



**Redevelopment of Hornsby Aquatic Centre  
Pacific Highway, Hornsby**

**Evaluation of Vehicle Access Options**

**April 2012**

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## 1 EXECUTIVE SUMMARY

At its meeting on 23 February 2012, the Joint Regional Planning Panel (JRPP) deferred the determination of Development Application 1129/2011 (DA) for the redevelopment the Hornsby Aquatic Centre in order for further consideration to be given to vehicle access across Hornsby Park, preferably involving a roadway that would be more sensitive to the heritage values of the Park, and which would allow for retention of the Women's Rest Centre building, generally referred to as the Country Women's Association (CWA) building.

A total of 13 vehicle access options for the proposed development were identified for this review, comprising:

- 7 access options originally evaluated for the purposes of formulating the development application;
- 3 community options, 2 of which were presented by the public at the JRPP meeting with a further option submitted directly to the Panel by email dated 16 March 2012; and
- 3 options identified by Hornsby Shire Council as a consequence of undertaking this review.

Diagrams describing each of these options is provided at section 6 of the report.

Investigations of these options was undertaken by Brown Consulting, who were not originally involved in the preparation of the development application, to evaluate which would provide proper, functional and safe vehicle access.

Brown Consulting identified that 3 of the 13 access options could be considered to provide access to the new Hornsby Aquatic Centre, being:

- An option that provides a combined access/egress from the Pacific Highway at the intersection with Coronation Street, and involves the demolition of the Women's Rest Centre building (**Option 1**);
- A one way loop option (proposed by Mr Cambourn) with vehicle entry from the Pacific Highway at the northern end of Hornsby Park and the exit to the Highway at the southern end of the Park, configured to allow for retention of the Women's Rest Centre building (**Option 8**), and
- A combined access/egress from the Pacific Highway at the southern end of Hornsby Park, similar to Option 1, but partially shifted to the north to retain the Women's Rest Centre building. (**Option 2**).

It is important to acknowledge that all of these Options will have some form of impact on the amenity, function and heritage significance of Hornsby Park.

**Option 8** (the Cambourn one way loop arrangement) is feasible from a traffic perspective and would preserve the Women's Rest Centre building. However it has some limitations particularly:

- Elimination of the existing right turn movement into the TAFE car park at the northern end of Hornsby Park which would necessitate a circuitous route for those vehicles travelling from the north;
- The removal of three (3) car parking spaces on the eastern side of the Pacific Highway to facilitate construction of right turn bay into Hornsby Park at its northern end;
- Lowering of western end of the northern access road to facilitate entry to the car park by service vehicles (excluding large garbage trucks); and
- Lowering the car park to facilitate entry by service vehicles (excluding large garbage trucks)

Removing existing vehicle access to the southern end of the TAFE site to facilitate this Option would not generally be entertained for any development application. While it is possible that arrangements could be made to combine both accesses into a single driveway, this would likely involve loss of the BBQ and shelter, relocation of the substation which serves the TAFE and a reduction in the extent of the playground in Hornsby Park. The additional cost of such a proposal (about \$500,000) would have to be borne by Council and the outcome of negotiations with the adjoining landowner problematic.

This Option also accrues a number of additional problems being:

- From a heritage perspective, it will result in a negative heritage impact upon the Park including:
  - Isolation of the playground/BBQ area as well as isolating the Women's Rest Centre building by placing an active vehicular roadway between it and the Park;
  - Creation of a structural barrier for future access into the bushland reserve below the site;
  - Impact on the streetscape of the Park from the demolition of the bus shelter and the southern-most linear garden bed along the street front;
  - Severe impacts to the semi-circular path pattern, an important underlying component of the park configuration;
  - Major impacts for large indigenous Angophora tree and various Turpentine trees, which are key landscape and heritage element of the Park;
  - Requires the disabled access area to be relocated further away from the southeast corner of the site. The rise in street levels will require increased ramps and will require demolition and reconfiguration of some of the eastern boundary gardens. This will have some negative impact on the streetscape of the park and disrupt the linear pattern of these gardens.

The landscape heritage assessment acknowledges that some of these impacts might be capable of being addressed, nevertheless the overall outcome would be worse for the Park than would be the case with Option 1.

- Significant limitations for waste management, requiring implementation of one of several site specific alternatives, all of which are less acceptable than is the case for Options 1 or 2;
- Greater risks to pedestrians in the Park and potential security issues with access under the complex after hours costs when compared against either Options 1 or 2;
- Substantial construction costs when compared against either Options 1 or 2; and
- Delays to the project in the order of 3 months whilst the design and documentation for this arrangement is prepared. This would also include costs which have not been incorporated into the costings prepared for the purposes of this review.

The estimated cost of Option 8 ranges from \$2.4M to \$3.6M, depending on the adopted variation.

**Option 2** is limited to a left in/left out arrangement only and does address a number of issues raised by the JRPP including that it retains the Women's Rest Centre building, is a less engineered solution (driveway not a road), does not involve major works at the Pacific Highway and is respectful of the Park's Turpentine trees which have a high heritage value. However it does have fundamental problems, being:

- It will reach capacity in 2021;
- Vehicles leaving the site and travelling south are required to take a longer, indirect route as compared to Option 1 because Australian Standards prevent a driveway being located within the Coronation Street intersection; and
- Convenience is limited by a lack of right turn access from the Pacific Highway.

This Option also accrues a number of additional problems being:

- From a heritage perspective, it will have the worst heritage impact upon the southern end of the Park, for the following reasons:
  - It isolates the Women's Rest Centre building by placing an active vehicular roadway between it and the Park;
  - It reduces the available open space in the southern-central area of the Park;
  - It necessitates the demolition and relocation of the southern pergola, which has a high heritage value;
  - It would cut across three historic pedestrian pathways, including the principal one on the north-south axis and the southern 'D' shaped pathway – all identified as important, original, contributory items. Further it removes the opportunity to reinforce that 'D' shaped pathway with a complementary avenue of Jacaranda trees adjacent to the southern side of the circular pathway;

- It necessitates removal of the bus shelter at the Pacific Highway boundary, a garden bed on the southern section of fronting the street, and a mature Angophora tree;
- It requires the proposed disabled access area to be relocated further away from the SE corner of the site. The rise in street levels will require increased ramps and will require demolition and reconfiguration of some of the eastern boundary gardens. This will have some negative impact on the streetscape of the park and disrupt the linear pattern of these gardens
- Whilst it provides less risks to users of the Park as compared to Option 8, it is less preferred than Option 1 due to the number of risks, the mixture of type and strength of controls that would be need to be implemented to mitigate those risks.

The estimated cost of Option 2 is \$0.5M.

**Option 1** is the access arrangement nominated with the development application, being the provision of a combined two way road at the southern end of the site connecting to the signalised intersection of the Pacific Highway and Coronation Street.

From a traffic perspective, Brown Consulting advises that, on balance, Option 1 is considered the best option to provide vehicular access to the site. The reasons supporting this conclusion for this include but are not limited to:

- Rationalisation of access arrangements in Pacific Highway;
- Future performance of access intersection;
- Lower potential queues for exiting traffic within the site;
- Australian standard compliant ramp grades to provide general and service vehicle access;
- No issues with sight distance for exiting traffic;
- No impact to on-street parking to provide the facility; and
- This is considered the safest option as all traffic movements are controlled by traffic signals.

From a heritage perspective this Option is the most preferred as a single access at the southern end of the site provides the least impact on the visual and use pattern of the Park, and its presentation to the Highway. Key landscape elements would only be minimally affected. In particular:

- The 'D' shaped pathway and the old pergolas would remain in place, and a balancing Jacaranda avenue could be planted along the southern curve to match that on the northern side of the 'D' pathway;
- It allows for the opportunity for pedestrian access into the southeast corner of the site to be upgraded to complement the existing pedestrian entry ways at the north eastern and central eastern park/footpath interface. The upgraded pedestrian entry is the superior location to facilitate disabled access into the site due to it being the lowest level to



access the site from the public footpath;

- One mature Angophora tree will be lost as a consequence of the Option 1 (revised) proposal; and
- It allows for the removal of the northern laneway and gravel carpark and inclusion of this area into the larger parkland. This would serve to improve linkages between the existing playground and the central park area, expand the available parkland and improve pedestrian and visual linkages from the developed Hornsby Park to the open space lands to the west.

The estimated cost of Option 1 is \$0.8M

Option 1 also ranks as favourably, or more favourably, than Options 2 and 8 with regard to matters of Work Health and Safety considerations, waste management, project costs and timing.

Given that the above analysis supports the implementation of Option 1, the core issue which remains to be resolved is whether the Women's Rest Centre building is of such significance in its own right that its retention is warranted and, by extension, the acceptance of consequential traffic and heritage impacts for Hornsby Park.

Weir Phillips Architects and Heritage Consultants, also a consultant not originally involved in the preparation of the development application, was therefore engaged by Hornsby Shire Council to:

1. Review and consider whether it agrees with the findings of the two heritage assessments undertaken in support of the original Development Application;
2. Provide advice on the heritage value of the Park and the Women's Rest Centre building.
3. Advise whether Option 1 is acceptable having regard to the circumstances of the case?

In terms of the prior heritage reports, Weir Phillips concludes:

- The Mayne Wilson and Associates report on landscape and visual heritage values of Hornsby Park provides an adequate assessment of the impacts of the development application; and
- The Howard Heritage Consultancy report on the built heritage values of Hornsby Park provides a reasonable assessment of the impacts of the development application although further information on a number of matters could have been provided.

In terms of the heritage value of Hornsby Park, Weir Phillips concludes the Park has local heritage significance, and its heritage values should be conserved for the following reasons:

- It demonstrates the historical development of Hornsby from a rural area to a suburb with a town centre;

- It is an attractive and important element in Hornsby Civic Precinct, demonstrating the influence of the style of English landscape parks on suburban parks in Sydney; and
- It has a strong association with the local community who agitated for the creation of the Park and continue to use the Park.

In terms of the heritage value of the Women's Rest Centre building, Weir Phillips concludes this building has insufficient heritage values to be of local heritage significance, particularly noting:

- The building is historically associated with the CWA and the provision of public amenity for local residents; and
- The design of the building does reflect some aspects of mid-century Modernism but is not a notable example and does not display a level of creativity that would warrant the listing of the building by association with the architect.

In terms of whether Option 1 is acceptable, Weir Phillips conclude the demolition of the Women's Rest Centre is acceptable with regard to:

- Its level (lack) of heritage significance;
- The beneficial impact its demolition will have on Hornsby Park; and
- Because the building and its association of the CWA with the site will be interpreted.

The Weir Phillips report subsequently provides the following conclusion:

*"The option of a single access road at the southern end of Hornsby Park, Option1 (Revised), is the preferred option as it conserves the heritage values of the park to a far greater degree than the other options, Option 2, 8 and 8b. Option 1 (Revised) does require the demolition of the Women's Rest Centre. This is considered acceptable as, on balance, this has less of an adverse heritage impact as outlined in detail above than Options 2, 8 and 8b. In accepting the negative impact of the removal of the Women's Rest Centre, a considerable incidental benefit is given to the significance of the Park by removing what is, in terms of the Park's original and long-standing purpose, a visually intrusive element."*

The reference to Revised Option 1 relates to the following recommendations presented by Weir Phillips:

- The retention in situ of the Kocken plaque; and
- Improving the Civic Centre precinct at its southern end by painting of the side wall of the adjoining property to the south; reconstructing the sandstone blade wall presently in front of the Women's Rest Centre, and the possible repainting of the heritage listed building opposite, to reinforce the enhanced importance of the intersection.

The above outcomes, if supported by the JRPP, can be addressed by conditions in any consent granted to Development Application 1129/2011.

Taking into consideration all of the investigations completed by the project team the following conclusions are presented in response to the Panel's resolution of 23 February, 2012:

- Further consideration has been given to access across Hornsby Park;
- Option 1, which requires demolition of the Women's Rest Centre building, has been confirmed as the most sensitive to the heritage significance of Hornsby Park;
- The heritage significance of the Park is of greater heritage significance than the Women's Rest Centre building; and
- The design of Option 1 achieves a proper, functional and safe vehicle access for all vehicles required to attend the site.

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## 2 INTRODUCTION

A report on Development Application 1129/2011 for the re-development of the Hornsby Aquatic Centre was considered by the Sydney West Joint Regional Planning Panel (JRPP) at its meeting on 23 February, 2012. (JRPP reference: 2011SYDW117)

A key element of the project is the demolition of the present Woman's Rest Centre building (the CWA building) to construct a vehicular access way to connect the new Aquatic Centre to the Pacific Highway.

The JRPP resolved to defer a decision on the application as explained in its resolution, which is reproduced below:

*"The Panel had decided that it agrees with only two aspects of the application before it tonight, namely –*

- 1 - The demolition of the existing aquatic centre, and*
- 2 - The erection of the proposed new aquatic centre of three levels and basement parking.*

*However, the Panel requires the applicant to give further consideration to the access across the heritage listed Hornsby Park and would prefer a roadway that is more sensitive to the heritage significance of the Park and that will retain the CWA Building. The Panel recommends a less engineered solution for this roadway, not involving major works on the Pacific Highway, and considers the road should be designed to have less heritage impact, not to be designed for heavy vehicles, but for the most likely users - namely domestic cars, and to be more respectful to existing plantings.*

*The Panel accepts the need for the removal of the Pine tree and agrees with the manner in which the applicant intends to deal with a replacement tree."*

This submission documents the methodology and outcomes of the evaluation of 13 access options for the new Aquatic Centre. The access options are identified at **section 6** of this report. The evaluation of these options is provided at **section 8**. Outcomes of the evaluation are provided at **section 9**, and a response to the resolution of the JRPP is provided at **section 10**.

### 3 SUMMARY REVIEW OF HERITAGE AND ACCESS ISSUES

As the resolution of the JRPP is predicated on the inter-related issues of vehicle access and heritage impacts it is appropriate to provide a brief overview of these matters as addressed by the DA documentation and the subsequent assessment process to date.

#### 3.1 Heritage status

- Hornsby Park is a listed heritage item in Hornsby Local Environmental Plan 1994. The classification of 'regional significance' is no longer used, with such items reverting to a classification of 'local significance'.
- The Womens Rest Centre building is included in the Hornsby Council Heritage Inventory (Stage 4) however the building is not individually listed as a heritage item - its heritage status is achieved only as consequence of it being located within Hornsby Park.
- The Women's Rest Centre building is the subject of two non-statutory listings as follows:
  - In May 2011 The National Trust listed the building on its Register. It is understood that the Trust did so without prior consultation with Council; and
  - The building is included on the NSW Register of Twentieth Century Buildings maintained by the Australian Institute of Architects.

#### 3.2 Assessment of heritage impacts

- The development application (DA) was accompanied by two heritage reports:
  - A *Statement of Heritage Impact* prepared by Howard Heritage Consultancy (HHC), which primarily focuses upon built heritage fabric; and
  - A *Heritage Impact Assessment* prepared by Mayne-Wilson and Associates (MWA)
- The report by HHC concludes the Women's Rest Centre building to be of moderate heritage value.
- Although not a statutory requirement, the DA was referred to the Heritage Branch of the Office of Environment Heritage. The Heritage Branch advised the building is not of state significance, but is likely to have local heritage significance, which should be taken in to account when assessing the DA.
- The DA was considered by Hornsby Council's Heritage Advisory Committee which did not object to the proposal, including the demolition of this building. The Committee concluded the significance of the building relates mainly to its social/community role, and that the CWA association with Hornsby Park would be maintained through the provision of new accommodation for that organisation within the new Aquatic Centre.

- Council engaged ADW Johnson to provide an independent planning assessment of the DA. That assessment did not raise any objection to demolition of the Women's rest Centre building.

### 3.3 Evaluation of vehicle access options for the Development Application

Investigations to determine the most suitable means of vehicle access to service the new Aquatic Centre were undertaken to inform the final design as presented in DA 1129/2011. In summary this process comprised the following:

- Three (3) access options were evaluated and reported to Council's meeting 20 July, 2011; and
- Following a request from the Crown Lands Division to review the need to demolish the CWA building, seven (7) access options were subsequently identified, evaluated and reported to Council's meeting 21 September, 2011. Also included in that assessment were the following two additional possibilities:
  - Not providing any onsite car-parking for the new Aquatic Centre, but instead relying upon the Dural Street car park, and parking within surrounding streets, to meet the parking demands of the new Aquatic Centre; and
  - Relocating the new Aquatic Centre out of Hornsby Park.

Arising from those investigations the report provided the following conclusion:

*"On the basis of the above analysis, confirmation of the key strategic decisions to locate the centre in Hornsby Park and to provide parking on site is considered appropriate. Access to the centre via a new link located south of the Hornsby Pool directly opposite Coronation Street is the preferred and recommended arrangement."*

Council subsequently resolved as follows:

1. Council confirm its decision to reconstruct the Hornsby Aquatic Centre in Hornsby Park, and to provide access for parking via an access road opposite Coronation Street, Hornsby.
2. The development application currently in preparation to this effect be submitted in due course.
3. The Division of Crown Lands be advised in due course."

The design of the DA therefore proceeded on this basis.

### **3.4 Assessment of traffic impacts**

The analysis and investigation of traffic, parking and access issues associated with this project to date has comprised assessment by numerous parties as follows:

- Council (as applicant) engaged McLaren Traffic Engineering to prepare a traffic and parking impact assessment report. To ensure the veracity of that analysis Cardno was separately engaged to undertake an assessment of the operational impacts of the proposal on the intersection of the Pacific Highway and Coronation Street.
- The McLaren and Cardno reports were evaluated by Council's Traffic Department as part of the assessment of the DA.
- The DA was referred to Roads and Maritime Services (RMS) who did not raise any objection to the proposed modifications to the traffic signals at the intersection of the Pacific Highway and Coronation Street necessary to accommodate the proposed new access.
- The independent assessment of the DA by ADW Johnson supported the access arrangements as nominated, involving the construction of a vehicular access adjacent to the southern site boundary and the associated demolition of the CWA building.

### **3.5 Accommodation of Country Women's Association**

Following the end of its lease of the Women's Rest Centre building on 1 March 2012, the Country Women's Association (CWA) is now located in St Peter's Church Hall, on the Pacific Highway just north of the main TAFE building. These premises are temporary, as a room at the eastern side of the new Hornsby Aquatic Centre has been provided for the CWA. This room has a separate entrance and is not physically linked the remainder of the aquatic centre.

We understand that the CWA did not make a formal objection to the DA.

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## **4 IS THERE A NEED FOR VEHICLE ACCESS TO THE AQUATIC CENTRE**

The present Hornsby Aquatic Centre complex does not have any formal onsite parking for staff or patrons, other than for a disabled parking space near the plant room. A narrow lane at the northern end of the Park is used by service vehicles to access the pool, however it is not designed for that purpose.

Before considering what is the most appropriate location and design for any new access over the site, it is relevant to determine whether any such access is required, and if so, what function it must provide relative to the operational needs of the new Aquatic Centre complex.

### **4.1 Is there a need for onsite car parking**

As part of the design process for the new Aquatic Centre, Council engaged Twyford's, a consultancy group with specialist expertise in community consultation projects.

The community consultation process included, amongst other things, two deliberative forums held in April 2011, and which involved the participation of 38 members of the community.

That process identified that accessibility to the new complex was a key criterion, to ensure the broadest possible number of users had access to the facility.

The outcomes of the overall community consultation process were reported to Council in April 2011 for the purpose of confirming the features to be incorporated into the design of the new Aquatic Centre.

With regard to onsite parking, Council resolved that space for a minimum of 60 vehicles was to be provided, with provision for up to 100 vehicles subject to the budget not being exceeded.

### **4.2 What are the consequences of not providing on site car parking**

Although the results of the public consultation process and the subsequent decision of Council supported the inclusion of onsite parking within the design of the new Aquatic Centre, a report to Council's meeting of 21 September, 2011 did identify a range of matters that would arise, and require consideration should onsite parking not be provided. Those matters are:

- Increased congestion on the Pacific Highway and surrounding streets;
- Increased demand for existing public car parks in nearby Dural Street and William Street may impact on parking availability for shoppers;
- The Dural Street car park does not lend itself to extension due to its inefficient layout;
- Undesirable road safety outcomes where parents with children parking on the east side of Pacific Highway attempting to cross a busy road to access the pool;
- Road safety issues in crossing Dural Street;
- Poor access for less able bodied people;



- Difficult to access in wet weather;
- Reduced patronage as parking is difficult resulting in reduced income and increased cost of operation;
- Access for construction traffic needs to be provided together with site compound
- Deliveries would use existing northern access road; and
- Council would be treating itself differently to other applicants

#### 4.3 Options for the location of onsite parking

Given a range of constraints including the heritage qualities of the Hornsby Park landscape, site topography, the location and level of the Sydney Water sewer main and the need to achieve equitable pedestrian access into the Centre from the Pacific Highway frontage of the site, the location of onsite parking within a basement level of the new Centre is the only logical design option.

It is noted that the JRPP does not raise any objection to this element of the project.

#### 4.4 Is there a need to provide access for trucks

Council's Manager Aquatic and Recreational Facilities advises that present pool complex, when operational, generated the following demand for truck deliveries:

**Table 1: Existing truck deliveries**

Element	Existing Truck Sizes and Frequency
<b>Kiosk</b>	Several suppliers including drinks trucks (Coke, etc) and ice cream trucks Two deliveries each per week in summer (50-70 cartons per delivery) One delivery each per week in winter Suppliers uses a medium rigid vehicle or smaller vehicles
<b>Pool supplies</b>	Several suppliers delivering pool supplies several time a month. Each supplier uses a small van or utility
<b>Garbage</b>	Two garbage collections and two recycling collections per week in summer One garbage collection and one recycling collection per week in winter

The above schedule reflected demands associated with patronage levels of 130,000 visitations per year. However, the business plan for the proposed new Aquatic Centre identified that patronage will increase to over 300,000 visitation per year.

Accordingly it is reasonable to expect that truck access requirements will at least double in order to service the increased demands that will result from this increased level of use of the new facility.

Further, there is a need to address the following requirements:

- A sewer main runs through the footprint of the Aquatic Centre. To maintain their asset Sydney Water advises that any structure built over the encased sewer main must provide a minimum clearance of 2.8m to permit access by their plant and equipment if necessary; and
- Emergency service vehicles will need to be able to access the complex.

#### **4.5 What were the arrangements for truck access for the present pool complex**

Council's Manager Aquatic and Recreational Facilities advises that the service delivery vehicles noted above were required to reverse down the driveway at the northern end of Hornsby Park in order to make deliveries to the present pool complex.

#### **4.6 Conclusions**

The need to provide onsite parking reflects the community expectations for safe, direct and convenient all weather access, and this has previously been endorsed by Council.

Onsite parking will particularly benefit elderly patrons, and those with young children. It will also ensure that the existing supply of public parking in proximity to the pool site will not have to absorb the parking demands generated by the new Aquatic Centre.

Based on the frequency of service vehicles attending the former pool complex there is a clear need to maintain and, based upon former arrangements, improve access for service vehicles.

## 5 WHAT ARE THE DESIGN REQUIREMENTS FOR VEHICLE ACCESS

Accepting that access for cars and trucks is needed, the next step is to establish the relevant design criteria that would need to be met. This will assist in determining whether the JRPP expectation for a *"less engineered solution for the roadway"* is possible. It is also necessary to evaluate the operational impacts of each access options on the operating capacities of the local road network.

### 5.1 Who needs to access the Aquatic Centre

In addition to vehicle access for patrons, the new Aquatic Centre will require the level of access for the type/size of trucks as noted at section 4.4 above.

### 5.2 What are the design parameters for access and parking facilities

The following table provides a summary of the standards that a Council typically applies to all new developments:

**Table 2: Australian Standards for parking facilities**

Standard	Provisions
<b>Australian Standard for Off Street Parking Facilities – AS2890.1</b>	Addresses all matters pertaining to access arrangements, car park access design, car park design and parking operations for all developments. The standard includes items such as recommended aisle widths, parking space dimensions, access sizing dependent on size of car park served and frontage road, manoeuvring areas, sight distance, etc.
<b>Australian Standard for Commercial Parking Facilities – AS2890.2</b>	Addresses all items relating the design of access arrangements, parking and manoeuvring areas for service vehicles ranging from small rigid trucks to B-doubles. The standard provides guidelines on sizing of access driveways / roadways, appropriate ramp grades, height clearances and sight distance amongst other related items.

The design parameters within these standards are not discretionary.

### 5.3 How are traffic impacts measured

An important consideration in determining the impact of a development on the road system is to assess the effect on traffic efficiency. The capacity of the road network is generally determined by the capacity of its intersections to cater for peak traffic flows. The most useful measure to determine such impacts is to measure the average delay per vehicle at an intersection, expressed in seconds per vehicle. This is known as the 'Level of Service' (LOS), the criteria for which is established in the 'Guide to Traffic Generating Developments' published by the Roads and Traffic Authority (now Roads and Maritime Services).

The LOS is a qualitative assessment of the quantitative effect of factors such as speed, volume of traffic, geometric features, traffic interruptions, delays and freedom to manoeuvre. The objective of traffic management is to maintain the existing level of service. Where adverse effects are identified and corrective measures need to be designed to ensure the LOS is maintained.

There are six levels of service (LOS), as described below in the table below

**Table 3: Levels of service**

Level of Service	Average delay per Vehicle (secs/veh)	Signals and Roundabouts	Give Way & Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity at signals, incidents will cause excessive delays  Roundabouts require other control mode	At capacity requires other control mode
F	>70	Extra capacity required	Extreme delay, traffic signals or other major treatment required.

#### 5.4 Hornsby Westside Masterplan

The provision of vehicle access to the new Aquatic Centre complex needs to be considered within the context of the Hornsby Westside Masterplan, approved by Hornsby Council on 13 August 2008. The scope of works nominated in the Masterplan includes streetscape works on the Pacific Highway past the frontage of the site, including landscaping, additional angled parking and parking lane edgelines to improve sight distance and create a one lane environment in either direction in the Pacific Highway.

The Hornsby West Side Masterplan will be implemented as funds become available. To date Council has carried out improvements to Coronation Street (south side) and line marked car parking on the Pacific Highway from Coronation Street to the pedestrian signals outside Hornsby TAFE.

## 6 ACCESS OPTIONS TO BE EVALUATED

Set out in the table below are the 13 separate access options which have been identified and evaluated for the purposes of responding to the issues raised in the JRPP resolution. Options 1-7 comprise the options previously evaluated by Council. Three community options, two of which were presented by the public at the JRPP meeting with a further option submitted directly to the Panel by email dated 16 March 2012 and three additional options identified by Hornsby Shire Council as a consequence of undertaking this review were also evaluated.

Option 12 is a variation on Option 1 that was identified through the review process. This option retains the Women's Rest Centre building and provides traffic signalled controlled ingress and egress for the aquatic centre except for the left turn exit lane, which requires a formal pedestrian crossing.

**Table 4: Access options**

Option	Location
1	Access into Hornsby Park opposite Coronation Street via traffic lights
2	Access north of CWA building
3	Access at the northern end of Hornsby Park – widen existing access
4	Access through TAFE car park
5	Access via No. 4 Dural Street
6	Access via No. 6 Dural Street (the Montessori preschool site).
7	Access via Old Mans Valley fire trail
8	Access via loop road within Hornsby Park (Mark Cambourn proposal #1)
9*	Access via Loop road within Hornsby Park (Mark Cambourn proposal in reverse)
10	Access via playground northern side of Hornsby Park (Lucy Bal proposal)
11	Access via playground northern side of Hornsby Park with access ramp at rear of pool to basement. (Lucy Bal proposal - modified)
12	Access via Coronation Street/Pacific Highway traffic signal retaining CWA building
13	Access via northern end of Hornsby Park (Graham Hosking Option)

**\* Note:** This arrangement was not nominated by Mark Cambourn but has been identified as an option that should be considered.

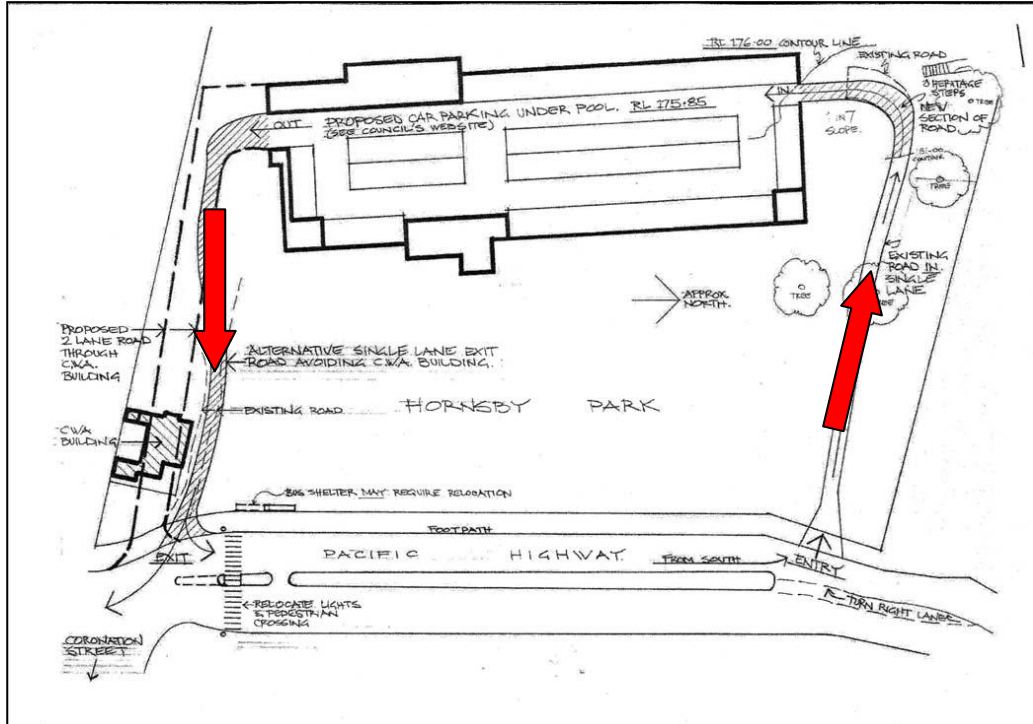
These options are shown in diagrams on the following pages:



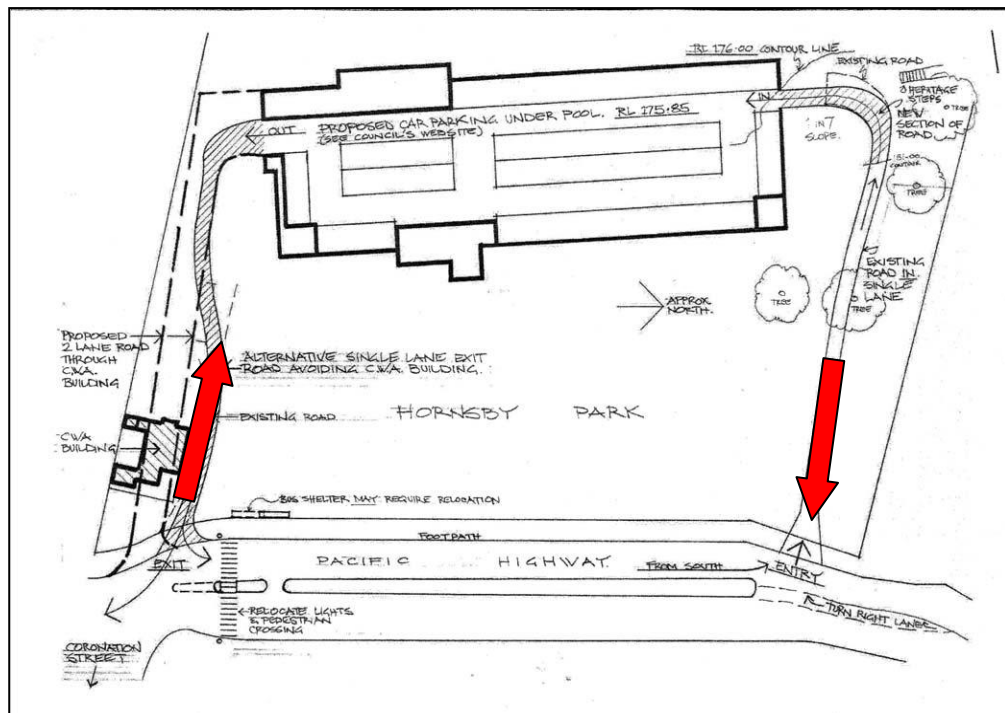
## OPTIONS 1-7



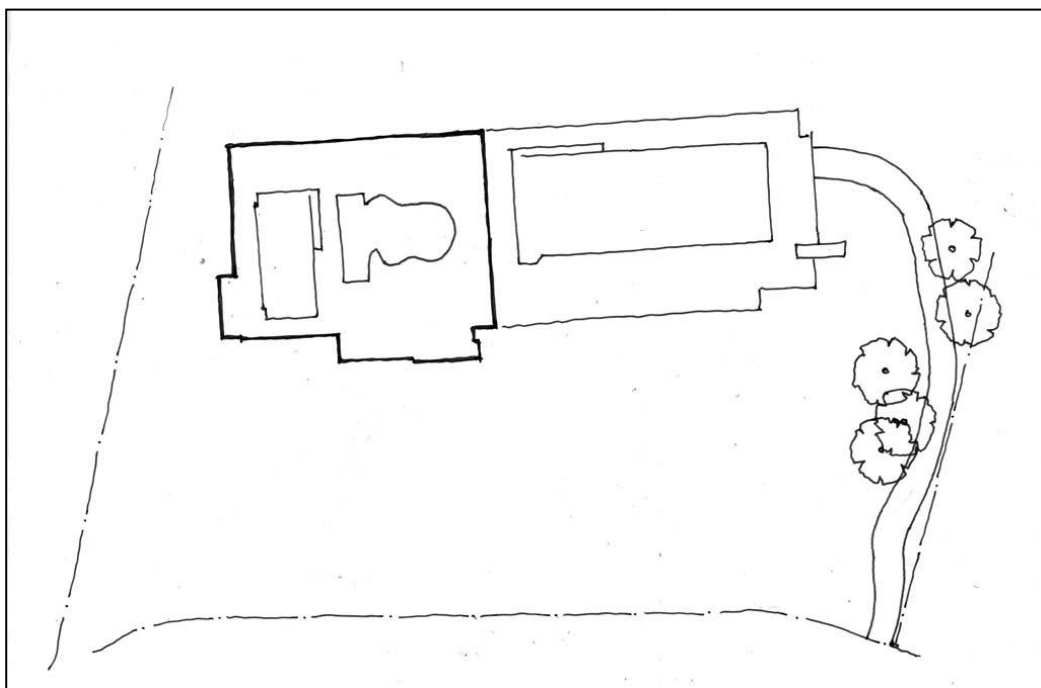
**OPTION 8 - ACCESS VIA LOOP ROAD WITHIN HORNSBY PARK (Mark Cambourn option)**



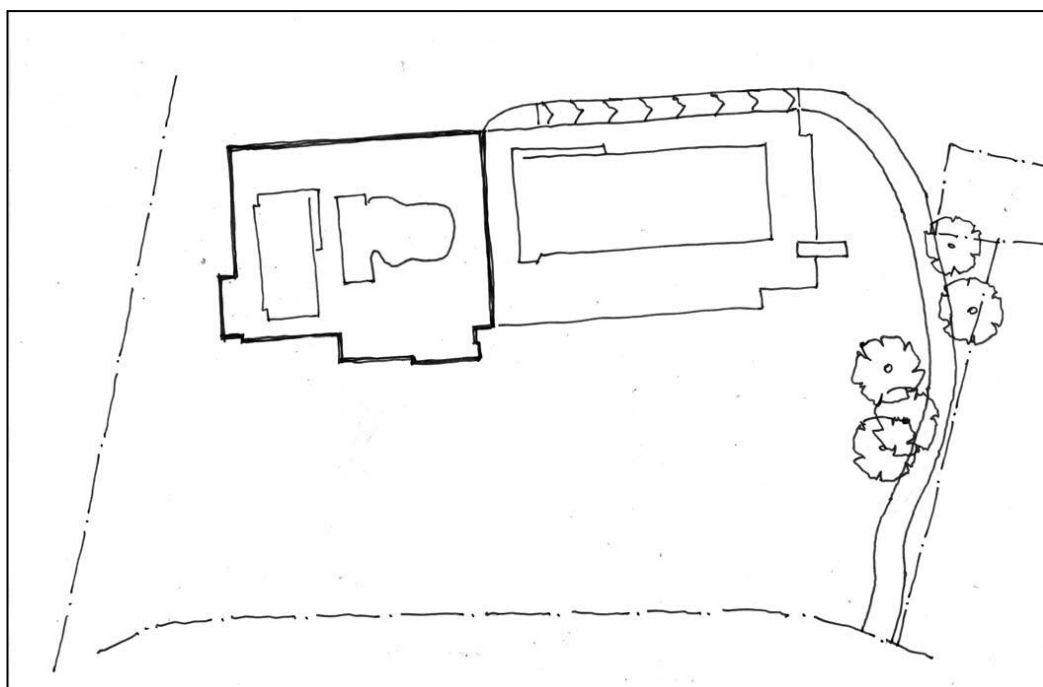
**OPTION 9 - MARK CAMBOURN OPTION WITH FLOW REVERSED**



**OPTION 10 - ACCESS VIA PLAYGROUND NORTHERN SIDE OF PARK (Lucy Bal proposal)**

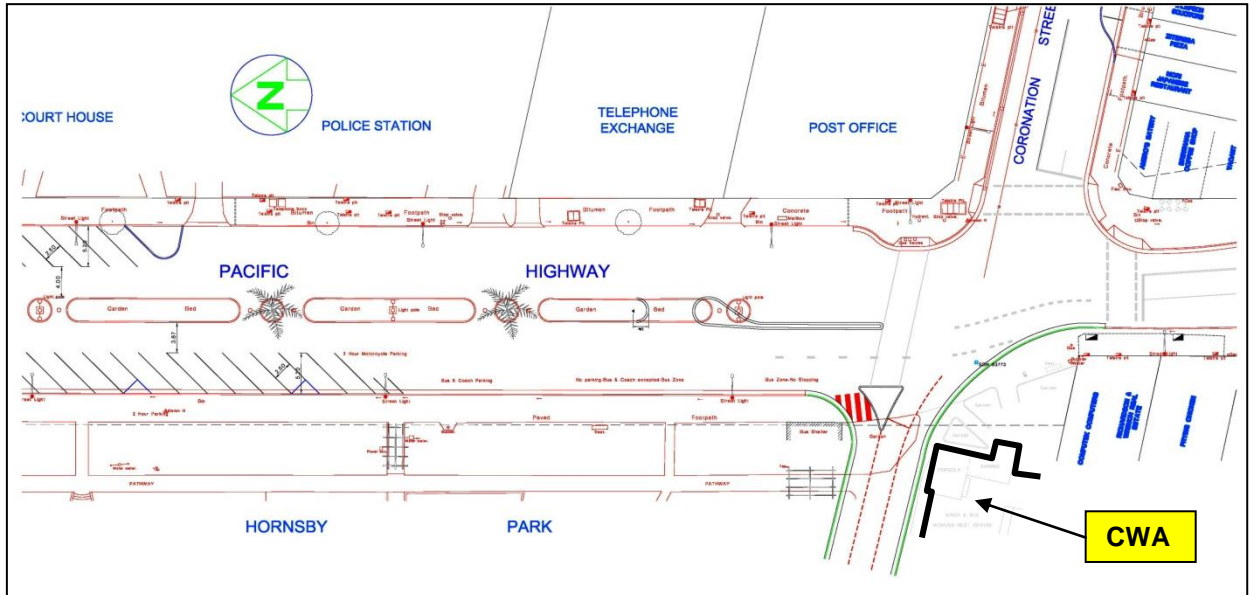


**OPTION 11 - ACCESS VIA PLAYGROUND NORTHERN SIDE OF PARK WITH RAMP AT REAR OF POOL (Lucy Bal proposal - modified)**

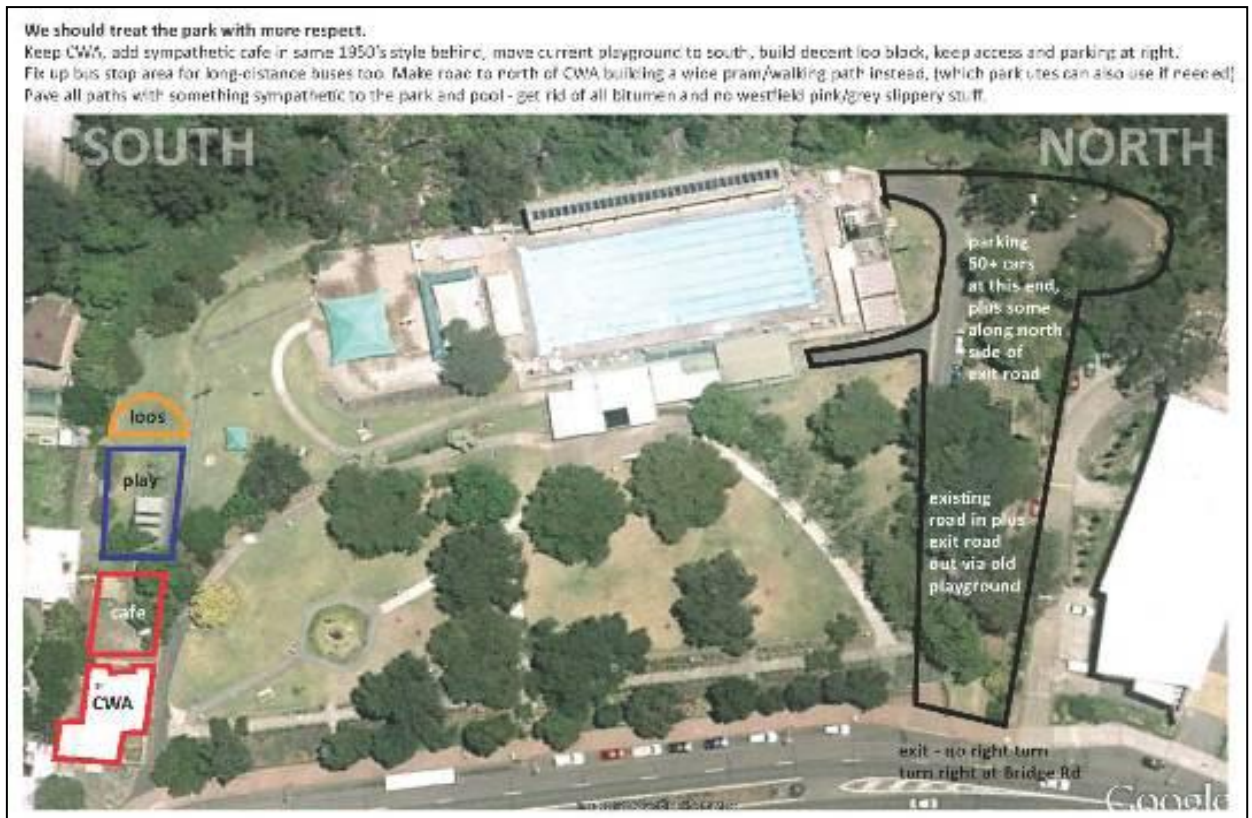




## OPTION 12 - ACCESS VIA TRAFFIC SIGNALS RETAINING CWA BUILDING



## OPTION 13 - ACCESS VIA NORTHERN END OF HORNSBY PARK (GRAHAM HOSKING OPTION)



## 7 PROJECT TEAM AND CONSULTATION

### 7.1 Project Team

The project team for this review is shown in the Table below:

Table 5: Project team

Disciple	Consultant
Architecture	Peter Hunt Architects
Arborist	Growing My Way Tree Services
Traffic	Brown Consulting
Heritage - Built heritage	Weir Phillips
Heritage - Landscape	Mayne- Wilson & Associates Conservation Landscape Architects Weir Phillips (Peer review)
Landscape design	Paul Scrivener Landscape Architect
Waste Management	GHD
Work Health and Safety	GHD
Construction Access	GHD
Costings	Brown Consulting
Planning	City Plan Strategy and Development

### 7.2 Consultation

#### Sydney Water

Sydney Water has advised that in order to gain access to the concrete encased sewer line which sits below the new complex, it requires a minimum clearance of 2.8m within the basement level of the building.

This has been achieved with the basement, at its lowest point, having a minimum internal height of 2.9m.

#### Roads and Maritime Services

Although many of the proposed access options include connections to the Pacific Highway, the concurrence of Roads and Maritime Services (RMS) is not required under the Roads Act 1993 as this section of the Pacific Highway, between Bridge Road and George Street, Hornsby is a local road, and not a state road.

However the following options rely upon modifications to the existing signalised intersection of the Pacific Highway and Coronation Street to achieve vehicular access to the new Centre:

- Option 1
- Option 8
- Option 9
- Option 12

Any changes to the existing signal controls at the intersection of Coronation Street and the Pacific Highway need to be approved by the RMS Traffic Signals Branch.

As outlined in 5.2.2 of the report assessing DA 1129/2011 (prepared by ADW Johnson) the RMS has previously advised it will approve the modifications to the traffic signals at the intersection of Coronation Street and the Pacific Highway associated with Option 1, subject to DA conditions requiring a dedicated left turn egress lane at the traffic signals.

## 8 EVALUATION OF ACCESS OPTIONS

### 8.1 Overview

This section of the report provides a summary of the key elements of the investigations undertaken by the project team. A full copy of each report is provided as an Appendix to this statement.

A ranking of each access Option, resulting from the investigations of the project team, is provided in a single matrix at section 9 of the report.

### 8.2 Traffic

#### Methodology

The evaluation of each of the access options is based upon the following criteria:

**Table 6: Traffic evaluation criteria**

Criteria	Scope
<b>Ease of Access (VKT)</b>	Considers routes travel to and from the site noting that trip distribution is expected to be relatively evenly split between areas to the north and south. Each option has been reviewed with regards to the length of inbound and outbound trips noting that trips which involve longer distances increase Vehicle Kilometres Travelled (VKT) which have greater environmental impact.
<b>Level of Service</b>	Considers the operating performance of intersections based on traffic volumes by measuring the average delay per vehicle in seconds
<b>Internal Queuing</b>	Considers how far queuing vehicles would extend back into the site. This can have implications for the length of ramps required to service a development relative to Australian Standards design requirements.
<b>Internal ramp design</b>	Considers the length of ramp required to service the site, at either its northern or southern end, to achieve a connection with the Pacific Highway. Ramp design requirements have been determined relative to Australian Standards, and to accommodate a Medium Rigid sized truck, the largest vehicle expected to internally access the site.
<b>Sight distances at access point</b>	Considers line of sight available to motorists at exit driveway as determined by Australian Standards
<b>Impacts on surrounding elements</b>	Considers the implications relative to impacts on adjacent or surrounding development and Council's adopted Hornsby Westside Masterplan scheme
<b>Road safety and good traffic management</b>	Considers whether the access is orderly, safe and efficient.

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## Conclusions

The report from Brown Consulting includes the following conclusion:

*"The assessment of each potential access option has considered the following key elements:*

1. *Ease of access*
2. *Sight Distance at Access Points*
3. *Impacts of Proposed Accesses on Surrounding Elements*
4. *Level of service*
5. *Internal Queuing*
6. *Internal Ramp Design*
7. *Road Safety & good traffic management*

*Overall, this analysis has determined that there are essentially three (3) options that could be considered to provide access to the new Hornsby Aquatic Centre. These include:*

1. *Option 1: Access off Coronation Street involving the demolition of the Women's Rest Centre*
2. *Option 8: The Cambourn one way anti-clockwise loop option, and*
3. *Option 2: Driveway access north of the Women's Rest Centre*

*The Cambourn one way loop option is feasible from a traffic perspective, but it has some limitations. These limitations include:*

1. *Elimination of the existing right turn movement into the TAFE car park at the northern end of Hornsby Park which would necessitate a circuitous route for TAFE vehicles travelling from the north*
2. *The loss of three (3) car parking spaces on the eastern side of the Pacific Highway to facilitate construction of right turn bay into Hornsby Park at its northern end*
3. *Lowering the floor level of the carpark and therefore the western end of the northern access road to facilitate entry to the car park by service vehicles (excluding garbage trucks).*

*Access arrangements which diminish access for an existing development, as would be the case for Option 8 is not considered an appropriate outcome. It should be noted that as the egress is at traffic signals, the RMS requires this to be designed as a roadway not a driveway. Therefore the Cambourn option does not achieve any reduction in the 'look' of the southern access road nor the width of road required by the RMS. The northern access off the Pacific Highway would be constructed as driveway and would therefore have uncontrolled traffic and pedestrian movements.*

*Option 2 is limited to left in left out only and will reach capacity in 2021. Whilst Option 2 is not*

*desirable because of poor access from the north, it does address a number of issues raised by the JRPP including the retention of the Women's Rest Centre, is a less engineered solution (driveway not a road and narrower) and does not require major works on the Pacific Highway. It is also respectful of existing plantings in that no heritage listed turpentine trees will be disturbed by this option. However, it should also be noted that approximately eight (8) of parking spaces on Pacific Highway will be lost and has other heritage impacts on the park.*

*All other options include elements which would not be compliant with relevant standards or would require diminished traffic arrangements with adjoining developments. Option 7 provides the poorest access arrangements of any option with access being via a convoluted route.*

*On balance Option 1 is considered the best option to provide vehicular access to the site. This includes the provision of a two way roadway at the southern end of the site and signalised access to the Pacific Highway. The reasons for this choice include but are not limited to:*

- 1. Rationalisation of access arrangements in Pacific Highway;*
- 2. Future performance of access intersection;*
- 3. Lower potential queues for exiting traffic within the site;*
- 4. Australian standard compliant ramp grades to provide general and service vehicle access;*
- 5. No issues with sight distance for exiting traffic; and*
- 6. No impact to on-street parking to provide the facility.*
- 7. This is considered the safest option as all traffic movements are controlled by traffic signals."*

A full copy of the Brown Consulting report is provided at **Appendix A**.

### **8.3 Heritage - Built elements**

DA 1129/2011 was accompanied by a Statement of Heritage Impact by Howard Heritage Consultancy (HHC) specifically prepared to focus on the heritage values of the various built elements within Hornsby Park. With regard to the CWA building HHC concluded:

*"Whilst the heritage qualities of the Women's Rest Centre building are acknowledged, it is considered that its level (degree) of heritage significance is such that it does not warrant retaining on heritage grounds. It is not an exceptional, outstanding or even early example of its kind and it does little to enhance or reinforce the aesthetic or landscape values of Hornsby Park. On the contrary, it could be argued that this building (together with other existing built structures nearby) weakens the landscape character of the south eastern corner of the Park."*

Given that this assessment has previously supported the demolition of the CWA building it was considered more appropriate, for the purposes of this review, to have HHC assessment peer reviewed to establish whether its conclusions were reasonable.



## 8.4 Heritage - Landscape and visual values

### Methodology

The following legislation/standards/codes/guidelines/studies are relevant:

- Hornsby Park Heritage Study and Landscape Plan, 1996 (MWA)

### Commentary

Key points identified by the Mayne Wilson and Associates review of access options, in term of impacts on the landscape heritage values of Hornsby Park are provided below:

- None of the structures added since 1940 - including the CWA building, the rock slab fountain, the Rotary picnic area, and the 1962 swimming pool - have paid any regard to the original City Beautiful precepts and Edna Walling-style layout or elements of the Park, and have no aesthetic value. The existing swimming pool complex, the fountain, and to a lesser extent the toilet block are all discordant and intrusive elements, and should be removed or replaced with better designed structures in harmony with the interwar character of the park, as recommended in MWA's 1996 Concept Plan.
- It would seem that those who prepared the listing for the CWA building had not actually read the 1996 assessment of the park's landscape's heritage values, as they do not appear to have a full appreciation of the context in which to evaluate the relative significance of that building. In the recent listings there was no apparent understanding of the City Beautiful theme and Edna Walling influences of the park as it was designed in 1927 and laid out in the 1930s, and no realization that the modernist style of the CWA building was out-of-character with that style. It is our opinion that far from contributing to the park's intrinsic character, the actual style, fabric and siting of the building detracted a little from it.
- This is not to say that the CWA building had no social significance – it clearly has had. However, the CWA themselves have moved out of it, and will be accommodated in the new Aquatic Centre, so that principal, social purpose of the existing 1950s building is now part of history.
- We do not consider the CWA building is of sufficient value to retain when by doing so it creates problems for, and/or undesirable impacts on, quite a number of the other, older and higher values placed on the landscape elements and character of the park as a whole.
- The overall architectural plan for the new Aquatic Centre, and the associated landscape master plan, shows that the key landscape elements would be minimally affected by option 1.
- Demolition of the CWA building would enable the entry into the park to be aligned with the traffic lights at Coronation Street, and also for none of the important landscape elements in the park to be adversely affected – other than the probable removal of the

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old Magnolia tree.

## Conclusions

The report from Mayne Wilson and Associates includes the following conclusion:

- Only option 5 offers no adverse heritage impacts on the park, but other problems rule it out.
- Option 6 also offers no adverse heritage impacts on the park, but as the site is itself a heritage-listed place (with no connection to the park), that also rules it out.
- Option 1 offers a few, but minor impacts on the park's landscape heritage, but involves the removal of the Women's Rest Centre, which has only recently been heritage listed and is not considered as significant from a heritage perspective as key elements of the park.
- Options 8 and 9 have some possibilities, but will have negative impacts on the park, especially through the isolation of the playground / BBQ area and access to parkland to the west. Some Turpentine trees will also have major adverse impacts. The Option 8b plan prepared by Council demonstrates how some of these foreseen problems may be addressed, however it is still considered a significantly worse outcome for the park than Option 1.
- Option 3 has undesirable impacts on existing significant trees, imposes a disturbing and unattractive ramp structure on this portion of the park and isolates the children's playground further from the park through the removal of the access staircase and addition of safety fencing along the ramp edges.
- Options 2, 4, 7, 10 and 11 would all have considerable adverse impacts on the landscape heritage elements and values of the park. Option 2 is considered amongst the worst in terms of impact on the heritage fabric of the southern end of the park.
- Option 12 may, with some fine tuning, be made to overcome some of the foreseen adverse impacts on the landscape heritage fabric, but is definitely less desirable than option 1 as it results in loss of valuable parkland and isolation of the Women's Rest Centre from the rest of the park.
- Option 13 would remove all the heritage elements down the northern end of the park, making it a bare, two-way roadway. Removing all the existing trees would also destroy the present sense of enclosure, softening and visual screening which they presently provide of the adjoining TAFE building. In my opinion, those impacts would be most undesirable.

A full copy of the Mayne Wilson and Associates report is provided at **Appendix B**.



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## 8.5 Heritage Peer Review

Weir Phillips Architects and Heritage Consultants was engaged by Hornsby Shire Council to peer review the heritage considerations associated with this project and to specifically address the questions noted below:

*Question 1 - Does consultant agree with the findings of the two heritage assessments undertaken in support of the DA?*

With regard to the Mayne Wilson Associates report lodged with DA 1129/2011, Weir Phillips advise:

- The content of the report provides an adequate assessment of the heritage impacts of the proposed development
- The conclusions regarding vehicle access options, aquatic centre design, and landscape are accepted.

With regard to the Howard Heritage Consultancy report lodged with DA 1129/2011, Weir Phillips advise:

- The NSW Heritage Assessment Criteria have not been systematically addressed;
- The report generally provides a reasonable assessment of the impacts of the proposed development on the heritage values of the place, although further information could be provided on a number of matters, being:
  - The report not include a description of the aesthetic values of the Women's Rest Centre;
  - The social values of the Women's Rest Centre have not been addressed. The report does not mention that CWA will be provided with meeting rooms in a nearby location. This will maintain the long association of the CWA with the local community. (Note: This information may not have been available to HHC at the time of writing);
  - The report does not state whether or not the Women's Rest Centre has reached the threshold for local significance, although it does assess it as having "moderate" significance;
  - The social values of the existing Aquatic Centre have not been addressed. The Aquatic Centre has a long association with the local community and the new facility will provide for this association to continue; and
  - The open lawns and specimen tree plantings of Hornsby Park (which contrast with the bush beyond) have not been identified as elements of high contributory significance, and should be considered.

Notwithstanding the above, Weir Phillips accept the conclusions in the HHC report and consider that its recommendations have been thoughtfully considered and provide a useful set of actions to preserve the and interpret the heritage values of the place.

*Question 2 - Provide commentary on the (heritage) value of the Park and the Women's Rest Centre.*

Weir Phillips has provided an assessment of Hornsby Park relative to the NSW Heritage Assessment Criteria, issued by NSW Heritage Office and prepared the following Statement of Significance:

*"Hornsby Park, created in 1896 after agitation by the local community, is the main civic park of Hornsby. It demonstrates the growth of Hornsby from a rural area to a suburban area with a town centre, and the provision of amenities to meet the needs of the local community. The park is valued by the community and has been continuously used since its creation. Hornsby Park is an attractive park that provides evidence of the influence of English landscape park design and the "City Beautiful" movement in the development of suburban parks in Sydney."*

In terms its assessment of the heritage values of the Women's Rest Centre building, Weir Phillips conclude:

- This building does not reach the threshold needed to satisfy any of the Assessment Criteria issued by the NSW Heritage; and
- The conclusions by HHC are accepted.

Further, Weir Phillips provide the following commentary in support of their conclusion that demolition of the CWA building is reasonable:

*"The Women's Rest Centre has been assessed as having insufficient heritage values to be of local heritage significance. While the building is historically associated with the CWA and the provision of public amenity for local residents, the CWA have relocated their activities and other public amenities are also provided in the park and town centre. The design of the building does reflect some aspects of mid-century Modernism but is not a notable example and does not display creative excellence.*

*The demolition of the Women's Rest Centre is therefore acceptable with regard to its level of heritage significance, with regard to the beneficial impact its demolition will have on Hornsby Park, and as the building and its association of the CWA with the site will be interpreted.*

*The demolition of public facilities within parks is not uncommon as Councils respond to current community needs within their budget frameworks. The demolition is consistent with a growing pattern of demolishing buildings that have alienated parkland and now no longer have a specific or compelling function. An example of this is the demolition of the Women's Rest*

*Centre in Hyde Park (Figure 6). It was demolished in 2000, removing a structure built in 1956 that was visually intrusive with regard to the aesthetic values of Hyde Park and the area incorporated into the park.*

*The demolition of the Women's Rest Centre will have a positive impact on Hornsby Park because it would remove an element that is visually intrusive with regard to the aesthetics of the park."*

*Question 3 - Is the Council's proposed Option 1 acceptable having regard to the circumstances of the case?*

In responding to this question, Weir Phillips has considered the 3 access options identified Brown Consulting as being the most feasible from a traffic perspective. (i.e. Options 1,2 and 8) Weir Phillips conclude that Option 1 is the preferred arrangement for access to the new Aquatic Centre, as summarised by the following commentary:

*"The key issue in determining a preferred option is whether the Women's Rest Centre has sufficient significance such that its retention warrants the additional negative impacts to Hornsby Park arising from its retention.*

*The existence of the Women's Rest Centre is not required for the good functioning of Hornsby Park. Rather, this requires maximising the useable parkland, in part by ensuring that the useable part of the park is contiguous. The level of significance of the Women's Rest Centre is not sufficient to warrant its retention if its removal will benefit the community and enhance the heritage significance of the Park.*

*Option 1 allows the good functioning of the park and the understanding of its significance but with the loss of the Women's Rest Centre. Options 2, 8 and 8b have been prepared to investigate ways to retain the Women's Rest Centre, but in so doing the options ascribe too much significance to the Women's Rest Centre over the major adverse impacts to the park that arise out of its retention. All of these three retention options have a far greater adverse impact on the park, both in terms of amenity and retention of its heritage significance, than does Option 1.*

*Preservation and enhancement of the amenity and heritage significance of the park should be the first priority when dealing with change within or adjacent to the park. This imperative takes priority over retention of the Women's Rest Centre.*

*Ideally it would be desirable for the Women's Rest Centre to be retained. The building is a community asset. In this instance, however, retaining one community asset will create a major adverse heritage and amenity impact in efficient delivery of a far more important community asset. The retention of the Women's Rest Centre creates a set of circumstances that will have a major adverse impact on the heritage significance of Hornsby Park and on its amenity to a wide range of citizens."*

In supporting Option 1, Weir Phillips makes the following recommendations:

- The retention in situ of the Kocken plaque and the reconstruction of the sandstone blade wall; and
- Improving the Civic Centre precinct at its southern end by painting of the side wall of the adjoining property to the south; reconstructing the sandstone blade wall presently in part of the front of the Woman's Rest Centre, and the possible repainting of the heritage listed building opposite, to reinforce the enhanced importance of the intersection.

A full copy of the Weir Phillips report is provided at **Appendix C**.

## 8.6 Landscape design

### Methodology

The primary focus of the landscape design review is to address accessibility for patrons, and the functional/design elements of the Park. Within that context, the following considerations informed the evaluation of landscape impacts (both positive and negative) associated with each access option:

- The landscape amenity of the Park, including its interface with the public domain and protection of key landscape elements (hard and soft)
- Pedestrian access, including maintaining established access point entries into the Park, and maintaining/improving disabled access
- The usage patterns of the Park and whether the works would fragment the Park into smaller, disconnected elements, or provide future opportunities to consolidate and connect and active and passive uses.
- Opportunities for future landscape works that would embellish key vegetation features of the Park
- The creation or removal of structural barriers within the Park

The following legislation/standards/codes/guidelines/studies are relevant:

- As 1428.1- 2009 Design for Access and Mobility

### Conclusions

The report from Paul Scrivener Landscape Architect provides the following conclusion:

*"Having assessed all the alternative options with a view to retaining the CWA building it becomes clear that each alternative results in varying combinations of negative impacts to the Hornsby Park precinct in terms of landscape assessment and the related park heritage impacts.*

*In the original assessment of alternative road access opportunities these impacts were apparent and the option 1 road access was considered the most viable from such landscape and park heritage perspectives.*

*Due to specific topography constraints, road access opportunities and the significant underlying geometry that are integral to Hornsby Park's character the alternative options, to varying degrees promote unacceptable impacts that in terms of landscape significance outweigh the contribution the CWA building makes to the Park as an important public asset.*

*Having reassessed the options and reviewed additional alternative options my preference for the incorporation of the option 1 entry configuration is reinforced."*

A full copy of the Paul Scrivener Landscape Architect report is provided at **Appendix D**.

## **8.7 Waste Management**

### **Methodology**

The focus of this analysis undertaken by GHD is identifying viable waste collection alternatives for each of the access options.

### **Commentary**

Key points identified by the GHD review of access options are provided below:

- The type of access and collection point for all options except Options 8 and 9 are essentially the same. The bin collection point is outside and a collection vehicle can get access to it by way of an open driveway without any height or clearance restrictions. If any of Options 1 to 7 or 10 to 12 are chosen, waste collection could be undertaken as has been in the past, using Council's contractor and its regular vehicles.
- Options 8 and 9 provide for a one way road system that runs through the complex with traffic flowing either north to south or south to north. Minimum clearance under the complex is 2.9 m which is lower than Council's contractor's vehicles and indeed any conventional waste collection vehicle. Conventional waste collection vehicles will not be able to service the bins at this site if they are required to drive through the loop road.

There are therefore three alternatives for waste collection if these options are chosen.

#### Alternative 1 - Small Collection Vehicle

Waste collection vehicles capable of operating with clearances of less than 2.9m do exist but are quite uncommon. Of 8 waste contractors contacted only 1 could offer such

a service, which was subject to very specific conditions regarding waste streams. Concerns therefore exist about long efficacy of this arrangement should that particular contractor cease to operate. However potentially this service would be cheaper than the service presently offered by Council's existing contractor.

#### Alternative 2 - Bins to be collected from Pacific Highway

Bins would be stored in the bin room below the Aquatic Centre, but moved to the kerbside at the Pacific Highway the night before collection. Given the number/weight of the bins, and the distance/gradient of the driveways, a mechanical means of moving the bins would be needed. Bins could be towed by a car, utility vehicle or tow tug - any of which would need to be acquired for this purpose.

The collections of bins from the Highway also raises concerns regarding additional time required for staff to move the bins, theft, vandalism or illegal waste disposal by others.

#### Alternative 3 - Vehicle entry/exit via same driveway

This alternative allows for bins to be collected from within the site, with a conventional waste truck using the same driveway to both enter and exit the site. In either instance (i.e. whether the driveway at the northern or southern end of the site) the truck would be required to drive contrary to traffic direction for part of the process.

This alternative is viable only if undertaken before 5.30am on collection days.

Of these three alternatives, this is the most viable as it uses Council's existing contractor, and requires no special vehicles, equipment or additional costs.

### **Conclusions**

The GHD assessment has concluded that Options 1-7 and 10-12 rank equally as acceptable for the purposes of waste collection. Options 8 and 9 are the least preferred.

A full copy of the GHD report is provided at **Appendix E**.

## **8.8 Work Health and Safety - Operational access**

### **Methodology**

The focus of the analysis undertaken by GHD is to review the access options relative to the probable safety issues. The following considerations informed the evaluation of the access options:

- Pedestrian safety of users of the park and new Aquatic Centre, including at the roadside, within the Park, within the car park,
- Pedestrian safety for staff to access places within the new aquatic Centre to undertake required tasks
- Pedestrian safety for service workers attending the site to undertake required tasks
- Vehicle safety entering/exiting the site, moving across the site, within the car park, in proximity to the TAFE site and connections to the Highway (with and without traffic signals)
- Service vehicle interaction with pedestrians
- Service vehicle access and manoeuvring
- Operating noise of service vehicles
- After hours security and security of the of the Aquatic Centre car park
- Access by emergency service vehicles to car park
- Increased vehicle traffic in vicinity of the CWA building and the playground.

The following legislation/standards/codes/guidelines/studies are relevant:

- Work Health and Safety Act 2011 (NSW)
- Work Health and Safety Regulations 2011 (NSW)
- Building Code of Australia
- Code of Practice: How to Manage Work Health and Safety Risks
- Code of Practice: Moving Plant on Construction Sites
- Code of Practice: Managing the Work Environment and Facilities
- Code of Practice: Managing Risks in Construction Work
- Code of Practice: Hazardous Manual Tasks

### **Commentary**

The risks and summaries have been grouped by common access directions:

- Options 1, 2, and 12 all have southern entry from Pacific Highway and a two-way access road;
- Options 3, 4, 10 and 11 all have northern entry from Pacific Highway and a two-way access road;
- Options 5, 6 and 7 all have access from southern and western side roads and have two-way access road; and
- Options 8 and 9 have access via a one-way loop road.

For each Option risks have been identified and a risk mitigation measure suggested. These are for guidance purposes only and provides an indication of the type of measure that can be implemented according to the risk.



## Conclusions

The report from GHD provides the following conclusion:

*"When comparing all the Options with their associated risks and risk mitigation measures, and the strength of those mitigation measures with regard to the Hierarchy of Controls, the review would indicate that Option 1 would be the preferred option for the HAC."*

*Option 1 would be favourable for the following reasons:*

- Relies on stronger risk control measures and is less reliant on human performance factors for safety
- Provides more controls for the safety of visitors (both pedestrian and vehicular) to HAC and users of Hornsby Park (e.g. children's playground), HAC staff and service providers
- Concentrates traffic flow to one end of Hornsby Park and to one signalised intersection on the Pacific Highway
- Does not concentrate traffic onto residential streets or within the immediate vicinity of the TAFE driveway
- Does not require waste service vehicles to drive under the complex and allows for safe after-hours access to bin store enhancing safety and security
- Incorporates an acoustic barrier which will minimise noise to residential areas as well as blocking out an amount of light from flashing lights on operating waste vehicles
- Does not require specialist waste service vehicles to be engaged to meet car park clearances
- Does not require HAC staff to utilise tasks such as towing or walking of bins up inclines to the road side

*Other Options have some of the above favourable reasons but not as many. Council should consider the cost of implementing controls and the residual risk (once controls have been implemented) to help determine what is an acceptable level of risk for the project and what risks would be deemed to have been controlled as far as is reasonably practicable.*

*Option 12 follows closely behind Option 1 as the next preferred Option. The primary concern with Option 12 is the increased traffic in the immediate vicinity of the CWA building.*

*Options 8 and 9 are the least preferred Options due to the increased risk to pedestrians in the park (vehicles at both the northern and southern end in close proximity to the CWA and children's playground) and the potential for security issues with access under the complex after hours."*

A full copy of the GHD report is provided at **Appendix F**.



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## 8.9 Work Health and Safety - Construction access

### Methodology

The selected vehicles access will also need to serve as the construction access to and from the development site.

The focus of the analysis undertaken by GHD is to review the access options relative to the workplace health and safety issues that need to be managed during the construction process. The following considerations informed the evaluation of the access options for this purpose:

- Access and egress of people, plant and equipment
- Traffic management
- Security, lighting and unauthorised access
- Amenities
- Electrical supplies
- Hazardous substances and dangerous goods
- First aid, fire safety and emergency response procedures
- Noise
- Working at heights or in confined spaces

The following legislation/standards/codes/guidelines/studies are relevant:

- Work Health Safety Act 2011 (NSW)
- Work Health Safety Regulations 2011 (NSW)
- Building Code of Australia

### Commentary

Work Health and Safety issues may need to be managed differently depending on the final design that is pursued and the planned construction stages. Access and egress of plant and equipment, traffic management and emergency response procedures may be influenced, positively or negatively, by having one way traffic flow, two way traffic flow, single lane or double lane roads. Space available for the movement, parking and operation of various plant and equipment – from small trucks to cement trucks to mobile cranes – can impact on efficient emergency response and evacuation processes for instance.

From the Options being considered for the HAC, access roads will either be one-way or two-way. Some of the advantages and disadvantages of both are shown in the table below.

**Table 7: Work health and safety access comparisons**

Access Flow	Advantages	Disadvantages
<b>One way</b>	Reduces likelihood of reversing hazards	Areas must be established for loading and unloading activities to be carried out
	Preference for vehicles and mobile plant to always move in one directions	Traffic movement on and off public roads is through two locations
	Focuses the drivers attention to hazards in the direction of travel	Traffic must drive through the construction area to exit the site
	Eliminates turns that cross in front of oncoming traffic	No room for passing vehicles or mobile plant
		One-way roads tend to have higher speeds
<b>Two way</b>	Provides rooms for larger vehicles and mobile plant to manoeuvre	People and vehicles more likely to share traffic routes
	Areas for loading and unloading activities can be more easily established	Reversing alarms may cause confusion where multiple plant using same area
	Traffic movement on and off public roads is through one location	Requires separate gate for pedestrians to enter site
	Traffic on two-way construction roads is generally slower making pedestrian use safer	

## Conclusions

The analysis from the GHD review concludes that Option 1 provides the best outcome for the management of construction access, with next best ranked alternatives being Options 2 and 12.

A full copy of the GHD report is also provided at **Appendix F**.

## 8.10 Tree Assessment

Landscaping with Hornsby Park comprises numerous Turpentine trees which have been identified by Mayne Wilson and Associates as being of high significance in terms of the contribution they make to the overall heritage significance of the Park, as opposed to their intrinsic value.

Options 3, 8, 9 10, 11 and 13 all have the potential to impact upon a stand of these Turpentine trees clustered towards the northern end of Hornsby Park. However as Option 8 was the only one of these option identified as being potentially feasible from a traffic consideration (refer to section 8.2 above) the project arborist, Growing My Way Tree Services review was limited to an assessment of impacts associated with that design Option.

The Turpentine trees likely to be affected by Option 8, their condition and the recommendations provided within the Tree Assessment Report lodged with DA 1129/2011 is noted in the table below:

**Table 8: Tree schedule**

Tree No and species	Height and Spread	Health and Vigour	Recommendation
T 44 <i>S. glomulifera</i>	15.5m and 11.5m	Good	Protect
T45 <i>J. mimosifolia</i>	15m and 14.5m	Fair to Good	Protect
T49 <i>S. glomulifera</i>	17.5m and 16.5m	Good	Protect
T50 <i>S. glomulifera</i>	17m and 18.5m	Good	Protect
T51 <i>S. glomulifera</i>	17m and 18.5m	Good	Protect
T52 <i>S. glomulifera</i>	17m and 16m	Good	Protect
T60 <i>S. glomulifera</i>	16.5m and 9m	Good	Protect
T65 <i>S. glomulifera</i> .	15m and 16.5m	Good	Protect

The location of these trees is identified on the aerial image below which was also included within the Tree Assessment Report lodged with DA 1129/2011:



Option 8 would involve widening of the existing roadway footprint at the northern end of the Park. In considering the potential impacts of Option 8 possible variations on the a likely design were also considered as follows:

- Option 8 proposes a "straight roadway with a left hand bend"
- Option 8b proposes a "straight roadway with a right hand bend" which then deviates left and finishes in a similar position to Option 8.

Option 8b allows for the ramp down to the car parking under the pool to start further downhill and hence reduces excavation near tree T52.

## Conclusions

The analysis from Growing My Way Tree Services provides the following conclusions:

**Table 9: Tree impacts**

Tree	Height and Spread
T 44 <i>S. glomulifera</i>	Major impact on root zones from Option 8 and 8b
T45 <i>J. mimosifolia</i>	Major impact on root zones from Option 8 and 8b
T49 <i>S. glomulifera</i>	Lesser degree of impact than for trees 44 and 45 from Options 8 and 8b
T50 <i>S. glomulifera</i>	Lesser degree of impact than for trees 44 and 45 from Options 8 and 8b
T51 <i>S. glomulifera</i>	Lesser degree of impact than for trees 44 and 45 from Options 8 and 8b
T52 <i>S. glomulifera</i>	Would be removed by options 8 and 8b
T60 <i>S. glomulifera</i>	Removed by option 8b
T65 <i>S. glomulifera</i> .	No potential adverse impact from Options 8 or 8b

A full copy of the Growing My Way Tree Services report is provided at **Appendix G**.

## 8.11 Costings

Brown Consulting were given estimates prepared by Council for Options 1 to 7 prepared in September 2011 and Option 8 prepared in November 2011. Brown Consulting reviewed those costings and developed costs for the remaining options considered in this report.

**Table 10: Options costings**

Option	Total Cost	Comments
<b>Option 1</b> Access into Hornsby Park opposite Coronation Street via traffic lights	\$800,000	Access road and alterations to Pacific Highway

<b>Option 2</b> Access north of CWA building	\$500,000	Access road works only
<b>Option 3</b> Access at the northern end of Hornsby Park – widen existing access	\$1,400,000	
<b>Option 4</b> Access through TAFE car park	\$900,000	Excludes raising pool by 2.8m
<b>Option 5</b> Access via No. 4 Dural Street	\$2,000,000	Includes property acquisition
<b>Option 6</b> Access via No. 6 Dural Street	\$700,000	Excludes costs to construct new Montessori Preschool
<b>Option 7</b> Access via Old Mans Valley fire trail	\$3,000,000	
<b>Option 8</b> Access via loop road within Hornsby Park (Mark Cambourn proposal #1)	\$2,400,000 - \$3,600,000	Various configurations can be applied to this Option hence the cost range
<b>Option 9</b> Access via Loop road within Hornsby Park (Mark Cambourn proposal in reverse)	\$2,400,000 - \$3,600,000	Various configurations can be applied to this Option hence the cost range
<b>Option 10</b> Access via playground northern side of Hornsby Park (Lucy Bal proposal)	\$1,400,000	Utilities estimate taken from Option 3
<b>Option 11</b> Access via playground northern side of Park with access ramp at rear of pool to basement. (Lucy Bal proposal - modified)	\$3,500,000	Utilities estimate taken from Option 3
<b>Option 12</b> Access via Coronation Street/Pacific Highway traffic signal retaining CWA building	\$800,000	Access road and alterations to Highway, including relocation of heritage lights. Utilities estimate taken from Option 2

<b>Option 13</b> Access via northern end of Hornsby Park (Graham Hosking Option)	\$2,500,000 - \$3,100,000	The sketch plan cannot be easily deciphered to determine what is required. Also Various configurations can be applied to this Option. Therefore it is only possible to provide an approximate cost at this stage.
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**NOTE:** Options 8 and 9 include additional costs for traffic control during construction due to them being a one-way design

A full copy of the Brown Consulting report is also provided at **Appendix H**.

## 8.12 Project timing

### Land ownership

Three of the proposed 12 options involve land which is not the subject of the DA 1129/2011. This section of the review considers implications associated with implementing a vehicle access arrangement which relies upon land outside the project site.

#### Option 4 - Access via the TAFE site

This land is owned by the NSW state government (Department of Education and Communities). In order to formalise vehicle access over the TAFE site to the new Aquatic Centre (assuming it was both practical and appropriate relative to other considerations) it would be necessary for either:

- A Right of Way to be created over the TAFE site; or
- Land to be excised from the TAFE site and amalgamated with Hornsby Park. This would involve a land subdivision.

It is not possible to determine the length of time, or the costs, associated with either of the above processes.

#### Option 5 - Access via No. 4 Dural Street Hornsby.

Assuming this option was both practical and appropriate relative to other considerations, implementation is complicated by virtue of this land being privately owned. Consequently there is no certainty as to:

- Whether the land owner would be prepared to sell this allotment to Council; or
- Whether the parties could agree on a purchase price. A report to Council's meeting of 21 September 2011 indicated this option had a likely value of \$2 million (being for the

land purchase and construction).

Option 6 - Access via No 6 Dural Street (Montessori preschool site)

This land is owned by Council and in that respect is less difficult to implement than Options 4 and 5. However, this site is fundamentally constrained by virtue of it also being a listed heritage item under Hornsby Local Environmental Plan 1994.

The demolition of the buildings on the site, presently occupied by the Hornsby Ku-Ring-Gai Montessori Preschool, would require development consent in its own right.

The preparation of a separate development application seeking consent to demolish the building would take time to prepare and be assessed. The time frame for such a process cannot be reasonably estimated and there is no guarantee, and indeed it is unlikely, that approval to demolish this heritage listed building would be granted simply to permit access to the Aquatic Centre.

**Design investigations**

Options 3 and 5 - 11 all involve significant construction elements and considered design solutions, as reflected in their estimated costs which range from \$1.4 million to \$3.8 million.

The detailed architectural and engineering investigations of these access options would likely take 3 months to complete.

**Conclusion**

Should Option 4 be determined as the superior means of access to the Aquatic Centre, it is evident that an unknown delay would result from completing the processes necessary to incorporate that land into the project site.

Options 5 and 6 simply involve too much uncertainty and should be discounted.

Should Options 7-11 be determined as the superior means of access to the Aquatic Centre a significant time delay would also occur whilst the design and documentation was completed. It is not expected DA 1129/2011 could be held in abeyance to enable the land ownership and design investigations to be completed.

Consequently for the purposes of project timing only:

- Options 1, 2, and 12 rank most favourably as there are no identified delays necessary to resolve ownership or design issues
- Options 5 and 6 should be discounted due delays around ownership and heritage.

- Options 3, 4 and 7-11 should also be discounted as delays associated with design and documentation would unreasonably delay the project.



## 9 OUTCOMES OF THE EVALUATION PROCESS

The evaluation of vehicle access options to the new Aquatic Centre complex has been both broad and rigorous in terms of:

- The number of access options that have been identified for investigation; and
- The range of technical and operational requirements against which each of these options have been tested.

In evaluating the most suitable means of access it is apparent however that the overall appraisal needs to proceed in a series of steps which reflect the purpose of this review, which is to *"give further consideration to the access across the heritage listed Hornsby Park that is more sensitive to the heritage significance of the Park and will retain the CWA building."*

The steps for this evaluation are set out below:

- |        |   |
|--------|---|
| Step 1 | The primary test must be to identify which of the access options provides a safe, orderly and efficient means of access onto and across Hornsby Park. If an access option cannot meet the relevant criteria used for this purpose then it can be discounted from the process.   |
| Step 2 | Once the options which can meet that test are identified, the next step is to determine which of those options is the most sensitive and responsive to the values which define the heritage significance the Park.  |
| Step 3 | Completing those two primary, sequential steps, will further isolate the most appropriate design solutions, which can then be tested against the remaining consideration such as: <ul style="list-style-type: none"> <li>• Waste Management</li> <li>• Work health and safety (construction and operations)</li> <li>• Costs</li> <li>• Timing</li> </ul> |

In terms of Step 1, the analysis by Brown Consulting concluded that Option 1 is superior with regard to the consideration of all traffic criteria.

In terms of Step 2, Option 5 was preferred by Mayne Wilson Associates, but recognised as being unworkable due to various constraints. Mayne Wilson Associates next most acceptable solution is Option 1. That outcome is supported as being suitable with regards to heritage impacts by the original assessment undertaken by Howard Heritage Consultancy, and as subsequently peer reviewed for this exercise by Weir Phillips, as noted at section 8.5 above.



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## 10 RESPONSE TO JRPP RESOLUTION OF 23 FEBRUARY 2012

Substantial investigations have been undertaken to determine whether a proper, functional and safe vehicle access can be provided without requiring demolition of the Women's Rest Centre building.

However at the core of that consideration is whether that building warrants retention.

The Women's Rest Centre has been assessed as having insufficient heritage values to be of local heritage significance. Further, its demolition will allow for the provision of a single access road at the southern end of the Park which, on balance, and when measured against all other Options, will have the least adverse heritage impact.

Preservation and enhancement of the amenity and heritage significance of the Park should be the first priority when dealing with change within or adjacent to the park. This imperative takes priority over retention of the Women's Rest Centre.

In addition to being acceptable on heritage grounds, the location, dimensions and geometry of Option 1 are necessary to meet the requirement of relevant Australian Standards having regard to the type and quantity of vehicles which it must serve.

Therefore in response to the Panel's resolution of 23 February, 2012:

- Further consideration has been given to access across Hornsby Park;
- Option 1 which requires demolition of the Women's Rest Centre building has been confirmed as the most sensitive to the heritage significance of the Hornsby Park,
- The significance of the Park is of greater heritage significance than the Women's Rest Centre building; and
- The design of Option 1 responds to the types of vehicles which are required to attend the site.

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