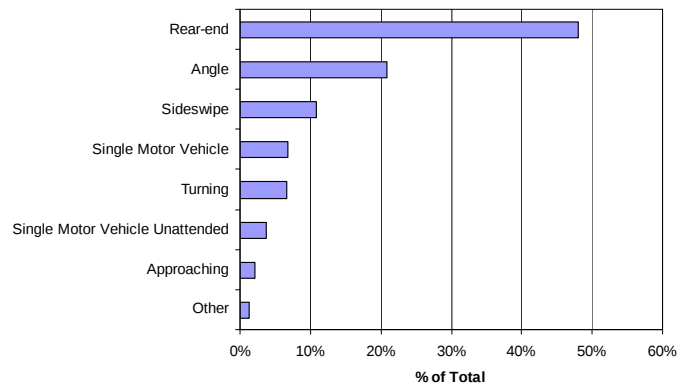
Three-Year Average, 2008 to 2010



Collisions are most likely to occur during evening rush hours.

Collision Summary by Type

Three-Year Average, 2008 to 2010



Rear-end collisions represent 48 percent of all crashes.

Collision Summary by Concern Area

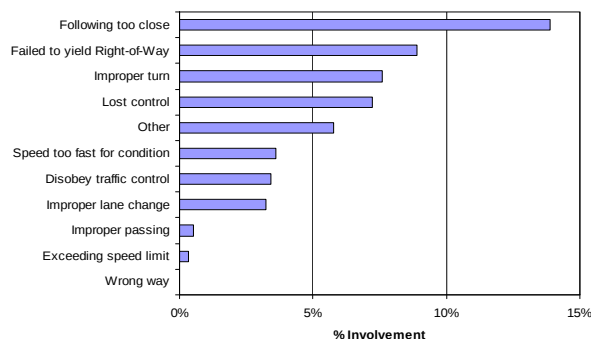
Three-Year Average, 2008 to 2010

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Winter driving collisions decreased by 21 percent between 2008 and 2010.

Collision Summary by Driver Action

Three-Year Average, 2008 to 2010



55 percent of all collisions are attributed to driver error.

Collision Summary by Road Users

Three-Year Average, 2008 to 2010

Rank	Concern Areas	Total Collisions	Injury and Fatal Collisions	% Change - Three-Year Average to 2010
1	Younger Drivers (≤ 25)	1861	390	+7
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TOP 10 Collision Locations

Three-Year Total, 2008 to 2010

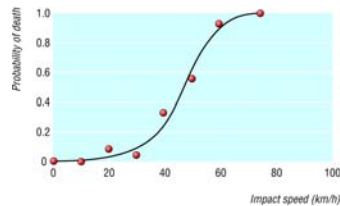
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Solutions

- ❑ Engineering
- ❑ Enforcement
- ❑ Education

Engineering

- ❑ New Speed limit policy
- ❑ Improvements at signalized intersections



- ❑ Audible pedestrian warning system pilot project on YRT/VIVA buses



Enforcement

- ❑ High pedestrian and traffic volume locations
- ❑ Mid-block crossing locations
- ❑ Aggressive driving
- ❑ Speed enforcement
- ❑ Pedestrian behaviour and driver behaviour
- ❑ Distracted pedestrians



Education



- ❑ **Four focus groups:**
 - ❑ Pedestrians, Motorists, Cyclists, Transit Riders
- ❑ **Overall message:**
 - ❑ Improve "*Relationship*" between pedestrians and motorists

A new public safety campaign will be launched on November 7, 2011 to coincide with Daylight Saving Times.

Conclusion



Top 10 High Collision Intersections

