MAJOR PROJECT ASSESSMENT:
Homebush Bay Bridge
Homebush Bay, between Wentworth Point and Rhodes
(MP10_0192)

Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

March 2013

ABBREVIATIONS

AHD	Australian Height Datum
CBD	Central Business District
CCTV	Closed Circuit Television
CoRTN	UK Department of Transport Calculation of Road Traffic Noise
CPTED	Crime Prevention Through Environmental Design
DCP	Development Control Plan
Department	Department of Planning & Infrastructure
DGRs	Director-General's Requirements
Director-General	Director-General of the Department of Planning & Infrastructure
EA	Environmental Assessment
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPA	Environment Protection Authority
EPI	Environmental Planning Instrument
ESD	Ecologically Sustainable Development
FHWA	Federal Highway Administration Traffic Noise Model
LED	Light Emitting Diode
LoS	Level of Service
Minister	Minister for Planning and Infrastructure
NOW	NSW Office of Water
OEH	Office of Environment and Heritage
Part 3A	Part 3A of the *Environmental Planning and Assessment Act 1979*
Proponent	Fairmead Business Pty Ltd
RMS	Roads and Maritime Services
RtS	Response to Submissions
SOPA	Sydney Olympic Park Authority
TNSW	Transport for NSW
VENM	Virgin Natural Excavated Material
VPA	Voluntary Planning Agreement

Cover Photograph: Photomontage of Homebush Bay Bridge at night (Source: EA)

NSW Government
Department of Planning & Infrastructure

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EXECUTIVE SUMMARY

Fairmead Business Pty Ltd (the proponent) is seeking project approval for the construction and operation of a precast concrete bridge over Homebush Bay connecting the suburbs of Wentworth Point and Rhodes. The bridge has been designed to accommodate public buses, maintenance and emergency vehicles, and pedestrians and cyclists. Private motor vehicles (including taxis, hire cars and motor bikes) would be prohibited from using the bridge. The proposal is known as the Homebush Bay Bridge, and is a transitional Part 3A project.

The Homebush Bay Bridge project would comprise a 295 metre long bridge between the proposed Bridge Boulevard at Wentworth Point and Gauthorpe Street at Rhodes. The bridge would consist of two main structures: a 222 metre five-span single-cell conventional box girder bridge commencing on the Wentworth Point shoreline; and a 73 metre approach bridge of continuous deck units constructed on piers commencing at Rhodes peninsula. The two structures would connect at the fifth (and easternmost) pier of the main bridge. The proposal also incorporates associated road approaches and tie-ins to the local road network.

The proposal would service growing communities at Wentworth Point and Rhodes by providing a dedicated local bus route and shared cycling and pedestrian path directly between the two suburbs. Wentworth Point and Rhodes comprise two of the largest redevelopment areas in Sydney's central west and inner west subregions respectively, and planned growth would place increasing pressure on the existing road network. The need for the proposal is identified in strategic planning for the area, including the Metropolitan Plan for Sydney 2036. The link provided by the bridge would increase opportunities for Wentworth Point and Rhodes residents to access public transport services on either side of Homebush Bay, including bus and train services from the Rhodes transport interchange and ferries from the Sydney Olympic Park wharf.

The Environmental Assessment (EA) was placed on public exhibition from Wednesday 21 March 2012 until Friday 4 May 2012. During this period the department received 65 submissions on the proposal. These submissions included ten from public authorities and 55 from the general public. Of the 55 public submissions, 50 (91 percent) supported the proposal, four (seven percent) objected, and one (two percent) did not object but raised concerns. The key issues raised in submissions were:

- the strategic need and justification for the proposal;
- contamination;
- configuration of the bridge for use by public transport, cyclists and pedestrians.

These issues were addressed by the proponent in its response to submissions.

The department has assessed the proponent's EA, submissions from the general public and public authorities, the response to submissions and statement of commitments and considers that there are a number of environmental issues that would need to be carefully addressed during construction and operation of the proposal. These issues include risk of disturbing contaminated sediments and soils during construction, the interface between the bridge and the public domain on the Wentworth Point and Rhodes foreshores, noise and vibration impacts, and construction traffic impacts.

Based on its assessment, the department considers that the proposal is justified and in the public interest. The department considers that the proposal would provide a quality piece of infrastructure that would facilitate improved public transport links between the communities of Wentworth Point and Rhodes. The implementation of the proponent's commitments and the recommended conditions of approval would ensure that the proposal can be constructed and operated in a manner to minimise environmental and social impacts. Therefore, the department recommends that the Homebush Bay Bridge proposal is approved.

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1. BACKGROUND

Fairmead Business Pty Ltd (the proponent) proposes to construct a new bridge across Homebush Bay connecting the suburbs of Wentworth Point and Rhodes.

The site is located approximately 12.5 kilometres west of the Sydney CBD (straight line distance), and is situated in both the Auburn (Wentworth Point) and Canada Bay (Rhodes) Local Government areas.

Wentworth Point
Wentworth Point, formerly known as Homebush Bay West, currently comprises predominately light industrial/warehouse type uses with some residential buildings to the south. Wentworth Point has been identified for redevelopment as a residential and commercial precinct. The Wentworth Point area is generally flat and is bounded by Parramatta River to the north, Millennium Parklands to the west, Sydney Olympic Park to the south and Homebush Bay to the east. The proposed bridge landing/approach structure would be located on Bridge Boulevard, which connects to Hill Road, the only road access to the area.

Future development of the area is controlled by the Homebush Bay West Development Control Plan (DCP) 2004. A number of parcels of land on the eastern foreshore of Wentworth Point that are covered by the Homebush Bay West DCP are currently subject of a separate planning proposal process, which proposes to increase heights and densities on sites which would benefit from the improved accessibility provided by the Homebush Bay Bridge. The proposed amendment was publicly exhibited between 12 December 2012 and 15 February 2013, and is currently being assessed by the department.

Rhodes
The western half of the Rhodes peninsula (west of the railway line) is a former industrial precinct which has been largely redeveloped for a mix of residential, retail and commercial uses following extensive remediation works. Some sites in the area are either still under construction or in the planning stages for redevelopment. A small ridge line runs in a north-south direction along the peninsula with a gentle slope down towards Homebush Bay.

The proposed bridge approach road and landing would be located on the western foreshore, connecting into the Shoreline Drive/Gauthorpe Street intersection. Canada Bay Council is proposing a community centre to the south of the bridge landing, west of Shoreline Drive.

Homebush Bay
Homebush Bay is a largely shallow estuarine bay to the south of the Parramatta River, with one navigable channel running parallel, and in close proximity to, the western shoreline. Given the depth of the water, the bay has limited use for recreational motorised vessels but does accommodate small sail boats and the proposed Rowing NSW race course.

Due to the pollution of groundwater and soil from past industry and associated land reclamation along the Rhodes peninsula, Homebush Bay has experienced extensive sea bed contamination. As a result, restrictions on commercial and recreation fishing are maintained in Homebush Bay. Remediation works associated with the redevelopment of the Rhodes peninsula have remediated the contamination 'hotspots' along the eastern shoreline of the bay; however, the remainder of Homebush Bay is unremediated.

The Badu mangroves, located within the Sydney Olympic Park Authority site, are situated approximately 1.3 kilometres to the south of the proposed Homebush Bay Bridge. These mangroves form part of the largest area of mangrove forest in the Parramatta River estuary and comprise a number of Endangered Ecological Communities.

The proposal's location is shown in **Figure 1**. Surrounding land uses are shown in **Figure 2**.

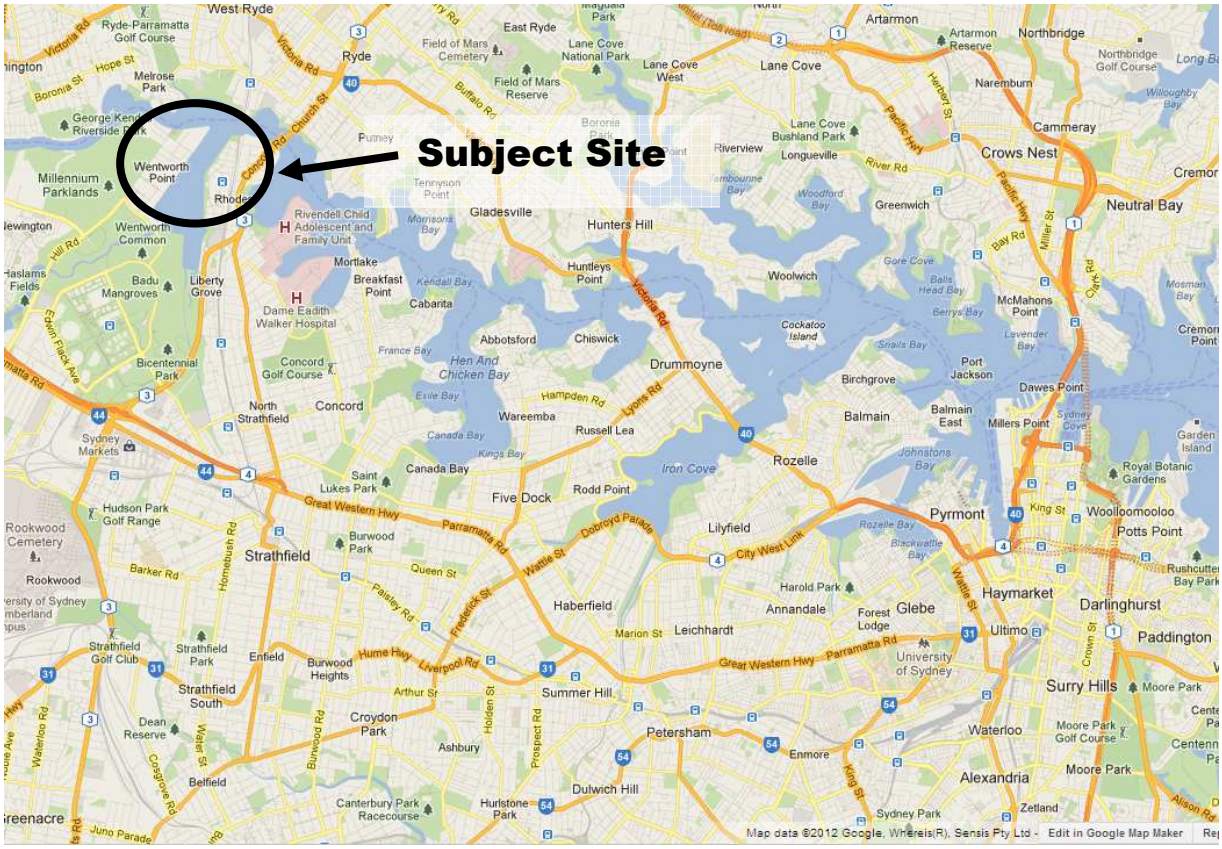


Figure 1 Project Location (Base Image Source: Google Maps 2012)

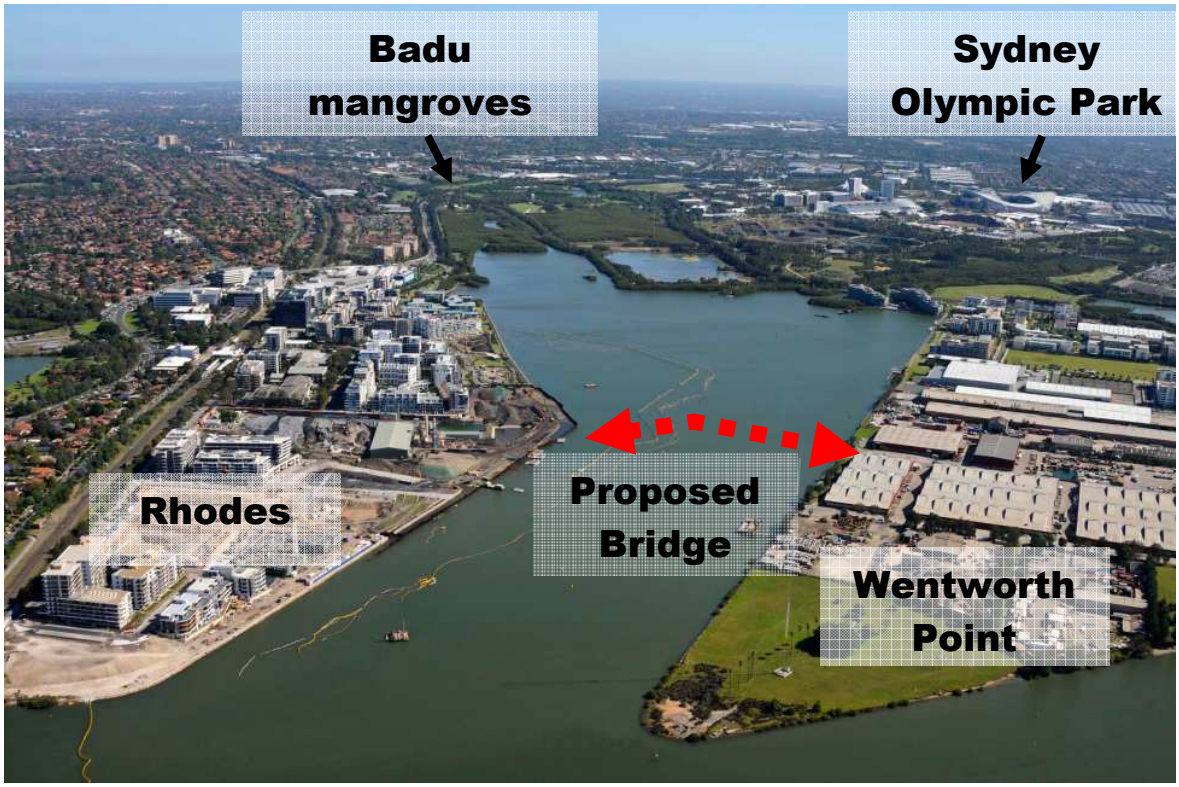


Figure 2 Project and surrounding land uses (Base Image Source: EA 2012)

2. PROPOSED PROJECT

2.1. Project Description

The proponent is seeking project approval to construct a precast concrete bridge over Homebush Bay connecting the suburbs of Wentworth Point and Rhodes. The bridge has been designed to accommodate public buses, maintenance and emergency vehicles, and pedestrians and cyclists. Private motor vehicles (including taxis, hire cars and motor bikes) would be prohibited from using the bridge.

The bridge would comprise two structures. A 222 metre five-span single-cell conventional box girder bridge would form the main bridge structure across Homebush Bay. This main bridge commences at an abutment on the Wentworth Point shoreline and would be constructed on the unremediated area of Homebush Bay. The main bridge would connect to an approach bridge on the Rhodes peninsula shoreline. A 73 metre approach bridge would commence at an abutment on the Rhodes peninsula, and consist of continuous deck units constructed on piers over the remediated area of Homebush Bay. The two bridges would connect at the fifth (and easternmost) pier of the main bridge. The key components of the proposal are listed in **Table 1**.

The bridge deck comprises two bus lanes and a shared pedestrian/cycle path, to be separated by a 1.1 metre high traffic barrier. Two rest areas separate to the shared path, located on the main bridge, would provide seating for pedestrians and cyclists.

The bridge would link Bridge Boulevard, Wentworth Point to Gauthorpe Road, Rhodes. The approaches to the bridge would integrate with the proposed renewal of the foreshore space at Rhodes and Wentworth Point. An at-grade raised pedestrian and cycle crossing at Gauthorpe Road, Rhodes, would provide links between the bridge, the existing streetscape, and the proposed foreshore promenade and plaza. At Wentworth Point, ramps and stairs would connect the bridge with the proposed public park and foreshore walk on the shoreline. A pedestrian underpass would connect the foreshore walk underneath the bridge.

The proposed layout is shown in **Figure 3** and an elevation of the bridge is shown in **Figure 4**.

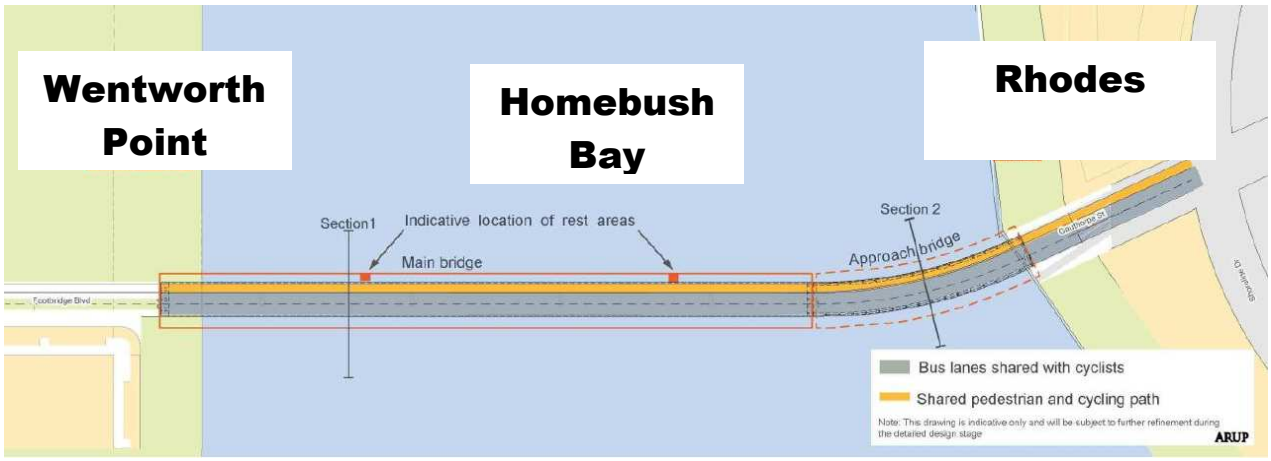


Figure 3 Proposed layout (Base image source: Response to submissions 2013)

Table 1 Key Project Components

Aspect	Description
Bridge length (total)	295m (approx.)
Main bridge length	222m (approx.)
Approach bridge length (curved section)	73m (approx.)
Overall Width	11.4m (main bridge) 11.9m (approach bridge)
Maximum Bridge Clearance (above mean high water mark)	5.7m
Lane widths (main bridge)	Bus: 3.5m Shared pedestrian/cycle: 3.25m
Lane widths (approach bridge)	Bus: 3.75m Shared pedestrian/cycle: 3.25m
Minimum navigable clearance	5.7m
Landing at Wentworth Point	7.6m AHD
Landing level at Rhodes	3.0m AHD
Foreshore Clearance	Wentworth Point: 3.5m Rhodes: N/A
Maximum Gradient	1:33
Distance between piers (main bridge)	51m
Construction timeframe	Earthworks and pier/foundation construction: 10 months Bridge construction: 12 months Finishing works: 2 months
Construction hours	Monday to Friday: 7.00 am to 6.00 pm Saturdays: 8.00 am to 1.00 pm Note: It is anticipated that there will be periods where works would be required outside standard construction hours
Construction jobs	75
Estimated cost	$43,320,000.

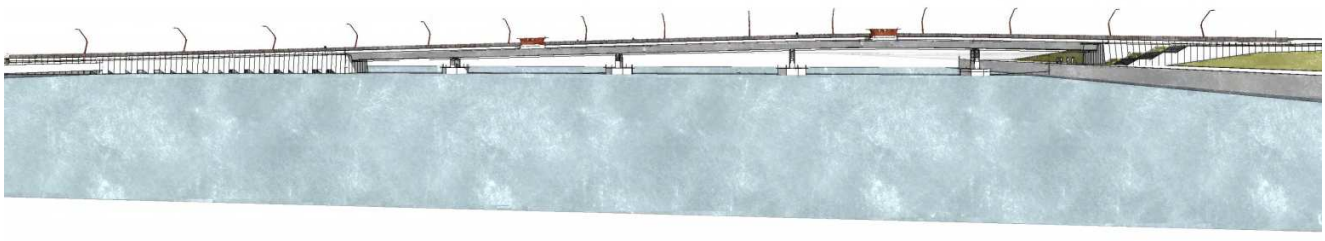


Figure 4 Homebush Bay Bridge – Elevation - view looking south (Source: Response to submissions 2013)

2.2. Project Need and Justification

The need for a bridge across Homebush Bay has been identified in strategic planning for the Sydney metropolitan region, as an important factor in improving transport options for residents, workers and visitors. The proposal would be consistent with the following key strategic plans and policies.

NSW 2021: A plan to make NSW number one again

The proposal is consistent with *NSW 2021: A plan to make NSW number one again*. In particular the bridge would support Goal 7: Reduce travel times, by providing a direct link between Wentworth Point and Rhodes as an alternative to the existing vehicular, cycle and pedestrian access through Sydney Olympic Park. By connecting Wentworth Point to the Rhodes transport interchange, and Rhodes to the Sydney Olympic Park wharf, the bridge would also support goal 8: Grow patronage on public transport, making public transport a more convenient option for residents of these areas who commute throughout the Sydney metropolitan region.

Metropolitan Plan for Sydney 2036

The proposal is consistent with the *Metropolitan Plan for Sydney 2036*. The plan identifies Rhodes as a specialised centre, and recommends that opportunities are pursued for a pedestrian bridge connecting Rhodes to Wentworth Point. The proposal would provide a dedicated pedestrian link between the two suburbs, and facilitate increased public transport options between the two areas.

Inner West Subregion and West Central Subregion draft subregional strategies

The proposal is also broadly consistent with the draft Inner West and West Central subregional plans. The proposal links the Rhodes specialist centre to Wentworth Point. The area is located in close proximity to important subregional centres, including Sydney Olympic Park, Macquarie Park and the Ryde town centre. The proposal would increase accessibility from Wentworth Point to these centres, by providing a direct connection to existing public transport services at the Rhodes transport interchange. By providing increased walking and cycling access, and providing for future bus services, the bridge would support the key goals of managing traffic growth and local travel demand in Wentworth Point and Rhodes and improving local and regional public transport connections.

The department's detailed consideration of the strategic need and justification for the proposal is provided in section 5.1.

3. STATUTORY CONTEXT

3.1. Major Project

On 26 October 2010 the then Minister for Planning declared the proposal to be subject to Part 3A of the EP&A Act under section 75B of that Act. Therefore, the Minister for Planning and Infrastructure is the approval authority, subject to relevant delegations (refer to section 3.3 below).

3.2. Continuing Operation of Part 3A

Part 3A of the EP&A Act, as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A to the EP&A Act, continues to apply to transitional Part 3A projects. The Director-General's environmental assessment requirements (DGRs) have been issued in respect of this proposal and the environmental assessment report was lodged prior to 1 October 2011. The proposal is therefore a transitional Part 3A project.

This report has been prepared in accordance with the requirements of Part 3A and associated regulations. The Minister for Planning and Infrastructure (or his delegate) may approve or disapprove of the carrying out of the proposal under section 75J of the EP&A Act.

3.3. Delegation

On 27 February 2013, the Minister for Planning and Infrastructure delegated his functions under section 75J of the EP&A Act to the Executive Director, Development Assessment Systems and Approvals of the Department of Planning and Infrastructure for the determination of transitional Part 3A projects where the local council does not object, a political disclosure statement has not been made in relation to the application, and less than 25 objections are received. This proposal meets the terms of this delegation, and can be determined by the Executive Director, Development Assessment Systems and Approvals of the Department of Planning and Infrastructure.

3.4. Environmental Planning Instruments

The proposal is permissible under all relevant environmental planning instruments (EPIs). Relevant EPIs to the proposal include the Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005, the Regional Environmental Plan No 24—Homebush Bay Area, and the Canada Bay Local Environmental Plan 2008.

The main bridge and approach bridge structures are permissible in zone W5 Water Recreation under the Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 given they are not inconsistent with the aims of the REP, the zone objectives, or any other EPIs; would not otherwise have any adverse impacts; and would be provided in accordance with the provisions of the Homebush Bay West DCP.

The Wentworth Point construction work site and the approach to the main bridge are permissible under the Sydney Regional Environmental Plan No 24—Homebush Bay Area, as they are consistent with the planning objectives for the Homebush Bay Area.

The Rhodes construction work site and approach to the approach bridge and are permissible under zone B1 Neighbourhood Centre under the Canada Bay Local Environmental Plan 2008 as development for the purpose of a road.

3.5. Objects of the EP&A Act

Decisions made under the EP&A Act must have regard to the objects of the Act, as set out in Section 5 of the Act. The relevant objects are:

(a) to encourage:

…

(ii) the promotion and co-ordination of the orderly and economic use and development of land, […]
(v) the provision and co-ordination of community services and facilities, and […]
(vii) ecologically sustainable development[.]

The department considers the proposal is consistent with the objects of the EP&A Act.

The proposal promotes the ongoing orderly and economic use and development of land in the area surrounding Homebush Bay, by connecting the growing communities in Rhodes and Wentworth Point. The proposal would improve links for residents of both communities to increased choice of transport infrastructure, and new and existing commercial and residential development.

The proposal would encourage the provision and co-ordination of community services and facilities at Rhodes and Wentworth Point, by improving access to existing public transport routes, and existing and proposed community facilities on foreshore areas at Rhodes and Wentworth Point. The proposal would create a potential dedicated bus route linking the two communities, and reduce commuting times required for cyclists and pedestrians to access trains and buses at the Rhodes interchange, and ferry services at the Sydney Olympic Park wharf. The proposal would also create a dedicated recreational path to provide easier access for residents and visitors to foreshore parks and community centres on either side of Homebush Bay.

The proposal is also considered to promote the principles of ecologically sustainable development (see section 3.6 below).

3.6. Ecologically Sustainable Development

The EP&A Act adopts the definition of Ecologically Sustainable Development (ESD) found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

(a) the precautionary principle,
(b) inter-generational equity,
(c) conservation of biological diversity and ecological integrity,
(d) improved valuation, pricing and incentive mechanisms.

The department has given due consideration to the principles of ESD in its assessment. The proposal is consistent with the principles of ESD as it is consistent with the precautionary principle, and would promote intergenerational equity, biological diversity and ecological integrity and improved valuation, pricing and incentive mechanisms.

The department considers the proposal is consistent with the precautionary principle. The construction methodology proposed entails a conservative approach to disturbance of unremediated areas of Homebush Bay, utilising piling techniques that would avoid significant impacts on humans and aquatic fauna from disturbance of contaminated soils within Homebush Bay.

The proposal promotes intergenerational equity. The measures proposed to minimise disturbance of unremediated sediments would minimise ongoing environmental impacts from construction of the bridge. The bridge would be constructed for a 100 year effective life, preserving the Rhodes to Wentworth Point connection for ongoing use by the current and future (increasing) populations of Wentworth Point and Rhodes.

The proposal conserves biological diversity and ecological integrity by minimising impacts on flora and fauna species that inhabit or visit the Homebush Bay area. Impacts on potential

habitat for the Australasian Bittern (*Botaurus poiciloptilus*), Terek Sandpiper (*Xenus cinereus*), White-fronted Chat (*Epthianura albifrons*) and the Narrow-leafed Wilsonia (*Wilsonia backhousei*) are unlikely. The siting of the bridge reduces potential for impacts on the Badu Mangroves and the Coastal Saltmarsh Endangered Ecological Community, which occur within the vicinity of the proposal.

The proposal provides improved valuation, pricing and incentive mechanisms by delineating a public transport, cycle and pedestrian-only link between two growing population centres. The bridge is intended to increase the relative adoption of public transport, cycling and walking for travelling between the two communities and provide a connection to destinations beyond.

3.7. Statement of Compliance

In accordance with section 75I(2)(g) of the EP&A Act, the department is satisfied that the Director-General's environmental assessment requirements have been complied with.

4. CONSULTATION AND SUBMISSIONS

4.1. Exhibition

Under section 75H(3) of the EP&A Act, the Director-General is required to make the Environmental Assessment (EA) of an application publicly available for at least 30 days. After accepting the EA, the department publicly exhibited it from Wednesday 21 March 2012 until Friday 4 May 2012 (45 days) at the following locations:

- Department of Planning and Infrastructure Information Centre;
- Auburn City Council Civic Precinct Centre;
- Newington Library;
- City of Canada Bay Civic Centre;
- Concord Library;
- Sydney Olympic Park Authority;
- Nature Conservation Council of NSW, and
- on the department's website.

The department advertised the public exhibition in the Sydney Morning Herald, Daily Telegraph, Auburn Review and Inner West Courier on Wednesday 21 March 2012 and notified relevant State and local government authorities in writing.

The department received 65 submissions during the exhibition of the EA — ten submissions from public authorities and 55 submissions from the general public and special interest groups. Copies of these submissions are provided in Appendix B.

A summary of the issues raised in submissions is provided below.

4.2. Public Authority Submissions

Ten (10) submissions were received from public authorities, who raised the following issues:

- **Auburn City Council** recognised that the proposed bridge could provide a new infrastructure facility linking the communities of Wentworth Point, subject to future travel mode share, road network performance, and provision of sufficient public transport capacity at Rhodes and Wentworth Point.
- **City of Canada Bay Council** supports the proposal in principle, as a proposal with considerable merit in strategic planning terms. The bridge would provide a bus link to the Sydney Olympic Park ferry wharf of benefit to the residents of, and visitors to, Rhodes. Council noted a number of issues regarding the public amenity of the bridge landing at Rhodes, including bridge landing height, provision for public art, and integration with the proposed public domain.
- **Parramatta City Council** is generally supportive of the proposed bridge and requested the bridge should be designed to accommodate potential future light rail vehicles.
- **Environment Protection Authority (EPA)** supports the bridge as a sustainable transport link across Homebush Bay, that would encourage walking and cycling as an alternative to private vehicle commuting, and that would further restrict activities in the bay. EPA reiterated that marine and land based activities would require careful planning, management and monitoring to avoid impacts associated with disturbing contaminated soils and sediments.
- **Roads and Maritime Services (RMS)** generally supports the proposal, but requested that detailed design be undertaken in conjunction with RMS, in particular to ensure appropriate integration with the road network and minimise future maintenance requirements. Further, RMS indicated that the scale of the proposed bridge would be appropriate for its intended purpose without impacting on existing and future recreational users of the waterway.

- **Sydney Olympic Park Authority (SOPA)** supports the proposal as a valuable public transport link with positive benefits to the surrounding local area, capacity to increase access to the Sydney Olympic Parklands and potential to reduce private vehicle trips in the area. SOPA noted the need to minimise impacts to the estuarine wetlands and mudflats and waterbirds and on rowing activities.
- **NSW Office of Water (NOW)** commented on the need to appropriately manage the potential impacts of the bridge on local water quality, including during excavation, and the need to treat surface water captured by proposed gross pollutant traps on the bridge prior to discharge to the stormwater network.
- **Transport for NSW (TNSW)** supports the proposal in principle, including supporting a shared pedestrian/cycle path (with appropriate clearance for any rest areas) separate from vehicular traffic.
- **Ausgrid** supports the proposal, and noted it has consulted with the proponent regarding the potential to install electricity cables within the bridge to cross Homebush Bay.

4.3. Public Submissions

Fifty-five (55) submissions were received from the public. This included submissions from the following special interest groups:

- Sydney Harbour Business Association; and
- Sydney Harbour Association.

Of the 55 public submissions, four (seven percent of public submissions) objected to the proposal, 50 (91 percent) supported the proposal and one (two percent) did not object but raised concerns. The key issues raised in public submissions are listed in **Table 2**.

Table 2 Summary of Issues Raised in Public Submissions

Issue	Proportion of submissions
Would benefit area/access to facilities	38.2% (21 submissions)
Improves link/reduces travel distance between suburbs	38.2% (21)
Cyclists should have their own lane	7.27% (4)
Reduces greenhouse gas emissions associated with private vehicle use	7.27% (4)
Concerns with shared cycle/bus lane	5.45% (3)

The department has considered the issues raised in submissions in its assessment of the proposal.

4.4. Proponent's Response to Submissions

The proponent provided a response to the issues raised in submissions (see Appendix C).

In response to concerns and suggestions raised in agency and public submissions, the proponent confirmed the bridge deck would be reconfigured to provide a two way, two lane road for buses only, and a shared pedestrian and cycle path. The response to submissions also included provision for sheltered pedestrian rest areas, adjacent to and separated from the shared path, overhanging from the edge of the bridge deck.

5. ASSESSMENT

In consideration of the EA, Response to Submissions and final Statement of Commitments, and issues raised in agency and public submissions, the department considers the key environmental issues associated with the proposal to include:

- strategic need and justification;
- contamination;
- built form, public domain and visual amenity; and
- noise and vibration.

The department's consideration of the key issues associated with the proposal is provided in sections 5.1 to 5.4 respectively.

The department has also considered other issues raised in submissions and the Proponent's assessment, including noise and vibration; flora and fauna; navigation and safety; construction traffic management and access; soils and water; and climate change. The department considers that these issues are manageable in consideration of the Proponent's statement of commitments and the proposed conditions. The department's consideration of these issues is contained in section 5.5.

5.1. Strategic need and justification

The proposed Homebush Bay Bridge has been developed as part of the planning for residential communities at Wentworth Point and Rhodes. The Homebush Bay Bridge is intended to connect these two growing communities, by providing a dedicated bus route and shared cycling and pedestrian path directly across the bay.

The locality of Homebush Bay is shown in **Figure** 5.

The proposal connects the proposed 'Bridge Boulevard' at Wentworth Point to Gauthorpe Street at Rhodes. Four potential bridge locations were evaluated during the initial feasibility study for the proposal. The options included (from north to south):

- a bridge across the Bay entrance, north of Burroway Road;
- a bridge between Gauthorpe Road and Bridge Boulevard;
- a bridge between Baywater Drive and Mary Street; and
- a bridge between Rider Boulevard and Bennelong Parkway.

The proposed Gauthorpe Road to Bridge Boulevard link was selected based on its intermediate length, connection to areas of greater proposed population density, and proximity to existing public transport services on the Rhodes peninsula.

The proponent suggests the new bridge would facilitate a new public transport link between Wentworth Point and Rhodes, and the city beyond. A possible extension of the existing 526 bus route across the bridge to Rhodes would provide frequent connections between these communities. The proponent indicates that, by substantially decreasing the travel distance between Wentworth Point and the Rhodes transport interchange, the bridge would facilitate increased adoption of public transport among Wentworth Point residents. The bridge would provide improved access to residents for heavy rail and other bus services from the Rhodes transport interchange. The bridge would also provide access to the Sydney Olympic Park ferry wharf to Rhodes residents as an alternative to the Meadowbank wharf, which is located on the northern side of the Parramatta River.

Figure 5 Locality of the bridge (Base Image Source: SIX Maps 2013)

The proponent further suggests the Homebush Bay Bridge would also create a dedicated walking and cycling link between Wentworth Point and Rhodes. Existing pedestrian paths and cycleways between the two communities include off road and established tracks along the bay and through the Millennium Parklands. The new bridge would substantially decrease the distance between Rhodes and Wentworth for cyclists, from between four to six kilometres via the Badu Mangroves to one to two kilometres, and would be of particular benefit to commuters, families and inexperienced cyclists.

A discussion of the department's consideration of how the proposal would fulfil these aims is provided below.

Project justification

The most current NSW Bureau of Transport Statistics Journey to Work data (derived from 2006 census data) indicates that adoption of public transport is substantially greater amongst Rhodes residents. It is considered that this is generally attributable to greater access to public transport options, including bus and train services at the Rhodes transport interchange. The proponent has identified the 2023 mode share target from the 2011 *Wentworth Point Transport Management and Accessibility Plan*, which was prepared for the Homebush Bay West DCP for the proposal. The mode share target for Wentworth Point residents requires an approximate threefold increase in public transport use. The 2006 journey to work data and 2023 mode share target proportions are presented in **Table 3**.

Table 3 Transport mode share (2006 and 2023 prediction) (Source: EA 2012)

Transport mode	Wentworth Point 2006	Wentworth Point 2023 target	Rhodes 2006	Rhodes 2023 target
Private vehicle	84%	65%	57%	56%
Train	10%	28%	32%	32%
Ferry	2%	-	-	2%
Walk/cycle	3%	2%	11%	10%

Wentworth Point

The proponent notes that the redevelopment of Wentworth Point is the largest ongoing infill residential development in the Auburn local government area. Masterplanning for the area has identified the need for appropriate transport connections for this large scale project. The *Wentworth Point Transport Management and Accessibility Plan* has been prepared using a forecast total of 8,349 dwellings for the complete development in 2023, 6,111 dwellings greater than the 2,238 dwellings forecast for 2011.

Current masterplanning for the Wentworth Point area proposes residential redevelopment around the existing Sydney Olympic Park ferry wharf. The primary land uses at present at Wentworth Point are light industrial, with a warehousing precinct situated east of Hill Road. Redevelopment in accordance with the relevant masterplans has substantially commenced. Intended land uses at Wentworth Point would include residential development and associated commercial premises and community facilities. Maritime facilities would be preserved at the northern part of Wentworth Point, with an extension of walking tracks provided along the eastern foreshore. Auburn City Council projects the population of Wentworth Point will increase from 2,933 (2011 census) to 11,393 people by 2021.

The proponent has observed that, at present, transport options from Wentworth Point are limited. Public transport to and from Wentworth Point comprises the 526 loop service between Sydney Olympic Park Ferry Wharf and Burwood transport interchange, and ferry services on the Parramatta River, to Parramatta and the Sydney CBD. Sydney Olympic Park is the nearest station by the road network, with a shuttle service to Homebush station. The nearest major train stations are Strathfield, Burwood (for services to the Sydney CBD) and Lidcombe (for services to Parramatta). Residents seeking limited station services to the city are able to

transfer at Burwood interchange from the 526 bus service, or travel by private vehicle to one of these stations. Consequently, current public transport usage by Wentworth Point residents is limited, with high private vehicle usage comparative to adjacent areas.

The proponent asserts that improving access to the Rhodes peninsula and transport interchange would provide opportunities to increase patronage of public transport among Wentworth Point residents. The Rhodes transport interchange is the nearest major transport hub to the majority of the planned Wentworth Point development, but access is limited by the geography of Homebush Bay. For instance, Bennelong Parkway and a number of bicycle and walking tracks connect the two suburbs beyond the southern shoreline of Homebush Bay. However, while the straight line distance between Rhodes and Wentworth Point is approximately one kilometre, the Rhodes transport interchange is approximately six kilometres from Wentworth Point by road via Bennelong Parkway.

Rhodes

The proponent states that the bridge would provide improved access for Rhodes peninsula residents to Wentworth Point. The redevelopment of Wentworth Point includes provision for commercial development and office space and, further, the proponent suggests should be viewed as an adjunct to the specialised centre of Rhodes/Olympic Park identified in the *Metropolitan Plan for Sydney 2036.* Improved access to the area of Wentworth Point would provide greater links between the two centres for workers, clients and customers. The proposal would also increase the ease of access for Rhodes residents to visit recreation areas in the Millennium Parklands, west of Wentworth Point.

Improved access to Wentworth Point would also increase transport options for Rhodes peninsula residents. The new bridge would bring the Sydney Olympic Park Wharf within walking distance of Rhodes, allowing residents improved access to ferry services on the Parramatta River.

Delivery of the bridge

The proponent has advised that the estimated cost of the Homebush Bay Bridge is to be $43,320,000. The proponent has identified that the funding of the proposal is contingent on a planning proposal that would amend the Homebush Bay West Development Control Plan 2004. This amendment would provide for the construction of an additional 1,300 residential dwellings at Wentworth Point, by increasing the permissible floor space ratio and building height restrictions on new development within the Wentworth Point area. The draft DCP amendment is on exhibition on the department's website, commencing 2 December 2012, until 15 February 2013.

Department's consideration

The proponent considers that there is a demonstrable strategic need and justification for the Homebush Bay Bridge.

The department is of the opinion that the Homebush Bay Bridge would provide an improved commuter and recreational connection between the communities of Wentworth Point and Rhodes. The proposal would enable improved connectivity to and from Wentworth Point, providing Wentworth Point residents with walking and cycle access to retail, service and public transport facilities at Rhodes. It would also provide Rhodes residents with improved access to the Wentworth Point area, the ferry wharf and Sydney Olympic Park facilities, including the Millennium Parklands.

The department acknowledges the proponent's emphasis of the importance of the bridge to residents of Wentworth Point. Strategic planning for the area has identified that a bridge across Homebush Bay would provide opportunities to supplement public transport services to this major redevelopment site. The department agrees with the proponent that the Homebush Bay Bridge is an important component of any increase in public transport mode

share among Wentworth Point residents, and notes the support for the proposal from government agencies, particularly TNSW and RMS. Further, the department notes that both Auburn City Council and City of Canada Bay Council consider the proposal to have strategic planning merit. In line with masterplanning for the area, and in consideration of TNSW's support for the proposal, the department concurs that existing transport services to and from Wentworth Point should be augmented by providing bus services across the Homebush Bay Bridge to sustain this growth.

The department initially had some concern regarding the potential for use of the bridge as a regional thoroughfare for public buses. The department considers that the need to improve local public transport connections between Wentworth Point and Rhodes is the primary strategic justification for the proposal, and the bridge has been designed accordingly. Restricting use of this new road connection across Homebush Bay to local bus services would preserve the benefits of the bridge for local residents, while regional bus services would continue to utilise the existing bus routes around the bay. To ensure this issue is addressed, the department has recommended a condition requiring the proponent to prepare a Bus Operation Strategy. The Bus Operation Strategy would provide details of opportunities to co-ordinate existing and new local bus routes with the proposal. The department is therefore satisfied that, through the implementation of this condition, which requires approval from the Director-General, the bridge will be maintained as a local connection only.

While the department notes the importance of the proposed funding arrangement for the bridge; it is considered that the strategic need and justification for the proposal remains regardless of whether the increased dwelling density is approved. The department notes that the proposed project approval runs with the land, and that the proposed conditions of approval would not preclude another party (other than the Proponent) from acting on the approval.

The proponent would be required to obtain relevant easements and licences from City of Canada Bay Council prior to construction of the proposal. As such, it is understood that the proponent would enter into an agreement with Council (such as a memorandum of understanding), which would provide for these easements and licences subject to the proponent making certain undertakings.

Ancillary uses

In addition to commuter and recreational use, the bridge is likely to be utilised by agencies to provide new utility infrastructure, to augment existing services at Rhodes and Wentworth Point. The box girder design of the main bridge, and conventional piered design of the approach bridge, allows the bridge to carry utilities. The proponent advises that Sydney Water has indicated it would consider locating a new recycled water main within the box girder of the main bridge, or under the approach bridge, to service the Rhodes peninsula. In response to a submission from Ausgrid, the proponent would also consider incorporating capacity for additional utility lines into the detailed design of the bridge.

Furthermore, the bridge may be utilised in any future expansion of light rail in the Sydney metropolitan region. The Parramatta City Council submission identified the potential for the bridge to be recommended for light rail development in the Parramatta Light Rail feasibility study, and requested further information regarding the ability of the bridge to support light rail. The proponent advises that the bridge is of sufficient width and load bearing capacity to allow for potential future installation of standard gauge track and operation of light rail services. Any reconfiguration of the bridge to support light rail services in addition to, or instead of, local bus services would be subject to further assessment and approval.

To maximise the use of the bridge for active and public transport modes, the proponent is committed to limiting use of the bridge to buses only, with the exception of emergency

vehicles (subject to the possibility of future light rail services). Use of the bridge as a 'rat run' would be restricted through the use of surveillance, potentially including CCTV.

Department's consideration
The department considers that the proponent has adequately provided for ancillary uses in and on the bridge in accordance with agency submissions. The department supports the restriction of the bridge to buses and emergency vehicles. To ensure the proposed traffic arrangements are consistent with current RMS policy, the department has recommended a condition to require the proponent to provide for 'bus only' lanes on the bridge. Further, the department has recommended a condition to ensure that the bridge is designed to provide for use as part of any future light rail network.

5.2. Contamination

The proposal would potentially have a number of impacts on soils and water in the area, particularly given that the construction of the bridge would require works in both remediated (capped) and unremediated sections of the bay.

Industrial land use on the Rhodes peninsula throughout the 20th century has caused extensive contamination of sediments along the proposed alignment of the Homebush Bay Bridge. Chemical manufacturing on the Rhodes peninsula was centred upon the former Lednez (Union Carbide) site. The Lednez site was established in 1928 and was used for manufacturing of numerous chemicals, including tar-based products and organic compounds. Reclamation and dredging along the Rhodes shoreline was conducted prior to the 1970s to allow expansion of this industrial precinct. As part of this process, fill materials (including waste products from the manufacturing process at the Lednez site) were used on site. The eastern approach to the bridge is located on the Lednez site.

A number of major remediation projects were undertaken on the Rhodes peninsula during the 2000s, including the remediation of the Lednez site, the former Allied Feeds site to the north and the Berger Paints site to the south. Remediation of the Lednez site included removal and destruction of contaminated surface soils by direct thermal desorption, excavation of contaminated sediments along the eastern bank of Homebush Bay, and capping of subsurface contaminated sediments using virgin natural excavated material (VENM). These projects involved the remediation of approximately eight hectares (ten percent) of the area of Homebush Bay itself along the Rhodes peninsula shoreline, the most heavily contaminated section of the bay, involving removal of 0.5 metres of sediments.

The status of contamination in Homebush Bay is shown in **Figure 6**.

The proposal requires the construction of new approaches, abutments and retaining structures on the Rhodes peninsula approach. Establishment of an on shore work platform would require excavation but would not disturb soil below the one metre virgin excavated natural material layer. The Rhodes peninsula approach to the bridge has been remediated to a standard suitable for use as open space foreshore subject to the implementation of approved site management plans. During the Lednez site remediation, this area was reinstated with appropriate fill sourced from the remediation site and capped to between one and three metres depth with VENM. This cap layer would minimise risk of exposing contaminants and any underlying acid sulfate soils during construction of the bridge approach. Provided intrusion on unremediated soils underneath the cap layer is minimised, this area would be able to be redeveloped for the bridge approach with minimal risk of contamination impacts.

The Rhodes approach bridge involves the placement of precast concrete piles, driven to bedrock. Given the layer of soil below the existing cap is unremediated, and the precast piles will pierce this cap, the construction of the approach bridge requires careful management to avoid impacts from unremediated subsurface soils. The EPA reiterated that construction

techniques would need to be well considered to avoid disturbance of underlying contaminants. The pile driving process proposed for the Rhodes approach bridge involves setting the piers into the surface soil layer under gravity then driving to bedrock. This process would not require removal of soil below the surface soil layer.

The area adjacent to the Rhodes Peninsula shoreline is where contamination 'hotspots' in the bay have been remediated; outside this area, Homebush Bay remains unremediated. The EPA notes it is appropriate to assume elevated levels of dioxins across the unremediated area of the bay. The proponent has therefore committed to construction techniques intended to minimise impacts on sediments in the bay.

Construction of the main bridge involves the installation of up to 14 concrete precast, or 10 steel tube, marine piles in each of five pier locations in the unremediated area of Homebush Bay. The piles would be lowered from a barge crane platform through softer sediments on the bed surface and an underlying geotextile layer, either by vibration or under the pressure of their own weight, and driven to bedrock. A reinforced concrete pilecap would be installed, with a reinforced concrete pier to support the superstructure. The need for the installation of temporary piles for load testing would be determined during detailed design for the proposal.

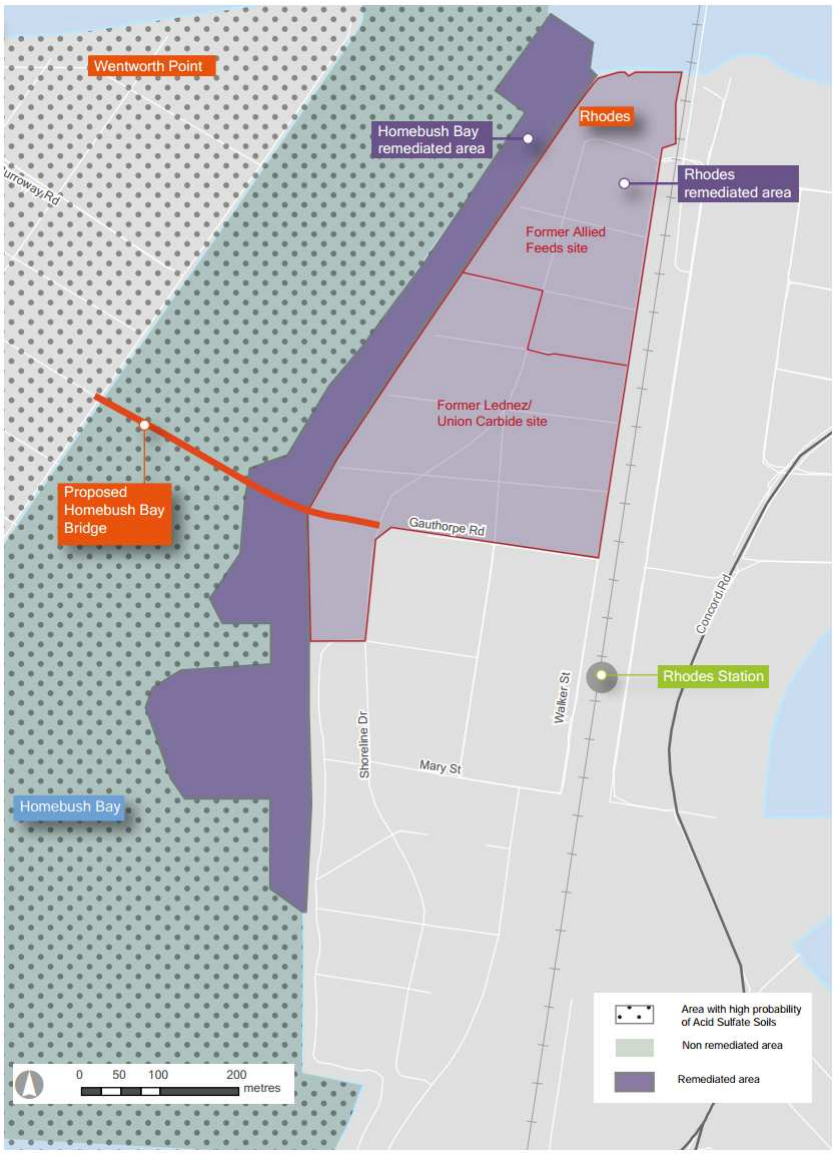


Figure 6 Homebush Bay - Status of contamination (Source: EA 2012)

The proponent's *Contamination management plan for proposed Homebush Bay Bridge Construction* identifies the potential for sediments to 'migrate upward along the side of the pile' during works in the bay, though notes experience in piling construction tends to indicate sediments can migrate 'down and sideways'. Notwithstanding this, the proponent has identified a number of strategies to reduce potential for offsite contamination impacts.

The construction methodology incorporates three main strategies to reduce the escape of contaminated sediments from the piling locations:

- Firstly, to minimise potential escape of contaminated sediments upwards along the sides of the pile, pea gravel would be placed at each pile location before piling up to a level of around 0.5 metres above the bed surface. This gravel would fill any spaces opened in the bed when the pile passes through the surface layer and pierces the geotextile layer, in order to trap contaminated sediments from upward movement.
- Secondly, a sediment boom and curtain would be installed around work areas during the piling process. This device would prevent sediments liberated from the bed from dispersing through the bay, by creating an impermeable perimeter curtain from the bed to above the water surface around the work site. The curtain would be removed when turbidity within the curtain is similar to that outside the curtain.
- Finally, the proponent is committed to monitoring water quality during the construction period. This would include conducting visual inspections of sediment curtains prior to use; turbidity monitoring, including 15-minute measures of turbidity upstream and downstream and inside the sediment curtain; and monitoring of contaminant levels adjacent to the work sites. The EPA is satisfied that 15 minute monitoring is optimal.

Construction of the main bridge also includes establishment of abutment and road tie-ins on the Wentworth Point foreshore. The proponent has indicated that work on the Wentworth Point foreshore would not pose contamination issues.

Department's consideration
The department is satisfied that the proposed construction techniques would minimise disruption of contaminated sediments within Homebush Bay. The department further notes that the EPA supports the proposal, subject to implementation of appropriate mitigation and safeguard measures.

Both the department and the EPA acknowledge that disturbance of contaminated subsurface soils and sediments presents one of the most substantial environmental issues associated with the proposal. The department considers that the construction methodology proposed by the proponent would, however, reduce risks of disturbing contaminants and resultant offsite impacts on human health and flora and fauna species. The EPA also considers that the proposal would be able to be carried out provided appropriate environmental management measures are implemented. The department acknowledges that the proponent has incorporated a number of additional control measures into its statement of commitments through consultation with the EPA.

To ensure that the proposal minimises the likelihood of contamination impacts, the department has recommended that the proponent details all proposed control measures in a contaminated land management sub-plan, to be included as part of the construction environmental management plan. The sub-plan would be developed in consultation with EPA, Auburn City Council and City of Canada Bay Council, and would provide a detailed description of all proposed measures to control contamination impacts. Further, the department has recommended a condition that any site management plans for land on the Rhodes peninsula approach affected by construction of the proposal are updated following construction of the proposal to incorporate details of the completed works.

The department notes RMS's concerns regarding potential maintenance issues, including any need to address impacts from contaminated soils on the bridge foundations. In order to address these concerns, the department has proposed a condition of approval that requires the proponent to complete the detailed design of the proposal in accordance with Austroads, RMS's supplements and relevant Australian Standards, and provide copies of civil design plans for RMS approval.

5.3. Built form, public domain and visual amenity

The proposal requires the construction of a new bridge between the communities of Wentworth Point and Rhodes. It represents a new transport corridor and requires the construction of substantial built infrastructure in the Homebush Bay area. The bridge would make a significant contribution to the amenity of the area, based on the scale of its built form, its functionality and the proposed integration with public space on the Wentworth Point and Rhodes peninsula foreshores.

The bridge configuration

The main bridge would be constructed as a box girder bridge, with the edges of the deck cantilevered over the piers. The main bridge would be approximately 222 metres long, commencing at Wentworth Point and connecting to an approach bridge near the Rhodes peninsula shoreline. The proponent suggests that an evaluation of five bridge structure options indicated that a conventional box girder bridge provides the best combination of low construction and maintenance costs and complexity, and aesthetic appeal. The approach bridge is of a simple curved design, approximately 73 metres long, and meets the main bridge at its fifth pier.

The bridge deck provides for separate pedestrian and cycle path and two lane bus road, separated by a 1.1 metre high (minimum) safety barrier. The road would be marked 'bus only', and restricted to bus and emergency and service vehicle traffic. The pedestrian and cycle path would be located on the north side of the bridge deck. The proponent has committed to a minimum clear path width of 3.25 metres, with rest areas set back from the proposed path. The bus lanes would be located on the southern side of the bridge deck.

The proposed deck configuration has been adapted in consideration of submissions from the community, TNSW and RMS. The original preferred lane configuration option in the EA (option 2c) proposed a two lane bus road with cyclist access, and separate pedestrian pathway. In response to agency and public submissions, the proponent identified in its response to submissions that the bridge deck would instead be configured to provide dedicated bus lanes and a shared pedestrian and cyclist path (option 2b).

The bridge would be lit by low energy LED lights to provide lighting for bridge users, recreational vessels and establish a visual identity for the bridge. Eight metre high LED street lights would provide the primary lighting for the bridge. LED lighting would be provided on the outer pedestrian handrail, and under the rest area seating to provide guidance for night time cyclists and pedestrians. The underside of the bridge would also be illuminated with colour LED uplights identifying the piers, and aids to navigation provided indicating the deep water channel under the second span of the bridge. These lights would provide assistance to recreational vessels using Homebush Bay, particularly after sunset, and contribute to offsite views of the bridge at night, as discussed below.

Department's consideration

The department considers that the final preferred option satisfies the need to avoid potential cyclist/bus and cyclist/service and emergency vehicle conflicts, and provide safe paths for young and inexperienced cyclists, by allowing cyclist access on a shared path separated from vehicular traffic. The department agrees with the proponent that further segregation of pedestrian, cyclist and bus movements, as requested by RMS, is not required to provide for further separation of bridge users, given that the bridge would provide a shared path width

suitable for recreational and commuter use. The department notes that, while more experienced cyclists would not be able to access the 'bus only' lanes, the shared path would provide an adequate width to allow commuter and recreational cycling. The department is satisfied that the proposed lane configuration is appropriate.

The department notes that RMS has emphasised the need to provide appropriate shoulder width along the shared path and bus lane. The department considers that the proponent has generally maximised the width of the shared path for use by cyclists and pedestrians, by committing to separating the proposed rest areas from the shared path. This would include installation of the rest areas as overhangs from the bridge deck (see **Figure 7**). The department considers that the proposed deck configuration, including the width of the bus lanes and shared path, is appropriate for the intended use of the bridge, particularly given the proposed shared path would meet minimum widths for recreational and commuter paths under the *Guide to Road Design Part 6A: Pedestrian and Cyclist Paths*.

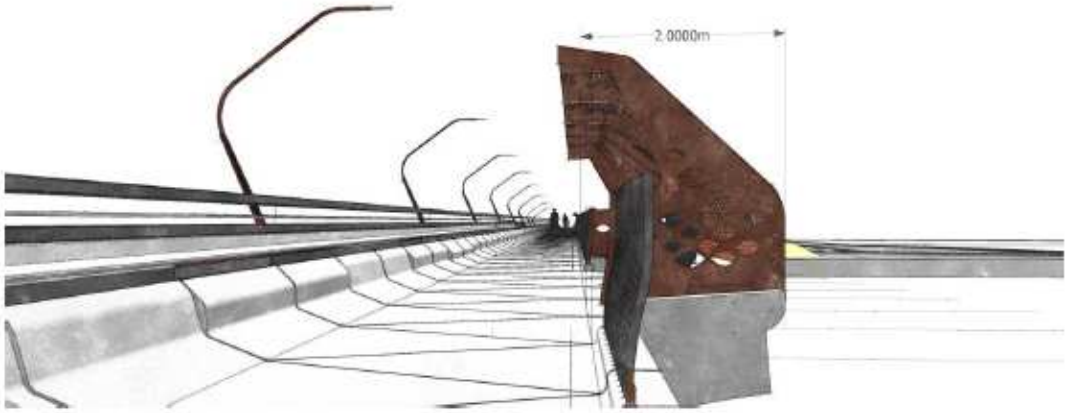


Figure 7 Pedestrian rest areas (Source: Response to submissions 2012)

Integration with the public domain

Rhodes

The bridge would connect with Gauthorpe Street and Shoreline Drive adjacent to the proposed Community Centre and Foreshore Park at Rhodes. The elevation of the bridge at the Rhodes peninsula shoreline is a function of minimum height requirements considering sea level rise, and integration with the existing road network at Rhodes. The chosen landing height of 3.0 metres requires the connection to Gauthorpe Road to be higher than the shoreline path and as a result would interrupt the proposed shoreline walk. As a result, appropriately graded footpaths from the shoreline path and foreshore park would be constructed to link with an at-grade pedestrian crossing set back from the foreshore. Further, the proponent has committed to developing the proposed approach landing of the bridge in consultation with City of Canada Bay Council, to ensure integration of the bridge with the public domain on the Rhodes foreshore. An indicative plan of the proposed bridge approach and how it would integrate with the surrounding public open space is provided in **Figure 8**.

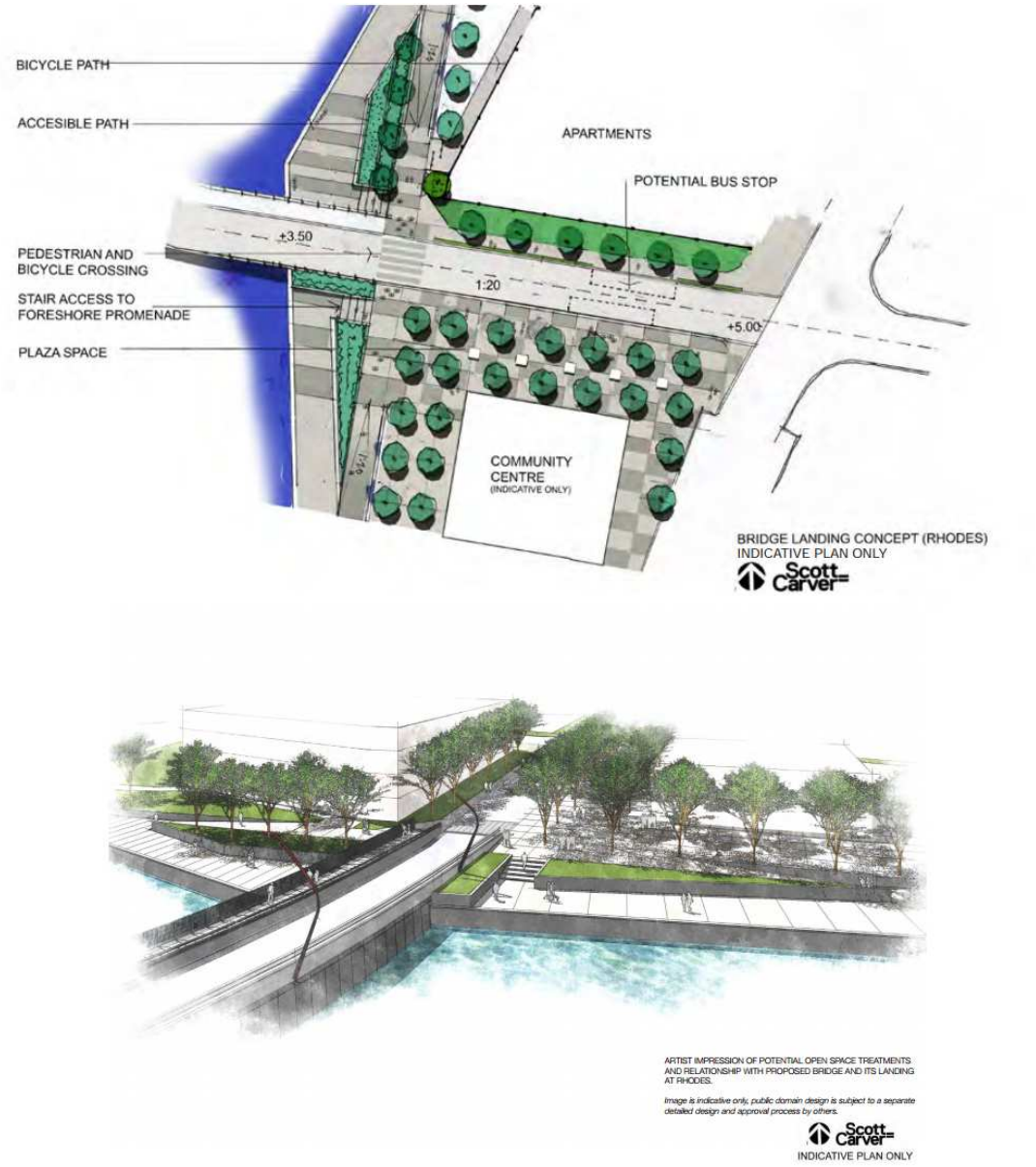


Figure 8 Rhodes peninsula foreshore public domain - indicative plan (Source: EA 2012)

Wentworth Point

The bridge would connect Wentworth Point on Bridge Boulevard, at an elevated landing south of the proposed public park north of the proposed 'Block C' (41-45 Hill Road) residential development. The proposed approach road is set within a 25 metre road reservation, separate to land reserved for establishment of the proposed park. The elevated approach road would allow for continuation of the proposed foreshore walk underneath the bridge. The raised approach requires the provision of cyclist and pedestrian ramps, and stairs, to connect the bridge to the foreshore walk and proposed public domain. Pedestrian and cyclist paths through the proposed public park would be designed to link in with the shared path west of the bridge approach. An indicative plan of the Wentworth Point bridge approach and connections to the planned foreshore boulevard, public park and road network is provided in **Figure 9**.

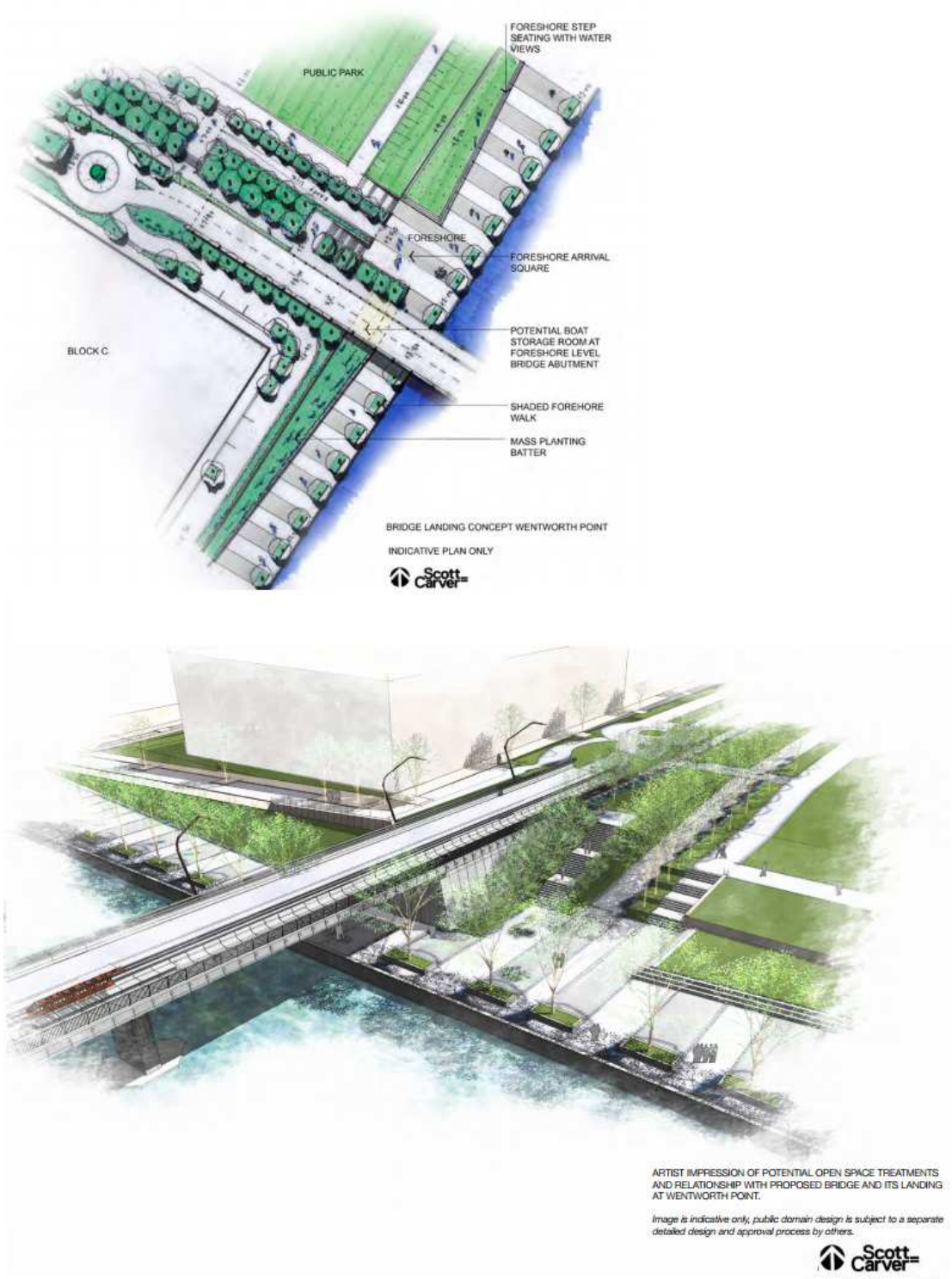


Figure 9 Wentworth Point foreshore public domain - indicative plan (Source: EA 2012)

Department's consideration

The department considers that, subject to detailed design, the proposal would provide for adequate integration with the public domain at Rhodes and Wentworth Point.

The indicative plans for the bridge approaches at Rhodes and Wentworth Point provide an appropriate general indication of the interface between the bridge and the Homebush Bay foreshore. The department, however, acknowledges that while the detailed design of the bridge is to be determined, there remains a need to ensure that the bridge is designed in a manner appropriate for the local area. In particular, the department acknowledges City of

Canada Bay Council's concerns, raised following review of the RtS, regarding integration of the bridge approach with the Rhodes Community Precinct on Shoreline Drive and Gauthorpe Street. In response, the department has recommended a number of conditions to provide additional certainty prior to construction regarding the final built form of the bridge and its integration with the existing and proposed landscape. The department has recommended a condition requiring the proponent to prepare an urban design and landscape plan for the proposal, in conjunction with agencies including Auburn City Council, City of Canada Bay Council and RMS. The plan would provide an integrated urban design outcome by detailing proposed landscaping, external materials and finishes, and public art in accordance with the *City of Canada Bay — Public Art Strategy 2008-2013*. The department has additionally recommended a condition that would require the proponent to prepare a lighting plan for the proposal. Further, the department has recommended a condition requiring provision of access for people with disabilities. The department considers that these conditions would provide for appropriate integration between the bridge and its surrounds. Further, the department notes that City of Canada Bay Council supports the recommended conditions of approval.

The department acknowledges that by creating a new commuter connection across Homebush Bay that the proposal would increase demand for public amenities and public services, particularly increase commuter facilities and visual and landscape treatments surrounding the bridge. The department has recommended a number of conditions of approval to incorporate City of Canada Bay Council's suggested requirements into a memorandum of understanding. These include requiring the proponent to provide $75,000 towards public art, $20,000 towards upgrade of bus facilities in the Rhodes Rail Precinct, $15,000 towards advice to City of Canada Bay Council regarding CPTED and accessibility issues, and a further amount (to be determined) towards establishment of a bus stop on Gauthorpe Street (where required).

It is noted that, while the chosen landing height is greater than the 2.8 metres suggested by City of Canada Bay Council in its submission, the department is satisfied that the reduction in final height to 3.0 metres would address concerns about how the bridge approaches would integrate with the public domain at Rhodes. Furthermore, the department considers that a 0.2 metre increase in level would not result in any adverse visual amenity impacts.

Visual amenity and overshadowing

Visual amenity

The proposal would create a distinct built connection between the two sides of the bay, breaking the uninterrupted waterbody and creating offsite view changes from a number of viewpoints.

The proponent provided a visual impact assessment and consideration of overshadowing as part of the urban design report for the proposal. This assessment concluded that the bridge would be visible from most foreshore areas along Homebush Bay and from residential apartment buildings at Rhodes and Wentworth Point. Offsite views of the Badu mangroves and Sydney Olympic Park from the north and Parramatta River from the south would be obscured by the bridge structure.

The bridge would create a significant visual marker and reference point for the new crossing of Homebush Bay for local residents. The proponent asserts that the simple, sheer design of the bridge would serve to mitigate the impact on views from each side, by not detracting from the significant built environment on the opposing shore.

Night time lighting of the deck and navigation channel of the bridge would contribute to the identity of the bridge, and would be visible from numerous viewpoints. Impacts on residential

receivers at Wentworth Point and Rhodes, however, would generally be reduced in scale when framed by lighting of residential towers along opposing shores.

The proponent has committed to visual treatments, including foreshore art, which would serve to mitigate impacts of the bridge approaches on streetscape and foreshore areas on the Wentworth Point and Rhodes peninsula shorelines.

Overshadowing
The proponent indicates that impacts from overshadowing would be generally restricted to the foreshore boulevard along the Wentworth Point foreshore, with shadows cast underneath the bridge superstructure throughout the year and further south during winter months. The bridge would have minimal impacts on the Rhodes peninsula, with impacts restricted to the area immediately adjacent to the raised approach on the Rhodes peninsula.

Department's consideration
The department acknowledges that the proposal would result in significantly different views of Homebush Bay. However, the department is satisfied that the visual amenity and overshadowing impacts of the bridge are commensurate to its importance as an infrastructure link across Homebush Bay. The department agrees with the proponent's opinion that the bridge will become a significant reference point/visual marker for the new crossing of Homebush Bay.

Offsite viewpoints from Bicentennial Park and Sydney Olympic Park are considered remote, and the bridge would have minimal visual impact, minimised by the scale of surrounding residential development at Rhodes and Wentworth Point and the expanse of the bay. The bridge would obscure distant views of the Badu Mangroves and Sydney Olympic Park from Meadowbank and the north of Wentworth Point, though these views are currently dominated by the bay itself and the built environment along the nearby foreshores.

The department considers the overshadowing impacts of the bridge would be minimal, and do not require mitigation beyond that proposed by the proponent.

5.4. Noise and vibration

The proponent conducted a construction and operational noise impact assessment for the proposal. Unattended ambient noise monitoring was conducted at Lancaster Avenue, Melrose Park and Jean Wailes Avenue, Rhodes between Monday 28 February and Monday 7 March 2011. The proponent advises that these locations were selected, rather than areas closer to the site, to minimise the influence of existing remediation and construction noise, and to provide representative background noise levels for the area.

The proposal would have a number of offsite noise and vibration impacts during construction and ongoing operation of the bridge, which are discussed below.

Construction noise
The construction noise assessment estimated the noise levels at four representative noise catchment areas in the vicinity of the proposal site. The location of these receivers is shown in **Figure 10**. The relevant construction noise criteria are presented in **Table 4**.

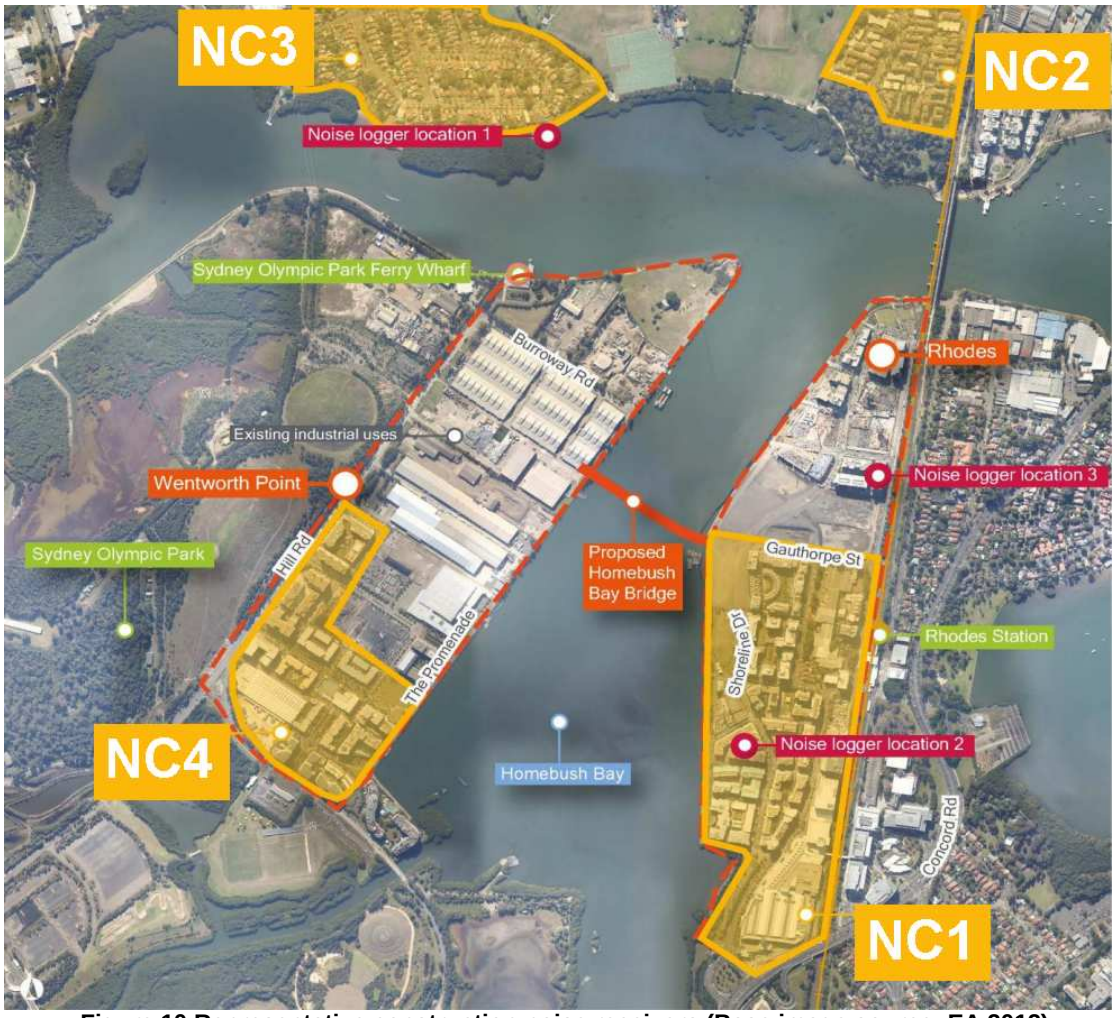


Figure 10 Representative construction noise receivers (Base image source: EA 2012)

Table 4 Construction noise criteria (Source: EA 2012)

		Criteria	
Location	**RBL**	**Daytime 7am-6pm**	**Outside standard hours**
NC1 Rhodes peninsula*	44dB(A)	54dB(A)	49dB(A)
NC2 Meadowbank	40dB(A)	50dB(A)	45dB(A)
NC3 Melrose Park	40dB(A)	50dB(A)	45dB(A)
NC4 Wentworth Park — southern end	44dB(A)	54dB(A)	49dB(A)

[Note: The proponent has advised that the construction noise impact assessment for NC1 may be extended to cover property north of Gauthorpe Street]

Construction noise levels have been assessed for each of six indicative construction stages. These construction stages are generally grouped into three main activities, the timing of which is presented in **Table 5**.

Table 5 Construction stages and estimated timeframes (Source: EA 2012)

Activity	Timeframe
Earthworks and pier/foundation construction (including excavation and site preparation and piling, pile cap and pier construction)	10 months
Bridge construction (including installation of superstructure and site compound activities)	12 months
Finishing works (including road finishing works and roadworks at Rhodes landing)	2 months

Noise modelling has identified that, without the implementation of mitigation measures, exceedences would be anticipated for most construction stages at NC1. It is expected that exceedences of between 10-12 dB(A) would be recorded during excavation, site preparation and road finishing works should mitigation measures not be in place. Piling work would also exceed criteria at each noise catchment area without noise attenuation. It is anticipated that noise impacts from piling would be most evident at NC1 and NC4 due to their proximity to the proposed bridge alignment.

The proposal would entail construction activities on Gauthorpe Street west of Shoreline Drive. During construction, this area would be used as the secondary site compound for the proposal. Activities on site would include truck deliveries, cement mixing and concrete pumping. The proximity of the Rhodes construction compound site would cause noise levels to exceed criteria by up to 20dB(A) without mitigation. More substantial impacts would be associated with finishing works on this site, which would be anticipated to exceed the 'highly noise affected' level of 75dB(A) without mitigation, as specified by the Interim Noise Construction Guideline, at NC1.

To minimise noise impacts from the proposal, the proponent has proposed a number of mitigation measures. These include instructing construction staff to implement a range of noise mitigation work practices, including turning off all plant and equipment when not in use, operating equipment where possible to minimise noise generation, site inspections by site managers to identify noise impacts on offsite receivers, and avoidance of overuse of public address systems, radios and loud conversations. The proponent is also committed to investigating and adopting at-source noise mitigation measures for plant and equipment, including mufflers and screens for jackhammer operations; screeners for compressors, cement mixers and handheld tools; and residential-grade silencers for most mobile plant and vehicles. Further, the proponent would commit to use of a resilient pad between each pile and hammerhead prior to piledriving.

Predicted noise levels, with the implementation of these mitigation measures, are presented in **Table 6**.

Table 6 Predicted construction noise levels with mitigation

	Predicted L_{Aeq} noise level (dB(A))					
Location	**Excavation and site preparation**	**Piling, pile cap and pier construction**	**Installation of superstructure**	**Road finishing works**	**Site compound activities**	**Roadworks at Rhodes landing**
NC1 Rhodes peninsula — southern end	56*	60*	46	58*	65*	71*
NC2 Meadowbank	33	42	27	39	Inaudible	Inaudible
NC3 Melrose Park	43	42	27	39	Inaudible	Inaudible
NC4 Wentworth Park — southern end	44	55*	37	48	42	Inaudible

* Exceedence of criteria

During construction activities, residents near the bridge in NC1 would remain likely to be noise affected following installation of these mitigation measures. Further, residents within NC4 would also experience noise impacts during piling works.

Construction vibration

Offsite vibration impacts would be limited to piling operations. The proponent estimates a vibration dose value of 0.74m/s$^{1.75}$ during piling, dependent on soil properties, which would exceed the maximum recommended levels for human comfort (0.20m/s$^{1.75}$ recommended and 0.40m/s$^{1.75}$ maximum). Consequently, vibration may be felt by residents at dwellings in Rhodes and Wentworth Point during piling. Offsite construction vibration is not, however, anticipated to have impacts on structural integrity or building facades in the area. Construction vibration levels are anticipated to peak at 2.16 mm/s during piling activities, which is below the threshold for cosmetic building damage (greater than 15mm/s).

Department's consideration

The department notes the significance of the predicted noise impacts of construction, given works would occur in a densely populated urban area, with a high number of residential receivers in close proximity. The department acknowledges that noise impacts from the proposal were identified in three submissions from the public. To minimise these impacts, the department has recommended conditions of approval to ensure all feasible and reasonable noise mitigation measures are implemented for construction work.

The most significant construction noise impacts are associated with works on Gauthorpe Street. The department notes that the proponent has identified a range of feasible and reasonable mitigation measures for works at this site, including at-source noise attenuation. Further, the department acknowledges that the proponent intends to restrict use of the Rhodes site to those activities necessary for construction on and adjacent to the Rhodes peninsula, and supports the use of the Wentworth Point compound as the primary construction site compound for the proposal. The department notes that the proponent would be required to identify and confirm those noise mitigation measures required at each site as part of a construction noise and vibration management sub-plan. Further, to confirm that appropriate noise controls are implemented at both project construction compound sites, the department has recommended a condition that requires the proponent to provide further information prior to approval of the Rhodes and Wentworth Point construction compound sites.

The department understands that offsite noise and vibration impacts would still occur with implementation of mitigation measures. To ensure that construction noise and vibration

impacts are identified and addressed during the construction period, the department would require the proponent to prepare a construction noise and vibration management sub-plan as part of the construction environmental management plan. The construction noise and vibration management sub-plan would detail all mitigation measures and procedures required to meet relevant noise and vibration criteria.

The department notes that offsite vibration impacts would occur during piling works. The department notes that these works, whilst taking place throughout the construction period, would be intermittent and would be staged to minimise impacts on residential receivers. To ensure impacts are minimised, the department has recommended a condition of approval that percussive or impact pile driving be limited to continuous periods of less than three hours, between 8am - 5pm Monday to Friday and 8am – 12pm Saturday (with no work on Sundays or public holidays).

The department acknowledges that the proponent would seek to conduct some construction activities outside standard construction hours (7am – 6pm Monday to Friday and 8am – 1pm Saturday). The department has recommended a condition of approval limiting these works to emergency activities and material deliveries, other activities that would not exceed the rating background level at any residence by 5dB(A), and works that would not exceed the rating background levels at any other sensitive land uses (such as community facilities).

The department is satisfied that the proponent has committed to implement all feasible and reasonable mitigation measures to minimise construction noise and vibration impacts, and that these commitments, in conjunction with the recommended conditions, will minimise the construction noise impacts of the proposal.

Operational noise

The operational noise assessment estimated the impacts of bridge traffic on noise levels at four representative receivers in the vicinity of the proposed site. The location of these receivers is shown in **Figure 11**.

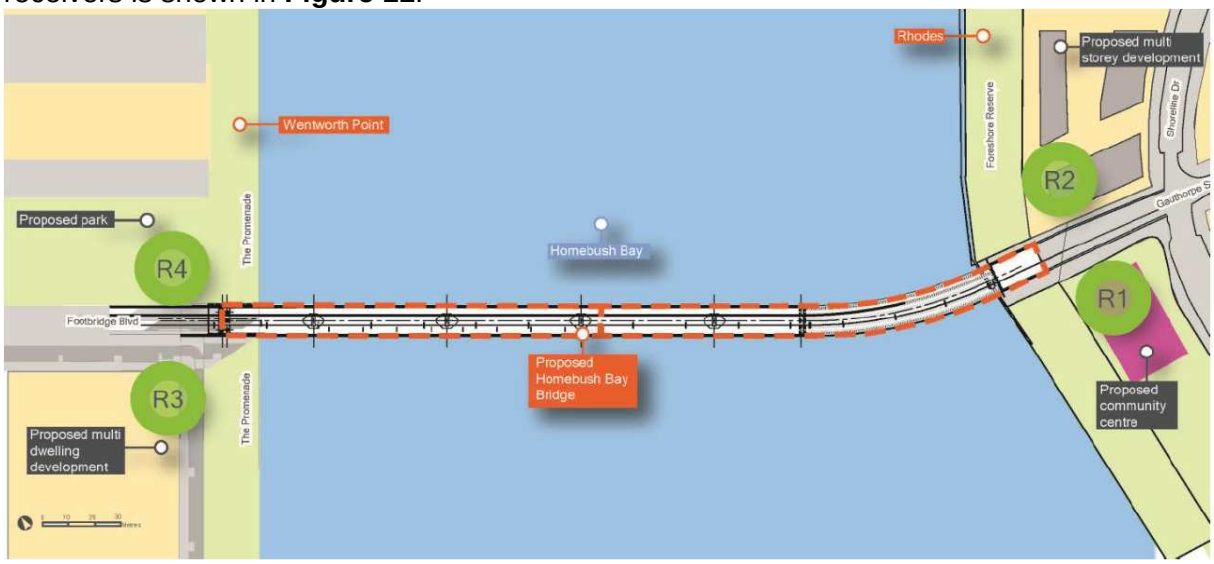


Figure 11 Representative operational noise receivers (Source: EA 2012)

Operational noise levels have been assessed against the *Environmental Criteria for Road Traffic Noise* criteria for a new local road corridor in a metropolitan area. The relevant criteria are presented in **Table 7**.

Table 7 Operational noise criteria - residential receivers and sensitive land uses

	Criteria		
Type of development	**Day (7.00am-10:00pm)**	**Night (10:00pm-7.00am)**	**Where criteria are already exceeded**
Residential receiver — new local road corridor in a metropolitan area	$L_{Aeq(1hour)}$ 55 (external)	$L_{Aeq(1hour)}$ 50 (external)	Not increase existing noise levels by more than 0.5dB(A)
Active recreation	Collector and Local Roads $L_{Aeq(1hour)}$ 60	N/A	

Operational noise levels were modelled using both the UK Department of Transport Calculation of Road Traffic Noise (CoRTN) and Federal Highway Administration Traffic Noise Model (FHWA) methods. Modelling has been conducted using a worst case scenario of future peak hour bus operation (AM weekday) at full development of 20 buses per hour. This worst case modelling result was adopted as the predicted noise level for the purposes of assessment of traffic noise.

The proposal would exceed criteria at the nearest residential receivers at Rhodes and Wentworth Point, and at the foreshore park at Rhodes, as shown in **Table 8**.

Table 8 Predicted operational noise levels without mitigation (for up to ten years after opening)

		Predicted L_{Aeq} noise level ($L_{Aeq(1hour)}$) (dB(A))		Criteria	
Receiver	**Type of receiver**	**CoRTN**	**FHWA**	**Day (7.00am-10:00pm)**	**Night (10:00pm-7.00am)**
R1	Active recreation**	60*	60*	55	50
R2	Residential receiver	58*	55	55	50
R3	Residential receiver (subject to planning approval)	56*	53	55	50
R4	Active recreation	58*	59*	60	N/A

* Exceedence of criteria

** Predicted operational noise levels for R1 (proposed community centre at Rhodes) was assessed against the more stringent residential receiver criteria by the proponent

The Department notes that the receivers identified in Figure 11 and Table 7 comprise of:

- R1 — a non-residential receiver encompassing public open space and a proposed community centre;
- R2 — residential receivers with properties under construction;
- R3 — potential future residential receivers to the west of the bridge (not currently approved); and
- R4 — a non-residential receiver comprising 7,000 square metres of proposed public open space.

For residential receivers, including R2 and (the proposed) R3, the proposal would cause exceedences of the operational noise criteria of up to 3dB(A) during daytime and up to 8dB(A) at night.

The proponent identified a number of potential mitigation options, including road surface treatments, speed limitations, noise barriers and architectural treatments. The proponent indicates that installation of a dense graded asphaltic concrete or open graded asphaltic concrete road surface and implementation of speed limits would provide insignificant mitigation, given the 50 kilometre per hour speed limit proposed. Furthermore, noise barriers

would not be feasible and reasonable, given the proximity to residential receivers would require construction of a very large noise barrier.

The proponent indicates that acoustic mitigation is the only feasible and reasonable mitigation measure applicable to the proposal. The proponent states that closing windows at the adjoining residential receivers and other façade elements would readily achieve sufficient mitigation during operation of the bridge. The proponent notes that bus services during the more noise-sensitive night time hours (10:00am to 7:00am) are anticipated to be restricted to early morning (6am to 7am) services.

Department's consideration
The department notes that the operational use of the bridge would exceed the adopted noise criteria without mitigation. It is noted however that, while noise impacts are predicted to exceed criteria, particularly at night, the proponent's noise assessment provides a worst case scenario (20 buses per hour) that would not be expected to occur except during peak times. Outside AM and PM peak times, the number of bus services using the bridge would substantially decrease in frequency, and operational noise would be minimised. Further, the department considers that noise impacts would be minimised where architectural treatments (i.e. closed windows) are used at residential receivers.

The department acknowledges that noise impacts would exceed noise criteria for short periods during AM and PM peaks. To minimise the noise impacts of the proposal, the department has recommended a condition requiring the proponent to provide details of measures to monitor and manage noise impacts as part of the operational environmental management plan. This would include a requirement that the proponent undertake an operational noise report, including noise monitoring once operation of the bridge commences to verify the accuracy of the modelling, and a review of the appropriateness of mitigation measures. Should the proponent identify that the proposed mitigation measures would not provide appropriate reduction of operational noise impacts, the department will require details of any additional proposed noise mitigation.

The department is satisfied that the proponent has committed to implementing all feasible and reasonable measures to reduce the operational noise impacts of the proposal, subject to the findings of the reporting required under the operational noise report.

5.5. Other issues

The department's consideration of other issues is summarised in **Table 9**.

Table 9 Department's consideration of other issues

Issue	Assessment/ consideration
Flora and fauna	The proposed bridge alignment, approaches, and construction compound sites would be established in an area clear of remnant native vegetation. The Rhodes peninsula bridge approach is generally clear of vegetation, following remediation of the Lednez site. A number of planted trees, including a River Sheoak (*Casuarina cunninghamia*) and a Eucalyptus species, are located on the Wentworth Point approach site and would be removed as part of the proposal. No native species would need to be cleared on the Rhodes peninsula, for the construction of the bridge. Vegetation to be removed as part of the proposal is not associated with any endangered ecological communities, as weeds predominate and natural structural layers are absent. The proponent has identified that the construction of the proposal would have a number of indirect impacts on fauna species, which could be minimised or avoided with appropriate mitigation measures being employed. Sedimentation events, for example, during heavy rain and overland flows, or loss of containment during piling, would be anticipated to have impacts on aquatic habitat quality, but are considered unlikely due to the proposed erosion and sediment controls and in-stream construction techniques identified in section 5.2 above. Noise

	and vibration from construction activities would be likely to affect any resident fauna; however, impacts would be generally restricted to dispersal during initial works. The proponent has conducted an assessment of the likelihood of significant impacts on four threatened species, one endangered ecological community and migratory fauna likely to occur within the study area and concluded that the proposal was unlikely to have a significant impact on these species and communities. An EPBC Act assessment of significance was undertaken for *Botaurus poiciloptilus* (Australian bittern) and migratory fauna. This assessment concluded that the proposal was unlikely to have a significant impact on *Botaurus poiciloptilus* and migratory fauna. *Department's consideration* The department notes that due to previous development along the Wentworth Point and Rhodes peninsula shorelines, the proposal would have minimal direct impacts on native flora species. The department is satisfied with the level of assessment of flora and fauna impacts from the bridge. It is noted that whilst some native vegetation would be removed, this vegetation is not associated with any endangered ecological communities. The department considers the proposal would present a low likelihood of significant fauna and flora impacts, provided appropriate controls are implemented to reduce offsite impacts from loss of containment during construction and sedimentation of the bay.
Navigation and safety	Homebush Bay is a shallow estuarine bay, with a navigable channel on the Wentworth Point side used by recreation craft. The proposal would create a number of impacts on continued use of the bay. The proposal has been designed to provide for continued recreational use of the southern part of the bay. The bridge would be designed to provide a clearance of 5.7 metres above mean high water spring, located immediately above an existing deep water navigation channel adjacent to the Wentworth Point shoreline (in span two). This height is generally sufficient for most recreational craft, and construction barges, to pass under; however, access would be restricted for larger vessels. On this point, the department notes that the proposed height of the bridge eliminates the possibility of ferry services to the southern part of Homebush Bay Bridge. The proponent has committed to investigating the installation of navigation aids, including lighting on the bridge superstructure, to mark the deep water navigation channel. Night time navigation for recreational users travelling outside the channel would also be aided by the lighting of bridge piers at night. Should further specific engineering measures be required, the proponent has committed to considering these during detailed design of the bridge. The bridge has been designed to provide sufficient horizontal clearance for the proposed rowing course between the Parramatta River and Burroway Road. Adequate area for three 13 metre lanes would be provided under the each of the second and third spans of the main bridge. Impacts on navigation during construction would be addressed through proclamation of a marine notice, to alert vessel operators of marine construction activities during the construction period. Exclusion zones around construction areas would be marked by lighted buoys or other aids to navigation where required. *Department's consideration* The department is satisfied that the proposal would minimise adverse impacts on navigation and safety in Homebush Bay. The department acknowledges that the proposal would be designed to minimise potential for physical impacts on the bridge from vessel collisions. The proposal includes appropriate measures to reduce both impacts on navigation in Homebush Bay during construction and operation of the Homebush Bay Bridge. The department believes the proposed clearance height is an adequate compromise between the different positions raised in public and agency submissions, taking into account potential climate change impacts, retaining use of the southern part of the bay by small recreational vessels, restricting large vessels from using the southern half of the bay, and reducing the likelihood of disturbance of contaminated soils.
Construction traffic management	A number of construction traffic impacts would be associated with the construction of the bridge. The proposal would require establishment of two construction compounds, at Wentworth Point and Rhodes. Heavy and light vehicle movements would be required for

and access	delivery of construction materials and equipment, and conveyance of staff to and from site. The primary compound would be located adjacent to the proposed Wentworth Point bridge approach, with site offices, workers areas and parking provided. The site would also be used for the majority of materials stockpiling and equipment storage. Construction of the main bridge would be conducted from the Wentworth Point construction site. A secondary construction compound would be established on the Rhodes approach, and would be used for limited storage of materials, with works on the Rhodes approach and approach bridge coordinated from this site. The proponent has indicated that construction traffic at the Wentworth Point construction compound would peak at 100 daily return trips during the peak construction period. Whilst construction vehicles would include articulated vehicles required for delivery of precast girders and rigid vehicles, including concrete trucks, the majority of traffic generated by the proposal would be light vehicles. To minimise impacts on local roads, the proponent has committed to providing traffic control signage to restrict construction traffic to these routes in order to minimise impacts on the local traffic network. The department acknowledges that the proposal would impact upon recreational use of the Rhodes foreshore during construction. The Rhodes construction site would require access via Shoreline Drive and involve resuming part of the Rhodes peninsula foreshore walk for the duration of the construction period. The proponent has committed to providing alternative access routes, to be determined during detailed design. *Department's consideration* The proponent did not prepare a traffic impact study; however, the department agrees with the proponent's qualitative assessment that construction traffic associated with the proposal would not have major impacts on the local road network. The anticipated number of vehicle movements during construction would have a minor and temporary negative impact on the local road system. The department is satisfied that the proposal appropriately minimises, to the extent possible, impacts on the local road, cyclist and pedestrian network during construction. To ensure proper integration with the existing (and future) cycling network in the area, the department has proposed a condition requiring the proponent to prepare and implement a strategy to promote the use of the proposal for cycling.
Soils and water	The proposal would require some excavation and vegetation clearing on the Wentworth Point and Rhodes peninsula approaches. Exposed and stockpiled soils would increase risk of offsite dispersal of soils, including into Homebush Bay. An erosion and sediment control plan would be developed as part of the construction environmental management plan to minimise risk of sedimentation. The construction environmental management plan would also incorporate procedures for handling accidental spills, including dispersal of fuels and oils required for equipment. Subject to the implementation of appropriate erosion and sediment controls, EPA supports the proposal. In its submission, NOW noted the potential for impacts on groundwater and surface water quality and reiterated the need for the proponent to assess potential for groundwater inflows and acquire relevant licences or approvals where necessary. Further, NOW notes that operation of the bridge would generate additional surface water flows that could be impacted by sediments and hydrocarbons from bus traffic. To minimise these impacts, the proponent has committed to diverting runoff from the bridge to gross pollutant traps for treatment prior to discharge to the local stormwater system and Homebush Bay. *Department's consideration* The department is satisfied that the impacts of construction and operation of the proposal on soils, sediment and water would be manageable in consideration of the proposed mitigation measures. The department has recommended a condition requiring the proponent to prepare a construction soil and water quality management sub-plan as part of the construction environmental management plan, which would detail appropriate controls to avoid or manage surface and groundwater impacts. Further, the department has recommended conditions proposed by NOW, including a requirement to provide NOW with accurate information on groundwater inflows prior to construction and consult with NOW regarding the construction soil and water quality management sub-plan.
Climate change	The proponent undertook a qualitative analysis of climate change impacts on the bridge, including potential impacts from sea level rise. The proponent adopted criteria, in line with

	Australian Standard AS 5100.2-2004: Bridge design - Design loads for structural integrity, that the bridge be designed to withstand the 2000 year ARI event. The majority of the length of the bridge superstructure stands above the 2000 year ARI at current water levels; however, the section of the bridge adjacent to the Rhodes shoreline would be below this level taking into account projected worst case sea levels for 2100. The proponent asserts that, given the majority of the superstructure would remain above the 2000 year ARI and low flow velocity in Homebush Bay, risks to structural integrity of the bridge in the worst case 2100 would remain minimal. Climate change impacts are likely to be greatest at the bridge approaches, particularly at Rhodes. The Rhodes peninsula and Wentworth Point approaches would be designed at a sufficient elevation above water level to enable servicing during the 20 year ARI event. *Department's consideration* The department is satisfied that the proponent has appropriately considered the impacts of physical impacts of climate change, and that the Homebush Bay Bridge would be designed and constructed in a manner that takes into account the impacts of climate change, including sea level rise.
Operational traffic	The proponent has identified existing intersection performance for key intersections surrounding the proposed bridge alignment in the *Homebush Bay Bridge Transport Management and Accessibility Plan*. The proponent has identified poor levels of service during peak periods that are causing ongoing congestion and delays for traffic entering the Wentworth Point and Rhodes areas, at major intersections between 1.5 kilometres to 4 kilometres from the proposal. Levels of service at or over capacity (E and F) are identified during both AM and PM peaks at the intersections of Hill Road/Holker Road and Holker Road/Silverwater Road, and during AM peaks at Hill Road/M4 and Hill Road/Great Western Highway/Bombay Street. The proponent has noted that intersection performance on local roads immediately adjacent to the bridge is generally satisfactory. Whilst a quantitative traffic assessment was not undertaken to model improvements to intersection performance following construction of the bridge, the proponent asserts that the proposal would reduce traffic congestion by providing improved local bus services for residents, thereby reducing private vehicle commuting and alleviating traffic congestion. The proposal would provide a dedicated link for local bus services between Wentworth Point and Rhodes. The proponent has indicated that the bridge would be designed to provide sufficient width for use by standard rigid buses of 12.5m length; the bridge deck configuration specifically excludes use of the bridge by larger buses. Further to this point, the proponent notes that longer buses are not currently permitted to operate on the local roads at Wentworth Point and Rhodes that would be connected by the proposal. The *Wentworth Point Transport Management and Accessibility Plan* indicates that usage of the Homebush Bay bridge by buses would increase from a frequency of between 8-10 buses per hour, at peak times immediately following construction, to a peak of 20 buses per hour, following the completion of full residential development at Wentworth Point (in accordance with the proposed DCP amendment). The proponent indicates that providing this frequency of bus movements would best facilitate the growth in public transport use required to meet the mode share targets discussed in section 5.1 above. The proposal would provide for new local bus services at Wentworth Point and Rhodes. It is considered likely that any local bus route across the bridge would utilise a loop at Rhodes, comprising Gauthorpe Street, Walker Street, Mary Street and Marquet Street. The *Homebush Bay Bridge Transport Management and Accessibility Plan* indicates that existing intersections along the proposed loop at Rhodes would be able to accommodate both left and right turns for standard buses, given sufficient 12.8 metre road widths. *Department's consideration* The department considers that the proposal would facilitate increased use of public transport by residents of Wentworth Point and Rhodes, which would ultimately facilitate improved performance on the existing and proposed road network. Given the strategic need to prioritise local bus services, the department supports the restriction of the bridge design to standard rigid buses. Further, the department considers that the existing level road network would provide sufficient road widths for standard rigid buses to utilise a loop at Rhodes near the transport interchange, maximising the potential for use of local bus services amongst Wentworth Point residents.

6. RECOMMENDATION

The Homebush Bay Bridge would provide an improved commuter and recreational connection between the communities of Wentworth Point and Rhodes. It would enable improved connectivity to and from Wentworth Point, providing Wentworth Point residents with walking and cycle access to retail, service and public transport facilities at Rhodes. It would also provide Rhodes residents with improved access to the Wentworth Point area, the ferry wharf and Sydney Olympic Park facilities, including the Millennium Parklands.

Following a detailed assessment of the EA, submissions from the general public and agencies, the Proponent's response to submissions, and the final Statement of Commitments, the department is satisfied the potential impacts of the proposal have been addressed and are acceptable subject to the implementation of the recommended conditions of approval.

The department notes that there a number of environmental issues that would require careful management, including risks of disturbing contaminated sediments and soils during construction, the interface between the bridge and the public domain on the Wentworth Point and Rhodes foreshores. The proponent has committed to a range of environmental safeguards and mitigation measures to avoid or minimise environmental impacts.

The department recognises the potential impacts of disturbance of contaminated subsurface soils during construction, particularly during work in Homebush Bay. The proponent has committed to implementing a number of control measures including use of pea gravel as a base to reduce dispersal of contaminants during piling, installing a sediment boom and curtain to trap sediments, and water quality monitoring to identify the efficacy of these methods. The department considers that, subject to further detail being provided prior to construction, the construction methodology proposed by the proponent would reduce risks of disturbing contaminants and resultant offsite human health and flora and fauna impacts to an acceptable level.

The department considers that the proposed design of the bridge provides an appropriate commuter and recreational connection between Wentworth Point and Rhodes, which would integrate with, and enhance, the existing and proposed public domain. The proposed bridge deck configuration adopted in the proponent's RtS would separate bus movements from cyclists, providing a safer environment for families and inexperienced cyclists. The provision of a dedicated bus route and separate shared path would encourage Wentworth Point and Rhodes residents to travel by bus, bicycle or foot between the communities, and promote use of alternative public transport options available on either side of the bay. The department considers that the proposed approaches to the bridge at Rhodes and Wentworth Point can be appropriately integrated with the foreshore public domain, subject to preparation of an urban design and landscape plan for the proposal in conjunction with agencies.

The department also notes the strong support for the proposal from government agencies, including RMS, TNSW, EPA, and in the majority of public submissions.

Based on its assessment, the department considers that the proposal is justified and in the public interest. The implementation of the proponent's commitments and the recommended conditions of approval would ensure that the proposal can be constructed and operated in a manner to minimise environmental and social impacts. Therefore, the department recommends that the Homebush Bay Bridge proposal is approved, subject to the recommended conditions of approval.

Dominic Crinnion
Planning Officer

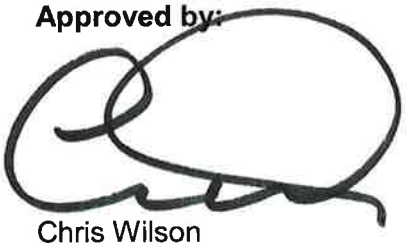
Endorsed by:

Felicity Greenway
19/3/13

Felicity Greenway
A/Director
Infrastructure Projects

Date:

Approved by:



Chris Wilson
Executive Director
Development Assessment Systems and Approvals

Date: 19. 3. 13

APPENDIX A ENVIRONMENTAL ASSESSMENT

See the Department's website at
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4331

APPENDIX B SUBMISSIONS

See the Department's website at
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4331

APPENDIX C PROPONENT'S RESPONSE TO SUBMISSIONS

See the Department's website at
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4331