



## CITY OF VANCOUVER

### OTHER REPORT

Report Date: November 21, 2007  
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Meeting Date: February 12, 2008

TO: Standing Committee on Transportation and Traffic

FROM: Bicycle Advisory Committee

SUBJECT: Federal Vehicle Design Regulations - Safety Improvements

#### CONSIDERATION

THAT Vancouver City Council requests that the Government of Canada convene public hearings for the purpose of improvements to the *Motor Vehicle Safety Act* and the *Motor Vehicle Transport Act*.

#### CITY MANAGER'S COMMENTS

The City Manager submits the foregoing for Council's consideration and notes that within the City of Vancouver pedestrians and cyclists are our highest transportation priorities. The suggestions contained in this report lend themselves to supporting improved road safety for all users.

#### COUNCIL POLICY

There is no Council policy.

#### PURPOSE

The purpose of this report is to ask Council to send a letter to the federal government requesting the Minister of Transport and the Government Leader in the Senate convene public hearings for the purpose of improvements to the *Motor Vehicle Safety Act* and the *Motor Vehicle Transport Act*.

## BACKGROUND

The Bicycle Advisory Committee is advisory to City Council. The mandate of the Committee is to provide a safe and convenient cycling environment for commuter and recreational cyclists by improving the existing road network to better meet the needs of cyclists, and by promoting the safe and responsible use of bicycles for transportation and recreation.

### *Terms of Reference*

The Committee:

- Reviews and advises on bicycle transportation matters;
- Provides input on capital improvement projects involving bicycling facilities;
- Promotes bicycling as a viable form of urban transportation and recreation;
- Evaluates bicycle facilities;
- Promotes motorist and cyclist awareness, competence and safety; and
- Attends City-sponsored public forums to provide information on City programs and receive public input on bicycling issues;
- produces an annual work plan with specific, concrete objectives by March of each year, in consultation with its Council and staff liaisons, for distribution to Council and civic departments for information;
- submits an annual report to Council describing its accomplishments for the year, including reference to each objective set out in the work plan and any arising issues to which the Committee has responded.

At its meeting on November 21, 2007, the Bicycle Advisory Committee received an update from Burnaby resident Mr. Thang Vu on cycling safety in Vancouver. Mr. Vu raised concerns regarding the Motor Vehicle Safety Act and Regulations, in particular with regard to motor vehicle weight, and sought the Committee's approval to request that Council write the federal government and request that the Minister of Transport and the Government Leader in the Senate convene public hearings for the purpose of improvements to the *Motor Vehicle Safety Act* (MVSA) and the *Motor Vehicle Transport Act* (MVTA).

## DISCUSSION

While the City of Vancouver has the authority to implement policies to improve cycling facilities and has some control over the regulation of motor vehicle use that can improve the safety of cyclists, changes to the regulation of the design of motor vehicles to improve the safety of cyclists mainly fall under the jurisdiction of the federal government, specifically *Motor Vehicle Safety Act* and the *Motor Vehicle Transport Act*.

Mr. Vu's concerns regarding weight prompted the Bicycle Advisory Committee to examine other areas of vehicle design regulation that could lead to the increased safety of cyclists in the City of Vancouver. As a result, the Bicycle Advisory Committee is recommending that the following areas be addressed by changes to the regulations:

- Vehicle Weight – Decreased weight reduce risk of injury and can reduce stopping distances
- Vehicle Height – Lower heights improve sightlines at intersections and increases cyclist visibly in traffic

- Vehicle Width – Allows safer passing of cyclists and decreases chances of “dooring”
- “Dooring” – When riding near parked vehicles, cyclists risk collision and injury when an occupant opens a vehicle door in the cyclist’s path. Improved door design or door opening warning systems to decrease such risk.
- Speed – Excessive speed increases the chance of collisions, increases the severity of collisions and discourages people from cycling.
- Acceleration – Vehicles with excessive rates of acceleration can encourage aggressive driving and decrease the effectiveness of traffic calming.
- Window Tinting – Reduced tinting allows cyclists to see if vehicle is occupied and thus reduces risk of dooring
- Mandatory Side Guards on Trucks and Buses – Reduces risk to cyclists in low-speed collisions
- Motor Vehicle Advertising – Standards to prevent advertising showing vehicles being operated in an unsafe manner
- Devices that Distract Drivers – Ensure that devices include with vehicles with or for use within vehicles do not distract the driver.
- Warning Messages in Vehicles – Messages in vehicles to warn users of the risks of unsafe vehicle operation
- Collision Avoidance Systems – Ensure that such systems help reduce collisions with cyclists
- Measures to Lessen Injuries to Cyclists – Design changes to reduce injuries resulting from collisions
- Elimination of Blind Spots – Decreases the risk of collisions
- Headlight Intensity – Limits on headlight intensity to reduce risk of temporarily blinding cyclists.

Further discussion of these issues and possible remedies can be found in Appendix A.

It should be noted that many of the changes in the regulations that would improve the safety of cyclists would also improve the safety of pedestrians and motorists as well. These improvements could also lead to more people choosing to drive smaller, more fuel efficient vehicles. Any resulting increases in the number of trips by bicycle, walking and smaller vehicles will decrease greenhouse gas emissions.

The Bicycle Advisory Committee has drafted a letter for Council’s consideration (Appendix B).

## FINANCIAL IMPLICATIONS

There are no financial implications.

## CONCLUSION

Amendments to the *Motor Vehicle Safety Act* (MVSA) and the *Motor Vehicle Transport Act* (MVTA) would complement the City of Vancouver’s ongoing efforts to improve the safety of cyclists and pedestrians. Such amendments could reduce the number of cyclist injuries and fatalities in the city and serve to further increase cycling levels in the City of Vancouver.

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## Federal Vehicle Design Regulations - Issues and Suggested Safety Improvements

### Vehicle Weight

Study after study shows that heavier vehicles, especially SUVs, are a threat to other drivers in vehicles they hit, especially in their heaviest and most aggressive versions. A 1998 report by Hans Joksch for the Department of Transportation (DOT) showed: 1) that the risks imposed by heavier cars on lighter car occupants outweigh the safety benefits to the heavier car occupant across the entire vehicle fleet on the highway and 2) that greater variability in the distribution of weights increases fatalities.<sup>1</sup> A paper by Alexandra Kuchar of the DOT's Volpe Institute concluded that shifting the fleet from cars to light trucks - at each increment of the shift - increases serious injuries and fatalities, partly because of the greater stiffness of light trucks.<sup>2</sup>

A correlation between vehicle weight and driver aggressiveness has been identified in several studies. It is suspected that larger vehicles both encourage aggressive driving behaviour and attract aggressive drivers. Reducing vehicle weight would both discourage aggressive behavior and decrease the impact of that such aggressive behaviour on cyclists, pedestrians and other drivers.

Possible remedies:

- Regulations specifying maximum weights for vehicles
- Financial penalties for excessive vehicle weight

### Vehicle Height

Tall vehicles such as vans, minivans and SUV's can block parked near intersections can block driver's view of cyclists and pedestrians trying to cross a road as well as make it difficult for the cyclists and pedestrians to see the traffic. Such vehicles, when stopped for cyclists and pedestrians at a crosswalk, can also block the view of drivers and the pedestrians and cyclists of each other. Tall vehicles can also obscure cyclists and smaller vehicles in the flow of traffic.

Possible remedies:

- Regulations specifying maximum heights for vehicles
- Financial penalties for excessive vehicle heights

### Vehicle Width

Wide vehicles such as SUV's require more space on the road and thus limit the space on the road for such vehicles to safely pass cyclists. As well, when parked, the driver's door will be further from the curb and closer to cyclists travelling in the curb lane or a bike lane increasing the risk of the cyclist getting doored.

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<sup>1</sup> Hans Joksch, Vehicle Aggressivity: Fleet Characterization Using Traffic Collision Data (Ann Arbor, MI: University of Michigan Transportation Research Institute, February 1998)

<sup>2</sup> Alexandra Kuchar, A Systems Modeling Methodology for Estimation of Harm in the Automotive Crash Environment (Cambridge, MA: Volpe National Transportation Systems Center, 2001) 10.

Possible remedies:

- Regulations specifying maximum heights for vehicles
- Financial penalties for excessive vehicle heights

### Vehicle Speed and Acceleration

High speed increases the risk of collisions with cyclists by decreasing driver and cyclists ability to react in time to avoid collisions and increasing stopping distances. High speed collisions of motor vehicles with cyclists are much more likely to result in serious injury or death than slow speed collisions. Bicycle helmets provide little protect in high-speed collisions.

Vehicles that offer high rates of acceleration encourage and enable aggressive driving behaviour. High rates of acceleration also serve to mitigate the benefits of speed control measures on bikeways and residential streets. Such aggressive driving on bikeways serves to intimate cyclists and increases the likelihood of injury to cyclists.

Possible remedies:

- Regulations controlling the maximum rates of acceleration for vehicles. The rate could decrease for larger vehicles
- Regulations that enable the easy implementation of automatic speed schemes by municipalities.
- Regulations that specify the maximum speed for vehicles.
- Regulations that specify lower maximum speed for larger vehicles.

### Dooring

Many cyclists, concerned about the risk from moving traffic, ride too close to parked vehicles and thus risk being injured by colliding with a car door being opened in front of them. Many of the bike lanes in the city delineated such that a cyclist riding in the area of the lane closest to parked vehicles is close enough to the parked vehicles to risk being doored. Separated bike lanes to the right of the parked vehicles decrease the chance of dooring as the passenger door is used less than the driver's door but some risk remains.

Possible remedies:

- Regulations specifying door designs to decrease the likelihood of dooring and decreasing the impact of dooring on a cyclist
- Warning labels in vehicles stating drivers and passengers should look for cyclists before opening doors. Such labels should be on both driver and passenger sides of vehicles since
- Regulations specifying visual or audible warning for cyclists that stopped vehicle is occupied or that the door is about to be opened

### Window Tinting

As the case with excessive vehicle height, excessive window glazing can decrease sightlines of both drivers, pedestrians and cyclists making crossing roads more dangerous. As well, window glazing increases driver anonymity and thus could lead to more aggressive driving.

Possible remedies:

- Regulations specifying maximum window glazing.

### Side guards on Trucks and Buses

Side guards on trucks, trailers and buses can prevent cyclists and pedestrians from getting run over in slow-speed collisions.<sup>3</sup> Side guards are a legal requirement in the U.K. and in Europe to reduce injuries to pedestrians and cyclists. The mechanism of injuries for cyclists and pedestrians involved in slow speed collisions appears to be a dragging down motion of the victim caused by the large tire's slow rotation.

Possible remedies:

- Regulations specifying side guards for trucks, buses and trailers.

### Advertising

Automobile advertising often depicts vehicles being operated in an unsafe manner. Excessive speed, dangerous manoeuvres and racing are used to make products seem more exciting. The only requirement is to put barely readable text in stating "Professional driver, closed course"

Possible remedies:

- Regulations banning such advertising
- Regulations specifying that the dangers associated with such behaviour be made obvious. The warnings and negative images on tobacco packages and advertising could serve as a model.

### Driver Distraction

Navigation, audio and visual entertainment, cell phones, climate control systems, internet browsing, texting and e-mail can all serve to distract drivers attention increasing the risk to cyclists, pedestrians and other road users. For example, VW is introducing a touch-screen system to operate climate controls, radio, and navigation systems.<sup>4</sup> Such a system requires a driver to look at the screen to control functions and is likely to be more distracting than the knobs and buttons it replaces.

Possible remedies:

- Regulations banning distracting devices being included in vehicles and being sold for use in vehicles
- A requirement for manufactures of such devices to prove they are not distracting before approving their sale.
- Warnings on cell phones, portable internet devices, MP3 players and on advertising for such devices indicating that they should not be used while driving.
- A ban on advertising that depicts such devices being used while driving.

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<sup>3</sup> W. J. Lucas, M.D., C.C.F.P., Regional Coroner for Toronto, A report on cycling fatalities in Toronto: 1986 - 1998: recommendations, [http://www.toronto.ca/cycling/coroner\\_recomend.htm](http://www.toronto.ca/cycling/coroner_recomend.htm)

<sup>4</sup> GERMANY: VW to offer touch screen controls from 2008, just-auto.com, <http://www.just-auto.com/article.aspx?id=93040>

### Warning Messages in Vehicles

Much as warning labels on cigarette packages alert people to the hazards of smoking, messages in vehicles could alert drivers to the hazards of driving and encourage them to engage in safe driving practices.

### Collision Avoidance Systems

Collision avoidance systems in vehicles should be required to avoid collisions with cyclists.

### Measures to Lessen Injuries to Cyclists

Tremendous advances have greatly reduced the seriousness of injury to motor vehicle occupants over the past several decades. For instance, airbags and seatbelts are required by law. Unfortunately, there have been no such efforts undertaken to reduce injuries to cyclists and pedestrians.

Possible remedies:

- Regulations mandating vehicles be designed with measures to reduce injuries to cyclists and pedestrians
- Regulations to improve the design of bull bars used on police cars to reduce injuries to cyclists and pedestrians. Studies have indicated constructing the of plastic instead of metal decreases risk of injury.<sup>5</sup>

### Blind Spots

- Regulations mandating vehicles include mirrors to eliminate blind spots
- Ensure vehicles don't have features that decrease driver ability to see cyclists

### Headlight Intensity

Bright headlights can blind cyclists increasing the likelihood of collisions.

Possible remedies:

- Limits on headlight intensity

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<sup>5</sup> Project: A Study of Accidents Involving Bull Bar Equipped Vehicles, UK Department for Transport, <http://www.dft.gov.uk/rmd/project.asp?intProjectID=10328>

The Honourable Lawrence Cannon  
Minister of Transport, Infrastructure and Communities  
House of Commons  
Ottawa, Ontario K1A 0A6

Dear Minister Cannon:

The City of Vancouver is committed to continued improvements to encourage people to choose cycling and walking as forms of transportation in their daily lives. The City's Transportation Plan states that the transportation priorities are pedestrians and cyclists. Measures taken to encourage such active forms of transportation include significant ongoing investments in cycling facilities; greenways; sidewalks; crosswalks; and pedestrian and cyclist activated signals. As a result, the City of Vancouver has the largest cycling mode share of cities with populations of over 200,000 in North America and walking accounts for over 25 per cent of trips downtown.

The City's efforts to encourage cycling and walking would be greatly enhanced by changes to federal regulations governing motor vehicle design and operation. Such changes would improve people's physical fitness, reduce greenhouse gas emissions and injuries and fatalities.

The City of Vancouver's Bicycle Advisory Committee, a citizen body that provides advice to Council on cycling issues, has drafted the attached *Federal Vehicle Design Regulations - Issues and Suggested Safety Improvements* detailing the issues and possible remedies in response to a presentation by Mr. Thang Vu regarding concerns related to vehicle weight.

Vancouver City Council respectfully requests that the Ministry of Transportation give serious consideration to these concerns and convene public hearings for the purpose of improvement to the Motor Vehicle Safety Act (MVSA) and the Motor Vehicle Transport Act (MVTA).

Sincerely,