

To: Segway Review  
Legislation, Policy and Programs  
Justice and Community Safety Directorate  
via email

## Use of Segways in the ACT

For the reasons explained below, Living Streets Canberra recommends that:

1. Segway use should continue to be limited and regulated.
2. Segway type vehicles should continue to be prohibited from shared paths or footpaths; and
3. if Segway type vehicles are permitted on paths:
  - Riders should be required to be licensed and to carry third party personal insurance;
  - speed should be limited to ten kilometres per hour;
  - Police should have the authority to confiscate vehicles that breach these provisions; and
  - the ACT Policing Purchase Agreement should require police to enforce these provisions.

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## Safety for Segway riders

Segway riders should be required to undergo training sufficient to minimise their risk to themselves. The case for requiring them to wear helmets is stronger than the case for requiring cyclists to wear helmets.

Segways [can make sudden unexpected turns](#) and require specific skills for effective braking. A Segway rider accelerates by transferring weight to the front of the standing platform, and brakes by transferring weight to the rear of the platform. The deceleration of braking causes weight transfer towards the front of the platform, which can cause the Segway to re-accelerate.

It is clear from the ACT Government's 2011 Review Paper that Segway users can suffer serious injuries. The information in the Review Paper suggests that bicycle helmets may not offer sufficient head protection.

The CEVEQ study cited in the Discussion Paper found no documented serious injuries in more than 9,000 km of Segway riding. This indicates that Segway riding is less than a thousand times more dangerous than car travel. Australian cars average almost eight million kilometres between documented serious injuries.<sup>1</sup>

From any given speed, a Segway takes longer to stop than bicycle, and much longer than a car.

Tests by Leon Arundell found that a bicycle requires about 3.5 metres to stop from 20 km/h, with a deceleration of 4.5 m/s/s.<sup>2</sup> A car can stop from 80 km/h in 25.2 metres,<sup>3</sup> a deceleration of 9.8 m/s/s.

A [US Federal Highway Administration report](#)<sup>4</sup> found that Segway riders took an average of 1.97 seconds and 4.3 metres to make planned stops from 12.5 mph (20 km/h). For unplanned stops, Segway riders took an average of 2.8 seconds and 6.6 metres to stop from 12.5 mph (20 km/h). This represents a deceleration of 2 m/s/s.

## Safety for other road users

Segway riders should be required to undergo training to minimise their risk to pedestrians and cyclists.

Segway crashes on shared paths or footpaths are likely to involve pedestrians or cyclists. The George Institute's ACT pedal study<sup>5</sup> found that 16.4% of bicycle crashes on shared paths involved pedestrians and 23% involved other cyclists.

According to the Segway website (<http://www.segway.com>), Segways can weigh more than 50 kg and travel at up to 22 km/h.

A 75 kg rider on a 50 kg Segway at 20 km/h brings twenty-four times as much destructive energy to a crash as the same person walking at 5 km/h. This is equivalent to the destructive energy of a bicycle and rider travelling at 24 km/h.

## Implications of wider use of Segways on footpaths and shared paths

The danger and inconvenience of having to share paths with Segways will deter people from walking (including to and from bus stops) and from cycling, and thus will further undermine the Government's walking, cycling, public transport, traffic congestion and greenhouse emissions policies.

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- 1 According to the Australian Infrastructure Statistics Yearbook 2011, Australian passenger cars provided 263.68 billion passenger kilometres of travel in 2007-08 and Australia's injury rate in 2007 was 155.56 per 100,000 population. This is 33,443 injuries for Australia's estimated 2007-08 population of 21,498,500 (ABS 3101.0, September 2011), or one injury per 7.9 million passenger kilometres.
  - 2 Arundell, L, 2008, "Does moving back off the seat mean better braking?" Canberra Cyclist. Copies available from the author.
  - 3 NRMA, 2007. Kia Magentis EX-L Car Review, <http://www.mynrma.com.au/motoring/reviews/car-reviews/kia/magentis-exl.htm>, accessed 13 April 2012.
  - 4 Federal Highway Administration (2004), Characteristics of emerging road users and their safety, U.S. Department of Transportation, Publication FHWA-HRT-04-103.
  - 5 De Rome, L, Boufous, S, Senserrick, T, Richardson C and Ivers R, 2011, The Pedal Study: factors associated with bicycle crashes and injury severity in the ACT, George Institute for Global Health, University of Sydney Medical School, Australian National University

In this respect, the Government achieved only a half, a sixth and a third of Transport For Canberra's targeted 2001-2011 increases in walking, cycling and public transport, and according to the *ACTION Expenditure Review* report is going backwards on its commitment to *increasing the public transport share of all work trips to 10.5% by 2016 and 16% by 2026*.

Fewer people walking, cycling and using public transport means more people driving cars, more congestion and more greenhouse emissions.

## **Option 1: limited commercial use of Segways**

### **Should an expiry date for the exemption notice be specified?**

Yes. It would be prudent to conduct another review in 2021, by which time Segway like vehicles are likely to be substantially different from current models.

### **Should the current limitations on the speed Segways are allowed to travel at be maintained?**

Yes. Further to the information provided above, the George Institute's ACT pedal study recommended the introduction of bicycle speed limits.

### **Should the area in which Segways are permitted to be operated be expanded, and other areas of operation be included?**

Segways should be restricted to areas where their use can be supervised, and where there is enough space for them to operate without being in close proximity to pedestrians.

### **Should the other limitations or restrictions applied through the current exemption notice be maintained?**

We are unable to comment, as these limitations were not identified in the discussion paper.

## **Option 2: Allow private, and more extended commercial use of Segways**

### **a) treating a Segway as a bicycle**

#### **Should speed limits other than those applicable to bicycles be imposed or advised, and if so, what should they be?**

If Segways are to be used unsupervised, or on footpaths of normal width, the current speed limit of 13 km/h should be reduced. Safety of all path users should guide decision-making on this. See also our above comments about speed and safety.

#### **Should Segway use be allowed on all roads, or should use be restricted to local roads (not posted at more than 50km/h, no dividing lines, no dividing strips) as is the case in Queensland and the Northern Territory, or not, or some other combination?**

This raises the question of whether Segways on roads should, like pedestrians, be required to travel on the side of the road facing oncoming vehicles, or should, like bicycles, be required to

travel in the same direction as other motorised traffic. Safety of all road users and of Segway users should guide decision-making on this.

### **Should Segway use be allowed on all paths (foot, shared, separated)?**

For safety reasons, Segways should not be allowed on footpaths, shared paths or separated footpaths designated for the use of pedestrians (Road Rule 239). See our comments above about safety.

### **Should all Segway riders be required to wear a bicycle helmet, or are there areas where the wearing of a helmet should not be required?**

There would be advantages in making Segway helmet rules the same as bicycle helmet rules.

## **b) treating a rider as a pedestrian**

### **Should speed limits be imposed, or would advice on safe speeds around pedestrians suffice, and if so, what speed limits should be imposed or advised?**

If Segways are to be used unsupervised, or on footpaths of normal width, the current speed limit of 13 km/h should be reduced. See also our above comments about speed and safety.

### **Should Segway use be limited to road related areas and use of roads be restricted to crossing from one path to another, or should use of roads, other than local roads, be allowed?**

For safety reasons, Segways should not be allowed on footpaths, shared paths or separated footpaths designated for the use of pedestrians (Road Rule 239). See our comments above about safety.

### **Should helmets be required to be worn by all Segway users, or are there some circumstances where the wearing of helmets should not be required?**

There would be advantages in making Segway helmet rules the same as bicycle helmet rules.

## **c) developing a hybrid model**

### **Should Segway use be limited to road related areas and use of roads be restricted to crossing from one path to another, or should use of roads be allowed?**

For safety reasons, Segways should not be allowed on footpaths, shared paths or separated footpaths designated for the use of pedestrians (Road Rule 239). See our comments above about safety.

**Should users be provided the same access to path networks, or should use of paths be restricted?**

For safety reasons, Segways should not be allowed on footpaths, shared paths or separated footpaths designated for the use of pedestrians (Road Rule 239). See our comments above about safety.

**Should speed limits be imposed on roads or paths, or would advice on safe speeds around pedestrians suffice, and if so, what speed limits should be imposed or advised?**

If Segways are to be used unsupervised, or on footpaths of normal width, the current speed limit of 13 km/h should be reduced. See also our above comments about speed and safety.

**Should helmets be required to be worn?**

See our comments above about safety for Segway riders.

**d) Should there be age and height limits?**

**Should there be age or height restrictions on the use of Segways, and if so, in what circumstances?**

Restrictions on who may operate Segways in close proximity to pedestrians should be similar to those on who may operate motorcycles (which are not normally in close proximity to pedestrians). See our comments above about safety.

Yours Faithfully

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Chair, Living Streets Canberra

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