

**10.6 URBAN ROAD SAFETY PROGRAM PILOT - IMPLEMENTATION OF MINI ROUNDABOUTS**

**Attachments:** 1. Plan 3612-CP

**RECOMMENDATION:**

**That Council:**

1. **NOTES** the proposed implementation of the Urban Road Safety Program pilot project within the area bounded by Raglan Road, Hyde, Vincent and Fitzgerald Streets, North Perth/Mt Lawley in March 2021;
2. **APPROVES IN-PRINCIPLE** subject to public consultation, the installation of the nine 'mini roundabouts' within the aforementioned area, as shown on Plan 3612-CP, Attachment 1;
3. **APPROVES** the inclusion of the pilot project in the City's 2020/21 Capital Works Program to commence works in March/April 2021, subject to public consultation;
4. **NOTES** that the City will consult with the residents and businesses within the area bounded by Raglan Road, Hyde, Vincent and Fitzgerald Streets;
5. **NOTES** that the pilot project will be fully funded by Main Roads WA; and
6. **RECIEVES** a further report at the conclusion of the public consultation.

**PURPOSE OF REPORT:**

To advise Council of Main Roads WA invitation for the City to participate in its new Urban Road Safety Program by accommodating a 'mini roundabout' pilot project in the precinct bounded by Raglan Road, Fitzgerald, Vincent, Hyde Streets, North Perth/Mt Lawley.

**BACKGROUND:****Urban Road Safety Program**

Early in 2020 Main Roads WA approached the City to discuss a new road safety initiative, the Urban Road Safety Program (URSP), and to gauge the level of interest of the City to participate in the program to implement a 'mini roundabout' pilot project, to be funded by Main Roads.

The aim of the URSP is to:

*'Implement low cost road safety treatments on an area-wide or at least, whole of street basis that will target high casualty and/or high-risk locations'.*

The URSP will treat intersections on an area wide approach that have crash risks, but are ineligible for Black Spot funding. The URSP will take a proactive area wide or whole-of-street approach, applying many similar treatments at once, using low-cost standard designs. This will allow for treatment of risks throughout suburbs and neighbourhoods.

The URSP has been in development by Main Roads through-out this year and was recently announced by the Hon Minister for Transport and Planning with details on the funding arrangements. The Minister announced the pilot projects for the City of Vincent and City of Stirling on 23 August 2020.

The URSP has been allocated \$16m over four years, \$1m in 2020/21 for the pilot projects, and the \$5m per year for the following three years (to 2023/24), after which the future of the program will be reviewed. The maximum funding is \$250,000 per location or area.

In conjunction with Main Roads, the precinct bounded by Raglan Road, Fitzgerald, Vincent and Hyde Streets, North Perth/Mt Lawley was selected for a pilot project comprising a series of mini-roundabouts (nine in total).

This project was based upon research undertaken by Monash University in Victoria, Main Roads accidents data (April 2014 to April 2019), with project scoping and design by GHD Consultants Perth office.

The high level description of the North Perth Project in Main Roads proposal is:

*'North Perth is an inner urban suburb, just north of Hyde Park. Several intersections within this area have had severe crashes, even though all of the streets are minor local access roads. This area offers a unique opportunity to install innovative mini roundabout treatments within a defined local neighbourhood. The mini-roundabouts will have domed centre islands that can be driven over where vehicle movement may be restricted. If successful, this pilot will allow mini-roundabouts to be installed at local intersections throughout the metropolitan area.'*

#### **DETAILS:**

The intention of the Urban Road Safety Program is to provide the opportunity for Local Government to proactively apply low cost traffic management treatments to local-local intersections, and roads, on an area wide or whole-of-street basis to reduce the likelihood of fatalities and/or serious injury traffic accidents.

There are over 51,000 intersections within the metropolitan area, of which in excess of 4,500 have had casualty crashes in the past five years (Main Roads Crash Data; April 2014 to April 2019). The majority of these (over 3,500) are on local-local\* intersections under the control of local governments, most of which do not meet the criteria for upgrade funding under current road safety programs (such as Black Spot).

\*residential access roads.

Having identified this 'gap' Main Roads has embarked upon a program to develop, manage and approve a range of low cost safety treatments that are easily applied to residential or commercial urban environments in the Perth metropolitan area where casualty crashes are more frequent or likely to occur. Low cost safety treatments that reduce the risk and severity of crashes for all road users are to be installed on an area-wide or whole-of-street basis and treatment options will include mini roundabouts, pedestrian crossings facilities, raised safety platforms, speed humps, and other minor road design improvements. Main Roads will coordinate the URSP with the identification of possible project areas and treatment locations based on work recently completed by Main Roads' Road Safety Branch. Potential locations will then be discussed with the respective Local Government prior to Main Roads agreeing to fund any subsequent treatments.

The URSP aims to reduce crashes by applying treatments to sites with a proven crash history (responsive site selection), and sites with similar context to those that have reported crashes (proactive site selection). Simultaneously selecting intersections to respond to and proactively prevent crash risks will yield significant benefit through local areas. By treating many intersections at once, construction costs will be lower.

When applied consistently in an area, intersection treatments also reinforce a low-speed, high amenity local streetscape which promotes careful and courteous road user behaviours. This proactive and reactive approach is based on existing Main Roads WA and Road Safety Commission policies.

These include:

- Main Roads WA Policy and Guidelines for Speed Zoning. The Policy and Guidelines requires road and intersection designs which reinforce safe travel speeds.
- Road Safety Commission Local Area Speed Management Blueprint. The Blueprint provides guidance for how local roads can be treated to mediate road user speeds, reducing crash risks.

#### **Safe Systems**

The URSP is also based upon applying the Safe Systems\* principles, which aim to prevent all road users from being seriously injured or killed in any crash. Safe Systems thinking recognises that all road users can make mistakes and accordingly, advocates that all elements of road systems should be designed to be forgiving when these mistakes happen. The aim of Safe Systems is to coordinate elements of the road transport system to minimise crash impact forces people experience (to below the known limits of the human body) when errors occur. The threshold impact speeds which severe outcomes are likely to occur for different collision types vary depending upon impact zone and the level of exposure of the people involved. For example, a head on crash between two vehicles of similar size and mass it is about 70km/h, whereas a

vehicle hitting a cyclist or pedestrian the critical impact speed threshold is in the order of 30km/h. Obviously there are many variables that can influence the outcome.






	Crash Type	Critical Impact Speed Threshold
	Head on	70 km/h
	Side-impact	50 km/h
	Side-impact with tree	30 km/h
	Pedestrian or Cyclist	30 km/h
	Rear-End	55 km/h

Figure 5: The typical impact speeds for severe outcome collision types

For local roads, reducing impact speeds to below 30 km/h helps to ensure the safety of people who are walking, cycling, and riding motorcycles. Therefore, it is vital to achieve these lower impacts speeds at intersections to ensure improved safety outcomes for all road users.

Current design principles create a more forgiving road environment and this combined with slower travel speeds is achieving great results in reducing the number and severity of crashes, however many existing local roads which were designed many decades ago are not in line with “Safe System” design principles, which the URSP provides the opportunity to proactively address.

\*Road Safety Commission. 2020 *The Safe System*.

### North Perth Pilot Project

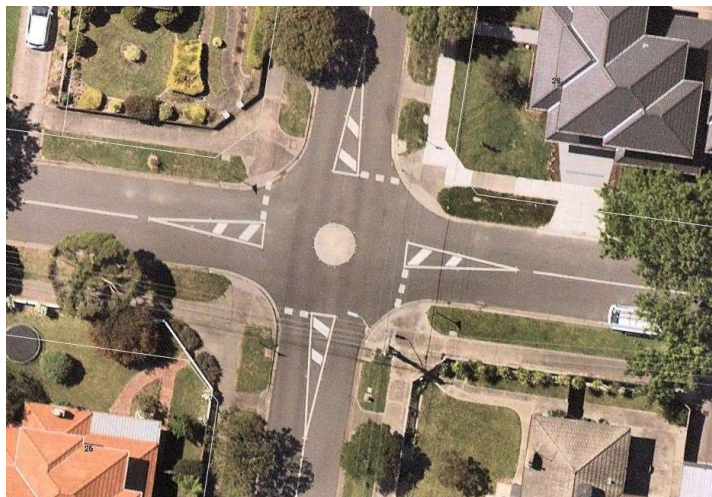
One of the innovations of the program, in the Western Australian context, is the introduction of mini roundabouts, which have not been used in a series before. There are a number of examples where a mini roundabout has been used in the Perth Metropolitan Area in isolation, i.e. City of Joondalup in Whitfords.

Mini roundabouts typically have a 3.0m diameter, whereas a standard roundabout has a 6.0m diameter, which generally eliminates the need for road widening, thereby significantly reducing construction costs.

The primary treatment selection criteria for the URSP is that:

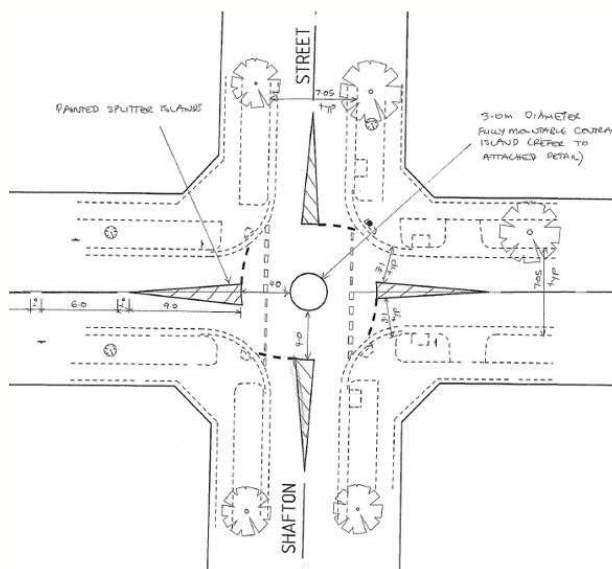
- They maintain movement in all directions.
- They can generally be installed without major intersection / road modifications or civil works.
- They are easily recognised and understood by road users.
- They allowed for a consistent application across a local area.

It should be noted that while the precinct (within the designated area) has had numerous traffic accidents within the five year study period the majority have been at the lower end of the scale, i.e. property damage. The precinct was nominated as both a *responsive site selection* and a *proactive site selection* pilot based upon the traditional ‘grid pattern’ road network and the over representation (of a grid network) in right angled accidents. The mini roundabouts are seen as an effective, low cost means, of treating those intersections that have had traffic accidents and reducing the likelihood of serious accidents across the precinct.



A typical mini roundabout as installed by the City of Monash in Monash, Metropolitan Melbourne, Victoria

## Introducing the Mini-roundabout



Plan view of the above

### Comparison study with the 40 kmh Speed Zone Trial

This area was selected as it enables a direct comparison with the results of the 40 kmh Speed Zone Trial, both in respect of speeds and accidents, currently being conducted in the area south of Vincent Street.

Whilst the feedback for the 40 kmh Speed Zone Trial has generally been positive a recurring comment has been the need for additional traffic calming devices to control the speed, along with a greater Police presence.

Note: the City is currently collecting base-line traffic data for the streets within the pilot project area.

### Possible reduction in the posted speed limit to 40 kmh

Given that the standard 50 kmh Urban Speed Limit applies within the pilot project area, and to ensure that any direct comparison is based upon the same premise\*, Main Roads has advised that they will consider, through the pilot program, making the area a 40 kmh Speed Zone in conjunction with the introduction of the URSP "mini-roundabouts" project.

Further:

*'They may be particularly appropriate in locations with significant bus or heavy vehicle traffic, or in grid-based local road networks.*

As can be seen above, the Monash University Study has shown that the mini roundabouts, of which some 40+ have been installed in the City of Monash in Metropolitan Melbourne, have proven very successful in reducing both the severity and volume of accidents at typical suburban 4-way intersections, as is the intention for the nine intersections within the 'pilot' project area.

### **Cost Implications**

The design of the mini roundabout, typically a diameter of 3.0m, is intended to eliminate the need to widen the intersections, as is usually required for a traditional 6.0m diameter roundabout. If widening can be avoided the estimate estimated cost per mini roundabout is in \$25,000, inclusive of the line-marking.

The mini roundabout is essentially 'dome', 50mm on the outer edge rising to approx. 100mm in the centre. Light vehicles, cars, SUV's etc. will be forced to slow down and go around the roundabout whereas large or heavy vehicles, such as the rubbish trucks, can safely mount the roundabout, again at a lower speed. Because there is no planting or obstruction in the centre of the roundabout all four legs have an unobstructed view of approaching traffic.

Therefore the nine intersections within the project area would cost in the order of \$225,000 to construct, which having met the criteria, would be fully funded by Main Roads (to a maximum of \$250,000).

### **CONSULTATION/ADVERTISING:**

Residents and businesses will be consulted regarding the proposal in accordance with the City's Community Consultation Policy 4.1.5

### **LEGAL/POLICY:**

All of the roads within, and bounding the precinct, as discussed in this report, come under the care, control and management of the City.

### **RISK MANAGEMENT IMPLICATIONS**

Low: It is low risk for Council as the proposed treatments, mini-roundabouts, should lead to a reduction in both the number and severity of traffic accidents within the precinct as well as a reduction in traffic speeds resulting in an improved level of amenity for residents.

### **STRATEGIC IMPLICATIONS:**

This is in keeping with the City's *Strategic Community Plan 2018-2028*:

#### Accessible City

*We have better integrated all modes of transport and increased services through the City.*

### **SUSTAINABILITY IMPLICATIONS:**

This is in keeping with the following key sustainability outcomes of the *City's Sustainable Environment Strategy 2019-2024*.

#### *Sustainable Transport*

### **PUBLIC HEALTH IMPLICATIONS:**

This is in keeping with the following priority health outcomes of the *City's Public Health Plan 2020-2025*:

#### *Reduced injuries and a safer community*

**FINANCIAL/BUDGET IMPLICATIONS:**

The works, estimated to cost \$225,000, would be fully funded by Main Roads WA.

**COMMENTS:**

The URSP provides the City the opportunity to participate in an innovative road safety program that will lead to a number of beneficial outcomes for the local community at no direct financial cost to the City for the capital works.

If the 'mini roundabout' pilot project is approved, and proves successful, it will likely lead to a greater acceptance and adoption of the URSP by Local Government across the metropolitan area.

Administration is seeking Council's approval to consult with the residents and businesses within the project area and will present a further report to Council on the outcome in March 2021.

