



**Healthy
Cities**
Illawarra



Wollongong to become a pilot city for connected Safe and Active Routes to School

A Financial Summary

Estimated costs: \$9.5 million

Estimated benefits: \$104.5 million (NPV, discount rate 3.5%, 20 year horizon)

Estimated Cost Benefit Ratio¹: 11:1

B Summary of Proposal

A safe and connected active transport (walking & cycling) network is the key to increasing walking and cycling participation as active travel connectivity is only as good as the worst link.

Our proposal consists of 3 key elements:

Within the Wollongong LGA:

-area-wide 30km/h limits on most local roads (\$1.4 million)

-crossings and footpaths on all arterial roads within 2km of schools (\$4.6 million)

-Social Marketing Intervention (\$3.5 million)

In Wollongong around two-thirds of students get to school each week by motorised traffic.² The school trip as a targeted focus to decrease the number of motorised trips seems

¹ Chapman R, Keall M, Howden-Chapman P, Grams M, Witten K, Randal E, Woodward A. A Cost Benefit Analysis of an Active Travel Intervention with Health and Carbon Emission Reduction Benefits. Int J Environ Res Public Health. 2018 May 11; <https://pubmed.ncbi.nlm.nih.gov/29751618/>

² <https://our.wollongong.nsw.gov.au/wollongong-cycling-strategy-2030>, page 20

promising - most children live in walking distance of their school and have an appetite to walk or cycle. The habits formed in primary school are carried throughout life.

A key element of our proposal is the introduction of lower speed limits which will have the additional effect of significantly reducing the number of crashes, serious injuries and fatalities in Wollongong.

C Alignment within the NSW Outcome Budgeting Framework

Outcome	Measure	Expected Outcome	Reference	Applicable State Outcomes
Road Safety	Number of crashes/injuries	Saving of 7% of Wollongong crash costs	https://30please.org/wp-content/uploads/2021/02/ACRS-Safe-Street-Neighbourhoods-2019-Update-vs2.1-WA-NSW.pdf	Safer communities
Increase in active travel overall	Mode share active transport/number of active trips	Net increase in active trips of 17% if a similar increase per \$ invested like in NZ trial cities is achieved	https://www.victoriawalks.org.au/Assets/Files/Safe%20Speed%20Report%20Dec%20202008.pdf	Active and inclusive communities
Health benefits of leading an active life	Minutes of active travel per day per resident	\$103m over 20y of health benefits if similar increase per \$ spent like in NZ trial cities can be achieved	https://freewheeler.com/wp-content/uploads/2014/03/Cost-benefit-analysis-of-active-travel-intervention-2018.pdf	Keeping people healthy through prevention and health promotion
Lower Carbon footprint	Transport Emissions	656 tonnes savings in Co2 emissions if similar uptake in active transport per \$ spent like in NZ trial cities	https://freewheeler.com/wp-content/uploads/2014/03/Cost-benefit-analysis-of-active-travel-intervention-2018.pdf	Sustainable transport systems and solutions supporting economic activity
Increase in active travel to school	Mode share active travel to school	For every km walked, children are 4.8% less likely to be obese	https://pubmed.ncbi.nlm.nih.gov/15261894/	Children and families thrive

Outcome	Measure	Expected Outcome	Reference	Applicable State Outcomes
Community Strengthening	Percentage of people taking part in activities on street	12% increase of people that interact with their neighbours	https://grattan.edu.au/wp-content/uploads/2014/04/137_report_social_cities_web.pdf	Create a strong and liveable NSW
Less congestion	Journey times in peak times	Slight decrease in travel times during school drop off times. Northern Illawarra residents would benefit most from walkability to beaches, schools and shops	https://www.illawarramercury.com.au/story/6028887/mps-demand-report-be-released-into-traffic-congestion-on-lawrence-hargrave-drive/	Sustainable transport systems and solutions supporting economic activity
Less pollution	Air & noise pollution	Compared to 50 km/h, 30 km/h reduces traffic noise by 1-4 decibels. Reduced air pollution depending on decrease of # of motorised trips	https://30please.org/wp-content/uploads/2021/02/140325-LK-Argus-TUNE-ULR-AP2-Summary-1.pdf	Connecting communities to resilient and sustainable energy and local environments
Tourism	Number of cycling tourist with positive, safe experience when riding in Wollongong	UCI championship will attract cycling tourism; simultaneously investing in a safer cycling environment can prevent unsafe outcomes and reputational damage	https://www.sport.nsw.gov.au/media-releases/wollongong-becomes-only-uci-bike-city	Stronger and cohesive regional communities and economies
Improved Community Safety	Street Crime Incidents	Higher walkability is associated with a decrease of street crime	https://grattan.edu.au/wp-content/uploads/2014/04/137_report_social_cities_web.pdf	Safer communities

Why would Wollongong be an interesting pilot city for the state:

1. Wollongong became UCI cycling city and will host UCI championship 2022

2. Regional city with a population of 200,000, high number of killed vulnerable road users in 2020³, a congestion problem in the Northern suburbs makes it an interesting city to test new strategies
3. A city with a high proportion of students has a high latent demand for cycling for transport
4. High number of children attend state schools with a catchment of 2km. Not enough children walking to school due to lack of safe routes
5. Lower speed limits as one of the best value for money measures that can address safety concerns for people walking and cycling. Wollongong has a group of community advocates to support government messaging on importance of lower speed and sharing streets.

The need for a pilot programme for safe route to schools is documented in the Wollongong Cycling & Pedestrian Strategy:

Wollongong Cycling Strategy Draft 2030 (published in 2020)⁴

“SAFE ROUTES TO SCHOOL AND EDUCATION Two-thirds of students are driven or drive to school each week, the reasons behind this are varied, with many parents seeing roads around schools as unsafe due to the number of vehicles, distance and lack of continuous routes with safe crossings making riding or walking inconvenient and for many unsafe. With 84 schools across Wollongong, and several higher education providers,

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Reporting Year 2019 Wollongong LGA	Fatalities	Serious Injuries
Pedestrians	0	18 (2 in 40km/h, 10 in 50km/h, 5 in 60km/h & 1 in 80km/h zone)
Cyclists	1 (60km/h zone)	17 (2 in 40km/h, 6 in 50km/h, 5 in 60km/h, 3 in 80km/h & 1 in 100 km/h)

Complete dataset for 2019

Reporting Year 2020 Wollongong LGA	Fatalities	Serious Injuries
Pedestrians	5 (4 in 50km/h, 1 in 60km/h zone)	7 (1 in 40km/h, 5 in 50km/h, 1 in 60km/h zone)
Cyclists	1 (80km/h zone)	4 (2 in 50km/h & 2 in 60km/h zone)

Q1 & Q2 are 100% finalised, Q3 is 91% & Q4 is 21% finalised for 2020

⁴ https://wollongong.nsw.gov.au/__data/assets/pdf_file/0022/120586/Wollongong-Cycling-Strategy-2030.pdf

providing safe cycling access to all these locations in a timely manner is a task that Council is unable to deliver alone given our ability to fund the number of projects required.”

Wollongong Pedestrian Strategy (2017-2021) (published 2017)⁵

“There are 66 primary schools and 19 secondary schools in the Wollongong local government area. It is considered that a student will generally walk up to 800 m from school to home and so provision of paths and crossings within this walking catchment is important with respect to walking levels. Given the sheer number of schools in the city as well as the often unfavourable local topography, it is unlikely to be feasible to deliver paths across the complete walking catchments of every school in the LGA in the short or even medium term timeframe.”

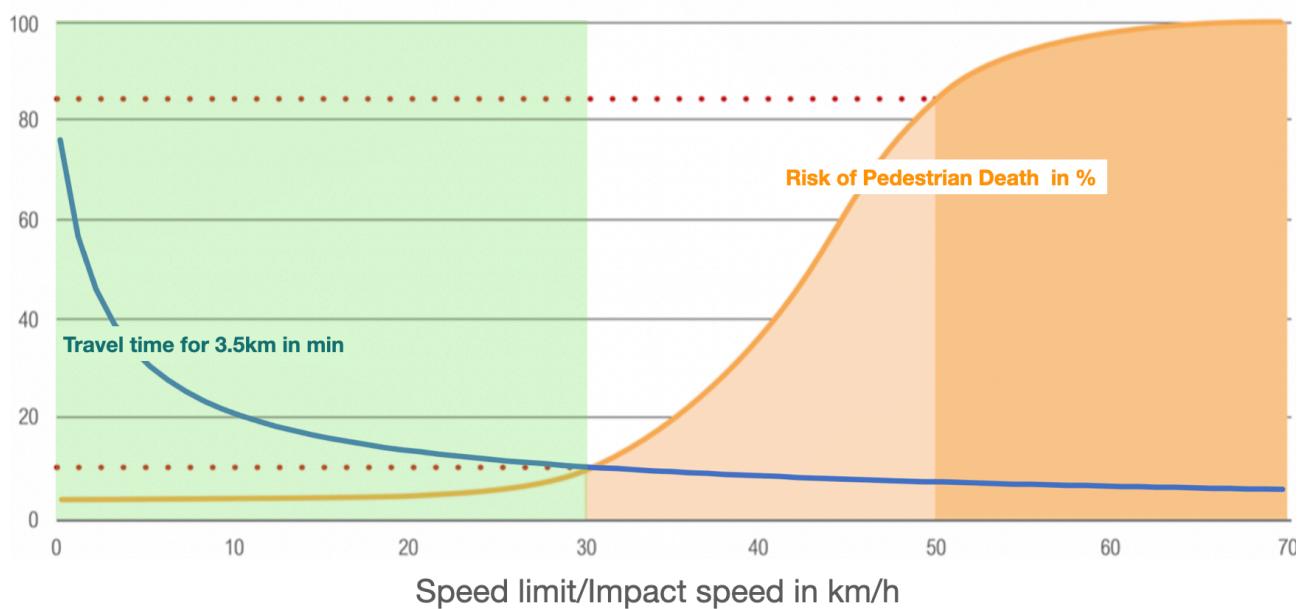
⁵ https://www.wollongong.nsw.gov.au/__data/assets/pdf_file/0026/9944/City-of-Wollongong-Pedestrian-Plan-2017-2021.pdf

D Details of the Proposal

Our proposal consists of 3 Key elements:

1. area-wide 30km/h limits on most local roads

Determining optimal speed limits in built-up areas



Source: Cities Safer by Design (2015), <https://www.wri.org/publication/cities-safer-design> & <https://www.adac.de/-/media/pdf/vek/fachinformationen/urbane-mobilitaet-und-laendlicher-verkehr/tempo30pro-contra-adac-bro.pdf>

According to the NSW Centre of Road Safety, In a crash between a car and a pedestrian, there is a 10 per cent risk that a pedestrian will be killed at 30 km/h, 40 per cent risk at 40 km/h, and a 90 per cent risk at 50 km/h.⁶

Global Ministers and the UN mandated 30km/h speed limits wherever cyclists or pedestrians mix with motor vehicles with exceptions only where strong evidence exists that higher speeds are safe. Given the lack of footpaths and cycle lanes for the majority of Wollongong's network, the norm for local streets should be a speed limit of 30km/h.

Perhaps counter-intuitively, a significant reduction in speed limits is predicted to have only a minor impact on average travel times.⁷ A successful shift to active travel can on the opposite lead to shorter journey times in peak times.

⁶ <https://roadsafety.transport.nsw.gov.au/speeding/>

⁷ https://grattan.edu.au/wp-content/uploads/2014/04/137_report_social_cities_web.pdf pg. 38

The effects on area wide 30km/h limit on road safety, air quality and active travel participation has been measured in various studies. In 2019 the Welsh Government decided that 20mph (30km/h) should be the default speed limit for residential areas.⁸ They have published studies on the effectiveness of sign-only 30km/h zones. One reason for this interest is the ability to address a far larger area through speed limits only than through traffic calmed zones as implementation is considerably cheaper.⁹

In Munich 80% of streets have 30km/h limits without separated bike lanes as mixed traffic is considered safer in a low speed environment in Germany. The Pareto principle (80/20 rule) can explain why it is widely accepted by drivers to share these streets as they don't spend much time on the "slower" roads. In Munich the mode share for walking is 24% respectively 18% for cycling.¹⁰

Changing speed limits in residential streets to 30 km/h can be met with considerable opposition from the community. When such limits were introduced in 1992 across the entire city of Graz, Austria, the majority of residents were not in support of them (Heinrich, 2013): "When the discussion around speed reduction started in 1992, the approval for lower speeds was around 44%, but by 1995 this had nearly doubled to 82%".

In Graz, public support for the lower speed limits rapidly grew to a level where even the majority of motorists were supportive— $\frac{2}{3}$ of car drivers were supportive of the lower speed limits in 1994, compared with $\frac{1}{3}$ in 1992 when the limits were introduced.

In terms of road safety, Graz project resulted in a 12% reduction of accidents with injury, 24% reduction in serious injury, 17% reduction in pedestrian injury and a 14% reduction in injury to car users. Despite only a 4% reduction in cyclist injuries, 83% of cyclists strongly supported the reduced speed limit.

According to the UK's 20mp/h is plenty for us campaign the cost for sign-only 20mp/h speed limit is equivalent to \$1969 per km.¹¹

Wollongong has approximately 897km of roads¹², 80% of street should be 30km/h which would cost \$1.41 million.

⁸ <https://gov.wales/20mph-task-force-group-report>

⁹ <https://gov.wales/sites/default/files/publications/2019-08/the-state-of-the-evidence-on-20mph-speed-limits-with-regards-to-road-safety-active-travel-and-air-pollution-impacts-august-2018.pdf>

¹⁰ <https://www.muenchen.de/rathaus/Stadtverwaltung/Referat-fuer-Stadtplanung-und-Bauordnung/Verkehrsplanung/Verkehrsmodell-VisMuc.html>

¹¹https://www.20splenty.org/20mph_limits_vs_isolated_20mph_zones

¹² <https://our.wollongong.nsw.gov.au/draft-city-of-wollongong-pedestrian-plan>

The new 30km/h signage should be delivered in conjunction with supporting messaging/tagline informed by the social marketing intervention (details see below).

2. Crossings and footpaths on all arterial roads within 2km of schools

We estimate that approximately \$55,000 per school is needed to provide additional crossings/upgrade of crossings on arterial roads and modal filters to support low traffic neighbourhoods. Working with the schools to determine where the money is best spent might lead to higher community engagement.

A study by researchers at Royal Holloway, University of London reveals that primary school children cannot accurately judge the speed of vehicles travelling faster than 20 mph (30km/h).¹³ This is why pedestrians islands in the LGA are a suboptimal solution to encourage active travel to school and need to be replaced by pedestrians priority crossings.

The estimated costs are \$4.6 million

3. Social marketing Intervention

Social marketing is a framework or process that has been successfully used to elicit behaviour and attitude change at a group or community level and, we suggest, should be used as the basis of the proposed intervention. Social marketing is commonly defined as a program-planning process that applies concepts and techniques of commercial marketing to promote voluntary behaviour change (Kotler & Lee 2008). However, it utilises a range of theories, principles and models, predominantly from commercial marketing, but also from such diverse areas as psychology, sociology, communications theory, behaviour change theory and anthropology. A social marketing approach will be adopted in this project because:

We need to sell a behaviour: Many road safety campaigns use fear based messaging and punitive measures. Whilst these have their place, and some success, long term behaviour changes requires the very attitudes and perceptions that surround them to be changed, and importantly, for the target audience to resonate/identify as the target.

The behaviour change is voluntary: The nature of these behaviours is such that the decision to engage, or not engage, in the behaviour is entirely voluntary. There can be incentives (i.e: social norms), and disincentives (i.e: speeding fines), however, long term behaviour change requires voluntary decision making.

¹³ <https://www.sciencedaily.com/releases/2010/11/101123101539.htm>

The beneficiary is the individual, group, or society: In the case of active transport and lower speed limits, the beneficiaries of an individual's behaviour change include the individuals themselves (engaging in walking and cycling to improve mental and physical health), their families and social groups, and the population as a whole (by reducing causes of injury, traffic congestion and carbon emissions).

We engage in an exchange with the consumer: In order to persuade individuals to engage in voluntary behaviour change we need to persuade consumers that the benefits of engaging in these behaviours exceed the perceived costs.

We need consumer orientation: As with any social marketing program, the application of a consumer orientation is fundamental to the success of the behaviour change effort. In order to develop appropriate communication strategies, we need to fully understand the target audiences' knowledge, beliefs, attitudes, concerns and current behaviours.

We need to incorporate all 4 Ps of the marketing mix: An effective strategy to engage the population in the appropriate responses to increasing active travel and *complying* with decreased speed limits requires a careful consideration of the 4Ps. In brief:

- Product – What we are “selling” - a set of behaviours that individuals can engage in to reduce their health risks attributable to physical inactivity, reduce the risk of injury due to car accidents and reduce the traffic congestion.
- Price – In order to persuade people to engage in these behaviours, we will need to reduce the perceived costs of engaging in them (slower journeys, unsafe routes) and increase the perceived benefits (faster journeys, better air quality, community connection, physical and mental health).
- Place – We suggest a range of channels to disseminate information and facilitate the behaviour change (for example, street signs, posters, billboards, TV, radio, through schools, churches, sporting clubs and other key community places); and
- Promotion – Given the nature of the target audiences, there is a need to develop messages that are sufficiently innovative and appealing to capture their attention.

It is likely that the benefits of the infrastructure improvements will be higher when a behaviour change program is implemented to support the uptake of walking and cycling as found in a 2012 study from the UK which examined the potential advantages of such approach when that country decreased from 30 to 20mph (Toy et al 2014).¹⁴

Costs:

¹⁴ <https://www.sciencedirect.com/science/article/abs/pii/S2214140514000383>

We are assuming a cost of \$5.37 per resident for the community engagement campaign with social marketing with regards to lower speed limits.¹⁵

We are assuming \$12.08 per resident on the active travel behaviour shift. This is equivalent to the spend to the education/promoting spending in the NZ trial cities on two active transport intervention cities (more details on the study in section E).

The total cost for social marketing are estimated to be \$3.48 million.

E Summary for the Cost Benefit Assumptions¹⁶

To estimate the economic benefit of the investment, we have referenced a study from New Zealand that compares active travel behaviour in two interventions cities with two control cities and estimates a benefit/cost ratio of 11:1 for an active travel intervention programme.¹⁷

In New Zealand per head \$83 equivalent was spent per resident on the intervention, of which \$12 was allocated to social marketing, \$71 on infrastructure.

Our budget proposal is for a spend of only \$47.6 per resident in Wollongong. We are assuming the same estimated benefit/cost ratio of 11:1 but we would hope for an even higher benefit/cost ratio given our approach:

The main difference in cost that we are suggesting a lower focus on improvement of physical infrastructure and a higher focus on area wide lower speed limits, community engagement and a social marketing campaign in a “Share the street and drive slowly” campaign.

We are hopeful that our approach delivers good outcomes given the international evidence and research and the good experience with regards to compliance that was made in NSW when speed limit in urban areas were reduced from 60km/h to 50km/h without changes to the infrastructure.

¹⁵ https://www.20splenty.org/20mph_vfm

¹⁶ Disclaimer for the cost and benefit analysis:

We used a best effort approach to estimate the costs and benefits of such an intervention programme and looked at cost estimates from other countries like New Zealand and the UK. However, a more in depth analysis of costs within the Australian context would be needed to rigorously assess expected costs (and benefits).

¹⁷ Chapman R, Keall M, Howden-Chapman P, Grams M, Witten K, Randal E, Woodward A. A Cost Benefit Analysis of an Active Travel Intervention with Health and Carbon Emission Reduction Benefits. Int J Environ Res Public Health. 2018 May 11; <https://pubmed.ncbi.nlm.nih.gov/29751618/>

It would be our hope that the uptake in active transport will be higher per \$ spent than we are basing our estimate on given the cost-effectiveness of 30km/h area wide speed limits. The annual estimated crash saving costs alone for our city would make 30km/h speed limits a value for money measure purely from a road safety perspective.

F Alignment with the Council's Action Points

Our budget submission is aligned with the Wollongong Cycling Strategy's action points (page 21)¹⁸:

1.7 Collaborate with the State Government to fund and deliver the safe routes to school program. Improving the ability of students to safely ride to and from education facilities, including primary, secondary and tertiary education providers.

1.8 Advocate for the State Government to review national and international best practice to improve cyclist safety, participation and public perception. Including updating of design standards, implementation of safer road speeds and permitting cycling on all footpaths for all age groups unless signposted otherwise.

1.9 Advocate for increased investment of the State and Australian governments in local road safety, public transport and active transport programs and support/facilitate the delivery of these projects

¹⁸ <https://our.wollongong.nsw.gov.au/wollongong-cycling-strategy-2030>

G Extended proposal (Bike City Trial)

In addition to the measures above, a higher uptake of cycling (in particular to work) should be achieved if a significant investments in cycle paths on arterial roads is made.

Our organisations believe that for our road network the focus should not be on mega road projects but on how to get people to move as efficient and actively as possible and leave the road for economic generators. How have freight supply chains be operating more efficiently with fewer people and what is the new paradigm to empower move of that.

In our region, we observe that the focus is a mega road projects. A new road may provide motorists with some level of respite from congestion in the short term, but almost all of the benefit from the road can be lost due to increased demand in the longer term.¹⁹

Congestion in the northern suburbs is a daily topic within our community.²⁰ A focus on making active transport a safe and convenient alternative for shorter trips is a more logical and value for money solution (in particular when taking into account the high health benefits) than trying to solve the problem by providing more roads for cars.

The benefits of such investment can be measured with the same indicators outlined above, however a higher increase of active travel participation can be estimated and it is highly likely that the benefits of a bike network far outweigh costs.²¹

¹⁹<https://citymonitor.ai/transport/does-building-more-roads-create-more-traffic-934?fbclid=IwAR2bqTweICakONRZOmUh5Oasx7mUa6roGh7sbrOjNxO6jzdkJUK8gqV8jvI>

²⁰ <https://www.illawarramercury.com.au/story/6028887/mps-demand-report-be-released-into-traffic-congestion-on-lawrence-hargrave-drive/>

²¹ http://cdn.sydneycycleways.net/wp-content/uploads/2014/12/AECOM_ReportApril2010-web.pdf

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