



City of Nedlands

Minutes

Traffic Management Committee Meeting

1 March 2011

ATTENTION

These minutes are subject to confirmation

Prior to acting on any resolution/recommendation of this Committee contained in these minutes, a check should be made of the Minutes of the next meeting of this Committee, to ensure that there has not been a correction made to any resolution/recommendation.

N.B. Committee recommendations that require Council's approval will be presented to Council for approval (via the relevant departmental reports).

Table of Contents

Declaration of Opening	2
Present and Apologies and Leave Of Absence (Previously Approved)	2
1. Public Question Time	3
2. Addresses By Members of the Public (only for items listed on the agenda)	16
3. Disclosures of Financial Interest	16
4. Disclosures of Interests Affecting Impartiality	16
5. Declarations by Members That They Have Not Given Due Consideration to Papers	16
6. Confirmation of Minutes	16
6.1 Traffic Management Committee Meeting 1 February 2011	16
7. Items for Discussion	16
7.1 List of Outstanding Actions/Works/Requests of the Traffic Management Committee	17
7.2 Traffic and Parking Hot Spots throughout the City	20
7.3 Black Spot Project 2010/11 – Lemnos Street Left Turn Lane at the Intersection of Brockway Road, Shenton Park	24
7.4 Proposal for Local Area Traffic Management - Melvista Avenue, Nedlands	27
7.5 Proposed Parking Restrictions on Stirling Highway, Nedlands	33
7.6 Proposed Central Energy Plant Facility – QEII – City of Nedlands	37
7.7 Parking Restrictions – Hollywood Ward	45
7.8 Proposed Parking Restrictions – Kinninmont Avenue, Nedlands	50
8. Date of next meeting	57
Declaration of Closure	57

City of Nedlands

Minutes of a meeting of the Traffic Management Committee held in the Council Chambers at 71 Stirling Highway, Nedlands on Tuesday, 1 March 2011 at 5.33 pm.

Declaration of Opening

The Presiding Member declared the meeting open at 5.33 pm and drew attention to the disclaimer below.

(NOTE: Council at its meeting on 24 August 2004 resolved that should the meeting time reach 11.00 pm the meeting is to consider an adjournment motion to reconvene the next day).

Present and Apologies and Leave Of Absence (Previously Approved)

Councillors	Her Worship the Mayor, S A Froese	Presiding Member
	Councillor R M Binks	Hollywood Ward
	Councillor M L Somerville-Brown	Melvista Ward
	Councillor Smyth from (from 5.39 pm)	Coastal Districts

Non-voting Committee Members	Mr P Plaisted
	Mrs B Scott (Until 7.37 pm)

Staff	Mr I Hamilton	Director Technical Services
	Mr W Mo	Acting Manager Engineering Services
	Mr L Marsden	Parking Strategy Coordinator
	Mrs S Kodagoda	Administration Officer Technical Services

Public	6 members of the public were present, including Councillor I Tan
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Press	Post newspaper representative
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Leave of Absence None
(Previously Approved)

Apologies	Mr G Foster	Chief Executive Officer
	Mr J Wetherall	Non-voting community representative
	Councillor I S Argyle	Dalkeith Ward

Absent	Mr A Abercromby	Non-voting community representative
	Mr R Simpson	Non-voting community representative

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1. Public Question Time

1.1. Responses to previous questions from members of the public taken on notice

Moved – Councillor Somerville-Brown
Seconded – Councillor Binks

That the following questions tabled by Mr T Tucak (Item 1.1.1) together with the answers from Administration, are taken as having been read to the meeting due to them having been included in the meeting agenda and hard copies circulated in the public gallery.

CARRIED UNANIMOUSLY 3/-

1.1.1. Mr T Tucak of 16 Adderley Street, Mt Claremont regarding item 7.8 of the Traffic Management Committee agenda of the meeting held on 1 February 2011 – Traffic Calming and Parking Options on Odern Crescent and Marine Parade, Swanbourne

At the Traffic Management Committee meeting on 1 February 2011 Mr I Hamilton, Director Technical Services tabled the following questions on behalf of Mr T Tucak of 16 Adderley Street, Mt Claremont in relation to traffic and parking options in Odern Crescent and Marine Parade, Swanbourne. The questions were taken on notice and were answered in writing.

Question 1

On what basis does the City consider that the short term traffic modifications have been generally agreed on by the affected residents in the area, when the only consultation has been with the Swanbourne Society Committee.

Answer 1

The short term modifications are the result of discussions between members of the Swanbourne Society committee and the City/Council through its Traffic Management Committee. Short term option was discussed as an interim measure to assist in reducing vehicle movements along verges of residents along Odern Crescent.

Question 1a

Has the City determined if the Swanbourne Society is an incorporated body?

Answer 1a

The City has not determined if the Swanbourne Society is an incorporated body.

Question 1b

Has the City sighted and reviewed a membership list of the Swanbourne Society?

Answer 1b

The City has not reviewed a membership list of the Swanbourne Society.

Question 1c

Has the City sighted and reviewed minutes of meeting(s) to confirm the Swanbourne Society Committee is representative of the members of the Swanbourne Society?

Answer 1c

The City has not reviewed minutes of meetings to confirm that the Swanbourne Society Committee is a representative of the members of the 'Swanbourne Society'.

Question 1d

The Swanbourne Society typically quotes its membership as 40 residents, however as they include partners within this total, this may represent only 22% (20 / 90) of residential properties in the area bounded by Marine Parade, North Street and Pine Close. Does the assumed agreement of 22% of residents in the area constitute "generally agreed"?

Answer 1d

The City does not know the membership size of the Swanbourne Society.

Question 2

Why has the City not consulted with other stakeholders in the precinct such as the Naked Fig Café, Swanbourne Nedlands Surf Life Saving Club, WA Bridge Club, Associates Rugby Union Football Club, Swanbourne Coastal Alliance and Friends of Allen Park?

Answer 2

The City is currently investigating the traffic situation in the entire Swanbourne/Allen Park Precinct with various stakeholders in the view of providing long term strategic traffic treatments to address a number of issues within the area with an emphasis upon connectivity, amenity and integration to achieve safe, efficient and attractive street networks for all users in the area.

Once a strategic plan is completed it will go out for community consultation.

Question 2a

When will the City consult with other stakeholders in the precinct?

Answer 2a

As per answer to the question 2 above.

Question 3

Does the City agree that there are approximately 550 parking bays within the area as listed below?

- 23 parking bays Marine Parade (west side between North St to Lower car park entry)
- 25 parking bays Lower car park
- 7 parking bays Odern Crescent (north side between Lower to Upper car park entries)
- 115 parking bays Upper car park
- 65 parking bays Overflow car park
- 30 parking bays Odern Crescent (north side between Upper to WA Bridge Club car park entries)
- 100 parking bays WA Bridge Club car park
- 165 parking bays Associates Rugby Union Football Club car park
- 20 parking bays Odern Crescent (north side between Allen Park car park entry to Clement St)

Answer 3

There are approximately 265 parking bays in the area not 550 as stated. The last three mentioned locations (285 bays) are east of the upper car park and access to them from Marine Parade side would result in an illegal vehicle movement. These 285 bays are accessible from the east end of Odern Crescent only.

Question 3a

Does the City agreed that one entry / exit system to the Upper car park prevents a beach patron, entering the area from Marine Parade, from being to access 57% of parking bays within the area?

Answer 3a

The existing entry/exit at the upper car park does not allow users from Marine Parade to use the 285 bays as described above.

Question 3b

Does the City agreed that problems such as vehicles passing the wrong way through the entry / exit system to the Upper car park, exiting the wrong way from the Upper car park, performing three point turns in driveways on Odern Crescent, parking on the kerbed islands of the entry / exit system to the Upper car park are likely to result from beach patrons being unable to find a parking bay and unable to easily access the remaining 57% of parking bays within the area.

Answer 3b

A percentage of motorists may find it difficult with the current road/parking layout. The current layout doesn't support parking east of the upper car park.

Question 3c

Has the City considered removing the entry / exit system to the Upper car park such that beach patrons can easily access all 100% of the parking bays within the area?

Answer 3c

Not considered. This was not an option considered by the Swanbourne Society or the City to date, however this maybe a valid option as part of the long term traffic management solutions in the future.

Question 4a

Has the City considered signage in accordance with AS1742.11 Manual of Uniform Control Devices Part 11: Parking Controls, Section 6 to provide clear straight forward information to beach patrons as to the location of parking bays within the area.

(Each sign depicted below is G7-12 with white letter 'P' together with a directional arrow and other information as required in white, on a blue background.

For eastbound traffic entering from Marine Parade:

At Marine Parade roundabout (on approach from North Street)



At Marine Parade roundabout (on approach from Marine Parade)



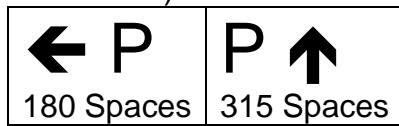
At entry to Lower car park (on approach from Marine Parade)



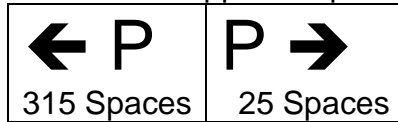
At exit from Lower car park



At entry to Upper car park (on approach from Odern Crescent eastbound)



At exit from Upper car park



At entry to WA Bridge Club car park (on approach from Odern Crescent eastbound)



At entry to Associates Rugby Union Football Club car park (on approach into WA Bridge Club Car park)



At exit from WA Bridge Club car park



For westbound traffic entering from Lyon Street or Clement Street

At Lyon Street / North Street intersection



At Lyon Street / Clement Street / Odern Crescent roundabout

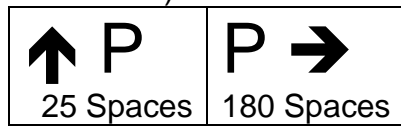


At entry to WA Bridge Club car park (on approach from Odern Crescent westbound)



At exit from WA Bridge Club car park
As above for eastbound traffic

At entry to Upper car park (on approach from Odern Crescent westbound)



At exit to Upper car park
As above for eastbound traffic

At entry to Lower car park (on approach from Odern Crescent westbound)



At exit to Lower car park
As above for eastbound traffic
Answer 4a

The City is considering an electronic signage system. Other systems such as parking signage as suggested may be incorporated into the strategic design for the above.

Question 4b

Has the City considered reinstalling the No Public Access signage at the entry to the service road to the Naked Fig Café from the Lower car park (signage that appears to have been removed whereas the pavement marking remains)

Answer 4b

The City has monitored the area closely since the inception of the Naked Fig restaurant. The City also has undertaken no stopping line marking within close proximity of the “no public access” line marking and has received no complaints. The City will monitor the situation.

Question 4c

Has the City considered reinstalling the Odern Crescent street sign (previously located at the intersection of Marine Parade and Odern Crescent) and Swanbourne Nedlands Surf Life Saving Club community information sign (previously located at the Marine Parade / North Street roundabout) that were removed, allegedly by a local resident, in February 2007

Answer 4c

The City has agreed to reinstall the Odern Crescent street sign at the intersection of Marine Parade and Odern Crescent. It has also agreed

to replace the Swanbourne Nedlands SLSC community information sign at the location of North Street and Marine Parade.

Councillor Smyth joined the meeting at 5.39 pm

1.2. Public question time

Mr I Hamilton, Director Technical Services, on behalf of Mr T Tucak of 16 Adderley Street, Nedlands tabled the following questions in relation to Traffic and Parking Options in Odern Crescent and Marine Parade, Swanbourne.

The questions were taken on notice and will be answered in writing and both the questions, together with the answers will be included in the agenda and minutes of the next Traffic Management Committee meeting scheduled for 5 April 2011.

1.2.1. Mr T Tucak of 16 Adderley Street, Nedlands regarding item 7.1 – List of Outstanding Actions/Works/Request of the Traffic Management Committee (Refer to item 7.8 of the list – Traffic Calming and Parking Options in Odern Crescent and Marine Parade, Swanbourne, discussed on 1 February 2011 Traffic Management meeting)

Question 1

On what basis does the City consider that the short term traffic modifications have been generally agreed on by the affected residents in the area, when the only consultation has been with the Swanbourne Society Committee?

Answer 1 (Provided by Administration)

The short term modifications are the result of discussions between members of the Swanbourne Society committee and the City/Council through its Traffic Management Committee. Short term option was discussed as an interim measure to assist in reducing vehicle movements along verges of residents along Odern Crescent.

The answer outlines the background to the short term modifications but does not address why the short term modifications are considered “generally agreed on by the affected residents in the area”.

Question 1d.

The Swanbourne Society typically quotes its membership as 40 residents, however as they include partners within this total, this may represent only 22% (20 / 90) of residential properties in the area bounded by Marine Parade, North Street and Pine Close. Does the assumed agreement of 22% of residents in the area constitute “generally agreed”?

Answer 1d (Provided by Administration)

The City does not know the membership size of the Swanbourne Society.

The answer confirms that the City has only consulted with the spokesperson of the Swanbourne Society but does not address why the assumed agreement of 1-2% (1/90) of residents in the area constitute “generally agreed”?

Question 3

Does the City agree that there are approximately 550 parking bays within the area as listed below?

23 parking bays Marine Parade (west side between North St to Lower car park entry)

25 parking bays Lower car park

7 parking bays Odern Crescent (north side between Lower to Upper car park entries)

115 parking bays Upper car park

65 parking bays Overflow car park

30 parking bays Odern Crescent (north side between Upper to WA Bridge Club car park entries)

100 parking bays WA Bridge Club car park

165 parking bays Associates Rugby Union Football Club car park

20 parking bays Odern Crescent (north side between Allen Park car park entry to Clement St)

Answer 3 (Provided by Administration)

There are approximately 265 parking bays in the area not 550 as stated. The last three mentioned locations (285 bays) are east of the upper car park and access to them from Marine Parade side would result in an illegal vehicle movement. These 285 bays are accessible from the east end of Odern Crescent only.

The answer both disagrees and agrees that there are a total of 550 parking bays within the area. As the question did not required consideration of the direction of travel to access a parking bay, does the City agree that there are approximately 550 parking bays within the area as listed below?

In response to the discussion at the Traffic Management Committee Meeting of 1 February 2011 on Item 7.8 Traffic Calming and Parking Options in Odern Crescent and Marine Parade, Swanbourne, the following additional questions are submitted:

Question 5

Is there No Stopping signage (R5-35) missing from the ocean side of Marine Parade immediately north of the roundabout with North Street? If so will the City install No Stopping signage (R5-35) in this location?

Question 6

The City has removed the Swanny Reef Café signage from the entry statement to the Swanbourne Beach Redevelopment. Will the City install signage for the Naked Fig café at the same location?

Question 7

AS/NZS 2890.1:2004 Parking facilities Part 1: Off-street car parking Clause 2.4.2 Angle parking aisle, (c) Blind aisles states that "In car parks open to the public, the maximum length of a blind aisle shall be equal to the width of six 90 degree spaces plus 1 m, unless provision is made for cars to turn around at the end and drive out forwards." In the Overflow car park, will the City make provision for cars to turn around at the end and drive out forwards without loss of car parking bays, in order for this car park to meet Australian standard?

Question 8

There are the bases of two bollards (as pictured below) within the entry to the WA Bridge Club car park. These have been severed at pavement level and therefore pose a hazard to pedestrians, cyclists and vehicles. Will the City remove the remaining pieces of bollard and make good the pavement?

1.2.2. Mr T Tucak of 16 Adderley Street, Nedlands regarding item 7.1 – List of Outstanding Actions/Works/Request of the Traffic Management Committee and item 7.2 – Traffic and Parking Hotspots throughout the City

Question 1

The City of Nedlands Minutes of Council Meeting of 30 March 2010 notes that Item D16.10 Final Endorsement of the Swanbourne Precinct Master plan was referred back for consideration of clauses 2, 4 and 5 by the Traffic Management and Budget Committees.

Clause 4 was to refer traffic and parking issues associated with the proposed plan to the Nedlands Traffic Management Committee for consideration and further recommendation to Council.

Why does this specific item not appear in Item 7.1 List of Outstanding Actions/Works/Requests of the Traffic Management Committee for the meetings of the Traffic Management Committee on 18 May 2010, 29

June 2010, 17 August 2010, 16 Nov 2010, 1 February 2011 or 1 March 2011?

Question 2

Has the Traffic Management Committee considered the traffic and parking issues associated with the proposed Swanbourne Precinct Masterplan as requested by Council on 30 March 2010?

Question 3

Has the Traffic Management Committee provided recommendation on traffic and parking issues associated with the proposed Swanbourne Precinct Masterplan as requested by Council on 30 March 2010?

Question 4

At the Traffic Management Committee on 18 May 2010 Mr Mark Newland of 72 Wood Street, Swanbourne presented a submission on Traffic Management in the Allen Park Precinct.

At the Traffic Management Committee on 29 June 2010 the Committee included in Item 7.1 List of Outstanding Actions/Works/Requests of the Traffic Management Committee the submission from Mr Mark Newland of 72 Wood Street, Swanbourne on Traffic Management in the Allen Park Precinct.

This item then appears in the minutes of the Traffic Management Committee of 29 June 2010 in the List of Items Received from Committee Members/Administration For Discussion as a 'Submission regarding local area traffic management for the Allen Park Precinct' and with an Administration Comment that an independent traffic study (is) required in conjunction with long term traffic treatment in Swanbourne.

This item then appears in the minutes of the Traffic Management Committee of 17 August 2010 as Item 7.4 Traffic Management – Allen Park Precinct. The recommendation of the Traffic Management Committee was to expedite the report on solutions to traffic and parking problems pertaining to the Swanbourne (Precinct) Master plan (as per Council resolution dated 30 March 2010 to be presented at the next Traffic Management Committee Meeting.

An evaluation based on criteria and key warrants for installing traffic calming practices is then detailed for Kirkwood Street and Wood Street only.

Why are the traffic and parking issues associated with the proposed Swanbourne Precinct Masterplan as requested by Council on 30 March 2010 included in this item arising from Mr Newlands submission and not as a standalone item?

Question 5

Why has stopping line marking and signage not been completed as per the map entitled Ned_18_10?

Question 6

In the minutes of the Traffic Management Committee of 17 August 2010 Item 7.2 Traffic and Parking Hot Spots throughout the City Attachment 3, added City Funded Projects '1' being 'Road modifications and improvements on Odern Crescent' without any mention of the same in the text of the minutes.

On what basis was this item added to the Traffic and Parking Hot Spots throughout the City?

Question 7

Why is there no evaluation based on criteria and key warrants for installing traffic calming practices for this item?

Question 8

The City of Nedlands Minutes of Council Meeting of 30 March 2010 for Item D16.10 Final Endorsement of the Swanbourne Precinct Masterplan notes the recommendation to Committee was (as Clause 5) to consider the "Swanbourne Café Car Parking and Access Study" by Cardno recommendations for Odern Crescent and Upper Swanbourne Beach Car Park in the 2010/11 Budget.

However the Council deleted this recommendation (Clause 5) and replaced it with Clause 4 to refer traffic and parking issues associated with the proposed plan to the Nedlands Traffic Management Committee for consideration and further recommendation to Council.

Why has Administration then implemented the original Committee recommendation (Clause 5), by preparing a concept plan detailing proposed modifications to the upper car park entry / exit points, against the decision of Council on 30 March 2010?

Question 9

Why has Administration then implemented the original Committee recommendation (Clause 5), by meeting with the Swanbourne Society Committee on 17 June 2010, against the decision of Council on 30 March 2010?

Question 10

Why do the recommendations for the Odern Crescent and Upper Swanbourne Beach Car Park from the “Swanbourne Café Car Parking and Access Study” by Cardno then become Item 7.8 Traffic Calming and Parking Options in Ordern Crescent and Marine Parade, Swanbourne in the Traffic Management Committee meeting of 01 February 2011, against the decision of Council on 30 March 2010?

Question 11

Why has Administration therefore implementing the original Committee recommendation (Clause) against the decision of Council on 30 March 2010?

Question 12

Why has Administration not implemented Clause 4 as requested by Council on 30 March 2010?

1.2.3. Councillor I Tan – Functions of the Traffic Management Committee

Later in the meeting Councillor I Tan tabled the following questions in relation to the functions of the Traffic Management Committee.

Question 1

On 11 November 2008, the Traffic Management Committee was established through a Council Resolution and became fully functional in February 2009. Its main purpose is to investigate strategic management of traffic and parking issues in the City of Nedlands. Why is the TMC bogged down instead with the micro-management of localised problem solving, and in so doing, continue to lose sight of the bigger picture at hand?

Question 2

Why is there still no apparent clear guidance being given to the Committee members and Administration to re-focus on the main function of the TMC ie strategic issues instead of wasting time on quick fix solutions to localised areas – which can be considered not far-sighted or pro-active enough to be deemed “strategic”?

Question 3

In a reversal of roles, this Committee has instructed Administration to devise an ‘Action Plan’ for the TMC to consider! Shouldn’t this ‘Action Plan’ and a much needed ‘Time Line’ for its implementation actually be the responsibility and product of the Committee members as the strategic planners for this City?

2. Addresses By Members of the Public (only for items listed on the agenda)

Addresses by members of the public who have completed Public Address Session Forms were invited to be made as each item relating to their address was discussed by the committee.

There were no addresses by members of the public.

3. Disclosures of Financial Interest

The Presiding Member to remind Councillors and Staff of the requirements of Section 5.65 of the *Local Government Act* to disclose any interest during the meeting when the matter is discussed.

There were no disclosures of financial interests.

4. Disclosures of Interests Affecting Impartiality

The Presiding Member to remind Councillors and staff of the requirements of Council's Code of Conduct in accordance with Section 5.103 of the *Local Government Act*.

There were no disclosures of interest affecting impartiality.

5. Declarations by Members That They Have Not Given Due Consideration to Papers

None

6. Confirmation of Minutes

6.1 Traffic Management Committee Meeting 1 February 2011

Moved – Councillor Somerville-Brown
Seconded – Councillor Binks

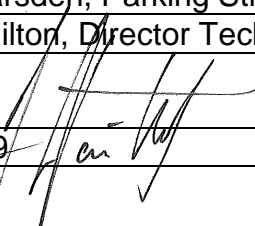
The minutes of the Traffic Management Committee meeting held on 1 February 2011 are confirmed.

**CARRIED 3/1
(Against: Cr. Smyth)**

7. Items for Discussion

Note: Regulation 11(da) of the *Local Government (Administration) Regulations 1996* requires written reasons for each decision made at the meeting that is significantly different from the relevant written recommendation of a committee or an employee as defined in section 5.70, but not a decision to only note the matter or to return the recommendation for further consideration.

7.1 List of Outstanding Actions/Works/Requests of the Traffic Management Committee

Applicant	City of Nedlands
Owner	City of Nedlands
Officer	Luke Marsden, Parking Strategy Coordinator
Director	Ian Hamilton, Director Technical Services
Director Signature	
File ref.	TFM009
Previous Item No's	Nil
Disclosure of Interest	No officer involved in the preparation of this report had any interest which required it to be declared in accordance with the provisions of the Local Government Act (1995).

Regulation 11(da) – Not applicable – Recommendation to Committee is adopted.

Moved – Councillor Somerville-Brown
Seconded – Councillor Binks

That recommendation to Committee is adopted.

(Printed below for ease of reference)

CARRIED UNANIMOUSLY 4/-

Committee Recommendation / Recommendation to Committee

Committee receives the updated list of outstanding actions/works/requests of the Traffic Management Committee for their information. (Refer attachment)

Purpose

To provide Traffic Management Committee with an ongoing list of information pertaining to the status of any outstanding actions/works from previous Committee recommendations and requests from Committee members and Administration.

Strategic Plan

KFA 1 Infrastructure

- 1.2 Design and construct infrastructure in accordance with Australian standards and guidelines.
- 1.3 Provide and maintain quality passive and active recreational and leisure facilities and open space to meet community needs.

Background

At the Traffic Management Committee meeting held on the 28 July 2009 the committee requested Administration to provide an ongoing list of outstanding actions/works/requests of this committee for their information.

Key relevant previous decisions:

15 September 2009:

That Committee:

- a) receives the list of outstanding actions/works of the Traffic Management Committee for their information; and
- b) requests an ongoing list of outstanding actions or works from previous Council decisions relevant to the terms of reference of this Committee.

8 December 2009:

That Committee:

1. receives the updated list of outstanding actions/works of the Traffic Management Committee for their information and removes completed items from the list following the next meeting on the approval of the Committee; and
2. requests Administration to develop criteria for classifying projects in priority and identify budgets to undertake the works.

16 February 2010:

That Committee:

- a) receives the updated list of outstanding actions/works of the Traffic Management Committee for information (Refer attachment); and
- b) agrees to remove completed items from the list.

Proposal Detail

To provide the Traffic Management Committee with an updated status reports regarding the progress on the projects from previous Committee recommendations and provide information regarding any outstanding Council resolution pertaining to the terms of reference of this Committee.

Consultation

Required by legislation:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Required by City of Nedlands policy:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Consultation type: Not applicable	Dates: Not applicable	

Legislation

Not applicable.

Budget/financial implications

Budget:

Within current approved budget:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Requires further budget consideration:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Financial:

Financial impacts will be addressed on a case by case scenario in the individual reports to the Traffic Management Committee.

Risk Management

The Committee is able to ensure that any requests will be addressed in a timely manner including appropriate budget considerations.

Discussion

This is an ongoing report presented to the Traffic Management Committee to indicate the status of all outstanding actions from previous meetings. Actions have been prioritised according to the scale as requested by the Committee and Administration to report on updates at each meeting.

As recommended by the Committee at the meeting on 16 February 2010, the completed items will be removed from the list after each meeting.

Conclusion

Committee receives the updated list of outstanding actions/works/requests of the Traffic Management Committee for their information. (Refer attachment)

Attachments

1. List of outstanding actions/works/requests of the Traffic Management Committee.





Attachment to Item 7.1

Traffic Management Committee Meeting 1 March 2011

List of Outstanding Actions/Works/Requests of the
Traffic Management Committee

Outstanding Actions/Works/Requests - Traffic Management Committee

1

Date of the TMC meeting	Item No	Committee Recommendation	Responsible Officer	Priority	Status	Comments
15-Jun-09	7.6.	Car Parking strategy That the City of Nedlands "Draft" Car Parking Strategy – January 2009, be received by the Committee for further discussion at a later meeting.	Luke Marsden	2		To be addressed/reviewed in accordance with review of parking and parking facilities local law
8 December 2009	7.9	Karella Street and Williams Road – North of Road Closure. Committee recommends that Council approves: a) the change in parking restrictions of the parking bays on the east side of Williams Road as per map entitled Ned_32_09; b) purchasing and installing a mirror on the south east of Karella Road West as a short term traffic treatment, to further facilitate driver awareness; c) undertake interim line marking median lines around the corner emphasising the lanes. d) undertaking a conceptual plan including associated costs for road widening and parking restriction as a long traffic treatment; and e) referring any budget requirements to next Budget Review Committee meeting.	Luke Marsden		 	Works have been completed. Report to TMC on 1 February 2011. Complete. Refer to the new recommendation on 1 February 201. Can be removed in the next update.
18 May 2010	7.4	Smyth Road Traffic Blister Island between Karella Street and Monash Avenue, Nedlands That this item lay on table for additional information regarding the planning application for the traffic	Wayne Mo			On hold.



On hold / no action to be taken



Risks / Issues need addressing



On track



Completed

1

– High priority

2

– Medium priority

3

– Low priority COM- Completed



BCR

- Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

2

Date of the TMC meeting	Item No	Committee Recommendation	Responsible Officer	Priority	Status	Comments
		calming device and pedestrian refuge in relation to existing traffic calming devices on Monash Avenue and Smyth Road.				
18 May 2010	7.7	Review of Parking and Parking Facilities Local Law Committee recommends that Council: <ul style="list-style-type: none"> a) repeal the current parking and parking facilities local law in accordance with the statutory requirements 3.16(1) and 3.16(4) of the Local Government Act 1995; and b) instructs Administration to draft a new "Parking and Parking Facilities Local Law" in accordance with the Department Local Government guidelines. 	Luke Marsden			Council approved at 14 December 2010 meeting to undertake community consultation on the proposed parking and parking facilities local law. Consultation has commenced. It was advertised on Post Newspaper on 5 -6 February 2011. Submissions close on 25 March 2011.
17 August 2010	7.4	Traffic Management - Allen Park Precinct That <ul style="list-style-type: none"> a) Administration: <ul style="list-style-type: none"> a) Undertakes traffic counts immediately, November 2010, January and March 2011 including weekend statistics within the analysis; b) Installs "No stopping Road or Verge" signage and line marking to improve the sight visibility as per attached map entitled Ned_18_10; c) Investigates the cost to undertake a future study of the entire Allen Park/Swanbourne 	Luke Marsden			No stopping line marking and signage has been completed as per map entitled Ned_18_10. Traffic Counts have been completed for September, November 2010 and January 2011 and were included within item 7.8 –Traffic Calming and Parking Options in Odean Crescent, Swanbourne, of the



On hold / no action to be taken



Risks / Issues need addressing



On track



Completed

1

– High priority

2

– Medium priority

3

– Low priority COM- Completed



BCR

- Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

3

Date of the TMC meeting	Item No	Committee Recommendation	Responsible Officer	Priority	Status	Comments
		<p>precinct; and</p> <p>d) Incorporates the findings of (a) through to (c) of the original recommendation and criteria regarding Key Warrants when considering options (including the options suggested by Swanbourne resident Mr Mark Newland) to address traffic management issues within the Allen Park precinct.</p> <p>b) the report on solutions to traffic and parking problems pertaining to the Swanbourne Master plan as per Council resolution dated 30 March 2010 to be presented at the next Traffic Management Committee meeting.</p>				<p>TMC agenda – 1 February 2011.</p> <p>Additional counts to be undertaken in March 2011.</p>
16 November 2010	7.6	<p>Lisle Street, Mt Claremont</p> <p>Committee recommends that Council approves:</p> <p>a) in accordance with the key warrants criteria, the current situation on Lisle Street, Mt Claremont be monitored and reviewed after 12 months; and</p> <p>b) a road safety audit be undertaken to ascertain appropriate treatment for next round of Black Spot treatments.</p>	Wayne Mo			<p>Approved by Council on 14 December 2010.</p> <p>This will be submitted for 2012/13 round of black spot funding.</p> <p>Can be removed in the next update.</p>
1 February 2011	7.3	<p>Car Parking Facility – The Esplanade, Nedlands</p> <p>Committee recommends that Administration:</p> <p>a) undertake community consultation regarding the proposed parking bays on The Esplanade, Nedlands as per attached map number “Esplanade 90DEG parking”; and</p>	Luke Marsden			<p>Approved by Council on 22 February 2011. Community consultation to be undertaken.</p>



On hold / no action to be taken



Risks / Issues need addressing



On track



Completed

1

– High priority

2

– Medium priority

3

– Low priority COM- Completed



BCR

- Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

4

Date of the TMC meeting	Item No	Committee Recommendation	Responsible Officer	Priority	Status	Comments
		b) reports back to the Committee with findings of the consultation at the next available meeting				
1 February 2011	7.4	Change of Priority Controls at the Intersection of Marita Road and Barcoo Avenue, Nedlands Committee: a) receives details of the non-conforming petition dated 16 August 2010 received by the City proposing removal of the east/west "Give Way" signage at the intersection of Marita Road and Barcoo Avenue, Nedlands and replace with a "Stop" sign running north/south on Marita Road; b) recommends that Council accepts Main Roads WA's decision not to support the change in priority and leave as status quo; c) instructs Administration to write to the residents informing the same.	Luke Marsden			Complete. Approved by Council on 22 February 2011. Can be removed in the next update.
1 February 2011	7.5	Road Traffic Treatment – Williams and Karella Street, Nedlands Committee: a) approves changing parking restrictions in Williams Road, Nedlands to "No Stopping" as per attached map no. Ned_03_11 and associated kerbside line marking on Williams Road from Hardy Street and Karella Street West; b) directs Administration to investigate road widening and median treatment as a long term traffic treatment at the corner of Williams Road				Administration is awaiting response from Regis (The owners of the Aged Care Facility) in relation to the request for truncation.



On hold / no action to be taken



Risks / Issues need addressing



On track





Completed

1 – High priority
 2 – Medium priority
 3 – Low priority COM- Completed
 BCR - Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

5

Date of the TMC meeting	Item No	Committee Recommendation	Responsible Officer	Priority	Status	Comments
		and Karella Street, Nedlands.				
1 February 2011	7.6	Proposed Parking Restrictions on Victoria Avenue, Dalkieth (Appealathon Home) Committee approves changing parking restrictions on Victoria Avenue, Dalkeith from "no parking road and verge" to "no parking" only	Luke Marsden			Complete. Letters were sent on 16 February 2011, informing residents that the parking restrictions will be implemented and the signs will be placed within 10 working days from the date of the letter. Can be removed in the next update.
1 February 2011	7.7	Petition to cul-de-sac Croydon Street, Burwood Street and Kitchener Street, Nedlands Committee receives the petition that was tabled at the Council meeting on 14 December 2010 requesting to cul-de-sac Croydon, Burwood and Kitchener Streets, Nedlands and recommends that Administration: a) investigates the feasibility of traffic management treatments for Croydon, Burwood and Kitchener Streets, Nedlands in the context of traffic management to and from the QEII hospital site and the North Hollywood precinct; b) undertakes traffic counts in each of Croydon, Burwood and Kitchener Streets; and c) reports back to Traffic Management Committee with the findings.	Luke Marsden			Traffic counts are being undertaken.



On hold / no action to be taken



Risks / Issues need addressing



On track



Completed

1

– High priority

2

– Medium priority

3

– Low priority COM- Completed



BCR

- Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

6

Date of the TMC meeting	Item No	Committee Recommendation	Responsible Officer	Priority	Status	Comments
1 February 2011	7.8	Traffic Calming and Parking Options in Odern Crescent and Marine Parade, Swanbourne Committee: a) receives the report on traffic calming and parking options in Odern Crescent and Marine Parade, Swanbourne for their information; b) approves the short term design drawing (attachment 3) which includes amendments as detailed from the members of the Swanbourne Society; and c) instructs Administration to monitor the vehicle movements on driveways/verges from the car parks over the next 12 months for temporary traffic solution effectiveness.	Luke Marsden			Approved by Council on 22 February 2011 for the works to commence as soon as possible. Letters to be sent to residents and stakeholders informing the same.
1 February 2011	7.9	Mobile Vehicle Enforcement – City of Nedlands Committee receives the report on mobile vehicle enforcement for their information and recommends that Administration: a) undertakes a report for discussion as part of the proposed 2011/12 budget review process; and b) writes to the Minister of Transport and Housing, Hon. Troy Buswell MLA, requesting a meeting to discuss if the City can access data from license plate detection pertaining to vehicle origin only for the purposes of the survey without breaching individual privacy.	Luke Marsden			Approved by Council on 22 February 2011. Further investigation being undertaken.



On hold / no action to be taken



Risks / Issues need addressing



On track




Completed

1 – High priority
 2 – Medium priority
 3 – Low priority COM- Completed
 BCR - Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

7

Date of the TMC meeting	Item No	Committee Recommendation	Responsible Officer	Priority	Status	Comments
1 February 2011	7.10	Parking Restrictions on Viewway, Nedlands Committee approves proposed changes to parking restrictions on Viewway between Princess Road and Bruce Street, Nedlands as follows in accordance with the attached map entitled Ned_33_10: a) "No Parking" on the west side of Viewway; and b) 2P 8.00 am – 5.00 pm Monday to Friday on the east side of Viewway.				Complete. Letters have been sent to residents on 16 February 2011 informing the parking restrictions be implemented and that signs will be placed within 10 working days from the date of the letter. Can be removed in the next update.



On hold / no action to be taken



Risks / Issues need addressing



On track



Completed

1

– High priority

2

– Medium priority

3

– Low priority COM- Completed

BCR

- Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

8

BLACK SPOT FUNDING APPLICATIONS 2011/12 – FOR YOUR INFORMATION ONLY							
Location	Treatment	LGA Request		LGA Contribution	Total Cost	Project Status	BCR
<i>Stirling Highway / Florence Rd</i>	<i>Install median island and reinforce priority</i>	<i>National</i>		<i>\$10,000</i>	<i>\$30,000</i>	<i>Pending</i>	<i>2.33</i>
<i>Carrington St / Broome St</i>	<i>Upgrade street lighting</i>	<i>State</i>		<i>\$10,000</i>	<i>\$30,000</i>	<i>Pending</i>	<i>1.81</i>
<i>Elizabeth St / Tyrell St</i>	<i>Install median island and reinforce priority</i>	<i>State</i>		<i>\$11,000</i>	<i>\$33,000</i>	<i>Pending</i>	<i>1.56</i>
<i>Guger St / Railway Rd / Loch St</i>	<i>Install median island and reinforce priority</i>	<i>State</i>		<i>\$11,000</i>	<i>\$33,000</i>	<i>Carry over to 2012/13 on advice from MRWA</i>	<i>1.56</i>
<i>Princess Rd / Bruce St</i>	<i>Upgrade street lighting</i>	<i>State</i>		<i>\$7,000</i>	<i>\$21,000</i>	<i>Pending</i>	<i>1.53</i>
<i>Bruce St / Elizabeth St</i>	<i>Construct Roundabout</i>	<i>State</i>		<i>\$65,000</i>	<i>\$195,000</i>	<i>Pending</i>	<i>1.50</i>
<i>Monash Ave/ Hampden Rd</i>	<i>Upgrade street lighting</i>	<i>State</i>		<i>\$4,000</i>	<i>\$12,000</i>	<i>Pending</i>	<i>1.49</i>
BLACK SPOT FUNDING APPLICATIONS 2010/11 – FOR YOUR INFORMATION ONLY							
Location	Treatment	LGA Request		LGA Contribution	Total Cost	Project Status	BCR
<i>Stirling Highway / Broadway / Hampden Rd</i>	<i>Modify traffic signals to LED lanterns, additional/protected left turn lane into Broadway, ban parking in Broadway, painted right turn lane in Hampden Rd</i>	<i>State</i>		<i>\$68,000</i>	<i>New costing to be advised</i>	<i>Carry over to 2011/12</i>	<i>1.74</i>
<i>Underwood Ave / Brockway Rd / Brookdale St</i>	<i>Modify traffic signals install LED lights, install new left turn slip lane pockets in north and east legs</i>	<i>National / State</i>		<i>\$63,000</i>	<i>\$189,000</i>	<i>Withdrawn due to extra funding required for Stirling Hwy/Broadway /Hampden Road project</i>	<i>2.46</i>



On hold / no action to be taken



Risks / Issues need addressing



On track



Completed

1

– High priority

2

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3

– Low priority COM- Completed

BCR

- Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

9

<i>Davies Rd / Alfred Rd / Montgomery Rd</i>	<i>Upgrade signals to LED and install overhead mast arms in Alfred Road</i>	<i>National / State</i>		<i>TBA</i>	<i>\$75,000</i>	<i>Completed</i>	<i>3.89</i>
<i>Gugeri St / Railway Rd / Loch St</i>	<i>Construct seagull island in median. Construct right turn lane in Gugeri St. Construct left turn lane in Railway Rd.</i>	<i>State</i>		<i>33,000</i>	<i>\$99,000</i>	<i>Carry over to 2012/13 on advice from MRWA</i>	<i>1.60</i>
<i>Monash Ave / Hampden Rd</i>	<i>Upgrade lighting to AS1158</i>	<i>State</i>		<i>\$4,000</i>	<i>\$12,000</i>	<i>Carry over to 2011/12</i>	<i>1.30</i>
Location	Treatment	LGA Request		LGA Contribution	Total Cost		BCR
<i>Brockway Rd / Lemnos St</i>	<i>Install left lane in Lemnos St. Construct 70 degree island</i>	<i>State</i>		<i>\$29,000</i>	<i>\$87,000</i>	<i>Confirmed</i>	<i>1.53</i>
<i>Selby / Lemnos St</i>	<i>Install seagull island</i>	<i>National / State</i>		<i>TBA</i>	<i>\$36,000</i>	<i>Not approved for 2010/11 Black spot program</i>	<i>4.35</i>
<i>Railway Rd / Aberdare Rd / Shenton Park bus bridge</i>	<i>Modify traffic signals install LED lights, install left turn slip lane in Aberdare Rd</i>	<i>State</i>		<i>\$40,000</i>	<i>\$120,000</i>	<i>Withdrawn</i>	<i>1.49</i>
<i>Hampden Rd / Gordon St</i>	<i>Install intersection island in Gordon Street and reinforce priority</i>	<i>State</i>		<i>\$8,000</i>	<i>\$24,000</i>	<i>Under construction</i>	<i>1.60</i>



On hold / no action to be taken



Risks / Issues need addressing



On track



Completed

1 – High priority
 2 – Medium priority
 3 – Low priority COM- Completed
 BCR - Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

10

BLACK SPOT FUNDING APPLICATIONS 2009/10 – FOR YOUR INFORMATION ONLY							
Location	Treatment	LGA Request		LGA Contribution	Total Cost	Project Status	BCR
<i>Stirling Hwy/Dalkeith Rd</i>	<i>Upgrade traffic signals to LED</i>	<i>State \$13,333</i>		<i>6,667</i>	<i>20,000</i>	<i>Completed October 2010</i>	<i>7.68</i>
Location	Treatment	LGA Request		LGA Contribution	Total Cost	Project Status	BCR
<i>Chancellor St / Loch St</i>	<i>Install pre-deflection at existing roundabout</i>	<i>\$53,333</i>		<i>\$26,667</i>	<i>\$80,000</i>	<i>Not approved for 2010/11 Black spot program</i>	<i>1.37</i>
<i>Rochdale Rd / Alfred Rd</i>	<i>Pedestrian phase including island widening for improved pedestrian safety</i>	<i>Federal funding \$320,000</i>		<i>-</i>	<i>\$320,000</i>	<i>Completed September 2010</i>	
BLACK SPOT FUNDING APPLICATIONS (KNOWN FROM ADJOINING COUNCILS, THAT MAY AFFECT CITY OF NEDLANDS)							
<i>North St / Lyons St</i>	<i>Town of Cottesloe</i>					<i>Completed</i>	
<i>Intersection of Ashton Ave and Guger St</i>	<i>Town of Claremont</i>						
<i>Park Rd / Hampden Rd</i>	<i>City of Subiaco</i>	<i>\$120,000</i>		<i>\$60,000</i>	<i>\$180,000</i>	<i>Confirmed – TMC November 2010</i>	<i>1.87</i>
<i>Guger St / Ashton Ave /</i>	<i>Town of Claremont</i>	<i>National</i>		<i>\$35,667</i>	<i>\$107,000</i>	<i>Pending</i>	<i>5.7</i>



On hold / no action to be taken



Risks / Issues need addressing



On track



Completed

1

– High priority

2

– Medium priority

3

– Low priority COM- Completed

BCR

- Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

11

<i>Chancelor St</i>	<i>Modify TCS, install overhead mast arms & replace existing lanterns with LED lamps</i>	<i>funding</i>				<i>2011/12 – No cost to City of Nedlands</i>	
<i>Aberdare Rd / Gardner Dr</i>	<i>City of Subiaco Install median island and signage</i>	<i>State funding</i>		<i>\$6,000</i>	<i>\$18,000</i>	<i>Pending 2011/12 – No cost to City of Nedlands</i>	<i>1.39</i>
<i>Aberdare Rd / Hospital Ave</i>	<i>Construct roundabout and clear verge</i>	<i>State funding</i>		<i>\$75,000</i>	<i>\$225,000</i>	<i>Pending 2011/12 – No cost to City of Nedlands</i>	<i>1.42</i>



On hold / no action to be taken



Risks / Issues need addressing



On track



Completed

1

– High priority

2

– Medium priority

3

– Low priority COM- Completed

BCR

- Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

12

LIST OF ITEMS RECEIVED FROM COMMITTEE MEMBERS/ADMINISTRATION FOR DISCUSSION			
Date Received	Received From	Details	Administration Comments
5 May 2010	Peter Plaisted – Non Voting Committee member	<ul style="list-style-type: none"> Return Dalkeith road north of Carrington Street and Karella streets to be made one way northbound only. Change the stop signs around on the corner of Baird Ave and Bedford streets so it will curtail the boy racers road testing their cars 	<p>Currently being investigated. Once a report has been finalised it will be presented to the next available TMC meeting.</p> <p>Letter sent to Chellingworth motors regarding vehicular speed around the area. Monitor the area for effectiveness.</p> <p>Changing the stop signs around on the corner of Baird Ave and Bedford streets is not supported by Main Roads. Can be removed in the next update.</p>
N/A	Administration	<ul style="list-style-type: none"> Pick up of all parking bays in City – divided into precincts. 	Currently being undertaken by administration.
N/A	Administration	<ul style="list-style-type: none"> Parking restriction signage and location – precincts. 	Administration officers currently undertaking pick up. Present to TMC upon completion and update into G.I.S system.
27 July	Cr Hodsdon	<ul style="list-style-type: none"> Traffic Management Committee considers a parking permit system in areas bound by Stirling Highway, Dalkeith and Smyth Roads and Aberdare and Hampden Roads. 	Proposed parking and parking facilities local law to assist a parking permit system city wide.



On hold / no action to be taken



Risks / Issues need addressing



On track



Completed

1

– High priority

2

– Medium priority

3

– Low priority COM- Completed

BCR

- Benefit Cost Ratio

TRIM Ref: M09/19905

Outstanding Actions/Works/Requests - Traffic Management Committee

13

			<i>Council approved at 14 December 2010 meeting to undertake community consultation is currently being undertaken. Submissions close on 25 March 2011.</i>
<i>January 2011</i>	<i>Cr Somerville-Brown</i>	<i>Traffic Management Committee undertakes traffic counts and monitoring along Melvista Ave</i>	<i>Report to TMC on 1 March 2011.</i>
<i>17 January 2011</i>	<i>Administration</i>	<i>Traffic management plan and traffic assessment on Monash Avenue and Caladenia Crescent, Nedlands. (For your information only at present)</i>	<i>Report to TMC on 1 March 2011</i>



On hold / no action
to be taken



Risks / Issues
need
addressing



On track

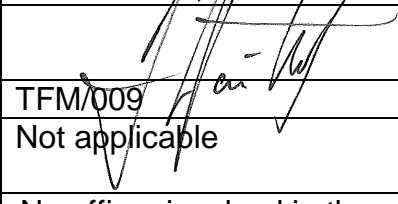


Completed

1 – High priority
2 – Medium priority
3 – Low priority COM- Completed
BCR - Benefit Cost Ratio

TRIM Ref: M09/19905

7.2 Traffic and Parking Hot Spots throughout the City

Applicant	City of Nedlands
Owner	City of Nedlands
Officer	Luke Marsden, Parking Strategy Coordinator
Director	Ian Hamilton, Director Technical Services
Director Signature	
File ref.	TFM/009
Previous Item No's	Not applicable
Disclosure of Interest	No officer involved in the preparation of this report had any interest which required it to be declared in accordance with the provisions of the Local Government Act (1995).

Regulation 11(da) – Committee considered it appropriate that an action plan be developed to address traffic and parking hot spots as identified in the maps entitled Ned_13.1_11, Ned_13.2_11, Ned_13.3_11 and the adjacent road network.

Moved – Councillor Somerville-Brown

Seconded – Councillor Smyth

That recommendation to committee (Printed below for ease of reference) **is adopted subject to an additional clause being added as follows:**

- b) instructs Administration to develop an action plan to address traffic and parking hot spots as identified in the maps entitled Ned_13.1_11, Ned_13.2_11, Ned_13.3_11 and the adjacent road network.**

**CARRIED 3/1
(Against: Cr. Binks)**

Committee Recommendation

Committee:

- a) receives updated information regarding traffic and parking hot spots throughout the City of Nedlands as per attached maps entitled Ned_13.1_11, Ned_13.2_11 and Ned_13.3_11; and**
- b) instructs Administration to develop an action plan to address traffic and parking hot spots as identified in the maps entitled Ned_13.1_11, Ned_13.2_11, Ned_13.3_11 and the adjacent road network.**

Recommendation to Committee

Committee receives updated information regarding traffic and parking hot spots throughout the City of Nedlands as per attached maps entitled Ned_13.1_11, Ned_13.2_11 and Ned_13.3_11.

Purpose

To provide the Traffic Management Committee with up to date information regarding the parking hot spots, congested areas and accidents within the City of Nedlands.

Strategic Plan

KFA 1 Infrastructure

- 1.2 Design and construct infrastructure in accordance with Australian standards and guidelines.
- 1.3 Provide and maintain quality passive and active recreational and leisure facilities and open space to meet community needs.
- 1.4 Develop and implement an integrated transport strategy for the City which promotes access to safe and integrated transport options.

Background

At the Traffic Management Committee meeting held on 15 September 2009 the Committee requested Administration to provide additional information with regard to traffic and parking hot spots throughout the City of Nedlands. Subsequently maps were prepared indicating all traffic and parking hot spots throughout the City.

The amended maps were presented to the Committee at the meeting on 16 February 2010. The Committee at that meeting requested that accident data and the maps to be verified by Main Roads WA and the maps be updated accordingly.

In addition, the Committee requested Administration to develop an action plan to address traffic and parking hot spots throughout the City.

Key relevant previous decisions:

15 September 2009:

That:

- a) Committee receives information with regard to traffic and parking hot spots throughout the City of Nedlands as per map entitled Ned_15.1_09; and

- b) Administration investigates and improves the map symbology to verify the depiction of;
 - A primary distributor versus the Traffic Management Committee areas of concern;
 - Laneways; and
 - Traffic congestion areas.

16 February 2010:

That Committee:

- a) Receives amended maps entitled Ned_15.1_09, Ned_15.2_09 and Ned_15.3_09 pertaining to the traffic and parking hot spots throughout the City of Nedlands;
Note: Black Spot data is sourced from Main Roads WA. Data is also received from various sourced consisting of public opinion and correspondence received.
- b) directs Administration to request Main Roads WA to verify and confirm accident data and the maps to be updated accordingly; and
- c) develops and action plan to address traffic and parking hot spots throughout the City.

18 May 2010:

That Committee:

- a) receives additional information with regard to the traffic and parking hot spots throughout the City of Nedlands as per maps entitled Ned_15.1_09_v2, Ned_15.2_09_v2, Ned_15.3_09_v2; and
- b) requests that an action plan be developed by September 2010 in accordance with the key warrants classification subject to Council approval of the key warrants classifications.

Proposal Detail

To provide the Traffic Management Committee with updated information with regard to traffic and parking hot spots throughout the City.

Consultation

Required by legislation:

Yes ☐

No ☒

Required by City of Nedlands policy:

Yes ☐

No ☒

Consultation type: Not applicable

Dates: Not applicable

Legislation

Parking and Parking Facilities Local Law 2002.

Budget/financial implications

Budget:

Within current approved budget:

Yes ☒

No ☐

Requires further budget consideration:

Yes ☐

No ☒

Financial:

Financial impacts will be addressed on a case by case scenario and addressed in their individual report to Traffic Management Committee.

Risk Management

The updated information is provided to the Traffic Management Committee allowing the committee to identify the main areas of risk, and provides a framework to minimise that risk through the action plans and prioritising those lists.

Discussion

An action plan to address the traffic and parking hotspots throughout the City is currently being developed in accordance with Blackspot projects and the key warrants classification. This will be presented at the next available Traffic Management Committee meeting 2011.

Conclusion

This is an ongoing report to the Traffic Management Committee that is used as a basis for identifying areas of concern within the City of Nedlands. The action plan will be in accordance with the key warrant classifications and Blackspot criteria.

Attachments

1. Map No. Ned_13.1_11 – City of Nedlands intersection black spots and parking hotspot areas Dalkeith and Melvista Wards February 2011.
2. Map No. Ned_13.2_11 - – City of Nedlands intersection black spots and parking hotspot areas Hollywood Ward February 2011.
3. Map No. Ned_13.3_11 - – City of Nedlands intersection black spots and parking hotspot areas Coastal Ward February 2011.

Attachment to Item 7.2

**Traffic Management Committee Meeting
1 March 2011**

Traffic and Parking Hot Spots throughout the City

City of Nedlands Traffic Management
Dalkeith and Melvista Wards
February 2011



SPEED TRAILER LOCATIONS	
Date	Location
08/02 - 11/02	Melvista Avenue
15/02 - 18/02	Melvista Avenue

CITY FUNDED PROJECTS	
Project Description	Status
1 Circe Circle Road Resurfacing including parking embayments.	Completed Jan 2011

CURRENT ISSUES	
Location	Problem
Melvista Ave - Adelma to Florence Rd	Traffic speed and volume
Webster Street - Edward to Stirling Hwy	All day parking / Tresillian parking
Louise Street - Jenkins to Stirling Hwy	All day parking
Loretto Primary School	Parking Congestion
Alexander Rd, Philip Rd Intersection	Intersection safety
Alexander Rd, Waratah Ave Intersection	Intersection safety

BLACKSPOT FUNDED PROJECTS	
Project Description	Status
1 Elizabeth / Tyrell Street Intersection Rescheduled for 2011 / 2012. Capital works budget - minor changes to intersection & parking embayments. Seeking 2/3 funding.	Pending
2 Bruce / Elizabeth Street Improvements to footpath crossing points	Capital works roundabout construction 2011 / 2012.

Note: Blackspot data sourced from Main Roads WA website. Numbers provided are the cumulative total from 2005 - 2009.

Schools

5 - 35

36 - 65

66 - 95

96 - 125

kerbs

Accident Frequency

Traffic Concern Areas

Congested Areas - Correspondence Received

Congested Areas - Public Opinion

Traffic Management Committee Areas of Concern

Roads

Nedlands Ward Areas

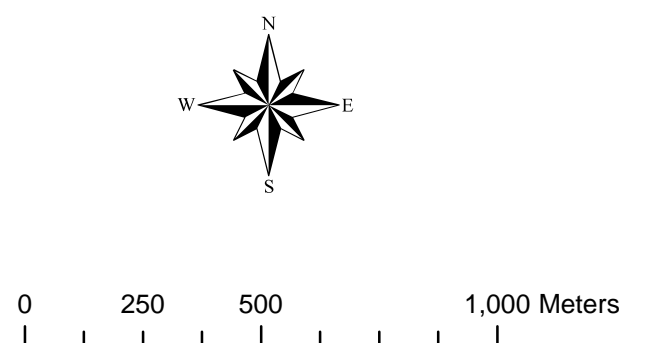
***City of Nedlands Traffic Management
Hollywood Ward
Feburary 2011***



CURRENT ISSUES	
Location	Problem
Kitchener/ Burwood /Croydon Streets	Block off through traffic from Aberdare Rd to QEII Hospital

CITY FUNDED PROJECTS	
Project Description	Status
1 Railway Rd cemetery entrance: Pedestrian actuated signals. Waiting on MRWA approval.	Carry over to 2012/2013 on advice from MRWA
2 Hampden Road / Hardy Road intersecction: Inclusion of parking embayments.	Completed Feb 2011

BLACKSPOT FUNDED PROJECTS	
Project Description	Status
1 Stirling Hwy / Broadway Intersection Modify traffic signal to LED lanterns and add additional lanterns.	Carry over to 2011 / 2012
2 Hampden Rd / Gordop Street Intersection install intersection island and reinforce priority (State Blackspot)	Under construction
3 Railway Rd at cemetery entrance: Widen pedestrian refuge / median island opposite Loch St train station	Waiting on MRWA approval
4 Brockway Rd / Lemnos St Intersection: Install left lane in Lemnos Street, Construct 70° island.	Report to TMC March 2011



Legend

Schools

Accident Frequency

- 5 - 35
- 36 - 65
- 66 - 95
- 96 - 125

Traffic Concern Areas

DESCRIPTION

- Congested Areas - Correspondence Received
- Congested Areas - Public Opinion
- Traffic Management Committee Areas of Concern
- Parking Hotspots

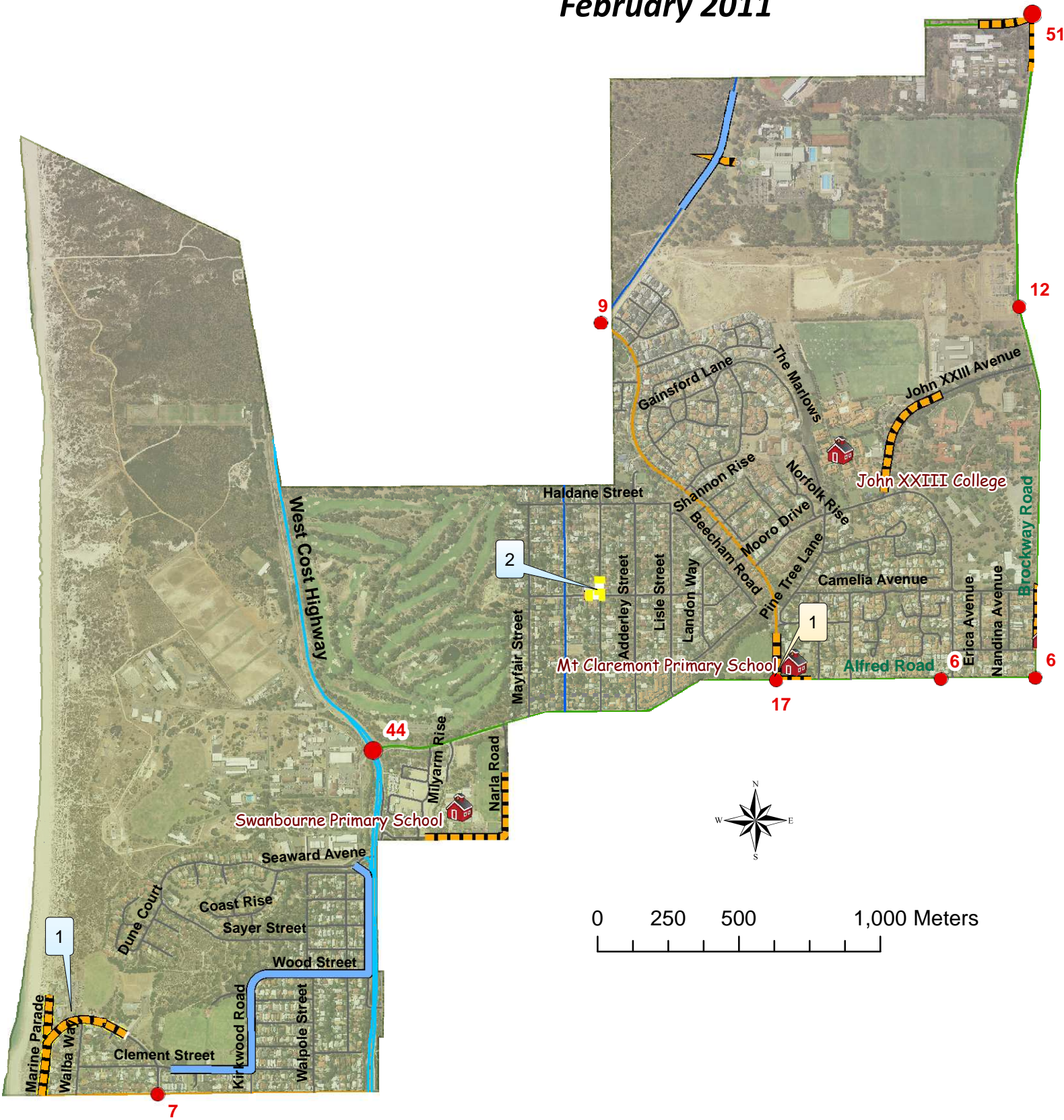
Roads

Road_type

- Lane
- Access Road
- Local Distributor
- District Distributor B
- District Distributor A
- Primary Distributor
- Hollywood Ward

Note: Blackspot data sourced from Main Roads WA website. Numbers provided are the cumulative total from 2005 - 2009.

City of Nedlands Traffic Management
Coastal Ward
February 2011



CITY FUNDED PROJECTS	
Project Description	Status
1 Odern Crescent: Road modifications and improvements	TMC Approved - Feb 2011 To be constructed
2 Asquith St / Strickland St intersection: Supply dedicated ACROD parking bay	To be completed 2010 / 2011

BLACKSPOT FUNDED PROJECTS	
Project Description	Status
1 Alfred Rd / Rochdale Street Intersection: Modify traffic signals, install LED lights with overhead mast arm in Alfred Rd.	Completed 2010

CURRENT ISSUES	
Location	Problem
Asquith Street Shopping Centre	Growth in visitor numbers

Note: Blackspot data sourced from Main Roads WA website. Numbers provided are the cumulative total from 2005 - 2009.

Legend

Schools

Blackspots

Accident Frequency

- 5 - 35
- 36 - 65
- 66 - 95
- 96 - 125

Traffic Concern Areas

DESCRIPTION

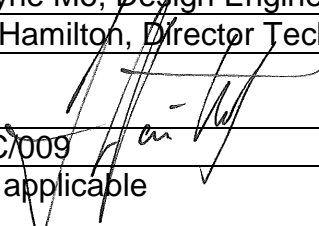
- Congested Areas - Correspondence Received
- Congested Areas - Public Opinion
- Traffic Management Committee Areas of Concern

Roads

Road_type

- Lane
- Access Road
- Local Distributor
- District Distributor B
- District Distributor A
- Primary Distributor
- Coastal Ward

7.3 Black Spot Project 2010/11 – Lemnos Street Left Turn Lane at the Intersection of Brockway Road, Shenton Park

Applicant	City of Nedlands
Owner	City of Nedlands
Officer	Wayne Mo, Design Engineer
Director	Ian Hamilton, Director Technical Services
Director Signature	
File ref.	TEC/009
Previous Item No's	Not applicable
Disclosure of Interest	No officer involved in the preparation of this report had any interest which required it to be declared in accordance with the provisions of the Local Government Act (1995).

Regulation 11(da) – Not applicable – Recommendation to Committee is adopted.

Moved – Councillor Somerville-Brown
Seconded – Councillor Binks

That recommendation to Committee is adopted.

(Printed below for ease of reference)

**CARRIED 3/1
(Against: Cr. Smyth)**

Committee Recommendation / Recommendation to Committee

Committee recommends that Council supports the application submitted by Administration to construct a left turn lane on Lemnos Street at the intersection of Brockway Road, Shenton Park to act as a countermeasure to address high incidence or rear ended crashes.

Purpose

To advise the Traffic Management Committee, the details of the application for black spot funding in 2010/11 financial year to construct a left lane on Lemnos Street at the intersection of Brockway Road, Shenton Park.

Strategic Plan

- KFA 1 Infrastructure
 - 1.2 Design and construct infrastructure in accordance with Australian standards and guidelines.

- 1.4 Develop and implement an integrated transport strategy for the City which promotes access to safe and integrated transport options.
- KFA 5 Governance
 - 5.6 Ensure compliance with statutory requirements and guidelines.
 - 5.9 Identify, manage and seek to minimise risk.
- KFA 6 Community Engagement
 - 6.1 Improve community awareness of City's directions, facilities and services.

Background

The intersection of Lemnos Street and Brockway Road, Shenton Park was identified as a black spot in 2010/11 and subsequently a left turn pocket treatment was recommended as a suitable countermeasure which addresses the high incidences of rear end crashes on Lemnos Street. (Refer attached design drawings).

Proposal Detail

- Left turn pocket on Lemnos Street (Refer attachment)
- Approximate cost at \$87,000 (State contribution 2/3 - \$58,000, City of Nedlands contribution 1/3 - \$29,000)
- Benefit Cost Ratio (BCR) 1.53 audited
- Crashtools reporting period 1 January 2004 – 31 December 2008 (Five year period)

Countermeasure was selected by the City's consultant, Porter Consultant Engineers as the appropriate measure to address the significant number of rear end crashes (10) resulting in a high level of property damage and medical occurrences.

Design vehicle used in this intersection is a 19m semi trailer as these two roads are on MRWA truck routes and these roads are classified as:

- Brockway Road – District Distributor A (DDA - up to 8000 vehicles per day); and
- Lemnos Street – District Distributor B (DDB - 6000-8000 vehicles per day)

Consultation

Required by legislation:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Required by City of Nedlands policy:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Consultation type:

Dates:

Community consultation to be undertaken subject to Council approval.

Legislation

Not applicable

Budget/financial implications

Budget:

Within current approved budget:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Requires further budget consideration:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Financial: Not applicable		

Risk Management

Lighting may not be adequate and may require further consideration

Discussion

Crash patterns shown on the collision diagram appear to indicate that the majority of the crashes occur at the approach to the intersection from the east. The left turn pocket proposal addresses the majority of the crash patterns being rear end crashes and the countermeasure selected is generally an accepted treatment to reduce these types of crashes.

Conclusion

The proposed countermeasure treatment is a cost effective and an appropriate method to address the rear end crashes at this intersection.

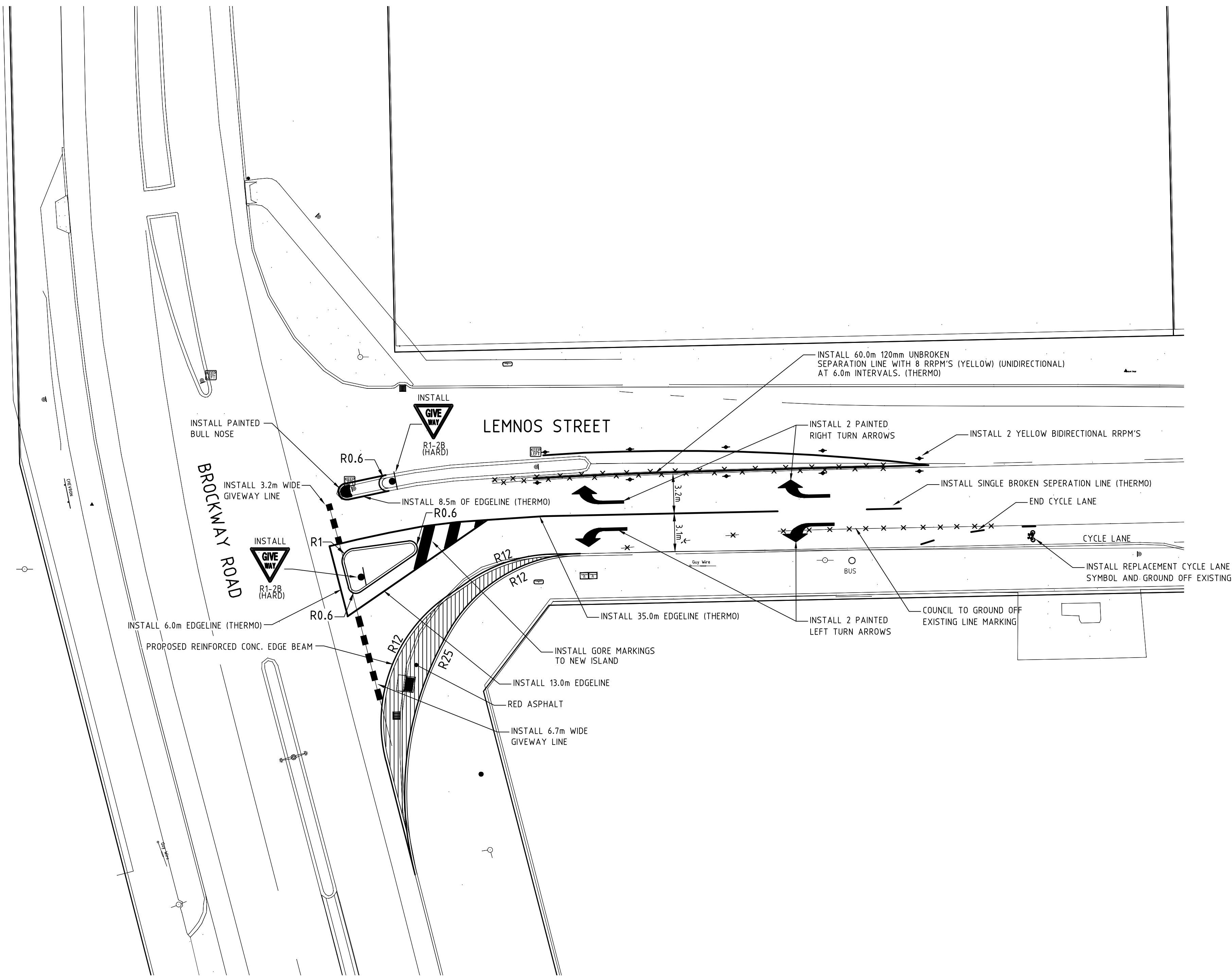
Attachments

1. Lines and signs drawing for the proposed left turn pocket.

Attachment to Item 7.3

**Traffic Management Committee Meeting
1 March 2011**

Black Spot Project 2010/11 – Lemnos Street Left Turn
Lane at the Intersection of Brockway Road, Shenton
Park



MOVEMENTS	TREATMENT
Ban on right turns and U-turns	Install double barrier line.
Right turn at select locations	Provide gap in double barrier line.
Right turn permitted along the entire section	Provide 150mm unbroken separation line.

MOVEMENTS	TREATMENT
Ban on right turns and U-turns	Install double barrier line.
Right turn into driveways	Install unbroken separation line.

NOTE: CONTRACTOR TO PROVIDE

- PVC SLEEVES (150mm) WHERE SIGNS ARE LOCATED WITHIN PAVED AREAS.
- SPOTTING TO MRWA GUIDELINES AT THE PROPOSED POSITIONS OF PAVEMENT MARKINGS.

 PROPOSED LINEMARKING
 EXISTING LINEMARKING

RRPM'S AT 6.0m CRS	±
NEW SIGN POST	⬢
EXISTING SIGN POST	⬢

LINE _____
(5)

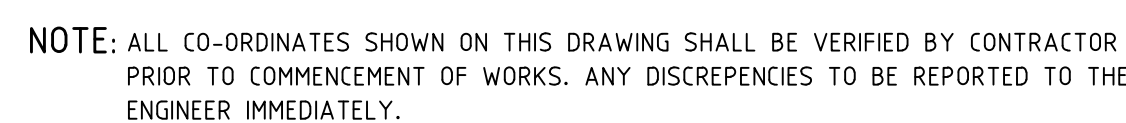
LINE _____

OTHERWISE SPECIFIED)

0.6m LINE AND GAP

ES 0.6m LINE AND GAP

A diagram of a horizontal beam of length 6.0 m, supported at both ends by pin supports. A uniformly distributed load of 10 kN/m is applied downwards along the entire length of the beam.

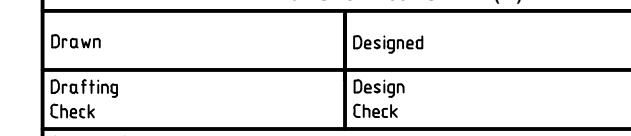


LAND FOCUS



ENGINEERING CONSULTANTS

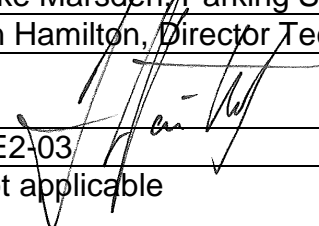
Telephone: (08) 9221-4722
Facsimile: (08) 9221-4755
Mobile: 0402-286-337
E-mail: admin@landfocus.com.au



Original Size	Drg. No.	Revision
A1	C10475-C02	C

[illegible]

7.4 Proposal for Local Area Traffic Management - Melvista Avenue, Nedlands

Applicant	City of Nedlands
Owner	City of Nedlands
Officer	Luke Marsden, Parking Strategy Coordinator
Director	Ian Hamilton, Director Technical Services
Director Signature	
File ref.	ME2-03
Previous Item No's	Not applicable
Disclosure of Interest	No officer involved in the preparation of this report had any interest which required it to be declared in accordance with the provisions of the Local Government Act (1995).

Regulation 11(da) – Not applicable – Recommendation to Committee is adopted

Mr L Marsden left the meeting at 6.50 pm

Moved – Councillor Somerville-Brown
Seconded – Councillor Binks

That recommendation to Committee is adopted.
(Printed below for ease of reference)

CARRIED UNANIMOUSLY 4/-

Committee Recommendation / Recommendation to Committee

Committee receives the traffic counts on Melvista Avenue, Nedlands for their information and instructs Administration to further investigate the design of traffic management controls on Melvista Avenue, Nedlands between Vincent Street and Bruce Street.

Purpose

To advise the Traffic Management Committee of the speeding concerns on Melvista Avenue, Nedlands and discuss local area traffic management (LATM) options to address the concerns of residents within the area.

Strategic Plan

- KFA 1 Infrastructure
 - 1.2 Design and construct infrastructure in accordance with Australian standards and guidelines.

- 1.4 Develop and implement an integrated transport strategy for the City which promotes access to safe and integrated transport options.

KFA 5 Community Engagement

- 6.2 Encourage community participation in the City's decision

Background

The City received complaints regarding the speed of vehicles on Melvista Avenue, Nedlands predominantly between Vincent Street and Bruce Street.

The City's investigation shows that Melvista Avenue is classified by Main Roads WA as an "Access Road" which is designed to accommodate up to 3000 vehicles per day (VPD).

Previous traffic data captured by traffic counts on Melvista Avenue are outlined in the below table:

Road Name	Location	Date	AWDT	CV	0.85	Road Hierarchy
Melvista Avenue	Between Bay & Stone Rds	2003	1616	19	60	AR
Melvista Avenue	Between Bay Road and Parker Road	November 2006	1493	18	57	AR
Melvista Avenue	Between Loton Road and Stone Road	November 2008	1689	22	60	AR
Melvista Avenue	West of Stone Rd	1998	1246	61	63	AR
Melvista Avenue	East Bostock	1991	1115	N/A	61	AR
Melvista Avenue	Between Leopold St & Hackett Rds	2001	1662	25	69	AR
Melvista Avenue	Between Doonan Rd & Adelma Rd	1993	1602	25	60	AR
Melvista Avenue	Between Doonan Rd & Adelma Rd	2003	1859	44	53	AR
Melvista Avenue	Between Adelma Road and Doonan Road	March 2008	1701	23	54	AR
Melvista Avenue	Between Adelma Rd & Sutcliff St	1993	1794	98	54	AR
Melvista Avenue	Between Adelma Rd & Sutcliff St	2003	2284	66	56	AR
Melvista Avenue	Between Louise Street & Mountjoy Road	1996	2069	87	65	AR
Melvista Avenue	Between Louise Street & Mountjoy Road (6 Day)	1999	2265	32	68	AR
Melvista Avenue	Between Louise Street & Mountjoy	2001	2241	35	66	AR

	Road					
Melvista Avenue	Between Louise Street & Mountjoy Road	2002	2340	59	63	AR
Melvista Avenue	Between Louise Street & Mountjoy Road	June 2007	2084	53	63	AR
Melvista Avenue	Between Mountjoy Rd & Colin St	2003	2286	42	62	AR
Melvista Avenue	Between Mountjoy & Dalkeith Roads	1996	2016	39	65	AR
Melvista Avenue	Between Dalkeith Road & Florence Street	1991	1892	N/A	62	AR
Melvista Avenue	Between Dalkeith Road & Florence Street	2001	2266	28	64	AR
Melvista Avenue	Between Florence Road & Stanley Street	1998	2023	22	64	AR
Melvista Avenue	Between Florence Road & Stanley Street	2002	2067	50	62	AR
Melvista Avenue	Between Florence Road & Stanley Street	November 2006	2114	36	62	AR
Melvista Avenue	Between Florence Road & Stanley Street	August 2008	2024	45	60	AR
Melvista Avenue	Between Florence Road & Stanley Street	September 2009	1922	56	60	AR
Melvista Avenue	Between Webster St & Thomas St	2002	1921	41	64	AR

AWDT = Average Week Day Total **CV** = Commercial Vehicles
AR = Access Road

Key relevant previous decisions:

Not applicable

Proposal Details

Administration to further investigate the design of traffic management controls on Melvista Avenue, Nedlands between Vincent Street and Bruce Street.

Consultation

Required by legislation:

Yes ☐

No ☒

Required by City of Nedlands policy:

Yes ☒

No ☐

Consultation type: Not applicable

Dates: Not applicable

Legislation

- Local Government Act 1995
- Main Roads Act 1930

Budget/financial implications

Budget:

Within current approved budget: Yes ☐ No ☒
 Requires further budget consideration: Yes ☒ No ☐

Financial:

This proposal has no financial implications until the design stage is further investigated and discussed at a further Traffic Management Committee meeting which may require budget consideration.

Risk Management

As a general guide, The City will investigate and provide effective solutions to curtail the speed within an area as a result of the increase of speed being greater than 10km/h to that of the posted speed.

The City will undertake a full risk analysis on each of the proposed traffic treatments that will be discussed in future with the Traffic Management Committee.

Discussion

Administration has undertaken an analysis of the area on Melvista Avenue, Nedlands between Vincent Street and Bruce Street as part of the criteria and key warrants for installing traffic calming practices. The results of that analysis recommend that the City prepares a report to the Traffic Management Committee and discuss the possibility of implementing traffic calming practices. (Refer attachment 2)

Latest traffic data from January 2011 below indicates between 1499 and 2053 vehicles per day (VPD) travelling between 59km/h and 63.7km/h (85th percentile speed) in a 50km/h zone.

Road Name	Location	Date	AWDT	CV	0.85	Road Hierarchy
Melvista Ave	Between Bruce & Thomas	January 2011	1499	36	63.7	AR
Melvista Ave	Between Webster & Dalkeith	January 2011	1676	34	59	AR
Melvista Ave	Between Dalkeith & Vincent	January 2011	2053	41	61.6	AR

Concurrently, Administration has undertaken traffic counts at other locations on Melvista Avenue west of the area of concern to ascertain other traffic related information. This can be seen in the following table.

Road Name	Location	Date	AWDT	CV	0.85	Road Hierarchy
Melvista Ave	Between Vincent & Leopold	January 2011	1532	27	55.1	AR
Melvista Ave	Between Leopold & Bay Rd	January 2011	1240	27	59.8	AR

AWDT = Average Weekday Total

CV = Commercial Vehicles

AR = Access Road

The latest intersection crash data (5 year period from 2005 to 2009) on Melvista Avenue, Nedlands between Vincent Street and Bruce Street (including all intersections) indicates that there have been six crashes. These crashes are highlighted in the attached map to emphasise the proximity of them with relation to latest traffic counts.

There is a moderate gradient downhill heading west along Melvista Avenue from Bruce Street and has little constraints by way of traffic calming present within the road reserve. Dalkeith Golf Course and Melvista Park are located within the area (approx 800m in length) and only has residential properties located on one side of the road. This type of environment gives the impression of a more open atmosphere which lends itself to increased speeds.

Limiting the speed by designing or altering the street geometry is essentially a matter of limiting the length of unconstrained street sections so that the target speed is not exceeded at any point. Of importance to any local area traffic management (LATM) scheme should be to create a street layout arrangement that is self regulating in terms of traffic behaviour.

Options that Administration will investigate will include:

- Vertical deflection devices.
- Horizontal deflection devices.
- Signage, linemarking and other treatments.
- Combination treatments.

Any traffic calming option considered should be made better for pedestrians and cyclists to improve the amenity of the area for all users.

The consequences of poorly designed LATM schemes are more likely to have an impact on cyclists than pedestrians therefore a high degree of focus will be required to cater to their needs.

Under the City's Community Engagement Policy, Administration will be required to undertake community consultation with residents and key stakeholders in the area. The overall purpose of community participation is to implement a LATM scheme that meets the technical requirements while satisfying community concerns and needs.

Conclusion

Administration will investigate various LATM options to address the speed and noted crash statistics within the defined area.

Attachments

1. Map of area including latest traffic counts and crash statistics
2. Analysis – Criteria and key warrant for traffic calming practices.

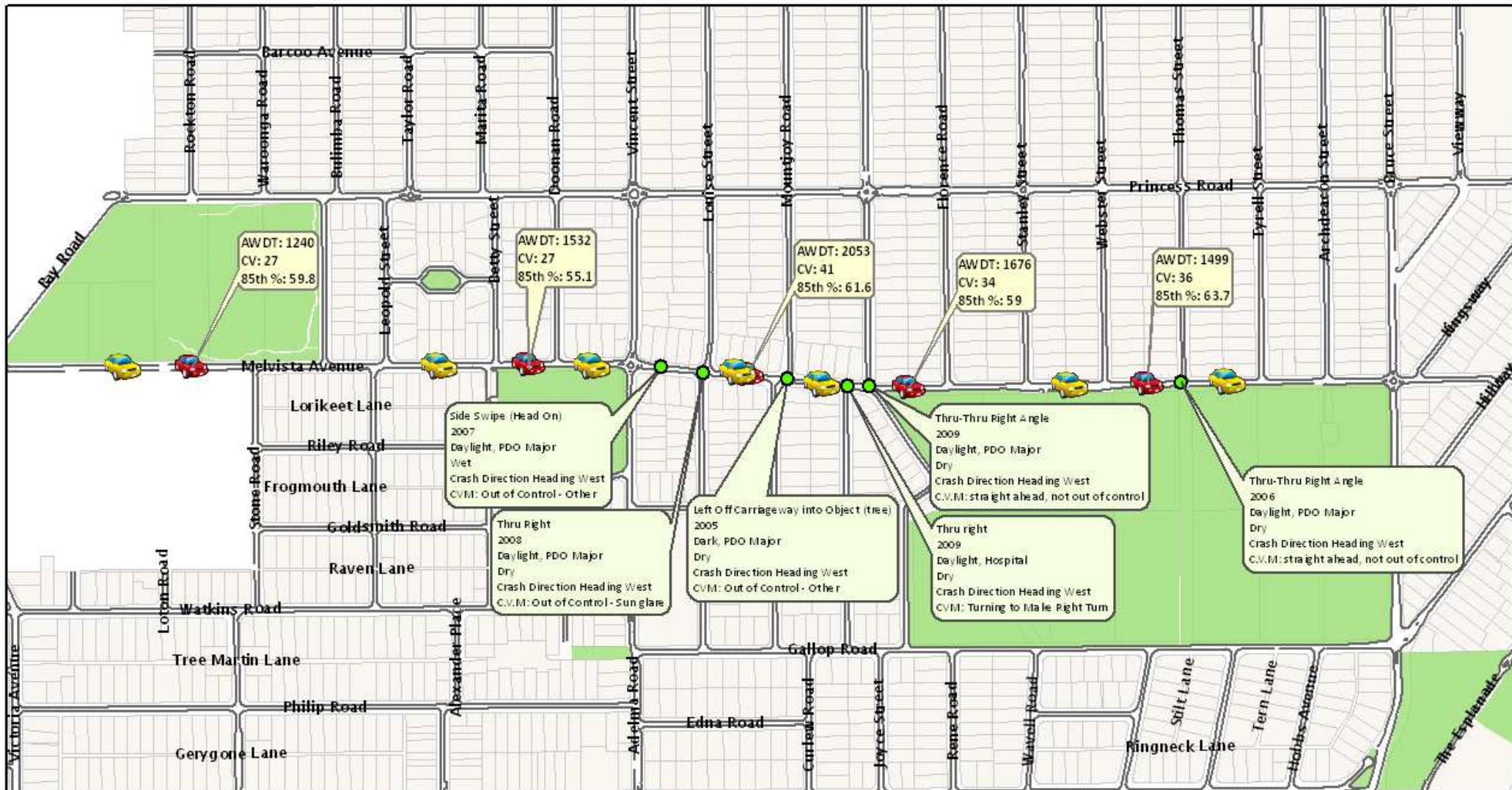
Attachment to Item 7.4

**Traffic Management Committee Meeting
1 March 2011**

Proposal for Local Area Traffic Management –
Melvista Avenue, Nedlands

Melvista Avenue Traffic Counts and Crash Statistics

Melvista Access Road - 2,470m



1:8,000 at A4



Traffic Count Stats at Jan 2011



previous traffic counts

PDO - Property Damage Only
CVM - Colliding Vehicle Movement

Date Saved: 22/02/2011 2:22:02 PM

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Key warrants analysis
Proposal for Local Area Traffic Management - Melvista Avenue, Nedlands

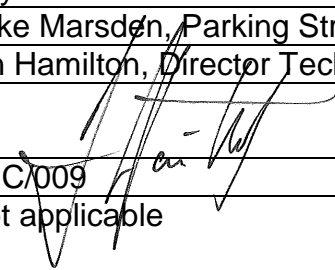
Traffic Parameter		Value	Points	Actual
Traffic Study Data				
Traffic Volumes	>2000 vpd		15	10
	>1000 vpd		10	
	>500 vpd		5	
	<500 vpd		0	
85th Percentile speed and median speed (Each)	>10 kph above posted speed		15	15
	>7 kph above posted speed		10	
	>5 kph above posted speed		5	
	<5 kph above posted speed		0	
Number of crashes in the last 5 years	>5 crashes (injury)		15	15
	Between 3 to 5 crashes in 5 years		10	
	Between 1 to 2 crashes in 5 years		5	
	No crashes in 5 years		0	
Road Characteristics				
Parking	Heavy - 80% occupied		4	1
	Moderate - 50% occupied		2	
	Low - 30% occupied		1	
	Rarely Occupied		0	
Land Use & Area Characteristics	Dense Residential/Commercial/Industrial/School/Town Centres		4	1
	Medium density Residential/Commercial/Industrial/Senior Homes/Hospitals/Nursing Homes		2	
	Lowly density Residential/Commercial/Industrial/Sporting Complex/Parks/Car parks		1	
Bus Routes	Frequent Routes – Minimum 5 per day		4	0
	Infrequent Routes – less than 5 per day		2	
	School bus routes		1	
	No Bus Routes		0	
Heavy vehicle restrictions	3T restriction		4	0
	5T restriction		2	
	10T restriction		1	
Footpaths	No footpaths		4	2
	Partial F/P or on one side		2	
Pedestrian Facilities	Any formal crossing		4	2
	Any crossing facility (refuges)		2	

Key warrants analysis
Proposal for Local Area Traffic Management - Melvista Avenue, Nedlands

Road Width	Less than 6 m	4	2
	Between 6m and 10 m	2	
	Between 10m and 15m	1	
Road Length	Greater than 500 m	4	4
	Between 100 m and 500 m	2	
Existing Traffic Calming Devices	Heavy	0	3
	Moderate	1	
	Low	3	
	None	3	
Community Support and Other Factors	Petition	5	5
	City of Nedlands residents/ratepayers	5	
	Non residents	3	
TOTAL (Maximum=85)			60
Percentage			71%
Rank			

Criteria	Description
>75 %	Report to Traffic Management Committee with a recommendation of providing traffic calming devices.
61-75 %	Report to Traffic Management Committee and discuss possibility of providing traffic calming.
41-60 %	Council to review traffic data in 6 months (No report to Traffic Management Committee required)
25-40 %	Monitor street and review traffic data after 12 months (No report to Traffic Management Committee required)
<25 %	Do Nothing
Speed	That regardless of the total points scored, should the 85th percentile speed exceed the posted speed limit by 5km/h, the street be referred to the WA Police for monitoring and/or enforcement.

7.5 Proposed Parking Restrictions on Stirling Highway, Nedlands

Applicant	City of Nedlands
Owner	City of Nedlands
Officer	Luke Marsden, Parking Strategy Coordinator
Director	Ian Hamilton, Director Technical Services
Director Signature	
File ref.	TEC/009
Previous Item No's	Not applicable
Disclosure of Interest	No officer involved in the preparation of this report had any interest which required it to be declared in accordance with the provisions of the Local Government Act (1995).

Mr L Marsden returned to the meeting at 6.52 pm.

Regulation 11(da) – The Committee considered it appropriate to refer this matter to the next meeting of this committee for further information.

Moved – Councillor Binks

Seconded – Councillor Somerville-Brown

That this item be referred to the next meeting of this committee for further information.

CARRIED UNANIMOUSLY 4/-

Committee Recommendation

That this item be referred to the next meeting of this committee for further information.

Recommendation to Committee

Committee instructs Administration to:

- undertake community consultation regarding changing all unrestricted parking on north and south of Stirling Highway, Nedlands to 2P Monday – Friday 8.00 am – 5.00 pm in accordance with the attached map number PLAN/836; and
- reports back to the Traffic Management Committee at the next available meeting.

Purpose

To address the current parking restrictions within the catchment of Stirling Highway on both north and south side within the City's defined boundary.

Strategic Plan

KFA 1 Infrastructure

- 1.2 Design and construct infrastructure in accordance with Australian standards and guidelines.
- 1.4 Develop and implement an integrated transport strategy for the City which promotes access to safe and integrated transport options.

KFA 6 Community Engagement

- 6.2 Encourage community participation in the City's decision making process.

Background

The City has received a large number of complaints over the recent years from residents, community groups, businesses and proprietors regarding the parking situation around Stirling Highway, Nedlands.

There have been a number of developments that have been declined by Council due to parking shortfall in the past few years. However these requests have gone through the State Administrative Tribunal (SAT) process and been overruled in favour of the applicant. These rulings have only exacerbated the parking situation predominantly around the commercial zones. However in recent months there has been an influx of long term parking within residential streets and the City has received several of complaints from residents who feel that the level of amenity in the local streets is lost.

Stirling Highway is a busy environment that has mixed land use consisting of residential properties and commercial buildings. It is approximately 2200m in length between the boundaries of Loch Street to Hampden Road / Broadway, Nedlands. There are 19 streets that intersect Stirling Highway to the north and 18 streets to the south.

Key relevant previous decisions:

Not applicable

Proposal Detail

Undertake community consultation with residents, community groups, businesses and proprietors regarding changing all unrestricted parking

on north and south of Stirling Highway, Nedlands to 2P Monday – Friday 8.00 am – 5.00 pm in accordance with map number PLAN/836.

Consultation

Required by legislation:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Required by City of Nedlands policy:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Consultation type: Not applicable

Dates: Not applicable

Legislation

- City of Nedlands local law relating to parking and parking facilities 2002
- Road Traffic Code 2000

Budget/financial implications

Budget:

There are no budget implications for consultation with the community relating to proposing a parking restriction within the defined area

Within current approved budget:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Requires further budget consideration:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Financial: Not applicable

Risk Management

The City risks further backlash from residents against not protecting the level of amenity that residents expect to have within local roads, if parking remains unrestricted in the area.

Discussion

The emphasis on the consultation is upon connectivity, amenity and integration to achieve safe, efficient and attractive street networks for all users in the area.

The proposed restrictions will provide a consistent and more flexible arrangement to address long term parking within close proximity to Stirling Highway, Nedlands.

In order for the City to implement effective parking restrictions it is important to identify the behavioural aspects of the people who park within the City's streets and to influence people's behaviour, it is important to understand what they perceive to be the barriers and benefits of an action. These vary dramatically amongst individuals.

When aiming to change people's behaviour, the targeted behaviour must be 'indivisible' i.e. on street parking is divisible into:

- residents parking outside their own homes;
- parking and walking to public transport; and
- parking and walking to office.

Best practice would indicate that each of these behaviours will have different benefits and barriers and the methods for targeting each may be different.

It is important to identify the reasons for parking and the nature of the people who park on streets without breaching the individual privacy in order to manage parking restrictions effectively throughout the City. Introducing parking restrictions may not solve the problem completely and may move the problem elsewhere in the City and may not address the reasons for parking on the streets.

To help facilitate this behavioural study, the City is hoping to utilise number plate recognition technology to ascertain vehicle registration origin details for the purposes of the survey without breaching individual privacy from the Department of Transport. The City is awaiting a response from the Minister of Transport and Housing, Hon. Troy Buswell MLA in relation to this matter.

Liveable Neighbourhoods, a Western Australian Government sustainable cities initiative, discusses an acceptable distance for walking to amenities or for work is approx 400m (approx 5minutes). Currently there are a number of streets with unrestricted parking that fall within that catchment area that is being utilised for long term parking. This can be seen highlighted in pink within attachment 1. Administration has included a secondary area highlighted in yellow that could result in an overspill of parking as a result of any timed parking restriction imposed closer to Stirling Highway. This area may also require future consideration.

Conclusion

Supply of parking in proximity to Stirling Highway has become a contentious issue with residents, community groups, businesses and proprietors.

There are several streets with unrestricted parking which is being utilised for all day parking by users in the area. Administration will undertake community consultation to understand the behaviour of the users and facilitate a consistent approach.

Attachments

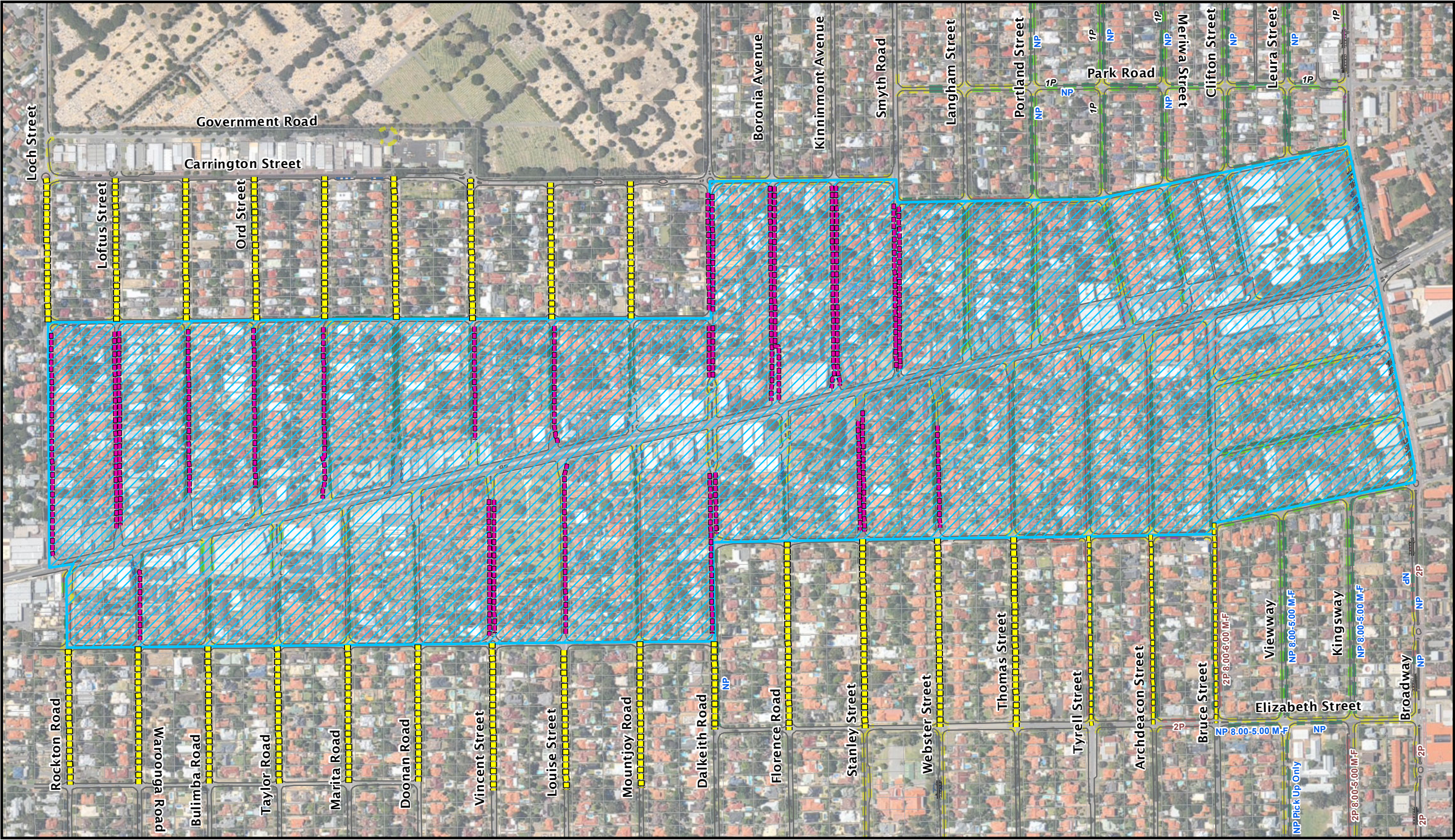
1. Map number PLAN/836 - Area for the proposed parking restrictions on Stirling Highway.

Attachment to Item 7.5

**Traffic Management Committee Meeting
1 March 2011**

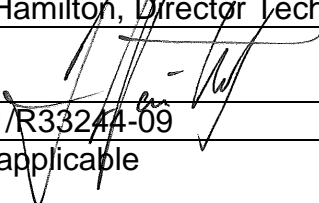
Proposed Parking Restrictions on Stirling Highway,
Nedlands

STIRLING HIGHWAY AREA
UNRESTRICTED PARKING



 City of Nedlands	 Primary Area	 Unrestricted Area	 Secondary Area	Date: 23/02/2011	
	1:6,000				

7.6 Proposed Central Energy Plant Facility – QEII – City of Nedlands

Applicant	City of Nedlands
Owner	City of Nedlands
Officer	Luke Marsden, Parking Strategy Coordinator
Director	Ian Hamilton, Director Technical Services
Director Signature	
File ref.	MO1/R33244-09
Previous Item No's	Not applicable
Disclosure of Interest	No officer involved in the preparation of this report had any interest which required it to be declared in accordance with the provisions of the Local Government Act (1995).

Regulation 11(da) – Committee considered it appropriate that the contractor accepts the responsibility to address all the issues and treatments raised in the attached independent Road Safety Audit prepared by Klyne Consultants.

Moved – Councillor Somerville-Brown
Seconded – Councillor Binks

Committee notes the traffic management plan submitted by Brookfield Multiplex Pty Ltd for the construction of the proposed central energy plant facility in QEII Medical Centre for their information and requests Brookfield Multiplex Pty Ltd to:

- a) **accept responsibility to address all the issues and treatments raised in the attached independent Road Safety Audit prepared by Klyne Consultants;**
- b) **contact all residents and stakeholders in the area between Monash Avenue, Smyth Road, Karella Street (east and west) and Hampden Road, Nedlands detailing the nature of the activity, length of works and contact details for the project; and**
- c) **resubmit the traffic management plan to the City for approval.**

CARRIED UNANIMOUSLY 4/-

Committee Recommendation

Committee notes the traffic management plan submitted by Brookfield Multiplex Pty Ltd for the construction of the proposed central energy plant facility in QEII Medical Centre for their information and requests Brookfield Multiplex Pty Ltd to:

- a) **accept responsibility to address all the issues and treatments raised in the attached independent Road Safety Audit prepared by Klyne Consultants;**
- b) **contact all residents and stakeholders in the area between Monash Avenue, Smyth Road, Karella Street (east and west) and Hampden Road, Nedlands detailing the nature of the activity, length of works and contact details for the project; and**
- c) **resubmit the traffic management plan to the City for approval.**

Recommendation to Committee

Committee receives the traffic management plan submitted by Brookfield Multiplex Pty Ltd for the construction of the proposed central energy plant facility in QEII Medical Centre for their information and requests Brookfield Multiplex Pty Ltd to:

- a) address all the issues raised in the attached independent Road Safety Audit prepared by Klyne Consultants;
- b) contact all residents and stakeholders in the area between Monash Avenue, Smyth Road, Karella Street (east and west) and Hampden Road, Nedlands detailing the nature of the activity, length of works and contact details for the project; and
- c) resubmit the traffic management plan to the City for approval.

Purpose

Provide the Traffic Management Committee with the traffic management plan and road safety audit submitted by Brookfield Multiplex Pty Ltd for the construction of the proposed central energy plant facility at QEII Medical Centre for their information, that includes modifications to the intersection of Monash Avenue and Hampden Road, Nedlands.

Strategic Plan

- KFA 1 Infrastructure
 - 1.2 Design and construct infrastructure in accordance with Australian standards and guidelines.
 - 1.4 Develop and implement an integrated transport strategy for the City which promotes access to safe and integrated transport options.

- KFA 6 Community Engagement

6.2 Encourage community participation in the City's decision making process.

Background

QEI Hospital is currently undertaking a major redevelopment of the hospital site and requires relocating the new central energy plant facility.

On 14 December 2010 Council previously discussed the report on the proposed new central energy plant facility to be located on reserve 33244, Monash Avenue, Nedlands.

Key relevant previous decisions:

Council meeting – 14 December 2010

Council Resolution / Committee Recommendation:

1. Council recommends refusal to the Western Australian Planning Commission (WAPC) for the Proposed New Central Plant Facility (CPF) at Reserve 33244 (QEI Medical Centre), Nedlands in accordance with the application dated 16 September 2010, on the grounds that the plant would be moved closer to nearby residents;
2. Should the WAPC see fit to approve the application, then Council recommends the approval should be subject to the following conditions:
 - a) The application is to be referred to both the Department of Environment and Conservation's Noise and Air Quality Branches for further consideration.
 - b) The Central Energy Plant Building utilise low emission generator sets and scrubbers as per the recommendation of the CFD Study.
 - c) The applicant submit a further acoustic report which includes details of specific plant (as opposed to preliminary plant) and acoustic treatments and options for addressing tonality which the City deems satisfactory prior to commencement of construction.
 - d) A waste receptacle wash down area is provided which complies with the prescribed requirements of the City of Nedlands Health Local Laws 1997.
 - e) The applicant submit a landscaping plan and management plans for construction, noise, vibration, dust, and waste to the City of Nedlands and construction only be able to commence once the City has deemed these plans satisfactory.

- f) The applicant submit a waste management plan for all wastes generated from the Central Energy Plant Building.
 - g) Prior to commencement of construction, the applicant submit a noise management plan which addresses construction and operational noise and includes but is not limited to:
 - noise from construction works and vehicles;
 - noise from workshops and waste management facilities;
 - noise from monthly testing of emergency power generation plant; and
 - noise from any vehicles servicing the building.
 - h) The recommended in-principle acoustic treatments stated on page 5, 3.2 Recommended In-Principle Acoustic Treatments of the Environmental Noise Impact report QEII Central Energy Plant be implemented; and
- 2. Council requests Administration to prepare a report and recommendations on the QEII Medical Centre Master Plan.
 - 4. The City request the WAPC re-assess the structure plan with regard to increasing the height limit along Winthrop Avenue and re-examine the location of the special development zone TICHR, the adjacent road and the green space with a view to co-locating the plant along the eastern boundary of the site.

Proposal Detail

- Traffic Management Committee to receive the traffic management plan submitted by Brookfield Multiplex Pty Ltd for the construction of the proposed central energy plant facility in QEII Medical Centre for their information that includes modifications to the intersection of Monash Avenue and Hampden Road, Nedlands.
- Subject to Traffic Management Committee approval, Administration to request the contractors of this project, Brookfield Multiplex Pty Ltd to:
 - address all the issues raised in the attached Road Safety Audit prepared by Klyne Consultants;
 - contact all residents and stakeholders in the area between Monash Avenue, Smyth Road, Karella Street (east and west) and Hampden Road, Nedlands detailing the nature of the activity, length of works and contact details for the project; and
 - resubmit the traffic management plan to the City for approval.

Consultation

Required by legislation: Yes ☐ No ☒
Required by City of Nedlands policy: Yes ☒ No ☐

Consultation type:

Dates:

Meeting with Brookfield Multiplex to discuss traffic management plan requirements for the project 17 January 2011

Meeting with Brookfield Multiplex and Office of Strategic Projects 25 January 2011

Meeting with Brookfield Multiplex and Office of Strategic Projects 8 February 2011

Meeting with Brookfield Multiplex and Office of Strategic Projects 22 February 2011

Legislation

- Main Roads Act 1931
- Local Government Act 1995
- Australian Standard 1742.3 – 2009 Part 3: Traffic control for works on roads

Budget/financial implications

Budget:

Within current approved budget: Yes ☐ No ☒
Requires further budget consideration: Yes ☐ No ☒

Financial:

The contractor, Brookfield Multiplex Pty Ltd is liable for all costs associated with the proposed traffic modifications for the ingress and egress at both the intersections of Caladenia Crescent and Monash Avenue.

Risk Management

A full risk analysis has been completed in an independent Road Safety Audit prepared by Klyne Consultants. (Refer attachment 3)

There is a risk of litigation to the contractor of this project, Brookfield Multiplex Pty Ltd, if the construction works are undertaken onsite without an approved traffic management plan.

Discussion

Brookfield Multiplex Pty Ltd is proposing the construction of a central energy plant facility within the QEII Medical Centre site to replace the current plant facility located adjacent to Winthrop Avenue, Nedlands. The demolition of the existing 'W' and 'S' Blocks is included as part of the application.

The proposed new central energy plant is to be located on the west of the site adjacent to Hollywood Hospital and is to comprise the main plant equipment building, associated workshops/storage areas/waste management unit-and a site distribution tunnel system.

The proposed plant is not considered to have a major impact in terms of parking and traffic congestion in the area. The new plant will not generate any more traffic/vehicle movement than is already associated with the existing plant facility and a satisfactory level of service (LOS) on the current roading network will be maintained.

According to the applicant, there are approximately 650 car bays for staff within the area that the two access roads (Caladenia Crescent) service. It is understood that the majority of the staff allocated parking within this area are P1 users, which consist of:

- Staff who start before 7.00 am and/or finish after 6.30 pm.
- Night time shift workers.
- Medical Consultants.
- Staff who regularly work between campuses.
- Staff who are on emergency on-calls.
- Employees with special disability access needs.
- Government vehicles.
- Couriers/laboratory/maintenance/contractor vehicles.
- Volunteers.

It is anticipated that the proposed roundabout intersection will operate satisfactorily during peak hours in the morning and evening, based on the SIDRA analysis provided as part of the modified intersection performance within the traffic management plan.

The City's records show that Monash Avenue is classified by MRWA as a "District Distributor B" which is designed to accommodate up to 8000 vehicles per day (VPD).

Previous traffic data captured by traffic counts on Monash Avenue are outlined in the below table.

Road Name	Location	Date	AWDT	CV	0.85	Road Hierarchy
Monash Ave	Between Clifton St & Hampden Rd	October 2009	7612	289	53	DDB
Monash Ave	Between Clifton St & Hampden Rd	2004	8765	179	55	DDB
Monash Ave	Between Hampden & Clifton	1999	7096	267	62	DDB
Monash Ave	Between Williams & Clifton Sts	2003	7367	230	56	DDB
Monash Ave	Between Hampden & Hospital Ave	2003	6221	296	55	DDB
Monash Ave	Between Hampden Road and Hospital	July 2006	8243	174	53	DDB

The City requested that Brookfield Multiplex Pty Ltd supply a traffic management plan for the Traffic Management Committee on 1 February 2011 for discussion and the applicant to provide their own traffic counts, a road safety audit, modified intersection performance and drawings within the traffic management plan. The applicant was unable to supply the traffic management plan within the time specified in order to generate a report for committee review at the Traffic Management Committee meeting on 1 February 2011.

Subsequently, The City has not been able to approve the traffic management plan to date as there were a number of concerns raised, prompting an independent road safety audit to be conducted. The details of that Road Safety Audit can be summarized as follows:

- Require construction drawings for modified roundabout (RAB) – requires City's approval and traffic management plan (TMP) sign off.
- Require construction drawings for modified western entry/exit of Caladenia Crescent and Monash Avenue. City's approval and TMP sign off required.
- Staging plan of works for construction.
- Impact of construction vehicles using Caladenia Crescent (west) on stacking on Monash Avenue.

Conclusion

Brookfield Multiplex Pty Ltd is required to address a number of traffic issues before the City is able to approve for the traffic management plan that has been submitted.

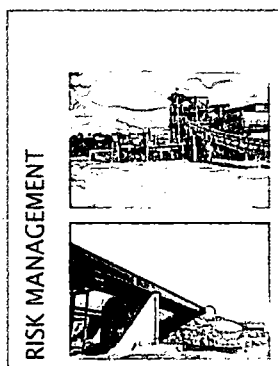
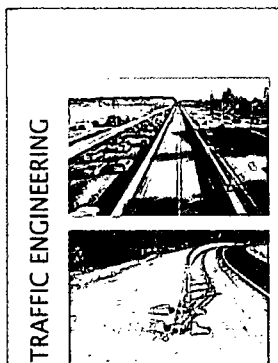
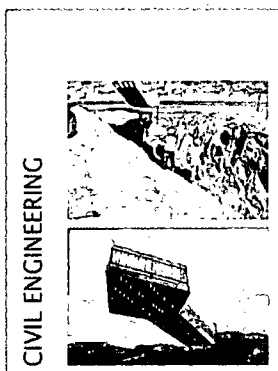
Attachments

1. Traffic management plan submitted by Brookfield Multiplex Pty Ltd.
2. Independent Road Safety Audit prepared by Klyne Consultants

Attachment to Item 7.6

**Traffic Management Committee Meeting
1 March 2011**

Proposed Central Energy Plant Facility – QEII
Medical Centre (City of Nedlands)



QEI SIR CHARLES GAIRDNER HOSPITAL, NEDLANDS.

Intersection of Monash Avenue TRAFFIC MANAGEMENT PLAN

Client QEI Central Energy Plant

Project Number C006

Author Bob Garton

Accreditation details. AWTM Cert. # WPG-AV-10-457-02

I declare that I have carried out a site visit and inspection prior to preparation of this Traffic Management Plan.

Signature *B. Garton* Date: 24 January 2011

RTM certification by: Accreditation Number:

N/A

Signature: Date:

Version number 2

Revision Details Minor text amendments

Approved by Brookfield Multiplex Manager

Sign & Date

Name (Print)

CONSULTING CIVIL AND TRAFFIC ENGINEERS & RISK MANAGERS.

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The person(s) whose signature(s) appears above satisfies all requirements for accreditation as a "Roadworks Traffic Manager" as defined by Main Roads WA publication, "Traffic Management for Works on Roads, Code of Practice", and has either prepared this Traffic Management Plan or reviewed this Traffic Management Plan, and certifies that it is in accordance with AS 1742 and Main Roads Traffic Management for Works on Roads Code of Practice.



TRAFFIC MANAGEMENT PLAN

Document Status.

Version No.	Author	Reviewed by	Date	Approved for issue	Signature	Date
1	R Garton	T Shaw	24/01//11	R Garton	<i>R. Garton</i>	24/01//11
2	R Garton	T Shaw	4/02//11	R Garton	<i>R. Garton</i>	4/02//11



TRAFFIC MANAGEMENT PLAN

CONTENTS

1	General.....	5
1.1	Location.....	5
1.2	Site Constraints / Impacts.....	5
1.3	Traffic Flows and Speed.....	6
2	Management	6
2.1	General	6
1.1	Objectives and Strategies.....	7
1.2	Competencies	8
1.3	Occupational Safety and Health	8
1.4	General Responsibilities.....	9
1.5	Management Structure	10
1.6	Site Representatives and Contact Details.....	12
1.7	Authority Liaison and Approvals	12
3	Traffic Assessment.....	14
3.1	Existing Traffic Environment.....	14
3.2	Minimum Lane Requirements.....	14
3.3	Impact on the operation of intersections	14
3.4	Duration and Hours of Proposed Works	15
4	Hazard identification and risk assessment.	16
4.2	Risk Register.....	18
5	Reference Drawings.....	20
6	Traffic Management Staging.	21
6.1	Traffic Management Implementation.	21
6.2	Sequence and Staging	21
6.3	Signage and Device Requirements.	21
6.4	Pedestrian access (including Facilities for the disabled)	22
6.5	Public Transport.	22
6.6	Traffic Flow.....	22
6.7	Access to Adjoining Properties.	23
6.8	Special Events and Other Works.....	23
6.9	School Crossings.	23
7	Communication.	24
7.1	General	24
8	Records.....	25
9	Notification of Road works.....	26
10	Traffic Management Implementation Standards.....	28
10.1	Sequence and Staging	28
10.2	Signage	28
10.3	Flashing Arrow Signs.....	30
10.4	Delineation.	31
10.5	Speed zoning.	32



TRAFFIC MANAGEMENT PLAN

10.6 Provision for night works.32

10.7 Site Access.32

10.8 Miscellaneous.....33

10.9 Contingency Planning.....34

10.10 Traffic Management Monitoring.34

10.11 Records.....36

10.12 Temporary Pavement Markings.....37

10.13 Aftercare Signage.....37

11 Record Keeping.....38

11.1 Daily Diary38

12 Traffic Control Diagrams.....45

13 Incident Report.....46

13.1 Incident Report Form.....46

1 General.

1.1 Location.

The work activity involves construction of a central energy plant, modifications to the roundabout at the intersection of Monash Avenue and Hampden Road, Nedlands and changes to the road network servicing QEII Sir Charles Gairdner Hospital.

The work location is indicated on Figure 1.0 below.

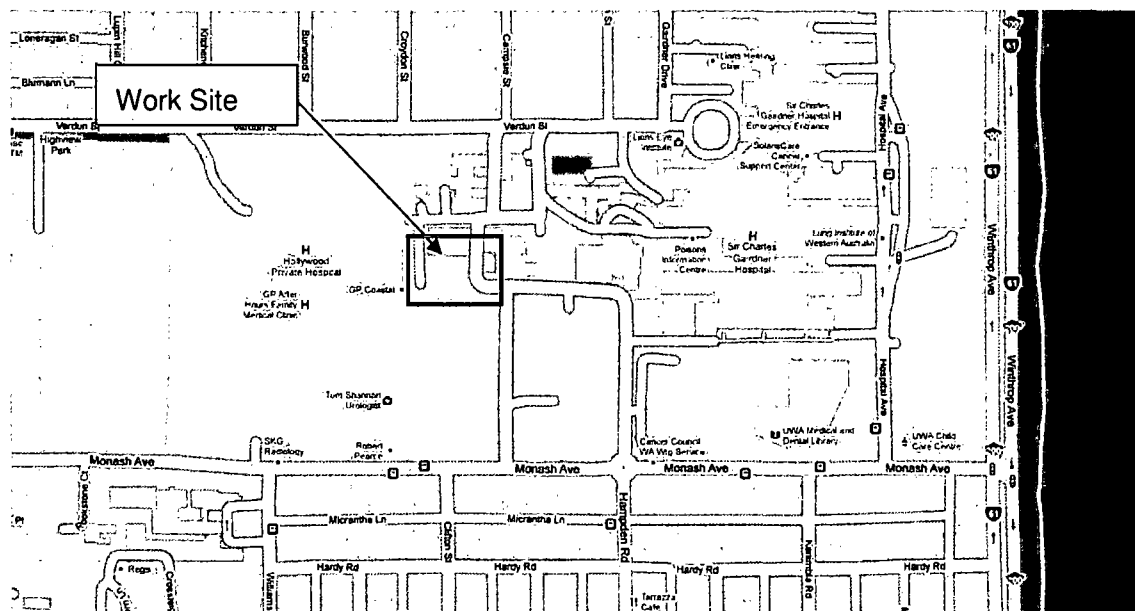


Figure 1.0 Site Location

This Traffic Management Plan outlines the procedures and processes that will be engaged by Brookfield Multiplex to manage potential hazards associated with the traffic environment.

1.2 Site Constraints / Impacts.

Monash Avenue is classified as a Distributor B class road and as such is an important network road that carries median volumes of regional and commercial traffic. Due to the existing traffic environment a number of site constraints are required to be imposed. These constraints include:

- Modifying the northern leg of the roundabout at Hampden Road to provide two way movements into and out of the QEII Sir Charles Gairdner Hospital site.



TRAFFIC MANAGEMENT PLAN

- Modifying the eastern leg of Caladenia Crescent to provide two way movements to and from Monash Avenue for the general public and hospital staff.
- Modifying the western leg to provide two way movements to and from Monash Avenue for construction traffic only.
- Maintaining access to the childcare centre 'drop-off'/'pick-up' via the eastern leg of Caladenia Crescent.

The traffic control layout for the worksite location is detailed in the Traffic Control Diagrams (TCP's) included under Section 12.0 of this Traffic Management Plan.

1.3 Traffic Flows and Speed

The posted speed limit along Monash Avenue is 50km/h.

No temporary speed will be imposed along Monash Avenue for the duration of the project.

For existing indicative traffic flows refer to Section 3 of this report.

2 Management

2.1 General

As part of the construction of a central energy plant for QEII Sir Charles Gairdner Hospital, Brookfield Multiplex proposes to modify the existing roundabout at the intersection of Monash Avenue and Hampden Road and implement changes to the internal road network servicing QEII Sir Charles Gairdner Hospital.

The northern leg of the roundabout currently forms part of a one way circulating road system within the hospital which provides access to parking areas and site buildings. Currently, one way access into the hospital is provided north from the roundabout with traffic exiting via a "T" intersection on Monash Avenue located approximately 130 metres to the west.

The access roads service staff and visitor car parking areas and a childcare centre.

The traffic management for the project involves modifying the northern leg of the roundabout to provide two way movements into and out of the QEII Sir Charles Gairdner Hospital site via the Caladenia Crescent.

A traffic assessment of the modified traffic movements through the intersection has been undertaken and is the subject of a separate report:



TRAFFIC MANAGEMENT PLAN

MODIFIED INTERSECTION PERFORMANCE - Intersection of Monash Avenue – Hampden Road, Nedlands.

The western leg of Caladenia Crescent will be closed to the general public to provide access to the work site for construction traffic.

Interim access until August 2011 will be maintained to the childcare centre located opposite the northwest corner of the parking areas and will be accessed from the eastern leg of Caladenia Crescent. An area at the west end of Caladenia Crescent will be maintained as a no parking area to facilitate a turn area for vehicles. Advisory signage will be erected at the western access to the public parking area to inform road users of the changes road condition.

Advisory signage will be installed along the eastern leg of Caladenia Crescent to inform road users of the changed road condition from one-way to two-way traffic movements.

Advisory signage will be erected on the approaches to the intersection of Monash Avenue and the western leg of Caladenia Crescent to advise road users access is for construction traffic only.

Construction traffic will access and exit the work site from the eastern approach of Monash Avenue. Work site induction to all work personnel will include information in respect to the site access being strictly via the eastern approach of Monash Avenue.

Due to the changed site access and traffic movements through the roundabout at Monash Avenue /Hampden Road intersection Variable Message Sign (VMS) boards will be erected on the approaches to the intersection advising road users of the changed situation. After a settling in period the VMS boards will be replaced with static signs.

The works will be undertaken over a two year period and the road modifications will remain operation for the duration of the project.

1.1 Objectives and Strategies

The objectives of the Traffic Management Plan are;

- To provide protection to workers and the general public from traffic hazards that may arise as a result of the construction activity.
- To manage potential adverse impacts on traffic flows to ensure network performance is maintained at an acceptable level.
- To minimise adverse impacts on users of the road reserve and adjacent properties and facilities.



TRAFFIC MANAGEMENT PLAN

In an effort to meet these objectives the Traffic Management Plan will incorporate the following strategies;

- Providing a sufficient number of traffic lanes to accommodate vehicle volumes.
- Ensuring delays are minimised.
- Ensuring all road users are managed including motorists, pedestrians, cyclists, people with disabilities and people using public transport.
- Ensuring work activities are carried out sequentially to minimise adverse impacts.
- Provision will be made for works personnel to enter the work area in a safe manner in accordance with safety procedures.
- All entry and exit movements to and from traffic streams shall be in accordance with the requirements of safe working practices as defined in Section 7.8.

1.2 Competencies

Brookfield Multiplex have engaged Shawmac to prepare this Traffic Management Plan and associated controls for the works.

Brookfield Multiplex shall ensure that personnel charged with the responsibility for the erection and placement of the traffic arrangements shall hold accreditation in Basic Worksite Traffic Management.

1.3 Occupational Safety and Health

Principals, employers and persons in control of workplaces have a statutory duty of care to provide a safe workplace for all personnel working at the site, accessing the site or impacted by the construction activity including employees, contractors, subcontractors, visitors to the site and the general public.

This TMP forms part of the overall project Safety Management Plan, and provides details on how all road users considered likely to travel through, past, or around the worksite and those impacted by the works will be safely and efficiently managed for the full duration of the site occupancy and works.

All traffic management works and control devices shall be in accordance with:

- OS&H Act (1984)
- OS&H Regulations (1996)
- Australian Standard AS1742.3; Traffic Control Devices for Works on Roads (*)
- MRWA Traffic Management for Works on Roads - Code of Practice (CoP)



TRAFFIC MANAGEMENT PLAN

- Road Traffic Code 2000
- Australian Standard AS/NZS/ISO 31000 ; Risk management
- Australian Standard AS/NZS 4602; High visibility safety garments

* except where expressly overridden by the MRWA Traffic Management for Works on Roads – Code of Practice (CoP).

1.4 General Responsibilities

Brookfield Multiplex work personnel including subcontractors will take the utmost care to prevent the risk of injury and/or property damage to employees, subcontractors, other contractors, road users and all other members of the public.

Brookfield Multiplex work personnel including subcontractors will provide and install all delineation and signage necessary to regulate traffic movements around the worksite to ensure adverse impacts associated with the works are kept to a minimum.

Work will not commence or continue at any location until all appropriate signs, devices and barricades are in place and in accordance with the requirements of the Traffic Management Plan.

The number of, type and location of signs and devices shall be to a standard not less than prescribed on the approved Traffic Control Diagrams, the MRWA Traffic Management for Works on Roads – Code of Practice and Australian Standard AS 1742.3.

Brookfield Multiplex will ensure that all personnel or contractors used for the erection, maintenance, relocation and removal of signs, delineation and markings are accredited in “Basic Worksite Traffic Management”.

The Brookfield Multiplex Site Supervisor will be the responsible person that will ensure all traffic control measures prescribed as part of this Traffic Management Plan and determined in the field are placed and maintained in accordance with the requirements of;

- This Traffic Management Plan,
- Road Traffic Code,
- Occupational Safety and Health Act 1984 and Regulations,
- Australian Standard AS1742.3 (2009) and supporting Field Guides, and,
- MRWA Traffic Management for Works on Roads – Code of Practice (current version)

At all times when employees are on site, the Brookfield Multiplex Site Supervisor will take whatever action is practicable to assist emergency vehicles, tow trucks and/or service



TRAFFIC MANAGEMENT PLAN

vehicles to gain access to crash or vehicle breakdown sites which are causing, or have the potential to cause an obstruction to traffic flow or imperil the safety of road users.

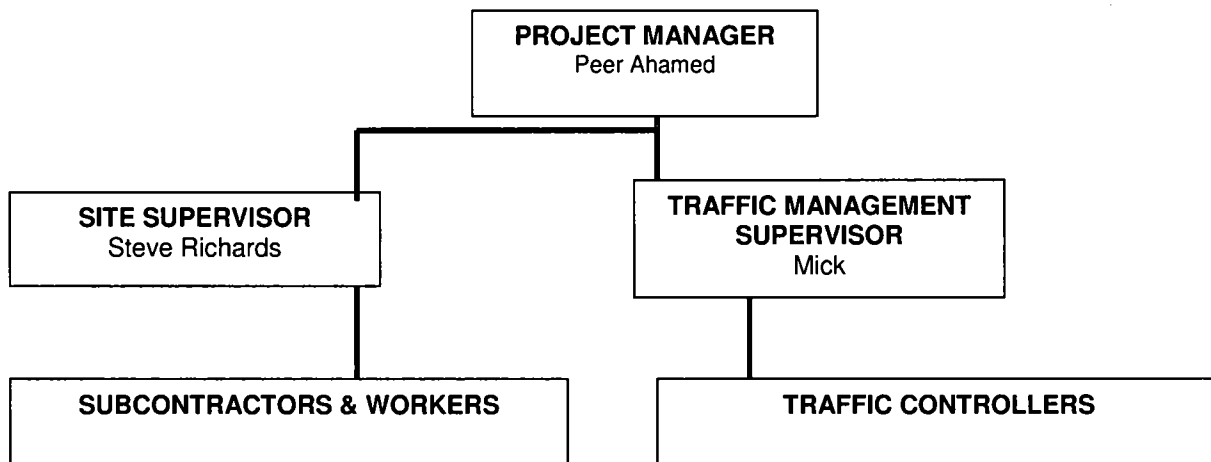
On completion of setting out the traffic control measures, the traffic arrangement shall be audited by the traffic management contractor's supervisor for compliance to the approved traffic control diagram and the site monitored for a suitable period of time. The results of the compliance audit shall be recorded on the daily diary.

If traffic speeds on the approaches to the work site are assessed as being above the posted speed zone for the work site, the Brookfield Multiplex Site Supervisor is to initiate action to modify the approach signage and where applicable, tapers in accordance with the requirements of AS1742.3. All such actions are to be recorded in the Daily Diary. Should road users be observed to continue to travel in excess of the posted speed limit, the police are to be requested to attend the site to enforce the temporary posted speed limit.

1.5 Management Structure

The following diagram outlines the responsibility hierarchy for this contract.

Traffic Management Responsibility Hierarchy



The project manager shall:

- Ensure all traffic control measures for this TMP are placed and maintained in accordance with this plan and the relevant Acts, Codes, Standards and Guidelines.
- Ensure suitable communication and consultation with the affected stakeholders is maintained at all times.



TRAFFIC MANAGEMENT PLAN

- Ensure inspections of the Traffic Controls are undertaken in accordance with the TMP, and results recorded. Any variations shall be detailed together with reasons.
- Review feedback from field inspections, worksite personnel and members of the public, and take action to amend the traffic control measures as appropriate following approval from the Superintendent's Representative.
- Arrange and/or undertake any necessary audits and incident investigations.

1.5.2 Site Supervisor

The Site Supervisor is responsible for overseeing the work activities, and is therefore responsible for the practical application of the TMP. The Site Supervisor shall:

- Instruct workers on the relevant safety standards; including the correct wearing of high visibility safety vests, safety boots and other equipment as required.
- Ensure traffic control measures are implemented and maintained in accordance with the TMP.
- Undertake and submit the required inspection and evaluation reports to management.
- Render assistance to road users and stakeholders when incidents arising out of the works affect the network performance or the safety of road users and workers.
- Take appropriate action to correct unsafe conditions, including any necessary modifications to the TMP.

1.5.3 Traffic Management Personnel (Subcontractors)

The Traffic Management subcontractor shall have at least one supervisory person accredited in Advanced Worksite Traffic Management available to manage variations, contingencies and emergencies, and to take overall responsibility for traffic management. Traffic management personnel with the responsibility of ensuring the traffic management devices are set out in accordance with the TMP shall be accredited in Basic Worksite Traffic Management.

1.5.4 Traffic Controllers

Traffic Controllers shall be used where required to control road users to avoid conflict with plant, workers, traffic and pedestrians, and to stop and direct traffic in emergency situations. Traffic Controllers shall:



TRAFFIC MANAGEMENT PLAN

- Operate in accordance with Section 4.6 and Appendix B of AS1742.3.
- Hold a current Traffic Controller's accreditation in Western Australia.
- Take appropriate breaks as required by AS1742.3 and/or OS&H Regulations.

1.5.5 Workers and Subcontractors

Workers and Subcontractors shall:

- Correctly wear high visibility vests, in addition to other protective equipment required (e.g. footwear, eye protection, helmet, sun protection etc), at all times whilst on the worksite.
- Comply with the requirements of the TMP and ensure no activity is undertaken that will endanger the safety of other workers or the general public.
- Enter and leave the site by approved routes and in accordance with safe work practices as defined in section 7.8 of this TMP.

1.6 Site Representatives and Contact Details

The following details shall be provided for the site person charged with responsibility for the implementation of this TMP

Name	Organisation	Position/Accreditation Details	Contact Number
Peer Ahamed	Brookfield Multiplex	Project Manager	0414 186 732
Steve Richards	Brookfield Multiplex	Site Supervisor:	TBA
Mick	Highway Traffic	Traffic Management Supervisor:	0424 174 321

A/H contact: Tony Hopkinson: 0430 541 792

1.7 Authority Liaison and Approvals

In addition to the required notification list shown on the MRWA road works notification sheet attached to this TMP, Brookfield Multiplex shall advise the following authorities of the proposed works 5 days prior to works commencing.

Organisation	Contact Name	Contact Details	Phone	Fax	Email	Sign	Date
--------------	-----------------	-----------------	-------	-----	-------	------	------



TRAFFIC MANAGEMENT PLAN

Organisation	Contact Name	Contact Details	Phone	Fax	Email	Sign	Date
City of Nedlands	Works Manager	Tel: (08)9273 3500 Fax: (08)9273 3670 council@nedlands.wa.gov.au					



3 Traffic Assessment.

3.1 Existing Traffic Environment

Recent traffic counts sourced from MRWA indicate the following:

Average Monday – Friday

Monash Avenue West of Hampden Road					
Time	E B	W B	Time	E B	W B
0000-0100	8	7	1200-1300	350	231
0100-0200	3	4	1300-1400	313	255
0200-0300	1	2	1400-1500	365	228
0300-0400	3	3	1500-1600	473	234
0400-0500	2	7	1600-1700	537	227
0500-0600	18	42	1700-1800	435	237
0600-0700	61	171	1800-1900	255	168
0700-0800	310	200	1900-2000	151	87
0800-0900	385	212	2000-2100	99	73
0900-1000	273	227	2100-2200	126	74
1000-1100	281	249	2200-2300	45	38
1100-1200	295	236	2300-2400	24	14

Table 1

3.2 Minimum Lane Requirements

Austrroads 'Roadway Capacity' guidelines suggests that the mid block capacity of a typical urban arterial road is in the vicinity of 1,000 vehicles per lane per hour (vplph) and within 200m of intersection one lane for every 500 vehicles per hour.

Consideration of requirements adjacent to intersections is detailed in section 3.3.

3.3 Impact on the operation of intersections

Refer to separate traffic report _ MODIFIED INTERSECTION PERFORMANCE - Intersection of Monash Avenue – Hampden Road, Nedlands.



TRAFFIC MANAGEMENT PLAN

3.4 Duration and Hours of Proposed Works

The site works will be undertaken during norm daytime work shift hours of 0700 to 1900 hours Monday to Saturday. The project duration is 24 months.

Traffic flow data ex MRWA for Great Eastern Highway is detailed in Section 3.1.

4 Hazard identification and risk assessment.

In order to clearly understand the risks associated with the traffic environment and hence outline the manner in which identified hazards will be managed the following schedule outlines the risk management process undertaken for traffic issues associated with the various project affected by this TMP. Hazard identification and risk assessment has been carried out in accordance with AS/NZS 4360-2004, Risk Management, Section 5.3 of Traffic Management for Works on Roads, and the outcomes recorded hereunder.

4.1.1 Qualitative Measure of Consequence or Impact

Level	Descriptor	Description
1	Insignificant	<ul style="list-style-type: none"> Hourly traffic flow per lane is less then 50% of maximum road capacity. No impact to the performance of the network. No property damage
2	Minor	<ul style="list-style-type: none"> Hourly traffic flow per lane is equal to and greater than 50% and less then 60% of maximum road capacity. Minor impact to the performance of the network. Minor property damage
3	Moderate	<ul style="list-style-type: none"> Hourly traffic flow per lane is equal to and greater than 60% and less then 70% of maximum road capacity. Moderate impact to the performance of the network. Moderate property damager
4	Major	<ul style="list-style-type: none"> Hourly traffic flow per lane is equal to and greater than 70% and less then 80% of maximum road capacity. Major impact to the performance of the network. Major property damage
5	Catastrophic	<ul style="list-style-type: none"> Hourly traffic flow per lane is equal to and greater then 80% road capacity. Unacceptable impact to the performance of the network. Total property damage.

4.1.2 Qualitative Measure of Consequence or Impact

Level	Descriptor	Description
1	Insignificant	<ul style="list-style-type: none"> Minor first aid treatment required. Immediate return to work.
2	Minor	<ul style="list-style-type: none"> Minor medical treatment required. Not a lost time injury.
3	Moderate	<ul style="list-style-type: none"> Medical treatment required. Lost time injury. WorkSafe report not required.
4	Major	<ul style="list-style-type: none"> Significant injuries. Hospitalisation required. WorkSafe report required.
5	Catastrophic	<ul style="list-style-type: none"> Permanent and severe disablement; . Fatality. .



TRAFFIC MANAGEMENT PLAN

4.1.3 Qualitative Measures of Likelihood

Level	Descriptor	Description
A	Almost certain	The event or hazard: <ul style="list-style-type: none">• is expected to occur in most circumstances,• will probably occur with a frequency in excess of 10 times per year.
B	Likely	The event or hazard: <ul style="list-style-type: none">• will probably occur in most circumstances,• will probably occur with a frequency of between 1 and 10 times per year.
C	Possible	The event or hazard: <ul style="list-style-type: none">• might occur at some time,• will probably occur with a frequency of 0.1 to 1 times per year (i.e. once in 1 to 10 years).
D	Unlikely	The event or hazard: <ul style="list-style-type: none">• could occur at some time,• will probably occur with a frequency of 0.01 to 0.1 times per year (i.e. once in 10 to 100 years).
E	Rare	The event or hazard: <ul style="list-style-type: none">• may occur only in exceptional circumstances,• will probably occur with a frequency of less than 0.01 times per year (i.e. less than once in 100 years).

IMPORTANT NOTE: The likelihood of an event or hazard occurring shall first be assessed over the duration of the activity (i.e. "period of exposure"). For risk assessment purposes the assessed likelihood shall then be proportioned for a "period of exposure" of one year

Example: An activity has a duration of 6 weeks (i.e. "period of exposure" = 6 weeks). . The event or hazard being considered is assessed as likely to occur once every 20 times the activity occurs (i.e. likelihood or frequency = 1 event/20 times activity occurs = 0.05 times per activity). Assessed annual likelihood or frequency = 0.05 times per activity x 52 weeks/6 weeks = 0.4 times per year. Assessed likelihood = C (i.e. Possible)

4.1.4 Risk Rating Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A (almost certain.)	M	H	H	E	E
B (Likely)	L	M	H	E	E
C (Moderate)	L	M	H	E	E
D (Unlikely)	L	L	M	H	E
E (Rare)	L	L	M	H	H

The following details the preliminary assessment of site hazards likely to be encountered, the level of risk associated with each and the control proposed. Note that the risk level is the level of assessed risk without the controls in place. The controls listed have been determined as being appropriate in reducing the risk to a level that is acceptable.



TRAFFIC MANAGEMENT PLAN

4.2 Risk Register.

Item	Risk Event	Consequence	Pre – treatment Risk			Treatment	Residual Risk		
			L	C	RR		L	C	RR
1.	Traffic speed may create collision with traffic, pedestrians and bicycle and construction personnel.	Potential injury to road users.	C	4	E	Traffic planning requires traffic controls to be installed to direct traffic around the work site and a reduction in the speed zone of the carriageways approaching and passing the works.	E	2	L
2.	A road user may misread the required alignment vehicles are to take on account of modifications required to accommodate works. This could result in through vehicles colliding with work personnel or work vehicles.	Injury to road users.	C	3	H	Traffic planning requires traffic controls to be installed to restrict access to the work site. The TMP and Traffic Control Diagrams detail the temporary controls and advance warning and directional signage to be used in accordance with the requirements of AS 1742.3.	E	2	L
3.	Incorrectly designed and / or installed traffic control may result in inadequate protection of the worksite with a subsequent increased potential for crashes and injury.	Potential injury to road users.	D	3	H	Qualified and experienced personnel have been employed in the preparation of the TMP and associated TCD's and experienced personnel will be used to implement and maintain the traffic control onsite.	E	3	M
4.	Inclement weather may result in a decreased readability of the traffic control delineation and signage and may increase the potential for crashes.	Injury to road users.	B	3	H	The TMP requires that the Contractor undertakes regular audits of the traffic control and make adjustments as are necessary to ensure effectiveness is maintained. Experienced personnel specialising in the erection and maintenance of traffic control will be used. All signage shall be Class 1 retro-reflective.	E	3	M



TRAFFIC MANAGEMENT PLAN

Item	Risk Event	Consequence	Pre – treatment Risk			Treatment	Residual Risk		
			L	C	RR		L	C	RR
5.	The restrictions placed on the traffic lanes by the works could result in roadway capacity being decreased to the point where unacceptable delays and congestion occur.	Unacceptable delays. Adverse public reaction.	B	3	H	The TMP requires that a traffic lane having a minimum width of 3.0 metres be provided in each direction.	D	3	M
6.	The interaction of non-motorised road users with through traffic and work plant may result in increased potential for conflict and serious injury.	Injury to pedestrians and other non-motorised road users.	C	3	H	The TMP Pedestrians and non-motorised road users are identifies any issues and nominates experienced personnel to provide directions and/or escort for the path users.	E	3	M
7.	The interaction of non-motorised road users with through traffic and work plant may result in increased potential for conflict and serious injury.	Injury to pedestrians and other non-motorised road users.	C	3	H	The TMP Pedestrians and non-motorised road users are identifies any issues and nominates experienced personnel to provide directions and/or escort for the path users.	E	3	M
8.	Road works may adversely impact on property access to adjacent properties.	Possible loss of business.	C	3	H	The TMP provides for consultation with property owners prior to commencement of works. Traffic Control is to be installed to minimise property access disruption.	C	2	M
9.	Insufficient delineation of construction site or temporary carriageways at night may result in crashes and injury.	Hospital injury to road users.	D	4	H	Qualified and experienced personnel have been employed in the preparation of the TMP and associated TCD's and experienced personnel will be used to implement and maintain the traffic control onsite.	E	3	M
10.	Transferred traffic may have decreased concentration which may increase risk of collision with other road users or road side objects.	Medical injury to road users or property damage.	E	3	M	The likely hood of the event occurring is very low and therefore risk is low enough to be acceptable. The TMP details advisory signage to be installed to inform road users of changed conditions.	E	2	L



TRAFFIC MANAGEMENT PLAN

5 Reference Drawings.

The following drawings detail the proposed traffic management strategies including all temporary diversions and Traffic Control Diagrams applicable to construction stages.

Drawing Number	Version	Details
C005	1	Traffic Management Stage 1 – Proposed Traffic Layout.
C006	1	Traffic Management Stage 1 – Proposed Signage and Pavement Markings.



6 Traffic Management Staging.

In terms of traffic management, the work will occur over a number of stages.

All traffic management will be undertaken in accordance with AS 1742.3 and the attached Traffic Control Diagram.

The works will involve modification works to the northern leg of the roundabout at the intersection of Monash Avenue, Hampden Road and Caladenia Crescent, removal of existing median extension along the eastern leg of Caladenia Crescent and pavement construction, implementing a cul-de-sac at the northwest corner of Caladenia Crescent, undertaking corner widening at the intersection of Monash Avenue and the western leg of Caladenia Crescent and installation of pavement marking and advisory signage.

The attached diagrams C005 and C006 sets out the overall traffic layout and proposed pavement marking and signage.

Additional staging and traffic control diagrams to facilitate the pavement modifications will be developed on approval of the overall traffic scheme as shown ob C005 & C006.

6.1 Traffic Management Implementation.

6.2 Sequence and Staging

Detail all activities relating to installation, staging and removal of signage, lane closures and work activities. These activities should be recorded in the Daily Diary detailing that the time at which they occur.

Step	Details
1	Erect approach and departure advisory signage on approaches to worksite.
2	Install lane closures, delineation devices and detours as required.
3	Put traffic controllers in place at appropriate intersections if required.
4	Undertake and complete stage works.
5	Remove approach and departure advisory signage.

6.3 Signage and Device Requirements.

The following list details requirements for signs and devices for traffic management on the project.



TRAFFIC MANAGEMENT PLAN

QTY	Description of sign or device	Size (mm)
1	Give Way (R1-2A)	
1	Roundabout (R1-3A)	
1	Local Traffic Only (G9-40-2A)	900 x 600
4	Two-Way Traffic (T2-24A)	900 x 600
1	Two-Way Traffic (T2-11A)	
1	No Through Road (G9-18)	
2	Modified Intersection Ahead (MR-TAW-7)	1600 x 750
1	Truck Entering Left (T2-25A)	900 x 600
1	Truck Entering Right (T2-25A)	900 x 600
2	Pedestrian Watch Your Step(T8-1)	900 x 600
1	Entry Construction Vehicles Only	Custom Make
2	Child Care Left Turn	Custom Make
2	Child Care Drop Off Through	Custom Make

6.4 Pedestrian access (including Facilities for the disabled)

The modification works will impact upon existing pedestrian facilities at crossing points. Where works impact on pedestrian crossing facilities, pedestrians shall be directed around the work site via alternative routes and where existing pedestrian facilities are to be maintained through the work site, advisory signage will be erected to inform path users of the changed conditions as detailed on the Traffic Control Diagrams.

6.5 Public Transport.

N/A

6.6 Traffic Flow.

Refer to Traffic Report. MODIFIED INTERSECTION PERFORMANCE - Intersection of Monash Avenue – Hampden Road, Nedlands.

Maintaining operating traffic lanes minimise adverse impacts on the level of service for road users.



TRAFFIC MANAGEMENT PLAN

6.7 Access to Adjoining Properties.

Access to properties will not generally be affected by the proposed works but may be impacted on by the associated traffic control systems. Where this or lane closure occur across driveways, traffic controllers will assist drivers to safely cross the works to gain access to and egress from adjacent properties.

6.8 Special Events and Other Works.

The Contractor is to ensure works are not undertaken when Special events are planned during the project or other works expected in the vicinity of the construction site.

6.9 School Crossings.

There are no school crossings in the vicinity of the worksite.



7 Communication.

7.1 General

Prior to works commencing it is considered necessary to advise all road users of the forthcoming works, the likely timeframe of the works and the road conditions likely to be encountered. Advice shall consist of the following:

- Erection of advance advisory signage in the form of a black on yellow temporary sign on the approaches to the work site 10 days prior to commencement of works indicating the type of work to be undertaken, and the time and date of the works.
- Liaison with emergency services (i.e. Police, St John Ambulance, Fire and Emergency Services);
- Liaison with the Department for Planning and Infrastructure where public transport is likely to be affected;
- Liaison with Local authorities regarding local issues;
- Liaison as necessary with affected business proprietors and/or residents.



TRAFFIC MANAGEMENT PLAN

8 Records

Records shall be kept as required by the Standard Document "Traffic Management Implementation Standards".

Daily set out and implementation of traffic control devices, lane closures and delineation as per the Traffic Control Diagram specific to stage of works and site shall be documented in the daily diary. Any variation to the Traffic Management Plan and/or Traffic Control Diagram shall be documented, state the nature of the variation and state the reasons that the variation was necessary.

All personnel undertaking record keeping shall include their name and qualifications in the Daily Diary.



TRAFFIC MANAGEMENT PLAN

9 Notification of Road works

NOTIFICATION OF ROADWORKS									
Anticipated start date		TBA			Anticipated finish date		TBA		
Daily work hours		0700 hrs to 1900 hrs			Weekend work applicable		Yes <input checked="" type="checkbox"/>		No
Location of works (Road/Street, Suburb)		QEII Sir Charles Gairdner Hospital Construction Site – Monash Avenue, Caladenia Crescent west and east access							
Description of works		Construction Access and Entry modifications							
Road type (eg two lane undivided)		2 lane Single carriageway							
Posted Speed Limit		50km/h	Worksite speed limit		50 km/h	After hours speed limit		50 km/h	
Brief description of traffic management during works		Pavement modifications, pavement marking and signage							
Description of traffic management devices used		Advance advisory signs							
What is the anticipated effect on traffic flows?		Low			Will there be restricted width for oversize escorted vehicles?		Yes <input checked="" type="checkbox"/>		No
Are lanes closed at signals?		Yes	No <input checked="" type="checkbox"/>	Maybe	Are signal loops or hardware affected?		Yes	No <input checked="" type="checkbox"/>	
Will signal phases need time changes?		Yes	No <input checked="" type="checkbox"/>	Maybe	Will signals need to revert automatically?		Yes	No <input checked="" type="checkbox"/>	
Date of signal "black out"		N/A			Times of signal "black out"		N/A		
Will Police attendance be required?		Yes	No <input checked="" type="checkbox"/>		Dates for Police attendance (See note below) ⁽¹⁾		N/A		
Are warden-controlled school crossings located in area of works?		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Will crossings be altered during works?		Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>
Construction Authority									
Postal address									
Telephone		Facsimile		Email					
Contact									
Telephone		Mobile		Email					
Construction contractor		Brookfield Multiplex							
Postal address		Level 2 The Old Swan Brewery 173 Mounts Bay Road Perth WA 6000							
Telephone	9428 6813	Facsimile		Email					
Contact		Peer Ahamed							
Telephone	9428 6813	Mobile	0430 5641 792		Email				
After hours contact		0430 5641 792			Telephone		Mobile		
Traffic management contractor		Brookfield Multiplex							
Postal address									
Telephone		Facsimile		Email					
Contact									
Telephone		Mobile		Email					
After hours contact					Telephone		Mobile		
<p style="text-align: center;">Notification is to be given at least three (3) weeks in advance where Police attendance is required, one (1) week otherwise – except in an emergency</p>									



TRAFFIC MANAGEMENT PLAN

⁽¹⁾ Where Police attendance is required specific arrangements shall be made with
WA Police State Traffic Coordination, ☎ (08) 9222 1469

Distribution List (Notification through email preferred)	Email	Facsimile
WA Police State Traffic Coordination	traffic.policy.and.coordination.unit@police.wa.gov.au	(08) 6274 8664
WA Police Student Pedestrian Policy Unit	student.pedestrian.policy.unit@police.wa.gov.au	(08) 6274 8774
MRWA Customer Call Centre ⁽²⁾	enquiries@mainroads.wa.gov.au	(08) 9323 4430
MRWA Traffic Operations Centre	d1mrwatoc@mainroads.wa.gov.au	(08) 9428 2220
MRWA Heavy Vehicle Operations	hiv@mainroads.wa.gov.au	(08) 9311 8455
MRWA Engineer Bridge Loading	DLSEHeavyLoadsGroup@mainroads.wa.gov.au	(08) 9323 4336
St John's Ambulance	comms@ambulance.net.au	(08) 9334 1207
Fire & Emergency Services	fesa@fesa.wa.gov.au	(08) 9323 9384
Public Transport Authority ⁽³⁾	sfisk@pta.wa.gov.au	(08) 9326 2487
Downer Electrical (Traffic signals only)	DEP-WA-traffic-signals@downerengineering.com.au	(08) 9351 9211
Local Government	For contact details refer WALGA website www.walga.asn.au	

⁽²⁾ Perth metro only. Elsewhere, the relevant MRWA Regional Office shall be notified.

⁽³⁾ Perth metro only. Elsewhere, the relevant public transport / school bus services shall be notified.



10 Traffic Management Implementation Standards.

10.1 Sequence and Staging

Before work commences, signs and devices at approaches to the work area shall be erected in accordance with the adopted TCD, in the following order:

- Advance warning signs.
- All intermediate advance and positional signs and devices required in advance of the taper or start of the work area.
- All delineating devices required to form a taper including flashing arrow signs or temporary hazard markers where required.
- Delineation past the work area or into a side track.
- Other warning signs or regulatory signs.

Delineation devices such as cones and bollards should be placed in the same sequence, i.e. those furthest in advance of the work placed first.

Where a work area is moving progressively along the road, relocation of the signs ahead should take place in the above sequence. Those behind should be relocated in the reverse sequence.

Signs and devices that are erected before they are required shall be covered by a suitable material. The cover shall be removed immediately prior to the commencement of work.

Removal of traffic control signs and devices should be undertaken in the reverse order of erection, progressing from the work area out toward the approaches.

Refer to Traffic Control Diagrams in specific Traffic Management Plans for individual worksite details. General sequence for implementing, maintaining and dismantling traffic control shall be as below.

10.2 Signage

10.2.1 Alignments and signage details.

The requirements for the closure and realignment of lanes and any other traffic arrangement necessary to accommodate the works shall be detailed in specific Traffic Management Plan work staging and on the Traffic Control Diagrams. All traffic control shall be implemented and maintained in accordance with the requirements of Australian Standard AS 1742.3, Main



TRAFFIC MANAGEMENT PLAN

Roads WA "Traffic Management for Works on Roads, Code of Practice " and these Standard Practices.

10.2.2 Requirements for signs.

All signs used shall conform to the designs and dimensions as shown in Australian Standard AS 1742.3 and the Main Roads WA "Traffic Management for Works on Roads, Code of Practice".

Prior to installation, all signs and devices shall be checked by the Site Supervisor or a suitably qualified person to ensure that they are in good condition and meet the following requirements:-

Mechanical condition - Items that are bent, broken or have surface damage shall not be used.

Cleanliness - Items should be free from accumulated dirt, road grime or other contamination.

Colour of fluorescent signs - Fluorescent signs whose colour has faded to a point where they have lost their daylight impact shall be replaced.

Retroreflectivity. - Signs for night-time use whose retroreflectivity is degraded either from long use or surface damage and does not meet the requirements of AS 1906 shall be replaced.

Battery operated devices - shall be checked for lamp operation and battery condition.

Where signs do not conform either to the requirements of AS 1742.3 or would fail to pass any of the above checks, they shall be replaced on notice.

Signs and devices shall be positioned and erected in accordance with the locations and spacings shown on the drawings. All signs shall be positioned and erected such that:-

- They are properly displayed and securely mounted;
- They are within the driver's line of sight;
- They cannot be obscured from view;
- They do not obscure other devices from the driver's line of sight;
- They do not become a possible hazard to workers or vehicles; and
- They do not deflect traffic into an undesirable path.

Signs will be placed clear of the travelled path and erected in accordance with the installation plans in the following sequence:-

- Advance warning signs.



TRAFFIC MANAGEMENT PLAN

- All intermediate advance and positional signs and devices required in advance of the taper or start of the work area.
- All delineating devices required to form a taper including flashing arrow signs or temporary hazard markers where required.
- Delineation past the work area or into a side track.
- Other warning signs or regulatory signs.

Delineation devices such as cones and delineator posts should be placed in the same sequence, i.e. those furthestmost in advance placed first.

Signs and devices that are erected before they are required shall be covered by a suitable opaque material. The cover shall be removed immediately prior to the commencement of work.

Where there is a potential for conflict of information between existing signage and temporary signage erected for the purpose of traffic control, the existing signs shall be covered. The material covering the sign shall ensure that the sign cannot be seen under all conditions i.e. day, night and wet weather. Care will be taken to ensure existing signs are not damaged by the covering material or by adhesive tape.

10.2.3 Tolerances on positioning of signs and devices

Where a specific distance for the longitudinal positioning of signs or devices with respect to other items or features is stated, for the spacing of delineating devices or for the length of tapers or markings, the following tolerances may be applied: -

- (a) Positioning of signs, length of tapers or markings:
 - (i) Minimum, 10% less than the distances or lengths given.
 - (ii) Maximum, 25% more than the distances or lengths given.
- (b) Spacing of delineating devices:
 - (i) Maximum, 10% more than the spacing shown.
 - (ii) No minimum.

These tolerances shall not apply where a distance, length or spacing is already stated as a maximum, a minimum or a range.

10.3 Flashing Arrow Signs.

Where flashing arrow signs are required to better delineate lane tapers, these signs will comprise a matrix of lamps or light emitting elements in the form of an arrow that is flashed in



TRAFFIC MANAGEMENT PLAN

a cyclical manner to provide advance warning. The sign shall have a minimum dimension of 2400 mm. x 1200 mm. and conform to the requirements of AS/NZS 4192. The Project Site Supervisor (Dave King) shall ensure that all equipment used meets the Australian Standard.

10.4 Delineation.

10.4.1 General

Cones shall be used for delineation unless other treatment is specified in the Traffic Management Plan or on the Traffic Control Diagrams. All cones shall be at least 700 millimetres in height and constructed from fluorescent orange or red material that is resilient to impact and will not damage vehicles when hit at low speed. Cones will be fitted with suitable white retro-reflective tape placed in accordance with AS 1742.3.

Cones shall be designed to be stable under reasonably expected wind conditions and air turbulence from passing traffic.

The base of the cones will be secured so that they are not dislodged by traffic. Cones will be inspected at intervals necessary to ensure any mis-alignment or displacement is identified and corrected prior to this causing disruption to traffic.

Where specified, cones will be supplemented with stationary unidirectional yellow lights conforming to AS 1165 and spaced at 15 metre intervals.

Where specified, temporary frangible or otherwise non-hazardous delineator posts or bollards may be used for edge protection and taper delineation. Posts or bollards shall have a maximum dimension of 60 millimetres when measured along the longest side of a square or rectangular section or across the diameter of a circular section. Base design shall permit easy fixing to either sealed or unsealed surfaces and not intrude into traffic lanes greater than 50 millimetres from the face of the post or bollard.

All posts or bollards shall be erected in accordance with the Traffic Control Diagrams. Posts and bollards shall be a minimum of 1000 mm. high, capable of being fixed to the road pavement by a suitable road adhesive or by fastening bolts or spikes. Fixing shall be in accordance with manufacturer's recommendations.

Posts and bollards shall be fitted with suitable white retro-reflective tape placed in accordance with AS 1742.3.

All posts or bollards will be inspected daily and where displaced or missing made good immediately. All delineator posts are to be completely removed at the completion of all stages of construction and prior to the placement of asphalt surfacing. If adhesive is used to



TRAFFIC MANAGEMENT PLAN

affix the posts this shall be completely removed from the road surface so that a flush surface is obtained.

10.4.2 Delineation spacing.

All cones and post type delineators shall be spaced according to Table 3.7 of AS 1742.3.

10.5 Speed zoning.

Temporary speed zones for 40km/h shall be implemented as detailed the staged traffic control diagrams during work shift hours in accordance with the Traffic Management Plan and guidelines contained in Australian Standard AS 1742.3.

Speed zones will revert to the existing posted speed zones outside work shift hours.

Speed zones shall be in accordance with the guidelines contained in Australian Standard AS 1742.3 and as prescribed in the Traffic Management Plan and detailed on the Traffic Control Diagrams.

10.6 Provision for night works.

All signs used at night are to be Class 1 Retro-reflective material and delineation will be either retro-reflective or be sufficiently illuminated.

Flashing lamps shall be used to draw attention to signs and all personnel engaged on night work shall wear high visibility retro-reflective jackets.

10.7 Site Access.

Construction vehicles entering and exiting the traffic stream shall be mindful of the conditions that may affect the safety of these movements.

All entry and exit movements will be in accordance with the Road Traffic Code and shall be undertaken in the following manner:

Access points shall be notified to work personnel and suppliers.

Vehicles shall:

- Decelerate slowly and signal their intention by indicator to leave the traffic stream;
- Activate the vehicle's rotating yellow lamp, where fitted, once a speed of 20 km/h. has been reached and at least 50m prior to the exit location.
- Switch on the vehicle hazard lights once the vehicle is stationary.



TRAFFIC MANAGEMENT PLAN

- Where risks associated with unassisted exit or entry to or from the traffic stream are high, Traffic Controllers should be used to assist entry and exit movements.

Vehicles fitted with rotating amber lamps shall have the vehicle's rotating lamp activated prior to entering the traffic stream and shall undertake the following.

- Switch off the vehicle hazard lights;
- Indicate intention to enter the traffic stream using direction indicators;
- Ensure there is a suitable gap from oncoming traffic to allow for a safe entry manoeuvre; and,
- Turn off the rotating yellow lamp(s) once a speed of 40 km/h is reached.

Entry and exit manoeuvres shall be avoided in close proximity to intersections. Work personnel shall not cross traffic streams on foot unless absolutely necessary.

10.8 Miscellaneous.

10.8.1 Property Access.

Where access to properties is impacted by the proposed works or the associated traffic control systems arrangements will be made to maintain property access where ever practicable to do so. Property owners or occupiers adjacent to the work site will be advised of the works via advance written notification informing them of the works, the likely duration and the possible impact on property access.

10.8.2 Construction Equipment and Staff.

Long term standing and parking of construction plant and equipment adjacent to the through carriageway will not be permitted.

All equipment not required for construction activities will be removed from the construction site and parked elsewhere.

10.8.3 High Visibility Clothing.

In accordance with the requirements of AS 1742.3–2002 high visibility clothing meeting the requirements of AS/NZS 4602–1999 shall be worn by all personnel working in or adjacent to traffic, including traffic at worksites, in quarries and on construction haul roads.



TRAFFIC MANAGEMENT PLAN

The wearing of high visibility clothing should be supported by other risk management measures to protect, as far as is reasonably practicable, personnel from the risk of injury from traffic passing through the worksite.

Wherever personnel are required to work at night only, they should wear a Class N outer torso garment made from a retro-reflective material meeting the Class R standard specified in AS/NZS 1906.4–1997. The garment design should generally include retro-reflective horizontal hoops on the body, arms and legs in accordance with AS/NZS 4602–1999. Retro-reflective material should be capable of reflecting in wet or dry conditions.

10.9 Contingency Planning.

10.9.1 Road accident or vehicle breakdown within site.

Road plant within the work area that may impact on any services requiring access to a crash site will be cleared from the area quickly as necessary.

On-site traffic controllers will be equipped with mobile communications to advise and/or liaise with emergency services to ensure a prompt response should the need arise.

There will be accredited First Aid personnel on site to assist where required.

10.9.2 Pedestrian access (incl. Facilities for the disabled).

Where necessary, traffic controllers will direct and assist pedestrians and / or cyclists through the worksite during the works as detailed on the Traffic Control Diagrams. All temporary pathways shall be maintained at all times and left hazard free for after hours use.

10.9.3 Emergency Vehicle Access.

At all times when employees are on site, the Brookfield Multiplex Site Supervisor (TBA) will take whatever action is practicable to assist emergency vehicles, tow trucks and/or service vehicles to gain access to crash or vehicle breakdown sites which are causing, or have the potential to cause an obstruction to traffic flow or imperil the safety of road users.

10.10 Traffic Management Monitoring.

Prior to works commencing the Site Supervisor shall undertake to communicate the Traffic Management Plan to all key stakeholders and affected parties.

On completion of setting out the traffic control measures, the site is to be monitored for a suitable period of time. If traffic speeds on the approaches to the work site are assessed as being above the temporary posted speed zone for the work site, the Brookfield Multiplex Site



TRAFFIC MANAGEMENT PLAN

Supervisor is to initiate action to modify the approach signage and tapers in accordance with the requirements of AS1742.3. All such actions are to be recorded in the Daily Diary. Should road users be observed to continue to travel in excess of the posted speed limit, the police are to be requested to attend the site to enforce the temporary posted speed limit.

The Advanced Worksite Traffic Management accredited supervisory person at the worksite may conditionally approve changes made to a complex traffic management plan subject to review and endorsement of the change by an RTM as soon as practicably possible.

The Traffic Management Contractor shall ensure that all temporary signs, devices and controls are maintained at all times. To achieve this, procedures in line with the requirements outlined in AS1742.3 – 2002 Appendix A will be instituted. The monitoring program shall incorporate inspections:

- Before the start of work activities on site,
- During the hours of work,
- Closing down at the end of the shift period, and
- After hours.

A daily record of the inspections shall be kept indicating

- When traffic controls were erected,
- When changes to controls occurred and why the changes were undertaken,
- Any significant incidents or observations associated with the traffic controls and their impacts on road users or adjacent properties.

The Traffic Management Contractor shall ensure that personnel are assigned to monitor the traffic control scheme. Inspections shall at least satisfy the following requirements.

10.10.1 Before work starts.

- Inspect all signs and devices to ensure they are undamaged and comply with the requirements depicted on the Traffic Control Diagrams.
- Switch off all lamps check and clean as necessary;
- Confirm Traffic Management plan for the day's activities;
- After any adjustments have been made to the signs and devices, conduct a drive through inspection to confirm effectiveness.

10.10.2 During Work hours.



TRAFFIC MANAGEMENT PLAN

- Designate and ensure that appropriate work personnel drive through the site periodically to inspect all signs and devices and ensure they are undamaged and comply with the requirements depicted on the Traffic Control Diagrams;.
- Conduct on the spot maintenance/repairs as required;
- When traffic controllers are on the Job, ensure they remain in place at all times. Relieve controllers as necessary to ensure attentiveness is retained;
- Re position signs or required by work processes throughout the day and keep records of any changes.

10.10.3 Closing down Each Day

- Conduct a pre-close down inspection, allowing time for any appropriate maintenance works;
- Remove any unnecessary signage (e.g. Prepare to Stop, Symbolic Workers on Road)
- Install barriers and lights where required;
- Drive through site and confirm all signs and devices are operating correctly;
- Record details of inspection and any changes made to layout.

10.10.4 After Hours

- Appoint personnel to conduct after dark checks. Observe any signs / devices not working, missing or damaged and record in diary.
- Appoint personnel to conduct checks on non-work days (e.g. week ends). Observe any signs / devices not working, missing or damaged and record in diary.
- Provide after hours contact names and numbers for implementation of maintenance and repairs arising from the above inspections.

10.11 Records.

A daily diary recording all inspections including variations to the approved TMP shall be kept using Standard Forms "Daily Diary".

The Traffic Supervisor is to record all inspections made on a daily basis and at those times prescribed by the Traffic Management Implementation Standards. Upon completion of each day the Traffic Supervisor shall provide copies of the daily diary record to the Project Manager.



TRAFFIC MANAGEMENT PLAN

The Traffic Supervisor is to record all variations made to the approved Traffic Management Plan on a daily basis and indicate clearly the nature of the variations and the reason for the variations. Upon completion of each day the Traffic Supervisor shall provide copies of the variation record to the Project Manager.

10.12 Temporary Pavement Markings

Temporary pavement markings shall be installed after each individual stage of works prior to the application of the ultimate pavement marking in accordance with the following:

- After profiling works lanes shall be delineated by temporary RRPMS.
- After asphalt works have been carried out lanes shall be delineated by either ultimate pavement markings, temporary RRPMS or temporary painted pavement markings.
- Temporary RRPMS shall be installed at not less than 4m spacing and not greater than 12m spacing.

10.13 Aftercare Signage

Aftercare signage shall be installed between work shifts as determined to be applicable on site and applicable to the state of completion of the road works and pavement markings in accordance with the following requirements:

- Aftercare signage shall be the installation of road condition advisory signage on the approaches to the work site at the end of work shift.
- All symbolic worker signage shall be removed or laid flat during out of work hours.
- Where new pavement is sealed with road metal Symbolic Windscreen Damage (T3-9) signs shall be installed where the loose surface remains between successive work shifts.
- New Work No Lines Marked (T3-11) signs shall be installed where existing separation lines have been removed and have not yet been reinstated or where temporary RRPMS are used for lane delineation purposes.
- No Lines Marked Do Not Overtake Unless Safe (T3-12) signs shall be installed where existing barrier lines or painted medians have been removed and have not yet been reinstated.



TRAFFIC MANAGEMENT PLAN

11 Record Keeping

11.1 Daily Diary

Record details of all changes to the approved Traffic Management plan, who directed/made the changes and who authorised the changes (if applicable).

PROJECT DETAILS:

LOCATION:

DATE:

Contract No.

TMP Document No.

TCD Dwg No.

Revision No. 0

Date:		Time:		Location:		
Inspection/ changes	By:	Signed:	Changes authorised	By:	Signed:	
Detail/Comments:						

Date:		Time:		Location:		
Inspection/ changes	By:	Signed:	Changes authorised	By:	Signed:	
Detail/Comments:						

Date:		Time:		Location:		
Inspection/ changes	By:	Signed:	Changes authorised	By:	Signed:	
Detail/Comments:						



TRAFFIC MANAGEMENT PLAN

TRAFFIC MANAGEMENT - DAILY INSPECTION SHEET		DATE:	TCD No(s).
Inspection Prior to Commencement of Work		Day Time Inspection During Work Hours	
Time of Inspection:		Time of Inspection:	
Signs & devices appropriate for the day's activities and conditions	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required	Signs & devices operating satisfactorily and seen by motorists	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required
Signs & devices positioned and mounted correctly	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required	Signs & devices positioned and mounted correctly	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required
Signs & devices clean and clearly visible	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required	Signs & devices clean and clearly visible	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required
Modifications and/or repairs completed	<input type="checkbox"/> Yes (Give details) <input type="checkbox"/> No (If no, give reason)	Traffic Controllers correctly attired and operating correctly	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required
		Modifications and/or repairs completed	<input type="checkbox"/> Yes (Give details) <input type="checkbox"/> No / Not Applicable (Give reason)
Closing Down Inspection		Night Time Inspection After Working Hours	
Time of Inspection:		Time of Inspection:	
Signage removed	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required	Arrow boards/VMS operating?	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required
Excavations correctly back filled	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required	Signs & devices positioned and mounted correctly	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required
Driving surfaces adequate	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required	Signs & devices clean and reflective	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required
If excavation backfilling is unsealed, are ROUGH SURFACE signs and	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required	Modifications and/or repairs completed	<input type="checkbox"/> Yes (Give details) <input type="checkbox"/> No / Not Applicable (Give reason)



TRAFFIC MANAGEMENT PLAN

cones in place	<input type="checkbox"/> N/A	<p>Notes:</p> <ol style="list-style-type: none">1. Indicate by placing a tick (✓) in the appropriate box for each item.2. Items requiring modification and/or repair are to be described on the back of this form.3. For all modifications that are different to the basic traffic management plan layout give details of who authorised changes.4. Hand sheets to supervisor / manager at the end of each day.5. When copying, ensure any notes on back of sheet are copied as well. <p>Signed:.....(Supervisor) Signed:.....(Manager) Date:..... Date:.....</p>
All materials removed from medians	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Modifications / Repairs Required	
Modifications and/or repairs completed	<input type="checkbox"/> Yes (Give details) <input type="checkbox"/> No / Not Applicable (Give reason)	



TRAFFIC MANAGEMENT PLAN

WORKSITE TRAFFIC MANAGEMENT AUDIT CHECKLIST – _____

ITEM	Yes	No	IMP	N/A	COMMENT
General					
Copy of Australian Standard 1742.3 on site					
Copy of Traffic Management Requirements document on site					
Copy of the approved Traffic Management Plan on site					
Traffic Control in place in accordance with approved Traffic Control Plan for stage of construction					
If not; have reasons for changes been recorded					
Is Contractor's Works Foreman aware of variations					
Are modifications in accordance with Australian Standard and Traffic Management Requirements					
Have modifications been made following a formal Job Safety Analysis (JSA)					
Are arrangements in place to allow for vehicle breakdown					
Are arrangements in place to allow for emergency vehicle access to the work site and adjacent properties					
Are pavement widths adequate for traffic volumes and type					
Adequate provision have been made for the safe access and egress of construction vehicles and equipment					
Construction vehicles/equipment are not located to create site vision problems or force motorists to undertake illegal manoeuvres e.g. cross over double white lines etc.					
Does the traffic control plan address the needs of major adjacent traffic generators e.g. parking stations and major commercial traffic generators					
Has there been a need to alter the existing pedestrian, cyclists or public transport facilities					
Traffic Controllers on site are qualified					
Traffic control measures have been put in place by qualified traffic personnel.					
Do work methods ensure delays are minimised					
Is the site being monitored daily and records kept as per AS1742.3					
Approaches to Work Site					
Signs and controls have been positioned to provide clear direction on the approach to the worksite					
Horizontal and vertical alignments have been taken into account and traffic control signage meets the safe stopping site distance requirements for the approach speed					



TRAFFIC MANAGEMENT PLAN

ITEM	Yes	No	IMP	N/A	COMMENT
Signs and controls have been placed so that landscaping or other obstruction do not obscure the drivers line of vision to the signs					
The traffic control layout ensures that drivers are able to read the changing road characteristics, visual illusions, subliminal delineation etc. Ensure that traditional characteristics such as lines of trees, lines of poles do not lead drivers to make incorrect decisions in the changed environment.					
Are side roads appropriately signed					
Are speed controls appropriate for the approaching speed environment*					
Are Merging lanes appropriate for the approaching environment: speed, no. of lanes width of merging lanes etc.					
Are pedestrians, cyclists and others adequately catered for on the approaches to the work site. Warning signs, physical obstructions, lighting etc.					
Does lighting complement the approach control measures					
Where variable message signs are used is the message easily understood and unambiguous					
Is the sequencing of the signs in accordance with the Standards					
Are signs spaced in accordance with the approaching speed environment					
Is the size of the lettering on the signage in accordance with the Standards for the approach speed					
Is the size of the signage in accordance with the Standards for the approach speed.					
Does the placement of signage, cones or other temporary device present a hazard to users of the road environment.					
Are signs level					
The layout of road markings and reflective media both on the road and on the surrounds is adequate to deal with the changes in the road environment					
Existing markings have been adequately masked to ensure motorists are not confused on the approach to and through the worksite					
Are portable traffic signals providing adequate traffic flows					
Control at the worksite					
Do speed restrictions adequately cater for the changing nature of the worksite e.g. construction plant and vehicular traffic interacting.					
If barriers have been required to be placed between the construction site and the through traffic, are they of adequate capacity to protect the worksite.					
Are intersections free of sight distance obstructions					



Page 43



TRAFFIC MANAGEMENT PLAN

ITEM	Yes	No	IMP	N/A	COMMENT
Have suitable lamps been used in accordance with the Australian Standard					
Are signs not required for night usage adequately covered or removed and stored.					
Exit from the Worksite					
Have appropriate End Limit/End of Road work signs been erected					
Are drivers adequately guided back to the completed road pavement.					
Are any differences in pavement texture maintained to ensure a safe transition					
Are level differences adequately tapered to ensure a safe transition between the new and old work.					
Traffic Controllers					
Have traffic controllers received the required training					
Are all traffic controllers wearing high visibility vests that are clean, properly secured and well maintained					
Is the Prepare to Stop and Worker Symbol sign in place.					
Are there sufficient numbers of traffic controllers to meet the traffic management needs					
Are stop/slow bats in good condition and easily seen					
Have the traffic controllers positioned themselves in a prominent position for both through traffic and construction traffic					
Is there a suitable safety escape path for the traffic controller					
Can traffic controllers either, easily see each other or have radio contact					
Have the traffic controllers been in position for periods < 2 hours					
Other Observations:					

Date of Audit : Auditor Name :

Auditor's Signature:

Recommended Corrective Actions:



TRAFFIC MANAGEMENT PLAN

12 Traffic Control Diagrams.



TRAFFIC MANAGEMENT PLAN

13 Incident Report.

13.1 Incident Report Form.

Any incident occurring onsite shall be reported using the following incident report format.

Region	Incident Report No.
Contract Number	Contractor

Major Incident Reports must be forwarded to the Superintendent within 48 hours of the incident occurring or becoming apparent.

Contractors shall use this Form for reporting of Traffic incidents on works under Contract and this form supplements the OSH Incident Reporting Form.

1.0 Details of Incident		Reported to:	<input type="checkbox"/> Supervisor	<input type="checkbox"/> TMR	<input type="checkbox"/> Other ---
OSH Incident Report No		Atmospheric Conditions		Light Conditions	
Fatality <input type="checkbox"/>		Clear <input type="checkbox"/>		Day Light	
Injury <input type="checkbox"/>		Overcast <input type="checkbox"/>		Night Time	
Property Damage <input type="checkbox"/>		Raining <input type="checkbox"/>		Dawn/Dusk	
Police Attended Yes/No		Fog/Smoke/Dust <input type="checkbox"/>		Street Lighting	
	Road Surface				
	Unsealed <input type="checkbox"/>				
	Sealed <input type="checkbox"/>				
Time and Date of incident		Road Condition			
	AM / PM	Wet <input type="checkbox"/>		On	
		Dry <input type="checkbox"/>		Off	
	Day Month Year			Not Provided	

Other relevant details, (Last maintenance grade, watering and dust conditions):

2.0 Details of Traffic Management in place:	
TCD No:	Name of individual that prepared the TCD



TRAFFIC MANAGEMENT PLAN

5.0 Attachments:

The following copies **MUST** be submitted with this Incident Report.

Approved TMP ☐

Approved TCP ☐

Approvals for
temporary speed
restrictions ☐

Daily Diary

6.0 Police Report:

Accident reported
to Police:

☐ YES

☐ NO

Report made by

☐
Phone

☐ Fax

☐
Mail
or
E-
mail

Date Report
Made

____ Day ____ Month ____ Year

Police WA
Reference Number

7.0 Details of Person Completing this Incident Form:

Name:

Contractor Name:

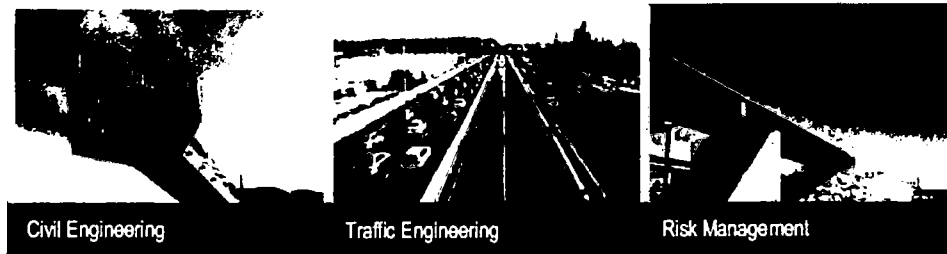
Position:

Date:

Signature:



CONSULTING CIVIL & TRAFFIC ENGINEERS, RISK MANAGERS.



Project:

ROAD SAFETY AUDIT

Intersection of Monash Avenue - Hampden Road,
Nedlands

Client: Brookfield Multiplex

Author: Tony Shaw. BSc Dip Eng Surv Grad Dip Bus MIPWEA RABQSA

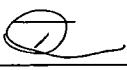
Signature:

Date: 21st January 2011.

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Document Status.

Ver No.	Author	Reviewed by	Date	Issued for	Signature	Date
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CONTENTS.

1. Introduction.....	4
1.1 Project Details.	4
1.2 Site Details.	4
1.3 Road Safety Audit Objectives.	6
1.4 Auditors and Audit Process.....	7
2. Road Safety Audit Findings and Recommendations.	8
2.1 General topics.....	8
2.2 Intersections.....	8
2.3 Special road users.....	10
2.4 Lighting, signs and delineation	11
2.5 Any other matter.....	12
3. Conclusions.....	13
4. Appendix A – Checklists.	14
5. Appendix B - Corrective Action Report.	29
6. Appendix C - Site photographs.....	32

1. Introduction.

This report describes the result of a Road Safety Audit on the proposed modifications to the roundabout at the intersection of Monash Avenue and Hampden Road, Nedlands and changes to the road network servicing Hollywood Hospital.

The audit was commissioned by Brookfield Multiplex, and is intended to comment on road safety in relation to constructed form, sight distances and general road safety in an objective manner. The audit represents a Stage 3 Detailed Design Audit as defined in the Austroads document Guide to Road Safety – Part 6 Road Safety Audit (2009).

The area is in the local government district of the City of Nedlands, Western Australia.

1.1 Project Details.

The northern leg of the roundabout currently forms part of a one way circulating road system within the hospital which provides access to parking areas and site buildings. Currently, one way access into the hospital is provided north from the roundabout with traffic exiting via a “T” intersection on Monash Avenue located approximately 130 metres to the west.

The access roads service staff and visitor car parking areas which provide approximately 650 bays.

The project involves modifying the northern leg of the roundabout to provide two way movements into and out of the Hollywood Hospital site and closing the western egress leg to all but construction traffic. The western leg will also be modified to provide two way movements to and from Monash Avenue. The works are required as part of upgrade building works being undertaken by Brookfield Multiplex.

1.2 Site Details.

The audit site is located as shown on Figure 1. Details of the current layout and the relationship to the hospital are shown on Figure 2.



Consulting Civil and Traffic Engineers, Risk Managers.



Figure 1 - Audit site.

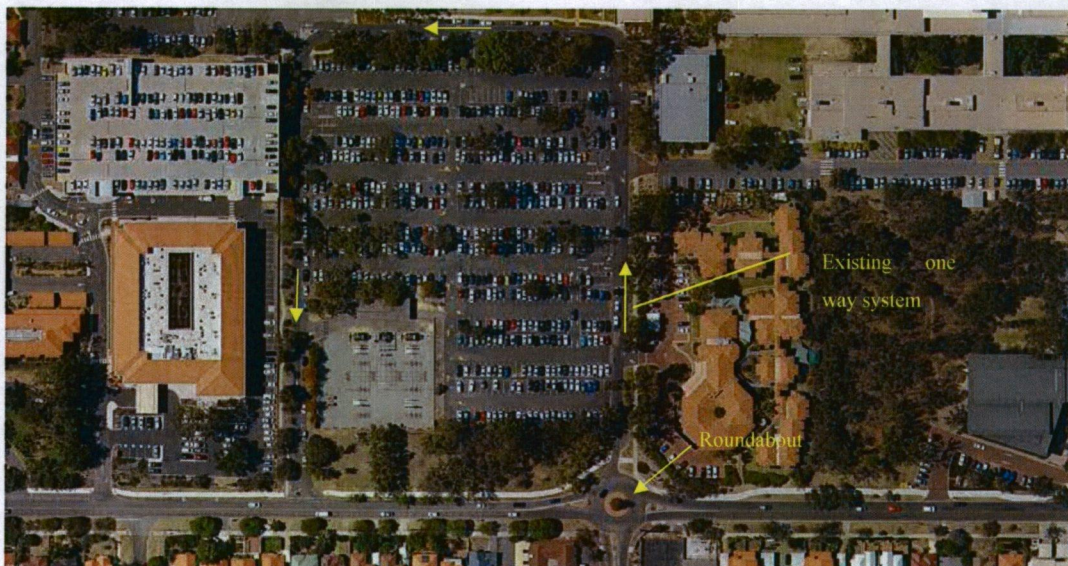


Figure 2 - Site Aerial Photograph.



The audit considered the following design drawings prepared by BG & E Consulting Engineers:

C005	Traffic Management Stage 1 – Proposed Traffic Layout.
C006	Traffic Management Stage 1 – Proposed Signage and Pavement Markings.

Monash Avenue and Hampden Road are both classified as a District Distributor A roads which provide links between Stirling Highway, Winthrop Avenue and Smyth Road to both Hollywood Hospital and QE II Medical Centre. Monash Avenue currently carries in excess of 9,500 vehicles per day (vpd) while Hampden Road carries in excess of 8,000 vpd.

Crash history for the five year period between 2004 and 2009 indicates a total of 13 crashes occurring as summarised below.

Crash Details										
Rear End	Side Swipe	Right Angle	Right Thru	Wet	Night	Ped	Cycle	Truck	Motorcycle	Casualty
4	1	7	0	1	3	0	2*	0	1	3

1.3 Road Safety Audit Objectives.

Road Safety Auditing is a formal examination of a future road or traffic project or an existing road, in which an independent, qualified team reports on the project's crash potential and safety performance.

For a review of a project, the Auditor must have appropriate experience and training and be independent of the road designer so that the features and characteristics of the project can be viewed with 'fresh eyes'.

The purpose of this report is to address any safety concerns or issues identified during the audit process.

In reviewing the safety aspects of a road, the review procedure is not intended to provide a detailed list of remedial actions to be undertaken, but to outline potential safety issues and to establish a basis upon which the road designer can set about developing a program of appropriate countermeasures. The recommendations in this report generally indicate the nature or direction of a solution, rather than specifying the details of how to solve the problem.

The objectives of this Road Safety Audit are: -

- To examine the road design in context with the road environment and form conclusions about the likely safety performance and potential hazard level of the proposed infrastructure.



- To examine the road design in terms of its interaction with connecting and other nearby roads and accesses, and to evaluate points of conflict with road users.
- To report on the conclusions drawn and to make recommendations regarding aspects which involve unnecessary or unreasonable hazards.

Recommendations for corrective action should be considered to determine whether they can and shall be implemented, and where it is decided otherwise, to give reasons in writing for the decision. (See Appendix B for Corrective Action Report).

1.4 Auditors and Audit Process.

This report results from a road safety review of the existing road environment undertaken by a review team comprising: -

Leader: T Shaw, Shawmac Pty. Ltd. (Senior Road Safety Auditor)

Also present was: -

Bob Garton, Shawmac Pty. Ltd. (Senior Road Safety Auditor)

The day audit was carried out fine weather conditions on the 20th January 2011.

2. Road Safety Audit Findings and Recommendations.

2.1 General topics

2.1.1

Landscaping on the northeast corner of the intersection may impact on sight distance for vehicles exiting the modified roundabout.

Recommendation.

Confirm sight distance requirements and if sight distance is affected by vegetation prune or remove the vegetation.

2.1.2

Various services including a high pressure gas main was noted in the area. Failure to protect the services during construction has the potential to introduce risk.

Recommendation.

As part of the detailed design process, all services are to be located and service authorities liaised with regarding protection or relocation of services as required.

2.2 Intersections

2.2.1

Sight distance from Hampden Road to the east along the Monash Avenue approach to the intersection is affected by a large concrete pole located on the south east corner and a screened site fence erected by the builder developing the property on the south east corner of the intersection. Sight distance is estimated at about 25 metres which is less than that required by design guidelines.

Recommendation.

Review the position of the fence and if possible relocate the fence in the vicinity of the corner to improve sight distance. Alternatively remove the screening from the fence.

2.2.2

Drivers using the intersection on a regular basis may not be used to traffic exiting from the north leg and may fail to drive accordingly. This may increase the risk of conflict between traffic on Monash Avenue and traffic exiting the northern leg of the intersection.

Recommendation.

Immediately following the opening of the northern leg, VMS signs should be erected on the Monash Avenue approaches to the intersection alerting drivers to changed traffic conditions. Following a settling in period the VMS signs should be replaced with permanently erected warning signs.

2.2.3

Detailed design of the proposed modifications to the roundabout was not presented for audit. Non compliance with design standards and design guidelines has the potential to introduce unacceptable risk into the road environment.

Recommendation.

Ensure that the detailed design conforms to design guidelines and preferably is verified by an independent verifier.

2.2.4

Hampden Road footpath on the eastern side is closed due to building works and pedestrians are required to cross Hampden Road from the east to the west at the intersection. Sight distance from the crossing point is restricted by the building security fence and screening and pedestrians may have difficulty in sighting traffic turning left from Monash Avenue into Hampden Road.

Recommendation.

Review the position of the fence and if possible relocate the fence in the vicinity of the corner to improve sight distance. Alternatively remove the screening from the fence.

2.3 Special road users

2.3.1

Modifications to the path on the north east corner of the intersection indicate an acute angle between the existing north - south path and the proposed east – west path without provision of a swept radius. Pedestrians are likely to move along the most direct route between the two paths placing them on an unsealed verge.

Recommendation.

Realign the path to provide a less acute angle and connect the two paths with a curved fillet.

2.3.2

Tactile Ground Surface Indicators (TGSI's) are not specified at new pedestrian ramps and have not been provided on some existing ramps. Given the high level of pedestrian activity expected, the lack of TGSI's may increase potential hazards for path users.

Recommendation.

Specify TGSI's at all pedestrian ramps. Additionally, the Local Government should be requested to provide TGSI's on all existing ramps.

2.3.3

The audit indicated a relatively high pedestrian movement across Monash Avenue on the west side of the roundabout. This leg of the intersection does not have pedestrian crossing facilities provided and the pedestrian movement is potentially hazardous.

Recommendation.

The Local Government should provide path connections, ramps and cut through to the existing splitter island to provide for the movement.

2.3.4

A number of trip hazards were noted including displaced pavers, uneven service pits and raised kerbing adjacent to pedestrian areas.

Recommendation.

Trip hazards should be repaired as part of normal periodic maintenance activities.

2.3.5

A large number of cyclists were observed to enter the hospital along the northern leg of the intersection. Currently the lane width is about 4.5 metres which provides for a car and cyclist to share the pavement safely. The proposed modifications will result in two way traffic accommodated in 3.0 metre wide lanes. These lane widths may not safely accommodate a car and cyclist and conflict may result. The provision of cycle facilities along the northern leg of the intersection should be considered as part of the modification works.

Recommendation.

Consideration could be given to widening the existing path on the eastern side of the access road to provide a shared facility.

2.4 Lighting, signs and delineation

2.4.1

No details of lighting modifications are shown. Inadequate lighting or non standard light standards can introduce unacceptable risks into the road environment.

Recommendation.

Ensure all new lighting proposed to be installed complies with the requirements of AS 1158, and all poles are frangible.

2.4.2

A number of non frangible poles and trees are located adjacent to the road edge near the intersection.

Recommendation.

The use of non frangible poles and trees is common in the metropolitan area, and the cost to relocate or replace non frangible poles is likely to be cost prohibitive.



2.5 Any other matter

2.5.1

The construction of the works has the potential to place road users in conflict with construction plant and equipment.

Recommendation.

A detailed Traffic Management Plan should be developed and implemented during construction to manage construction impacts.

2.5.2

The kerbing on the western side of the northern access road immediately north of the intersection is damaged.

Recommendation.

Repair the kerbing.



3. Conclusions.

This road safety audit report contains the findings, opinions and recommendations of the audit team for addressing potential hazards at the audit site.

When considering the implementation of any of the recommendations of this report, the designer should seek appropriate expert advice regarding any technical matters contained in the report both of a general nature and for those in relation to specific issues. The expert advice may be necessary to investigate relevant matters in sufficient detail to determine what action(s), if any, is to be taken.

The specific recommendations outlined in this report are forwarded for consideration.

A handwritten signature in black ink, appearing to be "Tony Shaw", written over a horizontal line.

Team Leader – Tony Shaw, Shawmac Pty. Ltd.

4. Appendix A – Checklists.

Issue	Yes	No	Comment
4.1 General topics			
4.1.1 Changes since previous audit			
Do the conditions for which the scheme was originally designed still apply? (i.e. no significant changes to the surrounding network or area to be served, or traffic mix)			Not applicable.
Has the design of the project remained unchanged since previous audit (if any)?			Not applicable.
4.1.2 Drainage			
Will the new road drain adequately?	✓		Drainage appears to be adequate.
Are the road grades and crossfalls adequate for satisfactory drainage?	✓		No issues identified.
Are flat spots avoided or adequately dealt with at start/end of superelevation?	✓		No issues identified.
Has the possibility of surface flooding been adequately addressed, including overflow from surrounding or intersecting drains and water courses?	✓		No issues identified.
Is gully pit spacing adequate to limit flooding?	✓		No issues identified.
Is pit grate design safe for pedal cycles? (i.e. gaps not parallel with wheel tracks)	✓		No issues identified.
Will footpaths drain adequately?	✓		No issues identified.
4.1.3 Climatic conditions			
Has the design taken into account weather records or local experience which may indicate a particular problem? (for example, snow, ice, wind, fog)	✓		No issues identified.
4.1.4 Landscaping			
Will drivers be able to see pedestrians (and vice versa) past or over the landscaping?		✓	Landscaping on the northeast corner of the intersection may impact on sight distance for vehicles exiting the modified roundabout. Confirm sight distance requirements and if sight distance is affected by vegetation prune or remove the vegetation.
Will intersection sight lines be maintained past or over the landscaping?	✓		No issues identified.
Will safety be adequate with seasonal growth? (for example, no obscuring of signs, shading or light effects, slippery surface, etc.)	✓		No issues identified.
Will roadside safety be adequate when trees or plantings mature (no roadside hazard)?			No issues identified.
Has 'frangible' vegetation been used in possible run-off road areas?			No issues identified.
4.1.5 Services			



Issue	Yes	No	Comment
Does the design adequately deal with buried and overhead services? (especially in regard to overhead clearances, etc.)	✓		Various services including a high pressure gas main was noted in the area. Failure to protect the services during construction has the potential to introduce risk. As part of the detailed design process, all services are to be located and service authorities liaised with regarding protection or relocation of services as required.
Has the location of fixed objects/furniture associated with services been checked? (including any loss of visibility, position of poles, and clearance to overhead wires)	✓		No issues identified.
4.1.6 Access to property and developments			
Can all accesses be used safely?		✓	No issues identified.
Is the design free of any downstream or upstream effects from accesses, particularly near intersections?		✓	No issues identified.
Do rest areas and truck parking area have adequate sight distance at access points?			Not applicable.
4.1.7 Emergencies, breakdowns, emergency and service vehicle access			
Has provision been made for safe access and movements by emergency vehicles?	✓		No issues identified.
Does the design and positioning of medians and vehicle barriers allow emergency vehicles to stop and turn without unnecessarily disrupting traffic?	✓		No issues identified.
Have broken-down vehicles or stopped emergency vehicles been adequately considered?	✓		No issues identified.
Is provision for emergency telephones satisfactory?			Not applicable.
Are median breaks on divided carriageways safely located? (i.e. frequency, visibility)	✓		No issues identified.
4.1.8 Future widening and/or realignments			
If the scheme is only a stage towards a wider or dual carriageway is the design adequate to impart this message to drivers? (is the reliance on signs minimal/appropriate, rather than excessive?)	✓		No issues identified.
Is the transition between single and dual carriageway (either way) handled safely?			Not applicable.
4.1.9 Staging of the scheme			
If the scheme is to be staged or constructed at different times: <ul style="list-style-type: none"> are the construction plans and program arranged to ensure maximum safety? do the construction plans and program include specific safety measures, signing; adequate transitional geometry; etc. for any temporary arrangements? 			Not applicable.
4.1.10 Staging of the work			
If the construction is to be split into several subprojects, is the order safe? (i.e. the stages are not constructed in an order that creates unsafe conditions)			Not applicable.
4.1.11 Adjacent developments			



Issue	Yes	No	Comment
Does the design handle accesses to major adjacent generators of traffic and developments safely?	✓		No issues identified.
Is drivers' perception of the road ahead free of misleading effects of any lighting or traffic signals on an adjacent road?	✓		No issues identified.
Has the need for screening against glare from lighting of adjacent property been adequately considered?	✓		No issues identified.
4.1.12 Stability of cut and fill			
Is the stability of batters satisfactory? (for example, no potential for loose material to affect road users)	✓		No issues identified.
4.1.13 Skid resistance			
Has the need for anti-skid surfacing been considered where braking or good road adhesion is most essential? (for example, on gradients, curves, approaches to intersections and signals)	✓		No issues identified.
4.2 Design issues (general)			
4.2.1 Geometry of horizontal and vertical alignment			
Does the horizontal and vertical design fit together correctly?	✓		No issues identified.
Is the vertical alignment consistent and appropriate throughout?	✓		No issues identified.
Is the horizontal alignment consistent throughout?	✓		No issues identified.
Is the alignment consistent with the function of the road?	✓		No issues identified.
Is the design free of misleading visual cues? (for example, visual illusions, subliminal delineation like lines of poles)	✓		No issues identified.
4.2.2 Typical cross-sections			
Are lane widths, shoulders, medians and other cross-section features adequate for the function of the road?		✓	Lane widths on the modified road layout are shown as 3.0 metres. These widths are considered to be substandard; however given the low speed environment and the temporary nature of the arrangement, the width is considered to be acceptable and risk low enough to be acceptable.
Are the shoulder widths adequate for stationary vehicles and errant vehicles?			Not applicable.
Are median widths adequate for road furniture?			Not applicable.
Is superelevation consistent with the road environment?	✓		No issues identified.
Is the width of traffic lanes and carriageways suitable in relation to: <ul style="list-style-type: none"> alignment? traffic volume? vehicle dimensions? the speed environment? combinations of speed and traffic volume? 	✓		See previous comments.
Are the shoulder crossfalls safe for vehicles to traverse?			Not applicable.
Are batter slopes drivable for cars, trucks?			Not applicable.
Are side slopes under structures appropriate?			Not applicable.
Have adequate facilities been provided for pedestrians and cyclists?	✓		See later comments.



Issue	Yes	No	Comment
4.2.3 Effect of cross-sectional variation			
Is the design free of undesirable variations in cross-section design?	✓		No issues identified.
Are crossfalls safe? (particularly where sections of existing highway have been used, there have been compromises to accommodate accesses, at narrowings at bridges, etc.)	✓		No issues identified.
Are any curves with adverse crossfall within appropriate limits?	✓		No issues identified.
Is superelevation provided and sufficient at all locations where required?	✓		No issues identified.
4.2.4 Roadway layout			
Are all traffic management features designed so as to avoid creating unsafe conditions?			See previous comments regarding this issue.
Is the layout of road markings and reflective materials able to deal satisfactorily with changes in alignment? (particularly where the alignment may be substandard)		✓	See later comments.
Is there adequate provision for overtaking?			Not applicable.
Are overtaking lanes provided where required and safely commenced and ended?			Not applicable.
Are overtaking requirements satisfactory?			Not applicable.
Is the design free of sunrise/sunset problems?	✓		No issues identified.
Have public transport requirements been adequately catered for?	✓		No issues identified.
4.2.5 Shoulders and edge treatment			
Are the shoulders likely to be safe if used by slow moving vehicles or cyclists?			Not applicable.
Are the following safety aspects of shoulder provision satisfactory? <ul style="list-style-type: none"> provision of sealed or unsealed shoulders width and treatment on embankments crossfall of shoulders 			Not applicable.
4.2.6 Effect of departures from standards or guidelines			
Any approved departures from standards or guidelines: is safety maintained?			Not applicable.
Any hitherto undetected departures from standards: is safety maintained?			Not applicable.
4.2.7 Visibility and sight distance			
Are horizontal and vertical alignments consistent with visibility requirements?	✓		No issues identified.
Has an appropriate design speed been selected for visibility requirements?	✓		No issues identified.
4.2.8 Environmental treatments			
Has safety been considered in the location of environmental features? (for example, noise fences)	✓		No issues identified.
4.3 Alignment details			
4.3.1 Visibility; sight distance			



Issue	Yes	No	Comment
Are horizontal and vertical alignments consistent with the visibility requirements?	✓		No issues identified.
Is the design free of sight line obstructions due to <ul style="list-style-type: none"> safety fences or barriers? boundary fences? street furniture? parking facilities? signs? landscaping? bridge abutments? parked vehicles in laybys or at the kerb? queued traffic? 			See later comments regarding this issue.
Are railway crossings, bridges and other hazards all conspicuous?			Not applicable.
Is the design free of any other local features which may affect visibility?	✓		See later comments.
Is the design free of overhead obstructions (for example, road or rail overpasses, sign gantries, overhanging trees) which may limit sight distance at sag curves?			Not applicable.
Has clear headroom or a high vehicle detour been provided where necessary?			Not applicable.
Is visibility adequate at: <ul style="list-style-type: none"> any pedestrian, bicycle or cattle crossings? access roads, driveways, on and off ramps, etc.? 	✓		See later comments.
Has the minimum sight triangle been provided at: <ul style="list-style-type: none"> entry and exit ramps? gore areas? intersections? roundabouts? other conflict points? 	✓		See later comments.
4.3.2 New/existing road interface			
Have implications for safety at the interface been considered?	✓		No issues identified.
Is the transition from old road to the new scheme satisfactory?	✓		No issues identified.
If the existing road is of a lower standard than the new scheme, is there clear and unambiguous warning of the reduction in standard?	✓		No issues identified.
Have the appropriate provisions for safety been made where sudden changes in speed are required?			Not applicable.
Is access or side friction handled safely?	✓		No issues identified.
Does the interface occur well away from any hazard? (for example, a crest, a bend, a roadside hazard or where poor visibility/distractions may occur)	✓		No issues identified.
If carriageway standards differ, is the change effected safely?			Not applicable.



Issue	Yes	No	Comment
Is the transition where the road environment changes (for example, urban to rural; restricted to unrestricted; lit to unlit) done safely?			Not applicable.
Has the need for advance warning been considered?	✓		No issues identified.
4.3.3 Readability of the alignment by drivers			
Will the general layout, function and broad features be recognised by drivers in sufficient time?	✓		No issues identified.
Will approach speeds be suitable and will drivers correctly track through the scheme?	✓		No issues identified.
4.3.4 Detail of geometric design			
Are the design standards appropriate for all the requirements of the scheme?	✓		No issues identified.
Is consistency of general standards and guidelines, such as lane widths and crossfalls, maintained?		✓	See previous comments.
4.3.5 Treatment at bridges and culverts			
Is the geometric transition from the standard cross-section to that on the bridge handled safely?			Not applicable.
4.4 Intersections			
4.4.1 Visibility to and at intersections			
Are horizontal and vertical alignments at the intersection or on the approaches to the intersection consistent with the visibility requirements?	✓		No issues identified.
Is the standard adopted for provision of visibility appropriate for the speed of traffic and for any unusual traffic mix?	✓		No issues identified.
Will the design be free of sight line obstructions due to <ul style="list-style-type: none"> safety fences or barriers? boundary fences? street furniture? parking facilities? signs? landscaping? bridge abutments? parked vehicles in laybys or at the kerb? queued traffic? 		✓	Sight distance from Hampden Road to the east along the Monash Avenue approach to the intersection is affected by a large concrete pole located on the south east corner and a screened site fence erected by the builder developing the property on the south east corner of the intersection. Sight distance is estimated at about 25 metres which is less than that required by design guidelines. Review the position of the fence and if possible relocate the fence in the vicinity of the corner to improve sight distance. Alternatively remove the screening from the fence.
Are railway crossings, bridges and other hazards all conspicuous?			Not applicable.
Is the design free of any other local features which may affect visibility?	✓		No issues identified.
4.4.2 Layout			
Are intersections and accesses adequate for all vehicular movements?	✓		No issues identified.
Have the appropriate design vehicle and check vehicle been used for turning dimensions?	✓		No issues identified.
Are swept paths accommodated for all likely vehicle types? (has the appropriate design vehicle been used?)	✓		No issues identified.

Issue	Yes	No	Comment
Are intersections free of any unusual features which could affect road safety?			See previous comments regarding this issue.
Are pedestrian fences provided where needed? (for example, to guide pedestrians or discourage parking)	✓		No issues identified.
Has pavement anti-skid treatment been provided where needed?	✓		No issues identified.
Have islands and signs been provided where required?	✓		No issues identified.
Vehicles which may park at or close to the intersection: can they do this safely or does this activity need to be relocated?	✓		No issues identified.
Are safety hazards due to parked vehicles avoided?	✓		See previous comments.
4.4.3 Readability by drivers			
Will the existence of the intersection and its general layout, function and broad features be perceived correctly and in adequate time?		✓	<p>Drivers using the intersection on a regular basis may not be used to traffic exiting from the north leg and may fail to drive accordingly. This may increase the risk of conflict between traffic on Monash Avenue and traffic exiting the northern leg of the intersection.</p> <p>Immediately following the opening of the northern leg, VMS signs should be erected on the Monash Avenue approaches to the intersection alerting drivers to changed traffic conditions. Following a settling in period the VMS signs should be replaced with permanently erected warning signs.</p>
Are the approach speeds and likely positions of vehicles tracking through the intersection safe?	✓		No issues identified.
Is the design free of misleading elements?	✓		No issues identified.
Is the design free of sunrise or sunset problems which may create a hazard for motorists?	✓		No issues identified.
4.4.4 Detailed geometric design			
Can the layout safely handle unusual traffic mixes or circumstances?		✓	<p>Detailed design of the proposed modifications to the roundabout was not presented for audit. Non compliance with design standards and design guidelines has the potential to introduce unacceptable risk into the road environment.</p> <p>Ensure that the detailed design conforms to design guidelines and preferably is verified by an independent verifier.</p>
Does any median or any island safely account for: <ul style="list-style-type: none"> vehicle alignments and paths? future traffic signals? pedestrian storage space and surface? turning path clearance? stopping sight distance to the nose? mountability by errant vehicles? 	✓		No issues identified.
Is adequate vertical clearance to structures provided? (for example, powerlines, shop awnings)	✓		No issues identified.
4.4.5 Traffic signals			



Issue	Yes	No	Comment
Is the signal phasing/sequence safe?			Not applicable.
Is adequate time provided for traffic movements and pedestrian movements?			Not applicable.
Will the signal lanterns be visible? (for example, not obstructed by trees, poles, signs or large vehicles)			Not applicable.
Are lanterns for other approach directions adequately shielded from view?			Not applicable.
Are high-intensity signals and/or target boards provided if likely to be affected by sunrise/sunset?			Not applicable.
Does the alignment (vertical and horizontal) provide satisfactory stopping sight distance to the intersection or back of queue?			Not applicable.
Are pedestrian facilities provided where they are required?			Not applicable.
Will approaching drivers be able to see pedestrians?			Not applicable.
Are partially or fully controlled turning phases provided where required?			Not applicable.
Are signal posts located where they are not an undue hazard?			Not applicable.
Are road markings for turning traffic satisfactory?			Not applicable.
Have adequate pedestrian phases been provided?			Not applicable.
4.4.6 Roundabouts			
Is adequate deflection provided to reduce approach speeds?	✓		No issues identified.
If splitter islands are needed, are they adequate for sight distance, length, pedestrian storage, etc.?	✓		No issues identified.
Is the central island prominent?	✓		No issues identified.
Can the appropriate design vehicle and check vehicle be accommodated?	✓		No issues identified.
Are the central island details satisfactory? (delineation, mountability, conspicuousness)	✓		No issues identified.
Can pedestrians be seen by drivers in sufficient time?		✓	Hampden Road footpath on the eastern side is closed due to building works and pedestrians are required to cross Hampden Road from the east to the west at the intersection. Sight distance from the crossing point is restricted by the building security fence and screening and pedestrians may have difficulty in sighting traffic turning left from Monash Avenue into Hampden Road. Review the position of the fence and if possible relocate the fence in the vicinity of the corner to improve sight distance. Alternatively remove the screening from the fence.
Can pedestrians determine whether vehicles are turning? (no obstructions to sight lines)			See previous comments regarding this issue.
Are direction markings in approach lanes provided where required?	✓		No issues identified.
Is the lighting adequate?	✓		No issues identified.
4.4.7 Other intersections			

Issue	Yes	No	Comment
Has the need for kerbed or painted islands and refuges been considered?	✓		No issues identified.
Do intersections have adequate queue length/storage for turning movements (including in the centre of a staggered intersection)?	✓		No issues identified.
4.5 Special road users			
4.5.1 Adjacent land			
Are all accesses to and from adjacent land/properties safe?			See previous comments regarding this issue.
Have the special needs of agriculture and stock movements been considered?			Not applicable.
4.5.2 Pedestrians			
Can pedestrians cross safely at: <ul style="list-style-type: none"> intersections? signalised and pedestrian crossings? refuges? kerb extensions? bridges and culverts? other locations? 		✓	<p>Modifications to the path on the north east corner of the intersection indicate an acute angle between the existing north - south path and the proposed east - west path without provision of a swept radius. Pedestrians are likely to move along the most direct route between the two paths placing them on an unsealed verge.</p> <p>Realign the path to provide a less acute angle and connect the two paths with a curved fillet.</p> <p>Tactile Ground Surface Indicators (TGSIs) are not specified at new pedestrian ramps and have not been provided on some existing ramps. Given the high level of pedestrian activity expected, the lack of TGSIs may increase potential hazards for path users.</p> <p>Specify TGSIs at all pedestrian ramps. Additionally, the Local Government should be requested to provide TGSIs on all existing ramps.</p>
Is each crossing point satisfactory for: <ul style="list-style-type: none"> visibility, for each direction? use by the disabled? use by the elderly? use by children/schools? 	✓		No issues identified.
Is pedestrian fencing on reservations and medians provided where required for each crossing?	✓		No issues identified.
Is fencing adequate on freeways?			Not applicable.
Are pedestrians deterred from crossing roads at unsafe locations?		✓	<p>The audit indicated a relatively high pedestrian movement across Monash Avenue on the west side of the roundabout. This leg of the intersection does not have pedestrian crossing facilities provided and the pedestrian movement is potentially hazardous.</p> <p>The Local Government should provide path connections, ramps and cut through to the existing splitter island to provide for the movement.</p>
Are pedestrian related signs appropriate and adequate?	✓		No issues identified.



Issue	Yes	No	Comment
Is width and gradient of pedestrian paths, crossings, etc. satisfactory?	✓		No issues identified.
Is surfacing of pedestrian paths, crossings, etc. satisfactory?		✓	A number of trip hazards were noted including displaced pavers, uneven service pits and raised kerbing adjacent to pedestrian areas. Trip hazards should be repaired as part of normal periodic maintenance activities.
Have dropped kerbs been provided for each crossing?	✓		No issues identified.
Have channels and gullies been avoided at each crossing?	✓		No issues identified.
Is lighting satisfactory for each crossing?	✓		No issues identified.
Are crossings sited to provide maximum use?		✓	See previous comments regarding this issue.
Is avoidance of a crossing unlikely? (for example, by more direct but less safe alternative)		✓	See previous comments regarding this issue.
4.5.3 Cyclists			
Have the needs of cyclists been considered: <ul style="list-style-type: none"> at intersections (particularly roundabouts)? especially on higher speed roads? on cycle routes and crossings? at freeway entry and exit ramps? 		✓	A large number of cyclists were observed to enter the hospital along the northern leg of the intersection. Currently the lane width is about 4.5 metres which provides for a car and cyclist to share the pavement safely. The proposed modifications will result in two way traffic accommodated in 3.0 metre wide lanes. These lane widths may not safely accommodate a car and cyclist and conflict may result. The provision of cycle facilities along the northern leg of the intersection should be considered as part of the modification works. Consideration could be given to widening the existing path on the eastern side of the access road to provide a shared facility.
Are shared cycleway/footway facilities (including subways and bridges) safe and adequately signed?		✓	See previous comments.
4.5.4 Motorcyclists			
Has the location of devices or objects that might destabilise a motorcycle been avoided on the road surface?	✓		No issues identified.
Is the roadside clear of obstructions where motorcyclists may lean into curves?	✓		No issues identified.
Will warning or delineation be adequate for motorcyclists?	✓		No issues identified.
Has barrier kerb been avoided in high-speed areas?	✓		No issues identified.
In areas more likely to have motorcycles run off the road is the roadside forgiving or safely yielded?	✓		No issues identified.
Are all unnecessary poles, posts and devices removed or appropriately shielded?	✓		No issues identified.
Are drainage pits and culverts traversable by motorcycle?	✓		No issues identified.
4.5.5 Equestrians and stock			
Have the needs of equestrians been considered, including the use of verges or shoulders and rules regarding the use of the carriageway?			Not applicable.
Can underpass facilities be used by equestrians/stock?			Not applicable.



Issue	Yes	No	Comment
4.5.6 Freight			
Have the needs of truck drivers been considered, including turning radii and lane widths?	✓		No issues identified.
Have the needs of freight transport been considered, adequately signed and catered for?	✓		No issues identified.
4.5.7 Public transport			
Have the needs for public transport been considered, adequately signed and catered for?	✓		No issues identified.
Have the needs of public transport users been considered?	✓		No issues identified.
Have the manoeuvring needs of public transport vehicles been considered?	✓		No issues identified.
Are bus stops well positioned for safety?	✓		No issues identified.
4.5.8 Road maintenance vehicles			
Have the needs of road maintenance vehicles been considered, adequately signed and catered for?	✓		No issues identified.
Can maintenance vehicles be safely located?			
4.6 Lighting, signs and delineation			
4.6.1 Lighting			
Has lighting been adequately provided where required?		✓	No details of lighting modifications are shown. Inadequate lighting or non standard light standards can introduce unacceptable risks into the road environment. Ensure all new lighting proposed to be installed complies with the requirements of AS 1158, and all poles are frangible.
Is the design free of features which interrupt illumination? (for example, trees or overbridges)	✓		No issues identified.
Is the design free of lighting poles that would present a fixed roadside hazard?	✓		No issues identified.
Are frangible or slip-base poles to be provided?		✓	A number of non frangible poles are located adjacent to the road edge adjacent to the intersection. The use of non frangible poles is common in the metropolitan area, and the cost to relocate or replace non frangible poles is likely to be cost prohibitive.
Ambient lighting: if it creates special lighting needs, have these been satisfied?	✓		No issues identified.
Is the lighting scheme free of confusing or misleading effects on signals or signs?	✓		No issues identified.
Does the lighting adequately illuminate crossings, nearby paths, refuges, etc.?	✓		No issues identified.
Are all gore areas adequately illuminated?	✓		No issues identified.
Are all merge areas adequately illuminated?	✓		No issues identified.
Is the scheme free of any lighting black patches?	✓		No issues identified.
If there are locations with accident problems that are known to be amenable to treatment with improved lighting, has this lighting been provided?	✓		No issues identified.



Issue	Yes	No	Comment
4.6.2 Signs			
Are signs appropriate for their location?	✓		No issues identified.
Are signs located where they can be seen and read in adequate time?	✓		No issues identified.
Will signs be readily understood?	✓		No issues identified.
Are signs appropriate to the driver's needs? (for example, direction signs, advisory speed signs, etc.)	✓		No issues identified.
Are signs located so that drivers' sight distance is maintained?	✓		No issues identified.
Are signs located so that visibility is maintained: <ul style="list-style-type: none"> to/from accesses and intersecting roads? to/from pedestrians and important features on the road? 			No issues identified.
Have the consequences of vehicles striking signposts been considered?	✓		No issues identified.
Are sign supports out of the clear zone?	✓		No issues identified.
If not, are they: <ul style="list-style-type: none"> frangible? shielded by barriers (e.g. guard fence, crash cushions)? 	✓		No issues identified.
Has an over-reliance on signs (in lieu of adequate geometric design) been avoided?	✓		No issues identified.
Are signs on the new scheme consistent with those on the adjoining section of road (or will the previous signs need to be upgraded)?			No issues identified.
4.6.3 Marking and delineation			
Are markings (lines, arrows, etc.) consistent with standard markings?	✓		No issues identified.
Have any locations where standard markings might be confusing or misread been identified and treated in a way which considers road users' likely responses?	✓		No issues identified.
Are barrier lines (no overtaking) provided where required?	✓		No issues identified.
Are raised retroreflective pavement markers (RRPMs) provided where necessary?			No issues identified.
Are curve warning signs, advisory speed plates or chevron alignment markers provided where required?	✓		No issues identified.
Are markings on the new scheme consistent with those on the adjoining section of road (or will the previous markings need to be upgraded)?	✓		No issues identified.
Are diagonal markings or chevrons painted where required?	✓		No issues identified.
Will markings and delineation be visible at night-time?	✓		No issues identified.
Will markings and delineation be visible in wet weather?	✓		No issues identified.
Has the need for profiled (audible) line marking been considered?	✓		No issues identified.
Have both high and low-beam cases been considered?	✓		No issues identified.
Are guide posts of the frangible type?			Not applicable.
4.7 Physical objects			



Issue	Yes	No	Comment
4.7.1 Median barriers			
Have median barriers been considered and properly detailed?			Not applicable.
Have all design features that require special attention (for example, end treatments) been considered?			Not applicable.
4.7.2 Poles and other obstructions			
Are all poles located well away from moving traffic?	✓		See previous comments regarding this issue.
Have frangible or breakaway poles been included where required?	✓		See previous comments regarding this issue.
Are median widths adequate to accommodate lighting poles or trees?	✓		No issues identified.
Is the position of traffic signal controllers and other service apparatus satisfactory?	✓		No issues identified.
Is the roadside clear of any other obstructions that may create a safety hazard?	✓		No issues identified.
Have all necessary measures been taken to remove, relocate or shield all hazards?			See previous comments regarding this issue.
Can roadside drains and channels be safely traversed by any vehicle that runs off the road?	✓		No issues identified.
4.7.3 Crash barriers			
Are crash barriers provided where necessary and properly detailed? (for example, at embankments, structures, trees, poles, drainage channels, bridge piers, gore areas)			Not applicable.
Is the crash barrier safe? (i.e. unlikely to create a danger for road users including pedestrians, cyclists, motorcyclists, etc.)			Not applicable.
Are the end conditions of the crash barrier safe and satisfactory?			Not applicable.
Is the guard fence designed according to standards for: <ul style="list-style-type: none">▪ end treatments?▪ anchorages?▪ post spacing?▪ block outs?▪ post depth?▪ rail overlap?▪ stiffening at rigid obstacles?			Not applicable.
Is all guard fence necessary? (i.e. what it shields is a greater hazard than the fence)			Not applicable.
Where pedestrians and cyclists travel behind guard fence, is the rear of the fence safe for them?			Not applicable.
4.7.4 Bridges, culverts and causeways/floodways			



Issue	Yes	No	Comment
Are bridge barriers and culvert end walls safe regarding: <ul style="list-style-type: none"> visibility? ease of recognition? proximity to moving traffic? the possibility of causing injury or damage? collapsible or frangible ends? signs and markings? connection of crash barriers? roadside hazard protection? 			Not applicable.
Is the bridge railing at the correct level and strong enough?			Not applicable.
Is the shoulder width on the bridge the same as on the adjacent road lengths?			Not applicable.
Is safe provision made for non-vehicular traffic over structures? (for example, pedestrians, pedal cycles, horses/stock, etc)			Not applicable.
Are all culvert end walls (including driveway culverts) drivable or outside the clear zone?			Not applicable.
Have causeways/floodways etc. been given correct signing and adequate sight distance?			Not applicable.
4.8 Additional questions to be considered for development proposals			
4.8.1 Horizontal alignment			
Is visibility adequate for drivers and pedestrians at proposed accesses?			Not applicable.
Is adequate turning space provided for the volume and speed of traffic?			Not applicable.
Are curve radii and forward visibility satisfactory?			Not applicable.
Are sight and stopping distances adequate?			Not applicable.
4.8.2 Vertical alignment			
Are gradients satisfactory?			Not applicable.
Are sight and stopping distances adequate?			Not applicable.
4.8.3 Parking provision			
Is on-site parking adequate to avoid on-street parking and associated risks?			Not applicable.
Are parking areas conveniently located?			Not applicable.
Is adequate space provided in parking areas for circulation and intersection sight distance?			Not applicable.
4.8.4 Servicing facilities			
Are off-street loading/unloading areas adequate?			Not applicable.
Are turning facilities for large vehicles provided in safe locations?			Not applicable.
Is emergency vehicle access adequate?			Not applicable.
4.8.5 Signs and markings			
Have necessary traffic signs and road markings been provided as part of a development?			Not applicable.



Issue	Yes	No	Comment
Is priority clearly defined at all the intersection points within the car park and access routes?			Not applicable.
Will the signs and markings be clear in all conditions, including day/night, rain, fog, etc.?			Not applicable.
4.8.6 Landscaping			
Does landscaping maintain visibility at intersections, bends, accesses and pedestrian locations?			Not applicable.
Has tree planting been avoided where vehicles are likely to run off the road?			Not applicable.
4.8.7 Traffic management			
Have any adverse area-wide effects been addressed?			Not applicable.
Will the design keep travel speeds at a safe level?			Not applicable.
Are the number and location of accesses appropriate?			Not applicable.
Are the facilities for public transport services safely located?			Not applicable.
Are any bicycle facilities safely located in respect of vehicular movements?			Not applicable.
Are pedestrian facilities adequate and safely located?			Not applicable.
4.8.8 Other			
Has appropriate street lighting been provided?			Not applicable.
Are all roadside hazards appropriately dealt with?			Not applicable.
Has safe pedestrian access to the development been provided?			Not applicable.
4.9 Any other matter			
Safety aspects not already covered			
Is the road able to safely handle oversize vehicles, or large vehicles like trucks, buses, emergency vehicles, road maintenance vehicles?	✓		No issues identified.
If required, can the road be closed for special events in a safe manner?	✓		No issues identified.
If applicable, are special requirements of scenic or tourist routes satisfied?	✓		No issues identified.
Have all unusual or hazardous conditions associated with special events been considered?	✓		No issues identified.
Have all other matters which may have a bearing on safety been addressed?	✓		<p>The construction of the works has the potential to place road users in conflict with construction plant and equipment.</p> <p>A detailed Traffic Management Plan should be developed and implemented during construction to manage construction impacts.</p> <p>The kerbing on the western side of the northern access road immediately north of the intersection is damaged.</p> <p>Repair the kerbing.</p>



5. Appendix B – Corrective Action Report.

Ref.	Finding.	Recommendation.	Agree / Disagree.	Comment.
2.1.1	Landscaping on the northeast corner of the intersection may impact on sight distance for vehicles exiting the modified roundabout.	Confirm sight distance requirements and if sight distance is affected by vegetation prune or remove the vegetation.		
2.1.2	Various services including a high pressure gas main was noted in the area. Failure to protect the services during construction has the potential to introduce risk.	As part of the detailed design process, all services are to be located and service authorities liaised with regarding protection or relocation of services as required.		
2.2.1	Sight distance from Hampden Road to the east along the Monash Avenue approach to the intersection is affected by a large concrete pole located on the south east corner and a screened site fence erected by the builder developing the property on the south east corner of the intersection. Sight distance is estimated at about 25 metres which is less than that required by design guidelines.	Review the position of the fence and if possible relocate the fence in the vicinity of the corner to improve sight distance. Alternatively remove the screening from the fence.		
2.2.2	Drivers using the intersection on a regular basis may not be used to traffic exiting from the north leg and may fail to drive accordingly. This may increase the risk of conflict between traffic on Monash Avenue and traffic exiting the northern leg of the intersection.	Immediately following the opening of the northern leg, VMS signs should be erected on the Monash Avenue approaches to the intersection alerting drivers to changed traffic conditions. Following a settling in period the VMS signs should be replaced with permanently erected warning signs.		
2.2.3	Detailed design of the proposed modifications to the roundabout was not presented for audit. Non compliance with design standards and design guidelines has the potential to introduce unacceptable risk into the road environment.	Ensure that the detailed design conforms to design guidelines and preferably is verified by an independent verifier.		

Ref.	Finding.	Recommendation.	Agree / Disagree.	Comment.
2.2.4	Hampden Road footpath on the eastern side is closed due to building works and pedestrians are required to cross Hampden Road from the east to the west at the intersection. Sight distance from the crossing point is restricted by the building security fence and screening and pedestrians may have difficulty in sighting traffic turning left from Monash Avenue into Hampden Road.	Review the position of the fence and if possible relocate the fence in the vicinity of the corner to improve sight distance. Alternatively remove the screening from the fence.		
2.3.1	Modifications to the path on the north east corner of the intersection indicate an acute angle between the existing north - south path and the proposed east - west path without provision of a swept radius. Pedestrians are likely to move along the most direct route between the two paths placing them on an unsealed verge.	Realign the path to provide a less acute angle and connect the two paths with a curved fillet.		
2.3.2	Tactile Ground Surface Indicators (TGSI's) are not specified at new pedestrian ramps and have not been provided on some existing ramps. Given the high level of pedestrian activity expected, the lack of TGSI's may increase potential hazards for path users.	Specify TGSI's at all pedestrian ramps. Additionally, the Local Government should be requested to provide TGSI's on all existing ramps.		
2.3.3	The audit indicated a relatively high pedestrian movement across Monash Avenue on the west side of the roundabout. This leg of the intersection does not have pedestrian crossing facilities provided and the pedestrian movement is potentially hazardous.	The Local Government should provide path connections, ramps and cut through to the existing splitter island to provide for the movement.		
2.3.4	A number of trip hazards were noted including displaced pavers, uneven service pits and raised kerbing adjacent to pedestrian areas.	Trip hazards should be repaired as part of normal periodic maintenance activities.		

Ref.	Finding.	Recommendation.	Agree / Disagree.	Comment.
2.3.5	A large number of cyclists were observed to enter the hospital along the northern leg of the intersection. Currently the lane width is about 4.5 metres which provides for a car and cyclist to share the pavement safely. The proposed modifications will result in two way traffic accommodated in 3.0 metre wide lanes. These lane widths may not safely accommodate a car and cyclist and conflict may result. The provision of cycle facilities along the northern leg of the intersection should be considered as part of the modification works.	Consideration could be given to widening the existing path on the eastern side of the access road to provide a shared facility.		
2.4.1	No details of lighting modifications are shown. Inadequate lighting or non standard light standards can introduce unacceptable risks into the road environment.	Ensure all new lighting proposed to be installed complies with the requirements of AS 1158, and all poles are frangible.		
2.4.2	A number of non frangible poles are located adjacent to the road edge adjacent to the intersection.	The use of non frangible poles is common in the metropolitan area, and the cost to relocate or replace non frangible poles is likely to be cost prohibitive.		
2.5.1	The construction of the works has the potential to place road users in conflict with construction plant and equipment.	A detailed Traffic Management Plan should be developed and implemented during construction to manage construction impacts.		
2.5.2	The kerbing on the western side of the northern access road immediately north of the intersection is damaged.	Repair the kerbing.		

6. Appendix C – Site photographs.

	<p>Existing intersection looking south from the hospital access road.</p>
	<p>Existing access road indicating damaged kerbing.</p>



Sight distance obstruction on the south east corner.



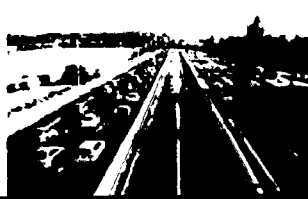
Indication of pedestrian traffic across Monash Avenue west of Hampden Road.



CONSULTING CIVIL & TRAFFIC ENGINEERS, RISK MANAGERS.



Civil Engineering



Traffic Engineering



Risk Management

Project:

MODIFIED INTERSECTION PERFORMANCE

Intersection of Monash Avenue – Hampden Road,
Nedlands

Client:

Brookfield Multiplex

Author:

Tony Shaw. BSc Dip Eng Surv Grad Dip Bus MIPWEA RABQSA

Signature:

Date:

21st January 2011.

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CONTENTS

1. Introduction	4
2. Details.....	4
3. Discussion	6

1. Introduction

Brookfield Multiplex propose to modify the existing roundabout at the intersection of Monash Avenue and Hampden Road so as to permit exit movements from the northern intersection leg which currently forms part of a one way entry only circulating road system within the hospital.

Currently, one way access into the hospital is provided north from the roundabout with traffic exiting via a "T" intersection on Monash Avenue located approximately 130 metres to the west.

The access roads service staff and visitor car parking areas which provide approximately 650 bays.

The project involves modifying the northern leg of the roundabout to provide two way movements into and out of the Hollywood Hospital site and closing the western egress leg to all but construction traffic. The western leg will also be modified to provide two way movements to and from Monash Avenue. The works are required as part of upgrade building works being undertaken by Brookfield Multiplex.

In order to assess the acceptability or otherwise of the proposal, traffic movements on Monash Avenue, Hampden Road and the existing entry and exit access roads were surveyed on Thursday the 20th January, and the performance of the intersection modelled using Sidra Intersection software.

The results of the modelling are shown in the following section.

2. Details

Traffic movements recorded between 7:00 AM and 5:00 PM were used to identify the morning and evening peaks and were used to define existing turning movements shown on Figure 1.

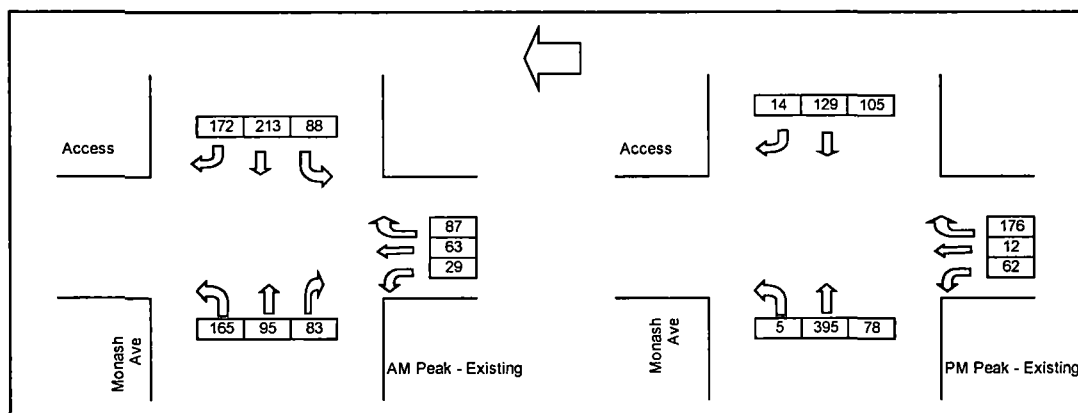


Figure 1. Existing turning Movements – Monash Ave – Hampden Rd.

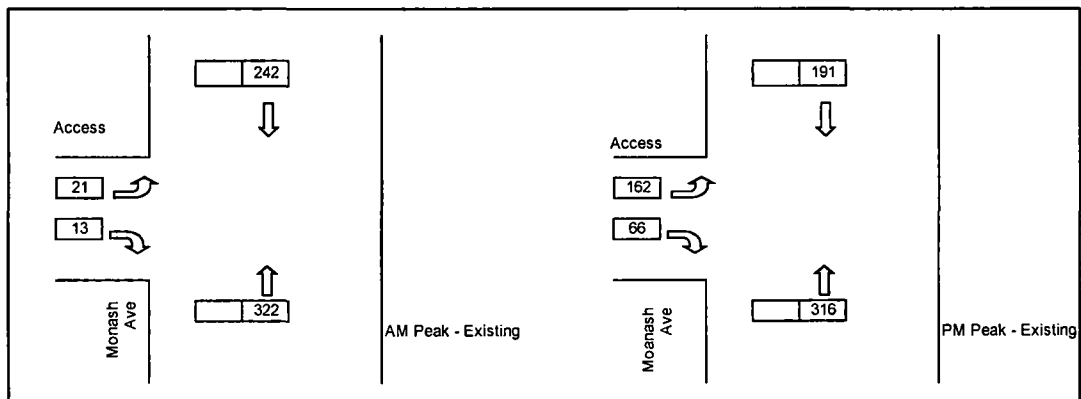


Figure 2. Existing turning Movements – Monash Ave – Exit Road.

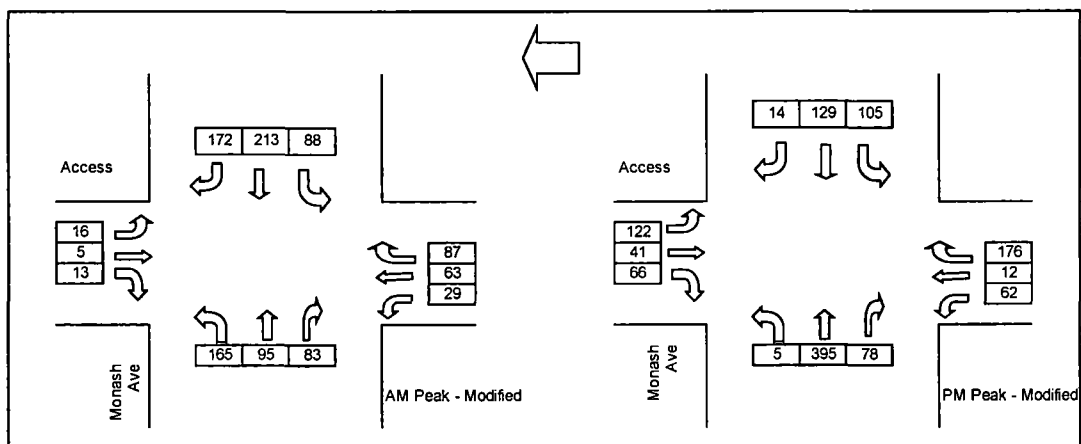


Figure 3. Modified Turning Movements – Monash Ave – Hampden Rd.

The modified flows were modelled using Sidra Intersection software and gave the following results.

Movement Performance - Vehicles											
Mov #1	Turn	Demand Flow veh/h	HV %	Prog Turn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicle per veh	Distance m	Prop Queue	L/R Queue Stop Rate per veh	Average Speed km/h
South, Hampden Road											
1	L	31	0.0	0.201	9.5	LOS A	1.3	9.2	0.54	0.71	47.3
2	T	68	0.0	0.201	8.5	LOS A	1.3	9.2	0.54	0.68	47.4
3	R	87	0.0	0.201	13.1	LOS B	1.3	9.2	0.54	0.80	44.7
Approach		108	0.0	0.201	10.0	LOS B	1.3	9.2	0.54	0.73	46.0
East, Monash Avenue											
4	L	83	0.0	0.384	7.9	LOS A	3.1	21.4	0.33	0.50	40.3
5	T	224	0.0	0.385	7.0	LOS A	3.1	21.4	0.33	0.52	43.0
6	R	161	0.0	0.384	11.5	LOS B	3.1	21.4	0.33	0.73	45.8
Approach		468	0.0	0.384	8.8	LOS B	3.1	21.4	0.33	0.61	47.0
North, Access Road											
7	L	17	0.0	0.038	9.0	LOS A	0.3	1.9	0.50	0.59	47.4
8	T	5	0.0	0.038	8.3	LOS A	0.3	1.9	0.50	0.55	47.0
9	R	14	0.0	0.038	12.8	LOS B	0.3	1.9	0.50	0.70	45.9
Approach		36	0.0	0.038	10.3	LOS B	0.3	1.9	0.50	0.63	46.5
West, Monash Avenue											
10	L	174	0.0	0.300	9.3	LOS A	2.6	18.1	0.54	0.71	47.3
11	T	100	0.0	0.301	8.4	LOS A	2.6	18.1	0.54	0.66	47.4
12	R	87	0.0	0.301	12.9	LOS B	2.6	18.1	0.54	0.80	44.0
Approach		361	0.0	0.301	9.9	LOS B	2.6	18.1	0.54	0.72	46.7
All Vehicles		1083	0.0	0.384	9.6	LOS A	3.1	21.4	0.44	0.67	47.0

Figure 4. Modified Roundabout Performance – AM Peak.



Movement Performance - Vehicles											
Mov ID	Turn	Demand flow veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Proportion Outbound	Effective Stop Head per veh	Average Speed km/h
South Hampden Road											
1	L	65	0.0	0.240	8.4	LOS A	1.6	10.9	0.40	0.62	47.8
2	T	13	0.0	0.238	7.5	LOS A	1.6	10.9	0.40	0.56	40.1
3	R	185	0.0	0.240	12.0	LOS B	1.6	10.9	0.40	0.72	45.2
Approach		263	0.0	0.240	10.0	LOS B	1.6	10.9	0.40	0.69	45.9
East Monash Avenue											
4	L	111	0.0	0.235	8.3	LOS A	1.6	11.1	0.39	0.64	49.1
5	T	136	0.0	0.235	7.4	LOS A	1.6	11.1	0.39	0.57	49.5
6	R	15	0.0	0.234	11.9	LOS B	1.6	11.1	0.39	0.77	45.8
Approach		261	0.0	0.235	8.0	LOS B	1.6	11.1	0.39	0.61	48.2
North Access Road											
7	L	128	0.0	0.380	13.8	LOS B	3.3	23.0	0.85	0.69	43.3
8	T	43	0.0	0.379	13.1	LOS B	3.3	23.0	0.85	0.67	43.5
9	R	69	0.0	0.380	17.6	LOS B	3.3	23.0	0.85	0.92	41.2
Approach		241	0.0	0.380	14.0	LOS B	3.3	23.0	0.85	0.79	42.7
West Monash Avenue											
10	L	5	0.0	0.439	8.6	LOS A	3.5	24.8	0.48	0.67	47.8
11	T	410	0.0	0.440	7.7	LOS A	3.5	24.8	0.48	0.61	48.0
12	R	82	0.0	0.441	12.2	LOS B	3.5	24.8	0.48	0.79	45.8
Approach		503	0.0	0.440	8.5	LOS B	3.5	24.8	0.48	0.64	47.6
All Vehicles		1280	0.0	0.440	10.1	LOS B	3.5	24.8	0.52	0.69	46.4

Figure 5. Modified Roundabout Performance – PM Peak.

3. Discussion

Modelling indicates that in its modified form, the roundabout is predicted to operate satisfactorily in both the AM and PM peak periods.

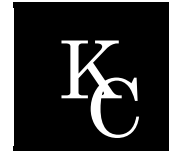
Level of Service (LOS) during both peaks is predicted to be very good with overall intersection LOS predicted to be “A” in the morning and “B” in the evening. No movement has a LOS greater than “B”.

Maximum queue length is predicted to be 4 vehicles with delays not predicted to exceed 18 seconds.

At all times the degree of saturation is estimated to be less than 0.5 indicating ample spare capacity.

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***QEII Hollywood Hospital,
NEDLANDS***

***Report on Traffic Management Plan
Road Safety Audit & Intersection Performance***

***Modified Monash Avenue/Hampden Road
intersection, Caladenia Crescent East and Caladenia
Crescent West.***

February 19, 2011.

- Appendix "A". Aerial Photograph of site
- Appendix "B" Plans for separation of Construction traffic and General Public & Hospital traffic.
- Appendix "C" Road Safety Audit – Corrective Action Report.
- Appendix "D" Photographs

1.0 Proposed Works

This report, prepared for the City of Nedlands evaluates the following three (3) reports prepared by SHAWMAC, Consulting Civil and Traffic Engineers & Risk Managers for the works associated with the construction of the Central Energy Plant within the Queen Elizabeth II Hospital grounds.

1. Traffic Management Plan to facilitate the movement of Construction vehicles into and out of the site.
2. Road Safety Audit of the proposed modifications to the Monash Avenue/Hampden Road Intersection Roundabout.
3. Modified Intersection Performance - Monash Avenue/Hampden Road Intersection Roundabout.

To construct the Central Energy Plant for the Hollywood Hospital, Brookfield Multiplex proposes to segregate “construction” traffic and “general public” traffic accessing the site from Monash Avenue. The proposal is to restrict the traffic using Caladenia Crescent-West to vehicles involved with the construction works only. It is also proposed to modify the roundabout at the Monash Avenue/Hampden Road/Caladenia Crescent-East intersection to permit two-way traffic movement to enter/exit from the north into Monash Avenue.

The works associated with the Central Energy Plant will be undertaken over a two year period, the road modifications will remain in operation for the duration of the project.

2.0 Traffic Management Plan

The proposed separation of the Construction traffic and the General Public & Hospital traffic is shown in Drawing No. C 005 and the proposed signs to be erected on both, Caladenia Crescent West and Caladenia Crescent East are shown in Drawing No. C 006, contained in Appendix “B”.

To facilitate the construction of the central energy plant, it is proposed to:-

1. Modify the northern leg of the roundabout at Hampden Road to provide two-way traffic movements into and out of the Hollywood Hospital site.
2. Modify the eastern leg of Caladenia Crescent to provide two-way traffic movements into and from Monash Avenue for the general public and Hospital staff.
3. Modify the western leg of Caladenia Crescent to provide two-way traffic movements into and from Monash Avenue for construction traffic only.
4. Maintaining access to the child-care centre “drop-off/pick-up” area via the eastern leg of Caladenia Crescent.
5. Construction of the service tunnel under the northern leg and across the eastern leg of Caladenia Crescent.

In section 2.1 of the Traffic Management Plan reference is made to the erection of Variable Message Sign boards (VMS). Details of the messages being displayed on the two screens of the VMS erected in Monash Avenue, east and west of the roundabout are shown in Drawing No. C006 contained in Appendix “B”.

In Section 1.2 of the Traffic Management Plan reference is made to the traffic control layout for the worksite and reference is made to Traffic Control Diagrams (TCPs) included in Section 12.0 of the Traffic Management Plan (TMP). There are no Traffic Control Diagrams included in Section 12.0 of the TMP.

2.1 Traffic Management for Roadworks

Road plant associated with the road construction/modification works should be segregated from vehicular traffic and other road users (cyclists, pedestrians). This will require the implementation of a Traffic Management Plan where signs and traffic control devices are installed to warn, inform and guide road users through and past the work site. Alternatively, the sections of “private” roads could be closed to all traffic (vehicles and pedestrians) to permit the road works to proceed unimpeded.

1. **Modifications to the road pavement to the northern leg of the roundabout at Hampden Road to provide two-way traffic movements into and out of the Hollywood Hospital site will require the following works:-**
 - Removing the existing kerbing and constructing new road pavement to accommodate the two-way traffic flows.
 - Constructing new road pavement at the roundabout to enable vehicles to exit into Monash Avenue.
2. **Modifications to the eastern leg of Caladenia Crescent, to provide two-way traffic movements into and from Monash Avenue for the general public and Hospital staff will require the following works:-**
 - Removal of the pavement markings for the existing kerbside parking bays.
 - Installing centre line pavement markings and directional pavement arrows.
3. **Modification to the western leg of Caladenia Crescent to provide two-way traffic movements into and from Monash Avenue for construction traffic only will require the following works:-**
 - Constructing the road pavement and kerbing to accommodate a larger turning radius for the south-western corner at Monash Avenue.
 - Removal of the pavement markings for the existing kerbside parking bays.
 - Installing centre line pavement markings and directional pavement arrows.
4. **Maintaining access to the child-care centre “drop-off and pick-up” area via the eastern leg of Caladenia Crescent will require the following works:-**
 - Removal of the pavement markings for the existing kerbside parking bays.
 - Installing centre line pavement markings and directional pavement arrows.
 - Installation of traffic barriers and fencing to Construction Site.
 - Installation of pavement markings for the “pick-up and drop-off” zone.
5. **Construction of the service tunnel under the northern leg and across the eastern leg of Caladenia Crescent will require the following works:-**
 - The sections of “private” roads should be closed to all traffic (vehicles and pedestrians) to permit the construction of the service tunnel (if it is to be undertaken as “cut and cover” construction) to proceed unimpeded.

2.2 Traffic Management for Monash Avenue/ Caladenia Crescent West.

The construction the road pavement and kerbing to accommodate a larger turning radius for the south-western corner at Monash Avenue will require traffic management to accommodate work vehicles and plant for the excavation, pavement and kerbing construction while maintaining the movement of public traffic (vehicles, cyclists and pedestrians) on the road.

3.0 Road Safety Audit - Monash Avenue/Hampden Road Intersection Roundabout.

The Road Safety Audit undertaken for the preliminary design of the Monash Avenue/Hampden Road roundabout has identified features of the design that will require modifications or changes to enhance the safety of the project. The “Corrective Action Report”, contained in Appendix “C”, from the Road Safety Audit identifies 15 issues that are required to be addressed. Some of the issues relate to the design of the proposed roundabout and can be resolved by the incorporation of the changes in the detailed design of the roundabout. Others are “existing” deficiencies of the roads that should be referred to the QEII Hollywood Hospital for remedial action, as these areas are within their jurisdiction.

In summary:-

Items relating to the proposed Detailed Design of the Roundabout should be referred to Brookfield Multiplex for attention. These include:-

Item No. 2.1.1, relating to the sight distance obstructed by vegetation on the north-eastern corner of the Monash Avenue/Hampden Road intersection. See Photograph No. 2.

Item No. 2.1.2, relating to the “protection” or possible relocation of underground services for the construction of the roundabout.

Item No. 2.2.2, relating to the use of Variable Message Signs to provide warning to drivers of the changed conditions at the intersection.

Item 2.2.3, relating to the design of the roundabout complying with the relevant (Austroads) design guidelines should be addressed as part of the Detailed Design of the Roundabout to be verified by an independent verifier.

Item No. 2.3.1, relating to the alignment of the footpath on the north-eastern corner (See Photograph No. 3) should be addressed as part of the Detailed Design of the Roundabout.

Item 2.3.2, relating to the provision of Tactile Ground Surface Indicators at the kerb-ramps at pedestrian crossings should be addressed as part of the Detailed Design of the Roundabout.

Item 2.3.3, relating to the provision of footpath connections, ramps and cut-throughs at pedestrian crossings should be addressed as part of the Detailed Design of the Roundabout.

Item 2.5.1, relating to Construction Plant and vehicles conflicting with public traffic should be referred to Brookfield Multiplex to implement a Traffic Management Plan to address the potential vehicle conflicts.

Items relating to “existing conditions” identified in the Road Safety Audit Report should be referred to the relevant Authority for remedial attention. These include:

Item No. 2.2.1, relating to temporary fencing on the south-eastern corner of Monash Avenue/Hampden Road obscuring sight lines (See Photograph No. 4), should be referred to the City of Subiaco for necessary action.

Item No. 2.3.4, relating to trip hazards involving service pits or uneven pavers to be addressed by the Cities of Nedlands and Subiaco (where appropriate).

Item No. 2.2.4, relating to temporary fencing on the south-eastern corner of Monash Avenue/Hampden Road obscuring sight lines for pedestrians crossing Hampden Road (See Photograph No. 4), should be referred to the City of Subiaco for necessary action.

Item No. 2.3.5, relating to the provision of facilities for cyclists (either on-road or off-road) to be addressed by the Cities of Nedlands and Subiaco (where appropriate).

Item No. 2.4.1, relating to illumination levels from the street lighting to be addressed by the Cities of Nedlands and Subiaco (where appropriate).

Item No. 2.4.2, relating to the retention of the non-frangible poles adjacent to the road edge to be addressed by the Cities of Nedlands and Subiaco (where appropriate).

Item No. 2.5.2, relating to damaged kerbing along the western side of Caladenia Crescent East should be referred the Administration of the QEII Hospital for necessary attention.

4.0 Modified Intersection performance Monash Avenue/Hampden Road Intersection.

The performance in terms of Levels of Service (LoS) have been analysed for the “proposed” configuration of the Monash Avenue/Hampden Road intersection, featuring both, entry and exit from the QEII Hospital into Monash Avenue. Turning vehicle counts for the morning and evening peak hours (conducted on January 20, 2011) were used in the analysis. The number of vehicles exiting the QEII Hospital site from Caladenia Crescent West was transferred to the northern leg of the proposed roundabout at the Monash Avenue/Hampden Road intersection. SIDRA analysis of the intersection performance for the proposed roundabout predicted that the intersection will operate satisfactorily during the morning and evening peak hours.

The Levels of Service (LoS) for all approaches were assessed to operate at a Level of Service “B” (worst case scenario) for the morning and evening peak hours. In each case, the “through” and left-turn movements were assessed to operate at a level of Service “A”, with the right-turn movement assessed to operate at a Level of Service “B”. The maximum vehicle queue length for any approach was not more than 4 vehicles, with delays predicted not to exceed 18 seconds.

5.0 Modified Intersection performance Caladenia Crescent West/Monash Avenue.

There was **no analysis undertaken** for the performance of the Caladenia Crescent West/Monash Avenue intersection. Currently all vehicles leaving the QEII Hospital site have to “Give Way” to all traffic travelling on Monash Avenue, as such, there will not be any reduction in Levels of Service or delays for the vehicles travelling in Monash Avenue.

With the proposed changes to the traffic movements, Construction Vehicles and personnel will be making the left and right turns from Monash Avenue into Caladenia Crescent West. The numbers of vehicles making these movements and the time of day when this will occur have not been specified. Drivers of vehicles in Monash Avenue, making the right turn into Caladenia Crescent West will have to queue in Monash Avenue until an acceptable gap occurs in the eastbound traffic flow to make the right-turn. The number of vehicles making this right-turn movement conflicting with the eastbound traffic in Monash Avenue will determine the vehicle queue length.

6.0 Conclusion.

Any road works being undertaken on Monash Avenue will require the approval of the City of Nedlands which has care, control and management of the road reserve. The construction the road pavement and kerbing to accommodate a larger turning radius for the south-western corner at Monash Avenue will require traffic management to accommodate work vehicles and plant for the excavation, pavement and kerbing construction.

As some of the Road Safety Audit recommendations relate to the south side of Monash Avenue, these issues should be resolved in consultation with the City of Subiaco. The majority of the Road Safety Audit Findings and recommendations relate to the preliminary design of the proposed “full movement” around the Monash Avenue/Hampden Road roundabout which should be addressed and resolved by the proponent (Brookfield Multiplex) in the preparation of the “Detailed Design” and subsequent construction of the roundabout.

It should be noted that the proposal is for the modifications to the roundabout at the Monash Avenue/Hampden Road intersection to remain for the period of two years when the project involving the construction of the central energy plant for the QEII Hollywood Hospital is being undertaken. It should be noted that the modified road treatments, as proposed, will result in the loss of several car parking bays on Caladenia Crescent East and Caladenia Crescent West. The retention of the modified infrastructure or modifying the road geometry back to the “existing” layout should be discussed and resolved.

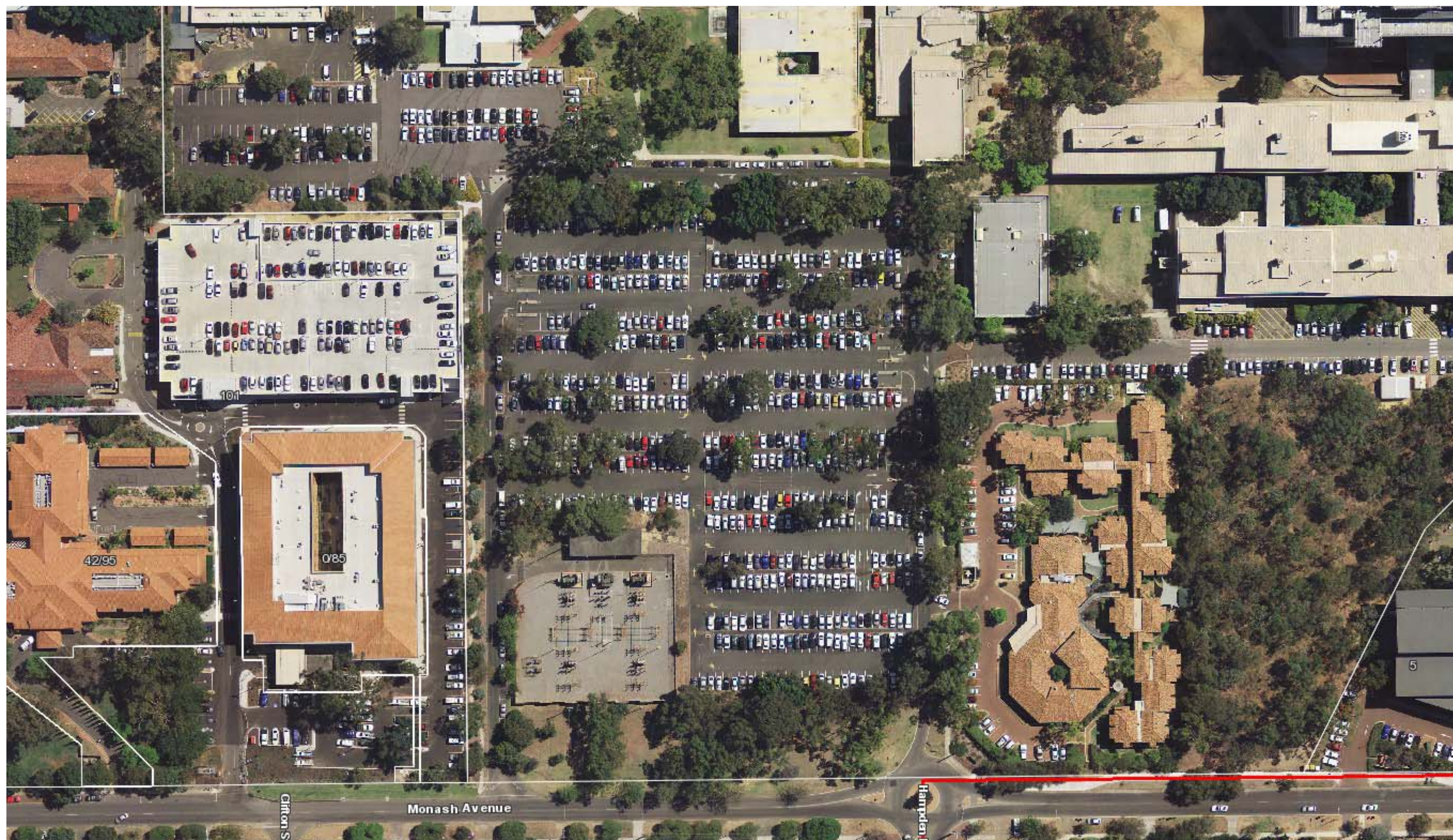
It is recommended that a meeting between the Project Managers for the Central Energy Plant and Council Officers be convened so that the full implications of the proposal could be discussed and resolved. This will identify the additional work necessary and outline the conditions to be satisfied prior to approval for the works could be granted.



Michael Klyne
Klyne Consultants Pty Ltd.

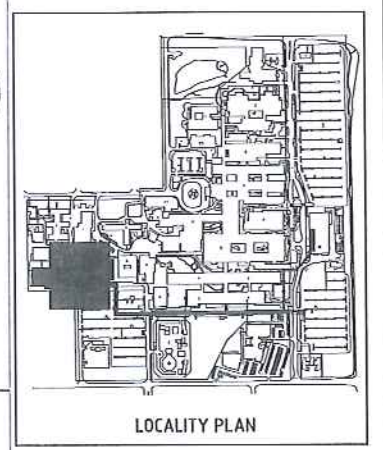
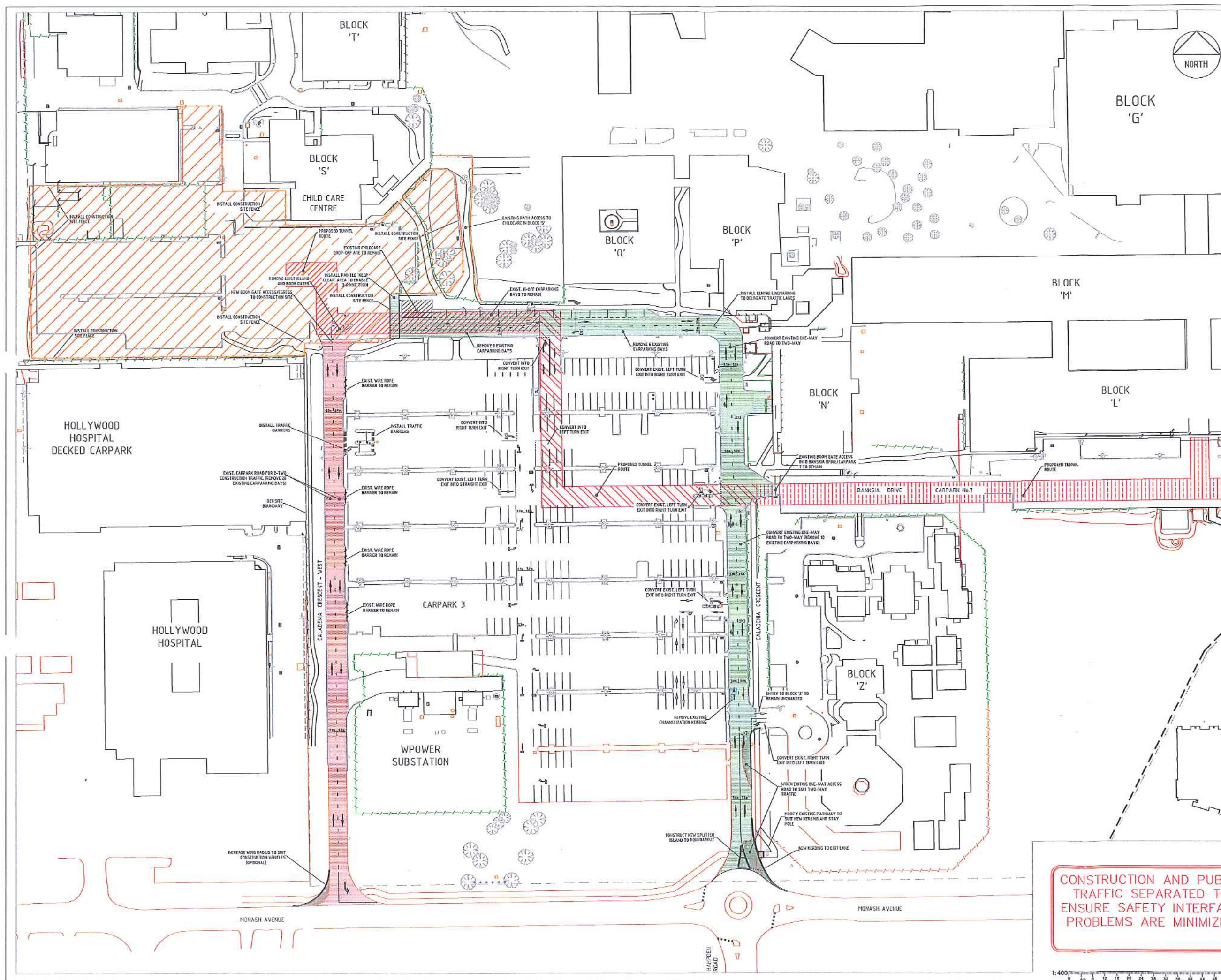
February 19, 2011.

APPENDIX ‘A’
AERIAL PHOTOGRAPH OF SITE



APPENDIX ‘B’

**Separation of Construction traffic and
General Public & Hospital traffic**



- LEGEND**
- NEW PAVEMENT ARROWS
 - EXISTING PAVEMENT ARROWS
 - EXISTING PAVEMENT ARROWS TO BE REMOVED
 - EXISTING PAVEMENT LINES TO BE REMOVED
 - PROPOSED NEW KERBS
 - EXISTING / PROPOSED TRAFFIC SIGNS
 - PROPOSED CONSTRUCTION SITE FENCE
 - PROPOSED LANE MARKING
- CONSTRUCTION VEHICLE AREA**
- PUBLIC / STAFF AREA**

B	CONSTRUCTION INFORMATION	AP	10/11	1/1
A	ISSUED FOR INFORMATION	AP	10/11	1/1
No	Amendment	Drawn	Date	Chkd
CONTRACTOR'S SIGNATURE AND SEAL MUST BE OBTAINED ON THE DATE BEFORE COMMENCING ANY WORK ON SITE. THE CONTRACTOR'S SIGNATURE AND SEAL MUST BE OBTAINED AND APPROVED BY THE CONTRACTOR.				
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BROOKFIELD MULTIPLEX Pty Ltd 111/111 City Way, Suite 100, Perth, Western Australia 6000 Tel: 08 9447 8000 Fax: 08 9447 8001 Email: info@brookfieldmultiplex.com.au				



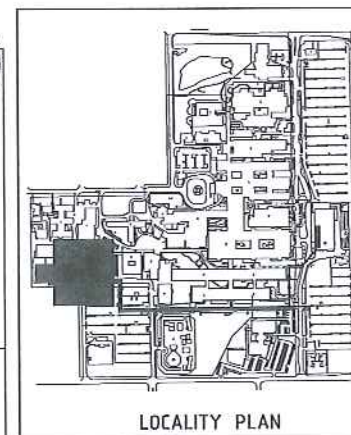
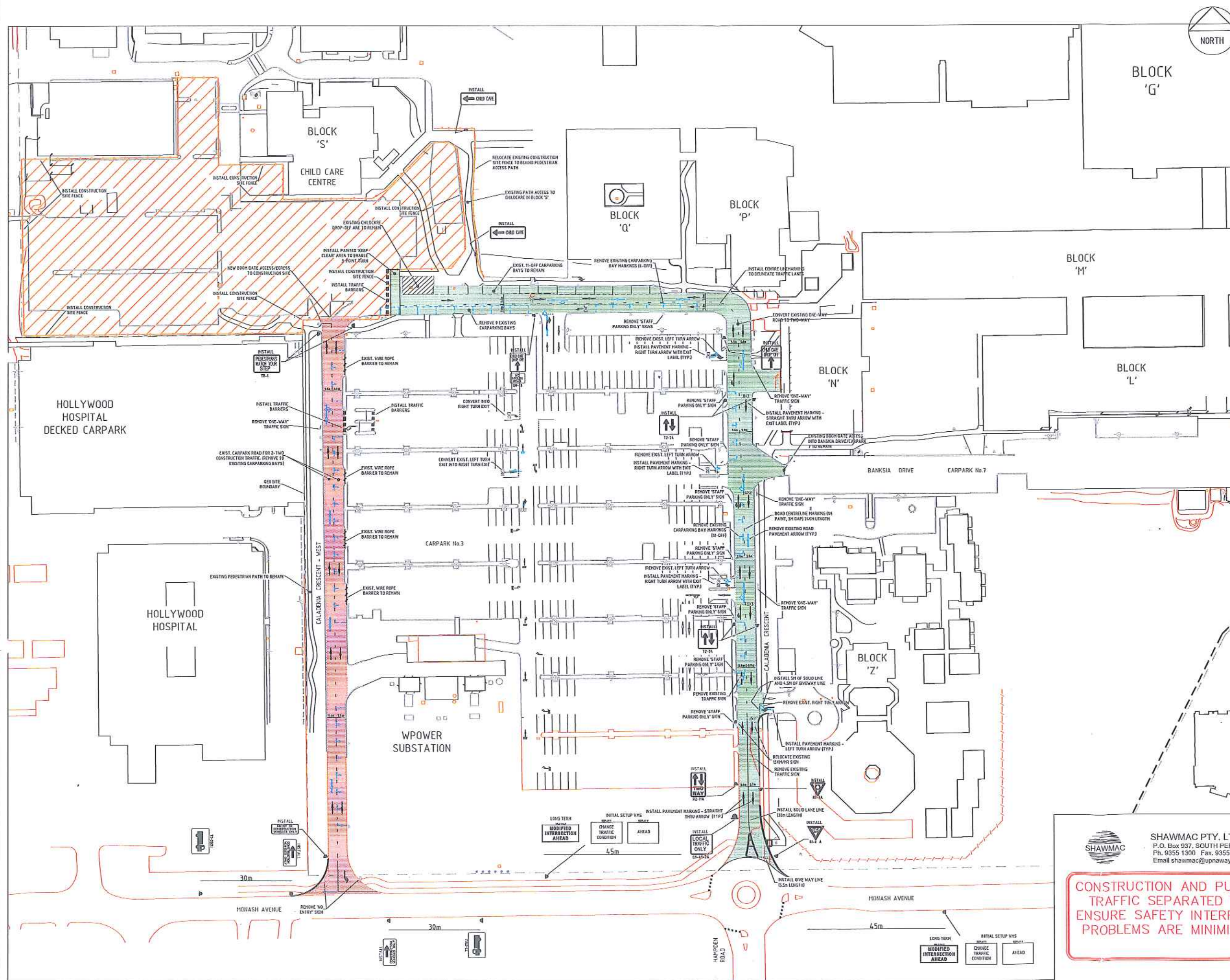
QEL Central Energy Plant
TRAFFIC MANAGEMENT STAGE 1
PROPOSED TRAFFIC LAYOUT

DESIGN	AP	DESIGNED	AP	REDUCED	AP
REVISED	AP	REVISED	AP	REVISED	AP
REVISED	AP	REVISED	AP	REVISED	AP
SCALE	1:400	DATE	13/01/11	DESIGNED BY	
DATE	13/01/11	DATE	13/01/11	DESIGNED BY	
DATE	13/01/11	DATE	13/01/11	DESIGNED BY	

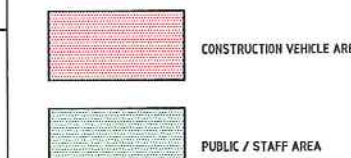
CONSTRUCTION AND PUBLIC TRAFFIC SEPARATED TO ENSURE SAFETY INTERFACE PROBLEMS ARE MINIMIZED

1:400

C005



- LEGEND**
- NEW PAVEMENT ARROWS
 - EXISTING PAVEMENT ARROWS
 - EXISTING PAVEMENT LINES TO BE REMOVED
 - PROPOSED NEW KERBING
 - EXISTING / PROPOSED TRAFFIC SIGNS
 - PROPOSED CONSTRUCTION SITE FENCE
 - PROPOSED LANDMARKING



CONSTRUCTION TRAFFIC SIGNAGE
INDICATIVE ONLY. REFER TO
APPROVED TRAFFIC MANAGEMENT
PLAN FOR ACTUAL SIGNAGE
REQUIREMENTS

B	CONSTRUCTION TRAFFIC MANAGEMENT PLAN	AP	15/11/11	AP
A	ISSUED FOR INFORMATION	AP	01/11/11	AP
No	Amendment	Drawn	15/11/11	CHS

CONTRACTORS MUST VERIFY ALL DIMENSIONS ON THE SITE BEFORE COMMENCING ANY WORK. CORRECTIONS TO THE PLAN MUST BE MADE BY THE CONTRACTOR AND APPROVED BY THE DESIGNER.

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Email: info@brookfieldmultiplex.com.au

Government of Western Australia
Department of Treasury and Finance
Building Management and Works

QELI Central Energy Plant
TRAFFIC MANAGEMENT STAGE 1
PROPOSED SIGNAGE AND
PAVEMENT MARKINGS

NO.	DESCRIPTION	DATE	STATUS
001	ISSUED FOR INFORMATION	01/11/11	AP
002	ISSUED FOR INFORMATION	01/11/11	AP
003	ISSUED FOR INFORMATION	01/11/11	AP
004	ISSUED FOR INFORMATION	01/11/11	AP
005	ISSUED FOR INFORMATION	01/11/11	AP
006	ISSUED FOR INFORMATION	01/11/11	AP
007	ISSUED FOR INFORMATION	01/11/11	AP
008	ISSUED FOR INFORMATION	01/11/11	AP
009	ISSUED FOR INFORMATION	01/11/11	AP
010	ISSUED FOR INFORMATION	01/11/11	AP

THIS IS A CHARTERING DOCUMENT. IT IS NOT A CONTRACT. IT IS NOT A GUARANTEE. IT IS NOT A WARRANTY. IT IS NOT A REPRESENTATION. IT IS NOT A STATEMENT OF FACT. IT IS NOT A STATEMENT OF OPINION. IT IS NOT A STATEMENT OF INTENTION. IT IS NOT A STATEMENT OF BELIEF. IT IS NOT A STATEMENT OF EXPECTATION. IT IS NOT A STATEMENT OF DESIRE. IT IS NOT A STATEMENT OF NEED. IT IS NOT A STATEMENT OF WANT. IT IS NOT A STATEMENT OF REQUIREMENT. IT IS NOT A STATEMENT OF INTEREST. IT IS NOT A STATEMENT OF CONCERN. IT IS NOT A STATEMENT OF WARNING. IT IS NOT A STATEMENT OF NOTICE. IT IS NOT A STATEMENT OF ADVICE. IT IS NOT A STATEMENT OF INFORMATION. IT IS NOT A STATEMENT OF KNOWLEDGE. IT IS NOT A STATEMENT OF UNDERSTANDING. IT IS NOT A STATEMENT OF AGREEMENT. IT IS NOT A STATEMENT OF CONSENT. IT IS NOT A STATEMENT OF ASSENT. IT IS NOT A STATEMENT OF ACQUIESCENCE. IT IS NOT A STATEMENT OF SANCTION. IT IS NOT A STATEMENT OF ENDORSEMENT. IT IS NOT A STATEMENT OF APPROVAL. IT IS NOT A STATEMENT OF RECOMMENDATION. IT IS NOT A STATEMENT OF ENDORSEMENT. IT IS NOT A STATEMENT OF APPROVAL. IT IS NOT A STATEMENT OF RECOMMENDATION.

SHAWMAC PTY. LTD.
P.O. Box 937, SOUTH PERTH
Ph. 9355 1300 Fax. 9355 1922
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**CONSTRUCTION AND PUBLIC
TRAFFIC SEPARATED TO
ENSURE SAFETY INTERFACE
PROBLEMS ARE MINIMIZED**

LONG TERM
MODIFIED
INTERSECTION
AHEAD

INITIAL SETUP VHS
CHANGE
TRAFFIC
CONDITION
AHEAD

PLANT DATE:
08/11/11 05:41 PM

APPENDIX ‘C’
ROAD SAFETY AUDIT
CORRECTIVE REPORT

1. Appendix B – Corrective Action Report.

Ref.	Finding.	Recommendation.	Agree / Disagree.	Comment.
2.1.1	Landscaping on the northeast corner of the intersection may impact on sight distance for vehicles exiting the modified roundabout.	Confirm sight distance requirements and if sight distance is affected by vegetation prune or remove the vegetation.		
2.1.2	Various services including a high pressure gas main was noted in the area. Failure to protect the services during construction has the potential to introduce risk.	As part of the detailed design process, all services are to be located and service authorities liaised with regarding protection or relocation of services as required.		
2.2.1	Sight distance from Hampden Road to the east along the Monash Avenue approach to the intersection is affected by a large concrete pole located on the south east corner and a screened site fence erected by the builder developing the property on the south east corner of the intersection. Sight distance is estimated at about 25 metres which is less than that required by design guidelines.	Review the position of the fence and if possible relocate the fence in the vicinity of the corner to improve sight distance. Alternatively remove the screening from the fence.		
2.2.2	Drivers using the intersection on a regular basis may not be used to traffic exiting from the north leg and may fail to drive accordingly. This may increase the risk of conflict between traffic on Monash Avenue and traffic exiting the northern leg of the intersection.	Immediately following the opening of the northern leg, VMS signs should be erected on the Monash Avenue approaches to the intersection alerting drivers to changed traffic conditions. Following a settling in period the VMS signs should be replaced with permanently erected warning signs.		
2.2.3	Detailed design of the proposed modifications to the roundabout was not presented for audit. Non compliance with design standards and design guidelines has the potential to introduce unacceptable risk into the road environment.	Ensure that the detailed design conforms to design guidelines and preferably is verified by an independent verifier.		

Ref.	Finding.	Recommendation.	Agree / Disagree.	Comment.
2.2.4	Hampden Road footpath on the eastern side is closed due to building works and pedestrians are required to cross Hampden Road from the east to the west at the intersection. Sight distance from the crossing point is restricted by the building security fence and screening and pedestrians may have difficulty in sighting traffic turning left from Monash Avenue into Hampden Road.	Review the position of the fence and if possible relocate the fence in the vicinity of the corner to improve sight distance. Alternatively remove the screening from the fence.		
2.3.1	Modifications to the path on the north east corner of the intersection indicate an acute angle between the existing north - south path and the proposed east - west path without provision of a swept radius. Pedestrians are likely to move along the most direct route between the two paths placing them on an unsealed verge.	Realign the path to provide a less acute angle and connect the two paths with a curved fillet.		
2.3.2	Tactile Ground Surface Indicators (TGSI's) are not specified at new pedestrian ramps and have not been provided on some existing ramps. Given the high level of pedestrian activity expected, the lack of TGSI's may increase potential hazards for path users.	Specify TGSI's at all pedestrian ramps. Additionally, the Local Government should be requested to provide TGSI's on all existing ramps.		
2.3.3	The audit indicated a relatively high pedestrian movement across Monash Avenue on the west side of the roundabout. This leg of the intersection does not have pedestrian crossing facilities provided and the pedestrian movement is potentially hazardous.	The Local Government should provide path connections, ramps and cut through to the existing splitter island to provide for the movement.		
2.3.4	A number of trip hazards were noted including displaced pavers, uneven service pits and raised kerbing adjacent to pedestrian areas.	Trip hazards should be repaired as part of normal periodic maintenance activities.		

Ref.	Finding.	Recommendation.	Agree / Disagree.	Comment.
2.3.5	A large number of cyclists were observed to enter the hospital along the northern leg of the intersection. Currently the lane width is about 4.5 metres which provides for a car and cyclist to share the pavement safely. The proposed modifications will result in two way traffic accommodated in 3.0 metre wide lanes. These lane widths may not safely accommodate a car and cyclist and conflict may result. The provision of cycle facilities along the northern leg of the intersection should be considered as part of the modification works.	Consideration could be given to widening the existing path on the eastern side of the access road to provide a shared facility.		
2.4.1	No details of lighting modifications are shown. Inadequate lighting or non standard light standards can introduce unacceptable risks into the road environment.	Ensure all new lighting proposed to be installed complies with the requirements of AS 1158, and all poles are frangible.		
2.4.2	A number of non frangible poles are located adjacent to the road edge adjacent to the intersection.	The use of non frangible poles is common in the metropolitan area, and the cost to relocate or replace non frangible poles is likely to be cost prohibitive.		
2.5.1	The construction of the works has the potential to place road users in conflict with construction plant and equipment.	A detailed Traffic Management Plan should be developed and implemented during construction to manage construction impacts.		
2.5.2	The kerbing on the western side of the northern access road immediately north of the intersection is damaged.	Repair the kerbing.		

APPENDIX ‘D’
PHOTOGRAPHS

PHOTOGRAPHS



Photograph No. 1. View north from Monash Avenue/Hampden Road intersection to QEII Hospital entry.
Note: The parking embayments provided, the single width (one-way) traffic lane, trees close to the edge of the kerblines.



Photograph No. 2. View south from Caladenia Crescent East (Hospital entry) to Monash Avenue.
Note: The geometry of the (in-only) access from the roundabout, damaged kerbing on west side of the road.

PHOTOGRAPHS



Photograph No. 3. View east from QEII Hospital entry to Monash Avenue.

Note: The alignment of the existing footpath, roadside vegetation and available sight lines to approaching vehicles.



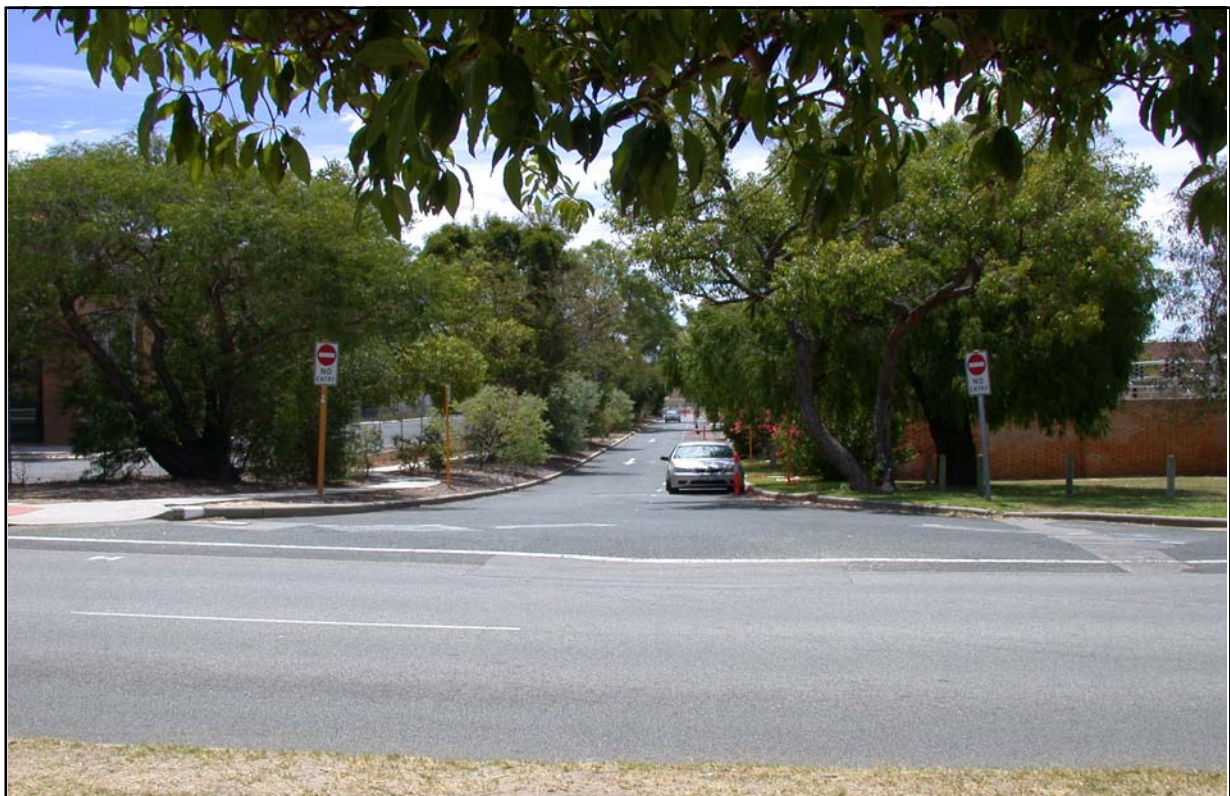
Photograph No. 4. View east along Monash Avenue from Hampden Road at the roundabout.

Note: Concrete power pole and temporary fencing substantially reduces the available sight lines to on-coming vehicles.

PHOTOGRAPHS

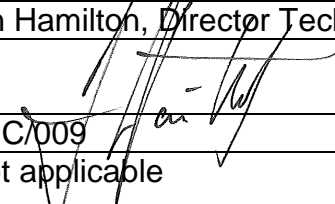


Photograph No. 5. View south from Caladenia Crescent West (Exit Road) to Monash Avenue.
Note: The marked parking bays and the one-way traffic movement south to Monash Avenue.



Photograph No. 6. View north from Monash Avenue to Caladenia Crescent West (Exit Road)
Note: The geometry of the intersection, the single lane exit and the “No Entry” signs installed at the intersection.

7.7 Parking Restrictions – Hollywood Ward

Applicant	City of Nedlands
Owner	City of Nedlands
Officer	Luke Marsden, Parking Strategy Coordinator
Director	Ian Hamilton, Director Technical Services
Director Signature	
File ref.	TEC/009
Previous Item No's	Not applicable
Disclosure of Interest	No officer involved in the preparation of this report had any interest which required it to be declared in accordance with the provisions of the Local Government Act (1995).

Regulation 11(da) – Committee considered it appropriate to amend the wording of the recommendation for ease of reference.

Moved – Mayor Froese
Seconded – Councillor Binks

Following the six months trial period ending February 2011, Committee approves the retention of the current parking restrictions in Hollywood Ward in accordance with the attached map entitled Ned_17_10.

CARRIED UNANIMOUSLY 4/-

Committee Recommendation

Following the six months trial period ending February 2011, Committee approves the retention of the current parking restrictions in Hollywood Ward in accordance with the attached map entitled Ned_17_10.

Recommendation to Committee

Committee approves that the current parking restrictions in Hollywood Ward remain status quo after the six months trial period ending February 2011 in accordance with the attached map entitled Ned_17_10.

Purpose

To seek approval of the Traffic Management Committee to continue current parking restrictions in Hollywood Ward after the trial period of six months, ending February 2011.

Strategic Plan

- KFA 1 Infrastructure
 - 1.2 Design and construct infrastructure in accordance with Australian standards and guidelines.
 - 1.3 Provide and maintain quality passive and active recreational and leisure facilities and open space to meet community needs.
- KFA 6 Community Engagement
 - 6.1 Improve community awareness of City's directions, facilities and services.
 - 6.2 Encourage community participation in the City's decision making processes.

Background

At the Traffic Management Committee meeting on 17 August 2010, the Committee approved a six months trial of the current parking restrictions that are in place throughout Hollywood Ward and Administration was requested to report back to the Committee the effectiveness of the parking restrictions at the end of the trial period ending February 2011.

Administration carried out community consultation with the residents within the Hollywood Ward Development in 2008 requesting feedback regarding the proposed parking restrictions for Verdun Street, Blumann Lane, Loneragan Street, Mattner Lane, Lupin Hill Grove and Quadrangle Place Nedlands. The Parking and Access Internal Working Group (PAWG) considered responses and subsequently further community consultation was required.

In June 2009 a revised parking plan was produced with parking restrictions to reflect the development in the area and reduce the impact of non-residential parking for residents in this location. A plan for amending the parking in this area was drafted and sent to all surrounding residents on 18 June 2009. A total of 134 letters were sent and six responses were received.

Key Relevant Previous Decisions:

On 8 December 2009 the Traffic Management Committee recommended that this item lay on the table for discussion in 6 months time.

17 August 2010 – Traffic Management Committee meeting

Committee approves within the terms of reference of this committee, a 6 month trial of the following parking restrictions around the Hollywood

Ward Development as per attached map entitled Ned_17_10 and reports back to TMC on its findings:

- a) Monday to Friday 8.00 am – 5.00 pm 2P only for parking embayments on North side of Verdun Street;
- b) “No Stopping” on road either side of parking embayments on North side of Verdun Street;
- c) “No Parking” in Blumann Lane to allow ease of access to all properties for residents and waste services;
- d) Monday to Friday 8.00 am – 5.00 pm 2P only for parking embayments on the north and south side of Loneragan Street;
- e) “No Stopping” on road either side of parking embayments on south side of Loneragan Street;
- f) “No Stopping” on road either side of parking embayments on north side of Loneragan Street;
- g) “No Parking” in Mattner Lane to allow ease of access to all properties for residents and waste services;
- h) Monday to Friday 8.00 am – 5.00 pm 2P only for parking embayments on South side of Lupin Hill Grove (Opposite Dot Bennett Park);
- i) “No Stopping” on road either side of parking embayments on south side of Lupin Hill Grove (Opposite Dot Bennett Park);
- j) Monday – Friday 8.00 am – 5.00 pm 4P on North side of Lupin Hill Grove, to facilitate visitors to the park area. (Opposite Dot Bennett Park);
- k) Monday to Friday 8.00 am – 5.00 pm 2P only for parking embayments on west side of Quadrangle Place. (Opposite Dot Bennett Park);
- l) “No Stopping” on road either side of parking embayments on West side of Quadrangle Place. (Opposite Dot Bennett Park);
- m) Monday to Friday 8.00 am – 5.00 pm 2P only for parking on East side of Quadrangle Place;
- n) “No Stopping” on East side of Lupin Hill Grove between number 3 and number 5;
- o) Monday to Friday 8.00 am – 5.00 pm 2P only for parking on east side of Lupin Hill Grove;

- p) No Parking on West side of Lupin Hill Grove; and
- q) Standard “No Stopping” 10 meters from each intersection.
- r) “No Parking – Verge” Monday to Friday 8.00 am – 5.00 pm on south side of Verdun Street between Smyth Road and opposite 35 Verdun Street.

Proposal Detail

The current parking restrictions in Hollywood Ward to remain status quo after the trial period ending February 2011.

Consultation

Required by legislation:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Required by City of Nedlands policy:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Consultation type:

Dates:

Request feedback from residents on initial parking restriction plan - June 2008

Follow up on changes to parking restrictions and seeking community response and comment - June 2009

Legislation

Road Traffic Code 2000

City of Nedlands local law relating to parking and parking facilities 2002

Budget/financial implications

Budget:

Within current approved budget:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Requires further budget consideration:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Financial:

Not applicable

Risk Management

Community consultation has been undertaken and there is sufficient support in principle that parking restrictions should be incorporated.

If the time restricted trial period be lifted, the City risks having employees at QEII hospital, recommence parking in this area.

Discussion

The City trialed timed parking restrictions in Hollywood Ward for six months as per the Traffic Management Committee recommendation on 17 August 2010 based on a large number of complaints. This was in regards to the over spill of vehicles from the nearby hospitals in and around the Hollywood Ward redevelopment site.

The area in question between Smyth Road, Verdun Street, Aberdare Road and Lupin Hill Grove/Quadrangle Place, Nedlands has remained unrestricted throughout the development stage to allow access for tradesmen and contractors. The close proximity of this unrestricted area has seen employees of the nearby hospitals utilise the streets and verge for all day parking.

Access to the adjoining recreational facilities including Highview Park and Sand Volley Australia has largely be accommodated as the majority of these users are on weekends or evenings.

After the signage for the current parking restrictions were placed, the City received a request from a concerned resident regarding the frequency of signs on the south side of Lupin Hill Grove (opposite Dot Bennett Park).

The City installed these signs in accordance with Australian standards in order to close the signage off within the indented on-street car bays. This was in conjunction with “no stopping” line marking to inhibit vehicles parking within the carriageway. Upon discussions with the City’s Ranger Services, the City is able to remove some of the signs due to the effectiveness of the parking in the area and to reduce the visual pollution they present.

Conclusion

The six month trial parking restriction within the Hollywood Ward redevelopment site has been successful in reducing the impact of non-residential parking in the area effectively curtailing all day parking. These restrictions are consistent with the area for timed parking and it is highly recommended that these restrictions should be maintained long term.

Attachments

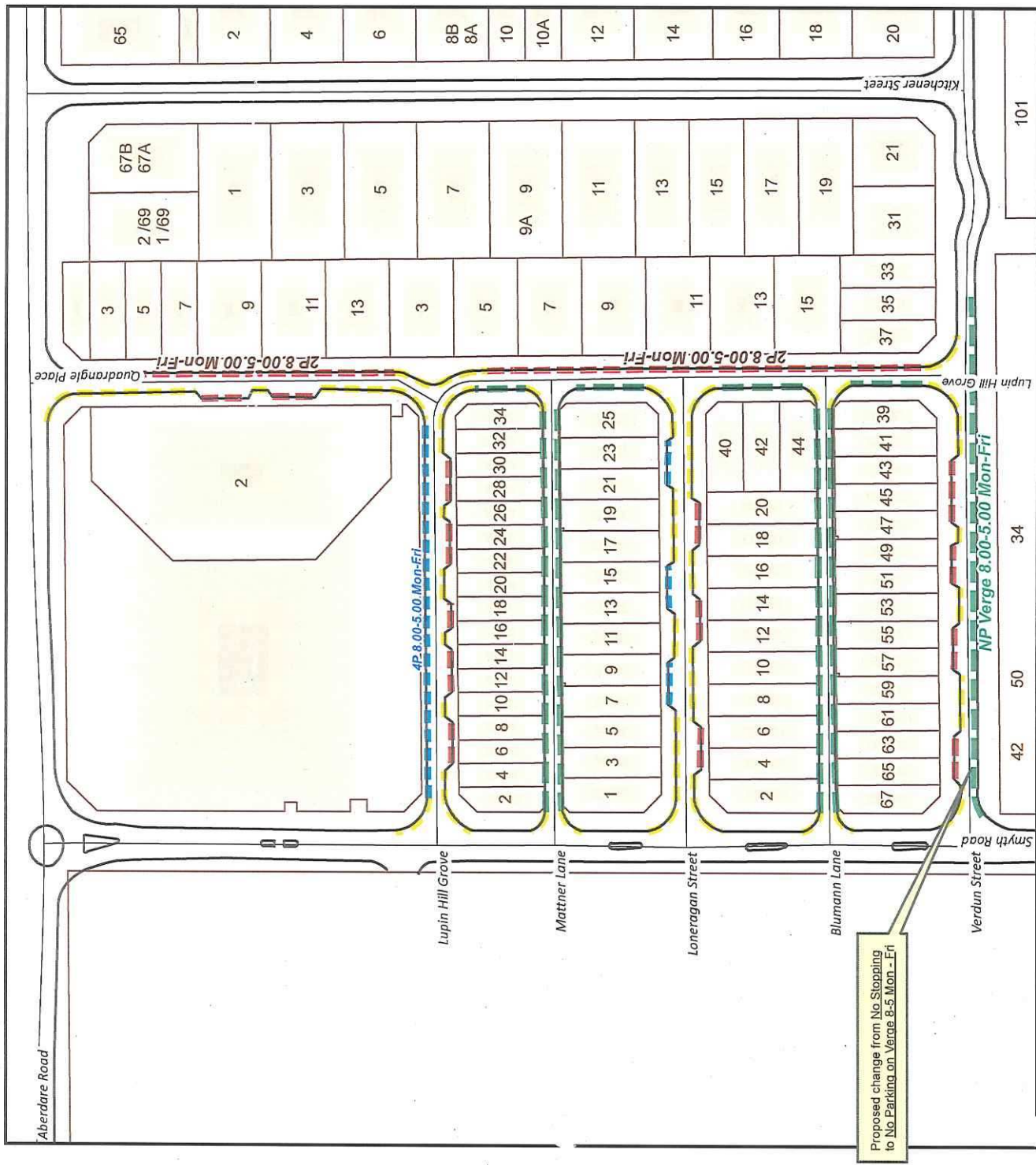
1. Map entitled Ned_17_10 – Proposed parking restrictions for old Hollywood Senior High School precinct.

Mrs. B Scott left the meeting at 7.37 pm

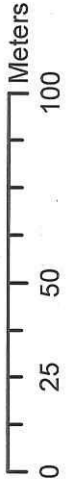
Attachment to Item 7.7

**Traffic Management Committee Meeting
1 March 2011**

Parking Restrictions – Hollywood Ward



City of Nedlands
Proposed Parking Restrictions for
the old Hollywood Senior High School Precinct



Legend

- Kerbs
- Roads

Parking Proposals

Parking_Zo

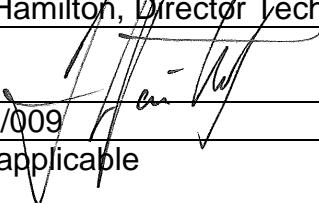
- No Stopping
- No Parking
- 1P
- 2P
- 4P



City of Nedlands



7.8 Proposed Parking Restrictions – Kinninmont Avenue, Nedlands

Applicant	City of Nedlands
Owner	City of Nedlands
Officer	Luke Marsden, Parking Strategy Coordinator
Director	Ian Hamilton, Director Technical Services
Director Signature	
File ref.	TEC/009
Previous Item No's	Not applicable
Disclosure of Interest	No officer involved in the preparation of this report had any interest which required it to be declared in accordance with the provisions of the Local Government Act (1995).

Regulation 11(da) – Committee considered it appropriate to implement no parking 8.00 am – 5.00 pm Monday to Friday on the west side of Kinninmont Avenue, Nedlands.

Moved – Councillor Somerville-Brown

Seconded – Mayor Froese

Committee approves a six months trial of parking restrictions on Kinninmont Avenue, Nedlands between Stirling Highway and Carrington Street as follows:

- a) No parking 8.00 am – 5.00 pm Monday to Friday on the west side of Kinninmont Avenue; and
- b) 2P 8.00 am – 5.00 pm Monday to Friday on the east side of Kinninmont Avenue.

CARRIED UNANIMOUSLY 4/-

Committee Recommendation

Committee approves a six months trial of parking restrictions on Kinninmont Avenue, Nedlands between Stirling Highway and Carrington Street as follows:

- a) No parking 8.00 am – 5.00 pm Monday to Friday on the west side of Kinninmont Avenue; and
- b) 2P 8.00 am – 5.00 pm Monday to Friday on the east side of Kinninmont Avenue.

Recommendation to Committee

Committee approves changing parking restrictions on both sides Kinninmont Avenue, Nedlands between Stirling Highway and Carrington Street to 2P 8.00 am – 5.00 pm Monday to Friday in accordance with the attached map entitled Ned_14_11.

Purpose

To address the current parking arrangements on Kinninmont Avenue, Nedlands between Stirling Highway and Carrington Street.

Strategic Plan

KFA 1 Infrastructure

- 1.2 Design and construct infrastructure in accordance with Australian standards and guidelines.
- 1.3 Provide and maintain quality passive and active recreational and leisure facilities and open space to meet community needs.

KFA 6 Community Engagement

- 6.2 Encourage community participation in the City's decision making processes.

Background

At the Council meeting on 22 February 2011, Councillor Argyle raised as a matter of urgency, the current unrestricted parking within Kinninmont Avenue, Nedlands and that timed parking restriction, 2P 8.00 am – 5.00 pm Monday – Friday be implemented on Kinninmont Avenue at the earliest convenience. Council resolved to refer this matter to the Traffic Management Committee for consideration at the next meeting.

The City has also received complaints by residents on Kinninmont Avenue, Nedlands between Stirling Highway and Carrington Street regarding an influx of long term parking in area and subsequent impact on the level of amenity.

Kinninmont Avenue is within close proximity to Stirling Highway and has no parking restrictions on street and as such is used for long term parking. The City has received anecdotal information from residents stating that the parking is as a result of business employees within the area.

The existing parking arrangement has been an inconvenience to residents and impacting on the level of amenity dating back to reports and feedback received in 2008.

Key Relevant Previous Decisions:

At the Council meeting on 22 February 2011, Councillor Argyle raised as a matter of urgency, the current unrestricted parking within Kinninmont Avenue, Nedlands and that timed parking restriction, 2P 8.00 am – 5.00 pm Monday – Friday be implemented at the earliest convenience. This was then referred to the Traffic Management Committee to be considered at the next meeting.

Proposal Detail

- To implement 2 Hour parking 8.00 am to 5.00 pm Monday to Friday on both sides of Kinninmont Avenue, Nedlands between Stirling Highway and Carrington Street.
- Line marking to be undertaken to reinforce and formalise the intersections.

Consultation

Required by legislation:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Required by City of Nedlands policy:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Consultation type:

Dates:

Letter drop to affected residents in Kinninmont Avenue in November 2008

Confirmation from the PAWG (Parking and Access Working Group) in December 2008 for parking on Kinninmont Avenue to remain status quo.

Legislation

- City of Nedlands local law relating to parking and parking facilities 2002
- Road Traffic Code 2000

Budget/financial implications

Budget:

Within current approved budget:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Requires further budget consideration:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Financial:

The cost for installing the parking signs is incorporated in the road maintenance account.

Risk Management

Residents feel their access is being impacted upon due to long term parking in the area. It also reduces any impact on amenity from having no restrictions in place at all.

Discussion

In November 2008, the City wrote to the residents on Kinninmont Avenue, Nedlands between Stirling Highway and Carrington Street regarding changing the parking restrictions on Kinninmont Avenue. However the City decided at that stage to take no action.

The parking in Kinninmont Avenue was to be reviewed when the decision regarding the future use of 81 Stirling Highway (Showroom) is known.

The proposed change of use of 81 Stirling Highway meets all the provisions of the Town Planning Scheme 2 with exception of car parking requirements. The table below indicates the number of parking bays required for tenancy 4 & 5 as an office under Schedule III – Car parking requirement by use class of the scheme:

	Total Area	Car Parking Requirement	Required bays
Tenancy 4 & 5	254 m ²	Showroom: 2.2 bays per 100 m ² of Gross Leasable Floor Area	6 bays
Tenancy 4 & 5	254 m ²	Office: 4.75 bays per 100 m ² of Gross Leasable Floor Area	13 bays (additional 7 bays)

Currently the site contains 33 car bays and has one car bay parking shortfall.

As depicted in the table above, seven additional bays are required, in making a total requirement of 41 bays. The car stackers provide five additional bays therefore the change of use results in an additional two bay shortfall and a total of three bay shortfall was proposed.

Latest traffic data below indicates between 343 and 389 vehicles per day (VPD) travelling between 57km/h and 60km/h (85th percentile speed) in a 50km/h zone.

Road Name	Location	Date	AWDT	CV	0.85	Road Hierarchy
Kinninmont Avenue	Between Stirling Highway & Carrington Street	1999	343	3	60	AR

Kinninmont Avenue	Between Stirling Highway & Carrington Street	August 2005	389	4	57	AR
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The table below refers to the background that 81 Stirling Highway, Nedlands has undertaken within the development application process with the City of Nedlands and the State Administrative Tribunal (SAT).

The applicant at the Council meeting on 22 February 2011 proposed the following:

1. Change of use of the two ground floor tenancies from Showrooms to Offices;
2. Five car stackers are proposed on existing car bays to provide five additional car bays on site.

Date	Action
14 March 2006	D76.05 Application for Mixed Use Development at subject site approved by Council. The mix of use of the development was for five (5) units of which two (2) units, on the top floor, are residential use the tenancy on the first floor office use and the two ground floor units (4 & 5) showroom use. The showroom use was chosen by the developer at the time because it requires a lesser carparking ratio compared to the office use. The development includes 32 car bays and a one (1) bay shortfall.
	D78.05 Tenancy 4 and 5 were approved with a Showroom Use
11 April 2008	D79.05 Application for Change of Use of Tenancy 4 & 5 from Showroom to Office and the expansion of tenancy 3.
	D81.05 Application was refused by Council as a change of use to office would result in a carparking shortfall of another eight (8) bays. Plus the additional parking required for the extension of unit 3 resulting in an overall shortfall of 11 bays.
3 March 2009	D82.05 Council decision was appealed to State Administrative Tribunal (SAT).
	D84.05 The appeal (DR 274 2008) was dismissed. SAT upheld Council's decision to refuse the Change of Use application.
	D86.05 SAT determined that the reduction to the TPS2 parking requirements (at 27.5%) was too significant.
	D88.05 SAT agreed to tandem car bays.
10 June 2009	D89.05 Application for Change of Use of Common Area to Office in Tenancy 3 and two tandem car bays was approved. Therefore site had a total 33 onsite car bays and a 1 bay shortfall remained.

Feedback from the survey in 2008 indicated 50% requesting that timed parking restrictions be implemented and 50% requesting that parking remains status quo.

Conclusion

It is recommended that parking restrictions on both sides Kinninmont Avenue, Nedlands between Stirling Highway and Carrington Street be changed to 2P 8.00 am – 5.00 pm Monday to Friday.

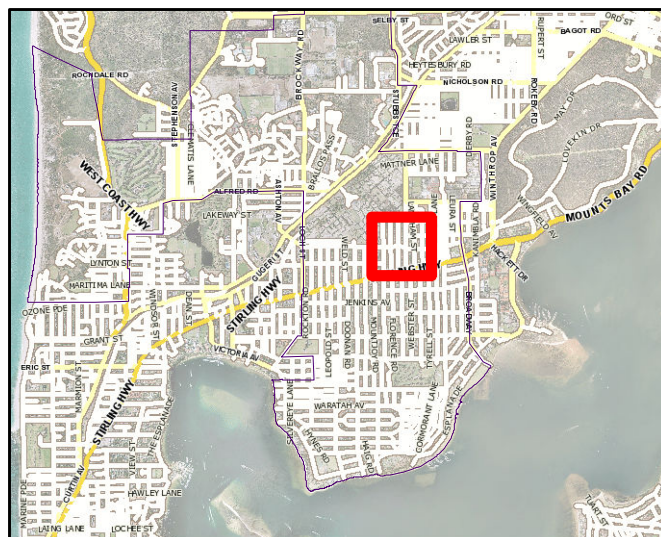
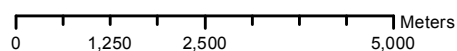
Attachments

1. Map entitled Ned_14_11 indicating the proposed parking restrictions.

Attachment to Item 7.8

**Traffic Management Committee Meeting
1 March 2011**

Proposed Parking Restrictions – Kinninmont Avenue,
Nedlands



8. Date of next meeting

The next meeting of this Committee will be held on Tuesday, 5 April 2011.

Declaration of Closure

There being no further business, the Presiding Member declared the meeting closed at 7.47 pm.