

DRAFT

Health Impact Assessment (HIA) – A Transport Vision for Croydon

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Health Impact Assessment

Health Impact Assessment (HIA) is a combination of procedures, methods and tools that can help identify the possible health impacts of a programme or policy.

HIA identifies appropriate actions to manage those impacts. It aims to inform and enhance decision-making processes in favour of health and health equality, maximising potential positive health impacts and minimising any potential negative health impacts of a proposal.

HIA can contribute to improved health by:

- Raising awareness among decision makers of the relationship between health and the physical, social and economic environments;
- Demonstrating how a proposal may affect the health of a population;
- Provide recommendations on how a proposal could be modified to maximise opportunities for health gain and minimise chances of health loss.

Carrying out a HIA ensures that any recommendations are evidence based.

The Transport Vision for Croydon

The Transport Vision for Croydon describes the agenda for new era of movement in and around Croydon focusing on the needs of Croydon's residents, businesses and visitors. It outlines the vision for Croydon for the next 20 years. The Transport Vision was released in draft form for assessment in June 2014..

This Health Impact Assessment (HIA) examines Croydon's Transport Vision from a public health perspective and makes recommendations based on the available evidence. The purpose of this HIA will be to bring the health effects into wider discussion within the vision.

Walking and cycling are key themes that are at the heart of the vision. This is commendable from a Public Health Perspective as health-related issues are already being considered, alongside the priorities of shaping Croydon as a liveable place and promoting economic growth.

As this is a draft document for Croydon's 'vision' of transport infrastructure, it is reasonably aspirational. The document does not give specific information about implementation, which would allow more detailed health-focused recommendations. Any recommendations from this HIA should be further researched and incorporated within the implementation strategies and plans.

Social Determinants of Health

There are a number of determinants of health, as illustrated in Figure 1 below, which can affect individuals directly or indirectly. The primary role of this HIA is to examine how Croydon's Transport Vision influences these determinants and the likely effects on the health of our communities and individuals.

Figure 1: Social Determinants of Health



(Barton and Grant, 2006)

Health Inequalities

Health inequalities refer to the gap in health outcomes between those at the top and bottom ends of the social scale. Health inequalities are often measured by the differences in life expectancy at birth. For example in Croydon, men in the most deprived areas have a difference in life expectancy of 9.5 years, compared with the least deprived and women have a difference of life expectancy of 5.8 years.¹ As health inequalities often mirror social inequalities, addressing the social determinants of health can impact positively on health inequalities. It is important that the Transport Vision does not widen health inequalities and where possible reduces them.

¹ Croydon's Key Dataset 2013/14 Croydon Public Health Intelligence Team

Evidence: Transport and Health

There is a growing body of evidence linking transport to health, which is outlined in detail below. To look at the summary of evidence go directly to Table 1.

Transport, access and health

Transport is an essential activity, connecting people to healthcare services, education, employment, family, community, shops and recreation. Therefore, transport is an important determinant of health because it enables access to the key socio-economic determinants of health as shown in the diagram above.

Croydon's transport vision highlights one of the key principles for the future of transport as 'ensuring cheap and efficient transport is accessible to all' (pg. 12). This is positive, as transport that is affordable and accessible is necessary to enable essential economic and social activities.

Transport, social exclusion and inequalities

Evidence shows that there are links between poor transport and social exclusion.² This includes the risk of being cut off from work and access to services because of the rising costs of owning and running a car, if there is a lack of alternative transport methods to use.³ Research also shows that many people miss, turn down or choose not to seek medical appointments because of transport problems, which will have both cost impacts and potentially negative health impacts.

Excluded groups are heavily reliant on walking, public transport and lifts from family, friends and neighbours.⁴ Elderly people, people who are disabled and others with health problems may find it difficult to use public transport or to walk. Although walking is a good form of physical activity, if walking is the only affordable form of transport there may be important negative effects on the welfare of families, such as exclusion from a range of services and facilities that are located out of Croydon's Opportunity Area.

It is important that the Transport Vision considers some of the potentially vulnerable groups in Croydon and those with Protected Characteristics, to ensure that health inequalities are not unintentionally widened. For example, evidence also suggests that initiatives to encourage walking and cycling may be more effective in affluent populations.⁵ These groups are more

² Social Exclusion Unit (SEU). (2003) Making the connections: Final report on transport and social exclusion London: Social Exclusion Unit

³ Sustrans (2012) Locked Out, Transport Poverty in England

⁴ Scottish Executive Central Research Unit (2001) The role of transport in social exclusion in urban Scotland: Literature review

⁵ Gepkens A and Gunning-Schepers L. Interventions to reduce socio-economic health differences. European Journal of Public Health 1996, 6, 218–226

likely to listen and adopt healthy lifestyle messages, than populations living in more deprived areas.

Croydon's Transport Vision (pg. 11) discussed an opportunity to introduce congestion charges to ease traffic. If this were to be considered the potential impact on Croydon residents from more deprived areas should be examined. If a congestion charge discouraged poorer residents from visiting the COA, this could widen health inequalities.

Effort is required to ensure that the Transport Vision is as socially inclusive as possible.

Transport and physical health

Research shows that access to a car is linked to improved physical health. This link is not explained by social class, income or feelings of self-esteem linked to car ownership.⁶

Whilst car use may have a number of recognised social and economic benefits; car use is also associated with a number of harmful health impacts. Therefore, a public health approach would advocate a major shift away from cars in favour of active travel: walking, cycling and public transport. Enabling and encouraging walking and cycling are key themes within Croydon's Transport vision. Active Travel Town Schemes have been shown to result in increased active (non-car) travel⁷

Modelling has suggested that shifting transport away from car use will have health benefits. Studies have shown that focusing on reducing car use and increasing walking and cycling in London, for example, will save 7,332 disability adjusted life years (DALYs) and 530 premature deaths per million population.⁸

6 Macintyre S, Ellaway A, Der G, Ford G, and Hunt K. Do housing tenure and car access predict health because they are simply markers of income or self esteem? A Scottish study. *Journal of Epidemiology and Community Health* 1998, 52:10, 657–664. Macintyre S, Hiscock R, Kearns A, and Ellaway A. Housing tenure and car access: further exploration of the nature of their relations with health in a UK setting. *Journal of Epidemiology and Community Health* 2001, 55:5, 330–331.

7 Sustrans Active Travel. (2008). *Active travel and health inequalities: How walking and cycling can benefit the health of the mostdisadvantaged people*. Bristol.Transport for London. (2007). *Central London Congestion Charging: Impacts monitoring*. Fifth Annual Report

8 Woodcock J, Edwards P, Tonne C et al (2009) Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport. *The Lancet* 374: 1930-43.

What is a Disability Adjusted Life Year?

- DALY stands for 'Disability-Adjusted Life Year'.
- DALYs are a commonly used measure of the impact of disease on a population. They measure the number of years of healthy life lost due to premature death or disability.
- Number of DALYs = Years of life lost to premature death + Years of life lost to disability (injury and illness).
- DALYs are used to measure population health benefits by combining years of healthy life gained by 1) living longer and 2) living in good health (by avoiding disability).
- DALYs allow us to combine different health impacts in a single measure e.g. deaths due to road traffic collisions and disability due to poor air quality.
- One DALY is equivalent to gaining one year of life in perfect health

Transport mental health and wellbeing

Mental health is not simply the absence of mental illness. It is a fundamental element of the resilience, health assets, capabilities and positive adaptation that enable people both to cope with adversity and to reach their full potential. Like physical health, it is possible to improve mental health. There are four core protective factors that have a significant influence on mental health and well-being: enhancing control, increasing resilience, facilitating participation and promoting inclusion.

Many factors influence levels of mental health and wellbeing, including transport. For example, reducing traffic levels and traffic speed can also increase play, social interaction between residents and quality of life, thus contributing to higher levels of wellbeing.⁹

There are many possible sources of stress for transport users, for example overcrowding on trains and traffic jams for cars. However, there is very little research evidence looking at the mode of transport and its effects on an individual's levels of stress and mental health.

Some studies have looked at the relationship between commuting and stress, which have shown that car and train commuting is linked to elevated stress and blood pressure. It is difficult to compare different commuters and different stress levels due to the multiple influences on stress, in particular with job-related stress linked to commuting. Journey duration, predictability and convenience, for example direct train route, number of road intersections, appear to be associated with lower stress levels.¹⁰

⁹ Hart, J. (2009). No Friends? Blame the traffic... Living Streets/ Street Life, Winter, 6-7.

Transport and physical activity

There is compelling evidence that regular physical activity is effective in the prevention of chronic diseases (e.g. cardiovascular disease, type 2 diabetes, some cancers, hypertension, obesity, depression) and premature death, with the greatest improvements in health status seen when people who are least active become physically active.¹¹

In Croydon over 50% of adults do not meet the recommended levels of physical activity. Almost 30% of adults in Croydon are classified as inactive. Of the working age population (aged 16-74) only 9% of people walk or cycle to work. In Croydon, 23.5% of the adult population is classified as obese.¹²

The proportion of reception aged children who are overweight or obese in Croydon is 24.2% and by the age of 10-11 this increases to 38.2%. It is important to start healthy habits early, which includes physical activity.

Cars are a sedentary form of transport, minimising physical activity by allowing transportation from door to door. Enabling and encouraging more walking and cycling are key to Croydon's Transport vision. Active forms of travel, such as walking and cycling, are the most sustainable forms of transport and are associated with a number of recognised health benefits.¹³

Walking is a key means through which many people can reduce their risk of premature death. A large cohort study found that life expectancies were higher by 3.4 years for those participating in recommended levels of moderate physical activity per week (150 minutes). A key means of physical activity in this large participant study was through walking.¹⁴ Neighbourhoods where residents make high use of local amenities are associated with more walking¹⁵ and walkable neighbourhoods are associated with double the number of weekly walking trips.¹⁶

10 Novaco RW, Stokols D, Campbell J and Stokols J. Transportation, stress, and community psychology. *American Journal of Community Psychology* 1979, 7:4, 361–380.

Wener RE, Evans GW, Phillips D and Nadler N. Running for the 7:45: The effects of public transit improvements on commuter stress. *Transportation* 2003, 30, 203–230.

Wener R, Evans GW and Boatley P. Commuting stress: Psychophysiological effects of a trip and spillover into the workplace. *Transportation Research Record* 2005, 1924, 112–117.

11 Warburton DER, Nicol CW, Bredin SSD (2006) Health benefits of physical activity: the evidence. *CMAJ* 174: 801–809.

12 Croydon's Key Dataset 2013/14. Croydon Public Health Intelligence Team.

13 Hamer, M. and Chider Y. (2008) Active commuting and cardiovascular risk: a meta-analytic review. *Journal of Preventative Medicine*.

14 Moore, S. et al (2012) Leisure Time Physical Activity of Moderate to Vigorous Intensity and Mortality: A Large Pooled Cohort Analysis, *PLOS Medicine*, 9:11

A 2010 systematic review of interventions to promote cycling found that interventions such as community-wide promotional activities, in conjunction with improving infrastructure for cycling, have the potential to increase cycling by modest amounts.¹⁷ Promoting cycling as a mode of transport can be an effective way to increase physical activity in obese individuals.¹⁸

Two systematic reviews assessing the effectiveness of transport interventions to promote physically active transport, reported that while there was some success in getting people to use their cars less, but the impacts on health outcomes were rarely reported.¹⁹

As noted earlier, it is often more affluent population groups that are more amenable to changing their behaviour and affecting behaviour change in those who are not motivated remains difficult. Therefore, when the Transport Vision is implemented it will be essential to consider how the alternative modes of transport can be socially marketed to all Croydon households.

To maximise the positive impact of the opportunity to promote more physical activity further work could be carried out using the World Health Organisation's Health Economic Assessment Tool (HEAT). This tool is designed to conduct an economic assessment of the health benefits of walking or cycling by estimating the value of reduced mortality that results from specified amounts of walking or cycling (www.euro.who.int/HEAT).

Transport related injury and death

Physical injuries (fatal and non-fatal) are the main consequence of road crashes. The most vulnerable road users for transport related injuries are pedestrians and cyclists. No UK government statistics were found that reported the number of road crashes involving trams. However, an observational study (in Sheffield, England) found that

15 McCormack G, Giles-Corti B, Lange A (2004) An update of recent evidence of the relationship between objective and self-measures of the physical environment and physical activity behaviours. *Journal of Science, Sport and Medicine*, 7(1Supplement), 81-92.

16 Giles-Corti et al. (2005). Increasing walking: how important is distance to, attractiveness, and size of public open space. *American Journal of Preventative Medicine*, 28, 169-176.

17 Yang L, Sahlqvist S, McMinn A et al (2010) Interventions to promote cycling: systematic review. *British Medical Journal* 341: c5293.

18 Hemmingsson E, Udden J, Neovius M et al (2009) Increased physical activity in abdominally obese women through support for changed commuting habits: a randomized clinical trial. *International Journal of Obesity* 33: 645-52.

19 Ogilvie D, Egan M, Hamilton V and Petticrew M. Promoting walking and cycling as an alternative to using cars: systematic review. *BMJ* 2004, 329:7469, 763.
Heath G, Brownson R, Kruger J, Miles R, Powell K, Ramsey L, et al. The effectiveness of urban design and land use and transport policies and practices to increase physical activity: a systematic review. *Journal of Physical Activity and Health* 2006, 3(Suppl. 1), S55-S76.

trams can be a cause of crashes. Cyclists appear to be the group at highest risk from tram-related injury, followed by pedestrians and motor vehicle users.²⁰

In Croydon there were 28.2 road casualties per 100,000 populations in 2009-11.

Excessive speed is the most commonly cited cause of road crashes;²¹ therefore the focus in Croydon's vision to create a calmer environment (pg. 22) is supported from a public health perspective. High volume of traffic and high speed also influence social interaction, which impacts on general health and well-being.²²

Croydon's vision should highlight the benefits of 20mph for streets used by pedestrians and cyclists more. As much of the Croydon Opportunity Area includes the bypass area, it is unclear what speed restrictions will be possible and therefore how realistic this part of the vision is.

Transport, health and air pollution

Air pollution remains a public health problem associated with several adverse health outcomes, even at 'normal' levels of air pollution.

These include:

- Premature deaths from cardiorespiratory causes
- Respiratory hospital admissions
- Exacerbations of pre-existing asthma
- Respiratory symptoms
- Reductions in lung function.

High-risk groups for adverse effects of pollution include the elderly, infants and those with existing acute respiratory infection or cardiovascular conditions. Long-term exposure to air pollutants from road traffic has been found to decrease life expectancy by an average of six months, due to an increased risk of cardiovascular morbidity and mortality.²³

There is a growing body of evidence showing that prenatal exposure to air pollution is associated with a number of adverse outcomes in pregnancy. These include low birth

20 Cameron IC, Harris NJ and Kehoe NJS. Tram-related injuries in Sheffield. *Injury* 2001, 32:4, 275–277.

21 Department for Transport. Road casualties Great Britain (2003) London: Department for Transport

22 World Health Organization (2006) *Promoting physical activity and active living in urban environments*. Turkey: World Health Organization.

23 Department for Environment, Food and Rural Affairs (2010) *Valuing the overall impacts of air pollution*. London: Department for Environment, Food and Rural Affairs.

weight, intrauterine growth retardation, and an increased risk of chronic diseases in later life.²⁴

Noise from road transport can have negative impacts, most commonly annoyance, sleep disturbance and stress.²⁵ Road noise possibly also deters people from walking or cycling on busy roads. However, the links between noise and health are inconclusive.

As Croydon is likely to undergo a number of construction projects in the coming years it is likely that in the short term there will be an increase in both traffic volume of HGV, pollution and noise.

If the Transport Vision's key principal of 'reducing air and noise pollution, greenhouse gas emissions and energy consumption' (pg. 12) is implemented this ought to minimise the negative impacts and maximise the positive health impacts in the long term. However, in the short and medium term....

Transport, personal safety and perceptions of safety

There is little evidence about different types of transport and levels of personal safety. However, surveys show that people's perceptions of personal safety and fear of crime may affect their individual decisions to walk, cycle or use public transport, particularly after dark.²⁶ Streets dominated by vehicles with few people on the streets, may create a social environment that is conducive to increased crime, which then discourages more people from walking.²⁷ It has been argued that the greatest contribution to safe, comfortable walking is to encourage more people to walk.²⁸

. It will be important to address fear of crime concerns in order to maximise the positive opportunities to encourage more residents to walk and cycle.

24 British Medical Journal (2012) Healthy Transport = Healthy Lives.

25 London Health Commission (2003) Noise and health: making the link. London: LondonHealth Commission.

26 Transport Research Planning Group. Barriers to modal shift Edinburgh: Scottish Executive Social Research, 2003.

27 Loukaitou-Sideris, A., (2006): Is it Safe to Walk? Neighbourhood Safety and Security Considerations and their Effects on Walking, Journal of Planning Literature, 20(3), 219-232.

28 Health Development Agency, 2005: Making the Case: Improving Health Through Transport, Health Development Agency, London.

Croydon's Transport Vision – Analysis

Using the evidence as outlined above and assessing Croydon's Transport Vision there are many opportunities to improve health outcomes within the document. Please look at Table 2 for an assessment of the potential high level positive and negative impacts on health outcomes.

TO be completed...

Need to monitor evaluate impact of changes...

Conclusion and recommendations

Croydon's Transport Vision creates many opportunities to improve population health, particularly through active travel. However, as noted in the introduction the vision is aspirational and needs a strong implementation strategy to achieve its aims.

Recommendations....to be discussed...

Could also include links to NICE guidance...

Table 1: Evidence summary: Transport and Health

<p>Transport, access and health</p>	<ul style="list-style-type: none"> - Transport is a key determinant of health as it enables access to education, housing, services, leisure activities, employment etc. - Access to a car is linked to improved physical health (this link is not explained by social class, income of feelings of self-esteem linked to car ownership). - Car use also has many negative health impacts - Poor transport provision can lead to social exclusion and social isolation
<p>Transport and physical health</p>	<ul style="list-style-type: none"> - Physical Activity: the best buy in public health - but most undervalued - Public health approach advocates a major shift away from cars in favour of active travel because of health benefits
<p>Transport, mental health and wellbeing</p>	<ul style="list-style-type: none"> - Reducing traffic levels and traffic speed can also increase play, social interaction between residents and quality of life, thus contributing to higher levels of wellbeing.
<p>Transport, personal safety and perceptions</p>	<ul style="list-style-type: none"> - Personal safety fears and fear of crime MAY deter people from walking and cycling.
<p>Transport-related noise pollution and health</p>	<ul style="list-style-type: none"> - Air Pollution associated with several adverse health outcomes. - Links between noise and health are inconclusive. - Some evidence of noise and stress and sleep disturbance
<p>Transport-related injury and death</p>	<ul style="list-style-type: none"> - Cyclists and pedestrians are at highest risk of being killed or seriously injured by transport. - Most commonly cited cause of a road crash is speed - Rates of crashes involving cyclists are lower in countries where cycling is common, increased volume of cyclists is associated with lower injuries/fatalities.

Table 2: Analysis of Croydon’s Transport Vision and health impacts

Factors affecting population health in Croydon	Contributory factors related to transport	Transport vision specific interventions	Potential impacts + and -	PHOF Outcomes impacted
Health inequalities	<ul style="list-style-type: none"> - Worklessness - Low income - Low educational attainment - Poor access to health services - Poor access to other services e.g. education, housing, employment, leisure facilities. 	<ul style="list-style-type: none"> - Improving the transport infrastructure to enable access to key health and social care services and other social determinants of health i.e. employment/education. - Attracting businesses to Croydon and improving transport links to centre. 	<ul style="list-style-type: none"> - Potential for positive local economic impact and growth if potential 7,300 new homes are built and 8,000 new jobs created (pg. 7) - Improve access to work - Positive impact of ensuring cheap and efficient transport is accessible to all - Potential to widen HI if vulnerable groups are not socially included. - COA focus is the town centre – will this have a negative effect on other areas in Croydon? 	<ul style="list-style-type: none"> - Narrowed gap: Slope index of inequality in life expectancy (0.2) - 16-18 year olds not in education employment or Training (1.5)
Poor mental health and wellbeing	<ul style="list-style-type: none"> - Low quality neighbourhood design and facilities - Commuter stress - Noise 	<ul style="list-style-type: none"> - Creating a calmer environment through speed restrictions. - Enhancing the attractiveness and quality of the urban environment - Create a high quality, pleasant and comfortable environment 	<ul style="list-style-type: none"> - Potential to increase social interaction between residents and quality of life, thus contributing to higher levels of wellbeing - Potential negative impact if all the focus is on the town centre (COA) and other areas in Croydon are not similarly 	<ul style="list-style-type: none"> - Improved levels of self-reported wellbeing (2.23) and reduced prevalence of mental health

		<ul style="list-style-type: none"> - Knit together groups and community 	<ul style="list-style-type: none"> - improved. - Increase connectivity and reduce social isolation - A liveable city – wide pavements, frequent crossings. 	<ul style="list-style-type: none"> - problems. - % of population affected by noise (1.14)
Obesity and rise of Type 2 diabetes	<ul style="list-style-type: none"> - Low levels of physical activity because of sedentary car use. 	<ul style="list-style-type: none"> - Cycle hire schemes - Improving legibility and wayfinding. - Segregated cycle routes and cycle priority on shared streets. - Linking key transport hubs through new signage and clear walking/cycling links. 	<ul style="list-style-type: none"> - Potential positive impact to create a major shift towards walking, cycling and public transport use in Croydon's population 	<ul style="list-style-type: none"> - Reduce incidence of recorded diabetes (2.1) - Excess weight in 4-5 and 10-11 year olds (2.6) - Increased levels of physical activity (2.13) - Reduced prevalence of obesity (2.11) - Excess weight in adults (2.12)
Cardiovascular disease	<ul style="list-style-type: none"> - Low levels of physical activity 	<ul style="list-style-type: none"> - Cycle hire schemes - Improving legibility and wayfinding. 	<ul style="list-style-type: none"> - Potential positive impact to create a major shift towards walking, cycling and public 	<ul style="list-style-type: none"> - Healthy life expectancy (0.1)

		<ul style="list-style-type: none"> - Segregated cycle routes and cycle priority on shared streets. - Linking key transport hubs through new signage and clear walking/cycling links. 	transport use in Croydon's population	<ul style="list-style-type: none"> - Reduced under 75 mortality rate from all cardiovascular diseases (4.4)
Respiratory disease	<ul style="list-style-type: none"> - Vehicle emissions - Air Pollution 	<ul style="list-style-type: none"> - Shifting to more sustainable modes of transport reducing pollution. - Creating a more accessible environment with a greater choice of routes. 	<ul style="list-style-type: none"> - Potential positive impact if pollution is reduced. - 	<ul style="list-style-type: none"> - Reduced air pollution (3.1) - Reduced fuel poverty (1.17) - Reduced emergency admissions
Unintentional injuries	<ul style="list-style-type: none"> - Road traffic accidents - High traffic speeds - Low quality public realm 	<ul style="list-style-type: none"> - Traffic speeds calmed - Safety prioritised above traffic flow - Dangerous routes and junctions actively reshaped. 	<ul style="list-style-type: none"> - Advocate for 20mph limits for streets used by pedestrians and cyclists. - Possible negative impact if traffic calming measures in one area of Croydon, displaces traffic to a peripheral area. 	<ul style="list-style-type: none"> - Killed and seriously injured casualties on roads (1.10)
Access to high quality health and social care services	<ul style="list-style-type: none"> - Poor access to health and social care services 	<ul style="list-style-type: none"> - Smooth interchange at East and West Croydon stations - Link the key transport hubs through new signage and clear walking/cycling 	<ul style="list-style-type: none"> - Potential to improve transport to key health and social care services through public transport, walking and cycling. 	<ul style="list-style-type: none"> - Reduce inappropriate emergency admissions (4.11)

		routes.		Health related quality of life for older people (4.13)
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