

E-Bikes, E-Scooters, and Active Transportation

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Outline

- AT & Micromobility: Overlap
- E-Scooters & E-Skateboards
 - Issues
 - Legal Requirements: Examples
 - Current requirements in HRM
- E-Bikes
 - Types of E-Bikes
 - Issues
 - Legal Requirements: Examples
- Some Recommendations for HRM

AT & Micromobility

- AT is “any form of self-propelled mode of transportation that relies upon the use of human energy” (ATAC Terms of Reference).
- Micromobility is “transport by small, lightweight vehicles operating at speeds below 25 km/h and driven by users personally” (Wikipedia)
- All AT wheeling is microbility
- But e-scooters, e-boards, & some e-bikes are not AT

E-Scooters (& E-Skateboards)



Issues

- Users often inexperienced and/or joyriding
- No established norms or rules
- Use pedestrian, bicycle, & vehicle infrastructure
- Dangerous to users without helmets
- Dangerous to pedestrians on sidewalks and MUPs
- Vulnerable & dangerous to users on bike lanes and roads
- Rental e-scooters can be serious litter problem

Legal Requirements: Examples

- Usually classed and treated as bikes
- Often banned from sidewalks (Singapore, France, Mississauga)
- Maxm. Speed often 25 km/h (Ontario, Europe)
- Minm. age varies (16 on Ontario, 14 in NS)
- Helmets often required
- Bell/ Horn and lights often required (Ontario)
- Municipalities ban use in some areas (Copenhagen, Charlotte)
- Municipalities control or ban rentals (most cities)

Legal Requirements in HRM

- Until a by-law is adopted by Regional Council, e-scooters fall subject to the Motor Vehicle Act.
- The MVA prohibits e-scooters on sidewalks.
- It requires that users wear helmets and be at least 14 years old.
- Maximum speed of 32 km/h [**too high!**].
- HRM plans to introduce regulations for bike share and e-scooter share

E-Bikes



Dutch e-bikes look like ... bikes.
Gazelle

Classes of E-Bikes

PeopleForBikes devised a 3-class system, which has been adopted into law in most U.S. states.

Class 1

pedal-assist only, with no throttle, and maximum assisted speed of 20 mph (32 km/h)

Class 2

maximum speed of 20 mph (32 km/h), but throttle-assisted (no pedalling required)

Class 3

pedal-assist only, with no throttle, and maximum assisted speed of 28 mph (45 km/h). Max. of 750 watts.

Most Canadian provinces limit e-bikes to 500 watts and 32 km/h

Issues

- E-bikes can do 32 km/h with little or no effort by rider
- In contrast, standard bikes seldom exceed 20 km/h
- In effect, there are two different traffic flows occurring within the same bike lane
- So standard bike lanes too narrow
- E-bikes too fast & dangerous for MUPs

Legal Requirements: Examples

- e-bikes limited to 500w output, and cannot travel faster than 32 km/h (all Canadian provinces)
- Age limit of 16 and helmet required (BC, Ontario)
- 250 watt limit (most of Europe)
- E-bikes using bike infrastructure are limited to 25 km/h (Netherlands, UK, Sweden, France)
- Type 3 not allowed in bike lanes (California)

CALIFORNIA ELECTRIC BICYCLE POLICY



VEHICLE TYPE	VEHICLE		USER				BIKEWAY ACCESS			
	PEDAL OPERATED	MAXIMUM MOTOR-ASSISTED SPEED (MPH)	MINIMUM AGE (YEARS)	DRIVER'S LICENSE	LICENSE PLATE	HELMET	CLASS I BIKE PATH	CLASS II BIKE LANE	CLASS III BIKE ROUTE	CLASS IV PROTECTED LANE
BICYCLE 	YES	N/A	N/A	NO	NO	17 AND UNDER	YES	YES	YES	YES
TYPE 1 E-BIKE* 	YES	20	N/A	NO	NO	17 AND UNDER	YES	YES	YES	YES
TYPE 2 E-BIKE* 	NO	20	N/A	NO	NO	17 AND UNDER	YES	YES	YES	YES
TYPE 3 E-BIKE* 	YES	28	16	NO	NO	YES	NO	YES	YES	YES
MOPED 	NO	N/A	16	YES	YES	YES	NO	YES	YES	NO

*PENDING AB-1096



peopleforbikes



Some Recommendations for HRM

- Maxm. speed for e-scooters of 20 km/h, on all infrastructure
- E-scooter rentals must be returned to designated docking areas (verified by GPS)
- Stricter enforcement of 20 km/h speed limit on MUPs, for all modes
- One-way bike lanes should be minm. 3m wide, and bi-directional 4.5m wide
- Stricter enforcement of helmet requirement for all modes
- Bell or Horn required on e-scooters, e-bikes, and standard bikes

E-Scooter
docking
(geofencing)

Neuron in
Ottawa



Wider bike lanes -- Paris



Reading

- [Matt McFarland, Scooters are a huge problem for cities. No one knows how to solve it yet, CNN Business, August 30, 2019](#)
- [How e-scooters can safely operate in a city, Science Daily, March 31, 2022](#)
- [Nicole Chang, From speed limits to mandatory helmets: How countries in Europe are changing their e-scooter rules, EuroNews June 2022.](#)
- [Lloyd Alter, America's E-Bike Revolution Is in Trouble, Treehugger 2022.](#)
- [Lloyd Alter, What Is Needed for an E-Bike Revolution? Good affordable bikes, a safe place to ride, and a secure place to park, Treehugger 2021.](#)
- [Aaron Gordon, America Has An E-Bike Problem That Can't Be Solved With More E-Bikes, Motherboard 2022.](#)
- [Electric Bike & Electric Scooter Laws & Regulations in Canada, Epic Cycles website 2022](#)