



**Submission from the Conservation Council of SA
(Conservation SA) to:**

***The SA Legislative Council Select Committee inquiry into Public and Active
Transport***

<https://www.parliament.sa.gov.au/Search/Result?type=committee&id=405>

The Conservation Council SA is an independent, non-profit and strictly non-party political organisation representing around 60 of South Australia's environment and conservation organisations and their 90,000 members.

Our membership contains a wide range of groups interested in this area of policy, including People for Public Transport, Australian Electric Vehicle Association, Walking SA and Bike Adelaide, along with many groups interested in good planning.

Changing Lanes: Transport for a Healthy City

1. Introduction

This issue is one of the most crucial in ensuring our cities are healthy, environmentally sustainable, efficient and economic. The state of South Australia can and should lead the way for the rest of the nation.

Current vehicular (predominantly internal combustion engine [ICE]) transport creates many local serious health impacts which we can resolve locally, as well as one immense international health impact - climate change - which we must help Australia to mitigate as part of international action. It is vital that these fundamental issues of impact on human health and liveability are understood and taken into account in all consideration of transport reform.

Vehicular transport also has impacts on the local environment. Some of these issues are soluble by state and local government policy within the confines of inevitable damage from global heating; a simple example being the maintenance of cooling tree cover in road improvements.

This timely and important inquiry needs to recognise that human health and the environment are indivisible.

Consequently, we make the point that some of the Terms of Reference (TORs) may seem to be individual issues but in fact they are just one issue involving many disciplines and departments and require concerted action across government. The TOR have to be addressed in concert with the independent review of the *Planning, Development and Infrastructure Act 2016* currently underway.

Therefore, we will address the terms of reference collectively commencing with TOR (b) in its entirety but also (a) i to iii

2. Health Impacts

There is conclusive research that long-term exposure to air pollution in Australia leads to 2,500 -3000 premature deaths and illnesses and costs Australians \$6 to 24 billion p.a depending on which costs are included. Health benefits are achievable proportional to the degree of pollution reduction.

The diseases and deaths from air pollution are greatest in regions of Australia with coal fired power stations; these have been abolished in SA and most of our city air pollution is vehicular, except when there are bushfires and prescribed burns.

The diseases caused are serious and costly.

Air pollution is a significant risk factor for many lung diseases including asthma, and for heart diseases and heart attacks, stroke, cancer and diabetes. In children, air pollution is associated with asthma and poor lung development. Air pollution may also play a problem in neuro-developmental disorders in children and neuro-degenerative diseases in adults.

Recent studies from the UK show a likely link between air pollution and a decline in mental ability and dementia in older people. Numerous studies indicate those living near to roads suffer more cognitive decline and dementia than those living more than 300 m away. <https://www.lung.org/clean-air/outdoors/who-is-at-risk/highways> Since dementia is now a leading cause of death and hospital care in Australia, this finding will greatly increase the cost of our toleration of air pollution <https://www.gov.uk/government/publications/air-pollution-cognitive-decline-and-dementia>

A most serious impact of air pollution is on the brain and respiratory-system development of the unborn baby <https://www.the-scientist.com/news-opinion/pregnant-moms-air-pollution-exposure-may-affect-babies-health-66467> The link between premature birth and air pollution has been known for some time, but reports of a dramatic drop in pre-term births during the Covid-19

pandemic have led some researchers to speculate that reduced exposure to air pollution may play a part. Pre-term birth and low birth weight can have lifelong adverse health consequences. Evidence even suggests that exposure to air pollution can cause DNA changes that can then be passed on to future generations. <https://www.croakey.org/fuels-paradise-the-health-impact-of-australias-poor-fuel-quality-standards/>

There is no safe level of air pollution. A study from Canada which already has levels of air pollution well below national and international air quality guidelines shows an increased risk of death from pollution.

<https://www.miragenews.com/even-low-levels-of-air-pollution-contribute-to-819456/>

Particles and Noxious Gases

Traffic-related air pollution particulate matter (PM), includes black carbon, absorbed metals, and polyaromatic hydrocarbons (PAHs) of various size fractions.

The particles are classified according to size. PM_{2.5} is airborne suspended particles smaller than 2.5 micrometres in size and is the air pollutant with the most severe health consequences as it can penetrate deeply into lungs and be absorbed directly into the bloodstream. Our nationally accepted level is nearly double that of the WHO air quality guidelines <https://www.car-cre.org.au/federal-election-priorities-2022>

Larger particles, PM₁₀, are trapped in the lungs and cause chronic obstructive airways diseases. Nitrogen dioxides gases (NO_x) irritate the airways and may be a cause of asthma in children.

Sulphur dioxide causes wheezing, shortness of breath and chest tightness and other problems, especially during exercise or physical activity

<https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/sulfur-dioxide>

Most importantly for SA cities, The interaction of NO_x and particles with heat and sunlight results in the formation of highly reactive ground-level ozone (O₃) This causes a range of symptoms, irritation of the lungs, with coughing, asthma and breathlessness <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>

It is particularly harmful in heatwaves when the human body is already severely distressed and air pollution builds due to the heat island effect in cities (for a readable review see

<https://www.theguardian.com/environment/2022/jul/29/heatwaves-air-pollution-risk>)

Exhaust emissions

Petrol These are released from tail-pipe (exhaust) emissions from petrol engines. These pollutants are nitrogen oxides (NOx), particulate matter, carbon monoxide, sulphur dioxide, volatile organic compounds (VOCs), and some toxic hydrocarbons.

Diesel Around 25% of motor vehicles run on diesel and their exhaust contains higher amounts of fine particulates and NOx than petrol engines. As a result, is classified by the World Health Organisation and the International Agency for Research on Cancer (IARC) as a Class 1 carcinogen with increasing risk of cancer, particularly of the lung. Consequently, diesel vehicles are banned in some major cities in Europe

Idling vehicles Children are most susceptible to vehicle emissions from major roads which often border their schools. Their exposure is increased by drop off zones frequently filled by idling vehicles waiting to drop off or pick up children. Many US States have anti-idling regulations and SA should support public and school education on the issue. Schools not already acting on this should be officially encouraged to support an “Idle Off” campaign
www.idleoff.com.au

Smoky vehicles “Dob in” campaigns are not successful. Registration should involve an exhaust emission check with compulsion for remediable action.

Tyre friction

Unfortunately, reduction of exhaust emissions solves only part of the problem because particulates and toxic chemicals including carcinogens also result from the friction of tyres on the road. Tyres are usually made from synthetic rubber, derived from crude oil and so contain many of the same particulates and noxious chemicals in tail pipe emissions as petrol. Indeed their pollution may be worse
<https://www.theguardian.com/environment/2022/jun/03/car-tyres-produce-more-particle-pollution-than-exhausts-tests-show> Until more appropriate tyre material is developed this problem can be countered only by reduction of the number of vehicles on city roads.

Fuel Quality standards and the need for urgent transition to EVs

Australia is unique in the western world. We have no fuel emissions standards, the lowest uptake of electric vehicles, and boast a fleet of incredibly dirty and inefficient cars.

The basis for our ill health and deaths from air pollution relates to the failure of Federal governments to enact fuel quality standards which are currently worse than those in all European countries and indeed many developing countries.
<https://www.croakey.org/fuels-paradise-the-health-impact-of-australias-poor-fuel-quality-standards/>

In Reviews of the regulations in the Fuel Quality Standards Act, Federal Governments have until now ignored calls from health and environmental experts and organisations to bring Australia's fuel standards into line with best overseas practice in favour of advice from major companies involved in our domestic oil refining sector.

We welcome the new Federal Government's intention to improve standards. However, this historic national malfeasance has increased the urgency for a transition to EVs in SA. We suggest SA adopt a take-up target of 76% by 2030 as recommended in the following report:
https://apo.org.au/node/319035?utm_source=APO+Subscribers&utm_campaign=eb8928a4f0-EMAIL_CAMPAIGN_2022_08_23_11_15&utm_medium=email&utm_term=0_1452ee3b6b-eb8928a4f0-84495236&mc_cid=eb8928a4f0&mc_eid=d06ec00368

3. Environmental impacts

Loss of Tree Canopy

Ongoing expansion of the road and rail network through road widening projects, extensions and intersection upgrades is creating a concerning loss of significant and regulated trees across the metropolitan and regional areas.

A significant driver for this outcome is the exemption of the Department of Infrastructure and Transport from requirements for consultation and planning approval to remove regulated trees from land designated for transport-related projects. This has led to many unnecessary tree removals, as there is no requirement to consider designing around trees, and the community has no opportunity to propose smarter options.

Conservation SA has been working with a range of groups of individuals over the last 3 years to highlight concerns about, and develop policy solutions to reduce tree canopy loss.

For further background, see: <https://www.conservation.sa.gov.au/trees>

Impact of air pollution and pollutants on biodiversity

The health effects of air pollution on humans and their health also impact on biodiversity and ecological services. Humanity has been blind to these impacts which have resulted in an increasing burden of pollution being absorbed and retained within a city and adjacent areas.

Awareness of this problem is dawning on society with studies on pollutants which impact ground soil and water and will do so for generations to come. The debate has come to the fore in the US where PFAS chemicals have been found to widely contaminate the environment and many forms of life including humans in whom they have been shown to cause cancer and other illness see <https://www.niehs.nih.gov/health/topics/agents/pfc/index.cfm>

The appearance of PFAS results from the manufacture of numerous products including those from oil <https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas>

Similarly, the environmental burden of air pollution over Adelaide and other cities is retained in soils and will impact our environment for many decades and perhaps centuries.

Greenhouse emissions

Human endeavours to reduced greenhouse emissions are falling far short of those necessary to keep world's rise in temperature to 1.5 degrees C and currently pledges given last year at COP 26 are not being honoured. It is likely that 1.5C will be exceeded before 2030 and temperature rises of 2-3C degrees are likely this century. Rise in temperature is the main factor causing loss of biodiversity and ecological services. SA is at particular disadvantage because of its geographical situation, water insecurity and a degraded environment. Reduction in emissions is in our own interests and for a serious national contribution to international action.

A review by the Climate Council shows transport to be Australia's third largest source (19%) of greenhouse gas emissions with the highest rate of growth. Cars are responsible for roughly half of Australia's transport emissions. An international scorecard ranked Australia second-worst for transport energy

efficiency. Emissions fell during the early part of the Covid epidemic but have now recommenced their rise. For a readable review of current figures see <https://www.theguardian.com/environment/2022/jun/27/australias-emissions-climbed-in-coalitions-final-year-as-transport-and-fossil-fuels-wiped-out-gains-during-covid>

As South Australia has so rapidly and successfully reduced its stationary energy related greenhouse gas emissions, the transport and mobility sector now produces our state's largest share of emissions, with 25% (2019-20 SA Greenhouse Inventory).

4. Integration with Planning

For too long in South Australia, transport has been poorly integrated with wider planning considerations. Ideally, transport corridors – particularly fixed line public transport - should be created first, with industrial and housing development located around transport nodes as a secondary step.

In SA, the process is completely reversed, with transport options having to be retrofitted only after housing has been established. This is a far more costly outcome with major negative health and environmental impacts.

The rapid expansion in Mt Barker and surrounds, and the range of new housing developments north of Adelaide, including Riverlea (Buckland Park) are case studies in how NOT to plan. They are travesties, setting up communities for poorer liveability outcomes and governments for future costs.

Contrast this with transit orientated development in Perth, championed over the last 3 decades by Prof. Peter Newman:
<https://www.smh.com.au/national/perthlings-please-take-us-to-your-railway-system-20090106-gdt8qp.html>

Australia has significant expertise in better planning, and now is the opportunity to use it by rationalising urban transport system at a time when the advent of EV transport offers a unique opportunity. Many European nations have developed models for liveable cities during the era of increasing petrol car usage. Now we have the opportunity to catch up and we must grasp it.

As one of Australia's leading planning experts writes, the time is opportune because we can end the dependence on cars.
<https://theconversation.com/greening-the-greyfields-how-to-renew-our-suburbs-for-more-liveable-net-zero-cities-187261> which would arrest the many terrible impacts we have described above.

We urge the Committee to consider the international concept of the ‘healthy city’ <https://www.miragenews.com/what-makes-healthy-city-838617/> as described in the medical literature, and bring in national and international experts to help reverse a decade or more of inaction.

We draw attention to transport/planning changes required to mitigate for extreme warming forecast in coming years, which includes prolonged heatwave impact on road and rail systems (eg buckling, melting) and flooding (eg stopping a range of current developments on active flood plains such as the Gawler River).

5. A ‘Sliding Doors’ Moment – the N-S Corridor

By far the largest transport-related project scheduled for South Australia over the next 10 years is the proposed North-South Motorway upgrade.

Current cost estimates are in the order of a staggering \$14 Billion.

If that investment was instead made in a transformative expansion of our public transport, cycling and walking networks, the health, economic, job creation, liveability and sustainability benefits would be significantly higher.

For this project to attract a positive Cost-Benefit Ratio, the weighting for health, climate, liveability, social connection and environmental factors is clearly inadequate.

6. Opportunities for change: Public Transport

Free public transport

Worldwide many cities have adopted free public transport which has major health, climate change and economic advantages. If the Adelaide bus transport is retrieved from the private sector to public ownership and free travel is provided then the advantages are immense. The reduction in health costs to the public purse will more than compensate for the loss in fares.

<https://www.rapidtransition.org/stories/free-public-transport-the-new-global-initiative-clearing-the-air-roads-and-helping-keep-climate-targets-on-track/>

Frequency and Range

The major barrier to a modal shift away from private vehicles to public transport is convenience. Frequency of service and proximity to journey points are both critical factors.

The ongoing issues with the SE freeway (overcrowding, accidents etc) are a direct consequence of inadequate public transport service provision to the rapidly expanding development in and around Mt Barker.

Capital Investment

Newer, quieter, cleaner buses, trams and trains are more attractive to customers. Full electrification of our train and bus network is essential.

Trackless Trams – which produce many of the benefits of fixed-line transport for much less cost and far less infrastructure should be considered:

<https://theconversation.com/why-trackless-trams-are-ready-to-replace-light-rail-103690>

7. Opportunities for change: Active Transport

Unsupportive and non-contiguous infrastructure

Participation in cycling (both for commuting and recreation), walking and other forms of active transport (eg e-scooters) is highly dependent on the provision of suitable, safe and appropriate infrastructure and paths.

Despite enormous natural advantages (topography, climate and layout) Adelaide's cycling and walking network is, in many cases, disjointed and grossly underfunded. Suitable infrastructure is virtually non-existent outside Adelaide.

Discrepancy in funding with road transport

Commuters make choices about their travel behaviour by assessing the various options and deciding which one works best for their lifestyle. Encouraging modal shift requires the balance between different options to shift.

At the moment, the overwhelming share of transport spending is focused on roads. This continues to artificially advantage car travel, and disadvantage alternatives.

Motorist behaviour

Many cyclists continue to report feeling unsafe whilst using our road network. Part of this is inadequate path infrastructure, but the behaviour of motorists is also a factor with dangerous over-taking, lack of safe distance and targeted harassment frequently reported.

8. Recommendations

We support the specific infrastructure and policy recommendations made in the submissions of the Transport Action Network, Bike Adelaide and Walking SA. In addition, at a broader policy level, we recommend the following:

- a. State Government to engage the South Australian community in the co-production of an integrated transport and land use plan that provides genuine transport choice for metropolitan and regional communities.
- b. Embrace of the 'Healthy City' concept, and use the holistic principles to underpin investment choices in transport and land use planning
- c. Ensure appropriate, future focused consideration of climate change, public and active transport is included in Reviews of the Planning, Development and Infrastructure Act 2016, Planning & Design Code and 30 Year Plan for Greater Adelaide
- d. Scrap the Torrens to Darlington phase of the North-South corridor and re-direct the \$10-14Billion spend towards upgrading South Australia's public and active transport systems
- e. Require peer-reviewed, publicly shared Cost-Benefit ratios and analysis that give appropriate weighting to social, climate and environmental factors to be used for all transport projects above \$10m
- f. Significantly increase the share of transport infrastructure funding directed to public transport, cycling and walking
- g. Minimise the enormous negative health and environmental impacts of ICE vehicle transport by rapidly increasing fuel efficiency standards, lower default residential speed limits, restricting diesel transport within urban confines and converting the train and bus fleet to electric.
- h. Support the rapid electrification of the public and private transport fleets

We would appreciate the opportunity to present to the Committee directly to expand on the issues we raise in this submission.

Yours truly
Prof. David Shearman
Craig Wilkins
26 August 2022