

DECLARATION OF INTEREST

Pursuant to regulation 11 of the Local Government (Rules of Conduct) Regulation 2007, Mayor Logan Howlett declaration an impartiality interest on the following item. The nature of the interest is that he is a member of the Metropolitan Regional Road Group that is mentioned in the Officer's report to Council.

14.6 (2018/MINUTE NO 0103) JANDAKOT ROAD AND SOLOMON ROAD UPGRADE PROJECT

Author(s)	A Trosic
Attachments	1. Option 1 ↓ 2. Option 2 ↓ 3. Option 3 ↓

RECOMMENDATION

That Council:

- (1) endorse Option 1 as the preferred design option for the Jandakot Solomon Public Works project as shown in Attachment 1;
- (2) proceed with Stage 1 of Option 1, which is specifically:
 - a) the upgrade of Jandakot Road to a dual carriageway between Fraser Road and before the Solomon Road /Jandakot Road intersection;
 - b) the upgrade of Solomon Road between Cutler Road and before the Jandakot Road/Solomon Road intersection;
 - c) intersection upgrades at Jandakot Road and Coonadoo Court; Jandakot Road and Cessna Drive; Jandakot Road and Fraser Road; Solomon Road and Peppworth Place and Dollier Road and Solomon Road;
 - d) intersection construction at Jandakot Road and Clementine Boulevard; and Solomon Road and Greensand Promenade.
- (3) proceed to make offers to all those landowners who have provided their written agreement in principle to the without prejudice compensation offer from the City, which enables the first stage of works identified in (2) to occur;
- (4) defer the remaining components of the Jandakot Solomon Public Works (being the intersection of Jandakot Road and Solomon Road and upgrade of Jandakot Road to Berrigan Drive) in order to provide further time for good faith negotiations to continue with



those landowners that are yet to provide their written agreement in principle to the without prejudice offer.

MOVED Deputy Mayor L Smith SECONDED Cr K Allen

That Council:

- (1) defer consideration of the matter to the August Ordinary Council meeting or a Special Meeting of Council, to provide an opportunity for the following:
 - a) a briefing/workshop with the City's legal counsel seeking advice regarding recent claims made by affected landowners and any legal ramifications from Stockland should Option 2 be chosen as the preferred option,
 - b) a briefing from independent engineers BG&E on the comparative design and safety differences between Option 1 and 2.
- (2) acknowledge Option 3 as not being a preferred design option;
- (3) through an independent third party continue land acquisition negotiations with those landowners, that are yet to provide any written agreement, or in principle support to the without prejudice offer by the City.

LOST 3/7

NOTE: Deputy Mayor Lee-Anne Smith left the meeting at 8:36 pm.

COUNCIL DECISION

MOVED Cr C Sands SECONDED Cr M Separovich

That the recommendation be adopted.

CARRIED 7/2

Background

At the Ordinary Council Meeting of 9 March 2017, an item was presented to Council to consider the acquisition of land required to facilitate the public work of:

- the upgrade of Jandakot Road to a dual carriageway between Berrigan Drive and Fraser Road, including appropriate tie in treatments;



- the upgrade of Solomon Road between Cutler Road and Jandakot Road including appropriate tie in treatments;
- intersection upgrades including between Jandakot Road and Falcon Place; Jandakot Road and Solomon Road; Jandakot Road and Coonadoo Court; Jandakot Road and Cessna Drive; Jandakot Road and Fraser Road; Solomon Road and Peppworth Place and; Dollier Road and Solomon Road;
- intersection construction at Jandakot Road and Clementine Boulevard; and Solomon Road and Greensand Promenade.

(referred to as the Jandakot Solomon Public Works hereafter in this report)

Council subsequently resolved the following:

“That Council defer the purchase of land required for the road widening from all the affected properties from in stage 1 of the Jandakot road widening proposal until after the noise impact study has been completed and presented at a comprehensive workshop as was agreed at the OCM 09/02/2017, which is to be facilitated between the City's Officers, Elected Members and all affected land owners for all stages of the Jandakot Rd widening project.”

Two workshops were subsequently undertaken, with affected landowners along Jandakot Road and Solomon Road as well as landowners taking access from roads coming off Jandakot Road and Solomon Road. This has resulted in a significant amount of information being provided to the community, and feedback being received from the community in response. This feedback has helped shape consideration of three slightly different design options of the Jandakot Solomon Public Works, with the design difference being associated with how the treatment of the Solomon Road and Jandakot Road intersections occurs.

Following these workshops and design refinements, a report was presented to the November 2017 Ordinary Council Meeting, seeking Council to determine its level of support for the project, and to also consider a preferred design option of the three options presented.

At that meeting, Council resolved to:

“Defer the item until a land acquisition agreement is reached with affected landowners.”

Based on Council's decision, discussion and negotiation was important with those specific landowners who had a portion of their land required to be used for the Jandakot Solomon Public Works. While discussion



with these landowners had been ongoing, Council's decision of November 2017 enabled a fresh set of discussions and negotiations to begin, in the spirit of reaching a negotiated position that would see landowners who had land needing to be taken for the Jandakot Solomon Public Works, fairly compensated. This fair compensation being under the auspices of the *Land Administration Act 1997*, and subject to Council decision.

This report presents back to Council the outcome of these negotiations with landowners. Negotiations have been successful in respect of a specific stage of the works, which (subject to Council support) enables this stage to occur.

Submission

N/A

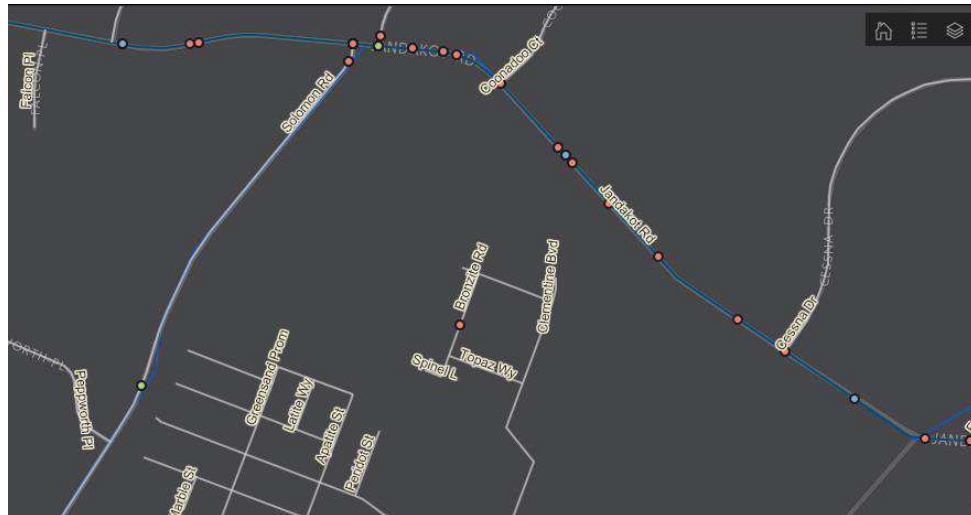
Report

Why is the road upgrade required?

To begin this report it is important to highlight the key reason for undertaking this project. This is to protect our community, by making these roads safer for use. An upgrade to both Jandakot Road and Solomon Road, including key intersections, is fundamentally needed to address safety and congestion issues. Members of the community have expressed concern with road capacity, particularly Jandakot Road, and expressed a desire for it to be upgraded to increase the levels of safety and decrease congestion. While congestion represents a time cost to the community, safety is by far the most significant concern for the City and the Jandakot Solomon Public Works is being undertaken to address safety for our community.

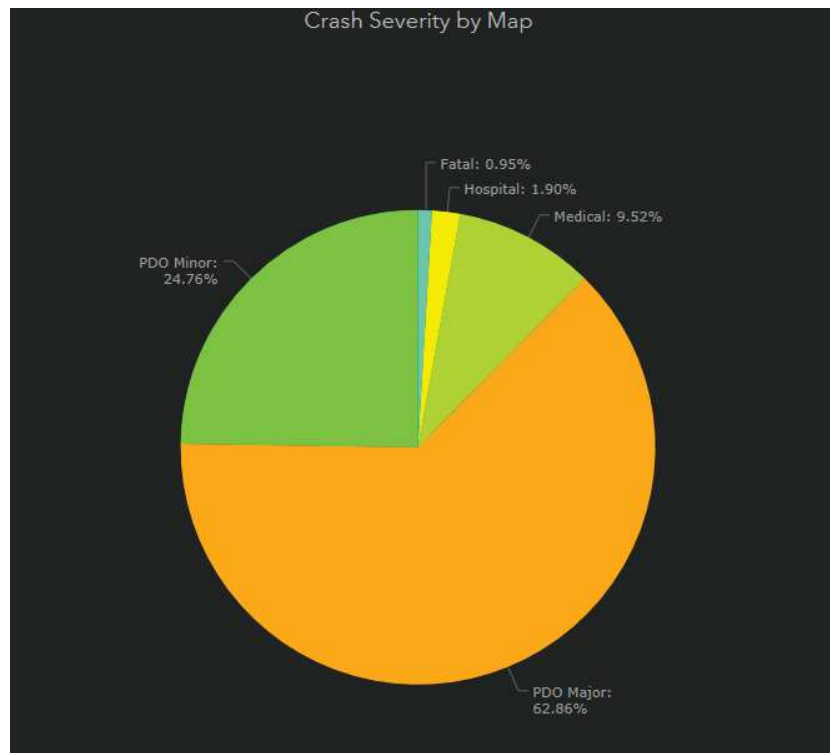
To visualise the safety issue, the following image provides a visual representation of the location and type of vehicle crashes that have occurred along Jandakot Road and Solomon Road from 2013 to 2017.





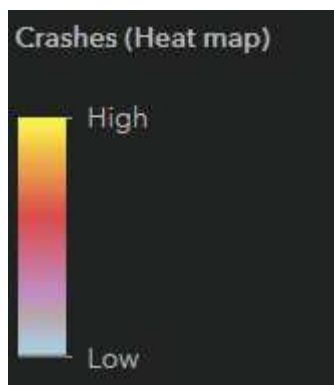
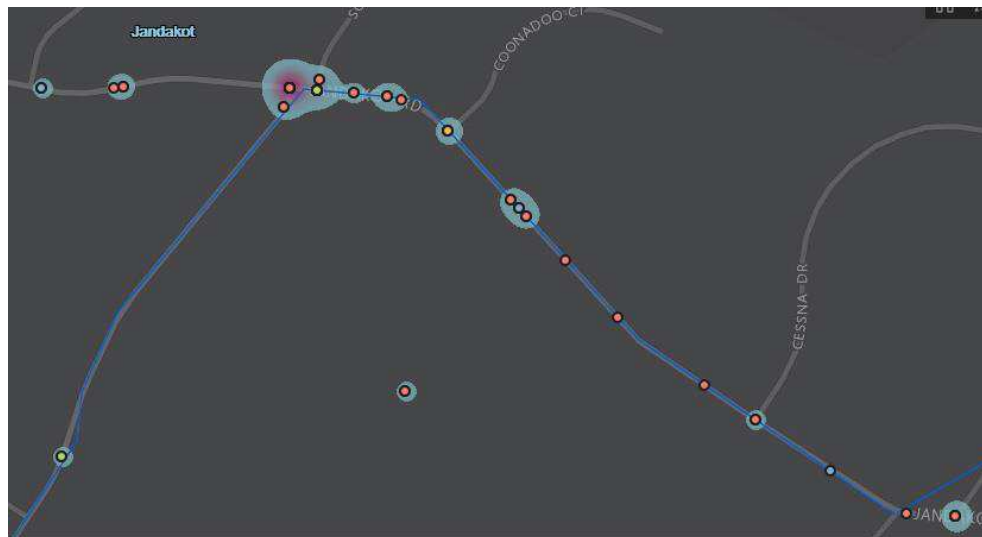
This map reveals:

- 105 crashes during the period 2013-17;
- Of these 105 crashes:
 - 10 resulted in medical treatment;
 - 2 resulted in hospitalisation;
 - 1 was a fatal crash;
 - 66 resulted in major property damage;
 - 26 resulted in minor property damage.
- These are visually portrayed following:



These statistics are considered to reveal the need to address the safety issues along these roads. As per the City’s Strategic Community Plan, providing safe places is mentioned in part as an objective under the Community, Lifestyle and Security theme of the plan. Taking an evidence basis to decisions regarding (in this case) traffic safety, reveals the need to upgrade Jandakot Road and Solomon Road and associated intersections.

Jandakot Road is approaching the limits of safe operating capacity for a single lane rural road. This is due to the undivided nature of this rural road, coupled with congestion levels and intersecting side roads which do not have safe treatments like roundabouts, central islands, dedicated turning pockets and deceleration lanes. This extends also to Solomon Road, as the capacity and configuration of that road forms a key part of the local road network. The intersection of Solomon Road and Jandakot Road, by virtue of a heat map showing the concentration of crashes, highlights these safety concerns following:

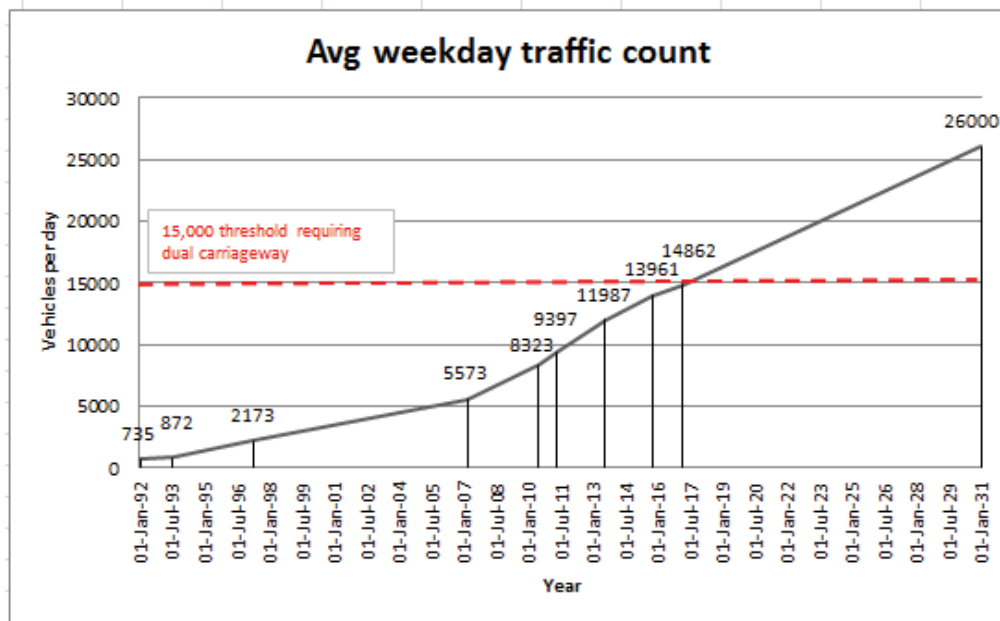


Crash statistics are high for Jandakot Road. In the period 2013 to 2017, there were 105 reported accidents, as detailed in the previous graphics. This makes it one of the most dangerous stretches of road in the district of Cockburn. The majority of accidents were ‘vehicles from one

direction' e.g. rear end/side swipe type crashes. A number of these accidents have been serious, including one in 2017 which resulted in a fatality. A further fatality has also occurred towards the end of 2017, however this is yet to be included in the data available for the above maps.

It is important to note that the two fatalities along Jandakot Road (July 2017; near Coonadoo Court and September 2017; near the Warton Road roundabout) reveal that crashes can also have a serious consequence beyond those which (in the majority) only result property damage. Recognising these two fatalities and the other accidents that have resulted in medical treatment and/or hospitalisation (total of 12) shows the unsafe nature of this road.

The City continues to grow and by 2031 it is forecast that there will be 26,000 vehicles per day using Jandakot Road. In 2017 this was just under 15,000 vehicles (specially 14,862 vehicles), at the traffic count performed between Solomon Road and Berrigan Drive. It is at the point of 15,000 vehicles per day that a single lane road needs to expand its operating capacity, to address traffic movement safely and importantly to keep our community (including landowners along the road) safe. It is important to also consider the traffic data which shows growth in traffic count numbers over time. This is displayed following. It is important to note the threshold of 15,000 vehicles per day requiring the dual carriageway.



Date	Avg weekday traffic count
14-Jan-92	735
20-Jul-93	872
18-Apr-97	2173
06-Mar-07	5573
30-Jul-10	8323
10-May-11	9397
09-Aug-13	11987
29-Oct-15	13961
20-Mar-17	14862
01-Jan-31	26000

While debate has occurred in to finding alternative routes to shift traffic, this is not considered viable as the road is being used by a mix of local, subregional and regional traffic much of which emanates from communities to the east of the City of Cockburn. These communities use Jandakot Road to flow to the regional road network of the freeway, and to access regional employment centres such as Jandakot Airport. There are no logical alternatives to shift this traffic. Jandakot Road is also now identified in the Perth and Peel @3.5m Strategic Plan as a regional type road.

The City is very much aware that congestion is experienced along the surrounding roads of Armadale Road, Warton Road, Nicholson Road and Beeliar Drive that would be alternative routes. These routes are already congested and to contemplate shifting traffic to these routes would not be possible or viable. As will be explained further, the upgrades of these roads will not shift traffic, but rather address current congestion on these roads.

In addressing the safety of Jandakot Road and Solomon Road, the City has also concurrently advocated for action by the State and Federal Governments to upgrade their regional roads of Armadale Road to address congestion on that road. These upgrades (i.e. the Armadale Road upgrade by Main Roads, and the Jandakot Solomon Public Works by City of Cockburn) must work together. One is not a solution in itself to the problems of the other.

Although the upgrade of Armadale Road and construction of a bridge over Kwinana Freeway will provide additional capacity and improve safety and operational efficiencies in the area; the Main Road's ROM forecast for Jandakot Road indicates that even with the upgrades to Armadale Road, it will be carrying 26,500 vehicles per day by 2031. This is consistent with earlier forecasts and reinforces the need to act now and upgrade Jandakot Road.

As reiterated above, the Jandakot Solomon Public Works upgrade by the City of Cockburn, as well as the Armadale Road upgrades by Main

Roads, must coexist together to address safety. Either in isolation is not a proven solution to address safety.

Also by 2031 there will be an extra 20,000 to 30,000 people living in the nearby localities of Jandakot, Treeby, Piara Waters, Harrisdale and Haynes. A significant number of these residents are likely to utilise Jandakot Road as their most direct access to the Kwinana Freeway.

Solomon Road, while able to be retained as a single carriageway in either direction; will need upgrading to improve its functionality and provide for formalised turning treatments, particularly at its juncture with Jandakot Road.

The key benefits associated with the City of Cockburn Jandakot Solomon Public Works project, are as follows:

- safer opportunities for turning (both at roundabouts, at rural roads intersecting with Jandakot Road and Solomon Road and at the driveways of landowners adjoining Jandakot Road);
- safer opportunities for cycling and walking - with footpaths and street lighting;
- a reduced likelihood for serious accidents, as there will be a significantly reduced potential for head on or right angle traffic accidents that generally cause the greatest amount of injury and fatality; and
- management of congestion.

This provides the evidence basis to undertake the Jandakot Solomon Public Works Project so as to:

- upgrade Jandakot Road to a dual carriageway between Berrigan Drive and Fraser Road, including appropriate tie in treatments;
- upgrade Solomon Road between Cutler Road and Jandakot Road including appropriate tie in treatments;
- upgrade intersections including between Jandakot Road and Falcon Place; Jandakot Road and Solomon Road; Jandakot Road and Coonadoo Court; Jandakot Road and Cessna Drive; Jandakot Road and Fraser Road; Solomon Road and Peppworth Place and; Dollier Road and Solomon Road;
- create new intersections at Jandakot Road and Clementine Boulevard and at Solomon Road and Greensand Promenade.

How the holistic design approach needs to occur



When looking at Jandakot Road, the key requirement of the upgrade is to provide improved safety and capacity. Within the constraints of the existing 20m road reserve of Jandakot Road, this is not possible without widening the road through acquiring portions of the adjoining private land. The only viable design outcome is to increase Jandakot Road from a single lane rural road to a dual divided carriageway road with roundabout intersection controls at the major intersections of Jandakot Road and Solomon Road, Jandakot Road and Clementine Boulevard and Jandakot Road and Fraser Road. This is the holistic design approach, being the dual carriageway of Jandakot Road, roundabouts at key intersections and the other minor road intersections treated through a combination of deceleration lanes and median treatments.

As the upgrade of Jandakot Road cannot fit within the existing 20m road reserve, it is necessary to acquire portion of adjoining private land in order to facilitate the public work. This has been the basis of discussion with affected landowners, following Council's resolution of November 2017 requesting landowner acquisition discussions to occur to try to reach agreements.

Importantly, through securing the necessary private land acquisitions, the City will be able to create a safe road environment for the community to benefit. This however doesn't remove the other imperative of good faith negotiations with affected landowners, as the City is also very much intent on ensuring that landowners who have a portion of land required for the public work are fairly compensated, in accordance with the *Land Administration Act 1997*. This is central to the City's negotiations and discussions with the affected landowners. Having reached agreement with landowners in Stage 1 of the proposed works, this first stage is possible to proceed subject to Council support.

Design options and the recommended approach

As mentioned initially, the Jandakot Solomon Public Works project includes the following elements:

- upgrade Jandakot Road to a dual carriageway between Berrigan Drive and Fraser Road, including appropriate tie in treatments;
- upgrade Solomon Road between Cutler Road and Jandakot Road, Jandakot, including appropriate tie in treatments;
- upgrade intersections including between Jandakot Road and Falcon Place; Jandakot Road and Solomon Road; Jandakot Road and Coonadoo Court; Jandakot Road and Cessna Drive; Jandakot Road and Fraser Road; Solomon Road and Peppworth Place and; Dollier Road and Solomon Road;
- intersection construction at Jandakot Road and Clementine Boulevard; and Solomon Road and Greensand Promenade.



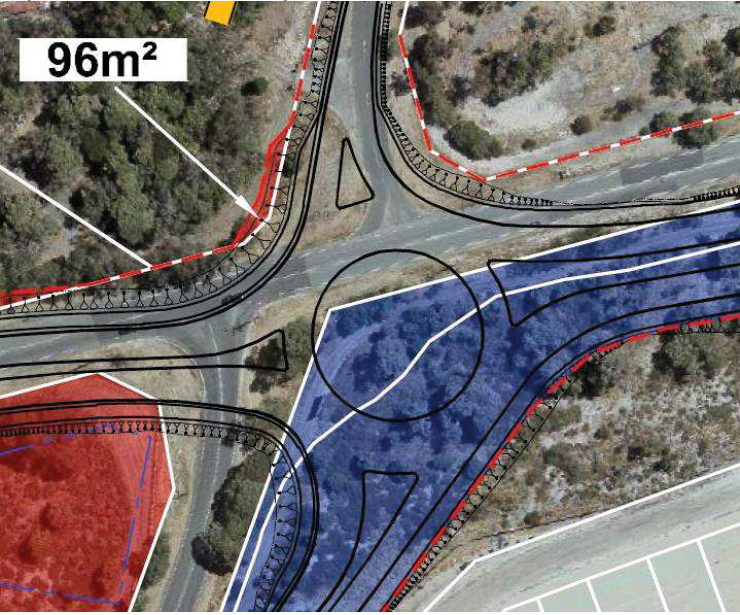
In looking specifically at Jandakot Road, any decision on duplicating the Jandakot Road environment must be carefully balanced against the impact to local residents, changes to driveway access and land resumptions on individual properties. This has been a fundamental consideration in coming up with three design options. Essentially, the entire Jandakot Solomon Public Works project is the same under all three options except for the manner in which the intersection between Solomon Road and Jandakot Road is treated. These three options are (refer to attachments also):

Option 1 - a centrally positioned roundabout



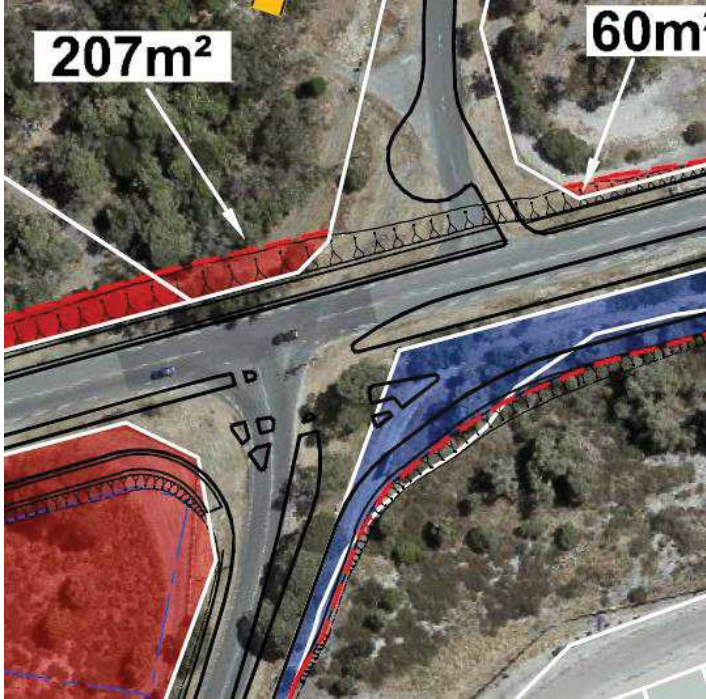


Option 2 - an offset positioned roundabout





Option 3 - a traffic lights option





The City consulted with affected landowners to assist in the preparation of the design options. While the majority of the land required for the road upgrades will be provided by Stockland from the Calleya residential estate, there are some additional portions of private land on both sides of Solomon Road and Jandakot Road that will be required. These landowners are clearly important stakeholders in the design of a safer road. As mentioned, Council's deferral of the land acquisition item in March 2017 was in order to facilitate workshops with the landowners directly impacted by potential land acquisition. This workshop (held in April 2017) enabled discussion to occur, and the evolution of three design options ultimately for consideration.

In addition to these design options, affected landowners also asked for the City to investigate:

- reducing the design speed to better suit existing road reserve and lessen land resumption;
- cost effective ways to reduce the impact of traffic noise;
- testing alternative drainage options to reduce basin sizes;
- looking specifically at traffic safety at intersections; and
- environmental concerns about pollution.

So as well as having three design options for the intersection between Jandakot Road and Solomon Road, the above requests for

investigation added to the need for further research to be done. These are discussed following:

Reducing the design speed to better suit existing road reserve and lessen land resumption

The road design was tested with a design speed of 80km/h and a posted speed of 70 km/h to check differences in land required and road alignment. For safety reasons, the design speed of a road is normally required to be 10km/h above its posted speed. A video camera was also installed at the intersection of Jandakot Road and Berrigan Drive to test turning movements, and review the nature and level of traffic using Jandakot Road.

In regard to vehicular movement along Jandakot Road, it was found that the major turning movements were:

AM Peak

- From Jandakot Rd: 52% turn north, 47% to Freeway
- From Berrigan Dr: 31% turn into Jandakot Rd, 67% head north

PM Peak:

- From Jandakot Rd: 38% turn north, 57% to Freeway
- From Berrigan Dr: 62% turn into Jandakot Rd, 26% head north

This enabled an informed discussion to occur with Main Roads, to discuss their view (as the agency in charge) on what could be done in respect of speed limit and design. Main Roads determined that the posted speed for an upgraded Jandakot Road should be 70km/h, with a design speed of 80km/h after the road had been upgraded to a dual carriageway.

Cost effective ways to reduce the impact of traffic noise

The City's acoustic consultant, Lloyd George Acoustics advised that changing the road surface from the existing dense grade asphalt to open grade asphalt (OGA) and posting the speed at 70km/h would reduce the noise level (compared to existing), as summarised below.

- Posted speed of 70km/h results in a 1dB reduction;
- Use of OGA road surface results in 2dB reduction;
- When the road project is constructed, there will be a reduction in noise level of 3dB;
- As traffic increases over time, noise levels will increase to marginally above existing noise levels however the proposed



mitigation (reduced speed and OGA road surface) represents around a 3dB reduction compared to doing nothing. That is, if the road is left as is and not upgraded, noise levels will increase reflective of the traffic increase.

It is important to understand this reality. To quote the City's Independent Noise Expert (Terry George of Lloyd George Acoustics):

For each of the above, the 60 dB $L_{Aeq(Day)}$ noise level contour is shown. Also shown on each figure is the 60 dB $L_{Aeq(Day)}$ noise contour for the 'No Build' scenario. The 'No Build' scenario is used to describe the outcome if the road was not upgraded. In this case, the forecast traffic volumes are expected to be the same, with the posted speed being 80km/hr and the road surface Dense Graded Asphalt (DGA).

To comply with SPP 5.4, practicable noise management and mitigation measures should be considered, having regard to –

- The existing transport noise levels;
- The likely change in noise emissions from the proposal; and
- The nature and scale of the works and potential for noise amelioration.

The results of the noise modelling indicate that any of the proposed designs, will result in lesser noise levels if nothing was done, due to the reduced posted speed and use of open graded asphalt, being the quietest road pavement.

If no road project occurred, noise will continue to build. This is compared to undertaking the Jandakot Solomon Public Works project, which (while still seeing a gradual increase in noise) will actually result in lower noise levels of approximately 3dB.

Testing alternative drainage options to reduce basin sizes

The drainage design was tested using the median island and road reserve as drainage storage in order to reduce the area of land required for the proposed retention basins. An independent engineering peer review was conducted by BG&E Consultants.

While this only had a minor impact on the property on the southwest corner of Jandakot Road and Solomon Road and no impact on the basin at the western end of Jandakot Road, it did reveal an option to potentially address drainage in a more environmentally sensitive way by securing the Resource Enhancement Wetland in a natural extent from the portion of Lot 11 (No. 13) Falcon Place. This would enable a road side system to initially treat any drainage runoff, before ultimately disposing of the cleaned water in to this wetland area in a way which is similar to the current environment. This would not only enable a more water sensitive approach to drainage management, but help to protect the resilience of this wetland by enabling only those cleaned stormwater events to flow in and rejuvenate the wetland.



This is compared with the original approach that would have modified the wetland by adopting a less environmentally sensitive drainage sump, as shown following:



Looking specifically at traffic safety at intersections



For the primary intersections of Solomon Road and Jandakot Road, (future) intersection of Jandakot Road and Clementine Boulevard and Jandakot Road and Fraser Road, roundabouts will provide for much safer intersection turning arrangements. Local roads, which are the roads of Peppworth Place, Falcon Place, Boeing Way, Coonadoo Court and Cessna Drive, will be upgraded with turning pockets and medianbreaks which in conjunction with roundabouts will make entry and exit to these roads much safer. Finally, while properties with direct driveway frontage to Jandakot Road will lose full access movement, this is still achieved by virtue of the spacing of the roundabouts and U turn pockets enabling residents to perform left in left out movements to access either direction along Jandakot Road.

Environmental concerns about pollution

Each option impacts on native flora and fauna values of the site. The City completed a flora and fauna assessment in spring 2016 within the road reserve and private lots to meet requirements under the *Environment Protection (EP) Act 1986 (WA)* and *Biodiversity Conservation (EPBC) Act 1999 (Commonwealth)*. Note that while the City endeavoured to access all lots, some denied access for this survey.

The study area comprises the Jandakot Road road reserve and the following private lots: 7, 8, 20, 27, 44, 58, 72, 97, 120, 134, 135 and Lot 103 Jandakot Rd; and 8 Falcon Place. The extent of the flora and fauna survey did not include areas identified within the two roundabout options being presented. The 2016 flora and fauna assessment indicated that no listed Threatened (Declared Rare) and Priority Flora or other flora species of conservation significance were recorded in the private lots or road reserve. A single vegetation community was described within both the road reserve and private lots. This vegetation community represents the Threatened Ecological Community 'Banksia Woodland of the Swan Coastal Plain', which is a Matter of National Environmental Significance (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*. Any impact of MNES generally requires offsets. The ratio of offsets required is informed by the quality and size of the patch in question. The amount of land required for each proposed option is:

Option 1 - Road widening and a central roundabout - 53,315m²

Option 2 - Road widening and an offset roundabout - 59,155m²

Option 3 - Road widening and traffic signals - 51,535m²

Looking at the two roundabout options, being Option 1 and 2, Option 1 will have lesser impact on the MNES and therefore is likely to require less offsets. Option 2 requires the clearing of a large portion of the environmentally sensitive land at intersection of Jandakot Road and



Solomon Road, and therefore there will be a requirement to lodge a submission with the Commonwealth for assessment of any clearing activity. The Minister can make a determination on the scale of impacts within 20 business days. Should the determination be regarded as significant further documentation and assessment will be required. In addition a state issued clearing permit will be required for any clearing activity within the road reserve. The timeframe for this process is usually four to five months.

With the above discussion points addressing:

- reducing the design speed to better suit existing road reserve and lessen land resumption;
- cost effective ways to reduce the impact of traffic noise;
- testing alternative drainage options to reduce basin sizes;
- looking specifically at traffic safety at intersections; and
- environmental concerns about pollution;

it is appropriate to shift now to the specific discussion on which design option should be adopted by Council, and how Council should proceed with construction in light of those landowners that have agreed in principle to the compensation through negotiation, versus those landowners where agreement in principle is still yet to be secured. The combination of the above issues reveals a preferred design concept, and a staging that will enable the project to begin while still negotiating with those remaining landowners.

Which design option and why?

The Jandakot Solomon Public Works project is generally similar under all three options EXCEPT for the manner in which the intersection of Jandakot Road and Solomon Road is treated and the tie ins. As visually portrayed earlier in the report, the options are essentially:

Option 1 - a central roundabout

Option 2 - an offset roundabout, with the roundabout offset towards the southeast

Option 3 - a traffic lights option

A multi criteria analysis is a useful tool in which to score the differing elements that underpin the assessment of the options. Often this helps to portray how different options score relative to one another under certain assessment criteria, as well as enabling an overall score to be compiled. The criteria that are relevant to this assessment include:

- Impacts on landowners
- Impacts on the environment



- Design safety
- Impacts from noise
- Ability to implement design from a regulatory perspective
- Congestion management

The following table details the assessment process.

Scoring (1 = lowest impact/best score; 3 = greatest impact/worst score)	Option 1 - central roundabout	Option 2 - offset roundabout	Option 3 - traffic signal
Impacts on landowners	1 (Centrally placed roundabout shares the impact of the intersection. The impact is considered the most equitable of the three options.)	3 (This places a higher impact on the southern landowner at 134 Jandakot Road. Under Option 1, the land impact is 2822sqm. Option 2 it is 3962sqm.)	2 (This places a higher impact on the southern landowner at 134 Jandakot Road. Under Option 1, the land impact is 2822sqm. Option 3 it is 3924sqm.)
Impacts on the environment	2 (This option results in potential clearing of 53,315m ² .)	3 (This option results in potential clearing of 59,155m ² .)	1 (This option results in potential clearing of 51,535m ² .)
Design safety	1 (A centrally located roundabout will slow traffic in all directions as they come to navigate the roundabout. Any incidents will be low speed, and therefore far safer than what would be expected with traffic lights. A central roundabout creates the best horizontal and vertical alignment for the roads leading to the roundabout.)	2 (An offset roundabout will slow traffic in all directions as they come to navigate the roundabout. Any incidents will be low speed, and therefore far safer than what would be expected with traffic lights. The offset roundabout is however not considered better than a central roundabout, given the creation of a minor bend for traffic coming northbound along Solomon Road and eastbound along Jandakot Road.)	3 (Traffic signals are considered the most unsafe option. This is due to the risk of right angle crashes at high speed as a result of a car moving through the intersection under red light, while the other car is travelling at speed under green light. The traffic lights do not slow all traffic as they approach the intersection.)
Impacts from noise	1 (Traffic will slow as it approaches the roundabout, rather than break hard to a stop if under traffic light conditions and a	2 (Same justification as per Option 1. However the addition of a minor bend for traffic coming northbound along	3 (Traffic signals will invariably bring traffic to a stop at all times, when under red light. Invariably this traffic will then

	<p>red light. This will limit the impact particularly of engine revving and breaking, as drivers will be able to slow and move through a roundabout. This moderation is particularly important for trucks, as their torque requirements means most noise occurs when coming to a complete stop, and starting up again. This happens at all traffic lights.)</p>	<p>Solomon Road and eastbound along Jandakot Road means traffic may break and/or rev back up, thus creating the potential for more noise than the central roundabout option.)</p>	<p>need to move from a stationary position once lights turn green. The greatest noise impacts will occur under this option.)</p>
<p>Ability to implement design from a regulatory perspective</p>	<p>1 (Main Roads favours the safety of roundabouts compared to traffic signals.)</p>	<p>1 (Main Roads favours the safety of roundabouts compared to traffic signals.)</p>	<p>3 (Main Roads does not support the use of traffic signals, based on these treatments being less safe than roundabouts. Traffic signals do not moderate traffic speed in all directions, and thus a crash is likely to be more serious compared with roundabouts where traffic is slowed by deflections and the roundabout itself.)</p>
<p>Congestion management</p>	<p>1 (The roundabout will enable the continued flow of traffic. It should be noted that peak hour may have some queuing, but not to the level that traffic signals will result in.)</p>	<p>1 (The roundabout will enable the continued flow of traffic . It should be noted that peak hour may have some queuing, but not to the level that traffic signals will result in.)</p>	<p>3 (Traffic signals will create delays as the opportunity cost of time associated with traffic light cycles, traffic queuing and peak time operation which has demands placed on east west and north to east west movements.)</p>
<p>Scoring outcome (Lowest score is the preferred option according</p>	<p>8</p>	<p>12</p>	<p>15</p>



to the analysis)			
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Option 1 is considered the best option, according to the multi criteria analysis. The views of our community is also of great importance, and for this reason the City undertook a further workshop in July 2017, and enabled a more specific discussion of the three design options. As well as discussion on the night, mail outs occurred, together with a hardcopy survey and information posted on 'Comment on Cockburn' website.

During the July workshop there was a proposal from the floor to request a show of hands for deferral of any upgrade of Jandakot Road until after the duplication of Armadale Road to which there was a high level of agreement. However, as discussed previously in this report, it is known that while the upgrade of Armadale Road and construction of a bridge over Kwinana Freeway will provide additional capacity and improve safety and operational efficiencies in the area; **the Main Road's ROM forecast for Jandakot Road indicates that even with the upgrades to Armadale Road, it will be carrying 26,500 vehicles per day by 2031. This requires Jandakot Road to be upgraded, independent of what is happening with Armadale Road.**

The Jandakot Solomon Public Works upgrade by the City of Cockburn, and the Armadale Road upgrades by Main Roads, must coexist together to address safety. Either in isolation is not a proven solution to address safety and congestion. For this reason, the Jandakot Solomon Public Works must be viewed as completely isolated from what occurs with Armadale Road, as the modelling shows the traffic demand will exist now and into the future for its upgrade, irrespective of the upgrade of Armadale Road.

A feedback form was provided to residents for completion on the night of the July 2017 workshop, and residents were also able to complete a survey via Comment on Cockburn. It was also emailed to residents groups following the workshop.

A total of 392 people visited the website. Overall, 48 people contributed to the survey by 26 July 2017. A letter was sent out to all households in the area prompting them to complete the survey. By 8 September, when the survey was finally closed, 70 responses were received.

Key survey findings are identified following:



	Support strongly support	or	Oppose strongly oppose	or
Option 1 Four way centralised roundabout at Solomon Road /Jandakot Road	36		25	
Option 2 Four way offset roundabout at Solomon Road/Jandakot Road	39		21	
Option 3 Traffic lights at Solomon Road /Jandakot Road	10		49	

The opposition to Option 3 is clear under the community survey. The multi criteria analysis above also shows this to be the worst performing option, especially when considering the important issues of noise and safety. Officers would not support a position which may result in higher localised impacts on surrounding landowners (in the case of noise), and broader impacts on the community (in the case of safety). The inability to implement this design option, due to Main Roads not supporting new traffic signals, also needs to be taken in to account.

Other points raised by community feedback included:

- Most landowners acknowledged that the current road situation along Jandakot Road is unsafe, and that this safety issue must be addressed;

Officer comment - agree.

- Some landowners did not want any changes to the road at all, and instead the City of Cockburn should be ensuring that the State Government deliver the long awaited Armadale Road upgrade and new freeway bridge that would possibly negate the need for any changes to Jandakot Road;

Officer comment - *The Main Road’s ROM forecast for Jandakot Road indicates that even with the upgrades to Armadale Road, it will be carrying 26,500 vehicles per day by 2031. This requires Jandakot Road to be upgraded, independent of what is happening with Armadale Road.*

The Jandakot Solomon Public Works upgrade by the City of Cockburn, and the Armadale Road upgrades by Main Roads, must coexist together to address safety. Either in isolation is not a



proven solution to address safety and congestion. For this reason, the Jandakot Solomon Public Works must be viewed as completely isolated from what occurs with Armadale Road, as the modelling shows the traffic demand will exist now and into the future for its upgrade irrespective of the upgrade of Armadale Road.

- All landowners were concerned about noise, and what noise solution would ultimately be proposed by the City;

Officer comment - *The City's acoustic consultant, Lloyd George Acoustics advised that changing the road surface from the existing dense grade asphalt to open grade asphalt (OGA) and posting the speed at 70km/h would reduce the noise level, as summarised below.*

- *Posted speed of 70km/h results in a 1dB reduction;*
 - *Use of OGA road surface results in 2dB reduction;*
 - *When the road project is constructed, there will be a reduction in noise level;*
 - *As traffic increases over time, noise levels will increase to marginally above existing noise levels however the proposed mitigation (reduced speed and OGA road surface) represents around a 3dB reduction compared to doing nothing.*
- Landowners with road widening proposed on their land were concerned about this impact;

Officer comment - *As per the multi criteria analysis, it is considered the most equitable situation is to position the roundabout centrally, in order the share the land requirements. Importantly, it is the City's objective to ensure landowners are fairly compensated.*

- Several landowners requested the opportunity for subdivision and development rights as a consideration for supporting the road upgrades;

Officer comment - *The is unrelated to the consideration of the Jandakot Solomon Public Works project. The City does however note that the Perth and Peel @3.5m strategic plan has indicated the Resource zoned land north of Jandakot Road within the Planning Investigation Area. It is noted under this strategic plan that "the Planning Investigation classifications should not be construed as WAPC support for a change from the existing land use/zoning, as this will depend upon the outcome of further investigations." The WAPC have indicated that such investigation*

will be State Government led, with timing to be considered going forward. This does not impact or influence the Jandakot Solomon Public Works project occurring.

- Some landowners felt that widening the road will only make congestion more problematic;

Officer comment - *congestion will be addressed by the public works, through creating a safe road environment which enables safe intersection movements, safe travel speed and safe relationship between vehicles on the road.*

- Landowners felt that the entire length of Jandakot Road needs to be addressed at the one time, as leaving any section as a single carriageway will shift congestion points to that area;

Officer comment - *Option 1 deals with the upgrade of Jandakot Road from its current Berrigan Avenue intersection through to Fraser Road. Longer term, the road will be upgraded from Fraser Road to Warton Road.*

- Landowners requested investigation as to why the road upgrade intersection at Jandakot Road and Solomon Road and Jandakot Road and Fraser Road could not be entirely located within the Calleya Estate;

Officer comment - *the vast majority of land required for the road upgrade is from the Calleya development. However, in order to deal with the horizontal and vertical alignment of the road, and indeed to extend the road upgrade west of Solomon Road to Berrigan Drive, other private land is required. A dual carriageway cannot be accommodated within a 20m reserve which road currently is.*

- Landowners wanted the opportunity for further community workshops before any progress on the project.

Officer comment - *Discussions have been ongoing with the community. It is felt that all information has been communicated, and that the community now seeks a decision to be made on the project.*

Based upon the detailed investigations undertaken, which have analysed design, safety, environment, water management, noise and congestion considerations, it is recommended that Council proceed with Option 1. Option 1 is the most superior option, as evidenced by the results of the multi criteria analysis.

Implementing the works - achieving landowner agreements in-principle



The basis of this report deals with Council’s November 2017 resolution that seeks officers to reach land acquisition agreements with affected landowners. What is interesting with this project, is that the road works have two unique components, which reflect part of the works being delivered under the Metropolitan Region Roads Grant (“MRRG”). As per the following map, the section of the project that has received MRRG funding is shown in orange, whereas the section to be delivered by the City of Cockburn separate to the MRRG funding is shown in green.



Shown on the next map, is the same image together with all the private allotments which require a portion of land for the public works. **Green stars** reveals where agreement in principle has been achieved per Council's resolution of November 2017 (still subject to Council decision), and **red stars** show where the City is still yet to reach an agreement in principle.



What this reveals is that Council is able to proceed with the package of works that are not associated with the MRRG funding – that is, it can proceed having secured full agreement from landowners with the **green road sections**. This is specifically:

- the upgrade of Jandakot Road to a dual carriageway between Fraser Road and before the Solomon Road / Jandakot Road intersection;
- the upgrade of Solomon Road between Cutler Road and before the Jandakot Road/Solomon Road intersection;
- intersection upgrade between Jandakot Road and Coonadoo Court; Jandakot Road and Cessna Drive; Jandakot Road and Fraser Road; Solomon Road and Peppworth Place and; Dollier Road and Solomon Road; and
- intersection construction at Jandakot Road and Clementine Boulevard; and Solomon Road and Greensand Promenade

In essence, this leaves the package of works associated with the In essence, this leaves the package of works associated with the MRRG funding (**orange bits**), being the intersection of Solomon Road and Jandakot Road, and the completion of the upgrade of Jandakot Road to a dual carriageway Solomon Road and Berrigan Drive.



As the City has reached landowner acquisition agreements in principle to enable the non MRRG funded component of works to begin (being the **green bits**), this is recommended for Council to endorse. In respect to the remaining components of the Jandakot Solomon Public Works (being the intersection of Jandakot Road and Solomon Road and upgrade of Jandakot Road to Berrigan Drive) it is recommended that the City continue negotiations with those landowners that are yet to provide their written agreement based on the option endorsed by Council. These will continue in good faith.

Strategic Plans/Policy Implications

Moving Around

Reduce traffic congestion, particularly around Cockburn Central and other activity centres.

Community, Lifestyle & Security

Provide safe places and activities for residents and visitors to relax and socialise.

Economic, Social & Environmental Responsibility

Create opportunities for community, business and industry to establish and thrive.

Leading & Listening

Deliver sustainable governance through transparent and robust policy and processes.

Budget/Financial Implications

Land acquisition and construction costs for the non MRRG component is approximately \$11 million. This has attracted developer contributions for the City to deliver this component.

The MRRG component is estimated to cost \$9.7 million. The MRRG component of funding would be \$6.3 million, with the City contributing the balance of \$3.4 million. Critically, the City has received funding to proceed with the MRRG project. Starting Stage 1 helps to demonstrate the City is beginning to implement the project and the MRRG funding.

The City wishes to keep negotiating with landowners in the MRRG component of works, as while the City could elect to seek to compulsorily acquire the land, it wishes to keep working positively with the affected landowners and feels that an agreement in principle is able to be reached. Time will enable further negotiations to occur.



Enabling the non MRRG funded component to begin, shows Council is addressing the urgent safety issue, while also enabling further time to keep negotiating with those landowners who require land associated with the MRRG component. MRRG funds must be handed back in October 2018 if no evidence is provided to show that works are in progress. There is no guarantee that the City would be successful in obtaining further MRRG funding. The City would need to reapply, and be assessed against the other applications made by various local governments at the time.

Legal Implications

The *Land Administration Act 1997* refers.

Community Consultation

Processes of consultation have been discussed in detail under the preceding report section. This has included two workshops with the community, ongoing negotiation with landowners with land requirements and the like. Consultation has been extensive. It is important that Council resolves to continue negotiating with landowners where acquisition agreements in principle are yet to be reached. This forms part of the officer recommendation.

Risk Management Implications

The City's intention is to address road safety on Jandakot Road and minimise accidents. Crash data has been discussed at length in the report, and it is clear that it is an unsafe road environment currently. During 2017, there were two fatalities.

The risk to the City if the recommendation is not followed or is deferred again is that the Jandakot Road remains unsafe, and places our community at risk.

Council has also previously been made aware of the issue of Jandakot Road, and the current levels of traffic being experienced along this single lane rural road. At the 13 May 2010 Council meeting, Item 16.1 (Minute No. 4261) Council considered complaints from landowners about traffic speed and traffic volume along Jandakot Road. This was in response to a petition signed by 23 residents that had been tabled earlier in that year to Council.

From a risk management viewpoint, it is imperative that the safety and congestion issues be addressed.

Advice to Proponent(s)/Submitters

All landowners who have land required under either the non MRRG component of works, or the MRRG component of works, have been



advised that this matter is to be considered at the 12 July 2018 Ordinary Council Meeting.

Implications of Section 3.18(3) *Local Government Act, 1995*

Nil







