

WEST GATE TUNNEL PROJECT

Submission on the Environment Effects Statement

Public Transport Users Association
July 2017

Introduction

The Public Transport Users Association (PTUA) advocates for a comprehensive, efficient, environmentally friendly and socially inclusive public transport network throughout Melbourne and Victoria. The PTUA advocates planning policies that support public and active transport, and the increased use of environmentally friendly rail for freight transport.

This submission has been prepared by the PTUA in response to the *West Gate Tunnel Environment Effects Statement* released in May 2017 (Western Distributor Authority 2017).

Decision Making Context

The *Transport Integration Act 2010* ('the Act') provides a common framework for all decisions affecting the transport system in Victoria. Among the transport system objectives set out in the Act is §10(c): "*promoting forms of transport and the use of forms of energy and transport technologies which have the least impact on the natural environment and reduce the overall contribution of transport-related greenhouse gas emissions.*"

Supporting the objectives of the Act are a set of decision making principles which emphasise inter-agency coordination; the use of 'triple bottom line' assessment for economic, social and environmental objectives; achievement of interpersonal and intergenerational equity; promotion of transport user perspectives; the precautionary principle; participation of the community in decisions; and timeliness and transparency.

The West Gate Tunnel (WGT) project is a 'market-led proposal' by Transurban, the operator of Melbourne's CityLink tollroad. It emerged in response to a quite different proposal, the West Gate Distributor (WGD) included in the 2013 policy paper *Project 10,000* by the then Victorian Labor Opposition (Victoria Leader of the Opposition 2013).¹ Although the WGT and WGD are alleged to have quite similar objectives, they in fact differ markedly in both scale and practical function. PTUA submits that the process of forming solutions to an acknowledged problem (that of big trucks in inner-western residential streets) has been usurped by an overambitious scheme that, despite all promises, fails to address the original problem while creating myriad new ones.

It is PTUA's specific contention that the WGT proposal runs contrary to key objectives set out in the Act, and specifically §10(c). Indeed, the WGT is unlikely even to meet the public-interest objectives claimed for it in the EES itself. As will be detailed further below:

¹ To avoid confusion, we note that EES Technical Report A references, on page 182, an independent project called the 'West Gate Distributor'. This refers to an upgrade of Shepherd Bridge and associated arterial roads in Footscray, which was part of the scope of the original WGD proposal but is not considered part of the WGT project. The associated West Gate Freeway ramps connecting to Hyde Street have, however, been incorporated into the WGT scope.

- The WGT does not promote network ‘resilience’ in the sense usually meant by calls for an “alternative to the West Gate Bridge”. It is more honestly viewed as creating a parallel road route that will soon enough fill with its own traffic and thus be unavailable to deal with contingencies involving the West Gate Bridge. (The direct analogy is with Sydney’s Harbour Tunnel, which does not in any practical sense function to ease difficulties when the Harbour Bridge is wholly or partly closed.)
- The WGT is unlikely to ease freight movement in Melbourne, due to the induced traffic likely to be created. While it includes the key measure to address the Francis Street truck problem by providing a direct link between the West Gate Freeway and Hyde Street, this could be readily separated from other elements of the project as the original WGD scope. Moreover, by dedicating substantial funds to further road capacity for private cars, the WGT is a barrier to additional expenditure on provision of rail freight infrastructure that is severely lacking for the Port of Melbourne.
- The WGT (excluding the elements that were part of the original WGD scope) does not promote increased amenity in the west; on the contrary, it is forecast to increase traffic volumes and congestion on arterial roads throughout the Maribyrnong, Hobsons Bay, Wyndham and Brimbank municipalities, as well as on the M1 corridor itself. Harmful pollution can be anticipated to increase with overall traffic volumes, and scarce open space such as in Donald McLean Reserve would be sacrificed.

The one ‘objective’ likely to be met in practice is that of boosting capacity for vastly increased travel by private car between Melbourne’s west and the city centre. This objective is not stated explicitly, but is implied both by reference to the ‘inadequate’ capacity on the M1 corridor and by appealing to a likely future mismatch between population and jobs in the western suburbs compared with inner Melbourne.

This objective, however, runs counter both to long-standing strategic frameworks for transport policy and to §10(c) of the Act. Since at least 1982, Victoria’s planning principles have acknowledged the ‘natural advantage’ of public transport in conveying people to and from central Melbourne, and that there is little point providing additional road capacity to undermine this advantage given the inner area’s limited capacity to absorb car traffic. In practice, subsequent city-access motorway projects such as CityLink were able to evade this provision by claiming—in the face of both forecasts and subsequent experience—to be primarily ‘bypass’ routes. To PTUA’s knowledge, the WGT is the first urban motorway proposal in decades whose stated rationale is as a commuter road for radial travel to the CBD, and consequently in direct competition with public transport in its ‘core market’.

Mission Creep

Compared to the original WGD proposal, the WGT contemplates a massive expansion of the M1 corridor between the Western Ring Road and central Melbourne. The project adds four lanes to the West Gate Freeway between the Ring Road and the Bridge, widens the freeway west of the Ring Road, and builds a new six-lane part-tunnel, part-elevated motorway between the West Gate Freeway and exit points in Docklands at CityLink, Wurundjeri Way and Footscray Road. Widening of Wurundjeri Way in its entirety from four lanes to six is also included in the project.

The location of these eastern exits makes plain that the intent of this project is to provide additional road capacity feeding directly into the northern end of Melbourne CBD. By widening Wurundjeri Way over its entire length, additional capacity is also provided for road access to the CBD via CityLink, from both north and south. The travel facilitated by this largest component of the project is specifically to and from central Melbourne, whether by way of the WGT corridor itself or via CityLink and Wurundjeri Way. It should not escape notice that all the city access routes in question will be tolled routes generating revenue for project proponent Transurban.

This positioning of the WGT as primarily a city access road—an echo of the LA-style commuter freeways of the 1960s—belies its original advertised justification as a ‘freight’ project. There is no strategic justification for sending freight traffic via the CBD. Accordingly, leaving aside the original WGD components to the project, the only ‘freight’ benefit that can be claimed for the remainder is a secondary benefit from passenger traffic being diverted to the new WGT route from the West Gate Bridge.

This secondary benefit, if it exists at all, is bound to be short lived. The existence of ‘induced demand’ (new traffic brought into being by an expansion of road capacity) is now well attested. Its most celebrated early official acknowledgement was by the UK Government, whose Standing Advisory Committee on Trunk Road Assessment concluded in 1994 that *“increases in traffic on improved roads are, in general, not offset by equivalent reductions in traffic on unimproved alternative routes”* (HM Department of Transport 1994).

This conclusion has only been reinforced by subsequent evidence, whether from the UK, Australia or elsewhere. In Victoria, a 2011 audit review of major road projects (Victorian Auditor-General 2011) found that project assessors had failed to heed the lessons from the UK and elsewhere, and to account for the new traffic generated by projects such as the Hallam Bypass, Pakenham Bypass or Peninsula Link. The audit report found road planners *“did not adequately assess the traffic induced by these improvements, communicate the risks, or estimate the impact of the economic benefits. These shortcomings create a risk of over-estimating the benefits and giving decision-makers false confidence.... Unlike road authorities in the UK and New Zealand, VicRoads does not have adequate guidelines for forecasting traffic in congested areas.”*

Unfortunately, as discussed below, the EES still forecasts a travel time benefit from the WGT on the M1 corridor because the modelling tools relied on do not account correctly for induced traffic. The real effect of the WGT (as partly indicated already in the traffic forecasts on p.254 of Technical Report A) will be an explosion of private car traffic to and from the CBD that could be accommodated more efficiently, safely and with less environmental impact through improvements in public and active transport. Not only does this run directly

counter to §10(c) of the Act: as the City of Melbourne has submitted, it stands in contradiction to three decades of planning objectives and principles for the economic and cultural heart of Melbourne.

Sustainable Freight Solutions

The futility of trying to speed up freight by building a central-city commuter road brings up another general point concerning measures to assist freight movement. In Melbourne as elsewhere, road freight vehicles share the same road space as passenger cars, and it is the latter that makes up the vast majority of traffic.

According to the Vicroads Traffic Monitor (Vicroads 2014), the daily traffic volume on Shepherd Bridge—to take one key route for Port related freight—splits as 81% passenger vehicles and 19% heavy commercial vehicles (HCVs, defined as rigid or articulated trucks). On other major road routes in the area the share of passenger vehicles is greater still: it is 89% on the West Gate Bridge and 88% on the Western Ring Road, for example. The average for all major roads in Melbourne is 93% passenger vehicles and 7% HCVs.

One inference that may be drawn from these figures is that if between just one-tenth and one-fifth of present-day motorists were to shift to public or active transport, the daily volume of HCVs could double without affecting overall traffic volumes. This would actually be a far superior outcome for road freight, compared to building road capacity that encourages further growth in passenger vehicle traffic. Indeed, the latter is likely to be a greater hindrance to freight movement than doing nothing.

At the same time, from the point of view of effects on the public, moving freight by road is costlier, more polluting and less safe than moving it by rail where the option exists. That is why most ports in North America, Europe and Asia, and indeed elsewhere in Australia, make substantial use of rail to move goods between the port and landside collection and distribution facilities closer to clients and customers. The Port of Sydney, for example, has recently invested in the intermodal freight terminal at Moorebank, which allows a much larger share of direct port freight to travel by rail.

In Melbourne there has long been a plan, fully funded at State and Federal level, to establish multimodal 'inland ports' at locations including Laverton North and Somerton, with a 'Port Rail Shuttle' moving goods efficiently between these locations and the Port of Melbourne. Likely benefits include reduced numbers of HCV movements in the inner west with consequent reductions in trauma and pollution; better environmental performance; and operational cost savings.

The WGT directly undermines the business case for the Port Rail Shuttle, and does so while flooding central Melbourne with more private car traffic and almost certainly increasing delays to road freight. Once again, this appears contrary to the public interest and to the objectives of the Act.

Air Quality

The WGT project is expected to result in increases of up to 56% (relative to baseline) in air pollutants such as benzene, toluene, particulate matter and oxides of nitrogen (Technical Report G, pp.142–143). While it is suggested that these pollutants would generally remain within allowable levels, the implication that these levels are safe is not supported by evidence (AMA 2013; Barnett 2014). This project would further increase pollution levels that already cannot be considered ‘safe’, with negative impacts on human health.

Pollutant	Known health effects	Increase in pollutant concentration (2031)
Particulate matter (PM ₁₀ and PM _{2.5})	Upper respiratory tract irritation and infection; exacerbation of asthma; decreased lung function; exacerbation of, and increased mortality from, cardiorespiratory diseases; myocardial infarction; premature mortality; atherosclerosis; adverse birth and neurodevelopment outcomes	7%
Ozone (O ₃)	Decreased lung and pulmonary function; upper respiratory tract infection (especially in children); exacerbation of chronic respiratory conditions, including asthma, emphysema and chronic bronchitis; increased airway reactivity	Not given, however emissions of ozone precursors (NO _x , CO, VOCs) increase.
Oxides of nitrogen (NO _x)	Upper respiratory tract infection (especially in children); exacerbation of chronic respiratory conditions, including asthma; eye irritation; reduced immunity to lung infection;	17% (NO ₂)
Carbon monoxide	Reduction of oxygen-carrying capacity of the blood, resulting in headache, nausea, dizziness, breathlessness, fatigue, visual disturbance; angina, coma; death; low birth weight (after maternal exposure during pregnancy)	42%
Air toxics (hydrocarbons, aldehydes, volatile organic compounds, asbestos)	Increase in the incidence of cancer; reproductive and developmental effects; eye irritation; genetic damage; central nervous system defects; immunodeficiency; and disorders of the respiratory and nervous systems.	22% (formaldehyde) 57% (toluene)

Table 1: Some pollutants likely to increase as a result of building the WGT. (Source:AMA 2013, Western Distributor Authority 2017—Technical Report G)

A superior alternative, from the point of view of air quality and public health, would be shifting journeys from private motor vehicles to public and active transport—modes which produce little local air pollution—along with mode shift of freight onto rail to reduce heavy

commercial vehicle (HCV) movements. Where the current EES forecasts localised improvements in air quality, due to reduced HCV movements on local roads such as Francis Street, further beneficial improvements could alternatively be obtained through more targeted freight solutions as proposed below, along the lines of the original WGD project.

Ill-Judged Cycling Provision

An attempt has been made to boost the environmental credentials of the WGT project by inclusion of an elevated bike path or ‘veloway’. However, the proposed veloway places its users—who will often have elevated respiratory rates due to physical exertion—in amongst the highest concentrations of air pollutants resulting from the road project’s traffic. As the following pair of diagrams suggests, concentrations of road traffic emissions are at their highest in the very zone where the project proposes to direct bike path users.

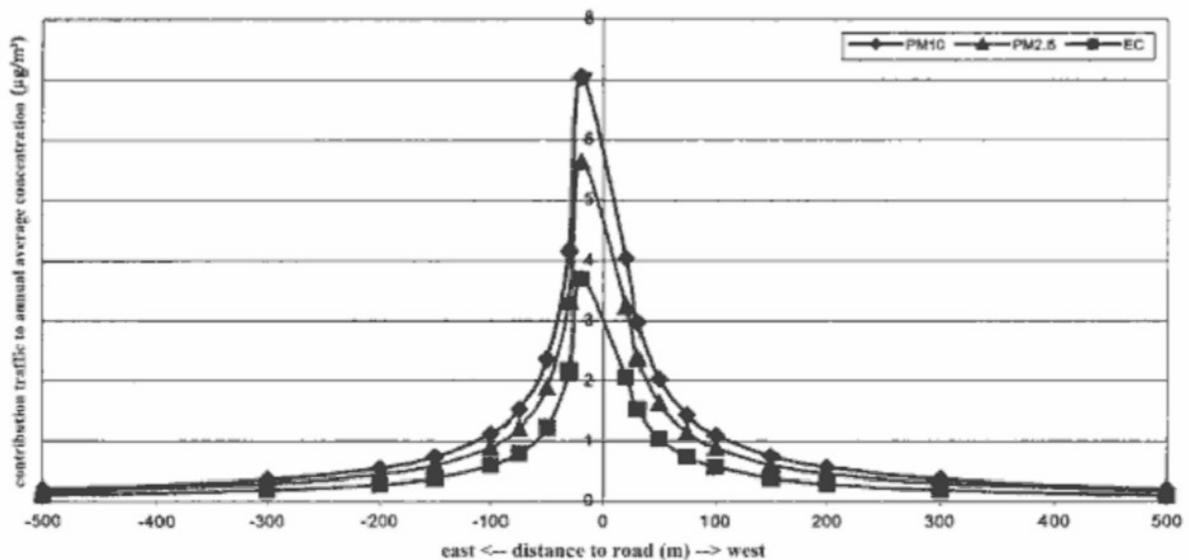


Figure 1: Contribution of road-traffic-related emission as a function of the distance to the road. (Source: Janssen et al 2002)

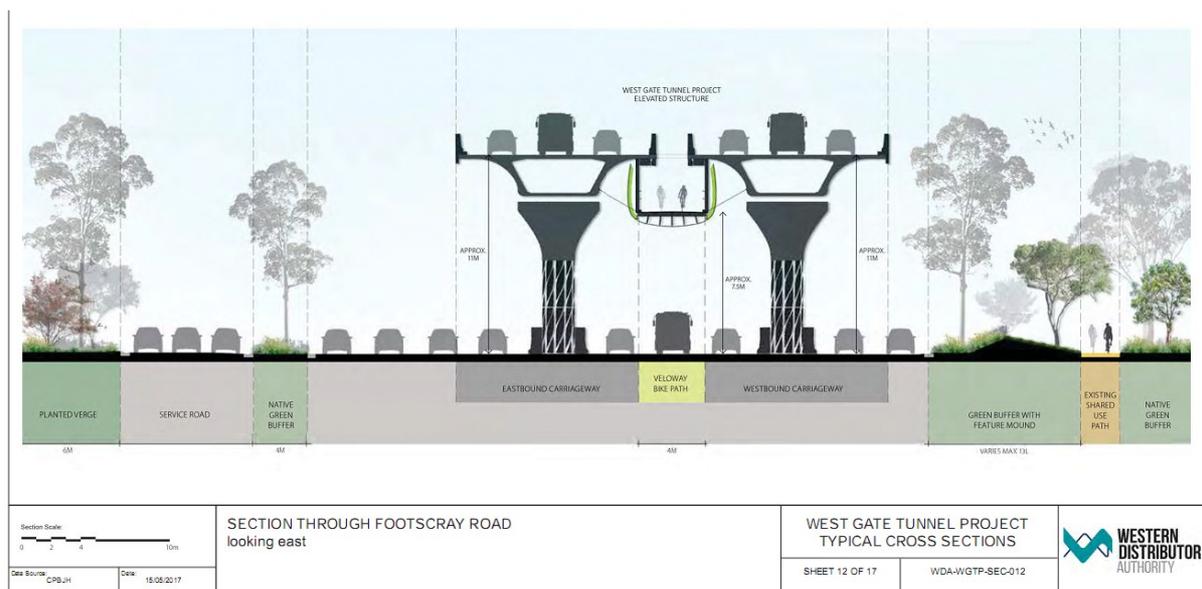


Figure 2: Position of WGTG ‘veloway’ relative to traffic lanes. (Source: Western Distributor Authority 2017—Map Series E)

It has already been noted that these pollution concentrations cannot be considered 'safe'. Current State government practice, which tends to deliver significant new cycling infrastructure only as an adjunct to major new road projects, inevitably places people in pollution hotspots. Were such infrastructure developed on a stand-alone basis, alignments would likely be chosen that would be more conducive to public health. The bike path proposed for this project is severely compromised from a public health perspective, and in PTUA's view (informed by members of the western suburbs cycling community) functions as little more than greenwash for a destructive road project.

Flawed Modelling

The EES relies for many of its assessment criteria on modelling of the effects of the WGT on travel times and congestion on the M1 corridor and other road routes in the general area.

It is important to understand that this modelling, undertaken by GHD and reported in Technical Report A, compares the performance of the WGT not with current conditions on the road network, but with hypothetical conditions in a 'no build' scenario constructed for 2031. This is standard practice in transport assessment, but it means that travel time 'savings' reported are not those that motorists today can look forward to, but are actually relative to the hypothetical 2031 'no build' condition. The modelled travel times may still be, and frequently are, slower than under present-day conditions.

The modelling undertaken by GHD uses a conventional 'four step' procedure, which has been a de facto standard since the first such models were constructed by American consultants for highway studies in the 1950s. These four-step models reflect the assumptions that guided highway studies at the time: chiefly that the building of new roads would redistribute travel according to the opportunities presented by overall higher speeds, but that the actual number and purpose of journeys, as well as land use patterns, would remain a fixed function of extraneous factors like population and employment rates.

The limitations of these four-step models are now well documented. They were summarised by PTUA in our October 2016 submission on Victoria's *Draft Infrastructure Strategy*, and have been echoed in the submission to this EES by University of Melbourne researcher Nathan Pittman (Pittman 2017). Chief among these limitations is that four-step models do not account adequately for induced demand—the real-world effect whereby new roads create their own traffic, which rapidly restores congested conditions on existing roads supposed to be 'relieved' by the new road. The effect was unknown when the four-step approach was formulated, was until recently assumed not to exist, and has only been incorporated in a limited sense since.

The most critical errors or biases produced by limitations in four-step models are of two main types. The most obvious is *undershooting*—where worsening congestion due to a road project's induced traffic is simply not forecast. Thus in a 2009 study, RMIT researcher John Odgers found that the overall traffic delay in Melbourne in 2005—five years after the opening of CityLink—was already exceeding by 1.8% the figure nominated in a 1996 economic assessment for the 'no build' scenario in 2011. A forecast travel time saving over the 'no build' scenario had in reality become, as Odgers described it, a 1.8% "dis-saving" (Odgers 2009).

The second type of error involves *overshooting*, or what Pittman calls *pessimism bias*. Pittman cites a 2015 study by Morton Nicolaisen and Petter Næss that in 70% of studied cases when a road project is *not* built, observed traffic volumes fall short of those forecast in the 'no build' scenarios (Nicolaisen and Næss 2015). The likely explanation is the tendency to what the 1994 UK Royal Commission on Environmental Pollution called 'predict and provide' thinking: extrapolate present-day trends to 'predict' vast increases in travel demand, then 'provide' new roads to cater for it. In a world where induced demand exists, trend growth that is at least partially induced by an ongoing programme of road construction will always overestimate future demand in a scenario where fewer roads are built.

Another related type of overshooting has occurred not uncommonly when forecasting demand for tollroads in Australian capital cities. For many projects built this century where tolls were levied, such as the Cross City Tunnel in Sydney, the Clem7 motorway in Brisbane or the EastLink motorway in Melbourne, observed traffic volumes have generally fallen well short of forecasts. Just as four-step models have difficulty accounting for induced demand, the presence of tolls also poses a forecasting challenge. Of course, as existing alternative routes usually remain untolled, the 1994 SACTRA conclusion still holds regardless. Whether the traffic on the new road exceeds, falls short or matches forecasts, any congestion 'savings' forecast for existing roads are generally not seen beyond an initial 'ramp up' period.

There are important conclusions here for the modelling relied on for the WGT project. First, it is likely that forecast results in the 'no build' scenario are pessimistic, and do not in fact reflect probable traffic levels in 2031 if the WGT is not built. Second, forecast results for the 'project' scenario are likely optimistic, and fail to account for induced demand effects that may in fact push traffic levels well above even those in the 'no build' scenario.

Finally on the question of models, PTUA agrees with the observation of Pittman, that the underlying calculations in most transport assessment models are not open to public scrutiny, and nor are independent peer reviews of these models accessible or auditable. We would further note that this practice appears to conflict with the principle of transparency set out in §21 of the Act, that "*members of the public should have access to reliable and relevant information in appropriate forms to facilitate a good understanding of transport issues and the process by which decisions in relation to the transport system are made.*" While there are doubtless barriers to opening the 'black boxes' in currently available transport models, it is to be hoped that through the efforts of Infrastructure Victoria, or another suitable agency, genuine 'open source' tools and processes for project assessment may be developed.

Alternatives Ignored

The estimated capital cost of the WGT project is \$5.5 billion, with at least \$1.5 billion contributed directly by the Victorian government and the remainder ultimately by the people of Victoria through a 10 to 12 year extension of CityLink's tolling concession.

Public expenditure of this magnitude must always be assessed in light of possible alternative measures that may achieve similar objectives. The description and assessment of 'project alternatives' as part of an EES has long formed a part of the *Ministerial guidelines for assessment of environmental effects* under the *Environment Effects Act 1978*. Unfortunately, this is not generally taken to include alternatives to the project proposal itself, with assessment carried out only against a 'no project' scenario (Department of Sustainability and

Environment 2006). This, the PTUA submits, is a too-shallow approach to the assessment of major city-shaping transport proposals, and arguably the transparency principle in §21 of the Act calls for a process with more rigour.

(Nor, *inter alia*, can the planning process rely on project proponents themselves to engage in unbiased consideration of alternative proposals. WGT proponent Transurban is a private company whose business interests are in tollroad operations, and has not shown signs of developing an interest in operating public transport services.)

PTUA has set out a list of alternative measures which are likely in our view to achieve similar objectives to those claimed for the WGT, and with a greater chance of success. These include:

- Building the Port Rail Shuttle and developing the inland ports, as already planned and (notionally) funded, to get freight on environmentally friendly rail where viable to do so, and cut toxic diesel pollution in the inner west.
- Running trains every 10 minutes on all lines through the western suburbs, all day every day. In many cases this can be done without infrastructure upgrades and using existing rolling stock. The main new work required is partial duplication of the Altona Loop, but this should not delay improvements on other lines.
- Bringing forward rail electrification to Caroline Springs and Melton, to be done alongside duplication now proceeding.
- Building the short connecting track from Werribee to Wyndham Vale planned as part of the original Regional Rail Link scope, to re-establish a connection between Geelong and Werribee train services.
- Identifying and rolling out a new network of Smartbus services running every 10 minutes during the day, 7 days a week. This would include the current 903 service, the 'blue orbital' from St Kilda to Footscray incorporating existing routes 504 and 246, and also the 'missing' portion of route 902 between Airport West and Werribee.
- Extending tram route 57 from West Maribyrnong to Milleara Mall via Avondale Heights, providing interchange with the 903 Smartbus.
- Developing targeted road network solutions in consultation with the community to get large trucks off residential streets. This may include some version of the original, more targeted WGD proposal (but not so as to degrade the Stony Creek or Don McLean Reserves) and/or establishing HCV priority lanes on some of the half-dozen existing river crossings in the west. Once these measures are in place, articulated trucks would be appropriately restricted to a declared network of motorways and non-residential arterial roads, as is standard in many other cities around the world.
- Ensuring all road widening projects in growth areas include provision of full time bus lanes, and a commitment to provision of bus service every 10 minutes along the road in question.

- Fully funding the implementation of the Principal Bicycle Network in the western suburbs. This would include attractive and well-designed routes at surface level with full separation from motor traffic, as distinct from the 'veloway' proposed in the current WGT scope, which would be a poorly accessible and virtually inescapable tube surrounded by cars and trucks.

An effective subset of the above measures, at least, would be affordable for the equivalent of the \$1.5 billion proposed cash contribution to the WGT. Importantly, the measures listed would largely avoid the substantial environmental effects identified for the WGT, including impact on parkland and open space, the bulk of construction impacts, and ongoing increase in pollution and greenhouse emissions from additional motor vehicle traffic.

These measures are also likely to yield substantial benefits in comparison with the WGT. It has been pointed out in other submissions that very substantial increases in demand for public transport in Melbourne's west are forecast in both the 'no build' and 'project' scenarios. Even if these model forecasts include a large overshoot error, their magnitude is such as to warrant greater priority for increased public transport provision.

It may also be pointed out that in raw numbers, the maximum capacity of the six-lane freeway component of the WGT is some 5,000 vehicles per hour per direction (or 5,500 passengers at typical peak hour vehicle occupancy). The same passenger carrying capacity could be provided with a 20% increase in current train services through Footscray station (which already carry more people in peak hour than travel over the West Gate Bridge). The Melbourne Metro tunnel when built will increase system capacity by between 19,000 and 36,000 passengers per hour.

If as a result of these or other measures, the 'level of service' on public transport improves, the resulting mode shift could be of benefit to both motorists and freight operators. This potential benefit evaporates, however, if there is an incentive to make more car trips. The danger of the WGT is that it creates such incentives at the expense of enormous environmental impacts, and unravels decades' worth of careful planning in the process.

References

Australian Medical Association (2013). *Submission to the Senate Standing Committee on Community Affairs Inquiry into the impacts on health of air quality in Australia*. Access Jul 2017 via https://ama.com.au/sites/default/files/documents/AMA_submission_inquiry_into_health_impacts_of_air_quality.pdf

Barnett, AG (2014). "It's safe to say there is no safe level of air pollution." *Australian and New Zealand Journal of Public Health*, vol. 38 no. 5, pp. 407–408.

Department of Sustainability and Environment (2006). *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978*. Seventh edition.

HM Department of Transport (1994). *Trunk Roads and the Generation of Traffic*. Report of the Standing Advisory Committee on Trunk Road Assessment (SACTRA). HM Stationery Office.

Janssen, NAH, Brunefreef, G, Hoek, G & Keuken, P (2002). *Traffic-Related Air Pollution and Health*. Technical Report, Utrecht University Institute for Risk Assessment Sciences, Environmental and Occupational Health Division / TNO Milieu, Energie en Procesinnovatie, Utrecht / Apeldoorn.

Nicolaisen, MS & Næss, P (2015). “Roads to nowhere: The accuracy of travel demand forecasts for do-nothing alternatives.” *Transport Policy*, vol. 37.

Odgers, J (2009). *Have all the travel time savings on Melbourne’s road network been achieved?* Technical Report, RMIT University.

Pittman, N (2017). *Response to the West Gate Tunnel Transport Impact Assessment transportation modelling report in the West Gate Tunnel Environment Effects Statement*. Technical Report, University of Melbourne.

Vicroads (2014). *Traffic Monitor 2012–13*. Access via <https://www.vicroads.vic.gov.au/traffic-and-road-use/road-network-and-performance/road-use-and-performance>

Victoria Leader of the Opposition (2013). *Victorian Labor’s Project 10,000: Trains, Roads, Jobs*.

Victorian Auditor-General (2011). *Management of Major Road Projects*. Victorian Parliament, PP No 38, Session 2010–11.

Victorian Statutes. *Transport Integration Act 2010*. Authorised version incorporating amendments as at 1 August 2015.

Western Distributor Authority (2017). *West Gate Tunnel Project: Environment Effects Statement*. Summary and detailed reports, plus Technical Reports A through Q, Attachments I through V and Map Series A through F.