The argument for maintain hedges in the streets of Addisombe.

Health – Flooding protection – Ecosystem.

Liu NM, Grigg J. Diesel, children and respiratory disease. BMJ Paediatrics Open 2018;2:e000210. doi:10.1136/ bmjpo-2017-000210.

In London 9,400 premature deaths attributable to air pollution. (UK 40,000 deaths).
Deaths mainly Adults – but long-term effects in Kids.
Respiratory, cardiovascular and neurological system disease associated with air pollution.
Largest contributor to air pollution in urban areas in the UK is road traffic & rising...

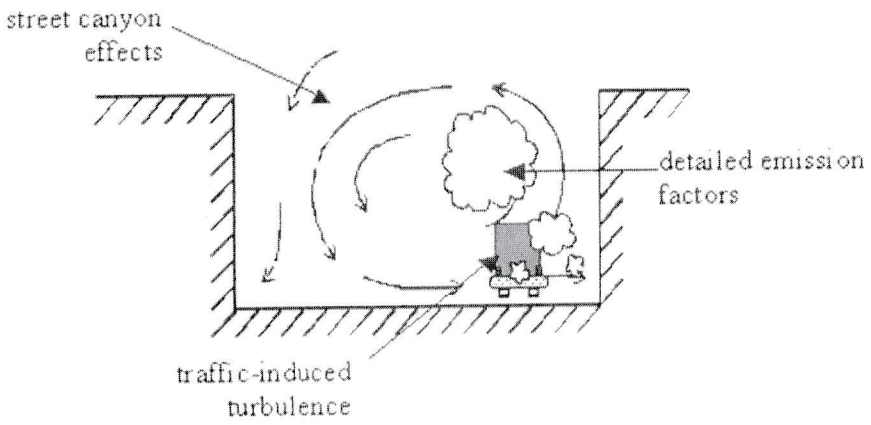
Road traffic emits harmful pollutants (particulate matter (PM)).
PM_{10} particulate matter ≤10 µm, $PM_{2.5}$ ≤2.5 µm and ultrafine particles (UFP; <100 nm).
Gases: nitrogen oxides NOx, Ozone O_3, carbon monoxide CO and sulphur dioxide SO2.
Diesel not petrol soot is categorised by WHO as carcinogenic.
50% of NO emissions come from the roads.
NOX levels around schools often higher than legal limits (40 µg/m_3 p@ mean or 200 µg/m_3/hr mean)

Children

Exposed to high concentrations of pollutants to & from school.....
↑risk low birth weight with maternal PM exposure at lower than EU recommend levels 25 µg/m.
Child's ↑ susceptibility to common resp. conditions such as wheeze, bronchiolitis & asthma.
PM & NO2 can also lead to suppression of lung function growth in school children.
Emerging evidence of pollutant exposure assoc with: reduced IQ / neurocognitive ability / memory, autism & delayed maturation of the brain, endocrine system (insulin resistance).

Adults

Predisposed to cardiovascular events & premature death in adulthood.
Associations with dementia and Parkinson's disease have been found.



What to do about particulate matter...

ULEZ...hasn't got to us yet. Advice is: Don't walk on busy roads..(really) Use greener vehicles – (eventually).
Green infrastructure - passive air pollution control – local control – **WE can do this now.**

ISCAPE
Abhijith, K.V., Kumar, P., Gallagher, J., McNabola, et al 2017. Air Pollution Abatement Performances of Green Infrastructure in Open Road and Built-up Street Canyon Environments – A Review. Atmospheric Environment https://doi.org/10.1016/j.atmosenv.2017.05.014

- Green infrastructure has a significant role in mitigating urban air pollution.
- A porous body acting on PM dispersion patterns, aiding deposition & removal of airborne
- pollutants.
- Low-level hedging improves air quality in street canyons.
- Green walls (95%) & roofs (2-52%) reduce pollution in streets/open roads.
- Grass ineffective in capturing PM2.5 in comparison to trees and shrubs.
- Planning - Prior design of green infrastructure to improve air quality.

Trees - Physical barrier, intercepting PM & gaseous pollutants such as O3.,
But on their own trees are too high & have a negative impact on air quality.
Hedges - Current GLA recommendation for tall hedges around schools,
but does not protect journey to & from schools..

Optimum - low & high vegetation – Trees & hedges... throughout our communities...

Hedges
Hedges reduced pollutant exposure by 24 to 61% at footpath areas in street canyons.
Optimum height between 1 and 2m.
Max reduction occurred at breathing height along the foot path.
Grass ineffective in capturing PM2.5 in comparison to trees and shrubs.

Recommended hedging: Privet (Ligustrum Vulgare), Boxleaf honeysuckle (Lonicera Nitida)
Yew (Taxua Baccata), Portuguese Laurel.

Why are we losing our hedges:
Dropped kerbs....should mean losing the hedge boundary.
Less maintenance in a fence?
At least 2 a year on each local streets...
Property Development – conversion of houses into flats..

Who's responsible? Council, Individual...