40 AREA

Project Overview

40km/h on local streets



PREPARED FOR Perth Inner City Group



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1 Executive Summary

Project Purpose

We want to reduce the speed limit on all of our local streets to 40km/h, creating a safer driving, walking and riding environment for everyone and making our neighbourhoods safer.

Evidence Based Approach

International research demonstrates that the human body can withstand only a certain amount of force (energy) before a person is seriously injured or killed.

While the size or overall mass of a vehicle plays a role in the outcome of a crash, it is the vehicle's speed (velocity) which is the primary determinant in the severity of injury and harm.

Research shows a 20% reduction in speed results in a 200% increase in the likelihood of surviving a collision, as shown in the below graphic. This illustrates that a person walking or riding a bike or e-scooter will have a 60% chance of surviving the crash with a vehicle travelling at 40km/h compared to only a 20% chance of surviving the crash with a vehicle travelling at 50km/h.



Reducing the speed limit to 40km/h on our local streets is a harm minimisation approach which follows the success seen in many cities across the world, including in Scandinavia, the United Kingdom and Australia.

The key benefits of slower speeds can result in:

- A reduction in the number of road crashes
- A reduction in the severity of road crashes
- Streets become safer for all road users including people walking and riding
- Local government can better direct resources for road safety infrastructure
- Slower neighbourhoods support more connected communities
- A reduction in greenhouse gas emissions
- Only a minor impact on average travel times

Pedestrian priority user hierarchy



The geographical area this will cover is demonstrated within the following graphic. **CITY OF VINCENT** Completed ⊘ TOWN OF CAMBRIDGE TY OF JBIACO CITY OF PERTH TOWN OF VICTORIA PARK CITY OF SOUTH PERTH Satelite visual sourced from Google Maps



Introduction

Road safety is a challenge shared by many communities and governments across the world.

As cities become bigger and busier, the speed of traffic is well known to have a significant impact on liveability and place, especially within our inner-city residential streets.



Our local streets are where people live, work, play and connect. All other roads in our inner-city are for transit and vehicle movement, and can accommodate speeds over 40km/h.





Project aim for the Perth Inner City Group

Speed limits are currently set by State Government based on how people are using roads and streets. It is only where there is inappropriate use (like speeding) or, a high number of crashes, where agencies may respond with engineering treatments to the street and, in some instances, reduce the speed limit.

The aim of this project is to flip the current paradigm, by:

- 1. Setting speed limits first, to make clear this is the maximum speed we expect drivers to travel at and to behave when driving on our streets.
- 2. Followed by ongoing monitoring program and budgeting for physical interventions where streets do not see an acceptable drop in operating speed.

We aim to deliver a harm minimisation approach, to be carefully monitored and evaluated in close consultation with State Government agencies and our communities.



Background

The default speed limit in built-up areas in Australia was progressively lowered from 60 km/h to 50km/h during the late 1990s and early 2000s. This change was to improve road safety particularly for pedestrians and cyclists. Since 2000, Australia's population has increased by nearly 8 million people from 19 million to 27 million and the number of registered vehicles has increased by 9 million from 12 million vehicles to 21 million vehicles. Nearly all this growth has occurred in major cities with increased traffic and vehicle related accidents.



Our project scope is based on:

- Creating a slower inner-city precinct: • The geographical area in scope for the change to 40km/h is shown above. This is comprised of five local governments (in addition to the City of Vincent) and a total of approximately 62km². This area has been identified based on what is needed to be meaningful for community and road users for change, and to best support engagement and education on a mass scale.
- Making our neighbourhoods safer: The scope of 40km/h relates to on local access roads only (residential streets), with main roads or distributor roads being considered by Main Roads WA only by exception.

Key evidence



The role of speed in road safety

The evidence behind this project is based on kinetics and the laws of physics.

This is expressed within the equation



Where:

- *Ek* = Kinetic energy (Joules)
- m = Mass (kg)
- v = Velocity (m/s)

While the size or overall mass of a vehicle plays a role in the outcome of a crash, it is the vehicle's speed (velocity) which is the primary determinant in the severity of injury and harm.

Research shows a 20% reduction in speed results in a 200% increase in the likelihood of surviving a collision, as shown below. This illustrates that a person walking or riding a bike or e-scooter will have a 60% chance of surviving the crash with a vehicle travelling at 40km/h compared to only a 20% chance of surviving the crash with a vehicle travelling at 50km/h.

Below: Infographic showing the role of speed in road safety





The Stockholm Declaration

In 2020, the Stockholm Declaration was updated through the United Nations to call for default 30km/h speed limits on all urban streets, and the prioritisation of Safe System design to enable walking and riding of bikes.

These changes focus on speed management, including the strengthening of law enforcement to prevent speeding and mandating a maximum road travel speed of 30 km/h in areas where vulnerable road users and vehicles mix in a frequent and planned manner. This notes that efforts to incrementally reduce speed in general will have a beneficial impact on air quality and climate change as well as being vital to reduce road traffic deaths and injuries.

Bloomberg Initiative for Global Road Safety (BIGRS)

The World Health Organisation delivered the BIGRS in 2020, due to evidence that devastatingly, road traffic fatalities remain the leading cause of death for young people aged 5–29.

Through BIGRS there is continued collaboration across governments to influence road safety, and implement projects that calm traffic and create safer walking environments.



The difference between local streets and main roads

Local streets (residential streets) serve primarily a start or end of trip function, allowing people to travel to or from individual places within a suburb. On local streets, the movement of vehicles is no more important than the needs of other transport modes and activities that occur within a local street.

This means that a fair and equitable approach to road safety should ensure anyone can use any mode of transport within a safe environment.

Overall, our local streets are where people live, work, play and connect. All other roads in our inner-city are for transit and vehicle movement, and can accommodate higher speeds over 40km/h.



State and Local Government responsibility

Local governments are responsible for infrastructure on local streets as well as some roads within their locality. This includes infrastructure for pathways, kerbs, signage and the road surface itself. Many local governments also choose to be proactive in encouraging and supporting road safety within their communities.

State Government are responsible for all other roads and highways, and regulate road safety across the state.



Main Roads WA are the lead agency for setting speed limits, and determine the number and placement of speed signs on all streets and roads.

State Government have prepared the Road Safety Strategy for WA, 'Driving Change (2020-2030)'. This high-level strategic approach notes that safer speeds through revised speed limits and/or greater driver compliance to speed limits, while often sensitive, remain the most powerful, quickest-acting options available to us that can be progressed in partnership with local governments and local communities.

While State Government have provided the strategic direction to road safety for the state and own operation of the state road network, local government still have the responsibility to operate approximately 85% of the road network.





Movement, Place and Speed

Traditionally, the focus for people movement has been centred around 'Journey to Work' or 'Commuting 'purposes as this is the key movement during the peak morning and afternoon periods of travel.

While this still holds true, increasingly, there is a need to consider more than just Journey to Work, with more 'everyday' journeys to school, local shops, parks, social centres also needing to be understood and planned for within a safe transport system. Making communities and local streets easier and safer to move around is a key focus for local governments where all elements of the street should be considered (such as street trees, footpaths, crossings) and speed.

As noted within Main Roads WA Speed Zoning Guidelines, each roadway provides a movement function within the road network. Movement describes the use of the roadway for travel (including traffic, freight, public transport, pedestrian and cycling movements). Generally, the higher the road hierarchy classification, the greater the movement value of the roadway. Every road is surrounded by various land uses, from residential or commercial activity, to pastoral or remote. The degree to which a roadway forms an integral part of the place it travels through can indicate its Place value. Place values describe the significance of the destination value of the roadway and adjacent land uses.

Operationally, the Movement and Place Framework can be used for identifying appropriate Target Speed(s). The Movement and Place Framework can also be used to assess the factors that may influence a driver's perception of risk which in turn may influence driver behaviour and naturalistic Operational Speed.

The key rationale for the proposed speed limit changes is to be proactive in managing the role of safe speed on our local roads.

Appendix A

FAQs

Why reduce speed limits?

The key rationale for the proposed speed limit changes is to be proactive in managing the role of safe speed on our local streets.

Q?

What is being proposed?

The Perth Inner City 40km/h Speed Zones Project proposes to create a slower inner-city neighbourhood precinct across five local governments (in addition to the City of Vincent) and a total of approximately 62km2.

The geographical area includes local streets within the City of Perth, South Perth, Subiaco, the Town of Victoria Park, and a portion of the Town of Cambridge. These areas have been identified based on what is needed to be meaningful for community and road users for change, and to best support engagement and education on a mass scale.

The scope of 40km/h relates to on local roads only (residential streets), with main roads or distributor roads being considered by Main Roads WA only by exception.

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Why Local Streets? Why 40km/h?

Local streets are where people live, children play and local residents carry out everyday tasks, like walking the dog, going for a run, walking to and from school or the local shops. As such, making these places as safe as possible for people to live and enjoy by reducing traffic speed is a key.

The current speed limit on local streets is 50km/h (the default built up area speed). Reducing this to a posted 40km/h speed limit will reduce traffic speed and, should a crash occur between a car and a person walking or riding, the person walking or riding will have a better chance of surviving the crash and not being seriously injured.

A 20% reduction in speed limits results in a 200% increase in the likelihood of surviving a collision. Q?

Why not 30km/h?

O 30km/h is widely considered as the key threshold speed and the aim to reduce the likelihood of people walking or riding being killed in the event of a crash with a vehicle.

However, it is considered that adopting 40km/h for all local streets is a crucial step forward for Perth and will work toward reducing people killed and seriously injured on our roads and streets.

For more information on Speed Management, the science behind safer travel speeds, and studies showcasing the benefits of safer speeds, please refer to the <u>*City of Vincent Safe Speed Trial*</u> <u>*Evaluation Report.*</u>

Q?

Will it impact travel times?

A Research notes that local speed limits typically have a negligible effect on travel times, particularly because small variations in trip time associated with travel on local streets at the start and end of journeys are not perceptible or significant when considered in the frame of whole trips (Haworth et al. 2001).

The two case studies referenced in the City of Vincent report (The Padbury Experiment and the Australian College of Road Safety Journal article on Safer Speeds), notes that opposition to the introduction of lower speed limits in local neighbourhood streets impacting travel times is not justified, with minimal travel time reductions when travelling at a safer speed.

Further, travel time analysis undertaken in the 40km/h trial area further demonstrates this (presented within the City of Vincent report), with only seconds difference between travelling at the existing default 50km/h and traveling at safer speeds of 30km/h and 40km/h.

Q?

What are the benefits?

A Throughout the world, there is great concern that road traffic crashes kill more than 1.35 million people every year, with over 90% of these casualties occurring in low- and middle-income countries and that these collisions are the leading cause of death for children and young adults aged 5–29 years, and that the projected up to 500 million road traffic deaths and injuries worldwide between 2020 and 2030 constitute a preventable epidemic and crisis that to avoid will require more significant political commitment, leadership and greater action at all levels in the next decade.

Evidence from international research for safer speeds indicate that reductions in vehicle speeds on local streets may also result in reductions of traffic noise and can promote walking and riding, which have clear flow-on health, wellbeing, social, and economic benefits (Box and Bayliss 2012; James et al. 2014). The impacts of noise and air pollution resulting from traffic also reach minimal levels at a speed of 40 km/h (Elvik 2009b, p. 37).

Overall, the key benefits of slower speeds can result in:

A reduction in the number of road crashes	A reduction in the severity of road crashes	Streets become safer for all road users including people walking and riding	Local government can better direct resources for road safety infrastructure	Slower neighbourhoods support more connected communities	A reduction in greenhouse gas emissions	Only a minor impact on average travel times
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Q?

Is there an existing speeding and road safety issue on our local streets?

The City of Perth, the City of South Perth and Town of Victoria Park provided geo located traffic speed data. This has been mapped to the local street network. This indicates that within the local street network a large proportion of streets already experience 85th percentile speeds at or below 48km/h, indicating that reducing the posted speed to 40km/h would see a reduction to operating traffic speeds over the longer term.

There are also a number of streets (mainly within the City of South Perth and Town of Victoria Park) that experience speeds above 52km/h. These streets will also see a reduction in the 85th percentile speed following the implementation of area-wide 40km/h speed zoning. However, the reduction in speeds may not be to 40km/h. But as noted, any reduction in speed is a road safety benefit to all road users.

There have been 1,052 casualty crashes within the inner-city area within the last five years (2019 to 2023). Casualty crashes are those crashes that resulted in either someone requiring medical treatment at the scene of the crash, or someone requiring hospitalisation or, someone who has died. Table 1 illustrates the crash rates for each local government area.

These crashes have also been spatially mapped and presented below.



 Table 1
 Project Scope – Casualty Crashes 2019 to 2023

Local Government Area	Medical	Hospital	Fatal
City of Perth	195	59	3
City of South Perth	142	52	0
City of Subiaco	55	10	0
Town of Victoria Park	216	102	2
City of Vincent	161	53	2
Town of Cambridge	85	22	1
Total	854	298	8

While a number of the crashes are noted as occurring in roads, that are not classified as local streets, a reduced speed limit is expected to prevent and reduce the outcome of future crashes on local streets.

Q?

How will the change occur?

Main Roads WA are the lead agency for setting speed limits, and determine the number and placement of speed signs on all streets and roads. Once approved, Main Roads WA will work with the project team and each individual member council to plan the roll out of new signs across the Perth inner-city region. This will likely take over 12months to implement.



What will happen to streets that current have posted speed limits less than 40km/h?

There are a number of streets within the inner-city area that currently have posted speed limits less than 40km/h. These largely being Safe Active Streets and shopping strips. There are also temporary School Zones of 40km/h.

Safe Active Streets and shopping strips with posted speeds less than 40km/h will remain as they are. School Zones will still be signed, accompanying the 40km/h posted speed limit sign, with school zone times removed.



City of Vincent

Appendix B

Case Study

40km/h on local roads in City of Vincent

This project was completed by the City of Vincent between 2018 and 2024, supported by Road Safety Commission (RSC), Main Roads WA (MRWA), WALGA, RAC WA and the WA Police (WAPOL).

Overview

In 2018 the City of Vincent proposed a 40km/h speed zone trial within Vincent's southern suburban residential areas to study the impact of slower speed limits. The objective was that the trial would make neighbourhood streets safer and provide a better street environment for all road users and residents living close by.

The trial was a success and in 2023 MRWA approved permanent 40km/h speed limits in parts of North Perth, in addition to an existing trial area in Vincent's southern-most suburbs. This covered 40 per cent of City of Vincent's local access roads.

Community consultations completed by the city demonstrated significant support for the reduction of the speed limits, with almost 60 per cent of respondents showing they were in favour of the change.

In mid-2024, MRWA granted approval for the speed to be permanently reduced on all local access roads within the City of Vincent. The 40km/h speed limits will apply to local access roads only.

Project objectives

In recent history, road design and function have often been dictated by the needs of private vehicles to the convenience of their drivers.

This has resulted in streets and roads that have pushed people to the stage where they are uncomfortable places for pedestrians and discourage active transport, further embedding dependence on private vehicles. In response to this, the city has been pursuing a more holistic approach to the design of streets that prioritises people walking, people riding and people using public transport, above private vehicles on their streets.

Vincent's Accessible City Strategy (2020-2030) defines a pedestrian priority user hierarchy. As these transport modes all share the same space, balancing the often conflicting needs of different users is a key challenge and requires collaboration and negotiation to shift this balance.

Overall, the city's goal is to increase trips completed by walking, riding and public transport. To achieve this the city puts people first when designing and upgrading streets. Getting around Vincent neighbourhoods is safe, easy, environmentally friendly and enjoyable.

The City of Vincent's pedestrian priority user hierarchy



Case Study City of Vincent

Project outcomes

A trial evaluation report was undertaken to assess the effectiveness of the 40km/h speed zone trial within the City of Vincent's southern suburbs following the first twelve months of its implementation. The Safe Speed Trial Evaluation Report was delivered in October 2022 by PJA Research carried out on behalf of the Road Safety Commission.

Overall, this report demonstrates that local speed management schemes are an effective and costefficient mechanism to prevent fatalities and injuries occurring as a result of a traffic crash.

Key findings from the report noted, as a result of the reduced speeds:

- Some speed reduction effects. Mean (average) vehicles speeds have reduced by about 1km/h, about 2.4%.
- The 85th percentile speed on trial roads dropped by just over 1km/h or about 2.5%.
- The reduction in average vehicle speeds is of a similar magnitude to the reduction seen with the introduction of the default 50 km/h limit in 2001.
- The number of vehicles observed at twelve months was comparable to the baseline, and no significant change was observed on distributor roads which were not subject to any change in speed limit.
- After twelve months, crash records indicated that there was some crash reduction effect on the trial roads. This reduction coincided with a long-term decline in overall crashes within the City of Vincent. There was also a less substantial crash reduction in overall crashes within the control set of local roads (the northern part of the City of Vincent) not subject to the new limit.
- The reduction in total crashes matches (triangulates) with the reductions in observed vehicle travel speeds and aligns with established road safety theory. Therefore, it is very likely that the 40 km/h limit would have long-term crash reduction benefits.

 Significant increases in walking and cycling were observed at the four observation sites within the City of Vincent. A total of 14% more pedestrians and cyclists were observed in the twelve-month surveys, compared to the February 2019 baseline.

Process and approvals

The City of Vincent Council (Elected Members) and then MRWA formally approved the trial and the trial area becoming permanent.

The City of Vincent Council (Elected Members) and then MRWA approved the expansion to all local roads in the City of Vincent.

Project funding

The Road Safety Commission funded the evaluation report. The City of Vincent funded the cost to implement the 40km/h signs, a total of \$550,000.

Lessons learned

For city leaders, this work has reinforced that speed management is at the core of a forgiving road transport system. Key insights include:

- Impact speed is the proven primary determinant of injury outcome, and the travel speed influences a vehicle controllability and crash likelihood. Reducing urban travel speeds by 5km/h is likely to reduce urban casualty crashes by approximately 26% and lead to major reductions in pedestrian and cycle injuries.
- Decreases in vehicle speeds on local roads also improve local amenity and promote walking and riding, which leads to improvements in health, wellbeing, social cohesion, as well as economic benefits.
- Area speed management strategies are often effective at delivering significant benefits for local communities. However, area speed management treatments should be appropriate for road and street environments, in keeping with local and regional planning, and be broadly supported by local communities.

Testimonials and community sentiment

During the initial trial of 40km/h within Vincent's southern suburban residential areas, residents were surveyed to understand the impact the reduced speeds on local streets was having on their everyday lives. A series of questions was asked within the survey, with the survey being carried out in 2019 (12 months of the trial being in place) and in 2022 (36 months of the trial being in place). A summary of respondents supporting and not supporting the trial is shown below.

This illustrates that the Vincent community surveyed had a more positive view of the reduced speeds having lived with the trial 40km/h for three years, with more people realising that the 40km/h trial made walking and riding safer, made local streets quieter and more liveable encouraging healthy choices for transport and recreation.

Strongly Agree/ Agree		\bigcirc	The 40km/h speed zone trial		Strongly I Disagree	Disagree/
NOV 19	SEP 22				NOV 19	SEP 22
15%	1%		has reduced rat-running		66%	♥ 11%
25%	<u></u> 12%		nas made walking and cycling safer		53%	≥ 13%
33%	S 9%		has made streets safer for children		46%	♥ 11%
12%	O 12%		has made local streets quieter		56%	♥ 7%
40%	♥ 10%		has made it harder to get around		44%	S%
46%	<u></u> 14%		has been worth doing		44%	≥ 12%
44%	S 11%		might be useful in other areas		34%	♥ 2%
26%	<u></u> 21%	h	as made the local area more liveable	e	55%	⊗ 13%
24%	12%		encourages healthy local transport		51%	♥ 12%
27%	<u></u> 15%		encourages healthy local recreation		53%	≥ 12%

City of Vincent survey results show a positive shift in community perception from 2019 to 2022, with the highlighted statements receiving increased 'strongly agree/agree' from community members and decreased 'disagree/strongly disagree'.

More recent testimonials for the change within the City of Vincent include:

- 40km/h Speed Zones Local resident Maria
- 40km/h Speed Zone Local cyclist Carlia
- 40km/h Speed Zones Local resident Aoife

This case study is also featured in the Safer Speeds and Better Places Community Toolkit vol 1:

https://www.townteammovement.com/safer-speeds-better-places/

More localised case studies are featured within this toolkit, including:

<u>https://www.townteammovement.com/the-roxy-revamp/</u> <u>https://www.townteammovement.com/case-study-4-the-bike-hub/</u> <u>https://www.townteammovement.com/case-study-7-inglewood-tactical-urbanism-inglenooks/</u> <u>https://www.townteammovement.com/case-study-9-hannah-lane-revitalisation/</u>



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