



City of Vincent

City of Vincent

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Safe Speed Trial Evaluation

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I Introduction

In March 2019, the City of Vincent began a trial to introduce a safer speed environment for large residential area. The trial introduced an area wide 40km/h speed zone on all local roads within the southern part of the City of Vincent (south of Vincent Street). Distributer roads retained their existing posted limits at 50km/h and 60km/h.



Figure 1-1: City of Vincent 40km/h trial area

I.1 Purpose of the trial

The trial's aim is to study the impact of slower speed limits in residential areas. Best practice research has shown that lowered speed limits make streets safer for all road users, contribute to more connected communities, reduce greenhouse gas emissions and only have a minor impact on average journey times for motor vehicles. The city is putting that research to the test to see if lowered speeds can have similar benefits for the community in Vincent.

In July 2018, the city asked the Vincent community what their existing concerns were in the lead up to a 40km/h speed zone trial. The survey revealed two main concerns, which were:

- making streets safer for all road users; and
- enhancing the neighbourhood feel of the streets.

1.1.1 Twelve Month Trial summary

A trial evaluation report has been undertaken to assess the effectiveness of the trial following the first twelve months of its implementation. 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.
- The total number of cyclists also increased at twelve months. The percentage of all cyclists who were observed cycling on the road surface (rather than on footpaths) also increased from 67% to 70%, suggesting there may be a perceived safety benefit for cyclists. There were some differences between the four sites¹.
- School representatives and crossing wardens interviewed for this evaluation also spoke of benefits for children's safety travelling to school. The reports noted support for the trial appears to be lukewarm. While a small majority are unhappy with the lower limit, there is not substantial or persistent opposition to the 40 km/h trial area among local residents. A majority of respondents surveyed at this twelve-month milestone thought a 40 km/h limit could be useful in other areas.

¹ The timing of these surveys was largely before the most significant disruption effects of the COVID-19 lockdown.



- Indirect survey results indicate that residents are generally less concerned with road safety and local street amenity issues at this twelve-month milestone – further indicating benefits.

1.1.2 Twelve Month Trial conclusion

In view of all the above data contained in the trial evaluation report, considering the triangulation of results, the 40 km/h trial within the City of Vincent has resulted in some speed reduction and crash benefits. This result is in line with what would be expected based on previous research in this field.

The evidence also suggests that local street amenity has somewhat improved. The increase in the total number of pedestrian and cyclists observed triangulates with the slight improvement in perceived street safety and amenity reported by respondents.

Complementary street design, road user awareness, and enforcement measures to reinforce the 40 km/h speed limit may result in the realisation of a greater level of total benefits. If left in place, it is possible that vehicle speeds within the trial area would continue to mediate below the new limit – particularly if supporting measures to physically reduce speeds are introduced. Future evaluation would be

useful in assessing the longer-term effects and potential effectiveness of supporting measures.

1.1.3 Traffic volume and speed data 2022

A review of traffic volume and speed data pre the 40km/h trial (2018) and three years post the trial commencement (2022) notes there has been a reduction in both the traffic volumes and 85th percentile traffic speeds, with some streets already experience travel speeds in the order of 40km/h by nature of their design. This is presented within Appendix A.



2 Speed Management

Speed management is at the core of a forgiving road transport system. Impact speed is a primary determinant of injury outcome, and the travel speed influences a vehicle controllability and crash likelihood.

In a 60km/h speed limit zone, the risk of involvement in a casualty crash doubles with each 5km/h increase in travelling speed above 60km/h. 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 injury².

Road users can be poor at assessing risk on the road especially in relation to speed so infrastructure elements to support road user behaviours are required. Speed management has the potential to deliver the highest injury reductions at the lowest cost when compared to other safety interventions; however, this can only be regarded as a primary treatment if reductions are achieved down to survivable levels².

Road function and speed management are inextricably linked; the best features of self-explaining road designs are

likely to maximise the ability to achieve harm minimisation outcomes. It is noted that the effect of reducing speed limits on travel times is commonly over-estimated².

2.1 Local Area Speed Management

Research carried out on behalf of the Road Safety Commission (2019) demonstrates that local speed management schemes are an effective and cost-efficient mechanism to prevent fatalities and injuries occurring due to traffic crashes. Decreases in vehicle speeds on local roads can also improve local amenity, and can promote walking and cycling, which has a clear flow-on to health, wellbeing, social, and 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.

² Source: Austroads Guide to Road Safety Part 3: Safe Speed.



3 Safe Travel Speeds

The appropriate management of speed is an integral part of the Safe System approach to road safety.

A number of studies have shown the relationship between speed, crash likelihood and severity, with increases in speed increasing both the likelihood of a casualty crash occurring and the severity of injury to the crash participants (Jurewicz et al. 2015a). As occupant and vulnerable road user protection improves amongst the vehicle fleet, the relationships are likely to change over time; however, the needs of the most vulnerable (the elderly and children) will need to be understood and considered as the aspirational governing design consideration².

3.1 Science behind safe travel speeds

Kinetic energy is the energy associated with the movement of an object and is determined by a combination of speed and mass such that speed (acceleration or velocity) has a greater impact on the kinetic energy transport than the mass of an object. The scientific formula for kinetic energy is expressed as:

$$E_x = \frac{1}{2} mv^2$$

where:

E_x = Kinetic Energy

m = mass

v = velocity (speed)

The squared relationship with speed means that there is a proportionately higher increase in energy as speed increases. Doubling the speed will result in four times the kinetic energy and tripling the speed will result in nine times the kinetic energy. It is therefore apparent that small changes in speed can have large effects on crash energy².

In reality, the exchange of energy in collisions between vehicles, objects and people is more complicated and there can be many determinants of specific injury such as vehicle orientation in car-to-car crashes. However, managing energy in the road transport system is key to managing injury outcomes. Outside of vehicle design, speed management provides a keyway to manage kinetic energy. With unprotected road users (people walking and riding), safe speeds remain the most practical way for addressing safety.



4 Safe System Speeds

The Wramborg curves (Wramborg 2005) have been adopted internationally to illustrate “survivable” thresholds against impact speeds. A 10% threshold for fatal outcomes was used as the basis for establishing a Safe System performance threshold.

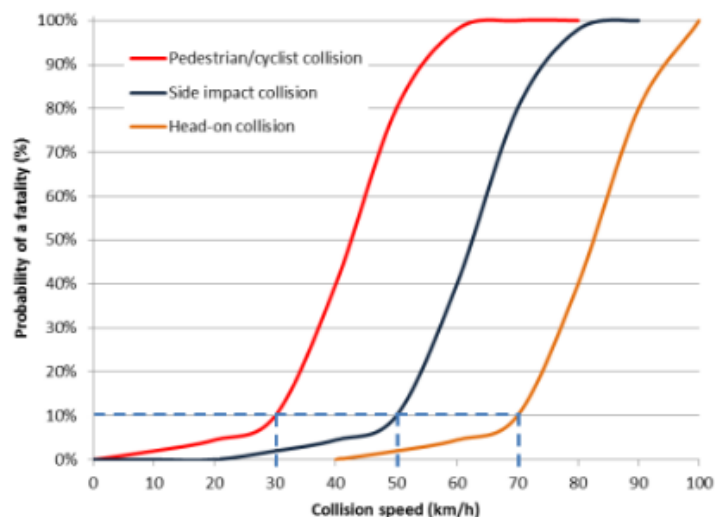


Figure 4-1: Relationships between a motorised vehicle collision speed and probability of a fatality for different configurations (source: Jurewicz et al. (2015a) and based on Wramborg (2005))

The Wramborg Curves and associated research undertaken, highlights that 30km/h should be the adopted speed for a

street where there is potential of a collision between a vulnerable road user and a passenger vehicle.

The curves are limited in that they only provide the probability of fatality and not serious injury and there is little published evidence demonstrating the origins of the curves. Despite this, the Wramborg curves have become the aspirational criteria for Safe System speeds and have achieved practical application in The Netherlands and Sweden².

The *Western Australian – Driving Change Road Safety Strategy (2020-2030)* notes that while speed limit compliance is gradually improving, speeding and inappropriate speeds are still a significant cause of road trauma. Around 12% of crashes resulting in death or serious injuries on metropolitan roads, are caused by excessive or inappropriate speeds to the conditions. Achievement of the target reduction in death and serious injury on our roads requires universal compliance with speed limits and reduced speed limits where appropriate. By working in collaboration with communities and local government areas in metropolitan and regional WA, the government will increase local understanding of safer speeds and increase locally driven and tailored solutions to risks.



5 Approaches to the setting of speed limits

Research³ into practices for the setting of speed limits around the world notes that there are four broad methods for setting of speed limits:

- **engineering approach** - a two-step process where a base speed limit is set according to the 85th percentile speed, the design speed for the road, or other criterion. This base speed limit is adjusted according to traffic and infrastructure conditions such as pedestrian use, median presence, etc. Within the engineering approach there are two approaches: 1) Operating Speed Method and 2) Road Risk Method.
- **expert systems** - speed limits are set by a computer program that uses knowledge and inference procedures that simulate the judgment and behaviour of speed limit experts. Typically, this system contains a knowledge base containing accumulated knowledge and experience (knowledge base), and a set of rules for applying the knowledge to each particular situation (the inference procedure).

- **optimisation** - setting speed limits to minimize the total societal costs of transport. Travel time, vehicle operating costs, road crashes, traffic noise, and air pollution are considered in the determination of optimal speed limits.
- **injury minimisation or safe systems approach** - speed limits are set according to the crash types that are likely to occur, the impact forces that result, and the human body's tolerance to withstand these forces.

Engineering and expert system approaches are widely used in North America.

Injury minimization methods are gaining wide-spread use in countries that are at the forefront of global road safety (i.e., Sweden, Australia etc).

The concept of setting optimal speed limits has been studied by some jurisdictions but is not known to have been adopted by any road authority. However, the optimal speed limits approach seems applicable within the context of providing context sensitive solutions (CSS)—an approach that considers the total context within which a facility will exist.

³ Research undertaken by Tim Judd, PJA in 2019.



The research report notes that speed limits set by either an engineering method or an expert system use similar basic tenets. The engineering method is often limited to a basic study, while the expert system approach employs a more structured set of decision and judgment rules. For both methods, the speed limit is determined by considering the existing speed, roadway, and crash information.

A detailed description of the four approaches is provided within the report - *Federal Highway Administration (FHWA), US Department of Transportation Informational Report on the Methods and Practices for Setting Speed Limits* and provides a summary of each method including advantages and disadvantages for each approach. This is replicated in Table 5-1.

It is noted, that while Australia is noted as an example jurisdiction for Expert System in Table 5-1 it should also be noted within the Engineering (Operating and Road Risk categories).

Approaches to the setting of speed limits across Australia and Internationally (provided in Appendix B), notes that nowhere is Australia adopts the Safe System approach to the setting of speed limits, with Wales (UK) recently adopting a 20mph (30km/h) default speed limit (case study section 8).

Table 5-1: Methods and Practices for Setting Speed Limits – approach to setting speed limits

Approach	Jurisdictions	Basic Premise	Data Required	Advantages	Disadvantages
Engineering (Operating Speed)	United States	The speed limit is based on the 85th percentile speed, and may be slightly adjusted based on road and traffic conditions and crash history.	The existing speed profile as well as data on accesses, pedestrian/bicycle traffic, curbside parking, safety performance, etc.	Using the 85th percentile speed ensures that the speed limit does not place an undue burden on enforcement, and provides residents and businesses with a valid indication of actual travel speeds.	Drivers may not be adequate judges of the externalities of their actions, and may not be able to self-select the most appropriate travel speed. Speed limits are often set lower than the 85th percentile speed.
Engineering (Road Risk)	Canada, New Zealand	The speed limit is based on the function of the road and/or the adjacent land use and then adjusted based on road and traffic conditions and crash history.	Functional classification of the road, setting (urban/rural), surrounding land uses, access, design features of the road.	The speed limit and the function of the road are aligned. The function of the road also dictates many of the design elements of the road, so this method aligns the speed limits with the design of the road.	The road risk methods may result in speed limits that are well below the 85th percentile speeds, resulting in an increased burden on enforcement if remedial measures are not employed (i.e., traffic calming, etc.).
Expert System	United States, Australia	Speed limits are set by a computer program that uses knowledge and inference procedures that simulate the judgment and behavior of speed limit experts.	Data needs depend on the system, but generally expert systems require the same data as used in the engineering approaches.	A systematic and consistent method of examining and weighing factors other than vehicle operating speeds in determining an appropriate speed limit. It is reproducible and provides consistency in setting speed limits within a jurisdiction.	Practitioners may need to rely on output from the expert system without applying a critical review of the results.
Optimal Speed Limits	---	The selected speed limit minimizes the total societal costs of transport when considering travel time, vehicle operating costs, road crashes, traffic noise, air pollution, etc.	Cost models and input data to account for air pollution, crashes, delay, etc.	Provides a balanced approach to setting speed limits that is considerate of many (if not all) of the impacts that speed has on society. Allows for the consideration of pedestrian and cyclist traffic in setting speed limits. May be particularly useful in a context sensitive situation.	Data collection and prediction models may be difficult to develop and are subject to controversy among professionals. Resulting speed limits may not be immediately obvious to the user.
Injury Minimization/ Safe System	Sweden, Netherlands	Speed limits are set according to the crash types that are likely to occur, the impact forces that result, and the tolerance of the human body to withstand these forces.	Crash types and patterns for different road types, and survivability rates for different operating speeds.	There is a sound scientific link between speed limits and serious crash prevention. Places a high priority on road safety.	This method is based solely on a road safety premise and may not be accepted as appropriate in some jurisdictions.



5.1 Speed Limit Setting and the Safe System Principle

One Australian research paper⁴ notes that the Safe System policy dictates that speed limits for the road and traffic system use human biomechanical and human competency as the design parameter to set the values. Taking crash injury severity factors into account research into the physics of crashes has determined when the physical forces will be too great for the human body to tolerate. Despite the formal adoption of the Safe System principles by all Australian Governments in 2004, no Australian State has adopted recommended Safe System speed limits.

The research paper notes that the traditional Engineering Method based on operating speed for setting speed limits is flawed. The paper states, there is a wealth of research showing that humans are ill equipped to judge risks such as road travel risks (Job, Sakashita, Mooren, & Grzebieta, 2013; Wilde, 1994). Moreover, there is a phenomenon called **“evolution of speed”** whereby 85th percentile travel speeds drift up over time (Hauer, 2009). This occurs when speed

limits are set using the 85th percentile method for three possible reasons:

- 1 Typically, half of the drivers tend to drive above the speed limit which gradually pushes the 85th percentile speed up over time.
- 2 Many drivers seek to drive faster than the average speed in effort to self-affirm their image of better than average drivers; and
- 3 As wider lanes become more prevalent the average speed on roads increases.

The research paper concludes that Australian road and traffic planners should consider categorising roads into functional hierarchies and look at ways to make traffic more homogeneous and predictable. The New Zealand approach to implementing self-explaining roads should be examined for applicability in Australia. Perceptual and other engineering treatments, especially at gateways to speed limit changes, should be more fully researched and

⁴ A research paper by the Transport and Road Safety Research branch at the University of New South Wales have undertaken analysis (2014) into NSW practices for speed zoning.



considered by Australian road authorities (including local governments).

Setting speed limits based on the 85th percentile of free travel speeds is irresponsible and dangerous.

The research paper⁴ makes reference to a project to develop a guidance book on speed management for the OECD (OECD, 2006). This Speed Management report discuss the effects of speed, the problem of speed and provides data on the broad relationship between higher vehicle speeds and KSI crashes – known as the ‘Nilsson’s Power Model’ – illustrated in Figure 5-1.

The conclusion of the OECD speed management report notes reduced speeding will immediately reduce the number of fatalities and injuries and is a guaranteed way to make real progress towards the ambitious road safety targets.

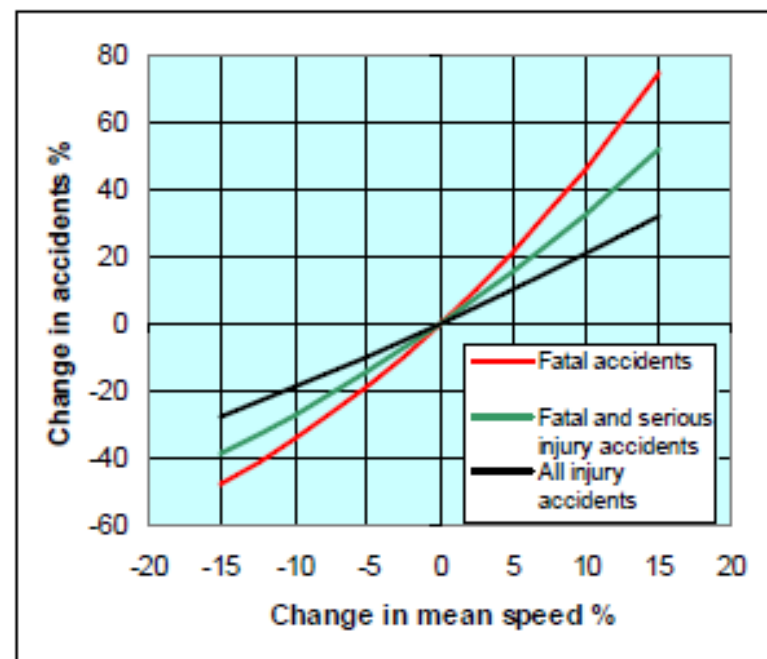


Figure 5-1: OECD 2006 Speed Management Report–Source: Nilsson 2004



6 Public acceptance of reduced speed limits

Austrroads Guide to Road Safety Part 3: Safe Speeds notes that when analysing people's attitudes to speed and speeding, a noteworthy paradoxical phenomenon that is apparent from examining community reactions to speed management initiatives is the concept of agreeing with the use of speed control initiatives where one lives, and/or where one's children go to school (i.e., 'in my community to protect me and those important to me'), but at the same time, disagreeing with speed control in other areas (e.g., reduced speed limits on roads used for commuting, even if these roads are where other people's children attend school or where other people live). This phenomenon has been described in a range of ways, including as an example of 'the JIMBY effect – Just In My Back Yard' (Tapp 2015), and as 'YIMBY – Yes In My Back Yard' (Fleiter 2013), where agreement with speed management measures are viewed as acceptable within one's own community, but generally not supported elsewhere.

6.1 What Australia Wants – Heart Foundation

In 2020, the Heart Foundation's *What Australia Wants* survey measured consumer need and aspiration about the

type of neighbourhood and community Australians would like to live in.

(https://irp.cdn-website.com/541aa469/files/uploaded/What_Australia_Wants_Report_.pdf).

The Heart Foundation surveyed 2,895 people for their opinion on what makes a healthy neighbourhood and what features matter most when deciding where to live.

The summary of the survey notes that, where we live, work, play and learn is directly associated with our health and wellbeing, as individuals, families and communities.

Living locally means having the places and things you need regularly near to where you live, and **ideally within walking or cycling distance**. Australians have a hierarchy of needs when it comes to where they live.

The healthy neighbourhood elements that rank the highest include:

- 1 Daily amenities close by (e.g. fresh food, shops, services, transportation);
- 2 A sense of safety; and
- 3 Outdoor and open spaces near to home.



Australians surveyed said that cycling routes, traffic calming measures and sports facilities are suboptimal, with more than a third rating these as fair / poor, or that their area does not have the feature at all.

Most Australians feel that it's important to be able to be active in their local area, primarily because:

- they feel it provides them a sense of belonging and safety,
- they enjoy being outdoors, and
- because it's good for their health and wellbeing.

To be more active in their neighbourhoods, this survey found that Australians want:

- more walking and running trails,
- more sports and recreational facilities, and
- improved safety in streets and public spaces.

Australians were asked about their level of support for several government initiatives, such as redirecting roads funding to walking or cycling infrastructure, or public transport. This generally appeals to Australians, with two-thirds of people in favour of these ideas.

Reducing neighbourhood street speed limits also appeals, with just under two-thirds of Australians supportive of this

idea. This support came primarily from those with children, particularly those who feel it's important to them that their children can walk to and from school safely – illustrated in Figure 6-1.



Sense of place

A sense of community emerges when residents have opportunities to meet and interact in attractive places of interest.



When it comes to having a sense of place, almost nine in 10 Australians feel that having a sense of safety is very / somewhat important to them when deciding where to live. Just over eight in 10 value having natural elements such as trees and plants, while roughly seven in 10 Australians value traffic calming measures and a sense of community.

Subgroups of interest:

- Melbournians are more likely to find a sense of safety very important (60%), as are those aged over 50 (59%)
- People in Sydney are more likely to find traffic calming measures very important (37%)
- People with children are more likely to find traffic calming measures (38%) and a sense of community (36%) very important
- Females are more likely to find all sense of place elements very important.

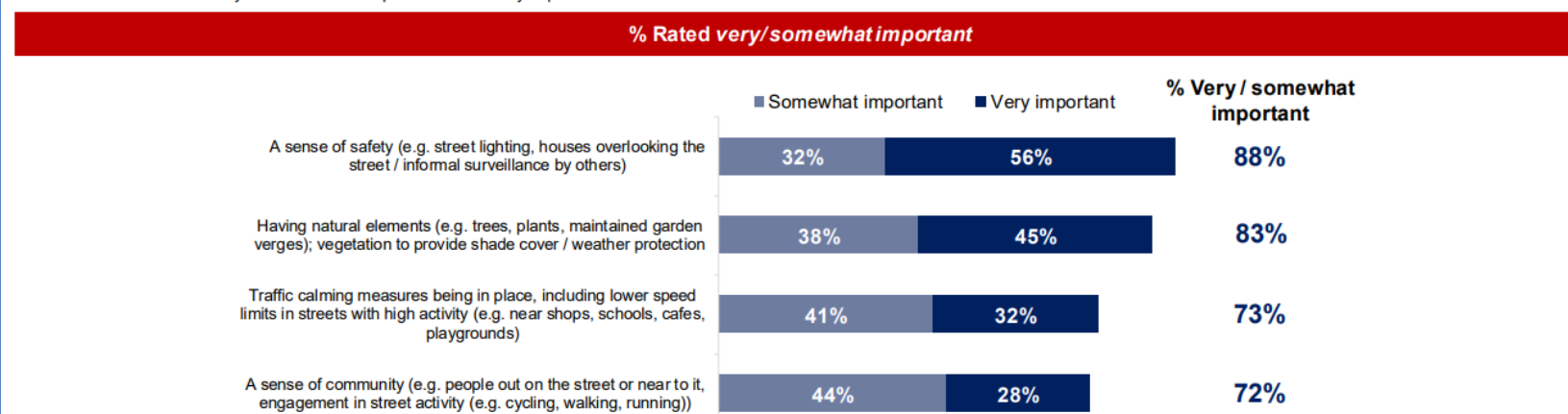


Figure 6-1: What Australia Wants – sense of place



6.2 Examination of City of Vincent residents' acceptance

PJA have worked alongside Stantec to undertake a review of City of Vincent residents survey responses for multiple transport related projects. This review report is provided in Appendix C.

The City of Vincent provided PJA and Stantec with community survey responses for the following topics:

- Background information on traffic and transport in Vincent and 40km/h trial and its feedback
- Florence Street / Carr Street proposed traffic calming feedback
- Forrest Street (Fitzgerald Street to Norfolk Street) proposed traffic calming and parking changes feedback
- Vincent Street, William Street, Fitzgerald Street and Forrest Street proposed mini roundabouts pilot project feedback
- North Perth proposed traffic calming feedback
- Birrell Street, Eucla Street and Federation Street proposed traffic calming and parking restrictions feedback

- Shakespeare Street proposed Safe Active Street (SAS) feedback
- Strathcona Street and Golding Street proposed traffic calming feedback

In summary, a review of all the community survey responses notes the following themes:

- 40km/h encouraged on low volume residential streets where higher volumes of children and elderly are but discouraged on high vehicle volume roads that cause excessive delays on commute times.
- Demand for alternative speed reduction measures to be put in place, instead or in conjunction with, speed reduction signs to physically slow traffic. Speed signs are generally ignored.
- Police reinforcement required to control vehicle speeds within the speed limit. Road marking the speed limit and additional signage is also encouraged to reinforce the speed limit for drivers.
- Many vehicles not following 40km/h speed limit while others are, causing an inconsistency in vehicle speeds making it unsafe for drivers and crossing pedestrians to judge when is "safe" to cross.



- 65% support a 40km/h speed limit within the mini roundabouts pilot area.
- 70% support traffic calming measures being implemented in North Perth.

6.3 40km/h Trial Survey 2022

During September 2022 a resident's survey was carried out to ascertain the views of the 40km/h trial, three years on. In summary the residents' views included:

- Little to no change in observed rat-running being reduced. However, there has been a shift from strongly disagree to neutral over time
- An increase by 22% in agreement and a decrease by 13% in disagreement over time in walking and cycling being safer at 40km/h
- An increase in perception of streets being safer for children at 40km/h by 9%
- An increase by 15% in streets being quieter during the trial
- Shift towards streets becoming easier to get around over time
- An increase by 13% in support of the trial over time
- An increase by 11% over time in support of the trial area extending
- Driving at 40km/h rather than 50km/h becoming more widely accepted over time
- An increase by 21% in perception of improved liveability over time in the trial area
- An increase in willingness to use healthy local transport over time by 14%
- An increase by 15% in encouragement of healthy local recreation over time
- Only 25% of applicable responses feel more confident to let children walk or ride to school with the reduced speed zoning
- Only 24% of applicable responses feel more confident to let children access Public Open Space with the reduced speed zoning
- Only 30% of respondents over 60 years old feel more confident to walk or use mobility aids within the reduced speed zoned street
- 57% support reducing the speed to 40km/h or further within residential streets provide greater confidence to walk or ride in the streets



- The supporting benefits of the trial are widespread through the 921 responses with safer streets for all road users including pedestrians and cyclists (23%), bring back a neighbourhood feel to our suburbs (17%), reduce likelihood of trauma in a road accident (14%), deter people taking short cuts through neighbourhood streets (14%), environmental benefits (11%), more likely for children to walk or ride to school (11%) and being more likely to walk or ride than take car (9%)
- The main reasons for being against the trial only had a response rate of 348 with the main reason relating to the existing speed limits being fine with 42% of the votes
- 32% may be open to a 30km/h speed limit
- 43% may be open to local streets across Perth being reduced to a 40km/h speed limit
- 34% may be more likely to choose walking or riding for local trips over car trips
- The preference of measures for improving safety and amenity of residential streets are better cycling and pedestrian infrastructure (25%), lower speed limit of residential streets (22%), increase and improve sign positing of speed limits (18%), greater police enforcement (22%) and speed humps or other traffic calming measures (23%).

The general themes of feedback and comments relating to the trial include:

- 40km/h speed limit along Bulwer Street is too slow and increases delay. 50km/h is generally more accepted than 40km/h.
- Many vehicles are not following the 40km/h speed limit while others are, causing an inconsistency in vehicle speeds making it unsafe for drivers and crossing pedestrians to judge when is “safe” to cross
- Police reinforcement is required to reinforce compliant vehicle traveling speeds. Road marking the speed limit and additional signage is also encouraged
- 40km/h encouraged on low volume residential roads where higher volumes of children and elderly are but discouraged on high vehicle volume roads that cause excessive delays on commute times
- The inconsistency and changing of speed limits zone confuse drivers, making them feel unsafe
- A demand for alternative speed reduction measures to be put in place instead of or in conjunction with speed reduction signs to physically slow traffic. Speed signs are generally ignored.



7 Strategic alignment

Safe speeds and a safe and more connected walking and cycling environment is a theme that is throughout several strategic documents of the City of Vincent and neighbouring authorities within inner city Perth.

7.1 Inner City Transport and Infrastructure Working Group Advocacy Platform

The Perth inner-city local government areas that form the *Transport and Infrastructure Working Group* report to the Mayors and CEO's of the Town of Victoria Park, City of South Perth, City of Perth, City of Vincent, and the City of Subiaco.

The State's largest concentration of businesses and associated workforces are located within the inner-city group boundaries. More than 31,500 businesses employ a significant proportion of the Perth population, generating substantial goods and services.

This concentration of businesses, workforce, and forecast population is due to increase with over \$57 billion in Gross Regional Product and a combined 250,000 jobs between five local government areas playing a significant role in Perth's economy.

A key priority project within the Advocacy Platform is to advocate for slower speeds within residential inner-city Perth (40km/h speed limit) with a further reduction to 30km/h within key Activity Centre areas where there is a concentration of pedestrian activity.

7.2 Accessible City Strategy – City of Vincent

To guide the city between 2020 and 2030, the *Accessible City Strategy (ACS)* has a vision to 'put people first – getting around is safe, easy and environmentally friendly and enjoyable'.

The objectives are to create a safe transport environment, ensure easy accessibility and connectivity into and around Vincent, promote environmentally friendly transport modes and initiatives and make it enjoyable to get around the local area.

The strategy notes Vincent's streets will be safe places for people of all ages and abilities. People will be protected from the risk of moving vehicles. Innovative design will enhance the quality of the public realm without compromising the amenity of our streets for people walking and resting. People are encouraged to shift their routines to more active modes of transport.



The current 50km/hr speed of local streets creates an unsafe speed variance between active modes of transport and driving. Decreasing vehicle speeds allow mixed-traffic movement networks that become attractive to active transport users. The higher degree vehicle speeds are reduced, the more attractive, safe and accessible they become.

7.2.1 Accessible City Strategy - consultation summary

There was a general level of support for the vision. Minor modifications were recommended through submissions for inclusion in the wording of the vision. The terms 'healthy' and 'consistency' both hold important value as part of the strategy.

Submissions have raised concern over whether there is enough evidence as part of the interim results of the current 40km/h trial to warrant this action. This Safe Speed Evaluation Report provides further evidence-based justification and example case studies to demonstrate the need for safer speeds.

General consultation comments as it pertains to 40km/h included:

- Speed should be reduced to 40km/h on all streets and 30km/h within 5 years.
- 40km/h is a noble ambition but must be policed.
- The 40km/h trial results do not show a high level of change.
- The 40km/h speed reduction should be focused on high activity areas and not everywhere.
- Local streets should be for residents only.
- The current speeds do not impact cycling and walking in the city.
- A reduction in speed should also be considered on the residential portions of major roads.
- This should not be the main action of the strategy as it undermines more high priority actions.
- The action needs to do more than reduce speeds, it should also incorporate infrastructure which supports the reduction in speed.

Assessing the feedback for all the actions items within the ACS notes a strong level of importance placed by the community on:

- implementing the proposed bike network.



- developing a program to support school children to travel to school using sustainable and active travel modes.
- develop the City's residential streets in line with the principles of Safe Active Streets; and
- improving streetscapes to enhance pedestrian experience.

7.3 Perth Greater CBD Transport Plan

The *Perth Greater CBD Transport Plan* is a strategy that outlines a series of initiatives and investments that will help residents, workers and visitors move around our city centre. On a broader scale, the State Government is currently underway with an unprecedented investment in transport infrastructure that will significantly improve access to and from the Perth central business district (CBD) from the broader metropolitan area.

A key area wide priority within the plan is for slower speed environments to provide a better pedestrian and riding environment and bring significant safety benefits. Low or slow traffic environments result in more pedestrian activity creating economic benefits to local businesses.

7.4 Integrated Transport Strategy - Town of Victoria Park

This Strategy seeks to contribute to achieving the Town of Victoria Park's (the Town) vision as a dynamic place for everyone. To ensure alignment of this Strategy and the Town's broader planning framework, the Town has developed a vision for the transport network over the next 10 years which is to provide an integrated, accessible and sustainable transport network which connects people to places and supports the Town as a liveable inner-city community.

A key initiative within the Strategy is to continue to advocate with the *Inner-City Group* for the Transport Portfolio's support for legislative change and policy support for the wider roll out of lower speed limits throughout the Town and neighbouring communities. The Town will support this initiative to reduce speeds in activity centres to 30km/h and residential areas to 40km/h State Road Safety Strategy.

Lower speeds in residential and activity centre areas will result in making streets safer for all road users, contributing to more connected communities, reduced greenhouse gas emissions and will have only minor impacts on average travel times.



7.5 Driving Change Road Safety Strategy for WA 2020 – 2030

The strategy notes that the majority of Western Australians are supportive of safer speeds in high pedestrian and cycling areas and on WA's most dangerous roads.

The strategy has a priority to work with relevant state government agencies, local governments, and communities to reduce vehicle speeds around schools and other areas where children are at greater risk.

The strategy notes to identify and implement safer speeds in local areas coupled with measures to undertake better enforcement of speeds on our roads.

7.6 Speed Zoning Policy and Application Guidelines, MRWA 2022

The Speed Zoning Policy (the Policy) notes that speed limits must be consistent with the purpose and physical environment of the roadway. 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. The Policy provides 'typical target speeds range for road types' illustrated in Figure 7-1.

The Policy notes indicative target speeds of between 30km/h and 50km/h for town centre, commercial streets and neighbourhood streets.

As noted in Figure 7-2, within a Movement and Place context, local access roads and local distributors have a low movement function and a high or highest Place function when speeds are between 10km/h and 50km/h.



Movement Function	Place Value	Typical Road Application	Key Features	Indicative Target Speed
Access and Local Distributor Roadways				
Access	Highest	Pedestrian mall, extremely narrow urban thoroughfares, Shared Zones	Confined area where movement of pedestrians and cyclists has priority over motor vehicles. Generally the volume of traffic is very low.	10
Access	Highest (within destination)	Shared Spaces/ Pedestrian Priority Areas	Areas where pedestrians and cyclists intermingle with motor vehicles.	20
Access	Highest to High	Recreational Precincts, Safe Active Streets	Confined areas where pedestrians and cyclists intermingle with motor vehicles.	30
Access and Local Distributors	Highest	Town Centre / Commercial streets or areas	Areas with high pedestrian activity or very strong existing place functions including extensive on-street activity. Must have traffic calming infrastructure to reinforce a low speed environment. Pedestrians and vehicles separated.	30-50
Access and Local Distributors	High	Neighbourhood Streets	Narrow streets with significant residential development, on street parking, adjacent neighbourhood parks and playgrounds, etc.	40-50
Access and Local Distributor	Moderate	Industrial precincts	Wider/unmarked carriageways, mix of heavy and light vehicle traffic, limited pedestrian activity.	50-70
Access and Local Distributors	Moderate to Low	Low standard roads in rural/ semi-developed areas	Minor roads in partially built-up areas	60-80
Access and Local Distributors	Low	Rural or remote roads	Low standard/higher risk roads in rural/regional environments	80-100
Access and Local Distributors	Lowest	Rural or remote roads	Rural roads with limited development and roadside hazards	110

Figure 7-1: MRWA Speed Zoning Policy – typical target speeds range for road types

		Level of Place Value				
		Highest	High	Moderate	Low	Lowest
		Indicative Target Speed (in km/h):				
Level of Movement Function	Primary/Regional Distributor*	50-60	50-70	60-80	80-100	100-110
	District Distributor A/B	40-50	50-60	60-80	80-100	100-110
	Local Distributor	30-50	40-60	60-70	80-100	100-110
	Access Roads	10-50	30-50	50-70	80-100	100-110

Figure 7-2: MRWA Speed Zoning Policy – Movement and Place Framework and Target Speed Range



8 Case Studies

8.1 Three Transport Priorities – ASPA, 2022

THREE TRANSPORT PRIORITIES
2022 Australian Federal Election

1 LOWER DEFAULT SPEED LIMITS **2 1500M SCHOOL ZONES** **3 E-BIKE PURCHASE SUBSIDY**

Why? Because “business as usual” transport costs Australia **\$57 billion/yr***

* Due to road traffic crashes, congestion & physical inactivity

aspactivity.org/three-transport-priorities

Asia-Pacific Society for Physical Activity in partnership with WeRide Australia and an alliance of 13 public health, transport, education and climate organisations, have presented Three Transport Priorities which are evidence-

based, tangible transport solutions, prepared for the 2022 Australian Federal Election. They include:

1 LOWER DEFAULT SPEED LIMITS **2 1500M SCHOOL ZONES** **3 E-BIKE PURCHASE SUBSIDY**

Why? Because “business as usual” transport costs Australia **\$57 billion/yr***

* Due to road traffic crashes, congestion & physical inactivity

The ask for this advocacy is for federal government to use funding to support states and territories to adopt lower default urban speed limits in residential areas, shopping streets and schools. This is being asked as, speed is the number one cause of motor vehicle crashes. In Australia, 13% of crashes could be avoided by reducing speed limits to 30km/h on non-arterial urban streets, resulting in a national economic benefit. Lower speed environments support walking and cycling, reduce traffic congestion, crashes, air and noise pollution and support physical activity. Local businesses benefit from low-speed walking friendly streets.

<https://aspactivity.org/three-transport-priorities/>



8.2 Healthy Streets - Australia, 2021



The Healthy Streets Framework contains 10 simple indicators that when met, improve the human experience of being on streets and increase the attractiveness of streets for people walking and cycling.

The approach includes qualitative and quantitative tools to assess the quality of streets in relation to meeting basic human needs. Within the Healthy Streets Design Check tool for Australia, it notes that for the hour when vehicles speeds are highest within a street that is being measured, 85th percentile speeds below 30km/h score a maximum three points.

For 85th percentile speeds between 30 and 39km/h there is a good score of two points and for 8th percentile speeds between 40 and 49km/h there is a score of one point. Streets who have an 85th percentile speed of 50km/h or more do not score within Healthy Streets as it is known this is an unsafe speed for people walking or riding.

<https://www.healthystreets.com/>



8.3 Neighbourhood Streets - The Padbury Experiment, 2018



Neighbourhood Streets – The Padbury Experiment

This case study published by the Heart Foundation within its Healthy Active by Design series notes that Neighbourhood streets play a vital role in making places liveable. Rather than seeing them as simply transport corridors for cars, they can be important places for walking, cycling, social interactions and even playful exploration by local children. Current research shows that by reducing speed limits on residential roads from the default metropolitan 50km/h to 30km/h, the safety and pedestrian amenity on local suburban roads can improve.

The case study notes that the main concern raised for 30km/h speeds is the impact on travel time and associated cost. For Padbury, a journey time assessment was

undertaken to assess the travel time difference between journeys using 50km/h and 30km/h roads. This indicates that the generic impact of introducing 30km/h speed limits in urban residential streets is almost negligible in terms of travel time. In this example, there is less than one-minute travel time difference from Padbury to the freeway or train stations when travelling at 30km/h compared to travelling at 50km/h on local residential streets. The Padbury project explored what the community reaction to a reduction in speed may be, considering the main concern often raised by the community as “the impact of travel times”. This project demonstrated that having a network of local suburban neighbourhood streets at 30km/h would have minimal effect on journey times but offer significant improvements in road safety and pedestrian amenity. While historically there has been opposition to the introduction of lower speed limits in local neighbourhood streets, this evidence demonstrates that such opposition is not justified. Lower speed limits in residential streets provide an important new strategy for achieving continued reductions in injury rates from road crashes in Australia.

<https://www.healthyactivebydesign.com.au/case-studies/neighbourhood-streets-the-padbury-experiment>



8.4 Australian College of Road Safety – Safe Street Neighbourhoods: the role of lower speed limits, Vol. 28 No 3, 2017



The research presented within the journal notes neighbourhood streets play a vital role in making places liveable. Rather than seeing them as simply transport corridors for cars, they are important places for walking,

cycling, social interactions and even playful exploration by local children.

The research argues that neighbourhood streets provide a valuable focus for a road safety intervention that is low cost and yet promises considerable benefits for road safety, neighbourhood amenity, public health, and the community at large. While there is likely to be opposition to the introduction of lower speed limits in local neighbourhood streets, this paper provides evidence that such opposition is not justified. Lower speed limits in residential streets provide an important new strategy for achieving continued reductions in injury rates from road crashes in Australia.

The research undertaken looked at travel times for an example suburb within Sydney and noted an insignificant travel time reduced (less than 1m) when travelling at 30km/h instead of 50km/h on local residential streets.

The research concluded that a road hierarchy should be developed where local residential streets have a speed limit of 30km/h and no one lives more than approximately 500m from a higher order 50km/h or above road, having minimal impact on travel times.



8.5 Heart Foundation – Good for Business, 2011

Good for Business\$

The benefits of making streets more walking and cycling friendly

Discussion paper



This report asserts that a well-designed, quality street environment that promotes walking, cycling and public transport is good for business.

The Heart Foundation (SA) commissioned this discussion paper to bring together the evidence around the financial benefits to retailers and residents in making commercial streets more walking and cycling friendly.

Walking and cycling to local shops is good for business and good for the local economy and is essential to the success of

revitalisation strategies. In addition, there is good evidence to show that improving walking and cycling environments raises private property values by significant amounts.

The report showed that:

- A high proportion of all retail expenditure comes from local residents and workers.
- Space allocated to bicycle parking can produce much higher levels of retail spend than the same devoted to car parking.
- Retail vitality would be best served by traffic restraint, public transport improvements, and a range of measures to improve walking and cycling environment.

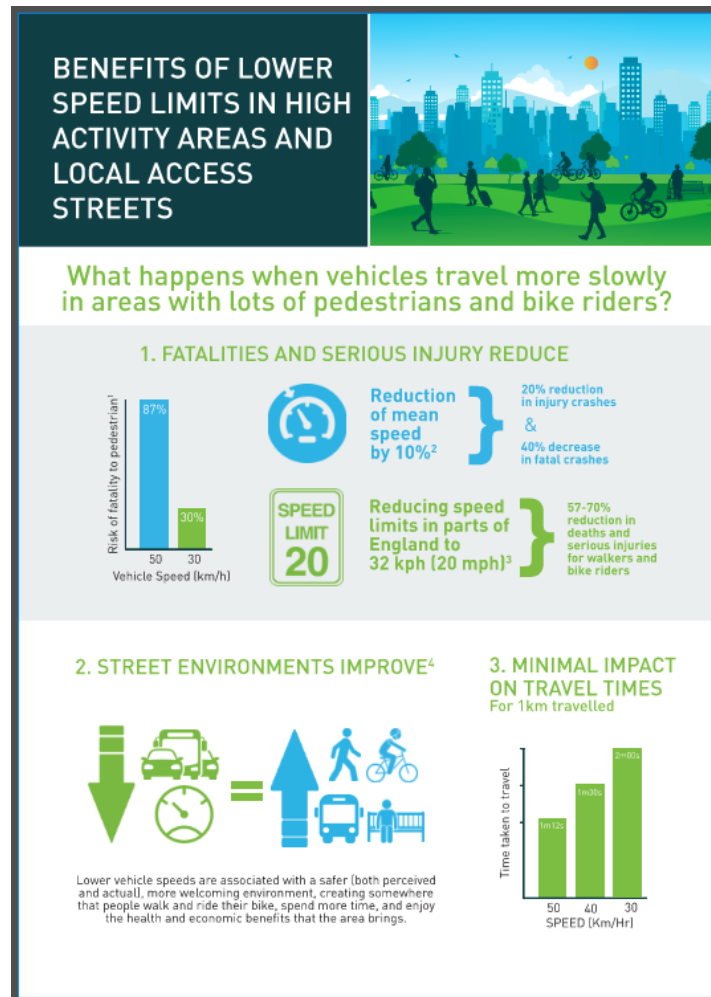
Measures identified to achieve this within the report include:

- Reduced Speeds
- Reallocation of road spaces
- Widening of footpaths and providing cycle and public transport provision
- Greening the Street and improving way finding.

<https://resources.heartfoundation.org.au/images/uploads/publications/Good-for-business.pdf>



8.6 CWANZ fact sheet, 2022





8.7 Safe Speeds in Edinburgh and Wales



The City of Edinburgh have recently reduced the default speed limit from 30mph (48km/h) to 20mph (32km/h). Research into the reduced speeds noted that road deaths fell by nearly a quarter and serious injuries by a third when Edinburgh cut its speed limit to 20mph.

The new study also found that average speeds had fallen across the city, including in areas not affected by the lower limit. Researchers at the University of Edinburgh found that this had been achieved simply with new signs rather than

with extra traffic-calming measures or police patrols, making the scheme cost-effective.

Overall, recorded speed in the city was reduced by 1.34mph, a drop of 5.7 per cent. The number of cars travelling at more than 25mph on urban roads fell by 14 percentage points to 31 out of every 100. The limits apply on 80 per cent of Edinburgh's streets. They were introduced to cut accidents, encourage more walking and cycling and create more pleasant neighbourhoods.

In July, Wales became the first of the four nations to announce it would lower speed limits in all urban areas to 20mph. It will take effect in September 2023 and will apply to restricted roads and residential streets where streetlights are less than 200 yards (183m) apart. About 2.5 per cent of Welsh roads already have a limit of 20mph, but this will rise to about 35 per cent. Scotland is considering a similar move.

Once implemented, local authorities will need to apply if they want to increase traffic speeds, providing justification for why a speed limit above 20mph should be considered. This being a reverse of the current system we have in Perth.



9 City of Vincent Travel Time

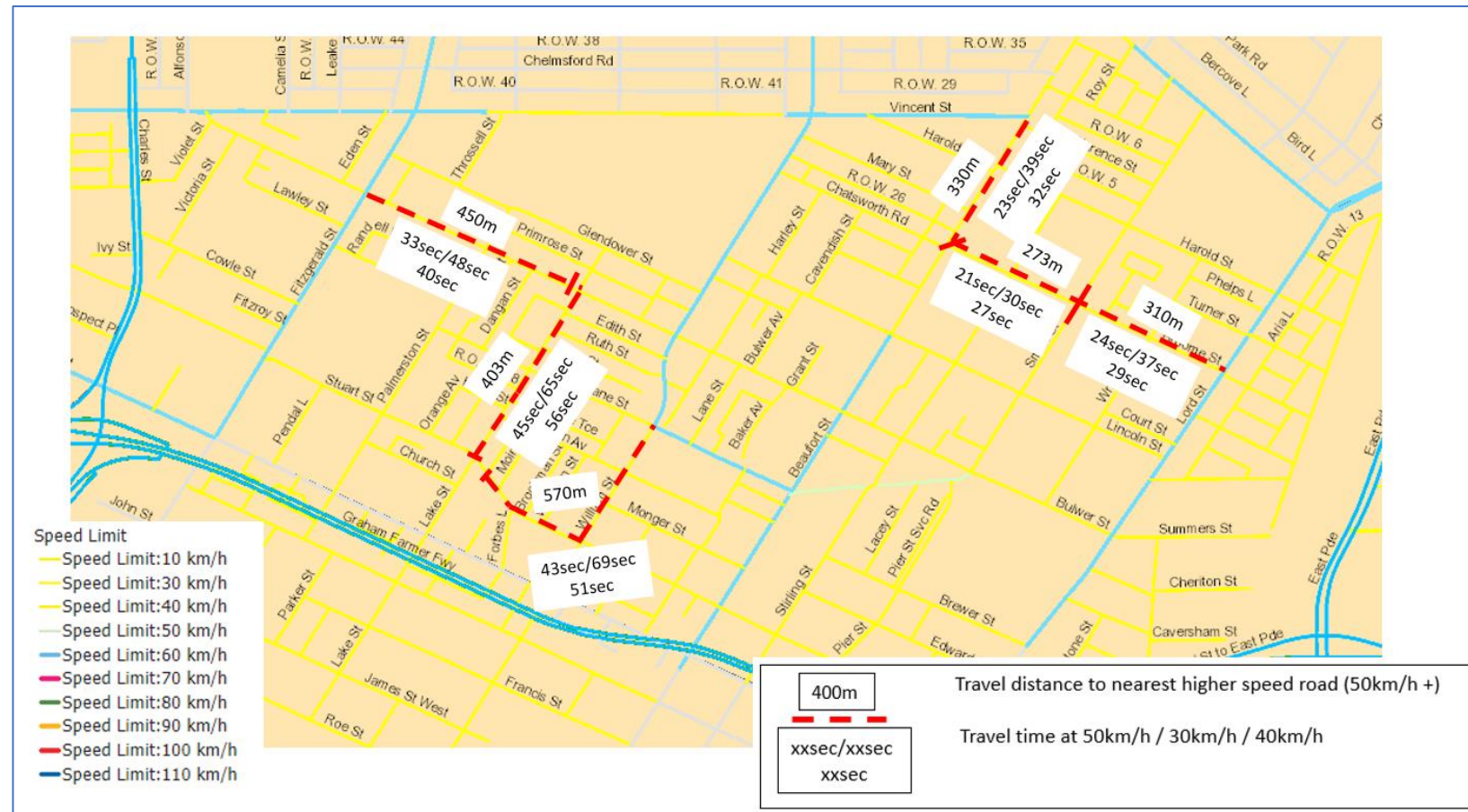


Figure 9-1: Distance to higher speed (50km/h+) street and travel times at 30/50/40km/h



10 Summary, Recommendations and Implementation

Research shows that safer speeds on local roads not only saves lives due to transferring less kinetic energy should a crash occur, but also strongly contributes to local amenity, provides a safer walking and riding environment, and has clear benefits to populations health (physical and mental), social wellbeing and the local economy.

Setting of speed limits within Australia are predominantly based on an engineering approach with existing 85th percentile speeds taken as a key measurement. Research shows this is a flawed approach due to the 'evolution of speed'. Adopting a Safe System approach to setting of speed limits should be the aim for Australia.

However, despite this evidenced based research, a noteworthy paradoxical phenomenon that is apparent from examining community reactions to speed management initiatives is the concept of agreeing with the use of speed control initiatives where one lives, and/or where one's children go to school (i.e., 'in my community to protect me and those important to me'), but at the same time, disagreeing with speed control in other areas (e.g., reduced speed limits on roads used for commuting, even if these

roads are where other people's children attend school or where other people live). Although, the Heart Foundation 2020 survey (What Australia Wants), reducing neighbourhood street speed limits appeals, with just under two-thirds of Australians supportive of this idea. This support came primarily from those with children, particularly those who feel it's important to them that their children can walk to and from school safely.

The twelve-month 40km/h trial evaluation noted that support for the trial appears to be moderate. While a small majority are unhappy with the lower limit, there is not substantial or persistent opposition to the 40km/h trial area among local residents. Indeed, the three year survey indicates a growing acceptance to the safer speeds. A majority of respondents surveyed at 12months and three years thought a 40km/h limit could be useful in other areas. City of Vincent residents in general have a support for improving the safety of the neighbourhood streets, especially for those how choose to walk and ride, but believe reduce speeds need additional physical measures and/or police presence in conjunction with speed signs as in general, speed signs alone is felt to be ignored. Residents were also concerned with the impact on vehicle travel times and 'commuting' travel times reduced speeds have.



Both the Padbury Experiment and the Australian College of Road Safety Journal notes that opposition to the introduction of lower speed limits in local neighbourhood streets due to the impact on travel times is not justified, with minimal travel time reductions when travelling at a safer speed.

Travel time analysis presented in Figure 9-1 within the 40km/h trial area further demonstrates this, with only seconds difference between travelling at the existing default 50km/h and traveling at safer speeds of 30km/h and 40km/h and **virtually everyone will live less than 500m from nearest 50km/h+ speed road.**

Safer speeds is a clear aim for the inner city area of Perth, with key strategic documents having priorities to improve road safety and encourage more people to walk and ride. Speed management for safe speeds is also an objective in key State Government documents such as WA Road Safety Strategy and Main Roads WA Speed Zoning Policy.

Case studies presented within this report provide further applied evidence as to the benefits for safer speeds within residential areas, contributing to Healthier Streets, the local economy and the environment.

The application of safer speeds within the residential areas of Edinburgh has had the desired effects of reducing serious

injuries as a result of road crashes occurring due to reduced vehicle speeds.

Some roads are showing reduced 85th percentile speeds and It is likely that over time, the longer the 40km/h trial remains, that general traffic speeds will decrease within Vincent as community expectation for people to drive safely increases.

It is noted that this is the first time within Western Australia that an area wide 40km/h reduced speed trial within a predominantly residential enforced through speed zoning signage only has been undertaken. The City of Vincent didn't expect that there would be 100% compliance to travel speeds straight away and note that is forms part of creating an Accessible City for all.

Indeed, research from *Common Cause Australia* notes that generally within behaviour change, there will be those that support, those that are against (opponents) and those that need persuading (illustrated in Figure 10-1) – the aim of this report.

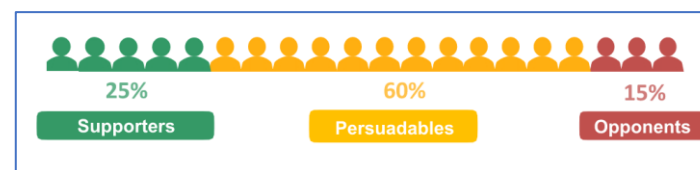


Figure 10-1: Generic Audiences to behaviour change and average percentages



10.1 Recommendations

Table 10-1: Recommendation 1

Implement area wide 30km/h speed zones for all local access and some distributor residential streets throughout City of Vincent	
Opportunities	Risks
• Opportunity to show strong leadership with Safe System compliant speeds • Provides improved road safety benefits and 10% likelihood of death or serious injury should a crash occur (Figure 4-1) • Provides a safer walking and riding network • Less bike riding infrastructure is needed as people on bikes can share the road with vehicles	• Main Roads WA not approving area wide 30km/h resulting in returning to default 50km/h speed • Local residents already not sure about (persuadable) or against 40km/h (opponents) will be in opposition • Requirement for additional physical measures to be implemented to restrict vehicle speeds

Table 10-2: Recommendation 2

Implement area wide 40km/h speed zones for all local access and some distributor residential streets and 30km/h in areas of pedestrian activity throughout City of Vincent	
Opportunities	Risks
• A degree of community acceptance already • Some streets already experience 40km/h travel speeds • Less 'impact' on vehicle travel times • Potentially more acceptable to Main Road WA • Provides improved road safety benefits and 35% likelihood of death or serious injury should a crash occur (Figure 4-1) • Provides a safer walking and riding network	• Main Roads WA not approving 30km/h for areas of pedestrian activity. • Requirement for additional physical measures to be implemented to restrict vehicle speeds • Unintended consequences resulting in difficulty to reduce areawide speeds to 30km/h in the future to be Safe System compliant



10.1.1 Complimentary Measures

The data presented within the twelve-month trial evaluation report notes that some streets experienced minimal compliance of people sticking to the 40km/h limit. As such, together with the adoption of safer speeds across the City of Vincent local access and some distributor streets, a targeted programme of installation of physical traffic management devices to reduce speeds to the required level should be undertaken for those streets where higher than set speeds are recorded, ensuring a target speed is reached, not just a posted speed. This is considered to be a more appropriate approach and noted as reverse of current practice Main Roads WA require, where physical devices are installed prior to Main Roads assessing the required speed zone.

Additional speed signage and potentially bespoke pavement markings should also be considered to enforce the safe speed limit on the local access and some distributor streets to remind people of the expected travel speed along with education through marketing campaigns

Implementing Safe Speeds throughout City of Vincent local streets presents an opportunity for the City of Vincent to be a leading local authority throughout

Australia putting road safety, public health, local economy, and the environment at the forefront.

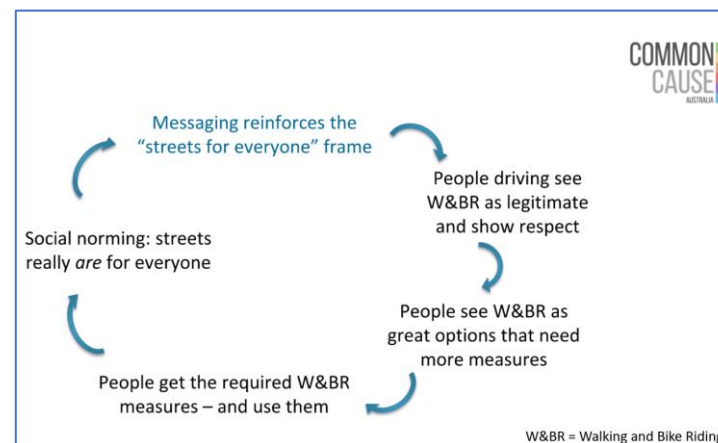


Figure 10-2: Common Cause Australia – messaging and behaviour change

10.1.2 Safer Speed Implementation Implications

The introduction of area wide speed zoning through the City of Vincent will have a significant cost implication as a result of the planning, designing and installation of additional area wide speed zoning signs. It is likely this cost would need to be shared between the City and Main Roads WA.

There will also be a cost implication for the additional LATM speed reducing measures likely to be required to be installed.



In addition, as this is noted as a key priority project within the Inner-City Transport and Infrastructure Working Group (to advocate for slower speeds within residential inner-city Perth (40km/h speed limit) with a further reduction to 30km/h within key Activity Centre areas) the remaining inner-city councils will likely seek to implement 40km/h adding further cost burden to Main Roads WA for speed zoning signing planning, designing and implementation. As such, continued advocacy for a change in the default speed limit on local access streets should be undertaken.

10.2 Proposed Implementation

The following is the proposed implementation for safer speeds throughout the City of Vincent:

- 1 Introduce the 40km/h speed zone trial as a permanent speed zone.
 - Undertake a high-level Movement and Place mapping exercise of the existing access and some distributor street network (including existing speed data) and identify which streets may require additional LATM treatment to reenforce the speed limit.
- 2 Extend the 40km/h speed zone to the rest of City of Vincent local and distributor streets.

- Undertake a high-level Movement and Place mapping exercise of the remaining access and some distributor street network (including existing speed data) and identify which streets may require additional LATM treatment to reenforce the speed limit.

On review of the City of Vincent's current traffic calming treatments and current proposals for speed reduction in areas within North Perth and Mount Lawley, the role out of the permanent 40km/h speed zone would be most advantageous as follows:

- Area 1: from Newcastle Street to Vincent Street, between Charles Street and the river – implementation in 2022.
- Area 2: within the area bounded by Raglan Road, Hyde Park, Vincent and Fitzgerald Streets, North Perth/Mount Lawley - implementation in 2022.
- Area 3: in North Perth area bounded by Charles Street (West), Angove Street (North), Fitzgerald Street (East) and Vincent Street (South) - implementation in 2022.
- Area 4, All Local Access and most Distributor Roads within the City of Vincent to receive new 40km/h speed zone - implementation in 2024.
- Implement a communication plan to consistently provide messaging to local residents and visitors as to the new speed limits and driver expectations – supporting the behaviour change.







***"Safer speeds in
local streets just
makes sense."***

Glen Yates, parent
Kingsville Primary School

#LoveWalking



Appendix A Traffic Volume and Speed Data 2022

Past and Post Traffic Data at 40km/h Zone

Street	Location	Year	AWT	85% speed	Avg Speed	Heavy veh	Change in 85% speed
			Nos	km/h	km/h	%	km/h
East Perth							
JOEL TCE	BREAM COVE-GARDINER	Dec-18	2194	53.6	45.2	3.4	-4.3
		Oct-19	2201	50.4	42.7	2.2	
		Nov-20	2122	50.4	42.3	2.9	
		Jun-21	2186	49.3	41.9	2.7	
SUMMERS ST	CLAISEBROOK-WEST	Dec-18	1394	47.5	39.2	3.6	-1.8
		Oct-19	1538	46.1	37.7	5.4	
		Nov-20	1475	45.9	37.6	5.8	
		Jun-21	1326	45.7	37.2	5.4	
Highgate							
HAROLD ST	SMITH-WRIGHT	Nov-18	2082	40.7	34.3	3	-1.3
		Oct-19	2053	39.6	33.3	2.1	
		Oct-20	2059	39.8	33.6	2.8	
		Jun-21	1962	39.4	32.8	2.6	
SMITH ST	BROOME- LINCOLN	Nov-18	2196	48.6	40.1	1.7	-0.7
		Oct-19	2160	49.3	41.1	1.9	
		Oct-20	2346	48.1	39.4	2.3	
		Jun-21	2006	47.9	39.4	2.1	
Perth							
BULWER ST	LORD-WRIGHT	Nov-18	8264	54.9	47.8	3.5	-1.6
		Oct-19	8280	54.2	47.1	3	
		Oct-20	8726	54.2	46.8	3.9	
		Jun-21	7965	53.3	46.3	3.6	
BRISBANE ST	DANGAN-LAKE	Dec-18	1384	46.5	38.3	2.6	-2.0
		Oct-19	1451	46.1	38	3.1	
		Nov-20	1745	44.8	37.2	2.5	
		Jun-21	1820	44.5	36.9	2.6	
WILLIAM ST	MONGER-ROBINSON	Dec-18	7485	47.2	35.6	4.1	-4.7
		Oct-19	6951	44.3	33.9	4.4	
		Oct-20	8374	42.5	33.1	4.4	
		Jul-21	9273	42.5	32.4	4.2	
West Perth							
BULWER ST	FITZGERALD-PALMERSTON	Dec-18	11528	53.1	46.7	3	-1.8
		Oct-19	10161	52.2	45.8	2.6	
		Nov-20	10815	51.8	45.4	3.6	

		Jun-21	10491	51.3	44.8	3.1	
PALMERSTON ST	MYRTLE- RANDELL	Dec-18	2732	37.3	29.8	3.1	0
		Oct-19	2555	37.1	29.8	3.0	
		Oct-20	2573	37.1	30.0	3.0	
		Jun-21	2502	37.3	30.1	3.5	
VINCENT ST	ETHEL- NORFOLK	Dec-18	11978	52	44.7	2.5	-0.2
		Oct-19	10939	51.8	44.6	3.6	
		Nov-20	11560	51.8	44.9	3.4	
		Jun-21	10612	51.8	45.1	4.1	
CARR ST	CHARLES- FITZGERALD	Feb-18	4934	52.6	45.6	2.9	-1.5
		Nov-19	4194	50.9	43.8	1.9	
		Nov-20	4026	51.3	43.6	2.6	
		Jun-21	3783	51.1	43.6	2.7	



Appendix B Approaches to the setting of speed limits across Australia and International

Research into Methods and Practices for Setting Speed Limits – 2019

The Federal Highway Administration (FHWA), US Department of Transportation have produced an informational report on the *Methods and Practices for Setting Speed Limits* (the report). The report (produced in April 2012) describes four primary practices and methodologies that are used in establishing speed limits (described below). It also reviews the basic legalities of speed limits and presents several case studies for setting speed limits on a variety of roads.

- **engineering approach** - a two-step process where a base speed limit is set according to the 85th percentile speed, the design speed for the road, or other criterion. This base speed limit is adjusted according to traffic and infrastructure conditions such as pedestrian use, median presence, etc. Within the engineering approach there are two approaches; 1) Operating Speed Method and 2) Road Risk Method.
- **expert systems** - speed limits are set by a computer program that uses knowledge and inference procedures that simulate the judgment and behaviour of speed limit experts. Typically, this system contains a knowledge base containing accumulated knowledge and experience (knowledge base), and a set of rules for applying the knowledge to each particular situation (the inference procedure).
- **optimisation** - setting speed limits to minimize the total societal costs of transport. Travel time, vehicle operating costs, road crashes, traffic noise, and air pollution are considered in the determination of optimal speed limits.
- **injury minimisation or safe systems approach** - speed limits are set according to the crash types that are likely to occur, the impact forces that result, and the human body's tolerance to withstand these forces.

A detailed description of the four approaches is provided within the report - *Federal Highway Administration (FHWA), US Department of Transportation Informational Report on the Methods and Practices for Setting Speed Limits* and provides a summary of each method including advantages and disadvantages for each approach. This is replicated in Figure 1.

It is noted, that while Australia is noted as an example jurisdiction for Expert System in Figure 1, it should also be noted within the Engineering (Operating and Road Risk categories).

Approach	Jurisdictions	Basic Premise	Data Required	Advantages	Disadvantages
Engineering (Operating Speed)	United States	The speed limit is based on the 85th percentile speed, and may be slightly adjusted based on road and traffic conditions and crash history.	The existing speed profile as well as data on accesses, pedestrian/bicycle traffic, curbside parking, safety performance, etc.	Using the 85th percentile speed ensures that the speed limit does not place an undue burden on enforcement, and provides residents and businesses with a valid indication of actual travel speeds.	Drivers may not be adequate judges of the externalities of their actions, and may not be able to self-select the most appropriate travel speed. Speed limits are often set lower than the 85th percentile speed.
Engineering (Road Risk)	Canada, New Zealand	The speed limit is based on the function of the road and/or the adjacent land use and then adjusted based on road and traffic conditions and crash history.	Functional classification of the road, setting (urban/rural), surrounding land uses, access, design features of the road.	The speed limit and the function of the road are aligned. The function of the road also dictates many of the design elements of the road, so this method aligns the speed limits with the design of the road.	The road risk methods may result in speed limits that are well below the 85th percentile speeds, resulting in an increased burden on enforcement if remedial measures are not employed (i.e., traffic calming, etc.).
Expert System	United States, Australia	Speed limits are set by a computer program that uses knowledge and inference procedures that simulate the judgment and behavior of speed limit experts.	Data needs depend on the system, but generally expert systems require the same data as used in the engineering approaches.	A systematic and consistent method of examining and weighing factors other than vehicle operating speeds in determining an appropriate speed limit. It is reproducible and provides consistency in setting speed limits within a jurisdiction.	Practitioners may need to rely on output from the expert system without applying a critical review of the results.
Optimal Speed Limits	—	The selected speed limit minimizes the total societal costs of transport when considering travel time, vehicle operating costs, road crashes, traffic noise, air pollution, etc.	Cost models and input data to account for air pollution, crashes, delay, etc.	Provides a balanced approach to setting speed limits that is considerate of many (if not all) of the impacts that speed has on society. Allows for the consideration of pedestrian and cyclist traffic in setting speed limits. May be particularly useful in a context sensitive situation.	Data collection and prediction models may be difficult to develop and are subject to controversy among professionals. Resulting speed limits may not be immediately obvious to the user.
Injury Minimization/ Safe System	Sweden, Netherlands	Speed limits are set according to the crash types that are likely to occur, the impact forces that result, and the tolerance of the human body to withstand these forces.	Crash types and patterns for different road types, and survivability rates for different operating speeds.	There is a sound scientific link between speed limits and serious crash prevention. Places a high priority on road safety.	This method is based solely on a road safety premise and may not be accepted as appropriate in some jurisdictions.

Figure 1 - Federal Highway Administration (FHWA), US Department of Transportation Informational Report on the Methods and Practices for Setting Speed Limits - approaches to setting speed limits

The report provides a summary of results obtained by applying each method to a case study example. Figure 2 shows the recommended speed limits yielded by each speed limit setting method and the actual speed limit enacted by the road authority for both case studies.

	Eldron Boulevard, Florida	State Route 67, California
Actual Speed Limit	40	55
Illinois DOT	40	55
Northwestern	45	55
USLIMITS2	40	55
Optimal Speed	45	50
Safe System Speed	30	50

Figure 2 - Federal Highway Administration (FHWA), US Department of Transportation Informational Report on the Methods and Practices for Setting Speed Limits - recommended speed limits for the Case Studies

The report provides a succinct summary of these results, noting, with the exception of the safe systems approach, the recommended speed limit from each of the methodologies used are within 5 mph of each other. On the one hand, this suggests an inter-method consistency that is reassuring. However, it needs to be remembered that these are only two specific examples, and this consistency may not endure in other cases. In fact, the optimal speed and the safe systems approaches are known to produce results that have a more pronounced difference from the other methods in certain situations. This is perhaps not surprising since the Illinois DOT method, the Northwestern method, and USLIMITS2 all start from the 85th percentile speed.

As expected, the safe speed approach resulted in speed limits that are at the low end of the range. This becomes very apparent in the urban case on Eldron Avenue, where the potential for more frequent right-angle crashes requires a more dramatic decrease in operating speeds to be consistent with the zero tolerance for injury-producing crashes.

What approaches are being used in Australia and Internationally?

Based on the previously discussed approaches to speed limit setting, Table 1 provides an indication of the approaches being used in Australia and the international countries that have been assessed.

Table 1 - approaches to setting speed limits based on desktop research

Australian State	Process for setting speed limits	Speed Limit setting approach
Western Australia	The primary determination of the speed limit for a particular length of road is by road function in accordance with the hierarchy of speed limits listed on MRWA website. Subject to requirements for the minimum length of a speed zone, the limit corresponding to that function and application which best meets the description given under 'key features' shall be adopted unless an adjustment up or down can be justified.	Engineering – road risk and to some degree, operating speed.
Victoria	The Guidelines in Victoria provide clear processes for the setting of speed limits, which always start at the default	A combination of Engineering (operating speed and road risk) and Expert System (Vlimits).

	50km/h or 100km/h (urban or rural setting) and then provide a process to determine if the default limit needs to be changed. The Guidelines also note the use of Vlimits as a tool to assist in determining speed limits.	There may be an element (through community consultation) of the Optimal Speed Limits approach also.
New South Wales	The 10-step process for setting of speed limits appears to be more heavily focused on existing data analysis (crash data, site specific conditions and speed) only once authorisation has been received for a new speed limit are the local community engaged. The data collection and analysis process also seem subjective to a certain degree as there is no obvious guidance as to what parameters of data would determine a change to the existing speed limit.	Mainly Engineering – Operating Speed. However, an element of Engineering – Road Risk is considered.
South Australia	The process to the setting of speed limits appears to be taken from the New South Wales process but does not provide as much detail regarding the fundamental steps to consider and undertake when reviewing speed limit change. It is heavily focused on existing data analysis (crash data, site specific conditions and speed) and only once authorisation has been received for a new speed limit or likely to be received are the local community engaged. The data collection and analysis process also seem subjective to a certain degree as there is now obvious guidance as to what parameters of data would determine a change to the existing speed limit.	Mainly Engineering – Operating Speed.
Queensland	The process to the setting of speed limits appears to be taken from the Australian Standards process and encompasses two processes for assessment – i)	Both Engineering – road risk and operating speed.

	Criteria Based Speed Limit (CBSL) assessment, and ii) the Risk Assessed Speed Limit (RASL) assessment which the engineer assessing must follow. This is then ratified by the 'responsible officer' and approved (or otherwise) by the Speed Management Committee.	
Northern Territory	No information could be found	n/a
International	Process for setting speed limits	
New Zealand	The Speed Management Guide ensures the process begins with a strategic, one-network based approach and then, by applying a series of techniques, drill down to identify where there is the greatest benefit in addressing misalignment between speed limits, current travel speeds and safe and appropriate travel speeds. The overarching aims are to achieve regionally and nationally consistent outcomes and to prioritise effort and available resources to achieve the highest benefit.	A combination of Engineering (operating speed and road risk). There may be an element (through community consultation) of the Optimal Speed Limits approach also.
UK	Circular 01/2013 provides guidance to all local authorities on the setting of speed limits and the process to follow and considerations to be accounted for. The Circular draws an alignment with the Police, to ensure enforcement is considered within the process and provides a tool to assist with speed limit assessment process.	A combination of Engineering (operating speed and road risk) and Expert System (speed limit appraisal tool).
British Columbia, Canada	The ITE Guidelines have been introduced to provide a consistent basis for the application of engineering principles to speed zoning. The summary of the guidelines notes a very engineering focused practiced using gathered data with no mention of community input or consultation.	Both Engineering – road risk and operating speed.

Tennessee, USA	The TDOT Guidance on Setting Speed Limits, provides a consistent basis for the application of engineering principles to speed zoning. The guidelines note the requirement for an engineering study to be undertaken, always starting with the default speed limits and then analysing data for the justification to vary from this. The Guidelines are focused on using gathered data to inform an engineering study, with no mention of community input or consultation.	Both Engineering – road risk and operating speed.
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Appendix C City of Vincent Resident Surveys



CITY OF VINCENT 40KM/H TRIAL EVALUATION
Residents Perception Analysis

14 October 2022

Prepared for:
Road Safety Commission

Prepared by:
Cameron Steel/Tim Judd

Project Number:
300303850

City of Vincent 40km/h Trial Evaluation

Revision	Description	Author	Date	Quality Check	Date	Independent Review	Date
A	Draft	CS/TJ	04/10/22	TJ	04/10/22	AO	06/10/22



City of Vincent 40km/h Trial Evaluation

The conclusions in the Report titled City of Vincent 40km/h Trial are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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1 Background

Stantec and Phil Jones Associates (PJA) have been engaged by the Road Safety Commission to undertake an evaluation of the City of Vincent's 40km/h trial that took effect on all local roads within the southern part of the City of Vincent (broadly south of Vincent Street) from April 2019. Distributor roads retained their existing posted limits, at either 50 km/h or 60 km/h. The two-year trial was proposed to run until April 2021. However, the trial has now been extended and is ongoing. The spatial scope of the trial is shown in Figure 1-1.

Figure 1-1: City of Vincent 40km/h Trial Study Area



(Source: City of Vincent)

In June 2020 GHD produced a report on the trial assessing changes to traffic behaviour (traffic volumes and travel speed). This report evaluates how local residents have perceived the trial, how peoples' travel behaviour may have changed and, if additional interventions may be required to achieve a more self-enforcing 40km/h travel area.

2 Data Analysis

The City of Vincent provided Stantec with community survey responses for the following topics:

- Background information on traffic and transport in Vincent and 40km/h trial
- 40km/h trial feedback
- Florence Street / Carr Street proposed traffic calming feedback
- Forrest Street (Fitzgerald Street to Norfolk Street) proposed traffic calming and parking changes feedback
- Vincent Street, William Street, Fitzgerald Street and Forrest Street proposed mini roundabouts pilot project feedback
- North Perth proposed traffic calming feedback
- Birrell Street, Eucla Street and Federation Street proposed traffic calming and parking restrictions feedback
- Shakespeare Street proposed Safe Active Street (SAS) feedback
- Strathcona Street and Golding Street proposed traffic calming feedback.

Additionally, Stantec were provided with the following reports:

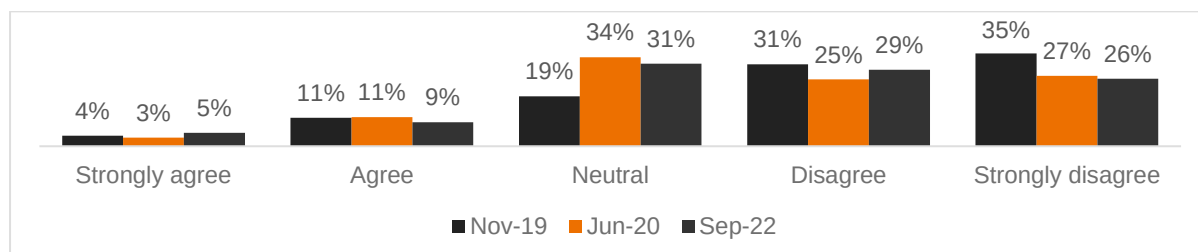
- The City of Vincent Accessible City Strategy
- The City of Vincent Draft Accessible City Strategy Consultation Summary
- GHD 40km/h Review City of Vincent – 12 Month Trial Evaluation.

2.1 Survey Analysis

2.1.1 40KM/H TRIAL AREA WIDE (2019-2022)

The City of Vincent undertook three community surveys between November 2019 and September 2022 to gauge the public's general perceptions of the trial. A comparison of the findings of the surveys over time are shown as column charts and individual survey results are shown as pie charts in the summaries below.

Figure 2-1: The 40km/h limit has reduced rat-running



City of Vincent 40km/h Trial Evaluation

2 Data Analysis

Figure 2-2: The 40km/h trial has made walking and cycling safer

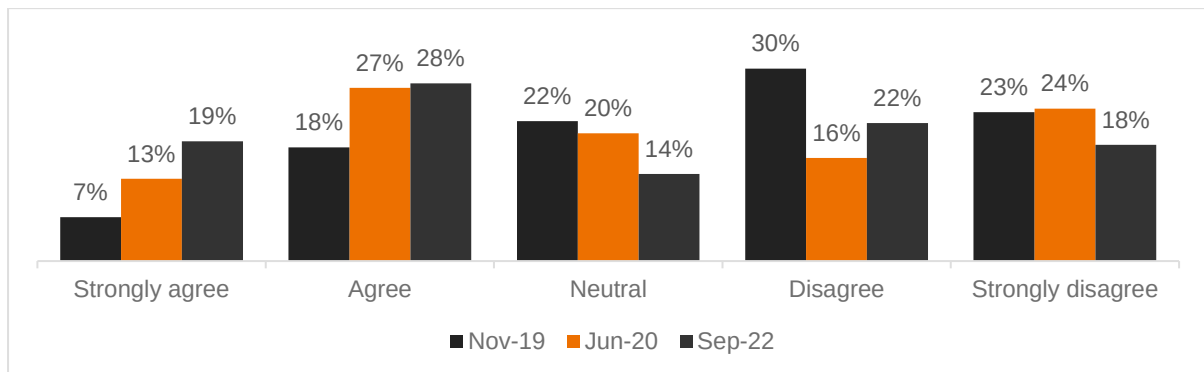


Figure 2-3: The 40km/h trial has made streets safer for children

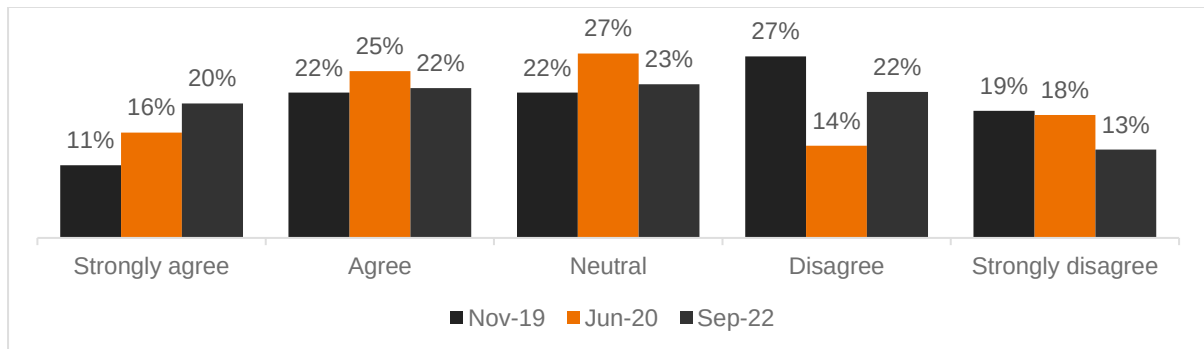


Figure 2-4: The 40 km/h trial has made local streets quieter

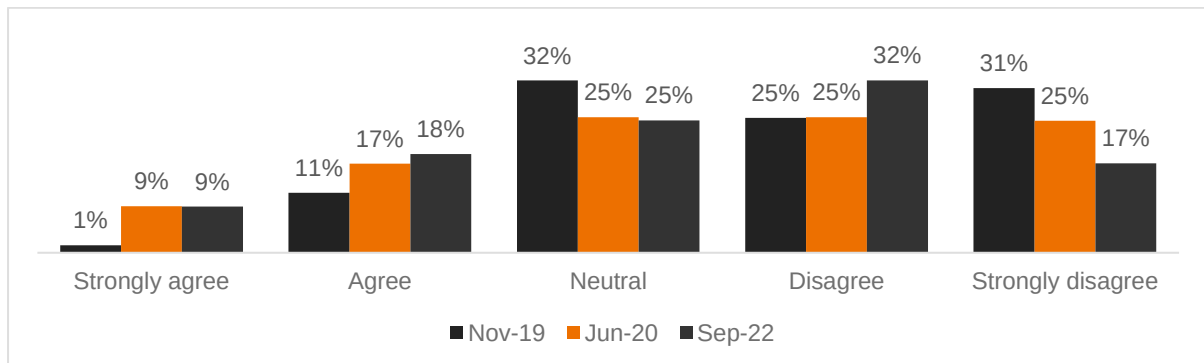
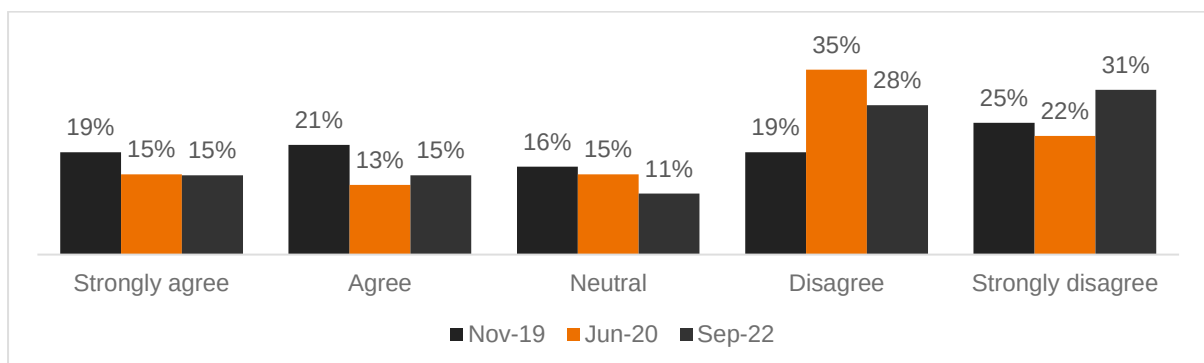


Figure 2-5: The 40 km/h trial has made it harder to get around



City of Vincent 40km/h Trial Evaluation

2 Data Analysis

Figure 2-6: I think the 40 km/h trial has been worth doing

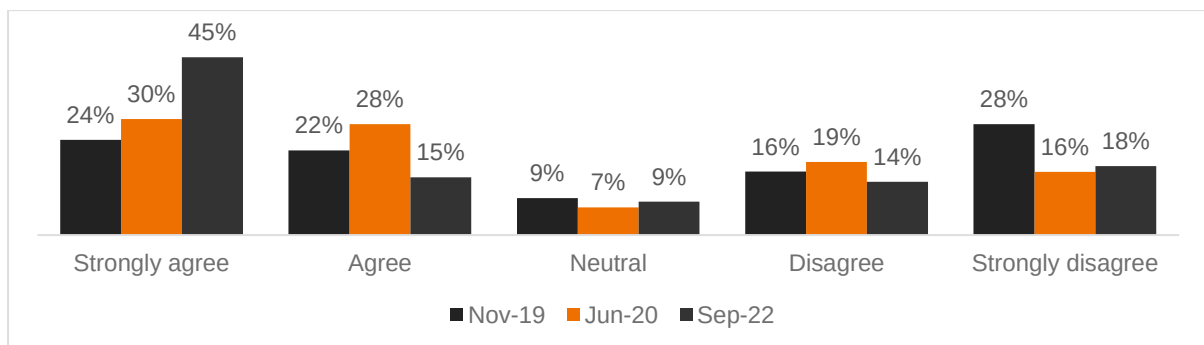


Figure 2-7: I think the 40 km/h area speed limit might be useful in other areas

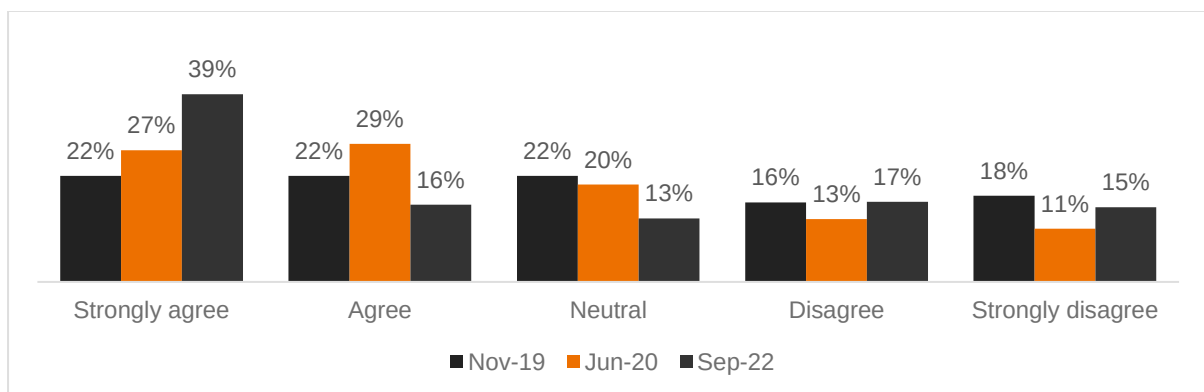


Figure 2-8: I think it is morally acceptable to drive 10km/h over the lowered speed limit in the trial 40km/h area

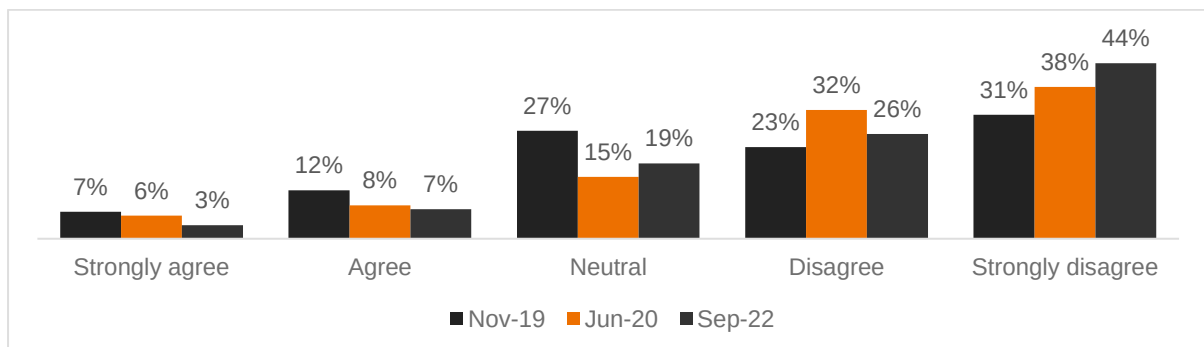
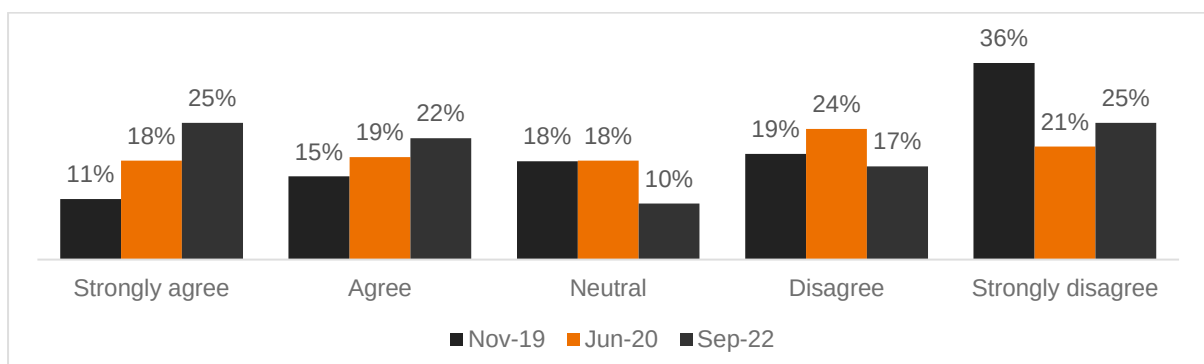


Figure 2-9: The 40km/h trial has made the local area more liveable



City of Vincent 40km/h Trial Evaluation

2 Data Analysis

Figure 2-10: The 40km/h trial encourages healthy local transport

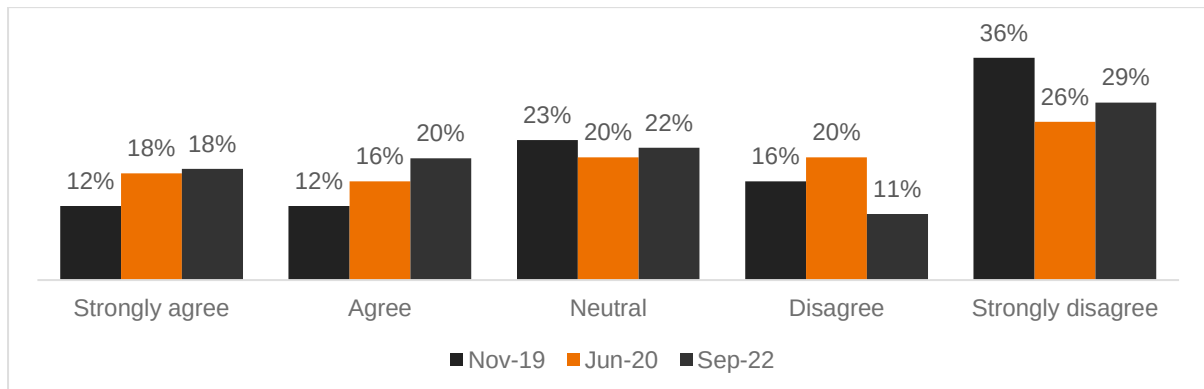


Figure 2-11: The 40km/h trial encourages healthy local recreation

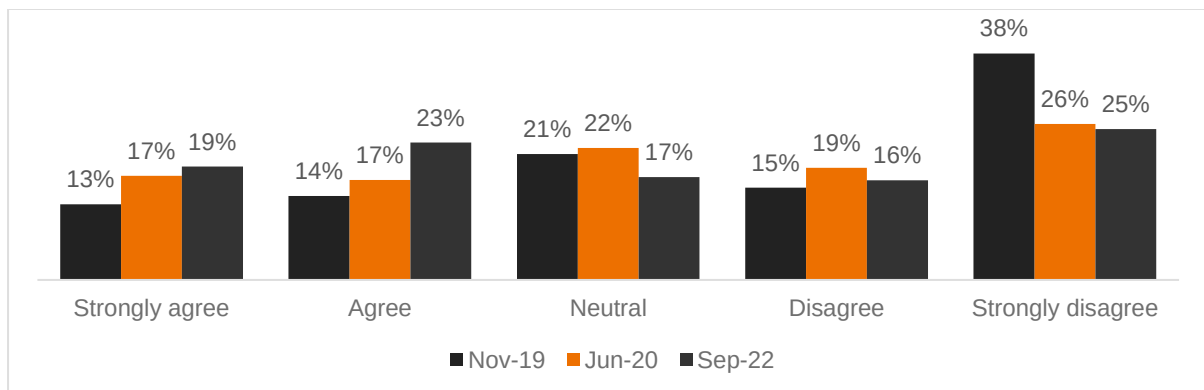


Figure 2-12: Has the reduced speed zoning given you more confidence to let children walk or ride to school? (September 2022 Survey)

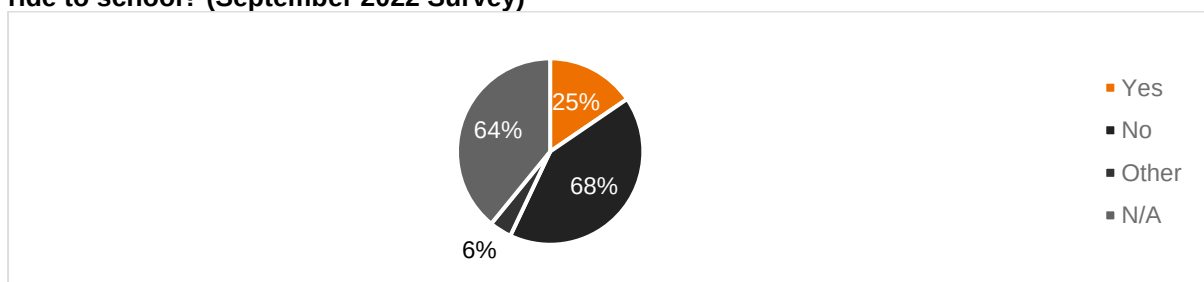


Figure 2-13: Has the reduced speed zoning given you more confidence to let children access Public Open Space? (September 2022 Survey)

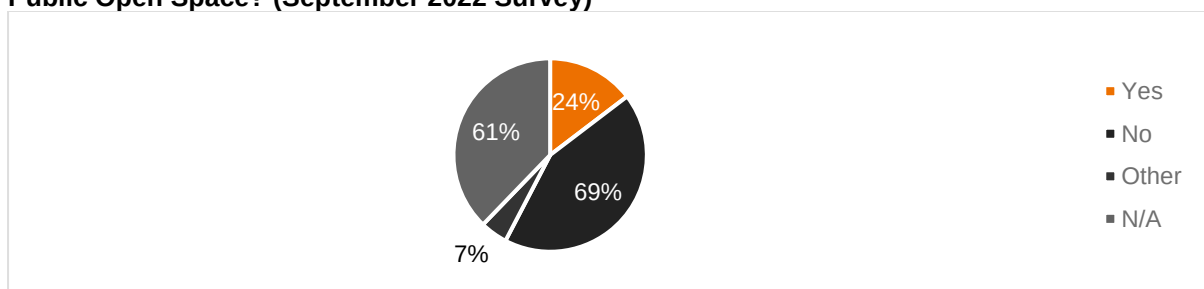


Figure 2-14: If you are over 60, does the reduced speed zoning provide you more confidence to walk or use any mobility aids within the street? (September 2022 Survey)

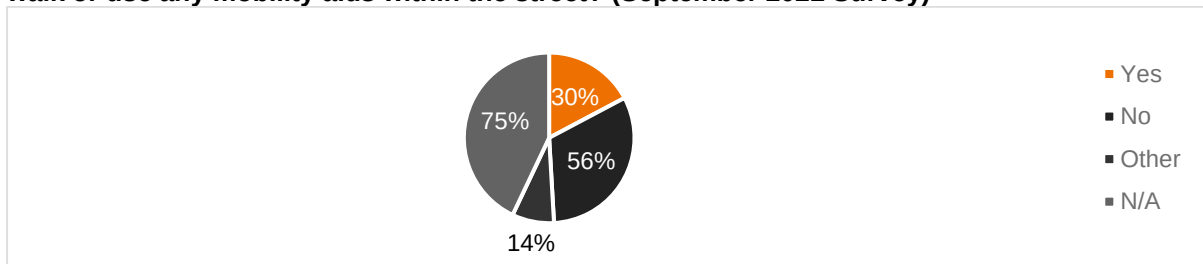


Figure 2-15: Do you think a reduction to 40km/h is safe enough, or would reducing the speed further within residential streets provide greater confidence to walk or ride in the streets? (September 2022 Survey)

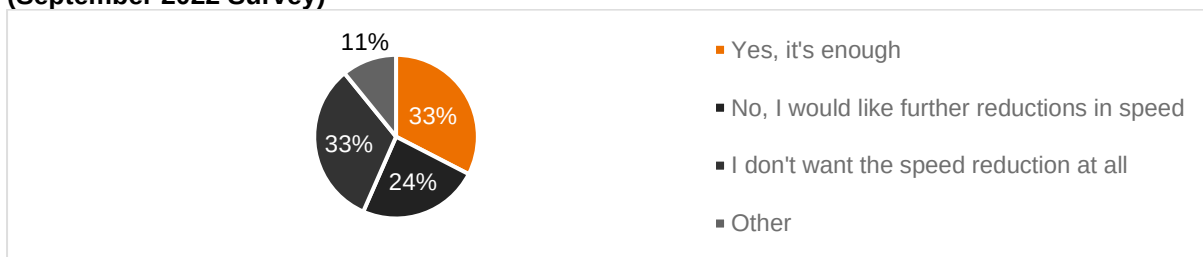


Figure 2-16: Would you consider a 30km/h limit? (August 2018 Survey)

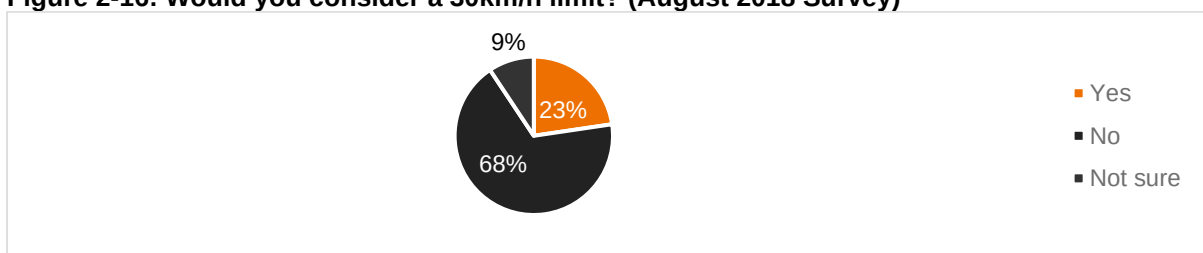


Figure 2-17: Rather than a trial, should the urban speed limit across Perth be reduced to 40km/h now in urban (local streets, not main distributors) streets? (August 2018 Survey)

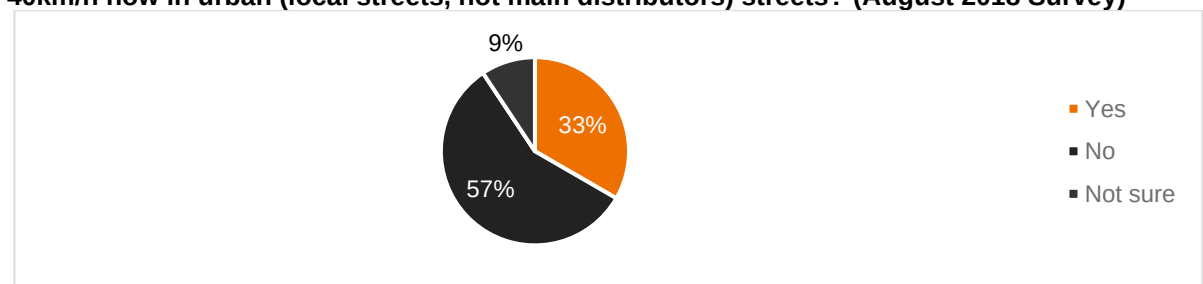


Figure 2-18: Are you likely to use your car less, and walk or ride more, for local trips during the trial? (August 2018 Survey)

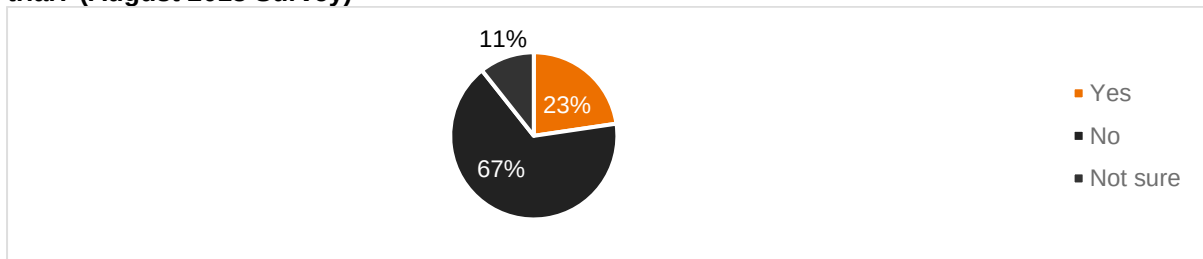


Figure 2-19: What were your reasons for supporting the trial? (August 2018 Survey)

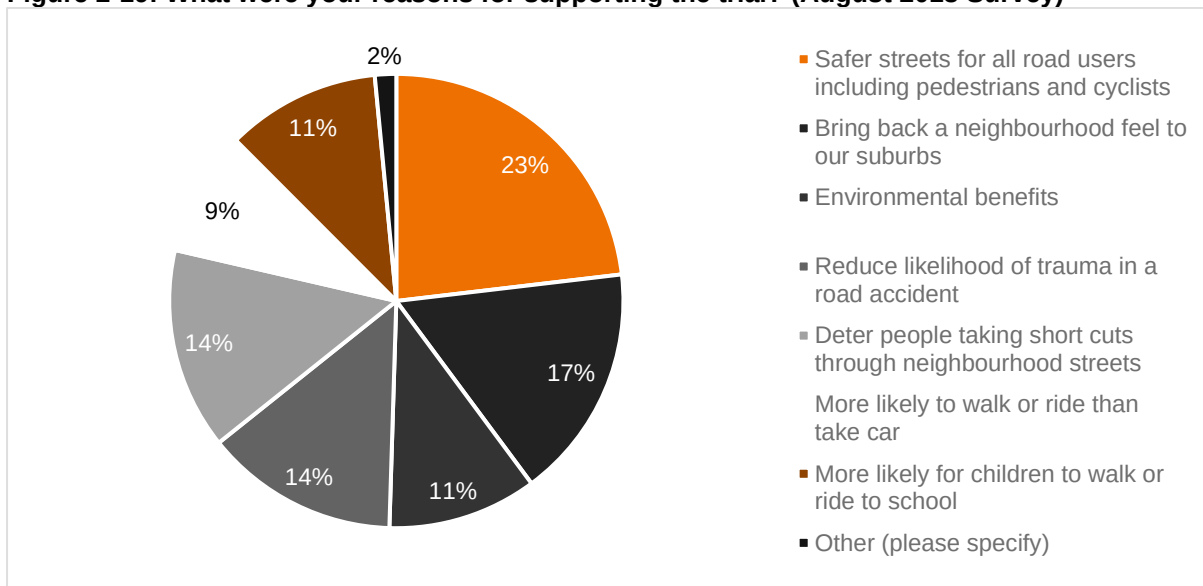


Figure 2-20: What were your reasons for not supporting the trial? (August 2018 Survey)

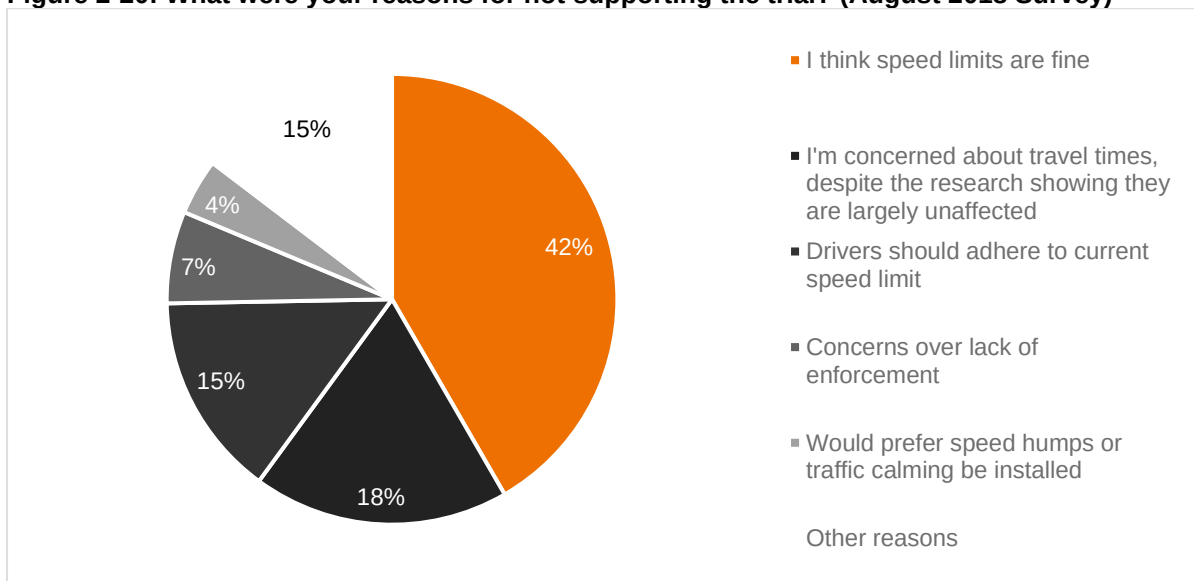
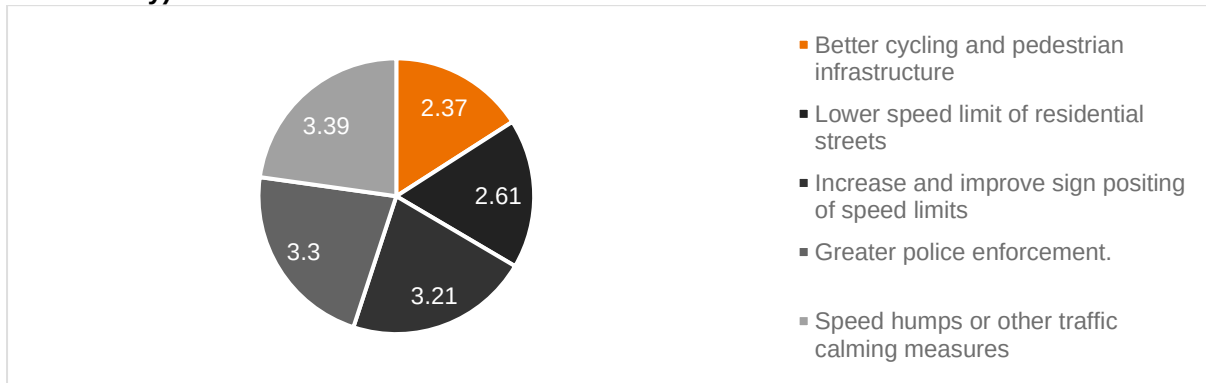


Figure 2-21: Please rank from 1 to 5 the following measures to improve safety and amenity of residential streets (with 1 being your highest priority and 5 being your lowest priority) (August 2018 Survey)



2.1.1.1 Summary

A summary of the key points from the analysis of the previous figures include:

- Little to no change in observed rat-running being reduced. However, there has been a shift from strongly disagree to neutral over time
- An increase by 22% in agreement and a decrease by 13% in disagreement over time in walking and cycling being safer at 40km/h
- An increase in perception of streets being safer for children at 40km/h by 9%
- An increase by 15% in streets being quieter during the trial
- Shift towards streets becoming easier to get around over time
- An increase by 13% in support of the trial over time
- An increase by 11% over time in support of the trial area extending
- Driving at 40km/h rather than 50km/h becoming more widely accepted over time
- An increase by 21% in perception of improved liveability over time in the trial area
- An increase in willingness to use healthy local transport over time by 14%
- An increase by 15% in encouragement of healthy local recreation over time
- Only 25% of applicable responses feel more confident to let children walk or ride to school with the reduced speed zoning
- Only 24% of applicable responses feel more confident to let children access Public Open Space with the reduced speed zoning
- Only 30% of respondents over 60 years old feel more confident to walk or use mobility aids within the reduced speed zoned street
- 57% support reducing the speed to 40km/h or further within residential streets provide greater confidence to walk or ride in the streets
- The supporting benefits of the trial are widespread through the 921 responses with safer streets for all road users including pedestrians and cyclists (23%), bring back a neighbourhood feel to our suburbs (17%), reduce likelihood of trauma in a road accident (14%), deter people taking short cuts through neighbourhood streets (14%), environmental benefits (11%), more likely for children to walk or ride to school (11%) and being more likely to walk or ride than take car (9%)
- The main reasons for being against the trial only had a response rate of 348 with the main reason relating to the existing speed limits being fine with 42% of the votes
- 32% may be open to a 30km/h speed limit



City of Vincent 40km/h Trial Evaluation

2 Data Analysis

- 43% may be open to local streets across Perth being reduced to a 40km/h speed limit
- 34% may be more likely to choose walking or riding for local trips over car trips
- The preference of measures for improving safety and amenity of residential streets are better cycling and pedestrian infrastructure (25%), lower speed limit of residential streets (22%), increase and improve sign positing of speed limits (18%), greater police enforcement (22%) and speed humps or other traffic calming measures (23%).

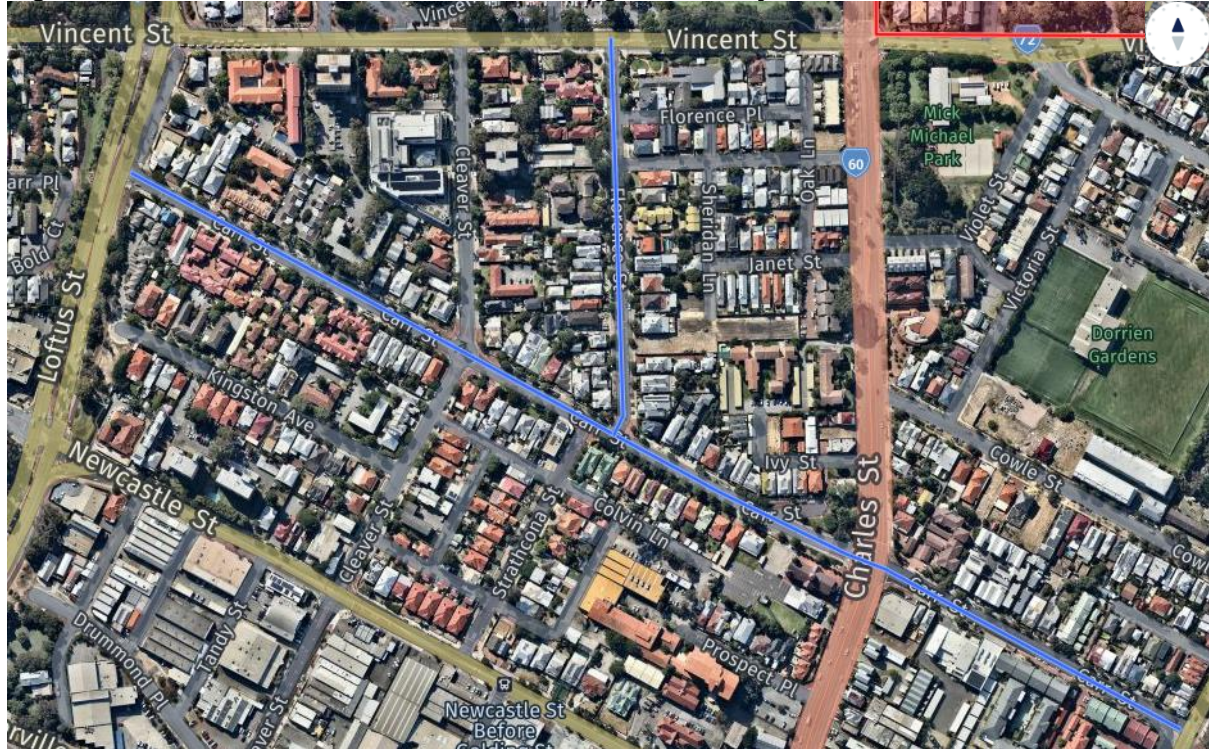
The general themes of feedback and comments relating to the trial and traffic issues within the City of Vincent include:

- Rat-running along Joel Terrace is a major issue that has not been resolved with the trial. Additionally, there is a demand for signage to reinforce compliance with the speed limit.
- 40km/h speed limit along Bulwer Street is too slow and increases delay. 50km/h is generally more accepted than 40km/h.
- Many vehicles are not following the 40km/h speed limit while others are, causing an inconsistency in vehicle speeds making it unsafe for drivers and crossing pedestrians to judge when is “safe” to cross
- Difficulty crossing at Vincent Street and East Parade
- Police reinforcement is required to reinforce compliant vehicle traveling speeds. Road marking the speed limit and additional signage is also encouraged to reinforce the speed limit for drivers
- Summers Street to be speed zoned as a school zone for the childcare centre
- 40km/h encouraged on low volume residential roads where higher volumes of children and elderly are but discouraged on high vehicle volume roads that cause excessive delays on commute times
- The inconsistency and changing of speed limits zone confuse drivers, making them feel unsafe
- Cycle infrastructure in place is adequate, need for reduced vehicle speeds is not required
- A demand for alternative speed reduction measures to be put in place instead of or in conjunction with speed reduction signs to physically slow traffic. Speed signs are generally ignored.
- Cycling safety has not improved due to variances in traffic speeds and delays causing road rage



2.1.2 FLORENCE STREET AND CARR STREET UPGRADES (2019-2022)

Figure 2-22: Florence Street and Carr Street Upgrades Study Area



(Source: Nearmap)

The general themes of comments from the Florence Street and Carr Street upgrades survey include:

- The idea of bike lanes is generally supported but the associated issues on Florence Street/Carr Street generally outweigh the proposal with the removal of on-street parking along Florence Street and Carr Street being a major issue for residents with no on-site parking
- High number of vehicle U-turns on Carr Street.

2.1.3 FORREST STREET TRAFFIC CALMING AND PARKING RESTRICTIONS (2021-2022)

The City of Vincent proposed to implement three speed humps between the entrance of the Wasley Street carpark and Norfolk Street and alternating the on-road parking so that the vehicles do not have a 'clear' passage of travel along the northern (east bound) side of the road and are required to slow down to give-way to approaching traffic. Additionally, a change in parking restrictions is proposed from 3P to 1P. The proposed changes on Forrest Street take place between Fitzgerald Street and Norfolk Street as shown in Figure 2-23.

Figure 2-23: Forrest Street Traffic Calming and Parking Restrictions Study Area



(Source: Nearmap)

Figure 2-24: Do you support proposed speed humps?

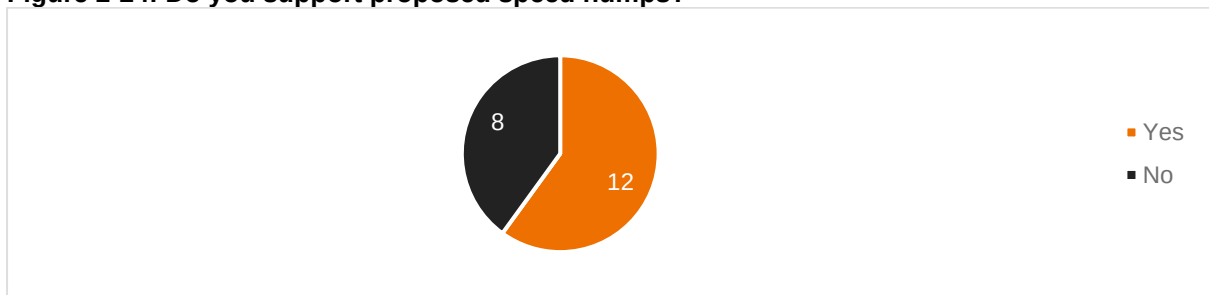


Figure 2-25: Do you support staggered parking?

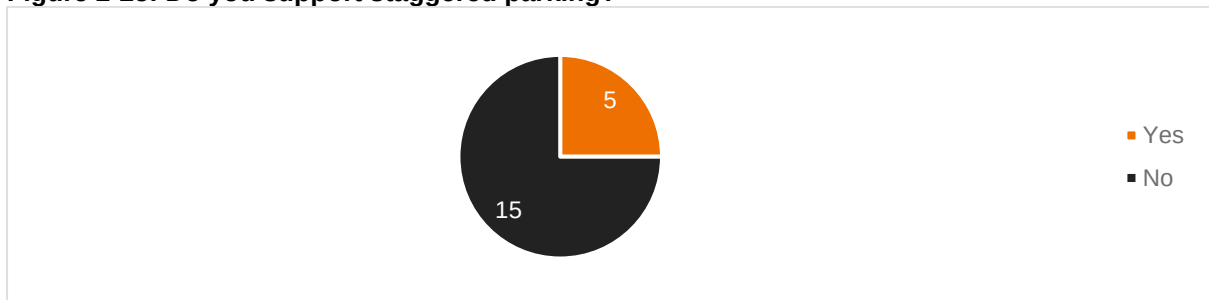
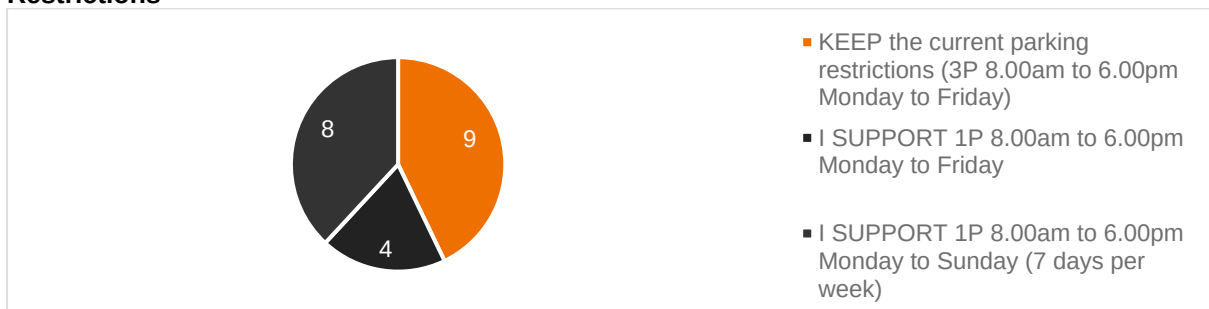


Figure 2-26: Please tick the box that applies to you in relation to your thoughts about Parking Restrictions



2.1.3.1 Summary

A summary of the key points in the survey include:

- 60% of residents support speed bumps being installed on Forrest Street
- 75% of residents are against staggered parking on Forrest Street, primarily due to the loss of residential parking unavailable on-site
- 43% support keeping 3-hour parking restrictions on weekdays (8am – 6pm) and 38% support a change to a 1-hour parking restriction 7-days of the week (8am – 6pm)

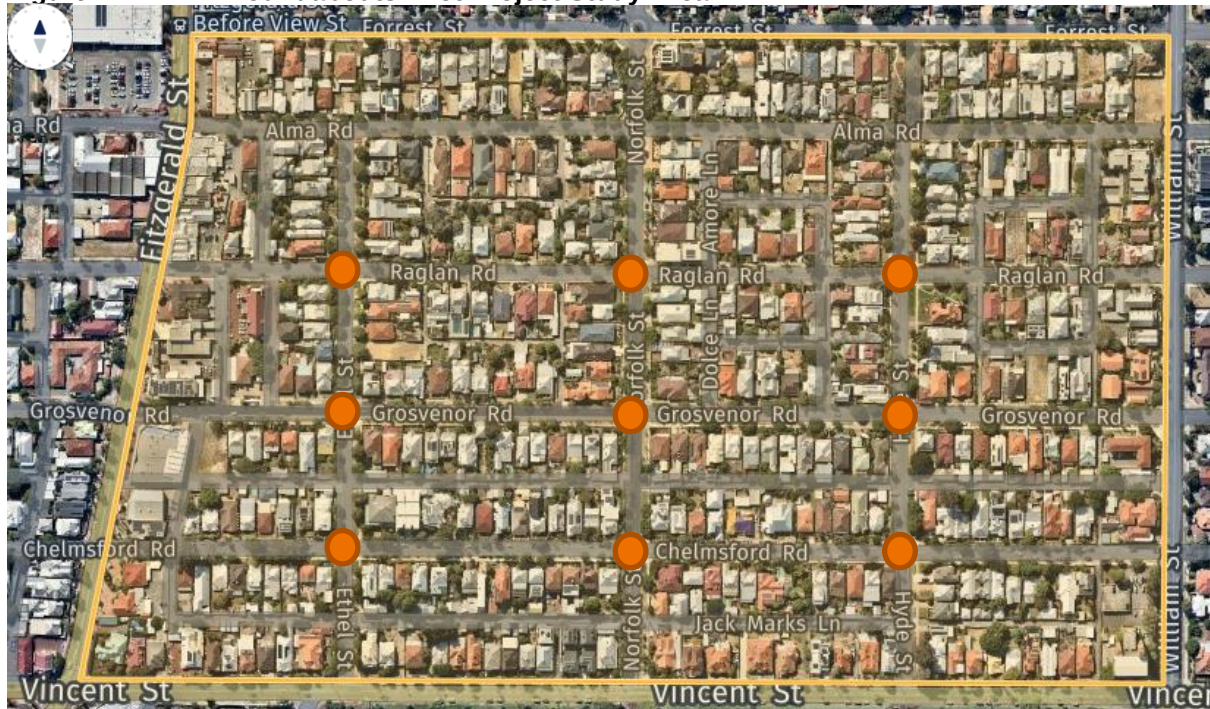
The themes of feedback and comments on the proposals for Forrest Street include:

- Installation of staggered parking bays on Forrest Street generally not supported due to the road width and confusion as parking on one side currently also restricts traffic volumes and speeds. The proposed parking restrictions are also an issue for residents and their visitors.

2.1.4 MINI ROUNDABOUTS PILOT PROJECT (2021-2022)

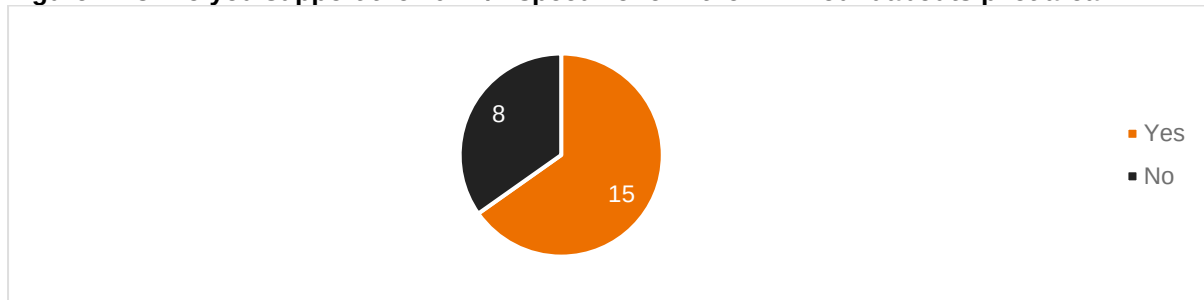
The mini roundabouts pilot project area consists of reducing the speed limit in the area bound by Vincent Street, Fitzgerald Street, Forrest Street and William Street to 40km/h. Additionally, installing mini roundabouts at nine intersections in the area bounded by Ethel Street, Raglan Road, Hyde Street and Chelmsford Road as shown in Figure 2-27.

Figure 2-27: Mini Roundabouts Pilot Project Study Area



(Source: Nearmap)

Figure 2-28: Do you support the 40km/h speed zone in the mini roundabouts pilot area?



2.1.4.1 Summary

A summary of the key points in the survey include:

- 65% support a 40km/h speed limit within the mini roundabouts pilot area

The themes of feedback and comments on the mini roundabout pilot project include:

- Demand for pedestrian/cyclist priority over vehicles in the mini roundabout trial
- Residents would feel more unsafe crossing at mini roundabouts than the existing layouts.

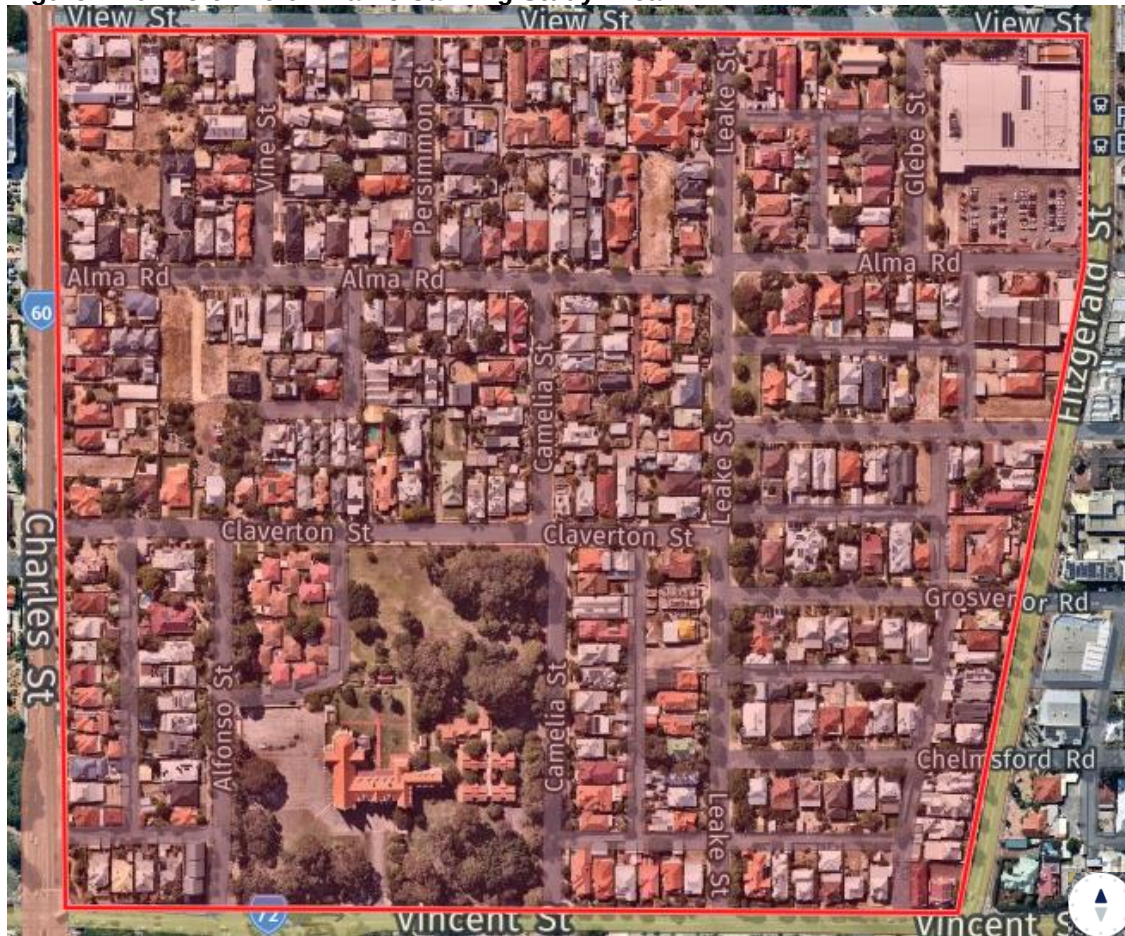
2.1.5 NORTH PERTH TRAFFIC CALMING (2020-2022)

The North Perth traffic calming study area is bound by Charles Street, View Street, Fitzgerald Street and Vincent Street as shown in Figure 2-29. The traffic calming measures proposed by the City of Vincent involve the installation of mid-block single lane slow points in the following streets:

- Alma Road - between Camelia Street and Persimmon Street
- Camelia Street - between Vincent Street and Claverton Street
- Claverton Street - between Camelia Street and Alfonso Street
- Alfonso Street - between Claverton Street and Vincent Street
- Leake Street - between Grosvenor Road and Chelmsford Road.

Further to these proposals a possible second stage of traffic calming measures in North Perth would involve raised plateaus at critical intersections in the precinct. Additionally, the City closed a section of median strip on Fitzgerald Street to prevent right-turn access in and out of View Street. The intersection change was implemented as a 12-month trial, aimed at reducing vehicle traffic through North Perth Common.

Figure 2-29: North Perth Traffic Calming Study Area



(Source: Nearmap)

Figure 2-30: Do you think the City should add traffic calming measures in the North Perth area bounded by Charles, View, Fitzgerald and Vincent Streets?



Figure 2-31: Do you support the installation of slow points on Alma Road, between Camelia and Persimmon Streets?



Figure 2-32: Do you support the installation of slow points on Camelia Street, between Vincent and Claverton Streets?

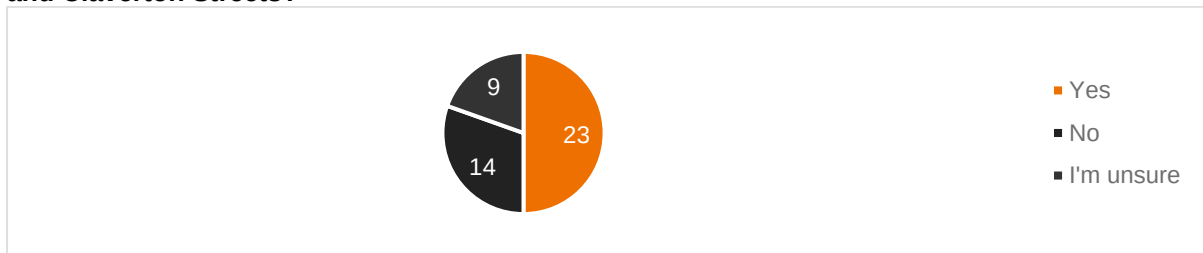


Figure 2-33: Do you support the installation of slow points on Claverton Street, between Camelia and Alfonso Streets?

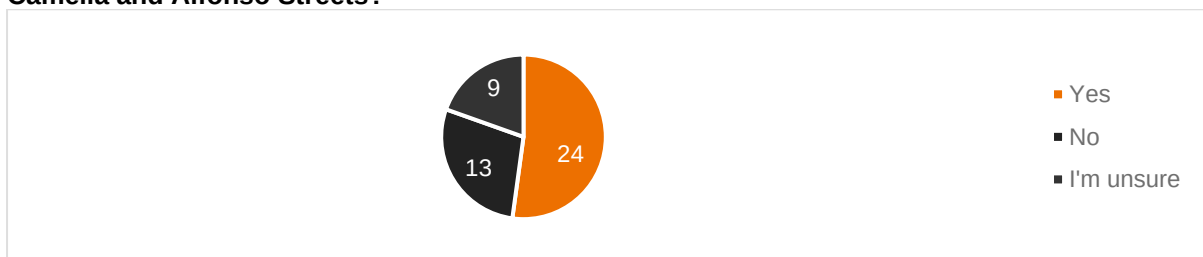


Figure 2-34: Do you support the installation of slow points on Alfonso Street, between Claverton and Vincent Streets?

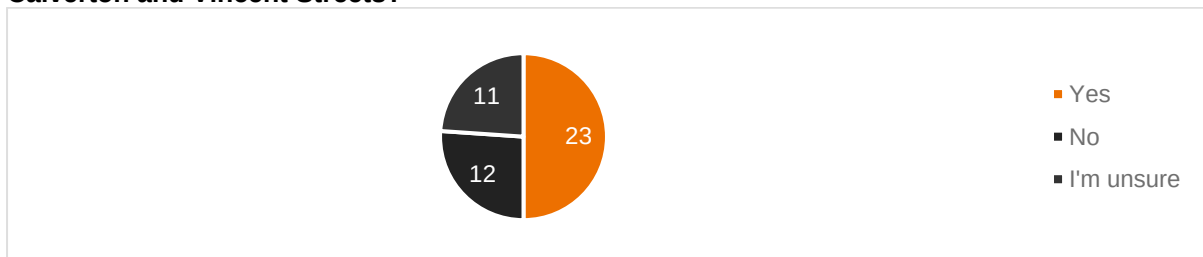


Figure 2-35: Do you support the installation of slow points on Leake Street, between Grosvenor and Chelmsford Roads?

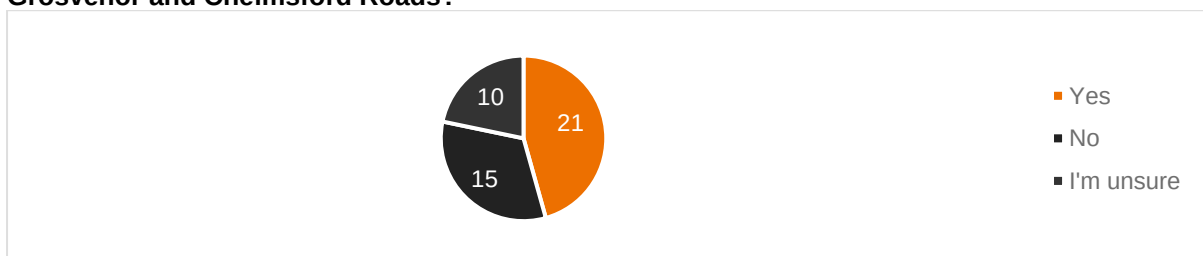


Figure 2-36: If the City is to proceed with installing slow points in these streets, which design do you prefer?



Figure 2-37: Do you support the addition of raised plateaus at critical intersections in North Perth as future traffic calming measure?

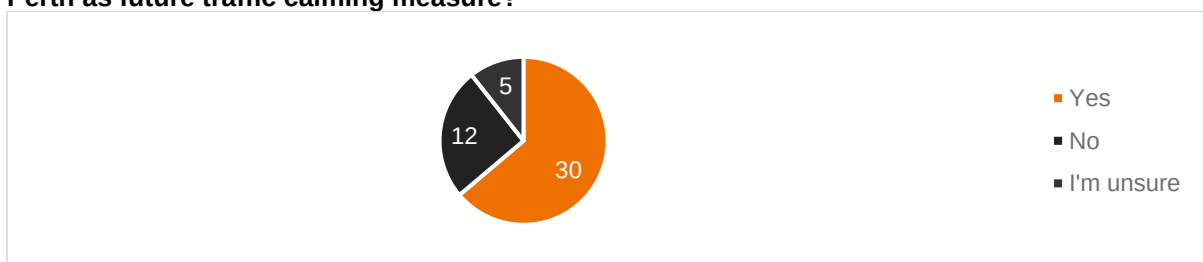


Figure 2-38: How has the Fitzgerald/View Street intersection change affected your local transportation?

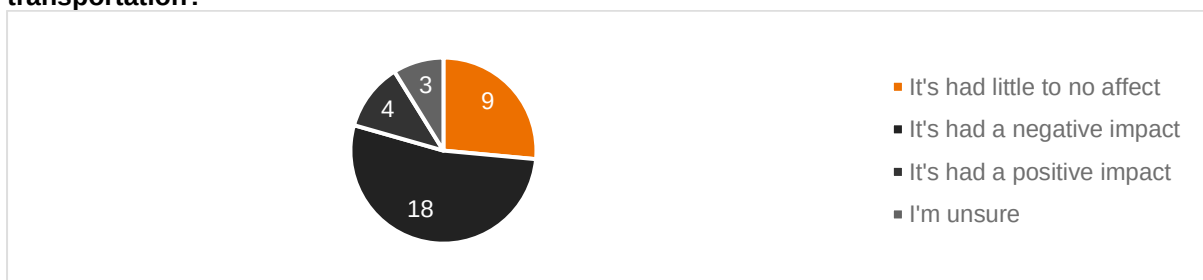


Figure 2-39: Has the closure of the Fitzgerald Street median had a noticeable effect on the traffic along your street?

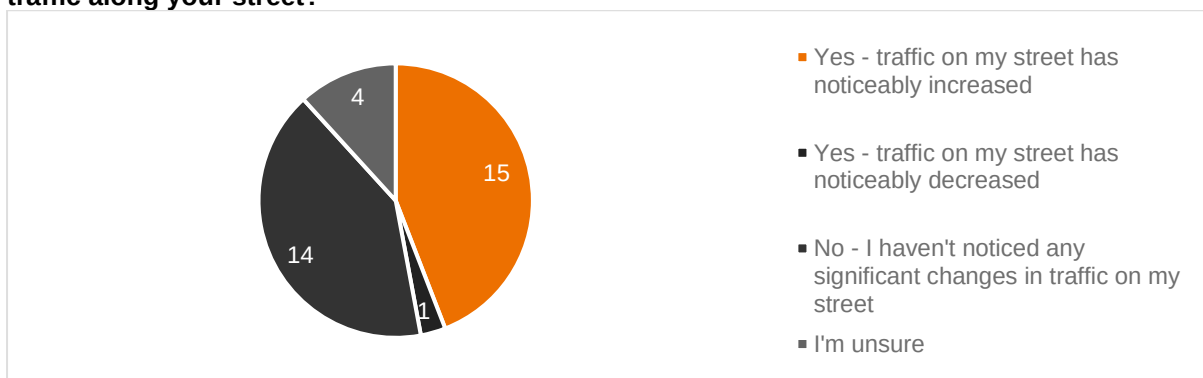
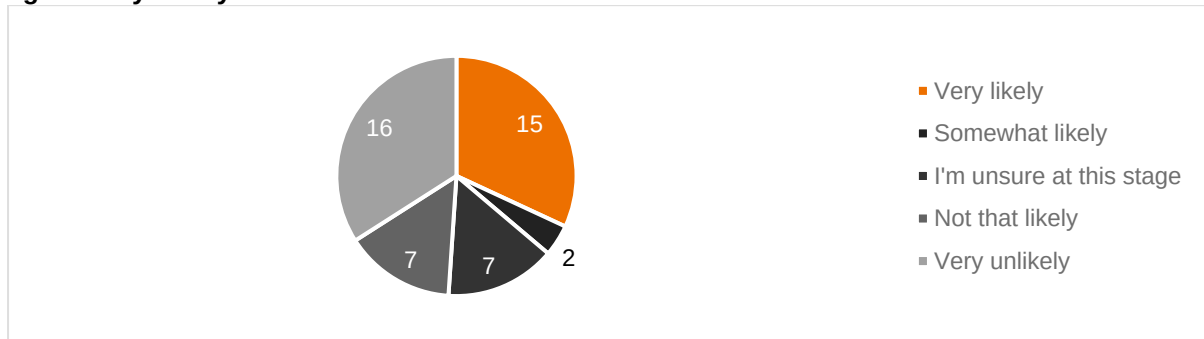


Figure 2-40: Having experienced the Fitzgerald/View Street intersection change for the last two months, how likely are you to support making the change permanent when the City consults again early next year?



2.1.5.1 Summary

A summary of the key points in the survey include:

- 70% support traffic calming measures being implemented in North Perth
- 48% support traffic calming on Alma Road
- 50% support traffic calming on Camelia Street
- 52% support traffic calming on Claverton Street
- 50% support traffic calming on Alfonso Street
- 46% support traffic calming on Leake Street
- Mid-block, single lane slow points and blister slow points were equally supported
- 64% support raised plateaus being implemented at critical intersections
- 53% have had a negative local transportation impact by the Fitzgerald Street/View Street intersection change with a further 26% have little to no effect
- 44% have noticed an increase in traffic on their street from the Fitzgerald Street median closure and 41% have noticed no significant changes in traffic
- 36% are likely to very likely and 49% are unlikely to very unlikely to support making the change permanent, with the balance of respondents being unsure about the level of their support.

The general themes of feedback and comments received from the survey include:

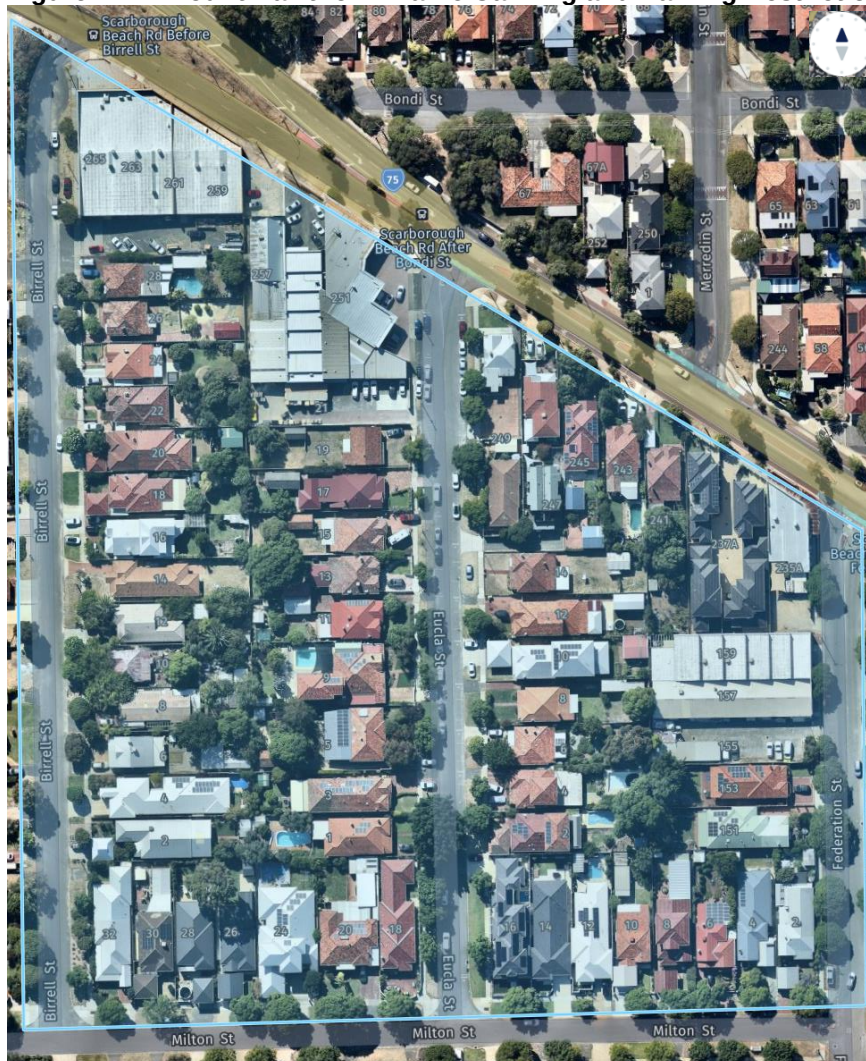
- The loss of on-street parking would be an issue for residents, particularly on Alma Road
- The Fitzgerald Street median closure has increased traffic on residential roads, primarily Alma Road, Angove Road, Raglan Road, Glebe Street, Grosvenor Road and Chelmsford Road

- Heavy vehicles are using residential roads to access Coles/North Perth Plaza
- Residents are being restricted when exiting or entering their street and suffer from delays due to the Fitzgerald Street closure
- Closure of the right-turn movement into View Street, it has made accessing amenities more difficult by car,

2.1.6 MOUNT HAWTHORN TRAFFIC CALMING AND PARKING RESTRICTIONS

The traffic calming and parking restrictions are proposed on Birrell Street, Eucla Street and Federation Street from Scarborough Beach Road to Milton Street as shown in Figure 2-41. The proposal involves the installation of traffic calming/entry statements in Eucla Street and Federation Street at the Scarborough Beach Road intersections. Additionally, a 3P parking restriction from 8am to 6pm, Monday to Friday in Birrell Street, Eucla Street and Federation Street on both sides, between Scarborough Beach Road and Milton Street is proposed. The section of Federation Street which has a 1P restriction would remain but would be changed to 8am to 6pm, Monday to Friday. The existing 2P in Eucla Street would also change to 3P so that it is the same restriction along the length of the street.

Figure 2-41: Mount Hawthorn Traffic Calming and Parking Restrictions Study Area



(Source: Nearmap)

Figure 2-42: In relation to the proposed traffic calming / entry statements, please choose the statement that reflects your view:

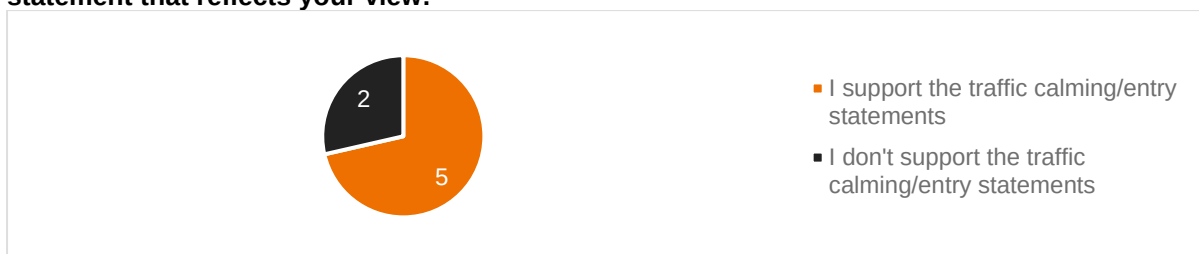


Figure 2-43: In relation to the proposed parking restrictions, please choose the statement that reflects your view:



2.1.6.1 Summary

A summary of the key points in the survey include:

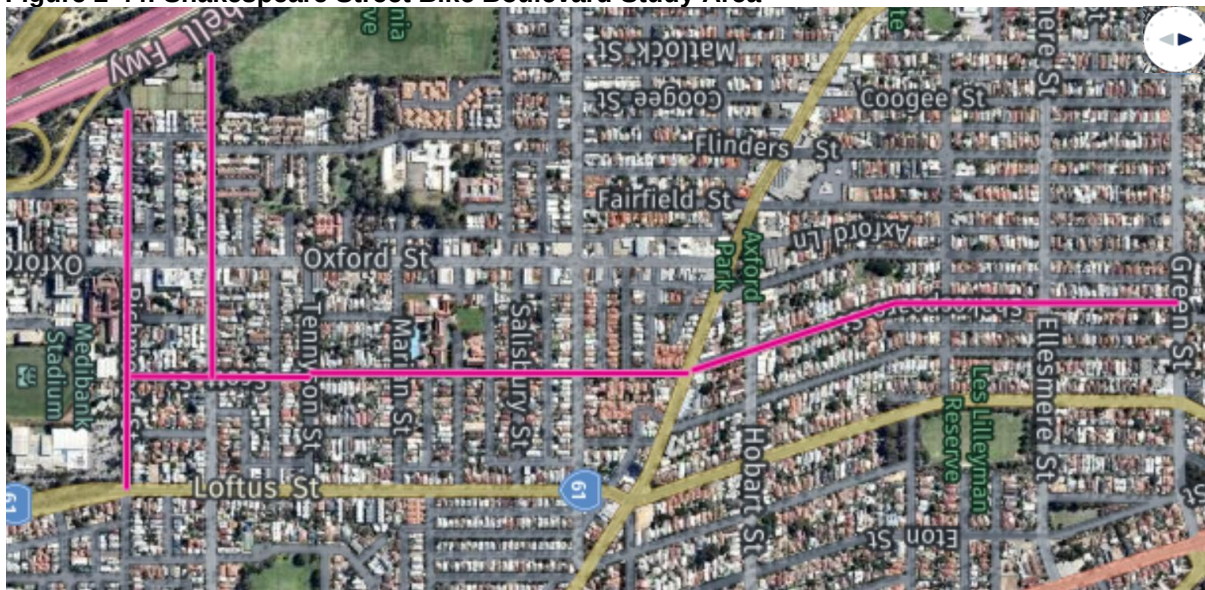
- 71% support the proposed traffic calming/entry statements on Birrell Street. Eucla Street and Federation Street
- 57% support the proposed parking restrictions on Birrell Street. Eucla Street and Federation Street.

The general theme of feedback and comments received from the survey is that the staff from CDM are the biggest users of the on-street parking on Eucla Street

2.1.7 SHAKESPEARE STREET BIKE BOULEVARD

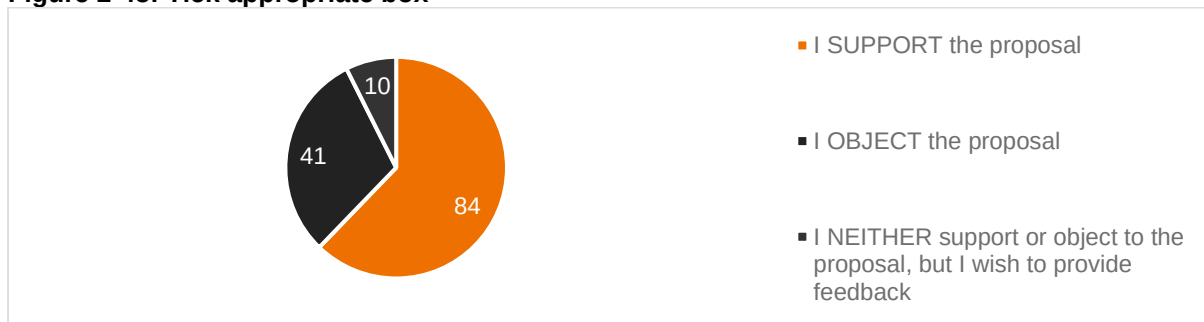
The City proposed to convert Shakespeare Street from Scarborough Beach Road to Tennyson Street into a bike boulevard or a Safe Active Street (SAS).

Figure 2-44: Shakespeare Street Bike Boulevard Study Area



(Source: Nearmap)

Figure 2-45: Tick appropriate box



The survey shows that 62% of respondents support Shakespeare Street as a bike boulevard.

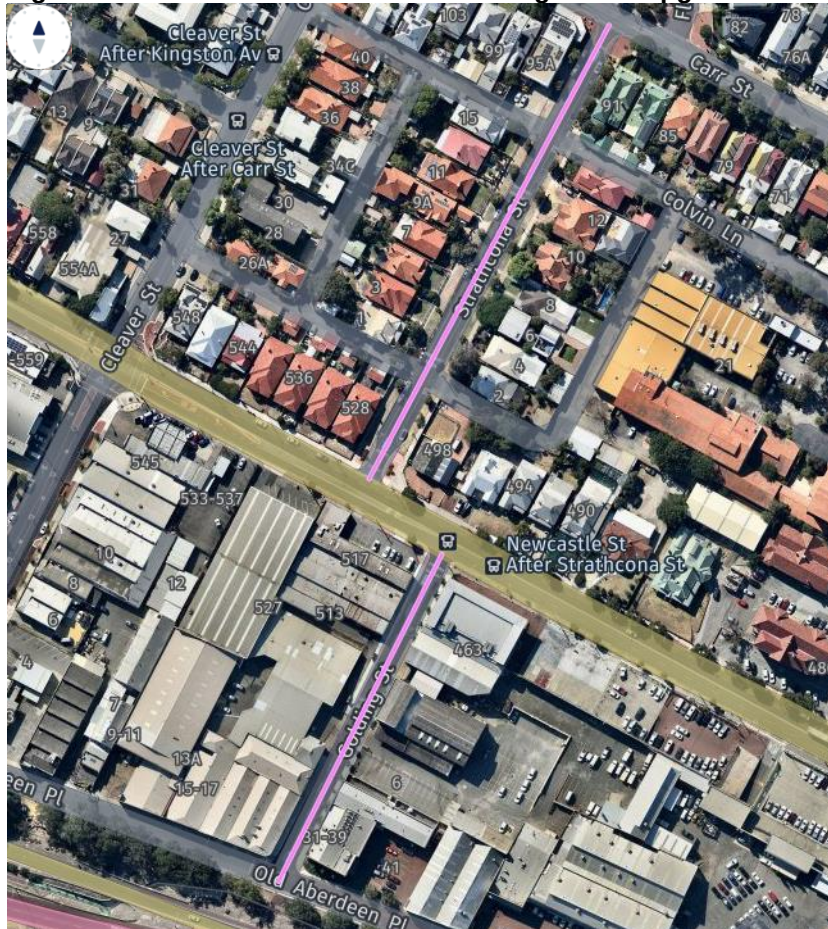
The general themes of feedback and comments received from the survey include:

- The loss of on-street parking is a major concern for residents that utilise the street due to a lack of on-site parking being available with concerns of having to park further from their residence potentially increasing theft/vandalism
- A bike boulevard on Shakespeare Street and Scott Street would be unnecessary due to the existing cycle route on Oxford Street
- Increased tree planting and greenery is widely accepted where trees do not restrict property access or reduce effective widths of paths by fallen leaves
- Improved safety for cyclists and children from a cyclist's perspective but reduced safety from a driver's perspective due to reduced lane widths and pedestrian/cyclists conflicts with cars
- There is little bicycle traffic observed meaning the perceived priority is low
- Noise concerns of raised plateaus/speed bumps for residents
- the creation of more cul-de-sac streets is desirable
- Major concern about re-distribution of traffic increasing congestion on roads which are already congested.

2.1.8 STRATHCONA STREET AND GOLDING STREET UPGRADES

The proposed upgrades to Strathcona Street and Golding Street consist of converting both streets into Safe Active Streets between Carr Street to Newcastle Street and then to Old Aberdeen Street as shown in Figure 2-46.

Figure 2-46: Strathcona Street and Golding Street Upgrades Study Area



(Source: Nearmap)

The general themes of feedback and comments received from the survey include:

- The proposal is generally accepted
- Crossing Carr Street and Newcastle Street as a means of connecting Strathcona Street to Florence Street and Golding Street is a safety issue.

2.2 Report Analysis

2.2.1 THE CITY OF VINCENT ACCESSIBLE CITY STRATEGY

To guide the City between 2020 and 2030, the Accessible City Strategy (ACS) has a vision to "put people first – getting around is safe, easy and environmentally friendly and enjoyable".

The objectives are to create a safe transport environment, ensure easy accessibility and connectivity into and around Vincent, promote environmentally friendly transport modes and initiatives and make it enjoyable to get around the local area.

2.2.1.1 Safe

- Create active and sustainable transport networks that are safe and understandable.
- Ensure pedestrian and cycling routes (including schools) are of a high-quality and safe for all users.

Vincent's streets will be safe places for people of all ages and abilities. People will be protected from the risk of moving vehicles. Innovative design will enhance the quality of the public realm without compromising the amenity of our streets for people walking and resting. People are encouraged to shift their routines to more active modes of transport.

2.2.1.2 Accessible and Connected

- Advocate for connected and reliable public transit.
- Reallocate road and verge space, including on-street parking, throughout the City to prioritise vulnerable users according to user hierarchy and road hierarchy.
- Be a leader in adaptability and technology

Vincent's transport network will provide equal opportunity for all users to access work, entertainment and necessities via active and sustainable transport modes.

2.2.1.3 Environmentally Friendly

- Reduce carbon emissions caused by the transport network.
- Prioritise and encourage the use of active and sustainable transport modes.
- Manage car parking (including supply and pricing) to improve efficiency and support mode shift.
- Use residential density to support transit.
- Obtain relevant data to inform decisions and monitor progress.

Vincent sees a response to climate change through encouraging mode shift as necessary. Vincent has several policies related to sustainability and the environment, including the Sustainable Environment Strategy and the Greening Plan. Consultation identified resident's dedication to maintain a sustainable environment, praising the City's street-tree planting and seeking opportunities to reduce their private vehicle use.

2.2.1.4 Enjoyable

- Increase pedestrian amenity on residential streets.
- Increase pedestrian amenity in town centres.



Vincent's transport network will extend beyond the function of movement and be enhanced to encourage people to stay and enjoy the areas that they are in. Vincent's transport network will function equally as both a way to reach a destination and a place which is to be enjoyed.

2.2.1.5 The ACS

The ACS notes that the City of Vincent has an opportunity to create and influence a high-quality transport network that supports the economy, environment, and social activities in Vincent.

The transport network includes:

- The pedestrian environment that forms the basis for transport and land-use connections, which must be considered in the context of the road environment and adjacent land uses; and
- Other modes of transport that provide crucial links and efficient access between and within different areas. This includes current modes and possible modes in the future.

The ACS notes that the Vincent community has already identified a preference for prioritising pedestrians and better connections with cycling and public transport facilities. A future transport hierarchy of use must therefore preference mobility for people, not cars, through greatly improved pedestrian, cycle, and public transport infrastructure.

2.2.1.6 Safe Speeds

The ACS notes that the current 50km/hr speed of local streets creates an unsafe speed variance between active modes of transport and driving. Decreasing vehicle speeds allow mixed-traffic movement networks that become attractive to active transport users. The higher degree vehicle speeds are reduced, the more attractive, safe and accessible they become.

International research strongly supports lowering speed limits within built up areas to increase driver, pedestrian and cyclist safety and amenity. Reduced speed limits make roads safer for all road users, but they also contribute to more active and liveable neighbourhoods. Some of the benefits of slower speeds are:

- Low speeds encourage better interaction between drivers, pedestrians and cyclists;
- They help create more attractive and connected communities;
- They make neighbourhoods safer;
- The risk of trauma in an accident reduces at slower speeds;
- There is less noise pollution; and
- Slower speeds do not cut travel time significantly.

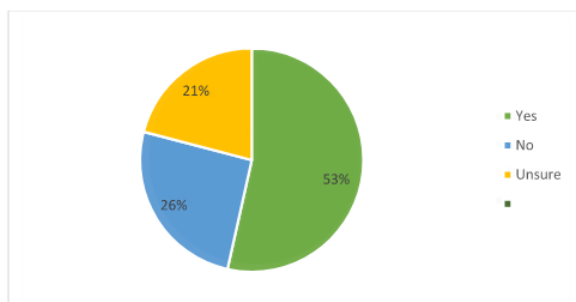
2.2.2 THE CITY OF VINCENT DRAFT ACCESSIBLE CITY STRATEGY CONSULTATION SUMMARY

This document summarises the submissions which have been received in response to consultation undertaken for the draft Accessible City Strategy.

2.2.2.1 Submissions specific to the Vision

Vision and Objectives

Overall, do you support the draft Accessible City Strategy?



Vision: The City of Vincent puts people first. Getting around is safe, easy, environmentally friendly and enjoyable.

There was a general level of support for the vision. Minor modifications were recommended through submissions for inclusion in the wording of the vision. The terms 'healthy' and 'consistency' both hold important value as part of the strategy. One of the outcomes of improved pedestrian amenity should be increased health both physical and mental.

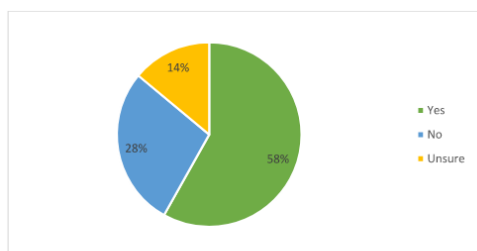
Concern was raised in submissions over how the vision would create mode shift. Mode shift is intended to be achieved through the implementation of the draft strategy as a whole which is guided by this vision. The transport network is reliant on achieving a balance

between pedestrian demands and the requirements of other modes. The draft strategy explores the current provision for transport and compares this infrastructure to the current and future needs of the community, across all transport modes to support the long-term success and viability of Vincent.

2.2.2.2 Submissions specific to the reduction in speed limits to 40km/h

40km/h Action

Do you support the reduction in speed limits on residential streets to 40km/h by 2023?



Do you have any thoughts or comments about this action?

Submission have raised concern over whether there is enough evidence as part of the interim results of the current 40km/h trial to warrant this action. It has been explicitly outlined in the explanation of the action that implementation will take into consideration the results of the trial.

General Commentary:

- Speed should be reduced to 40km/h on all streets and 30km/h within 5 years.
- 40km/h is a noble ambition but must be policed.
- The 40km/h trial results do not show a high level of change.
- The 40km/h speed reduction should be focused on high activity areas and not everywhere.

City of Vincent 40km/h Trial Evaluation

2 Data Analysis

- The interim 40km/h report does not have clear results or provide evidence of effectiveness.
- Local streets should be for residents only.
- The current speeds do not impact cycling and walking in the City.
- Current street geometry doesn't allow you to travel above 40km/h in most instances.
- A reduction in speed should also be considered on the residential portions of major roads.
- Speeds should not be reduced at the cost of practicality.
- This should not be the main action of the strategy as it undermines more high priority actions.
- The action needs to do more than reduce speeds, it should also incorporate infrastructure which supports the reduction in speed.

For:

- The reduction in speed should be introduced sooner than 2023.

Against:

- The reduction in speed won't make the City more liveable, the volume of cars needs to be reduced.
- 40km/h will make travel make travel frustrating and not enjoyable for all.
- Reduced speeds will increase the environmental impact of cars – increased emissions, wear and tear on vehicles, increased noise pollution and general stress on the community.
- Education is more important.
- This action does not encourage mode shift.
- There is the opportunity to address this issue through slow points as opposed to reduced speeds.
- There is no evidence to say it isn't already safe.
- Accessibility in Vincent has been reduced due to increased bike paths, trees, single lanes, 30km/h areas and road closures.

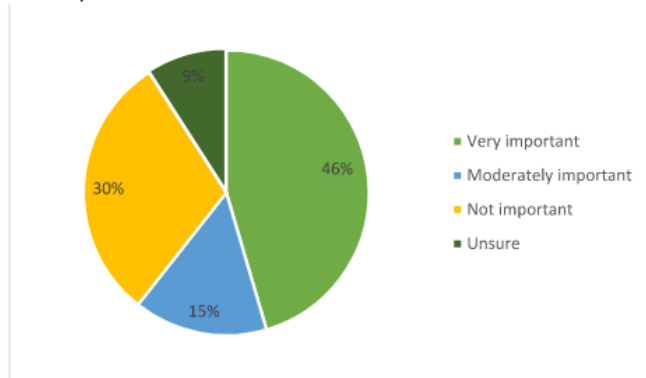


City of Vincent 40km/h Trial Evaluation

2 Data Analysis

Action 4.1.1: Work with the State Government and Inner-City Group of councils to implement a 40km/h zone in all residential areas of the City by 2023.

How important is action 4.1.1?



Summary of comments - General commentary:

- 30km/h should be the ultimate goal.
- The provision of increased pedestrian and cycle networks and enhanced public transport are better ways to achieve mode shift.

Feedback related to the strategy:

- Further evidence is required.
- The action should not be implemented until the current trial is concluded.

- The reduced speed limit needs to be supported by hard infrastructure to be effective.

Feedback related to the development and implementation of the action:

- The reduced speed limit needs to be enforced.

Priority areas:

- Residential portions of main roads should be considered.

City response to Action 4.1.1:

Submissions have indicated that further evidence of the reasoning behind the 40km/h action is required. The intent of the action as outlined in the draft strategy is as follows; The current 50km/hr speed of local streets creates an unsafe speed variance between active modes of transport and driving. Decreasing vehicle speeds allow mixed-traffic movement networks that become attractive to active transport users. The higher degree to which vehicle speeds are reduced, the more attractive, safe and accessible they become.

International research strongly supports lowering speed limits within built up areas to increase driver, pedestrian and cyclist safety and amenity. Reduced speed limits make roads safer for all road users, but they also contribute to more active and liveable neighbourhoods. Some of the benefits of slower speeds are:

- Low speeds encourage better interaction between drivers, pedestrians and cyclists;
- They help create more attractive and connected communities;
- They make neighbourhoods safer;
- The risk of trauma in an accident reduces at slower speeds;
- There is less noise pollution; and

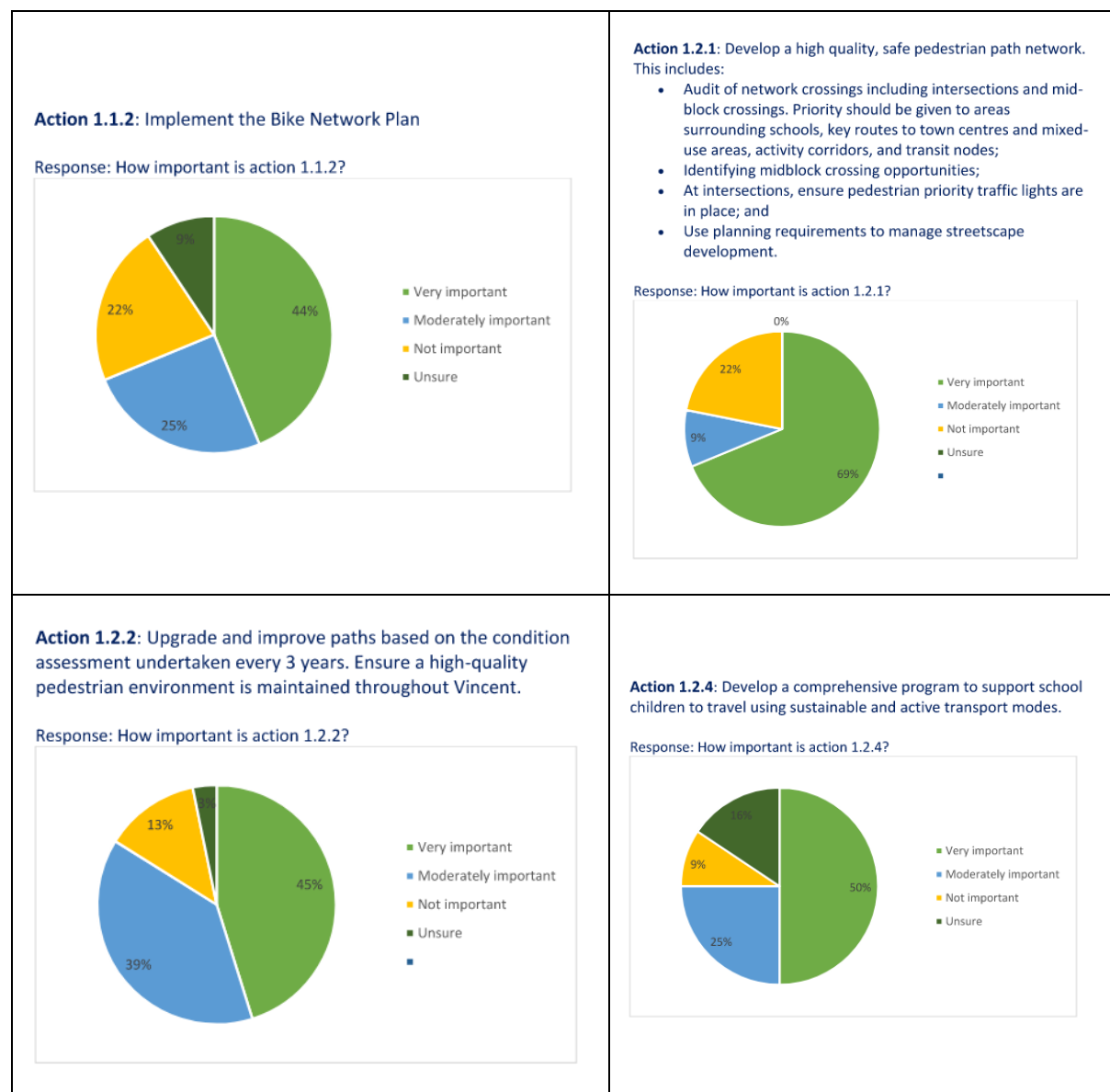


- Slower speeds do not cut travel time significantly.

The intent of the 40km/h is to be a 'steppingstone' to 30km/h on residential streets in line with action 4.1.2. Submissions have raised concerns over whether there is enough evidence as part of the interim results of the current 40km/h trial to warrant this action. It has been explicitly outlined in the explanation of the action that implementation will take into consideration the results of the trial.

2.2.2.3 Submissions specific Actions Items from the ACS relevant to reduced speeds

Assessing the feedback for all the Action Items from the ACS, some key feedback includes:

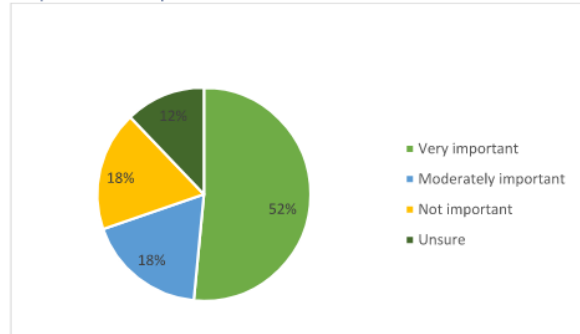


City of Vincent 40km/h Trial Evaluation

2 Data Analysis

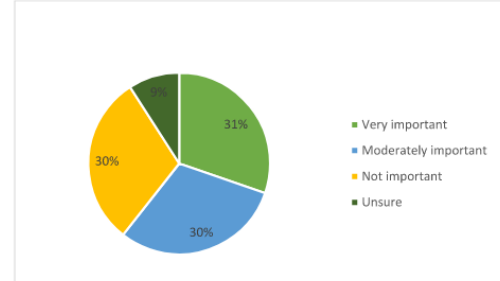
Action 2.1.2: Using the link and place framework, incorporate an appropriate level of pedestrian amenity along bus priority routes

Response: How important is action 2.1.2?



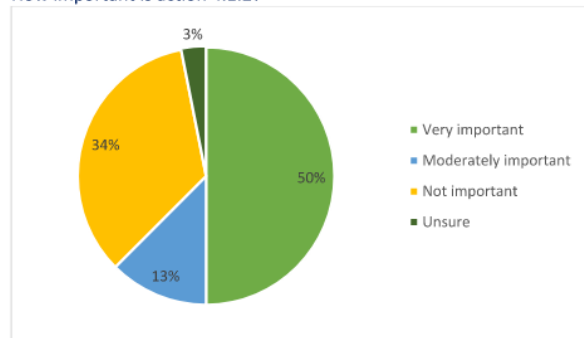
Action 2.2.1: Develop a set of link and place guidelines to guide future street improvements.

Response: How important do you think Action 2.2.1 is?



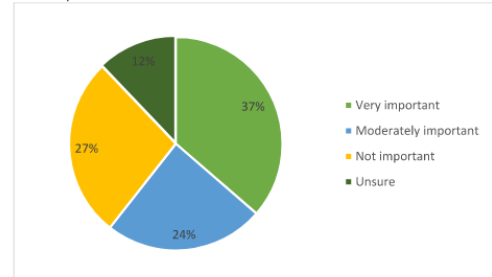
Action 4.1.2: Develop the City's residential streets in line with the principles of Safe Active Streets with slow design speeds to promote safety and amenity. The aspirational long term vision is that residential streets will have Safe Active geometry, relevant to their location, context and function.

How important is action 4.1.2?



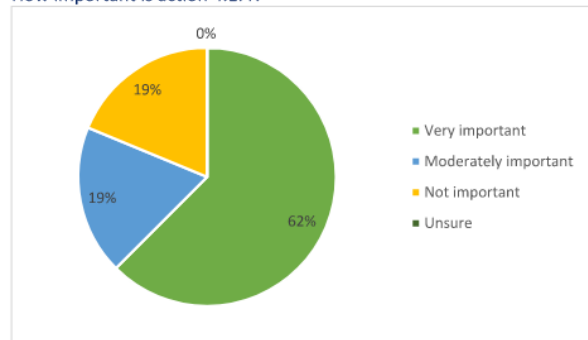
Action 4.1.3: Continue to support Play Streets within the City.

How important is action 4.1.3?



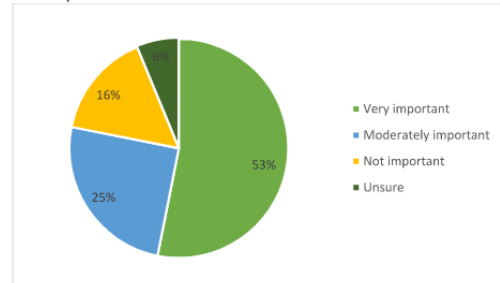
Action 4.1.4: Improve streetscapes to enhance pedestrian experience as per the link and place design guidelines, including the provision of additional street trees, native verges, lighting, street furniture, etc.

How important is action 4.1.4?



Action 4.2.1: Place plans should identify methods to improve pedestrian and cycling safety in the public realm.

How important is action 4.2.1?



2.2.3 GHD 40KM/H REVIEW CITY OF VINCENT – 12 MONTH TRIAL EVALUATION

In April 2019, the City of Vincent, Road Safety Commission, WA Police, and Main Roads WA commenced a trial of a 40 kilometres per hour (km/h) local speed limit area in the southern section of the City of Vincent. Various quantitative and qualitative data was collected by the City of Vincent before and during the trial to support a formal evaluation.

GHD, engaged by the Road Safety Commission have undertaken monitoring of the data collection and research design, to undertake data analysis, and to evaluate the outcomes of the trial. This evaluation aims to consider a broad set of the outcomes of the trial, including both direct traffic and transport observations, and community perception of the potential local amenity and wellbeing outcomes associated with reduced posted local traffic speeds.

This evaluation seeks to assess the outcomes of the trial based on the triangulation of several sources of data, rather than any one data set or single result. Conclusions are drawn where multiple sources of data indicate a similar overall result.

This report summarises the results of the first twelve months of the trial. GHD also delivered a separate six-month report in February 2020, which contains broadly similar findings. Seasonal effects appear to have impacted on the six-month report. The report sets out assumptions and qualifications during the research.

The twelve-month evaluation milestone data has been impacted by the COVID-19 Pandemic. The specific impacts of COVID-19 on the evaluation is specifically noted in the report, and throughout the data analysis. Overall, most data was collected before the pandemic caused major changes in travel behaviour. Accordingly, GHD believes that these trial results are valid and meaningful, provided that any possible effects are considered in the analysis.

The following study findings are taken from the study's executive summary.

2.2.3.1 Impact on Vehicle Speeds

Based on the full set of evidence evaluated after twelve months of the trial, it appears that the trial has resulted in some speed reduction effects. Mean (average) vehicle speeds have reduced by about 1 km/h, or about 2.4%. The 85th percentile speed on trial roads has dropped by just over 1 km/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 (section 3.1). The reduction is not as large as overall results generally seen in research internationally. 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.

2.2.3.2 Crash prevention

After twelve months, crash records provided by Main Roads WA indicate that there has been some crash reduction effect on the trial roads. This reduction coincides 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.

The reduction in Killed and Seriously Injured (KSI) crashes was less in the trial area than in the control area. However, this finding is based on only three crash events (two in the trial area, one in the control roads). Therefore, this result is not statistically meaningful.

Accordingly, future evaluation would be needed to substantiate the nature of the crash reduction more confidently.

2.2.3.3 Local Street Walking and Riding

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.

The total number of cyclists also increased at twelve months. The percentage of all cyclists who were observed cycling on the road surface (rather than on footpaths) also increased from 67% to 70%, suggesting there may be a perceived safety benefit for cyclists. There were some differences between the four sites. The timing of these surveys was largely before the most significant disruption effects of the COVID-19 lockdown.

School representatives and crossing wardens interviewed for this evaluation also spoke of benefits for children's safety travelling to school. However, these interviews indicate that increased awareness-raising measures beyond the immediate school zone could be beneficial.

2.2.3.4 Resident Perceptions

Residents surveyed expressed mixed overall responses about the trial. Overall, responses at twelve months were varied among the 151 resident surveys completed. When asked directly about the trial, there was a reasonably even distribution of responses for questions concerning the potential safety and amenity benefits. This finding triangulates with the generally modest improvements in observed vehicle speed and pedestrian/cyclist count data.

Support for the trial appears to be lukewarm. While a small majority are unhappy with the lower limit, there is not substantial or persistent opposition to the 40 km/h trial area among local residents. A majority of respondents surveyed at this twelve-month milestone thought a 40 km/h limit could be useful in other areas.

Indirect survey results indicate that residents are generally less concerned with road safety and local street amenity issues at this twelve-month milestone – further indicating benefits. Open-ended comments about the trial mainly concerned:

- The perceived inappropriateness of the 40 km/h speed limit along Bulwer Street
- The perceived lack of compliance with the 40 km/h speed limit



- A perceived lack of enforcement
- A lack of awareness about the trial
- Confusion around signage for the trial.

Survey respondents indicated that additional street design measures, signage, enforcement, and other awareness measures may improve compliance.

2.2.3.5 Report Conclusion

In view of all the above data, considering the triangulation of results, the 40 km/h trial within the City of Vincent has resulted in some speed reduction and crash benefits. This result is in line with what would be expected based on previous research in this field.

The evidence also suggests that local street amenity has somewhat improved. The increase in the total number of pedestrian and cyclists observed triangulates with the slight improvement in perceived street safety and amenity reported by respondents.

It is not possible to completely exclude the impacts of COVID-19 on these results. However, the triangulation of multiple sources of data (collected mostly before the pandemic) generally supports these findings.

Complementary street design, road user awareness, and enforcement measures to reinforce the 40 km/h speed limit may result in the realisation of a greater level of total benefits. If left in place, it is possible that vehicle speeds within the trial area would continue to mediate below the new limit – particularly if supporting measures are introduced. Future evaluation would be useful in assessing the longer-term effects and potential effectiveness of supporting measures.

2.2.3.6 GHD Report – General Notes

This research has been informed by a review of similar evaluations and empirical assessments undertaken previously in Australia and internationally. Research strongly indicates that urban speed limits are an effective and cost-efficient mechanism to reduce fatalities and injuries occurring due to traffic crashes (Archer et al. 2008; Elvik et al. 2009a).

Evidence from other locations indicates that reductions in vehicle speeds on local roads may also result in reductions of traffic noise, and can promote walking and cycling, 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). Reducing local speed limits typically has a negligible effect on journey times, particularly because small variations in trip time associated with travel on local roads at the start and end of journeys are not perceptible or significant when considered in the frame of whole trips (Haworth et al. 2001).

It is important to note that previous research suggests that, when speed limits are lowered, the actual travel speeds tend to decrease, but less than the full reduction in the speed limit. Evidence collected across countries generally indicates that a reduction of posted speed limit of 10 km/h results in travel speeds decreasing by less than 10 km/h – typically about 3-4 km/h (OECD/ECMT 2006, p. 100).



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2 Data Analysis

Some streets already experience 85th percentile speeds less than 50km/h by their design/use.

Table 3-17: Baseline Traffic Dataset

Road	Location	Survey Date		AWT Five day	Ave Speed	85% Speed	% Heavy Veh.
40 km/h Trial Roads							
Brisbane St	Dangan-Lake	27-Feb-19	06-Mar-19	1410	38.1	46.1	2.6
Brisbane St	Lane-Lindsay	20-Feb-19	27-Feb-19	3208	41.2	50.9	4.9
Bulwer St	Fitzgerald-Palmerston	27-Feb-19	06-Mar-19	11,248	45.9	52.7	2.5
Bulwer St	Lord-Wright	20-Feb-19	27-Feb-19	7411	47.2	54.4	2.6
Carr St	Charles-Fitzgerald	06-Mar-19	13-Mar-19	4407	44.5	51.7	3.0
Harold St	Smith-Wright	20-Feb-19	27-Feb-19	2296	33.4	39.8	2.6
Joel Tce	Bream Cove-Gardiner	06-Mar-19	13-Mar-19	2386	45.0	53.1	3.1
Mary St	Beaufort-William	27-Feb-19	06-Mar-19	1055	31.8	39.4	2.4
Palmerston St	Myrtle-Randell	27-Feb-19	06-Mar-19	2786	29.1	36.5	2.9
Pier St	Brewer-Edward	20-Feb-19	27-Feb-19	2864	38.7	47.9	2.6
Smith St	Broome-Lincoln	20-Feb-19	27-Feb-19	2321	40.6	49.5	1.8
Summers St	Claisebrook-West	06-Mar-19	13-Mar-19	1513	38.4	46.6	4.7
Vincent St	Ethel-Norfolk	06-Mar-19	13-Mar-19	11,597	45.2	52.0	2.5
William St	Monger-Robinson	20-Feb-19	27-Feb-19	7223	34.4	46.1	3.8
Sample Averages				4,409	39.5	47.6	3.0
Daily Totals				61,725			

Table 3-22: Twelve Month Traffic Dataset

Road	Location	Survey Date		AWT Five day	Ave Speed	85% Speed	% Heavy Veh.
40 km/h Trial Streets							
Brisbane St	Dangan-Lake	04-Mar-20	11-Apr-20	1596	37.1	45.2	2.5
Brisbane St	Lane-Lindsay	19-Feb-20	26-Feb-20	2941	40.2	49.5	4.8
Bulwer St	Fitzgerald-Palmerston	26-Feb-20	04-Mar-20	11,154	44.7	51.3	2.8
Bulwer St	Lord-Wright	19-Feb-20	26-Feb-20	9603	46.1	53.5	3.2
Carr St	Charles-Fitzgerald	26-Feb-20	04-Mar-20	4071	43.5	50.7	2.5
Harold St	Smith-Wright	19-Feb-20	26-Feb-20	2398	32.9	39.4	1.9
Joel Tce	Bream Cove-Gardiner	04-Mar-20	11-Mar-20	2146	43.2	50.1	2.5
Mary St	Beaufort-William	04-Mar-20	11-Mar-20	971	33.0	40.0	3.3
Palmerston St	Myrtle-Randell	26-Feb-20	04-Mar-20	2659	28.7	36.0	2.9
Pier St	Brewer-Edward	19-Feb-20	26-Feb-20	2982	38.3	47.2	2.9
Smith St	Broome-Lincoln	19-Feb-20	26-Feb-20	2395	40.5	48.6	1.8
Summers St	Claisebrook-West	04-Mar-20	11-Mar-20	1553	38.0	46.1	5.2
Vincent St	Ethel-Norfolk	26-Feb-20	04-Mar-20	11,499	41.2	49.7	3.0
William St	Monger-Robinson	19-Feb-20	26-Feb-20	8136	32.9	42.7	3.3
Sample Averages				4579	38.6	46.4	3.0
Daily Totals				64,104			



Open Ended-Responses – General Support or Opposition

The twelve month evaluation survey contained the following 'free-text' questions: "Do you have any other general comments about traffic and transport in Vincent?" and "Do you have any other comments about the 40 km/h speed limit trial?"

About a third of respondents (55 out of a total of 151 respondents) expressed a written comment about the trial. Of these, 24 were opposed, while 23 provided comments in favour of the trial limit. Qualified support was provided by eight respondents.

In most cases, these opinions were either very positive or very negative as shown by the representative responses below.

Supportive comments included:

"I think it has been a great initiative."

"The new 40 zones are great, it has slowed drivers down especially on Beaufort Street and near the schools I have noticed. With more families living inner city living it's a very good idea to have the 40 km speed limit."

"I love this new speed limit!"

"I would like to see this trial extended across other densely populated residential areas and enforced more noticeably and regularly."

"The trial is clearly a good idea, and hopefully the 40km/h speed limit will be permanent. Well done to the Council on the initiative."

Non-supportive comments generally indicated scepticism for the purpose of the trial:

"It's unnecessary and would do little to deter speeders"

"The trial, in my view was/is of little value."

"Very strongly disagree with 40 km speed"

"I don't understand why 50 km/h is suitable for all other built up areas/suburbs but we should be punished with 40 km/h."

"It is nonsense and it achieves absolutely nothing."

Responses expressing qualified support generally raised specific conditions for how they felt the 40 km/h may be more appropriate:

"I would agree more with questions above in relation to the 40 kmh limit if it was enforced."

"I accept some streets should be 40"

"I believe 40 km is good on smaller, local streets"

"I agree with the 40 kph speed limit. However, I would make Bulwer St 50 kph,"

Two of the respondents noted that they had changed their mind since implementation of the trial:

"Initially I thought the idea was ridiculous however I am now in favour for all of the reasons above but ask that it is implemented properly"

"Although I was not initially a supporter of the 40 km speed limit, I've revised that thought and am supportive as I believe that it can only help to increase safety for everyone living in the area"

Open Ended-Responses – Thematic Findings from Comments

Further analysis of the responses revealed a number of themes relating to aspects of the trial.

Bulwer Street - Twenty-one of the respondents indicated that they felt that the 40 km/h speed limit on Bulwer Street was too low. The finding for this specific road may be over-represented because of the geographic sampling strategy.

"Bulwer Street does not need 40 km hour limit"

"Bulwer St used to be 60 and is very much a main road, since it's dropped to 40, the time 20 km difference seems completely unnecessary and extreme"

"40 km/hr on Bulwer St, a main thoroughfare is ridiculous"

"I think the 40km speed limit is too slow on Bulwer Street"

Compliance and Awareness - Fifteen of the respondents felt that compliance with the 40 km/h speed limit had been limited or non-existent.

"It seems to be ignored at times, which I think may be due to lack of awareness of the new limit amongst those who are not local residents".

"40 km/hr on Joel Terrace totally ineffective"

"I don't believe the majority of motorists take any notice of 40 km limits"

Nine of the respondents felt that the trial had no impact on traffic speeds.

"I do not think it has been effective, as in my experience most drivers remain at 50 km/h or more"

"In my particular case, I have seen little change from the 40 km/h speed limit trial"

"The normal traffic around my area has not changed in trial period"

This is unsurprising, in view of the modest overall average vehicle speed reductions (section 3.3.3).

Enforcement - Sixteen of the respondents believed that the trial would have benefited from greater enforcement.

"The lack of any enforcement of speed limits is a serious drawback"

"Little or no enforcement of speed limits"

"I would like to see this trial extended across other densely populated residential areas and enforced more noticeably and regularly"

Signage - Eleven of the respondents indicated that the signage for the trial could be improved.

"There are far too many street signs (40 kmh Limit, End of 40 kmh Limit) along Bulwer St that add confusion"

"It's not signposted enough/clear"

"The speed signs are so unclear as it will say end of 40 km/h but it hasn't ended"

"Far better signage required for 40 kmh zones - some were hidden behind trees and not as clear as normal speed limit signage"

Improvements - A small number of the respondents suggested improvements, such as traffic calming and electronic speed limit signs should be implemented.

"Speed limit should be enforced, especially by physical means i.e. speed humps, etc."

"I feel it would be much better and more acceptable generally if there was a solar powered adjustable speed limit"

"There need to be flashing 40 signs as there are on Beaufort Street in order to remind drivers who don't live in the area"

"Need better speed humps on Harold St"

Rat running - Fourteen of the respondents were concerned about rat running, either through the trial or as a result of the trial (the quantitative results indicate that concern about rat-running has reduced over the trial period, refer to Table 3-25 in section 3.4.5).

"Rat run traffic still speed and ignore the limit"

"I have regularly had annoyed rat runners overtake and speed away down my street"

"Lots of rat running on Barlee Street since the no right turn on Beaufort/Walcott intersection causes much more unsafe traffic than the 40 km speed limit"

"Specific action to address rat running would be more beneficial"

One traffic warden emphasised the effectiveness of on-road 40km/hr patches and suggest they could be painted on more local roads, perhaps on area wide basis, as an additional reminder to drivers. The warden also commented that repeater signage along their relatively long school frontage may also improve driver compliance and safety.

The final question put to the traffic wardens concerned their preference between a conventional school zone, and the 40 km/h trial area covering a wider area of local roads around the school.

"My preference is for 40 km [speed limit] across day – so when school happens, people are more used to it... there's no reason why there shouldn't be a permanent 40 km/h limit."

The other warden provided a similar response, but noted the importance of enforcement:

I think [a 40 km/h area limit provides] enhanced safety for children and parents walking to school - pupils getting off buses etc. - they would benefit. There's not too much [of a benefit] for my crossing, because it already has a 40 km/h limit... I think local roads being 40 km/h is a good idea – but we don't have the police presence to enforce 27/4"

3 Conclusion

A collation of surveys and documents were analysed to determine the general feedback of the 40km/h trial from the residents within the City of Vincent. A summary of the key themes is shown below:

- The trial has had little to no effect on reducing rat-running
- An observed trend in residents feeling safer over time when walking and cycling on 40km/h routes
- An observed trend in 40km/h streets feeling safer for children over time
- The trial has had little impact over time in observed traffic noise
- An observed trend in trips becoming easier over time as a result of the trial
- An increase in support of the trial going ahead and being extended
- An observed trend in driving at the 40km/h speed limit being more acceptable over time
- An observed trend in residents' perception of the local area being more liveable over time due to the trial
- A general increase in local transport being encouraged over time due to the trial
- An observed trend in local recreation being encouraged due to the trial
- Vulnerable road users (children and the elderly) would require further interventions to reducing speed limits by 10km/h to feel more confident walking, cycling or using mobility aids
- Almost 3 times as many responses were received for benefits of the trial as opposed to issues of the trial
- Each project is generally supported by more than 50% of the residents with general issues relating to loss of on-street parking
- Law enforcement in the 40km/h areas would encourage complying speeds
- The 40 km/h trial within the City of Vincent has resulted in some speed reduction and crash benefits
- An increase in the total number of pedestrian and cyclists observed suggests that local street amenity has somewhat improved.

In summary, the 40km/h has become more widely acceptable over time with residents feeling safer and more encouraged to live healthy and sustainable lives. This is shown by the shift towards agreeing with the purpose of the trial over time i.e. safer, easier, enjoyable and environmentally friendly travel for all modes. Residents generally support the application measures where careful consideration taken to the location, proposed treatments and route choice is taken.

