

Response to 20mph speed limit consultation in Richmond upon Thames

Public Health

29 November 2018

Public Health response to 20mph speed limit consultation in Richmond upon Thames.

Summary

Overall, speed limit reduction to 20mph in Richmond has potential to reduce risk of unintentional injury and death on the roads, increase active travel and may improve noxious vehicle emission concentration.

Recommendations from relevant bodies:

- The Association of Directors of Public Health recommend that all areas should consider adopting a 20-mph speed limit to improve air qualityⁱ.
- The National Institute of Health and Clinical Excellence recommend 20mph speed limits, in appropriate contexts, to reduce unintentional injuries on the road and to reduce emissions associated with accelerations and decelerations^{ii,iii}.
- The Department for Transport recommend 20mph speed limits to ensure greater safety for pedestrians and cyclists^{vii}.
- The Royal Society for the Prevention of Accidents recommend 20mph speed limits to reduce the number unintentional accidents^{iv}.
- Public Health England recommend the introduction of 20mph speed limits to reduce unintentional injuries on the road^v

Death and serious injury on the road

In Richmond, the rate of people killed or seriously injured on the roads each year is 24 per 100,000 people (n=140)^{vi}. Higher speed travel directly increases risk of death and serious injury^{vii}. There is strong evidence that introducing 20mph speed zones reduces the risk of death and serious injury related to trauma with observational research in London suggesting a 42% reduction in casualties in 20mph zones^{viii, ix}.

Air pollution

Vehicles dependent on combustion engines emit multiple harmful chemicals when in use. Current literature on air pollution suggests that nitrogen dioxide, sulphur dioxide and particulate matter (in particular PM_{2.5})¹ are the most harmful to health when inhaled. Nitrogen dioxide (NO₂) is associated with reduced lung function and increased symptoms of bronchitis in asthmatic children whilst sulphur dioxide (SO₂) can rapidly worsen respiratory symptoms among asthmatics^x. Fine particulate matter (PM_{2.5}),

¹ Particulate matter is often categorized into PM_{2.5}, indicating a size <2.5micrometers in diameter, and PM₁₀, indicating a size <10micrometers in diameter.

when inhaled, is known to enter the blood stream through the lungs and is associated with an increased risk of death from ischaemic heart disease, stroke, chronic obstructive pulmonary disease (COPD) and cancer^x. It is estimated that long-term exposure to fine particulate matter (PM_{2.5}) is responsible for up to 3,500 deaths per year in London^{xi}.

In Richmond upon Thames, concentration of fine particulate matter (PM_{2.5}) is higher than average in England (10.9µg/m³ vs 9.3 µg/m³) and increased between 2015 and 2016 from 9.0 µg/m³ to 10.9 µg/m³^{xii}.

In 2017, an Air Quality Action Plan for Richmond was published. This aims to address the growing problem of air pollution using a multi-faceted approach, including localised traffic management.

As a localised traffic management plan, evidence related to the impact of a 20mph speed limit on emissions is mixed. Some emissions increase at lower traffic speeds, whilst others decrease, depending on fuel-type used. However, in areas with lower speed limits, acceleration and deceleration is reduced. Acceleration and deceleration are associated with increased noxious emissions both from fuel consumption and emission from tyres and brakes. Additionally, reduced speed limits encourage increased active travel which improves cardiovascular health in addition to reducing emissions^{xiii}.

List of useful sources of information related to 20mph speed limits and health:

- **Public Health England** – Reducing unintentional injuries on the roads among children and young people under 25 years:
 - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/695781/Reducing_unintentional_injuries_on_the_roads_among_children_and_young_people.pdf
- **National Institute of Health and Clinical Excellence:**
 - Unintentional injuries on the road: interventions for under 15s.
 - <https://www.nice.org.uk/guidance/PH31/chapter/1-Recommendations#recommendation-3-measures-to-reduce-speed>
 - Air pollution: outdoor air quality and health.
 - <https://www.nice.org.uk/guidance/ng70/chapter/Recommendations#smooth-driving-and-speed-reduction>
- **Department for Transport** - Setting Local Speed Limits.
 - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/63975/circular-01-2013.pdf
- **National Heart Forum** – Reducing the default speed limit in built-up areas: *Highlighting the health benefits of 20mph*.
 - http://www.adph.org.uk/wp-content/uploads/2013/08/NHF_PositionStatement20mph_2010.pdf
- **Association of Directors of Public Health.** Policy Position: Outdoor Air Quality.
 - <http://www.adph.org.uk/wp-content/uploads/2017/11/ADPH-Policy-Position-Outdoor-Air-Quality.pdf>

Overall, the evidence suggests that introduction of methods to reduce speed to 20mph does not increase noxious emissions and may improve emission concentrations^{xiv}.

It is generally considered that the efficacy of 20mph zones, i.e. those with added speed reduction measures, are more effective at reducing speed and achieving positive health outcomes than 20mph speed limits.

ⁱ The Association of Directors in Public Health. Policy Position: Outdoor Air Quality. 2017. Available from: <http://www.adph.org.uk/wp-content/uploads/2017/11/ADPH-Policy-Position-Outdoor-Air-Quality.pdf>

ⁱⁱ National Institute of Health and Care Excellence. NICE guideline [NG70], Air Pollution: outdoor air quality and health. June 2017. Available from: <https://www.nice.org.uk/guidance/ng70/chapter/Recommendations#smooth-driving-and-speed-reduction>

ⁱⁱⁱ National Institute for Health and Care Excellence. PH31, Unintentional injuries on the road: interventions for under 15s. November 2010. Available from: <https://www.nice.org.uk/guidance/PH31/chapter/1-Recommendations#recommendation-3-measures-to-reduce-speed>

^{iv} Royal Society for the Prevention of Accidents. Road Safety Factsheet. November 2017. Available from: <https://www.rospa.com/rospaweb/docs/advice-services/road-safety/drivers/20-mph-zone-factsheet.pdf>

^v Public Health England. Reducing unintentional injuries on the roads among children and young people under 25 years. March 2018. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/695781/Reducing_unintentional_injuries_on_the_roads_among_children_and_young_people_.pdf

^{vi} Public Health England. Public Health Profiles. 2018. Available from: <https://fingertips.phe.org.uk/search/traffic#page/4/gid/1/pat/6/par/E12000007/ati/102/are/E09000027/iid/11001/age/1/sex/4>

^{vii} Department for Transport. Setting Local Speed Limits. Jan 2013. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/63975/circular-01-2013.pdf

^{viii} Grundy, C., Steinbach R., Edwards, P., Green, J., Armstrong, B. and Wilkinson. Effect of 20mph traffic speed zones on road injuries in London, 1986-2006: controlled interrupted time series analysis. BMJ 2009; 339:b4469. Available from: <https://www.bmj.com/content/339/bmj.b4469>

^{ix} Research into the impacts of 20mph speed limits and zones. November 2014. London Borough of Merton. Available from: <http://www.roadsafetyknowledgecentre.org.uk/downloads/20mph-reportv1.0-FINAL.pdf>

^x World Health Organisation. Ambient (outdoor) air quality and health. 02 May 2018. Available from: [http://www.who.int/en/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](http://www.who.int/en/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)

^{xi} Greater London Authority. Health impact of cars in London (Sep 2015)

^{xii} Public Health England. Public Health Profiles. 2018. Available from: <https://fingertips.phe.org.uk/search/pollution#page/4/gid/1/pat/6/par/E12000007/ati/102/are/E09000027/iid/92924/age/-1/sex/-1>

^{xiii} National Heart Forum. Reducing the default speed limit in built-up areas: *Highlighting the health benefits of 20mph*. 2013. Available from: http://www.adph.org.uk/wp-content/uploads/2013/08/NHF_PositionStatement20mph_2010.pdf

^{xiv} Williams, D. and North, R. An evaluation of the estimated impacts on vehicle emissions of a 20mph speed restriction in central London. Imperial College London. April 2013.