

Towards an integrated and sustainable transport future: a new legislative framework for transport in Victoria

**Submission by VicHealth
14 December 2007**

1. Introduction

VicHealth congratulate the Department of Infrastructure on their initiative to review, reform and modernise transport legislation in Victoria and the development of a new legislative framework, as outlined in the discussion paper *Towards An Integrated and Sustainable Transport Future: A New Legislative Framework for Transport in Victoria* (DOI 2007).

This submission provides some specific comments on the objectives proposed in the discussion paper around safety, efficiency, value for money, equity, health and environment. It also comments on how objectives should be prioritised and other objectives that should be included in the framework. It concludes with some general comments on the potential of the legislative review to develop a legislative framework that can support public policy and drive social change toward a healthier and more sustainable Victoria.

VicHealth

VicHealth is a statutory authority with a mandate to promote good health for all Victorians, established by the Victorian Parliament under the Tobacco Act 1987. VicHealth envisages a community where: health is a fundamental human right; everyone shares in the responsibility for promoting health; and everyone benefits from improved health outcomes.

Our mission is to build the capabilities of organisations, communities and individuals in ways that: change social, economic, cultural and physical environments to improve health for all Victorians; and strengthen the understanding and the skills of individuals in ways that support their efforts to achieve and maintain health.

VicHealth is involved and interested in ensuring local environments promote health and local communities are supported to create places that are conducive to good health.

VicHealth's Strategic Priorities 2006-2009 include to increase physical activity levels of Victorians through encouraging walking and cycling and promote inclusive and accessible environments.

2. Key questions in the NLF discussion paper

Is a safe and secure system an objective which should be included in the transport legislation? If so, how should this objective be framed in the legislation?

A safe and secure system should be an objective of this transport legislation, and this should include a focus on developing the safety of non-motorised modes of transport.

The relative safety of active transport modes is related to a complex set of variables including time of travel, traffic patterns, road and infrastructure features, features of the built environment, transport mode share and personal decision making and behaviour. These factors need to be addressed in combination in a systems approach if safety of active transport is to be improved. For example although VicHealth argues that an increase in active transport modes will be good for

population health, increasing bicycle use may possibly result in a significant short-term increase in rates of bicycle-related injury, until such time as a threshold effect of reduced motor car use and improved cycling infrastructure (eg increases in bicycle lanes and tracks, priority crossings etc.) is reached, where rates of cyclist injury will plateau or reduce. A system wide view of safety is therefore required, along with greater investment in the safety of active transport and public transport.

In relation to system safety it is notable that the *Transport Accident Act 1986* is not included as interface legislation in the legislative framework review. The Act establishes a scheme of compensation in respect of persons who are injured or die as a result of transport accidents. The Act also includes objectives to reduce the incidence of transport accidents and to provide suitable systems for the effective rehabilitation of persons injured as a result of transport accidents. However the Act's definition of a transport accident (ie an incident directly caused by the driving of a motor vehicle, train or tram) does not cover those who are injured as a result of active transport, resulting in a two tiered system of compensation for those injured by motor vehicles, trains and trams and those who are injured by other transport related accidents.

The government asserts that Victoria is an international and national leader in road safety with recent road tolls amongst the lowest on record (DOI, 2006). In *Meeting Our Transport Challenges* the government commits to "focusing strongly on road safety" (ibid. p.13). As it stands the system effectively prioritises motor vehicle accident prevention, compensation and rehabilitation over prevention, compensation and rehabilitation for other transport accidents (cyclist and pedestrian). This does not augur well for a system trying to increase active transport modal share and may be worthy of review.

Is an efficient and reliable system an objective which should be included in the transport legislation? If so, how should this objective be framed in the legislation?

An efficient, and reliable system should be an objective of transport legislation, but a broad definition of the transport system is required (see below). The transport system needs to be efficient and reliable in terms of active and public transport if Victorian is to achieve population shift toward these modes. Motivations and incentives are needed to replace car trips with public transport, walking and cycling trips and the efficiency and accessibility of public transport and active transport are paramount in this. If a trip by public transport or by walking and cycling is faster and more reliable than by private car transport (providing it is also safe and economical) then modal shift will follow.

Is a system that provides value-for-money an objective which should be included in the transport legislation? If so, how should this objective be framed in the legislation?

Value for money is an important objective of the new Act, but requires a broader analysis of what constitutes value than that usually applied in traditional cost-benefit analysis, including analysis of:

- The costs of a passenger kilometre of travel by mode
- The benefit to society of reducing one km of travel by car
- The benefits to society of reducing greenhouse gases

- The benefits to society of encouraging active travel (e.g. reducing obesity and heart disease and the health costs associated with these) (Whitelegge, 2007)

This may change the value attributed to different transport modes.

“Most new highways do not provide value for money but traditional benefit cost analysis creates an artificially high value for time and accident reduction which then produces an attractive cost-benefit ratio. These cost-benefit ratio values do not reflect value for money criteria and have the effect of supporting highway construction rather than supporting sustainable transport and demand management” (Whitelegge, 2007).

The definition of value for money in the Act should include a thorough and accurate costing of transport externalities. For example, economic analysis of health costs and benefits should include the costs of transport accidents, direct health impacts of air and noise pollution, long term impacts of greenhouse gas emissions and global warming on health and health benefits of active transport.

As a principle, if we can reduce rates of pedestrian and cyclist injury (for example through modal shift, traffic calming measures, road and built environment changes), then transport system investment in active transport should provide very good value for money from a health perspective. This would require greater research to quantify costs and benefits.

Is an equitable, accessible and socially inclusive system an objective which should be included in the transport legislation? If so, how should this objective be framed in the legislation?

Access to transport is essential for health, especially for the health of young, elderly, disabled, chronically ill or economically or socially disadvantaged people. An equitable, accessible and socially inclusive transport system should be included as an objective of the transport legislation.

Accessibility is crucial for equity and inclusion. An accessible system recognises:

- the needs of everyone (mobility impaired, children, the elderly)
- the importance of local facilities (local shops, post offices, child care facilities, dentists, community centres, schools, doctors, jobs)
- the importance of high quality walking and cycling options on safe, clean segregated routes
- the importance of the perception of safety and security (e.g. a 30kph speed limit on all streets in urban areas) (Whitelegge 2007)

Transport access can reduce social inequities that result in a greater burden of ill health being concentrated amongst people with low socioeconomic status. Transport operates in two ways to reduce health inequity. Transport connects people to the health and social services necessary to maintain or improve health, and transport plays a key role in enabling people to take up job and education opportunities that increase skills and income and thus improve their health.

Lack of access to transport further increases inequity for particular groups already facing a greater burden of ill health. Amongst Victorians with a disability, at least 30% report having some difficulty with public transport access. Low income groups, who experience poorer health, need access to high quality, fresh and nutritious food

without this being dependent on car ownership. All Victorians need the opportunity to walk and cycle more and to develop healthy lifestyle based on active travel principles.

For Indigenous people, whose life expectancy in Victoria is some 17 years younger than for the Victorian average, transport is often cited as a key barrier to accessing the services necessary to maintain and improve health. Eligibility criteria for transport access and concessions for senior Victorians should be extended to Indigenous people in broader ways. The Home and Community Care system in Victoria provides improved benchmarks for eligibility, with Indigenous people over the age of 45 being eligible for services. It would be worth entering into dialogue with Indigenous people about whether this benchmark should be extended so that Indigenous people can access transport services and concessions available to senior Victorians at an earlier age.

Lower income outer suburban, metropolitan fringe and rural dwellers may have poor public transport access, be very car dependent and vulnerable to increases in fuel. Dodson and Sipe (2006) have examined the sociospatial distribution of 'oil vulnerability' in Australian cities, including spatial distribution of income, mortgage tenure, car dependence and public transport services, and their work is worthy of attention by the review.

VicHealth applauds the Department of Infrastructure's participation in the ARC Linkage project with Monash University, Bus Association of Victoria and Brotherhood of St Laurence to review aspects of transport disadvantage. Changes to the Act should ensure that policy windows remain available to explore the findings of this review.

Is a healthy system an objective which should be included in the transport legislation?

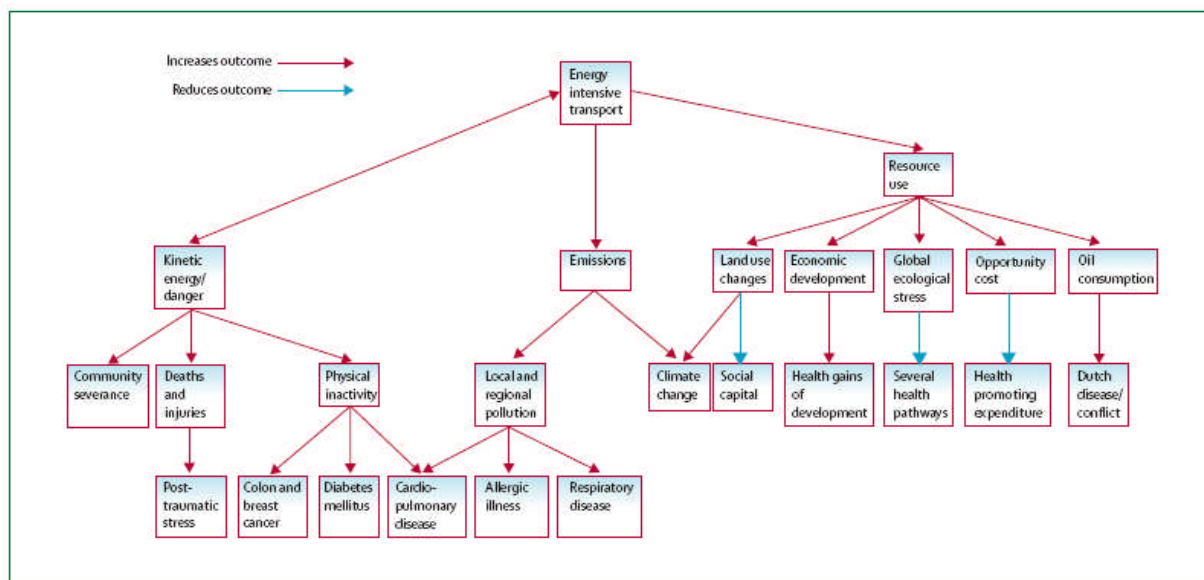
A healthy system should be included as an objective of the transport legislation, although more thought needs to be given to definitions and detailed objectives.

It is important to define what is meant by health in the legislation. To be most effective the legislation should adopt a broad definition of health which encompasses all the health ramifications of transport planning including physical activity, injury rates, particulate matter, noise pollution, fresh food access, opportunities for social and economic participation and climate change.

Health and transport

The impacts of transport on health have been mapped by Woodcock et al, (2007) (see Figure 1)

Figure 1: Selected pathways between transport and health



Source Woodcock, Banister, Edwards, Prentice, Roberts 2007

<http://www.carleton.ca/chem/undergrad/courses/chem3800/Lancet%20on%20energy%20&%20transport.pdf>

Links between transport and health include:

- Forms of transport that entail physical activity, like cycling and walking, offer significant positive health gains including reducing rates of cardiovascular disease, non-insulin dependent diabetes, osteoporosis and promoting mental health.
- Traffic accidents are a major cause of death and serious injury.
- Transport accidents can contaminate soil, water and air.
- Exposure to air pollution is associated with a number of adverse health impacts, including cardiovascular and respiratory disease and cancer.
- Exposure to levels of traffic noise can result in stress, sleep loss, communication problems and learning problems in children. There is emerging evidence of an association between hypertension, heart disease and high levels of noise.
- Mental health impacts of transport including the effects of accident related bereavement, traffic related community severance (lower levels of social contacts and reduced quality of life mental health support) and possible mental health impacts from noise.
- The largest burden of transport related disease may turn out to be the global morbidity and mortality resulting from transport related greenhouse gas emissions and climate change.
- The adverse health effects fall disproportionately on the most vulnerable groups in our societies: people with disabilities or hearing or sight impairments; older people; the socially excluded; children and young people; and people living or working in areas of intensified and cumulative air pollution and noise (see **Appendix 1** for more detail).

The import of evidence on the relationships between health and transport is that the burden of disease coming through all of these pathways could be significantly

reduced by strategies to increase active travel modes and reduce automobile use and dependency. Specifically policies are needed to:

- Increase the amount of walking and cycling
- Reduce car use
- Reduce urban sprawl
- Increase the number of local facilities and opportunities within walking and cycling distances of homes
- Increase the coverage of public transport and the ease with which pedestrians and cyclists can access it.

These broadly correspond to the policy directions of *Meeting Our Transport Challenges* (DOI 2006) although VicHealth would encourage a greater focus on and investment in active transport in the new legislative framework.

The current consultation is an opportunity to set out a clear vision of how transport policies can be harnessed to deliver substantial health benefits to the citizens of Victoria. The health and welfare of citizens should be at the centre of all government policy, including at the centre of transport policy. Reducing the transport related disease burden requires a very clear commitment on the part of the State of Victoria to move in the direction of active transport.

How should this objective be framed in the legislation?

For the reasons above VicHealth would argue that the transport system is a fundamental determinant of the health of the Victorian people, but careful thought needs to be given to how this is framed as an objective of the Act.

A “healthy system” is not a particularly clear objective for many Victorians who may struggle to see the links between transport and health. The objective needs more clarity, as many people may interpret “a healthy system” as another way of saying “a system that works” (ie that is effective and efficient). A “health promoting system” is a clearer concept but is still too brief for an objective.

To be more easily understood the objective may need to frame health as a benefit or outcome of the transport system or conversely frame the transport system as a determinant of, influence on or opportunity for health. For example:

“To create and maintain a transport system that delivers demonstrable benefits to the health of all sections of the community with a special emphasis on vulnerable groups such as children and the elderly”.

Or

“To ensure the transport system provides all Victorians with equal opportunities for good health”

Or

“To ensure the transport system enables all Victorians to attain the highest possible standard of health, regardless of socio-economic status, age, location of residence or level of ability”

There are advantages and disadvantages to the way the link between health and transport is framed in all these objectives. VicHealth would recommend further discussion with public health and law professionals regarding the wording of the objective take place prior to an objective being drafted in the policy paper, to ensure that while the objective fully reflects the significance of the transport system as a determinant of health, that this is balanced by the scope of the Act and its potential to impact on population health.

The objective also needs to be associated with definitions of health benefits, determinants, outcomes, opportunities etc. and/or subsidiary objectives to increase walking and cycling and reduce noise and air pollution. Without these additions “a healthy system’ objective arguably lacks any real traction.

The addition of wellbeing, along with health, in the objective would help to open up the definition of health to encompass a wider understanding of the term, for example to bring in the mental health impacts of the transport system, but this broadening also opens up the objective to other interpretations (for example arguments of economic growth as a fundamental route to well-being).

Is an environmentally sensitive system an objective which should be included in the transport legislation? If so, how should this objective be framed in the legislation?

An ‘environmentally sensitive system’ is a vastly inadequate objective to encapsulate the critical role that the transport system plays in determining the long-term health and well being of all Victorians. As the objective is presently expressed it risks glossing over the central role the transport system can, and should play in ensuring a sustainable future. At the very least, the objective should be to ensure an “environmentally sustainable system”.

The transport system needs to be both environmentally sustainable and drive social shifts towards environmental sustainability more broadly through enabling individuals, households and other systems (e.g. the food system) to reduce their impacts on the environment. Environmental sustainability is the key health and well being challenge of our times. To support population health and minimise the enormous public health crisis that is predicted to result from climate change, the Victorian transport system must aim to be environmentally sustainable.

3. Other questions for consideration

What other objectives should be considered and why?

The existing objectives are broad and far reaching, however consideration should be given to including a specific objective that aims towards a fossil-fuel free transport system. The objective may be framed to around an “active (transport) system” which puts the emphasis onto a people rather than fossil fuel powered system. The objective could be simply worded, for example:

‘to promote the development and use of active transport systems’.

Are some objectives more important than others or are they equal in importance?

Some objectives are clearly more important than others. VicHealth advocates strongly that objectives that can combat the effects of congestion, protect the environment, address climate change and actively enhance the health and wellbeing of the all Victorians must underpin all other objectives.

Objectives such as those that support economic growth, integration, safety and security, efficiency and reliability cannot succeed over the medium to long-term if environmental and health and well being objectives are not met. That is, VicHealth is advocating a reversal in the conventionally accepted transport hierarchy that prioritises individual car related transport over human movement powered transport.

4. General Comments

It may be useful at this preliminary stage of the review to think about what the transport paradigms that underpin the new Act are, how well they will serve Victoria in developing a legislative framework and transport system that will meet future community needs and how they may be embedded into the Act. For example what is the principle aim of the transport system and how is this embodied in the preamble and objectives of the act? David Engwicht contends “the core goal of a transport system is not to move people and goods but rather to facilitate social, cultural and economic exchanges as efficiently as possible”. With a view to the future “sustainably” may usefully be added to this sentence or exchanged for “efficiently” (as it could be argued that efficiency is implicit in sustainability). In this “the goal of the transport system is to facilitate sustainable social, cultural and economic exchange” paradigm the objectives of the Victorian transport system may be to develop a system which has a range of different functions including ‘mobilising’, ‘connecting’, ‘localising’ rather than just ‘transporting’. It may also be about a system which prioritises exchange over movement and therefore reclaims movement space (roads) into exchange space (public space). Or about a system that prioritises the reduction of existing inefficiencies in these exchanges over investment in new infrastructure. A system that maximises exchanges while minimising all costs (including externalities) will arguably best serve the needs of Victorians. Wellbeing may also be added into this view, on the presumption that it underpins all social endeavour. The goal of the transport system may thus be to increase the wellbeing of Victorians through facilitating sustainable social, cultural and economic exchange.

For this legislation to be visionary and help address complex environmental, social and health problems over the longer term, Victorians need to begin to envisage the transport system more broadly than as a physical infrastructure system. The transport system is part of a complex social system, with transport infrastructure and operating systems as drivers or facilitators in the system. Transport and urban planning can be seen as both a reflection and a driver of social change – as the ‘spatial wing of public policy’. It is commendable the review is framing transport system objectives as aspirational social objectives and not as functional transport system objectives. This legislation is a great opportunity to position the transport system as an engine that can drive social change.

However the social objectives of the transport system need further elaboration for the public in supporting documents, for example a summary of the evidence for why a safe, accessible and efficient public transport system is essential in supporting the health, quality of life and independence of the aging population or how active

transport is crucial to reducing population level health risks associated with car dependency (eg obesity).

To effectively drive social change the new Act should adopt a broad definition of transport including walking, cycling, public transport use, and other forms of transport such as running, skating, wheelchair use and scooting as they are all legitimate forms of transport. If active transport is to be a focus of the system review, as VicHealth argue that it should (see above), this also needs to be defined in the Act.

In forming objectives the review also needs to determine exactly how this legislation can work to 'integrate' the transport system. For example, integrating transport legislation is a different challenge to integrating the transport system, which is different again from integrating transport and land use, which is in turn different from a broader objective about social integration (which will include equity, access, sustainability and opportunities for exchange). All of these separate but related challenges (social, systems, agency, infrastructure and legislative integration) may form objectives (or functions) of the Act. This could be reflected hierarchically through the preamble, objectives and functions of the Act as well as articulating legislation. It may also help to have a two tiered system of objectives that reflect this complexity. For example the *Planning and Environment Act 1987* has two sets of objectives:

- (1) The objectives of planning in Victoria are- ...
- (2) The objectives of the planning framework established by this Act are-

It would be useful for the review to conceptualise and address the transport system as holistically as possible. For example there is a need to integrate departmental responsibilities and budgeting in order to ensure balanced decision making and investment across transport modes. In addition the state transport system needs to be viewed in the context of the federal system – the review would benefit from an examination of how state policy intersects with federal policy and how this may result in perverse incentives or produce adverse or unexpected effects. For example federal Fringe Benefit Tax supports car ownership and driving as does federal funding of freeways and roads. The review also needs to take into account how transport integrates with land use for sustainable planning:

“Better whole-of-government coordination of transport and land use planning and policy is also vital to building a world class transport system for Victoria” (DOI 2006).

The position paper needs to outline how the new Act will integrate with or influence planning provisions to improve active and public transport. For example the provision of car parks in urban design is well advanced, while provision for bicycles and walkers is not.

Budget and policy interface

It is also unclear from the discussion paper how the legislative process interacts with the budget and other policy processes to achieve desired outcomes. It would be helpful for the policy paper to outline more fully how the legislative framework could work with interface legislation, the main government policy instruments (ie *Meeting Our Transport Challenges*) and budgeting and program delivery systems to achieve an integrated and sustainable system.

Some examples of how legislative frameworks and policy frameworks work in other systems would be helpful, for example how some of the major policy developments in the UK have been or are currently driven by legislative changes including:

- Road pricing and congestion charging
- Work place car parking space taxation
- The re-regulation of buses to end some of the negative consequences of privatisation (the Transport Bill setting this out is currently before Parliament) (Whitelegg 2007)

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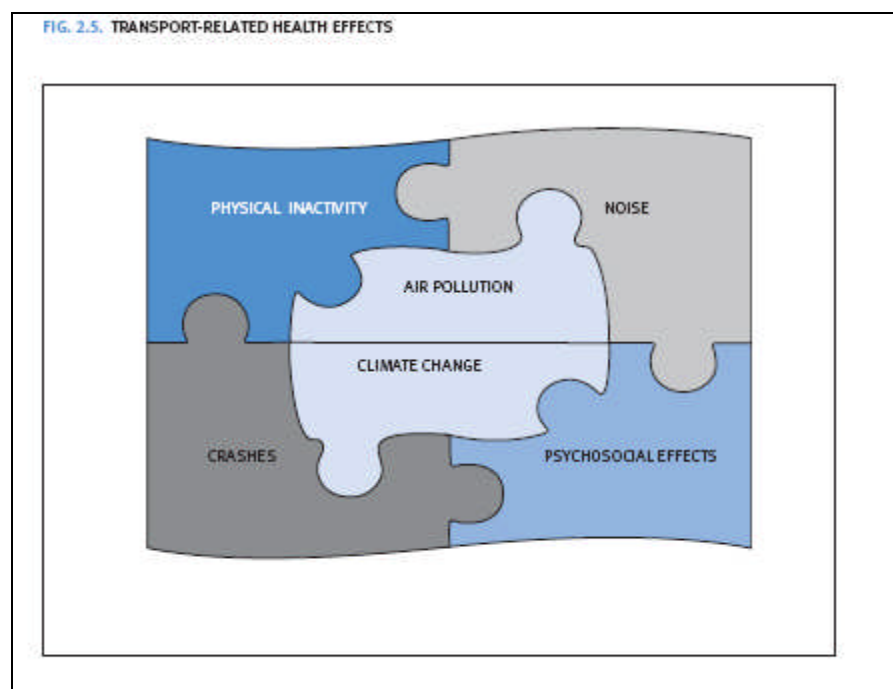
Appendix 1 Transport and Health

A number of reports have outlined links between transport and health and developed recommendations to ensure transport systems have positive impacts on health. In 1997 the British Medical Association outlined links between transport and health in *Road Transport and Health* (BMA, 1997). A seminal work by Wilkinson and Marmot (WHO 1998) positioned transport as one of ten key influences which determine health and longevity. In 1999 the World Health Organisation developed a *Charter on Transport, Environment and Health* (WHO 1999), which set out "... principles, strategies and a plan of action to guide our policies towards achieving transport sustainable for health and the environment". Member State Ministers signed the Charter calling for 'the wellbeing of our communities (to be) put first when preparing and making decisions regarding transport and infrastructure policies'.

Whilst many of the health risks related to transport are experienced by all members of society, there are some groups who experience greater disadvantage or are more significantly affected by transport related issues. The WHO notes that 'the negative health effects of travel fall disproportionately on poorer socioeconomic groups, women, children and older people, which are precisely the groups least likely to benefit from the transport system, which limits their access to services, cheaper foods and other goods' (Dora and Phillips 2000).

The World Health Organisation Regional Office for Europe (WHO EURO) has developed a comprehensive program of research and activity addressing transport, environment and health related issues. Figure 2 highlights the WHO EURO conceptualization of the links between environmental and health effects of transport – a useful starting point for considering the broad range of issues in this area.

Figure 2



Source: WHO 2004 <http://www.euro.who.int/document/E82659.pdf> accessed 14/12/07

Table 1 provides further information on the health effects of transport from a European perspective as detailed in the Transport, Environment and Health (WHO 2000) report.

Table 1 Environmental and Health Effects of Transport¹ - a European perspective

Physical Inactivity	<ul style="list-style-type: none"> • Physical inactivity is now more prevalent than tobacco smoking, and together these risk factors account for the greatest number of death and years of life lost in developed countries • It is estimated that over 96% of citizens can walk, and over 75% can ride a bicycle • Public and non motorized transport offer opportunities for regular physical activity, integrated into daily life at minimal costs, for large segments of the populations • Preliminary analysis in the UK shows that on balance the benefits to life expectancy of choosing to cycle are 20 times the injury risks incurred by that choice • Factors such as the availability of public transport, high housing density and street connectivity have all shown to be associated with higher levels of physical activity
Psychosocial effects / Mental health and wellbeing	<ul style="list-style-type: none"> • Traffic noise has been shown to induce nervousness, depression, sleeplessness and undue irritability • Regular exposure to traffic congestion impairs health, psychological adjustment, work performance and overall satisfaction with life • Congestion constrains movement, which increases blood pressure and frustration tolerance. This phenomenon not only reduces the wellbeing of those experiencing it but can lead to aggressive behaviour and increase likelihood of involvement in a crash • Growth in the use of the car has affected social contact through the so-called community severance effect: the divisive effects of a road on those in the locality • Study showing those living on 'light traffic streets' have three times as many friends and acquaintances amongst their neighbours as those living on 'heavy traffic streets'. • Studies' showing that the space within which children can move freely shrinks significantly as street traffic increase in the immediate environment. • Unsuitable living surroundings considerably hinder children's social and motor development and put heavy strain on parents. Deficient motor skills often have social and psychological consequences, such as difficulties interacting with other children and coping in street traffic. • Lower speeds engineered through traffic calming, evidence suggests some perceived improvements in quality of life or liveability, including improved safety for pedestrians and cyclists, benefits for families with children and greater independent mobility for children, especially for those aged 7-9.

¹ Synthesised from evidence presented in Dora C and Phillips M (Eds) 2000 Transport, Environment and Health, The World Health Organisation

Table 1 (Cont.) Environmental and Health Effects of Transport - a European perspective

Air Pollution	<ul style="list-style-type: none"> • Motor vehicle traffic is the main source of ground level urban concentrations of air pollutants with recognized hazardous properties • Traffic contributes disproportionately to human exposure to air pollutants, as these pollutants are emitted near nose height and in close proximity to people. • Short term increases in respirable particulate matter lead to increased mortality, increased admissions to hospital for respiratory and cardiovascular diseases, increased frequency of respiratory symptoms and use of medication by people with asthma, and reduced lung function • Recurrent cumulative exposure increases morbidity and reduces life expectancy • Particulate matter is associated with higher long term mortality, increases in respiratory diseases and reduced lung function • Traffic related air pollution contributes most to morbidity and mortality from cardiovascular and respiratory diseases, several components of diesel and petrol exhausts are known to cause cancer in animals and there is evidence of an association between exposure to diesel and cancer in human beings. • Levels of CO and benzene inside cars are around 2-5 times higher than at the roadside, and car users are exposed to more pollutants than pedestrians, cyclists or users of public transport sharing the same road. • Children living near roads with heavy vehicle traffic are at a greater risk of respiratory disease. Most studies suggest an increased risk of around 50%. • Even the best designed technological responses to the reduction of emissions for vehicles may not be enough to compensate for traffic volume which is increasing ... controlling growth in traffic, especially in urban areas, will be essential if further traffic-induced harm to health of European populations is to be avoided.
Climate Change	<ul style="list-style-type: none"> • Health effects of climate change induced by air pollution, notably carbon dioxide, include direct effects such as deaths related to heat waves, floods and droughts • Other effects for disturbances to complex physical and ecological processes such as changes in the amount and quality of water and in the patterns of infectious diseases.

Table 1 (Cont.) Environmental and Health Effects of Transport - a European perspective

Noise	<ul style="list-style-type: none"> • Road traffic is the major cause of human exposure to noise, except for people living near airports and railway lines • Ambient sound levels have steadily increased as a result of the growing numbers of road trips and kilometres driven in motor vehicles and higher speeds in motor vehicles • Good evidence shows adverse effects of noise on communication, school performance, sleep and temper as well as cardiovascular effects and hearing impairment. • Adaptation strategies such as tuning out and ignoring noise, and the effort needed to maintain performance have been associated with high blood pressure and elevated levels of stress hormones. • Reducing the overall amount of traffic or at least its growth is almost certainly necessary to control the health effects of noise emissions from traffic, particularly in populated areas located near zones of very heavy traffic <ul style="list-style-type: none"> • There is emerging evidence of an association between hypertension and ischaemic heart diseases and high levels of noise. <ul style="list-style-type: none"> ○ As far as we are aware the health impacts of noise pollution have not been quantified in Victoria. A recent WHO report links noise with a significant amount of heart disease: • <i>Though preliminary, the WHO's findings suggest that long-term exposure to traffic noise may account for 3 per cent of deaths from ischaemic heart disease in Europe - typically heart attacks. (Coghlan, 2007)</i>
Crashes / Road Injuries	<ul style="list-style-type: none"> • The risk of accidents vary depending on the type of road, the traffic mix, the time or day, climactic conditions, and the speed and mass of vehicles involved • Around 65% of road accidents happen in built up areas, 30% outside built up areas and around 4-5% on motorways • Road accidents account for the most significant share of all transport accidents, in terms of number of deaths and of death rates per km travelled • Drivers and occupants of vehicles comprise over 60% of the people killed or injured on the roads • Pedestrians account for around 25-30% of deaths, 13% of injuries, and cyclists 5-6% of deaths and 7-8% of injuries • Roads near houses and schools are high risk areas for children • Parents report fear of accidents as the main reason for escorting children to school • Areas of highest risk for pedestrians and cyclists are minor roads and their intersection with arterial roads • Measures should be taken to ensure that accident risk is no longer a deterrent to cycling and walking by, for example, improving infrastructures and creating conditions for safer cycling.

The WHO EURO model and evidence base provide us with a health rationale for lessening the Victoria's reliance on and use of private motor vehicles and instead increasing levels of walking, cycling and public transport use. Using the WHO EURO framework **Table 2** adds some Victorian context to some of the key transport and health issues, along with some findings from more recent research.

Table 2 Environmental and Health Effects of Transport – an Australian and Victorian perspective

<p>Physical Inactivity</p>	<ul style="list-style-type: none"> • Physical Inactivity is estimated to account for 4.1% of the burden of disease in Victoria (Disability Adjusted Life Years) (PHG, 2005) • Exercise is the single most effective protective factor for coronary heart disease, which remains the most frequent cause of death in Victoria. The burden of disease attributable to physical inactivity exceeds high serum cholesterol and high blood pressure (PHG, 2005). • Physical activity has been termed 'public health's best buy' as it has been shown to reduce rates of death and disease from cardio vascular disease, reduce or defer the development of non-insulin dependent diabetes, maintain bone mass and reduce osteoporosis and promote emotional well being and mental health. • A number of studies, including Australian, have researched the relationship between urban planning, transport systems, transport behaviour and health finding that neighbourhood characterised by urban sprawl and low walkability have higher rates of car use and overweight and obesity (Ewing et al, 2003; Giles-Corti et al. 2003). • Spending time in a car is implicated in obesity, especially commuting to work by car (as against using active and public transport) (Bell et al, 2000; Wen et al 2006; Lindstrom, 2007). American research suggests that each addition kilometre walked per day is associated with a 4% decrease in the likelihood of obesity and each hour spent in a car each day is associated with a 6% increase in the likelihood of obesity (Frank et al. 2004). A 2007 report calculated that European car drivers walk only half the distance and for half the time of adults in non-car owning households; which equates to a deficit of 56 minutes of walking every week; and over a decade could lead to a weight gain of more than 2 stone (Davis, Valsecchi and Fergusson, 2007). • The collective findings of recent research reports is that active transport and active travel has a significant role to play in reducing obesity and cardiac disease (Sustrans, 2007). • Among both Victorian males and females who were physically active, walking was the most prevalent type of physical activity undertaken during the previous week, with 23.9 per cent of females and 25.2 per cent of males indicating that this was their only form of physical activity. A further 57.3 per cent of males and 58.4 per cent of females participated in both walking and some form of vigorous activity. • The proportion of persons reporting no physical activity was greatest in the oldest age groups, with 13.1 per cent of those aged 65 years or over not undertaking any moderate-intensity or vigorous physical activity in the previous week. • Nearly 70% of all children are driven to school, in the 1970's this figure
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	was closer to 20%
Air Pollution	<ul style="list-style-type: none"> • Air pollution is estimated to account for 0.1% of the burden of disease in Victoria (Disability Adjusted Life Years) (PHG, 2005) • Particles smaller than 10 micrometre (PM10) (less than one-tenth the width of human hair) can exacerbate existing respiratory and cardiovascular disease, which can lead to increases in hospitalisations and premature mortality. The national objective for PM10 is a one-day average of 50mg/m³. The goal is to have no more than five days a year (by 2008) where the objective is not met (as measured at each monitoring site). • The major sources of particles in an urban environment are motor vehicles (particularly diesel powered), industry and wood combustion for heating. Breaches of the objective are highly dependent on weather conditions and events such as bushfires. With the exception of 2003, Melbourne has been meeting the national goal for particles as PM10. Drought-related impacts (dust storms and bushfires) during the 2003 summer contributed to the marked increase in particles exceedences.
Crashes / Road Injuries	<ul style="list-style-type: none"> • Transport accidents are estimated to account for 0.9% of the burden of disease in Victoria (PHG, 2005) <p>Unintentional motor vehicle traffic injuries: deaths (VPHS pg 160 – 161)</p> <ul style="list-style-type: none"> • Injuries were responsible for about 9 per cent of the overall disease burden in men in 2001. The burden in females was less than half this. Almost 70 per cent of the injury burden is due to premature mortality. In males the picture is dominated in equal proportions by suicide, road traffic accidents (RTA) and falls, which together account for almost 70 per cent of the male burden attributable to injuries. RTA's are the twelfth leading causes of overall male burden. In females the picture is also dominated by RTAs, suicides and falls which together account for just above 70 per cent of the female burden attributable to injuries. RTA's are the nineteenth leading cause of overall female burden. • In 2001–02, 424 persons died in Victoria due to unintentional motor vehicle traffic (MVT) incidents, an age adjusted death rate of 8.8 per 100,000 persons. • Males accounted for 72 per cent (n=307) of all unintentional MVT deaths in 2001–02. • Two-thirds of persons fatally injured in unintentional MVT incidents in 2001–02 were car occupants (n=278, 66 per cent), 19 per cent were pedestrians (n=81) and the remaining 15 per cent were motorcyclists (n=65). • The frequency of unintentional MVT deaths was relatively stable over the decade 1992–93 to 2001–02, increasing by 2 per cent from an average of 377 deaths per year in the period 1992–95 to 385 per year in 2000–02. • The unintentional MVT death rate was also relatively stable, decreasing by 3 per cent over the decade 1992–93 to 2001–02, from an average

	<p>annual death rate of 8.3 per 100,000 persons in the period 1992–95 to 8 per 100,000 persons in 2000–02.</p> <p>Unintentional motor vehicle traffic injuries: hospital admissions</p> <ul style="list-style-type: none"> • In 2002–03, 4,352 persons were admitted to Victorian hospitals due to unintentional motor vehicle traffic (MVT) injury, an age adjusted admission rate of 89 per 100,000 persons. These figures exclude 2,488 same-day hospitalisations. • Males accounted for 61 per cent (n=2,655) of all unintentional MVT injury hospital admissions in 2002–03. • Almost two-thirds of persons injured in unintentional MVT incidents in 2002–03 were car occupants (n=2,794, 64 per cent), 22 per cent were motorcyclists (n=962) and the remaining 14 per cent were pedestrians (n=596). • The frequency of unintentional MVT injury admissions increased by 9 per cent over the nine-year period 1994–95 to 2002–03, from an average of 4,031 admissions in the period 1994–97 to 4,412 in 2001–03. • There was little change in the unintentional MVT injury admission rate over the nine-year period 1994–95 to 2002–03, increasing by 4 per cent from an average admission rate of 88 admissions per 100,000 persons in the period 1994–97 to 91 per 100,000 persons in 2001–03.
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Source (unless otherwise specified)

- Department of Human Services 2005 Your Health – A Report on the health of Victorians 2005 Victorian Government Department of Human Services, Melbourne Victoria Accessed 14 December at <http://www.health.vic.gov.au/healthstatus/vhiss/index.htm#download>

Possibly the largest burden of transport related disease will be the global morbidity and mortality resulting from climate change and global warming. It is broader than the transport of humans and relates also to the greenhouse gas emissions related to the transportation of freight. Preventing this disease burden will require a substantial reduction in car usage by the developed world, including Australia.

A useful clearinghouse of the latest research reports on links between transport, land use, sustainability, and health can be found on Sustrans website (<http://www.sustrans.org.uk/default.asp?SID=1168340246796>), Sprawl watch website (<http://www.sprawlwatch.org/>) and Sprawl and Health website (http://cascadiascorcard.typepad.com/sprawl_and_health/australia/index.html).

VicHealth would be pleased to provide further data on health and transport to the review on request

ⁱ Dora C and Phillips M (Eds) 2000 Transport, Environment and Health, The World Health Organisation