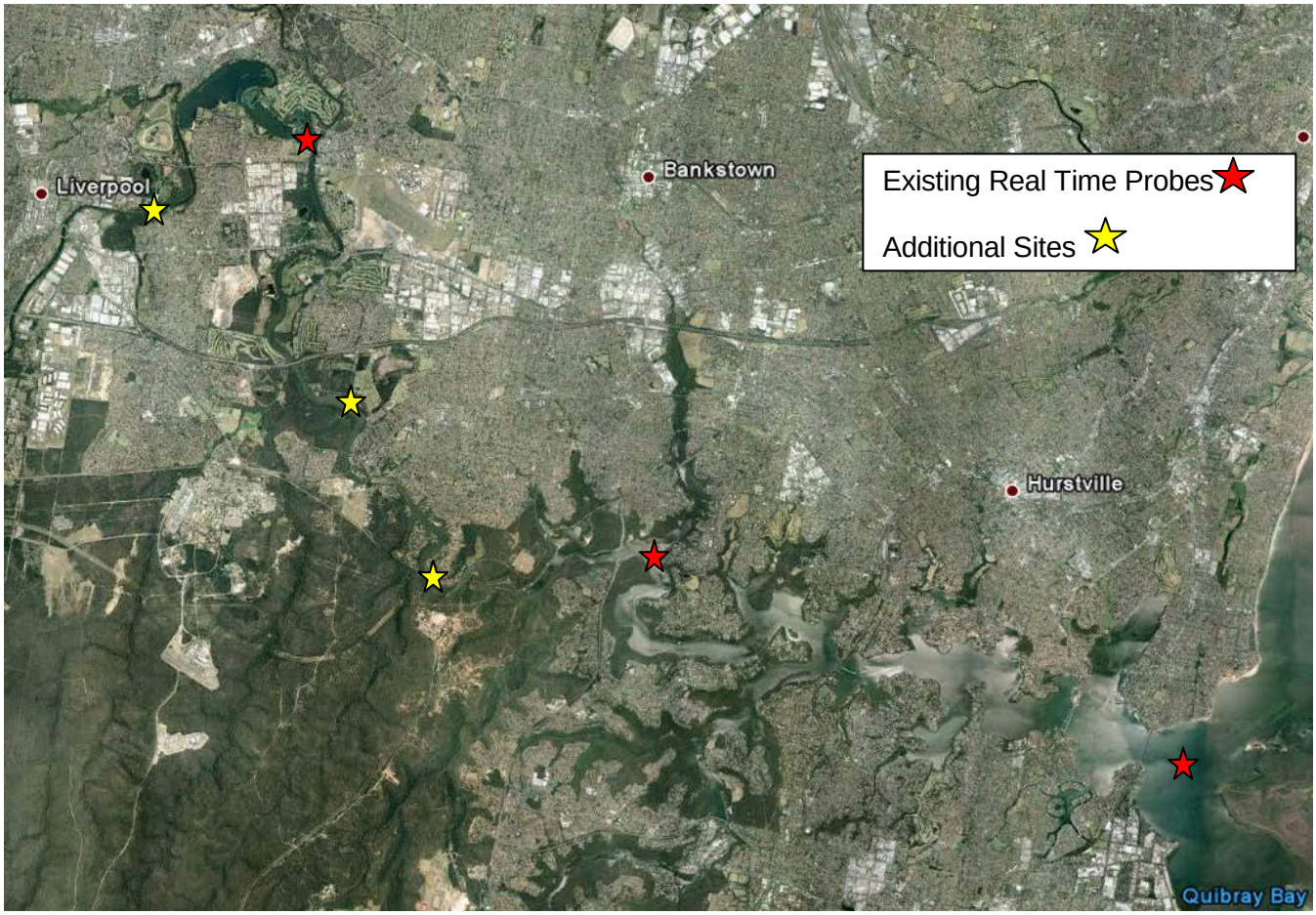

Figure 8-1 Georges River Estuary Monitoring Sites

8.1.6 Analysis of Data

The methodology for assessment of chlorophyll a and turbidity data will be done according to the methodology prescribed by the Office of Environment and Heritage (OEH, 2012 - currently in draft form), including using the trigger values derived for the State of the Catchment reports (Table 8-1) (Roper *et al*., 2011). The methodology for assessing change in macrophyte distribution over time will follow the State of the Catchment Reports methodology.

8.1.7 Evaluation and Reporting

Evaluation and reporting is summarised as follows:

- Evaluation of the data is important for determining whether any priorities of the plan need to be amended or specific actions need to be taken. Evaluation should be an ongoing process.
- Reporting of the data is important for highlighting to key stakeholders and the community in general how the health of the Georges River is changing over time and compares to other estuaries. Reporting should be in the form of yearly report cards on estuary health / water quality.

Table 8-1 Trigger values for River Health Monitoring Program

Indicator	Estuary Type	Estuary Zone (based on salinity)	Trigger Value
Chlorophyll a	River	Upper <10 ppt salinity	3.4 µg/L
		Middle 10-25 ppt salinity	2.9 µg/L
		Lower >25 ppt salinity	2.3 µg/L
Turbidity	River	Upper <10 ppt salinity	13.7 NTU
		Middle 10-25 ppt salinity	8 NTU
		Lower >25 ppt salinity	5 NTU

These trigger values were derived from data from reference estuaries sampled as part of the NSW Monitoring, Evaluation and Reporting Program (MER).

8.2 Monitoring of Coastal Zone Management Plan Effectiveness

The Coastal Zone Management Plan has been developed with the provisions for evaluating its performance. Where performance is sub-optimal, contingencies should be implemented to remedy the situation. A series of performance measures applicable to the Plan outcomes are discussed below.

8.2.1 Primary Performance Measures

The first set of performance measures should ascertain whether the strategies are actually being implemented or not within the timeframe designated in the Plan. As such, the primary performance measures are simply a *measure of project initiation*.

Organisations (mostly Councils) responsible for implementation will need to review the Plan carefully and ensure that adequate resources are allocated to the various strategies to ensure that the timeframe for implementation of ten years is achieved.

Clearly, a high degree of co-ordination will be required to manage the successful implementation of all the strategies within the designated timeframe, particularly given the different jurisdictional boundaries that this Plan crosses. Co-ordination for implementation of the plan is to be facilitated by the GRCCC.

Specific questions to be answered are:

- What BMOs / strategies have actually been implemented (regardless of outcome – see Secondary performance measure)?

- What BMOs / strategies are outstanding, and should have been implemented within this nominated timeframe?

If it is determined that the BMOs / strategies are not being implemented to the nominated timeframe then one or both of the following *contingencies* should be adopted:

- Determine the cause for the delay in implementation. If delays are funding based, then seek alternative sources of funding. If delays are resource-based, seek additional assistance from stakeholder agencies and/or consider using an external consultancy to coordinate implementation of the Plan; and
- Modify and update the Coastal Zone Management Plan to reflect a timeframe for implementation that is more achievable. The revised Plan would need to be endorsed by all relevant stakeholders and agencies responsible for implementation.

8.2.2 Secondary Performance Measures

Once a strategy has actually been implemented, the second set of performance measures relate to *measuring specific outputs* from the individual strategies, as appropriate. These "measurables" define what the specific outcome from each action should be. If these outputs are delivered as defined, then the action (or strategy) is considered to have been successful.

Outputs will vary according to the individual strategy and are identified as the "Performance Measures" with the Implementation Schedules.

The specific question to be asked here is:

- Of the BMOs / strategies that have been implemented, has the nominated "Performance Measures" been achieved?

If specific outputs, as defined by the "Performance Measures", are not generated from implementation of the Plan then the following *contingencies* need to be adopted:

- Determine the reason for not producing the specified output. If the reason involves a lack of funding or resources, then similar contingency measures to those described for the primary performance measures should be adopted. If the reason is of a technical nature, then expertise in the area should be consulted to overcome the technical problem. OEH, SMCMA and other government agencies should have the necessary in-house expertise to assist in most cases; and
- Review the appropriateness of the specific output of the management strategy, and if necessary, modify the output described in the Plan to define a more achievable product.

8.2.3 Tertiary Performance Measures

The third set of performance measures are aimed at *measuring the overall aims of the Plan*, and as such relate to how the Plan has helped address the risks facing the Georges River Estuary (refer Section 4.1). One of the main mechanism for gauging whether the aims and risks have been addressed, or not, is through environmental monitoring (refer Section 8.1). Therefore, **monitoring of various elements of the physical, biological and social environment is an essential component of assessing the overall success of the Coastal Zone Management Plan**.

The specific question to be asked here is:

- Have the aims been achieved and risks managed?

If, after a reasonable period of time, the specific aims of the Plan are not being achieved by the strategies being implemented, then the following contingencies should be adopted:

- Carry out a formal review of the implemented management strategies, identifying possible avenues for increasing the effectiveness of the strategy in meeting the Plan objectives;
- Commence implementation of additional management strategies that may assist in meeting Plan objectives (possibly 'fast-track' some NBOs or Other Options as necessary);
- Reconsider the objectives of the Plan to determine if they set impossible targets for future estuary conditions, and adjust the Plan, as necessary. Any such changes to the Plan would need to be endorsed by the stakeholders and relevant government agencies, as well as the public.

8.3 Factors for Success

The success of the Georges River Estuary Coastal Zone Management Plan can be improved by the following factors:

- Approval by the Minister and Gazettal by the Councils;
- Broad agreement on the aims, objectives, and strategies;
- Agreement on implementation by all state and local government agencies, stakeholders and the general community;
- Understanding and acceptance of responsibilities for the implementation of the various aspects of the Plan;
- Commitment by those involved to dedicate appropriate time and resources to achieve the objectives and timeframe of the Plan; and
- Sourcing of appropriate funds, through grants, user contributions, and in-kind commitments from agencies and the community.

An important aspect is the acceptance and agreement by the local community. Without significant support by the local community, Councils and the other agencies will not receive the pressure to ensure that the long-term sustainable management of the Georges River Estuary remains a high priority.

All seven Councils (Liverpool, Fairfield, Bankstown, Sutherland, Hurstville, Kogarah and Rockdale) are not responsible for all activities that occur within the estuary. Whilst the CZMP examines numerous areas and issues, implementation of the recommended strategies contained in the Plan relies heavily on an integrated approach (facilitated through the GRCCC) by the relevant key stakeholder agencies, which have been, and will continue to be, involved in the development of the Plan.

Whilst some of the recommendations may identify other agencies as responsible for implementation, each Council will be responsible for encouraging and facilitating the Plan's implementation within their LGA and will champion its on-going implementation.

Where an agency is listed as the lead responsibility in the implementation schedules (refer Section 6), a letter of formal support from that agency is required stating they support its inclusion in the CZMP. Of particular note in this regard are options to be implemented by NPWS and the Sydney Metro CMA. All agencies have also been involved in the preparation of the CZMP and during the review process.

8.4 Plan Review

To facilitate review of the Coastal Zone Management Plan, it is recommended that a rolling four (4) year Estuary Action Plan (or Implementation Plan) be developed and reviewed/amended annually. A thorough audit of implementation of the Coastal Zone Management Plan should be carried out after 5-10 years, if considered necessary.

Development of an Estuary Action Plan will enable modifications/alterations to the management of the estuary, on an as-needed basis, within the context of an adaptive management framework. The development and maintenance of the Estuary Action Plan should be facilitated through the GRCCC, taking into account relative priority of works across the seven LGAs, the rolling budget allocations for Councils and other responsible agencies, anticipated grants, and in-kind contributions.

The periodic reviews of the Action Plan and overall Coastal Zone Management Plan should cover the topics described generally in Table 8-2. This table also outlines who is responsible for conducting the periodic reviews.

It is recommended that the review of the Plan be co-ordinated through the GRCCC, as this Committee has the representation of all authorities and agencies responsible for implementation. The Committee should reach agreement to any modifications to the Plan before formally amending the document. Whilst modifications to the Estuary Action Plan would be relatively straightforward (providing it remains consistent with the overall objectives and principles of the Coastal Zone Management Plan), changes to the Coastal Zone Management Plan, if gazetted, can only be effected by another gazetted document. Therefore, any required amendments to the Plan would also need to be gazetted by the Councils, following Approval by the relevant Minister.

Table 8-2 Framework for future review of the Georges River Estuary Coastal Zone Management Plan

Review Period	Review tasks	Responsibility
Annual – Estuary Action Plan	• Assess primary, secondary and tertiary performance measures, and determine appropriate contingencies if performance measures do not meet targets • Review funding arrangements and allocations for current and future management strategies • Review resourcing and staffing allocations for current and future management strategies • Provide report on progress of Coastal Zone Management Plan implementation, results of annual review, and any modifications required to the Plan coming out of the review • Present and where possible, interpret all environmental monitoring / research undertaken through the River Health Monitoring Program • Provide newsletter for posting on Council web sites, disseminated via email and other avenues to community and stakeholder contacts	GRCCC To be coordinated through relevant Council Officers and reported to Councils, relevant stakeholders and government agencies
5-10 Yearly - Coastal Zone Management Plan *(first review to be commenced after 2017)*	• Consider appointing an external consultant to undertake review • Review latest information to determine potential changes to the condition or understanding of the Estuary Processes; • Determine changes to community values, issues and aspirations; • Assess the consistency of the plan with contemporary government policies and plans; • Assess the continuing relevance of the risks and objectives; • Determine the appropriateness of the implementation plan to meet these objectives; • For strategies requiring on-going commitment, assess the value in maintaining implementation of those strategies; • Assess the overall effectiveness of each management strategy implemented to date; • Reconsider the NBOs and Other Options; • Update the Coastal Zone Management Plan document to reflect proposed strategies for implementation over the next 5-10 year period, and seek endorsement by stakeholders, government agencies and the community. • Consider either completely revising the document or simply updating some aspects of the existing CZMP	GRCCC To be coordinated through relevant Council Officers and reported to Councils, relevant stakeholders, government agencies and the general community

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APPENDIX A: RELEVANT PLAN, POLICIES AND LEGISLATION

Greater Metropolitan Regional Environmental Plan No 2—Georges River Catchment

The Georges River REP is now considered a SEPP. The general aims and objectives of the REP are:

"(a) to maintain and improve the water quality and river flows of the Georges River and its tributaries and ensure that development is managed in a manner that is in keeping with the national, State, regional and local significance of the Catchment,

(b) to protect and enhance the environmental quality of the Catchment for the benefit of all users through the management and use of the resources in the Catchment in an ecologically sustainable manner,

(c) to ensure consistency with local environmental plans and also in the delivery of the principles of ecologically sustainable development in the assessment of development within the Catchment where there is potential to impact adversely on groundwater and on the water quality and river flows within the Georges River or its tributaries,

(d) to establish a consistent and coordinated approach to environmental planning and assessment for land along the Georges River and its tributaries and to promote integrated catchment management policies and programs in the planning and management of the Catchment,

(e) (Repealed)

(f) to provide a mechanism that assists in achieving the water quality objectives and river flow objectives agreed under the Water Reform Package."

The REP also contains specific aims and objectives, as follows:

- <u>Environmental protection and water quality and river flows</u>

(a) to preserve and protect and to encourage the restoration or rehabilitation of regionally significant sensitive natural environments such as wetlands (including mangroves, saltmarsh and seagrass areas), bushland and open space corridors within the Catchment, by identifying environmentally sensitive areas and providing for appropriate land use planning and development controls,

(b) to preserve, enhance and protect the freshwater and estuarine ecosystems within the Catchment by providing appropriate development,

(c) to ensure that development achieves the environmental objectives for the Catchment.

- <u>Regional role and land use</u>

(a) to identify land uses in the Catchment which have the potential to impact adversely on the water quality and river flows in the Georges River and its tributaries and to provide appropriate planning controls aimed at reducing adverse impacts on the water quality and river flows,

(b) to conserve, manage and improve the aquatic environment within the Catchment which is a significant resource base for the aquaculture industry, by providing controls aimed at reducing pollution entering the Catchment's watercourses,

(c) to protect the safety and well being of the local and regional community in accordance with standards and processes aimed at improving the water quality and river flows in the Catchment to enable recreation,

(d) to aid in the improvement of the environmental quality of Botany Bay in conjunction with other regional planning instruments.

SEPP 44 – Koala Habitat Protection

State Environmental Planning Policy 44 – Koala Habitat Protection aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of population decline. SEPP 44 requires that consent authorities must not issue a development approval without prior investigation of potential and core koala habitat.

This SEPP applies to the study area except for land dedicated or reserved under the *National Parks and Wildlife Act 1974* or to land dedicated under the *Forestry Act 1916* as a State forest or flora reserve.

SEPP 62 – Sustainable Aquaculture

This SEPP encourages the sustainable expansion of the aquaculture industry in NSW. The policy implements the regional strategies already developed by creating a simple approach to identity and categorise aquaculture development on the basis of its potential environmental impact. The SEPP also identifies aquaculture development as a designated development only where there are potential environmental risks.

SEPP 71 – Coastal Protection

This policy seeks to ensure that the development within the coastal zone is appropriate and suitably located and is consistent with the principles of ecologically sustainable development. Under this policy the Minister for Planning becomes the consent authority for state significant development, significant coastal development and development in sensitive coastal locations.

A Sensitive Coastal Location is described in the Policy as:

- a coastal Lake (as listed in Schedule 1)
- land within 100m above mean high water mark of the sea, a bay or an estuary
- land within 100m of the waters edge of a coastal lake, a declared Ramsar Wetland, a World Heritage property, an aquatic reserve, a marine park, a national park, a nature reserve, or a wetland subject to SEPP14
- residential land within 100m of land identified under SEPP26.

As the coastal zone (as defined in section 4A of the Coastal Protection Act 1979) now includes coastal areas between Wollongong and Port Stephens, SEPP-71 is applicable to the whole Georges

River Estuary up to Liverpool Weir, including all tidal tributaries, and will need to be considered during development of management options and during implementation, as appropriate.

SEPP (Major Development) 2005

The SEPP provides for the Minister to be the approval authority for major development as identified within the SEPP and schedules, subject to Part 3A of the EP&A Act. Although Part 3A of the EP&A Act has been repealed, SEPP (Major Development) remain in place for the time being.

SEPP (Infrastructure) 2007

SEPP (Infrastructure) 2007 was gazetted on the 1 January 2008 and was prepared to consolidate and update planning provisions relating to infrastructure and government land. The SEPP provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The intent of the SEPP is to support greater flexibility in the location of infrastructure and service facilities along with improved regulatory certainty and efficiency for the State.

The SEPP:

- outlines planning processes for considering classes of public infrastructure and particular infrastructure projects
- exempts some minor public infrastructure from the need for an approval
- clarifies where new infrastructure can be located and provides for additional permissible uses on government land
- requires State agencies constructing infrastructure to consult local councils when a new infrastructure development is likely to affect existing local infrastructure or services.

Division 25 of the SEPP relates to waterway or foreshore management activities. Section 129 of the SEPP identifies development which is permitted without consent and includes development for the purposes of waterway or foreshore management activities, which may be carried out by or on behalf of a public authority without consent on any land. These activities include:

- construction works;
- routine maintenance works;
- emergency works, including works required as a result of flooding, storms or coastal erosion;
- environmental management works.

The clause also relates to development for the purpose of temporary works associated with drought relief which maybe be carried out by on behalf of a public authority without consent subject to certain criteria.

Some works proposed in this Coastal Zone Management Plan fall within the above categories, and as such, SEPP Infrastructure may be considered as a pathway for development consent for these works.

Environmental Planning and Assessment Act, 1979

The *Environmental Planning and Assessment Act, 1979* (EPA Act) is the principle legislation that establishes the NSW planning framework, and was intended as a system of land use control. This is essentially the overarching document which determines land use and planning in the Georges River catchment. Those Parts of the EPA Act of particular relevance to the Georges River Estuary are outlined herein.

Part 3A of the EPA Act, was repealed in early 2011 and therefore no longer applies.

Part 4 of the EPA Act – Development Assessment

Part 4 applies to the standard lodgement and consideration process for development applications, where the local council is the consent authority. In this case, the Local Environment Plans (LEPs) determine the permissibility of the development, with controls for particular sites found in the LEP and any applicable development control plan (DCP). Part 4 applies to the majority of development on land within the Georges River Estuary catchment. Note that different LEPs apply to each LGA within the catchment.

Part 4 also stipulates the need for a Controlled Activity Approval (CAA) for works on 'Waterfront Land', in accordance with Part 3 of Chapter 3 of the *Water Management Act 2000* (WM Act). 'Waterfront Land' broadly refers to land within 40 m of the highest bank of a river, and equivalent location for lakes, estuaries and coastal waters. Activities for which a CAA is required include erection of buildings, removal of material or vegetation, deposition of material, and carrying out any other activity that affects the quantity or flow of water. A large amount of development along the Georges River may lie within 'Waterfront Land' as defined by the WM Act and will require a CAA, unless it can be shown to meet an exemption to the WM Act, as defined in Clause 39A of the *Water Management (General) Regulation 2004*.

Part 5 of the EPA Act – Development by the Crown

Part 5 of the EPA Act applies to those "activities" which do not require development consent under Part 4, but do require approval from a Minister or Public Authority, or are proposed to be carried out by a Minister or Public Authority.

NSW Coastal Protection Act 1979

In 2002, amendments were made to the Coastal Protection Act 1979 that requires Coastal Zone Management Plans to be prepared for parts of the NSW coastal zone. Under provisions of the Act, Coastal Zone Management Plans are required to be approved by the Minister prior to being gazetted by Councils. In order to comply with the provisions of the Act, Coastal Zone Management Plans need to address the following matters before they would be approved by the Minister:

a. protecting and preserving beach environments and beach amenity, and

b. emergency actions of the kind that may be carried out under the *State Emergency and Rescue Management Act 1989*, or otherwise, during periods of beach erosion, including the carrying out of related works, such as works for the protection of property affected or likely to be affected by beach erosion, where beach erosion occurs through storm activity or an extreme or irregular event, and

c. ensuring continuing and undiminished public access to beaches, headlands and waterways, particularly where public access is threatened or affected by accretion.

Once published in the Government Gazette, a Coastal Zone Management Plan becomes a statutory instrument under NSW legislation. In accordance with Section 55L of the Coastal Protection Act, 1979, a breach of (e.g. failure to comply with) the Plan may result in the Minister or a council bringing proceedings in the Land and Environment Court to remedy or restrain the breach.

As this CZMP does not relate to open coastal waters, there is no requirement for specifying emergency actions following storm erosion events.

NSW Local Government Act 1993

The *Local Government Act 1993* provides the legal framework for an effective, efficient, environmentally responsible and open system of local government in NSW. Council's charter is outlined by the Act and includes 'to properly manage, develop, protect, restore, enhance and conserve the environment of the area for which it is responsible, in a manner that is consistent with and promotes the principles of ecologically sustainable development'.

Under the provisions of the Act, Councils have numerous functions. Chapter 6 of the Act requires that all land vested in Councils must be classified as either Community or Operational land. Community land is land which should be kept for use by the general public (e.g. a public park). Councils must prepare Plans of Management to guide the use and management of Community land. Core objectives are defined in the Act for the management of different types of Community land. Plans of Management prepared for Community land within the study area should be generally consistent with the principles of this plan.

Under Chapter 13 of the Act, Councils are required to prepare Management Plans each year. The Management Plan details the Council's activities and budget for the next financial year. Subject to the competing demands and priorities, the various Councils relevant to the Georges River Estuary will identify funding for the implementation of various elements of the Coastal Zone Management Plan through the relevant program areas.

NSW Crown Lands Act 1989

The Crown Lands Act is administered by the Crown Lands Division of the Department of Lands to provide for the administration and management of Crown land in the Eastern and Central Division of the State. Crown land shall not be occupied, used, sold, leased, licensed, dedicated or reserved or otherwise dealt with unless the occupation, use, sale, lease, licence, reservation or dedication or other dealing is authorised by this Act.

Crown Lands provides a property management service for the Department of Lands where they are the custodian of Crown land status information and administer Crown land held under lease, licence or permit under the Crown Lands Act. The Division also manages vacant Crown land, land retained in public ownership for environmental protection purposes and the lands of the Crown public roads network. Crown land is allocated for public uses, including schools, hospitals, sports grounds, community recreation and housing development. Crown reserves are managed in partnership with both councils and local community groups. The goal of Crown land management is to optimise environmental, economic and social outcomes for the benefit of the people of NSW.

Within the Georges River Estuary, the major part of the Crown estate includes the bed of the river and Botany Bay. Any activity that will impact on Crown land must be referred to the Crown Lands Division of the Department of Lands for assessment of impacts and the consideration of approval of the activity by way of appropriate authorisation subject also to any Environmental Planning requirements.

NSW National Parks and Wildlife Act 1974

The NP&W Act is administered by the Office of Environment and Heritage (OEH), and addresses the protection of Aboriginal items and certain native flora and fauna.

Under the NP&W Act it is an offence to harm threatened species; buy, sell or possess threatened species; damage critical habitat; or damage the habitat of a threatened species without the issuing of a Section 120 licence.

If any identified archaeological sites or remains need to be removed or destroyed, prior to commencement of works in the area, an approval is required from the OEH for a section 87 or 90 permit.

The Georges River Estuary study area could potentially contain a number of significant Aboriginal heritage sites. Conservation of key estuary areas may be supported by the protection of flora, fauna or Aboriginal heritage under this Act.

NSW Fisheries Management Act 1997

The FM Act has as part of its objectives the protection of fish stocks, key fish habitats and threatened species and their habitats. This Act also covers the sustainable management of commercial and recreational fishing and promotion of viable aquaculture in NSW. The management of aquatic reserves, including the Towra Point Aquatic Reserve, also falls under this Act.

Harm of aquatic habitats through dredging and reclamation, blockage of fish passage, harm of marine vegetation (seagrasses, mangroves, saltmarsh and algae) and the use of explosives is regulated under the FM Act. Permits are required to be obtained prior to undertaking such activities. Approval from DPI-Fisheries is also required for any development proposals that occur or could impact upon the Towra Point Aquatic Reserve.

Posidonia australis seagrass in Botany Bay has been listed as an Endangered Population under the FM Act. Developments affecting this and other threatened species listed under this Act are to be assessed for significant impact in accordance with the Act. Any proposed damage to marine vegetation (including seagrass and mangroves) requires approval and a permit to be obtained from DPI (Fisheries).

NSW Threatened Species Conservation Act 1995

If a proposed development is likely to significantly affect critical habitat of a threatened species, population or ecological community, or is within critical habitat, as defined by the Act, a Species Impact Statement (SIS) must be prepared. The test of significance is defined by an eight point test that is required for potentially affected threatened species under Section 5A of the Environmental Planning and Assessment Act 1979.

A licence under the Act is generally required for the harming or picking of listed threatened plants or animals.

The NSW Biobanking Offsets Scheme has been established under the provisions of the TSC Act. Biobanking enables 'biodiversity credits' to be generated by landowners who commit to enhance and protect biodiversity values on their land through a Biobanking agreement. These credits can then be sold, generating funds for the management of the site. Credits can be used to counterbalance (or offset) the impacts on biodiversity values that are likely to occur as a result of development. The credits can also be sold to those seeking to invest in conservation outcomes, including philanthropic organisations and government.

The TSC Act applies to the Georges River Coastal Zone Management Plan as many threatened species listed under the TSC Act are present in the study area. This Act will assist in implementing strategies to ensure habitat protection and conservation within the Georges River Estuary catchment. Also, Biobanking may provide an opportunity for conservation of existing valued lands within the catchment.

NSW Heritage Act 1977

The Heritage Act 1977 protects heritage items, sites, and relics and is administered by the NSW Heritage Office. A relic is defined as any item relating to European settlement that is older than 50 years. Under Section 139 an excavation permit must be obtained from the NSW Heritage Office for the excavation or disturbance of a relic.

Estuary Management strategies must ensure they do not detrimentally impact on heritage items listed under this Act.

NSW Protection of the Environment Operations Act 1997

The POEO Act lists activities requiring environmental protection licences from the OEH, and details pollution offences and penalties.

The Georges River Estuary and its tributaries are subject to scheduled activities (such as mines and industry), and other forms of pollution (commercial and recreational boats, industrial development, urban development etc) that are administered under the POEO Act. Improved compliance with licence requirements may be necessary.

NSW Noxious Weeds Act 1993

The Noxious Weeds Act 1993 identifies noxious weeds and specifies control measures and duties of public and private landholders. The Act provides a framework for the state-wide control of noxious weeds by the Minister and local control authorities.

The Georges River Coastal Zone Management Plan can support the management of weeds through incorporating the management strategies contained within the Act for the categories of noxious weeds listed.

NSW Water Management Act 2000

A controlled activity approval is required for certain types of developments and activities that are carried out in or near a river, lake or estuary. Under the Water Management Act 2000 (WMA) a controlled activity means:

- the erection of a building or the carrying out of a work (within the meaning of the Environmental Planning and Assessment Act 1979), or
- the removal of material (whether or not extractive material) or vegetation from land, whether by way of excavation or otherwise, or
- the deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise, or
- the carrying out of any other activity that affects the quantity or flow of water in a water source.

The *WM Act* also governs the issue of new water licences and the trade of water licences and allocations for those water sources (rivers, lakes and groundwater) in NSW where water sharing plans have commenced. The Water Act 1912 is being progressively phased out and replaced by the WMA but some provisions are still in force.

The provisions of the WM Act require a permit from OEH for:

- Any works on or adjacent to existing levees; and
- 'Flood works' within a declared floodplain.

This will need to be considered when assessing management strategies for the Georges River, and in particular, any floodplain management structures or controls proposed. Note that Councils are offered some special exceptions under the WM Act, and that specific advice should be sought if provisions of the WM Act are to be triggered by any proposed works or activities.

Exemptions from the WM Act are defined in Clause 39A of the Water Management (General) Regulation 2004 and include exemptions for government authorities, with the exception of Landcom.

NSW Native Title Act 1994

The Native Title Act 1994 focuses on continuity of links with an area. Where this can be demonstrated, Aborigines of local derivation and specific ancestry will have a case for making claims for land interest arising from it. Measures proposed in the Georges River Estuary Coastal Zone Management Plan on Crown land must be reviewed to determine if a Native Title Claim exists.

NSW Coastal Policy 1997

The NSW Coastal Policy responds to the fundamental challenge to provide for population growth and economic development without placing the natural, cultural, spiritual and heritage values of the coastal environment at risk. To achieve this, the Policy has a strong integrating philosophy based on the principles of ecologically sustainable development (ESD).

The Policy addresses a number of key coastal themes including:

- Population growth in terms of physical locations and absolute limits;
- Coastal water quality issues, especially in estuaries;
- Disturbance of acid sulfate soils;
- Establishing an adequate, comprehensive and representative system of reserves;
- Better integration of the range of government agencies and community organisations involved in coastal planning and management;
- Indigenous and European cultural heritage; and integration of the principles of ESD into coastal zone management and decision making.

The management of the coastal zone is the responsibility of a range of government agencies, local councils and the community. The Policy provides a framework for the balanced and coordinated management of the coast's unique physical, ecological, cultural and economic attributes.

The Georges River and its foreshores falls within the defined coastal zone, therefore the Coastal Policy needs to be considered in the preparation of the Georges River Estuary Coastal Zone Management Plan. Councils are required to implement the policy when making local environment plans applying to land within the coastal zone and to take the provisions of the policy into consideration when determining development applications in the coastal zone.

The Policy specifically recommends that detailed management plans for estuaries be prepared and implemented in accordance with the NSW Government's Estuary Management Manual (which has now been replaced by the Coastal Zone Management Plan Guidelines – refer Section 1.6).

NSW Sea Level Rise Policy Statement 2010

The NSW Sea Level Rise Policy Statement (the Policy Statement) sets the planning standards for projected sea level rise to 2100 that must be adopted in all forms of coastal assessment, from development applications to coastal hazards definitions studies and coastal zone management plans. The adopted benchmarks are 0.4 m rise in sea level by 2050 and 0.9 m by 2100.

The Policy Statement outlines the recommended risk based management approach and the commitments of the NSW government to assist planning and managing sea level rise, including:

- promoting risk-based assessment approaches to sea level rise and coastal planning;
- providing guidance to councils to support adaptation planning initiatives;
- encouraging appropriate development on land at risk from sea level rise;
- providing continued emergency management support for damaging storms and floods; and
- providing ongoing updated information to the public about sea level rise and projected impacts.

The Sea Level Rise Policy Statement supersedes the 1988 Coastline Hazards Policy. Most of the objectives from that policy were included in the NSW Coastal Policy 1997, which remains current.

The Policy Statement also outlines the NSW Government's continued commitment to provide funding assistance to local councils for coastal hazard studies and management planning. Similarly, they shall continue to provide guidance and assistance to local councils on reducing the risk to private and

public property from coastal hazards. However, when allocating funding assistance to local councils for coastal protection works, the Government will now give priority to public safety and protecting valuable publicly-owned assets, and then to private land. The criteria now to be applied to councils to voluntarily protect private property will include the:

- magnitude of current and future hazards
- cost-effectiveness of management actions
- contribution to the project's costs from the local council and benefiting landowners, taking into consideration genuine hardship for affected coastal residents
- effectiveness of the proposed arrangements for maintaining any proposed works
- ability of the project to accommodate sea level rise.

Where assistance is provided to reduce the impacts of coastal hazards, the Government does not assume any responsibility for these hazards.

NSW State Plan

The NSW State Plan – Priority E4 'Better Environmental Outcomes for native vegetation, biodiversity and coastal waterways' and the Natural Resource Commission's Standards and Targets are important considerations for the management of the Georges River Estuary.

Planning for Bushfire Protection 2006

Areas within the Georges River catchment were devastated by bushfire in 1997. All development on Bush Fire Prone Land must now satisfy the aim and objectives of Planning for Bushfire Protection (PBP). The aim of PBP is to use the NSW development assessment system to provide for the protection of human life (including firefighters) and to minimise impacts on property from the threat of bush fire, while having due regard to development potential, on-site amenity and protection of the environment. More specifically, the objectives are to:

(i) afford occupants of any building adequate protection from exposure to a bush fire;

(ii) provide for a defendable space to be located around buildings;

(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;

(iv) ensure that safe operational access and egress for emergency service personnel and residents is available;

(v) provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ); and

(vi) ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bush fire fighting).

Commonwealth Environmental Protection and Biodiversity Conservation Act 1999

The EPBC Act requires approval by the Commonwealth Minister for the Environment for actions that may have a significant impact on matters of national environmental significance. The EPBC Act also requires Commonwealth approval for certain actions on Commonwealth land.

The EPBC Act defines matters of national environmental significance as Ramsar wetlands, listed threatened species and communities, World Heritage properties, listed migratory species, the Commonwealth marine environment and nuclear actions (including uranium mining).

The Towra Point Wetlands Ramsar site is protected under this Act.

Protection measures contained in this Act should be incorporated into management strategies of the Coastal Zone Management Plan to reinforce its implementation.

APPENDIX B: COMMUNITY FORUM AND FEEDBACK FROM THE ON-LINE SURVEY

A community forum was held on 24 May 2011. This was designed to provide the general community with an overview of the Georges River CZMP development process and timing as well as to seek their input on the aims, objectives, management options and actions suggested by the Estuary Management Committee for the Plan. This Forum included:

- A background presentation giving an overview of the Plan process and timing as well as outlining basic issues identified for the Georges River Estuary in the Processes study;
- An overview of the EMC ideas on the following topics followed by a facilitated discussions:
  - What are we trying to achieve?
  - How are we trying to achieve this?
  - What management tools are available to us?
- An opportunity for more general feedback on the planning process or other issues relevant to the Georges River Estuary Coastal Zone Management Plan.

A feedback survey was also distributed during the forum and collected back at the end of the night covering each of these topics. This was complemented by an online survey covering the same topics for those not present on the night. For each of the questions above, people were asked to score the suggestions in terms of their importance. The following scoring system was used:

1	2	3	4	5
Not at all	Small importance	Moderate importance	Major importance	Extremely important

From this scoring, a relative score and rank for each item has been produced. Note that this score and rank is based on feedback from both the on-line survey and the community forum.

This document summarises feedback and priorities derived from the community forum and on-line survey. While discussions have been summarised under the heading where they occurred, there was significant overlap between discussions and in some cases, for example, people were describing 'how' to achieve things rather than 'what' they were trying to achieve.

What are we trying to achieve?

The list of aims was presented (with simplified language in some cases) to community members. Comments on these were as follows:

- We should be trying to achieve consistency between Councils following the same environmental practices and enforcing the same environmental controls. In particular there needs to be more consistency between different Council environmental plans.
- Siltation in Salt Pan creek was seen as being caused from infrastructure such as a bridge. This was seen to imply a need for stricter environmental controls as well as a desire for more accountability and feedback to the community on their input to infrastructure projects.

- There needs to be more enforcement of development controls and associated impacts.
- We should aim to improve people's appreciation and understanding of the value of the estuary through education.
- We need more instant monitoring and feedback.
- We need to deal with upstream areas, sewerage plants etc.
- We should be providing cheaper access to less damaging ways of using and viewing the estuary e.g. row boats.
- 'Managing large catchment areas using infiltration strategies such as those applied to the Portland Oregon'.
- 'Catchment area. Many small solutions, less big ones like GPT's (although they greatly assist)'.
- 'Need to increase fines for polluters - can the current legislation be topped up with additional fines imposed by local councils?'
- 'Where a bridge has been built like Salt Pan Creek, the back fill should be removed after completion. That way the water flow and tidal flow will get back to near normal. The mangroves should then be removed.'
- 'Not sure if "water quality" includes floating rubbish/debris. That's one of my main irritations, partly because it is so visible & seems relatively simple to solve: Gross pollutant traps at all stormwater outfalls. And while planning & installing them, make them include sediment traps. Surely a relatively infrequent "lift-out & clear" by a crane truck or barge would keep them serviceable. I don't know who's monitoring sedimentation of the riverbeds, but in only the 20 years I've lived on the river I've seen some worrying loss of river depths. I assume urban runoff is a much greater contributor than shoreline erosion because there seems a lot more loss of depth than accountable by erosion alone. After Woronora Heights was subdivided & levelled to raw exposed earth, my brother's previously deep waterfrontage on Woronora could be waded from one side to the other. Hurstville/Kogarah council area redevelopments are much smaller scale, but I fear all those token, ineffectual & unmaintained "sausage sandbags" in gutters outside every new demolition are still allowing incremental sedimentation of the river.'
- 'Public access for walkers and to an extent mountain bikes is important as they deter and bring political pressure to bear on the 4wd and trail bikes which are major destroyers of natural vegetation and hence a major erosive vector that something needs to be done about in the Menai-Sandy Point area.'
- 'Having been involved in many of the river health surveys I believe that the great majority of the general public just don't care or have little understanding of how they impact on the environment. I think that public education and including environmental studies in the school curriculum is the key to protecting our already damaged back yard'.
- 'I think you are doomed to fail with an integrated MER. It's been tried many times and failed. It's expensive, and the Councils and agencies never follow through on actions. Until there is sufficient base funding to drive a trajectory of improvement, you will never get good integrated monitoring or action based on monitoring.'
- 'It would be good to see how you plan to measure these outcomes. These are of such a scale that you couldn't object to them'

As described above, people were also asked to give a score of 1 to 5 for each of these aims, based on how important they perceived them to be. The relative score and rank of each aim is given below.

Aim	Score (out of 5)	Rank
Aquatic habitats and foreshore vegetation protected, enhanced and restored	4.6	1
Optimum water quality in the Georges River Estuary and its tributaries	4.6	2
Negative impacts of development in the catchment on waterway health minimised	4.5	3
Coordinated monitoring, reporting and evaluation programs for the Georges river estuary developed and supported	4.1	4
Bank erosion and sedimentation actively managed	4.1	5
Natural and cultural heritage identified, acknowledged and protected	4.0	6
Existing built foreshore assets managed while maximising environmental values	3.8	7
Potential impacts of climate change on the natural and built environments of the estuary planned for and adapted to	3.4	8
Public access to the foreshore protected and enhanced	3.4	9

People were also asked if any of the aims should be removed from the Plan. Very few people suggested removing aims entirely but 3 aims were nominated by at least one person to be removed from the Plan. These were:

- Public access to the foreshore protected and enhanced (2 votes)
- Bank erosion and sedimentation actively managed (1 vote)
- Existing built foreshore assets managed while maximising environmental values(1 vote).

For the first and third of these, this also confirms the low ranking given to these aims by others responding to the survey.

People were asked to nominate additional aims for the Plan to attempt to achieve. Suggestions from the surveys were as follows:

- Public education
- Salt marsh re-established wherever possible.
- Development of natural asset management plans
- Minimise gross pollutants entering the estuary
- Policing of waterway, anglers etc
- Policing of urban runoff e.g. washing of cars on street and industrial runoff
- Greater accountability to estuarine management in all development
- Greater emphasis on impacts of waterway uses and encourage low impact uses
- Regional control of local planning
- Manage compromise between recreation use and environmental values

- Improve appreciation and understanding of the value of estuaries
- Education of community re value of/preservation of the health of the waterway
- Coordination of Councils' POMs/goals etc LEPs
- Proper management of recreational and commercial boating
- Consistency amongst local government environment plans
- Cooperative management of catchments involving drainage lines into the Georges River
- Stormwater management
- Better feedback to the community on infrastructure projects, accountability, environmental controls

How are we trying to achieve this?

A simplified list of objectives was presented. This list combined objectives in some cases and reduced the length of descriptions of the objectives in order to make it tractable for a community workshop of a relatively short duration. Comments from the forum and on-line survey on these objectives were as follows:

- We need to collect of pollution from stormwater drains. The flow regime of stormwater needs to be changed. We should be adopting the principles of WSUD.
- We need a reference library for documents. Eg HCC foreshore scenic protection audit 1998-2000. It was suggested by some present that that already exists but perhaps doesn't cover older documents.
- Objectives should be amalgamated where possible – seems to be some double up.
- Councils and State significant projects should adhere to foreshore setbacks. Councils agree to the rules and should be legislation so everyone is forced not to modify the rules.
- We should be aiming to eliminate sewerage overflows. We need to make sure that nothing from STPs goes into the river. How many overflow points are there?
- The wording of all the objectives should be strengthened. At present it is a bit soft (e.g. 'minimise' should be 'eliminate'). We should aim to preserve what we have.
- We should encourage human interaction and education e.g. festivals and activities such as the Cooks River sustainability festival. These should not just be environmentally focused but also highlight the heritage of the river and catchment. Councils etc should be putting in floats and education displays, linking with NGOs etc to deal with cultural issues.
- We need to think about what we do with sediments removed from systems (either captured or dredged – e.g. artificial wetlands, dredging). We need a long-terms planning process for these. There needs to be more coordination by State Government.
- We need to think more about governance and funding –are there better arrangements?
- Access to foreshore areas needs to be improved where private owners are restricting access to the public. Some suggested this was being addressed by an IPART review.
- We need to work with the education system. This needs to be done by a central body (such as the GRCCC or SMCMA) not single councils. They should provide tools to teachers, play a

coordinating role and put these in a central location. This should be targeted at groups such as the scouts not just at schools.

- We should be raising the profile of rivers in planning initiatives.
- “I didn’t realise there are so many concerns. All I was worried about was gross pollutant traps, and sedimentation. Now I'm more worried because I see how many ways any resource $$$ are going to have to split to satisfy everybody.”
- "Lime Kiln Bay - as the most polluted waterway in the Georges River - really needs help. When the ponds were first built, there was a flurry of new bird life such as Spoonbills and herons. These have long since abandoned the ponds and have vanished. The Gross pollutant trap always overflows with anything greater than moderate rainfall. As a daily visitor, it is distressing to see the degradation. I suspect that there is illegal industrial discharge from the Peakhurst Heights industrial area.
- “Please help this once pleasant waterway - where people used to picnic and enjoy the area."

People were also asked to provide a score (1 to 5) rating the relative importance of the presented objectives. The average score across both forum and on-line survey participants is given below along with the count of people who suggested removing the objective from the Plan.

Objective	Average score	Rank	Remove
Striving to protect undeveloped areas of the broader catchment that act as a buffer to water quality	4.7	1	0
Reducing the volume and pollutant load of stormwater runoff throughout the catchment	4.7	2	0
Limiting the negative impact of all developments on flow and water quality	4.6	3	1
Minimising the negative impacts of new and existing commercial operations in the catchment and estuary on flow and water quality	4.6	4	1
Ensuring appropriate measures are taken and maintained to reduce the erosion and associated pollutant exports from areas under development	4.6	5	1
Enforcing compliance on unauthorised foreshore development across the estuary	4.5	6	0
Minimising incidences of illegal dumping of waste into and along the estuary	4.4	7	0
Protecting and improving the extent and condition of estuarine and riparian vegetation	4.4	7	0
Improving the overflow sewer performance of the sewer network	4.4	9	0
Incorporating best practice environmental management in all foreshore developments	4.4	10	1
Ensuring integration of the Georges River Estuary Coastal Zone Management Plan aims and objectives into strategic planning initiatives and developments	4.3	11	0
Monitoring the effectiveness of the plans objectives and management actions	4.3	12	1

Objective	Average score	Rank	Remove
Minimising the cause and spread of invasive species in aquatic and terrestrial habitats	4.3	13	1
Increasing enforcement of restrictions on illegal recreational uses that impact on estuary health	4.3	14	0
Reducing the causes and impacts of sedimentation in the estuary	4.2	15	0
Minimising the negative impact of commercial and private activities on catchment waterways	4.2	16	2
Minimising the impact of human uses on aquatic and terrestrial habitats	4.1	17	2
Reducing the extent and severity of bank and foreshore erosion while minimising the impacts on estuary health	4.1	17	0
Reducing the impacts of commercial and recreational uses on the waterways and aquatic and terrestrial habitat	4.0	19	2
Ensuring development minimises impacts on aesthetic and social values	4.0	19	2
Building on the existing GRCCC coordinated estuary health monitoring of the Georges River to ensure compliance with the NSW Monitoring, Evaluation and Reporting Program	4.0	21	2
Effectively managing threats to and enhancing the natural and cultural heritage values in the catchment and waterways	3.9	22	1
Protecting public foreshore areas required for potential retreat of estuarine vegetation in response to sea level rise from development or infrastructure	3.8	23	1
Maintaining the varied legal recreational pursuits of the Georges River catchment without compromising estuary health and social amenity	3.7	24	2
Incorporating the principles of the environmentally friendly seawall guidelines into all seawalls being built in the estuary (within legislative constraints)	3.6	25	3
Rebuilding seawalls to incorporate the principles of the environmentally friendly seawall guidelines	3.6	26	2
Maintaining and improving formal public access to the foreshore without compromising estuary health	3.6	27	0
Planning for and adapting where possible to manage impacts on foreshore infrastructure resulting from an increase in tidal inundation associated with sea level rise	3.5	28	1

The scores of the top options are very close. These options largely relate to improving water quality or protecting undeveloped areas of the catchment.

People were also asked to nominate any additional objectives they felt should be included in the Plan. Suggestions are below:

- Stormwater pollution management
- School curriculum resources
- Community strategies - Cooks river initiative, Festivals

- More pervious areas in developments - principles of WSUD written and to be adhered to in building developments
- Councils' compliance enforced/coordination enforced
- Collection of pollution from stormwater drains
- Prepare units of work for primary schools/training teachers in how to use these units of work
- Flow regime of stormwater
- STPs need to make sure none goes into river
- Stencilled labels on stormwater drains leading to creeks and rivers
- Replanting mangroves and riparian zones
- Use stronger words than minimising in the Plan
- Stop all sewer overflow into River
- Stop illegal industrial discharge into stormwater system
- Improve public access to foreshore area - more walkways and bike paths
- Coordination of planning and management between Councils
- Support community groups to contribute from the ground up
- Foster and support community participation.

What management tools are available to us?

Management Options suggested by the Estuary Management Committee were simplified and grouped together to create a list of management tools to present to the community for feedback. General comments on these from the community forum and online survey were as follows:

- We should foster amalgamation of community groups to encourage coordination of activities and lobbying eg. Cooks River Valley Association, Cooks River Sustainability Initiative.
- Common rules should be developed for all Councils to adhere to with regard to development.
- There were some questions about whether the management tools were appropriate and whether some of them might not be aims and objectives.
- It was suggested that foreshore areas should be videotaped. Alison Hanlon (GRCCC) said this was already done, for example in Sutherland.
- Inappropriate infrastructure needs renewal. For example there are GPTs that need replacing, such as the boom litter trap adjacent to Gow's creek (Bankstown) and old GPTs in Salt Pan creek.
- Some of the other GPTs need to be maintained and cleaned out.
- We need to recognise the challenges of funding maintenance etc for WSUD. We could be using prisoner release programs or work for the dole teams to clean out systems such as pollutant traps and to undertake bush regeneration.
- We need to find ways to get the private sector to pay for infrastructure.

- We should establish consistent or common foreshore building lines and adhere to these. These need to be addressed in LEPs not DCPs.
- We need to undertake community capacity building e.g. Cook River Sustainability Initiative.
- We should develop green belt corridors on private property – have more grants for private landholders and information on the best design of vegetation.
- We should expand saltmarsh and seagrass areas.
- Where vegetation clearing is undertaken for views, signs should be installed to block the view until the vegetation grows back, there should be increased fines and enforcement. This clearing should be followed up as much as possible and signs installed as a deterrent.
- Some said we should be looking to protect 'all' public foreshores areas rather than 'key' areas from major infrastructure. Others said this should instead be 'sensitive'.
- Rubbish gets caught in environmentally friendly seawalls.
- Lime Kiln Bay should be a focus for WSUD given it got an F for water quality from the creek.
- Specific projects people suggested were:
  - Claydon Reserve Kogarah Bay – GPT with big holes in it next to the boat ramp at the head of Kogarah Bay.
  - Botany Bay water reclamation project – electrical cables and chlorine stored in close proximity to the Bay, subject to flood risk.
  - Pipe from Depot rd from an industrial area into golf course, Lime Kiln Bay without any treatment.
  - Georges river National Park seawalls collapsing/eroding – upstream of Alfred's point bridge, Cattle Duffers Flat.
  - Sewer outlet northern side of Boulton Park, Concert Bay.
  - Shark's development Woolooware Bay – proposal is 30m from foreshore and would have negative effects
  - Cook Park along Botany Bay at Brighton – proposal for a major development here, not completely abandoned (Rockdale Council).
  - Sewerage overflow pipes onto beach, stormwater outlet near restaurant causing erosion.
  - Eastern arm upstream of footbridge in Lime Kiln Bay – restore tidal prism by removing reclamation.
- 'Get National Parks to consult with the users before they make anymore dumb changes to the boat ramp and parking areas'
- 'I am a boat user, large and small, so you might assume all my responses would be pro-boating. In one case that's correct: I believe the impact of boat anchoring is negligible and irrelevant, although I do not like to see a seagrass bed gouged by anchoring or shallow-water grounding of boats, and I think a heap more public moorings in the few popular places would make everyone happy. I do not have a predictable pro-boating stance when it comes to speed limits and boat wakes. I believe tighter controls on this would benefit all including fellow boaters annoyed by unpleasant and even dangerous boat wash, not to mention shore erosion plus damage to

shoreline infrastructure and berthed vessels etc. There is much debate in boating magazines to enforce reduced wash everywhere. Many of us would be happy for a 4 knot speed limit for any vessel over say 9m length (exclude catamarans: hardly any wash. No, I don't own one), to be enforced everywhere upriver from say Tom Ugly's Bridge. Oatley Bay (where I live) it's a joke that the speed is 8 knots: for most boats the absolute worst speed for causing maximum wash. And hardly any boater (even Roads and Maritime Services vessels!) seems to understand what "NO Wash" means. I'd like a dollar for every surfable whitewash I could "Hang Ten" on down the length of Oatley Bay. And we wonder why Oatley Bay's shoreline has all washed into the Bay and will need dredging again? No point building the nice boat ramp & parking if boats won't be able to get out through the Bay.'

- 'The Cook's River groups have done some fantastic work. The Cook's River is readily accessible because of the bike path and walking track that goes along the river. This makes the river much more accessible and visible. How fantastic it would be if the bike path from Cook's River, along Botany Bay was then extended out along the Georges River. I appreciate the Georges River is not as accessible in all places, but much of it could be! This would help people become more engaged with the Georges River.'
- 'Protect the upper catchment - fencing, exclusion of humans etc'
- 'If a structure is deemed unauthorised and inappropriate what would it need to comply with?'

People were asked to provide a score (1 to 5) rating the relative importance of the presented management tools. The average score across both forum and on-line survey participants is given below along with the count of people who suggested removing the objective from the Plan.

Management tool	Rank	Average score	Remove
Reduce unauthorised riparian and estuarine vegetation clearing	1	4.6	0
Protection of native vegetation and uncleared areas	2	4.6	0
Enforcing effective sediment controls during development	3	4.5	0
Better control point sources of pollution	4	4.5	0
Rehabilitation, habitat creation and revegetation programs	5	4.4	0
Water sensitive urban design in new and existing urban areas – for example rain gardens, vegetated swales, artificial wetlands, gross pollutant traps	6	4.4	0
Protect key public foreshore areas from development or infrastructure	6	4.4	0
Establish foreshore building lines for all developments to protect riparian vegetation and manage flooding and erosion risks	8	4.3	0
Fix problem sewers	9	4.2	0
Review and/or better enforce speed limits where bank erosion is an issue and boat wake a likely cause	10	4.1	1
Maintain compliance on unauthorised or inappropriate foreshore structures and uses	10	4.1	2
Enforce strict environmental controls on any approved dredging for public navigation channels	12	4.1	0
GRCCC's Riverkeeper Program	13	4.1	0

Management tool	Rank	Average score	Remove
Weed, pest and disease control programs	14	4.0	0
Manage access to the estuary and foreshore – enhanced in appropriate locations and restricted in sensitive areas, controlling ad hoc access	15	4.0	0
Education and/or information programs	16	3.9	0
Manage seawalls to control erosion eg. building environmentally friendly seawalls where necessary to control erosion, modifying seawalls to increase their habitat value or removing them where appropriate	17	3.9	0
Ensure identified heritage sites are adequately protected	18	3.9	0
Minimise the impact of moorings on seagrasses	19	3.9	0
Support industries to develop their own environmental management systems	19	3.9	0
Work with Aboriginal groups and individuals in the Georges River catchment to determine management options for threatened indigenous heritage sites	21	3.8	1
Using scientific modelling, mapping and monitoring to better understand problems and evaluate potential solutions	22	3.8	0
Increased community involvement in the design of solutions	23	3.7	0
Ensure adequate waste disposal facilities for people aboard boats and recreational fishers on land	24	3.7	0
Organise community events to improve the recreational amenity of key foreshore areas (eg. clean-up days)	25	3.7	0
Manage foreshore infrastructure with likely tidal inundation risk to allow adaptation to sea level rise	25	3.7	0
Adequately consider social and aesthetic values in the review and preparation of new Development Control Plans (DCPs)	27	3.7	0
Abandon, demolish, relocate or protect assets as appropriate in actively eroding areas	28	3.6	0

The highest ranked options all had very similar scores and related to protecting vegetation and enforcement of controls on pollution (both point sources and from developments). Very few people suggested removing any of the Management tools – the highest vote was by two people to remove the management tool relating to maintaining compliance with unauthorised or inappropriate foreshore structures.

- People were also asked to nominate any management tools they felt were missing from the list. Their suggestions were as follows:
- Identify infrastructure having an adverse impact and remove
- Identify opportunities to extend seagrass and saltmarsh area
- Clarify between an objective and a tactical/operational tool

General feedback

People were also asked to provide general feedback on any other issues they thought relevant to the Coastal Zone Management Plan. Several comments were received from those participating in the on-line survey:

- 'There has been considerable reduction in the amount of stormwater debris flowing into Kogarah Bay from the myriad of small stormwater pipes but the debris catching nets need to be maintained.'
- 'I'm really grateful and a little bit reassured that this forum is created and supported. It's a great initiative. I believe a lot could be achieved, even with very limited resources. 3 cheers to Hurstville Council and anyone else involved & responsible.'
- 'As a waterfront resident, one of my biggest problems is dealing with debris washed up at king tides, or after heavy rain, eg, parts of poles, old jetty pieces, large branches from palms. This is apart from the usual rubbish that comes ashore from boats, which seems to be getting less.'
- 'I have been the site coordinator for the Banksia Creek Clean up Australia Day since the beginning of the campaign. The council is very active with the lead up and clean up arrangements but for the remainder of the year the activity is very poor. There are no pollutant traps in Salt Pan Creek where much of this rubbish comes from and storm water management is very poor. Alligator weed control on the foreshore is very poor even though this is a noxious weed. Control of weeds generally is non-existent.'

APPENDIX C: PRIORITISATION OF ESTUARY MANAGEMENT AIMS AND OBJECTIVES

Ranking of Management Aims

A risk assessment method was used to rank the Management Aims. Information and feedback from the EMC workshops was used to evaluate risks as they relate to the nine agreed aims of the Coastal Zone Management Plan, as well as the resulting Management Objectives (which are described further in Section 4.2).

Quantitative feedback on each aim was elicited from workshop participants, as follows:

A. How big is the threat to the estuary addressed by this aim? The ratings scale you should use for this question is below.

1	2	3	4	5
Insignificant	Minor	Moderate	Major	Catastrophic

B. How likely is it that the threat would be realised if we don't take actions through this estuary management plan to address it? The rating scale you should use for this question is below.

1	2	3	4	5
Rare	Unlikely	Possible	Likely	Almost certain

The feedback from workshop participants was used to construct a risk assessment as follows. As per standard risk assessment methodologies, the risk is a product of the 'consequence' (Question A) and 'likelihood' (Question B), viz:

$R_x = C_x \times L_x$

Where:

R_x is the risk to the Georges River Estuary;

C_x is the *consequence* if that threat is realised for aim x (averaged for all responses to Question A above); and

L_x is the *likelihood* of the threat being realised for aim x (averaged for all responses to Question B above).

This risk was used to classify, or rank, each of the Aims, based on the risk matrix presented in Figure 9-1. Within this matrix, risks have been separated into "intolerable", "tolerable" and "acceptable" risks. Broadly, "intolerable" risks are those that must be addressed as a matter of priority, while "tolerable" risks are still considered unacceptable, but secondary to intolerable risks. The goal of the

Coastal Zone Management Plan should be to reduce intolerable and tolerable risks down to an acceptable risk level.

For risks associated with the Aims of the Georges River Estuary Coastal Zone Management Plan, the risk assessment processes yielded five intolerable risks (Aims A, B, D, E and H), and four tolerable risks (Aims C, F, G and I) (refer Figure 9-2). None of the risks were considered to be acceptable.

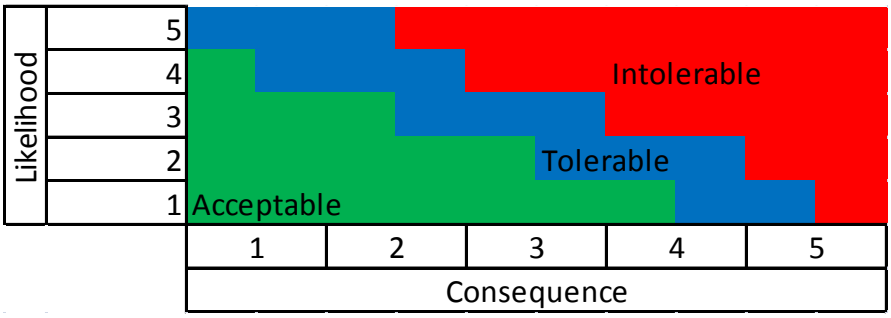

Figure 9-1 Risk Level Matrix

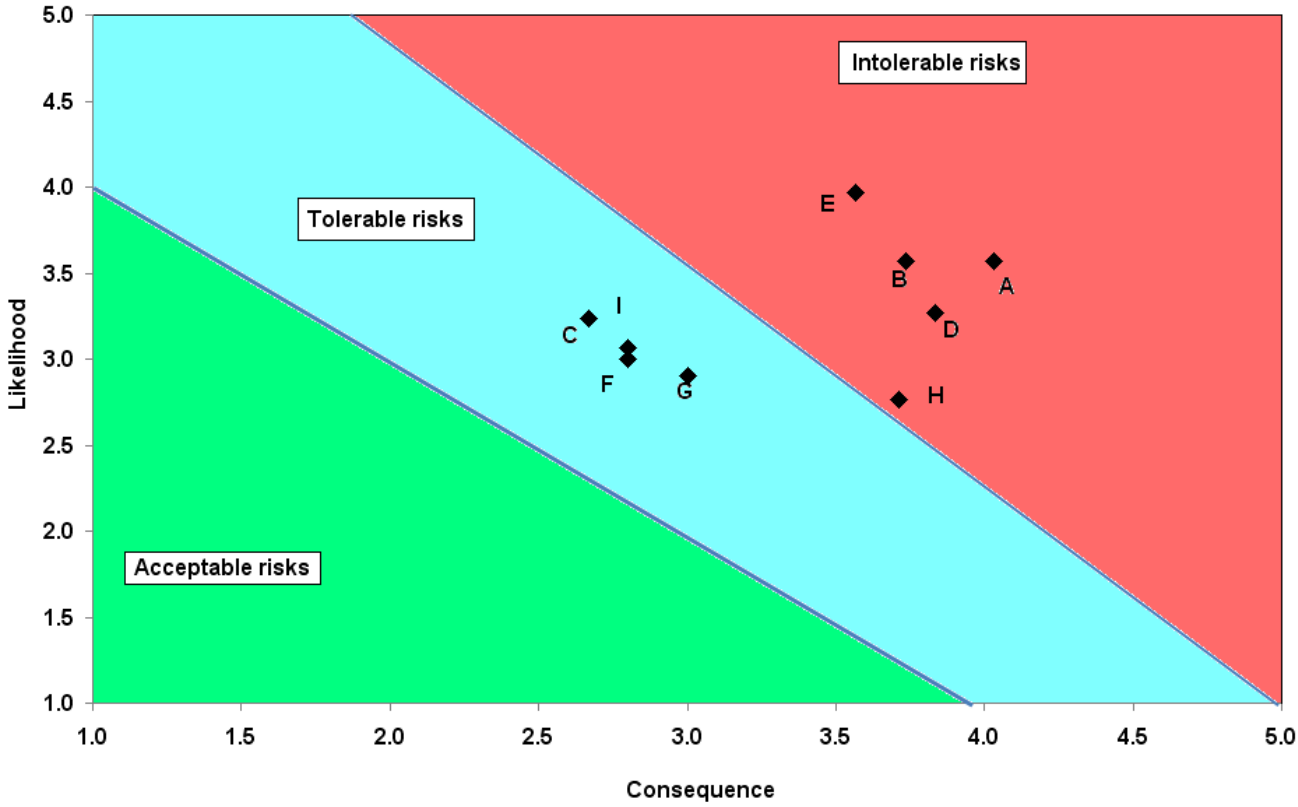

Figure 9-2 Risk chart and categorisation of Aims based on likelihood and consequence

The individual risk scores were also used to rank aims in order of priority. The rank, consequence, likelihood and total risk score for each aim is given in Table 9-1. Also presented in Table 9-1is the relative ranking of Aims as established at the Community Forum. As can be seen, the community rank was similar to the EMC ranking, with a couple of exceptions. The community did not rank 'H –

climate change impacts' as high as the EMC, and instead ranked 'I – monitoring' notably higher than the EMC.

Table 9-1 Results of Risk Assessment and Ranking of Aims

	Aim	Conse-quence	Likeli-hood	Risk Score	Rank	Comm. Rank	Risk category
A	To optimise water quality within the Georges River Estuary and its tributaries	4.0	3.6	14.4	1	2	**Intolerable**
E	To actively manage bank erosion and sedimentation	3.6	4.0	14.1	2	5	**Intolerable**
B	To protect, enhance and restore aquatic habitats and foreshore vegetation	3.7	3.6	13.3	3	1	**Intolerable**
D	To minimise the negative impacts of development in the catchment on waterway health	3.8	3.3	12.5	4	3	**Intolerable**
H	To plan for and adapt to the potential impacts of climate change on the natural and built environments of the estuary	3.7	2.8	10.3	5	8	**Intolerable**
G	To identify, acknowledge and protect natural and cultural heritage	3.0	2.9	8.7	6	6	**Tolerable**
C	To protect and enhance public access to the foreshore	2.7	3.2	8.6	7	9	**Tolerable**
I	To develop and support coordinated monitoring, reporting and evaluation programs for the Georges river estuary	2.8	3.1	8.6	8	4	**Tolerable**
F	To manage existing built foreshore assets while maximising environmental values	2.8	3.0	8.4	9	7	**Tolerable**

Ranking of Management Objectives

Management Objectives have been ranged to assist with prioritisation of tasks and actions identified within this Plan. Ranking of Objectives allows the most critical issues facing the estuary to be addressed as a matter of priority.

Ranking of the Management Objectives followed a similar process to ranking of the overarching Management Aims, that is, by considering the extent to which Management Objectives could be expected to decrease the quantified risks associated with Management Aims. Again, quantification used in this estimate was derived from feedback from participants at the EMC workshops. In this regard, another question was asked of each participant relating to each Management Objective, namely:

C. To what extent will achieving this objective resolve the threat addressed by the aim? The ratings scale you should use for this question is below.

1	2	3	4	5
Not at all	A small contribution	A moderate contribution	A major contribution	Threat fully or almost fully addressed

The relative importance of objectives has been assessed using a risk reduction potential for the objective. This potential, P_i, is calculated as:

$P_i = O_{x,i} \times R_x$

Where:

$O_{x,i}$ is the extent to which objective *i* is expected to resolve the threats associated with Aim *x* (averaged for all responses to Question C above) (note, within the calculation, this score is converted to a percentage whereby a value of 5 = 100% contribution, and 1 = 0% contribution); and

R_x is the risk score (calculated previously) for aim *x*.

Objectives were ranked, from 1 to 27, and were also grouped based on priority: the top 10 ranked objectives are 'high' priority; the next 9 are 'medium' priority; and the lowest 9 objectives are 'low' priority. The results of the ranking process for the Management Objectives are presented in Table 9-2. In addition, and for comparative purposes, Table 9-2 shows the relative scores given to each Management Objective by the community when asked about the importance of each Management Objective. In general, there was good consistency between the relative importance scores given by the community, and those given by the EMC (i.e. O_{xi}). It should be noted that the wording of the survey question asked of the general community was slightly different, so it is not appropriate to directly compare the two scores. Comparison of the rank of options provided by each score is, however, reasonable.

Clearly, Management Objectives that aim to address the highest priority (intolerable) aims, tend to be ranked highest (high priority), while those that address the lowest priority aims are ranked lowest (low priority).

By achieving the highest priority Management Objectives, the estuary will take the greatest steps towards its fundamental goal of improving overall ecosystem health. Management Options, as discussed in Section 5, therefore, are targeted towards achieving the highest priority Management Objectives.

Table 9-2 Results of Ranking and Prioritisation of Management Objectives

No.	Objective	Comm. Score (av.)	Average score (O_{xi})	Risk reduction potential (P_i)	Overall rank	Classification
Aim A: To optimise water quality within the Georges River Estuary and its tributaries						
A1	To reduce the volume and pollutant load of stormwater runoff throughout the catchment	4.7	4.2	11.4	1	High
A2	All greenfield and redevelopments should have a minimal negative impact on flow and water quality, meeting targets for water quality proposed in the Botany Bay and Catchment WQIP	4.6	3.8	10.0	3	High
A3	Improve the performance of sewer overflows	4.4	3.9	10.3	2	High
A4	Minimise incidences of illegal dumping of waste into and along the estuary	4.4	3.4	8.5	7	High
A5	Strive to protect undeveloped areas of the broader catchment that act as a buffer to water quality	4.7	3.5	9.2	4	High
A6	To minimise the negative impacts of new and existing commercial operations in the catchment and estuary on flow and water quality	4.6	3.5	9.0	5	High
Aim B: To protect, enhance and restore aquatic habitats and foreshore vegetation						
B1	To minimise the impact of human uses on aquatic and terrestrial habitats	4.1	3.3	7.6	11	Medium
B2	To minimise the cause and spread of invasive species in aquatic and terrestrial habitats	4.3	3.4	8.0	10	High
B3	To protect and improve the extent and condition of estuarine and riparian vegetation	4.4	3.5	8.5	9	High
Aim C: To protect and enhance public access to the foreshore						
C1	To maintain the varied legal recreational pursuits of the Georges River catchment without compromising estuary health and social amenity	3.7	3.1	4.5	26	Low

No.	Objective	Comm. Score (av.)	Average score (O_{xi})	Risk reduction potential (P_i)	Overall rank	Classification
C2	To reduce the impacts of commercial and recreational uses on the waterways and aquatic and terrestrial habitat	4.0	3.4	5.1	21	Low
C3	To maintain and improve formal public access to the foreshore without compromising estuary health	3.5	3.3	4.9	23	Low
C4	Increase enforcement of restrictions on illegal recreational uses that impact on estuary health	4.3	3.3	4.9	25	Low
Aim D: To minimise the negative impacts of development in the catchment on waterway health						
D1	To ensure appropriate measures are taken and maintained to reduce the erosion and associated pollutant exports from areas under development	4.6	3.4	7.4	13	Medium
D2	To ensure integration of the Georges River Estuary Coastal Zone Management Plan aims and objectives into strategic planning initiatives and developments	4.3	3.4	7.5	12	Medium
D3	To minimise the negative impact of commercial and private activities on catchment waterways	4.2	3.0	6.1	15	Medium
Aim E: To actively manage bank erosion and sedimentation						
E1	To reduce the extent and severity of bank and foreshore erosion while minimising the impacts on estuary health	4.1	3.5	8.7	6	High
E2	To reduce the causes and impacts of sedimentation in the estuary	4.2	3.4	8.5	8	High
Aim F: To manage existing built foreshore assets while maximising environmental values						
F1	All new seawalls and repairs to existing seawalls throughout the estuary to incorporate the principles of the environmentally friendly seawall guidelines within legislative constraints	3.6	3.5	5.3	19	Medium
F2	Not used					
F3	All foreshore developments to incorporate best practice environmental management	4.4	3.5	5.1	20	Low
F4	Compliance on unauthorised foreshore development across the estuary is enforced	4.5	3.8	5.8	17	Medium

No.	Objective	Comm. Score (av.)	Average score (O_{xi})	Risk reduction potential (P_i)	Overall rank	Classification
Aim G: To identify, acknowledge and protect natural and cultural heritage						
G1	To effectively manage threats to and to enhance the natural and cultural heritage values in the catchment and waterways	3.9	3.3	4.9	22	Low
G2	To ensure development minimises impacts on aesthetic and social values.	4.0	3.1	4.5	27	Low
Aim H: To plan for and adapt to the potential impacts of climate change on the natural and built environments of the estuary						
H1	To protect public foreshore areas required for potential retreat of estuarine vegetation in response to sea level rise from development or infrastructure	3.8	3.6	6.7	14	Medium
H2	Plan for and adapt where possible to manage impacts on foreshore infrastructure resulting from an increase in tidal inundation and localised flooding associated with sea level rise as outlined in the sea level rise policy statement	3.5	3.3	5.8	16	Medium
Aim I: To develop and support coordinated monitoring, reporting and evaluation programs for the Georges River Estuary						
I1	To build on the existing GRCCC coordinated estuary health monitoring of the Georges River to ensure compliance with the NSW Government Monitoring, Evaluation and Reporting Program	4.0	3.6	5.7	18	Medium
I2	To monitor the effectiveness of the plans objectives and management actions	4.3	3.3	4.9	24	Low

APPENDIX D: PRIORITISATION OF ESTUARY MANAGEMENT OPTIONS

The initial 'long-list' of potential Management Options is provided in the sections below, under each Management Aim.

Assessment of potential Management Options was based on feedback from EMC workshop participants. Via a questionnaire, participants were asked to provide responses to a series of questions for each potential Management Option.

1. Do you have any ideas of more detailed Management actions that could/should be undertaken for each Option?

2. Are there any specific projects you would like to have considered for inclusion under the Plan for any of the Management Options?

3. To what extent do you think the Management Option will contribute to achieving the Plan's objectives? The ratings scale you should use for this question is below.

1	2	3	4	5
Not at all	A small contribution	A moderate contribution	A major contribution	Relevant objectives fully or almost fully addressed

The relevance of individual options was to determine its "total potential" for addressing the objectives and aims of this Plan. This potential, P_i, was calculated as:

$$P_i = \sum_{Objectives\ (y)} R_{y,x} \times Q_{x,i}$$

Where:

$Q_{x,i}$ is the extent to which option *i* is expected to address the objectives from Aim *x* (averaged score for all responses to Question 3 above) (note, within the calculation, this score is converted to a percentage whereby a value of 5 = 100% contribution, and 1 = 0% contribution); and

$R_{y,x}$ is the risk reduction potential (calculated previously) for Management Objective *y*, which addresses Aim *x*.

The average score ($Q_{x,i}$) and resulting total potential (P_i) are also presented below. Within Table 9-3 to Table 9-11, the applicability of each management option to each management objective is denoted by a tick (✓) in the relevant column of the table. It was assumed that the primary contribution of any management option was to objectives under the aim for which it was originally defined. In doing this, it was understood that some management options may also make some contributions to objectives under other aims.

In addition, and for comparative purposes, the tables below shows the relative scores given to each Management Option by the community when asked about the likely effectiveness of each option in addressing the Management Objectives. The community tended to be quite optimistic about the potential for options to address the identified management objectives, with generally higher scores that those provided by the EMC.

AIM A. WATER QUALITY: To optimise water quality within the Georges River Estuary and its tributaries

Objectives A1 – A6: Refer Table 4-2 for details.

Table 9-3 Water Quality Potential Management Options

No.	Management Option	A1	A2	A3	A4	A5	A6	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MA1	Incorporate appropriate WSUD in redevelopments, including public and private development, of urban areas	✓	✓					4.4	3.8	**14.9**
MA2	Councils to incorporate Water Sensitive Urban Design (WSUD) principles in the review and preparation of new Development Control Plans (DCPs)	✓	✓					4.4	3.7	**14.3**
MA3	Retrofit appropriate WSUD in existing urban areas including measures such as artificial wetlands, vegetated swales, and channel naturalisation	✓	✓					4.4	3.4	**13.1**
MA4	Undertake adequate and appropriate maintenance of existing WSUD devices to maintain their effectiveness, in particular GPTs and other stormwater quality improvement devices.	✓						4.4	3.1	**6.0**
MA5	Develop and implement education programs aimed at increasing community awareness regarding 'source control' of gross pollutants, nutrients and other pollutants	✓			✓			3.9	2.6	**7.8**
MA6	Enforce implementation and maintenance of effective sediment controls during the subdivision and building phases of all developments (including infrastructure projects) by undertaking regular audits of developments during construction		✓				✓	4.5	3.3	**11.1**
MA7	Acknowledge the value of the large area of uncleared natural vegetation in the Georges River catchment and work towards the preservation of these areas					✓		4.6	3.1	**4.8**

No.	Management Option	A1	A2	A3	A4	A5	A6	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MA8	Continue the GRCCC's Riverkeeper Program to help minimise the impact of and monitor incidences of illegal dumping (on land and in water)				✓			4.1	2.9	**4.0**
MA9	Use appropriate modelling tools such as MUSIC and/or the Botany Bay CAPER DSS and the LGRSI decision support tool to evaluate and design WSUD projects	✓	✓					3.8	3.0	**10.7**
MA10	Councils should adopt WSUD action plans based on a comprehensive framework of institutional capacity and assessment	✓	✓					4.4	3.1	**11.3**
MA11	Ensure Sydney Water continues to improve the sewage overflow performance of the sewer systems throughout the catchment			✓				4.2	3.4	**6.3**
MA12	Ensure existing and new WSUD devices are included in asset management plans	✓	✓					4.4	2.6	**8.3**
MA13	Engage the community in the planning, design and implementation for WSUD projects to help foster a sense of ownership and a willingness to support in the longer term	✓	✓					3.7	2.4	**7.7**
MA14	Educate private sewer owners on their obligations for maintenance and appropriate approaches to maintaining private sewers			✓	✓			4.2	2.2	**5.7**
MA15	Liaise with Sydney Water when sewers are observed to be causing water quality problems			✓	✓			4.2	2.2	**5.7**
MA16	All Councils have an appropriate pollution incident response protocol in place						✓	4.5	2.4	**3.2**
MA17	Councils to liaise and engage with other authorities and agencies to progress WSUD in their operations including small scale projects (e.g. RTA, Rail Corp)	✓						4.4	2.2	**3.5**

AIM B. AQUATIC AND RIPARIAN HABITAT: To protect, enhance and restore aquatic habitats and foreshore vegetation

Objectives B1 – B3: Refer Table 4-3 for details.

Table 9-4 Aquatic and Riparian Habitats Potential Management Options

No.	Management Option	B1	B2	B3	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MB1	Education of surrounding landholders regarding the role of the community in preserving and maintaining a healthy estuarine ecosystem including provision of appropriate educational signage around the estuary foreshores			✓	3.9	2.7	**3.5**
MB2	Identification and progressive control of invasive species from foreshore areas and adjacent bushland		✓		4.0	3.7	**5.3**
MB3	Identification and progressive control of noxious species from the estuary and other waterways		✓		4.0	3.3	**4.7**
MB4	Identify locations for and undertake targeted rehabilitation, creation and enhancement of saltmarsh and mangrove communities			✓	4.4	3.5	**5.3**
MB5	Revegetation of intertidal areas and public riparian lands with locally indigenous species, and control and replacement of exotic species where appropriate			✓	4.4	3.3	**4.9**
MB6	Encourage and assist revegetation of private foreshore areas			✓	4.4	2.5	**3.2**
MB7	Support the establishment and continuation of local bushcare/landcare and other groups to assist with revegetation works on both public and private lands			✓	4.4	3.5	**5.3**
MB8	Utilise the Riverkeeper Bush Regeneration teams to provide weed control, bush regeneration and ongoing site maintenance to compliment and support NPWS and council bush regeneration works		✓	✓	4.4	3.5	**10.3**
MB9	Provide information to private landowners that have key habitat and vegetation communities on their properties to describe the community, its importance to the estuary and options for its protection and management	✓		✓	3.9	2.5	**6.0**
MB10	Work with private owners of saltmarsh for the management of this habitat towards its protection			✓	4.6	2.3	**2.8**
MB11	Manage access to sites of high environmental significance	✓			4.0	2.7	**3.2**
MB12	Promote and undertake compliance on unauthorised riparian and estuarine vegetation clearing			✓	4.6	3.0	**4.2**
MB13	Minimise the impact of moorings on seagrasses	✓			3.9	2.2	**2.2**

No.	Management Option	B1	B2	B3	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MB14	Encourage NSW Fisheries to periodically map the distribution of estuarine vegetation (seagrass, saltmarsh and mangroves) for the estuary			✓	3.8	2.5	**3.3**
MB15	Prevent the introduction and spread of disease and pests		✓		4.0	3.2	**4.3**

AIM C. RECREATION AND AMENITY: To protect and enhance public access to the foreshore

Objectives C1 – C4: Refer Table 4-4 for details.

Table 9-5 Recreation and Amenity Potential Management Options

No.	Management option	C1	C2	C3	C4	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MC1	Organise community events to improve the recreational amenity of key foreshore areas			✓		3.7	3.2	**2.7**
MC2	Provide appropriate signage at selected locations around the estuary regarding recreational usage of the estuary and its foreshore reserves.	✓	✓			4.0	2.8	**4.3**
MC3	Prepare appropriate interpretative materials aimed at reducing impacts associated with legal and illegal recreational pursuits	✓	✓		✓	3.9	3.2	**7.9**
MC4	Support the development and application of EMS for various industries		✓			3.9	2.8	**2.3**
MC5	Contribute to current revision of boating strategy with Roads and Maritime Services to manage potential recreational use conflicts	✓	✓			4.1	3.0	**4.8**
MC6	Ensure adequate waste disposal facilities for people aboard boats and recreational fishers on land.		✓			3.7	3.2	**2.8**
MC7	Establish a monitoring and compliance program to monitor and address the impacts of recreation at various locations and times of year (such as peak periods), to ensure ongoing sustainability of such locations	✓	✓			3.8	2.2	**2.9**
MC8	Maintain recognised Council assets that support legal recreational pursuits on the Georges River	✓				4.0	3.2	**2.5**

No.	Management option	C1	C2	C3	C4	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MC9	Identify and engage with commercial operators through State Govt agencies to minimise impacts on the river		✓			4.0	2.4	**1.8**
MC10	Enhance foreshore access in appropriate locations through strategic planning and the land development process and Council works			✓		4.0	3.8	**3.4**

AIM D. LAND USE PLANNING AND DEVELOPMENT: To minimise the negative impacts of development in the catchment on waterway health

Objectives D1 – D3: Refer Table 4-5 for details.

Table 9-6 Landuse Planning and Development Potential Management Options

No.	Management Options	D1	D2	D3	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MD1	Recommendations on restrictions to land use activities including mining in the upper catchment which arose from the Upper Georges River Sustainability Symposium (16th October 2010) should be considered and where appropriate acted upon			✓	4.6	3.8	**4.2**
MD2	Environmental requirements outlined in the NSW floodplain manual should continue to be considered during development and when building flood abatement works			✓	3.6	3.5	**3.8**
MD3	Councils should ensure that best management practices to limit the export of pollutants including sediments, nutrients and acid runoff from Council projects are applied through the use of recognised checklist/part 5 assessment	✓			4.5	3.5	**4.6**
MD4	When undertaking reviews of strategic planning instruments and initiatives (including LEPs and DCPs) and development proposals, ensure consistency with the Coastal Zone Management Plan aims and objectives		✓		4.5	3.8	**5.2**
MD5	New and revised Plans of Management should be compatible with the recommendations of the Georges River Estuary Coastal Zone Management Plan		✓		nr	4.0	**5.7**
MD6	Ensure relevant regulatory and consent authorities adopt best management practices when certifying and regulating land use activities			✓	nr	3.3	**3.4**

No.	Management Options	D1	D2	D3	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MD7	Regulatory authorities responsible for issuing pollution control licences review minimum water quality and environmental objectives to reduce the impact of pollution from licensed premises			✓	4.5	2.8	**2.7**

AIM E. BANK EROSION AND SEDIMENTATION: To actively manage bank erosion and sedimentation

Objectives E1 – E2: Refer Table 4-6 for details.

Table 9-7 Bank Erosion and Sedimentation Potential Management Options

No.	Management option	E1	E2	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
ME1	Encourage bank and foreshore erosion control techniques that maximise the use of riparian and estuarine vegetation	✓		3.9	4.0	**6.5**
ME2	Work with Roads and Maritime Services to determine the impact of wash on the waterway and strategies to minimise the effects where bank erosion is an issue and boat wake is a likely cause	✓	✓	4.1	3.5	**10.7**
ME3	Control ad hoc access along the foreshore to limit vegetation trampling and bank destabilisation	✓	✓	4.0	3.0	**8.6**
ME4	Prioritise active eroding foreshore areas in close proximity to seagrass beds on an LGA basis to minimise impacts associated with smothering and increased turbidity	✓	✓	4.4	3.0	**8.6**
ME5	Use environmentally friendly seawalls to control erosion that cannot be managed through softer protection techniques	✓	✓	3.9	3.3	**9.7**
ME6	Consider removal of seawalls and recreating a natural intertidal area where possible	✓	✓	3.9	3.0	**8.6**
ME7	Unification, extension or removal of short seawalls to manage erosion edge effects	✓	✓	3.9	2.8	**7.5**
ME8	Use a coordinated approach to managing bank erosion	✓		nr	3.3	**4.9**
ME9	Review management of assets on active eroding areas		✓	3.6	2.3	**2.7**
ME10	Prioritise estuarine macrophyte communities for management that are at risk of or impacted by sedimentation and associated contaminants	✓		4.4	3.3	**4.9**
ME11	Enforce strict environmental controls on any approved dredging for public navigation channels		✓	4.1	2.8	**3.7**

AIM F. FORESHORE PROTECTION: To manage existing built foreshore assets while maximising environmental values

Objectives F1 – F4: Refer Table 4-7 for details.

Table 9-8 Foreshore Protection Potential Management Options

No.	Management option	F1	F2 not used	F3	F4	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MF1	All councils and agencies involved in the building, design and approval of new seawalls to ensure compliance with the environmentally friendly seawall guidelines within legislative requirements	✓				3.9	3.8	**3.6**
MF2	Explore options to improve the environmental value of existing seawalls through addition of habitat					3.9	2.8	**1.6**
MF3	All councils and agencies involved in the building, design and approval of new foreshore developments to ensure compliance with environmental best practices			✓		4.0	3.0	**2.6**
MF4	Maintain compliance by relevant authorities on unauthorised or inappropriate foreshore structures and uses				✓	4.1	3.0	**2.9**
MF5	Educate and support private landowners on the benefits of environmentally friendly seawalls and provide details of the planning and approval process for installation	✓				3.9	2.3	**2.8**
MF6	Establish foreshore building lines for all developments			✓		4.3	3.0	**2.6**

AIM G. NATURAL AND CULTURAL HERITAGE: To identify, acknowledge and protect natural and cultural heritage

Objectives G1 – G2: Refer Table 4-8 for details.

Table 9-9 Natural and Cultural Heritage Potential Management Options

No.	Management option	G1	G2	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MG1	Management strategies that take into account legislative requirements relating to heritage should be developed to address potential difficulties posed by individuals, private companies, public groups, local councils and state government agencies who may own or manage land or waterways containing heritage items	✓		3.9	2.5	**1.9**
MG2	Field inspections of sites previously identified should be carried out to ascertain their current physical condition and threats with priority given to sites last recorded before 2000	✓		3.9	3.0	**2.5**
MG3	Field inspection of potential historic Aboriginal heritage places identified in the processes study (Appendix 6) should be carried out to ascertain whether physical evidence may survive and if further research is appropriate	✓		3.9	2.8	**2.2**
MG4	Work with Aboriginal groups and individuals in the Georges River catchment to determine management options for threatened indigenous heritage sites	✓		3.8	3.0	**2.5**
MG5	Use a coordinated approach to recording sites and values	✓		3.9	2.5	**1.9**
MG6	Ensure identified sites are adequately protected under the regulatory framework	✓		3.9	3.5	**3.1**
MG7	Social and aesthetic values need to be considered in the review and preparation of new Development Control Plans (DCPs)		✓	3.7	3.5	**2.8**

AIM H. CLIMATE CHANGE AND SEA LEVEL RISE: To plan for and adapt to the potential impacts of climate change on the natural and built environments of the estuary.

Objectives H1 – H2: Refer Table 4-9 for details.

Table 9-10 Climate Change and Sea Level Rise Potential Management Options

No.	Management option	H1	H2	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MH1	Public foreshore areas required for the retreat of estuarine vegetation in response to sea level rise should be identified	✓		4.4	3.8	**4.6**

	and protected from development or infrastructure					
MH2	Foreshore infrastructure with likely tidal inundation risk managed in such a way as to allow adaptation to sea level rise		✓	3.7	3.8	**4.0**
MH3	Identify areas likely to be impacted by sea level rise	✓	✓	3.7	3.5	**7.8**
MH4	Prioritise restoration of estuarine vegetation where there is potential for retreat of the estuarine vegetation	✓		4.4	3.5	**4.2**
MH5	Restricting new foreshore developments in areas where tidal inundation hazards under current and future sea level rise scenarios are quantified		✓	4.4	3.8	**4.0**
MH6	Educating the community about environmentally friendly adaptation methods to climate change/sea level rise		✓	3.9	2.0	**1.5**

AIM I. MONITORING AND EVALUATION: To develop and support coordinated monitoring, reporting and evaluation programs for the Georges river estuary

Objectives I1 – I2: Refer Table 4-10 for details.

Table 9-11 Monitoring and Evaluation Potential Management Options

No.	Management option	I1	I2	Comm Score	Av. Score ($Q_{x,i}$)	Total Potent. (P_i)
MI1	Undertake monitoring of the interaction between estuarine vegetation communities, particularly in response to climate pressures	✓		3.8	2.8	**2.5**
MI2	Ongoing support of the Georges River estuary health monitoring program coordinated by the GRCCC	✓		3.8	4.0	**4.2**
MI3	Support the implementation and monitoring of the effectiveness of Plan		✓	3.8	4.0	**3.7**
MI4	Undertake a review of the CZMP every 5-10 years		✓	-	3.8	**3.4**

APPENDIX E: RAPID COST BENEFIT ASSESSMENT OF MANAGEMENT OPTIONS

Legend for table below:

	Effectiveness / Risk Reduction Potential (RRP)	Time frame	Cost	Practicality / Legal	Community Support	"No Regrets"
STOP & reassess	Option does not provide an effective and long term solution. Risk reduction potential is relatively low RRP < 3.2	LONG Term (> 5-10yrs before tasks can commence). Requires prior commitment of funds, resources or other tasks to be completed first	High ($300K to millions)	LOW: Will require approval to implement and significant community engagement. There is a residual risk that approval will not be able to be obtained for the proposed works/strategy. Works may also require significant resources that are presently unavailable	LOW: Unlikely to be acceptable to community and politically unpalatable. Extensive community education, endorsement of the concept by Minister(s) and Council required. Comm. Score < 3.0	
SLOW	Option is considered worthwhile, but does not necessarily help with long term sustainability and estuary health. 3.2 < RRP < 5.2	MEDIUM Term (> 2 – 5yrs before tasks can commence). Requires prior commitment of funds, resources or other tasks to be completed first	Medium (e.g. $30,000 - $300,000)	MEDIUM: May require approvals to be implemented, but works are generally supported. Generally these approvals would likely to be granted assuming requirements are met. May require some resources that would require redistribution of existing tasks and duties by officers.	MEDIUM: Would be palatable to some, not to others (50/50 response). Briefing by Councillors, GM and community education required 3.0 < Comm. Score < 4.0	
GO	Option provides an effective long term solution RRP > 5.2	SHORT Term (tasks can commence within approximately 2 years). Generally can be completed without too many barriers	Low (< $30,000)	HIGH: No or minimal approvals or other impediments required to implement. No significant additional resources required (can be done as part of normal duties)	HIGH: Is very politically palatable, acceptable to community. Minimal education required Comm. Score > 4.0	YES
	RRP > 10.0				VERY HIGH: Comm. Score > 4.5	

Management Option	Total Potent. (P_i)	Time frame	Costs	Practicality / Legal	Comm. Support	No Regrets
Aim A: Water Quality – to optimise water quality within the Georges River Estuary and its tributaries (Intolerable Risk if not addressed)						
MA1. Incorporate appropriate WSUD in redevelopments, including public and private development, of urban areas	14.9	SLOW	STOP	GO	GO	
MA2. Councils to incorporate Water Sensitive Urban Design (WSUD) principles in the review and preparation of new Development Control Plans (DCPs)	14.3	GO	GO	GO	GO	
MA3. Retrofit appropriate WSUD in existing urban areas including measures such as artificial wetlands, vegetated swales, and channel naturalisation	13.1	SLOW	STOP	STOP	GO	
MA4. Undertake adequate and appropriate maintenance of existing WSUD devices to maintain their effectiveness, in particular GPTs and other stormwater quality improvement devices.	6.0	GO	SLOW	GO	GO	**YES**
MA5. Develop and implement education programs aimed at increasing community awareness regarding 'source control' of gross pollutants, nutrients and other pollutants	7.8	GO	SLOW	GO	SLOW	**YES**
MA6. Enforce implementation and maintenance of effective sediment controls during the subdivision and building phases of all developments (including infrastructure projects) by undertaking regular audits of developments during construction	11.1	GO	GO	SLOW	GO	**YES**
MA7. Acknowledge the value of the large area of uncleared natural vegetation in the Georges River catchment and work towards the preservation of these areas	4.8	GO	GO	GO	GO	**YES**
MA8. Continue the GRCCC's Riverkeeper Program to help minimise the impact of, and monitor incidences of, illegal dumping (on land and in water)	4.0	GO	SLOW	SLOW	GO	**YES**
MA9. Use appropriate modelling tools such as MUSIC and/or the Botany Bay CAPER DSS and the LGRSI decision support tool to evaluate and design WSUD projects	10.7	GO	SLOW	GO	SLOW	**YES**
MA10. Councils should adopt WSUD action plans based on a comprehensive framework of institutional capacity and assessment	11.3	GO	GO	SLOW	GO	

Management Option	Total Potent. (P_i)	Time frame	Costs	Practi cality / Legal	Comm. Support	No Regrets
MA11. Ensure Sydney Water continues to improve the sewage overflow performance of the sewer systems throughout the catchment	6.3	STOP	STOP	SLOW	GO	**YES**
MA12. Ensure existing and new WSUD devices are included in asset management plans	8.3	GO	GO	GO	GO	**YES**
MA13. Engage the community in the planning, design and implementation for WSUD projects to help foster a sense of ownership and a willingness to support in the longer term	7.7	SLOW	SLOW	GO	SLOW	
MA14. Educate private sewer owners on their obligations for maintenance and appropriate approaches to maintaining private sewers	5.7	GO	SLOW	SLOW	GO	**YES**
MA15. Liaise with Sydney Water when sewers are observed to be causing water quality problems	5.7	GO	GO	GO	GO	**YES**
MA16. All Councils have an appropriate pollution incident response protocol in place	3.2	GO	GO	GO	GO	**YES**
MA17. Councils to liaise and engage with other authorities and agencies to progress WSUD in their operations including small scale projects (e.g. RTA, Rail Corp)	3.5	GO	GO	GO	GO	
<u>Aim B: Aquatic and Riparian Habitats</u> – to protect, enhance and restore aquatic habitats and foreshore vegetation (<u>Intolerable Risk</u> if not addressed)						
MB1. Education of surrounding landholders regarding the role of the community in preserving and maintaining a healthy estuarine ecosystem including provision of appropriate educational signage around the estuary foreshores	3.5	GO	SLOW	GO	SLOW	**YES**
MB2. Identification and progressive control of invasive species from foreshore areas and adjacent bushland	5.3	SLOW	SLOW	SLOW	GO	**YES**
MB3. Identification and progressive control of noxious species from the estuary and other waterways	4.7	SLOW	SLOW	SLOW	GO	**YES**
MB4. Identify locations for and undertake targeted rehabilitation, creation and enhancement of saltmarsh and mangrove communities	5.3	SLOW	SLOW	GO	GO	
MB5. Revegetation of intertidal areas and public riparian lands with locally indigenous species, and control and replacement of exotic species where appropriate	4.9	SLOW	SLOW	SLOW	GO	

Management Option	Total Potent. (P_i)	Time frame	Costs	Practicality / Legal	Comm. Support	No Regrets
MB6. Encourage and assist revegetation of private foreshore areas	3.2	GO	SLOW	SLOW	GO	
MB7. Support the establishment and continuation of local bushcare/landcare and other groups to assist with revegetation works on both public and private lands	5.3	GO	SLOW	SLOW	GO	**YES**
MB8. Utilise the Riverkeeper Bush Regeneration teams to provide weed control, bush regeneration and ongoing site maintenance to compliment and support NPWS and council bush regeneration works	10.3	GO	SLOW	GO	GO	**YES**
MB9. Provide information to private landowners that have key habitat and vegetation communities on their properties to describe the community, its importance to the estuary and options for its protection and management	6.0	GO	SLOW	GO	SLOW	**YES**
MB10. Work with private owners of saltmarsh for the management of this habitat towards its protection	2.8	SLOW	SLOW	SLOW	GO	**YES**
MB11. Manage access to sites of high environmental significance	3.2	SLOW	SLOW	GO	GO	
MB12. Promote and undertake compliance on unauthorised riparian and estuarine vegetation clearing	4.2	GO	GO	SLOW	GO	**YES**
MB13. Minimise the impact of moorings on seagrasses	2.2	GO	SLOW	SLOW	SLOW	
MB14. Encourage NSW Fisheries to periodically map the distribution of estuarine vegetation (seagrass, saltmarsh and mangroves) for the estuary	3.2	GO	GO	GO	SLOW	**YES**
MB15. Prevent the introduction and spread of disease and pests	4.3	GO	SLOW	SLOW	GO	
Aim C: Recreation and Amenity – to protect and enhance public access to the foreshore (Tolerable Risk if not addressed)						
MC1. Organise community events to improve the recreational amenity of key foreshore areas	2.7	GO	SLOW	GO	SLOW	**YES**
MC2. Provide appropriate signage at selected locations around the estuary regarding recreational usage of the estuary and its foreshore reserves.	4.3	GO	SLOW	GO	GO	**YES**

Management Option	Total Potent. (P_i)	Time frame	Costs	Practicality / Legal	Comm. Support	No Regrets
MC3. Prepare appropriate interpretative materials aimed at reducing impacts associated with legal and illegal recreational pursuits	7.9	SLOW	SLOW	GO	SLOW	**YES**
MC4. Support the development and application of Environmental Management Systems (EMS) for various industries	2.3	GO	GO	SLOW	SLOW	**YES**
MC5. Contribute to current revision of boating strategy with Roads and Maritime Services to manage potential recreational use conflicts	4.8	GO	GO	GO	GO	
MC6. Ensure adequate waste disposal facilities for people aboard boats and recreational fishers on land.	2.8	STOP	STOP	SLOW	SLOW	
MC7. Establish a monitoring and compliance program to monitor and address the impacts of recreation at various locations and times of year (such as peak periods), to ensure ongoing sustainability of such locations	2.9	SLOW	SLOW	SLOW	SLOW	
MC8. Maintain recognised Council assets that support legal recreational pursuits on the Georges River	2.5	SLOW	SLOW	GO	GO	
MC9. Identify and engage with commercial operators through State Govt agencies to minimise impacts on the river	1.8	GO	GO	GO	GO	**YES**
MC10. Enhance foreshore access in appropriate locations through strategic planning and the land development process and Council works	3.4	SLOW	SLOW	SLOW	GO	
Aim D: Landuse Planning and Development – to minimise the negative impacts of development in the catchment on waterway health (Intolerable Risk if not addressed)						
MD1. Recommendations on restrictions to land use activities including mining in the upper catchment which arose from the Upper Georges River Sustainability Symposium (16th October 2010) should be considered and where appropriate acted upon	4.2	GO	GO	SLOW	GO	
MD2. Environmental requirements outlined in the NSW floodplain manual should continue to be considered during development and when building flood abatement works	3.8	GO	GO	GO	SLOW	**YES**
MD3. Councils should ensure that best management practices to limit the export of pollutants including sediments, nutrients and acid runoff from Council projects are applied through the use of recognised checklist/part 5 assessment	4.6	GO	GO	GO	GO	**YES**

Management Option	Total Potent. (P_i)	Time frame	Costs	Practi cality / Legal	Comm. Support	No Regrets
MD4. When undertaking reviews of strategic planning instruments and initiatives (including LEPs and DCPs) and development proposals, ensure consistency with the Coastal Zone Management Plan aims and objectives	5.2	GO	GO	GO	GO	
MD5. New and revised Plans of Management should be compatible with the recommendations of the Georges River Estuary Coastal Zone Management Plan	5.7	GO	GO	GO	nr	
MD6. Ensure relevant regulatory and consent authorities adopt best management practices when certifying and regulating land use activities	3.4	GO	GO	SLOW	nr	**YES**
MD7. Regulatory authorities responsible for issuing pollution control licences review minimum water quality and environmental objectives to reduce the impact of pollution from licensed premises	2.7	GO	GO	SLOW	GO	**YES**
Aim E: Bank Erosion and Sedimentation – to actively manage bank erosion and sedimentation (Intolerable Risk if not addressed)						
ME1. Encourage bank and foreshore erosion control techniques that maximise the use of riparian and estuarine vegetation	6.5	GO	GO	GO	SLOW	**YES**
ME2. Work with Roads and Maritime Services to determine the impact of wash on the waterway and strategies to minimise the effects where bank erosion is an issue and boat wake is a likely cause	10.7	GO	GO	GO	GO	
ME3. Control ad hoc access along the foreshore to limit vegetation trampling and bank destabilisation	8.6	GO	SLOW	SLOW	GO	
ME4. Prioritise active eroding foreshore areas in close proximity to seagrass beds on an LGA basis to minimise impacts associated with smothering and increased turbidity	8.6	GO	GO	GO	GO	**YES**
ME5. Use environmentally friendly seawalls to control erosion that cannot be managed through softer protection techniques	9.7	SLOW	STOP	SLOW	SLOW	
ME6. Consider removal of seawalls and recreating a natural intertidal area where possible	8.6	STOP	STOP	STOP	SLOW	
ME7. Unification, extension or removal of short seawalls to manage erosion edge effects	7.5	STOP	SLOW	SLOW	SLOW	
ME8. Use a coordinated approach to managing	4.9	GO	GO	SLOW	nr	**YES**

Management Option	Total Potent. (P_i)	Time frame	Costs	Practi cality / Legal	Comm. Support	No Regrets
bank erosion						
ME9. Review management of assets on active eroding areas	2.7	GO	GO	GO	SLOW	**YES**
ME10. Prioritise estuarine macrophyte communities for management that are at risk of or impacted by sedimentation and associated contaminants	4.9	GO	GO	GO	GO	**YES**
ME11. Enforce strict environmental controls on any approved dredging for public navigation channels	3.7	GO	GO	GO	GO	**YES**
Aim F: Foreshore Protection – to actively manage existing built foreshore assets while maximising environmental values (Tolerable Risk if not addressed)						
MF1. All councils and agencies involved in the building, design and approval of new seawalls to ensure compliance with the environmentally friendly seawall guidelines within legislative requirements	3.6	GO	GO	GO	SLOW	**YES**
MF2. Explore options to improve the environmental value of existing seawalls through addition of habitat	1.6	GO	GO	GO	SLOW	
MF3. All councils and agencies involved in the building, design and approval of new foreshore developments to ensure compliance with environmental best practices	2.6	GO	GO	GO	GO	**YES**
MF4. Maintain compliance by relevant authorities on unauthorised or inappropriate foreshore structures and uses	2.9	GO	GO	GO	GO	**YES**
MF5. Educate and support private landowners on the benefits of environmentally friendly seawalls and provide details of the planning and approval process for installation	2.8	GO	SLOW	GO	SLOW	**YES**
MF6. Establish foreshore building lines for all developments	2.6	SLOW	GO	SLOW	GO	
Aim G: Natural and Cultural Heritage – to identify, acknowledge and protect natural and cultural heritage (Tolerable Risk if not addressed)						
MG1. Management strategies that take into account legislative requirements relating to heritage should be developed to address potential difficulties posed by individuals, private companies, public groups, local councils and state government agencies who may own or manage land or waterways containing heritage items	1.9	SLOW	GO	SLOW	SLOW	

Management Option	Total Potent. (P_i)	Time frame	Costs	Practicality / Legal	Comm. Support	No Regrets
MG2. Field inspections of sites previously identified should be carried out to ascertain their current physical condition and threats with priority given to sites last recorded before 2000	2.5	GO	SLOW	GO	SLOW	
MG3. Field inspection of potential historic Aboriginal heritage places identified in the processes study (Appendix 6) should be carried out to ascertain whether physical evidence may survive and if further research is appropriate	2.2	GO	SLOW	GO	SLOW	
MG4. Work with Aboriginal groups and individuals in the Georges River catchment to determine management options for threatened indigenous heritage sites	2.5	SLOW	GO	GO	SLOW	
MG5. Use a coordinated approach to recording sites and values	1.9	GO	GO	GO	SLOW	**YES**
MG6. Ensure identified sites are adequately protected under the regulatory framework	3.1	GO	GO	GO	SLOW	**YES**
MG7. Social and aesthetic values need to be considered in the review and preparation of new Development Control Plans (DCPs)	2.8	GO	GO	GO	SLOW	
<u>Aim H: Climate Change and Sea Level Rise</u> – to plan for and adapt to the potential impacts of climate change on the natural and built environments of the estuary (<u>Intolerable Risk</u> if not addressed)						
MH1. Public foreshore areas required for the retreat of estuarine vegetation in response to sea level rise should be identified and protected from development or infrastructure	4.6	SLOW	GO	STOP	GO	
MH2. Foreshore infrastructure with likely tidal inundation risk managed in such a way as to allow adaptation to sea level rise	4.0	SLOW	SLOW	SLOW	SLOW	
MH3. Identify areas likely to be impacted by sea level rise	7.8	SLOW	SLOW	GO	SLOW	**YES**
MH4. Prioritise restoration of estuarine vegetation where there is potential for retreat of the estuarine vegetation	4.2	SLOW	GO	GO	GO	
MH5. Restricting new foreshore developments in areas where tidal inundation hazards under current and future sea level rise scenarios are quantified	4.0	SLOW	GO	STOP	GO	
MH6. Educating the community about environmentally friendly adaptation methods to climate change/sea level rise	1.5	SLOW	SLOW	GO	SLOW	**YES**

Management Option	Total Potent. (P_i)	Time frame	Costs	Practi cality / Legal	Comm. Support	No Regrets
Aim I: Monitoring and Evaluation – to develop and support coordinated monitoring, reporting and evaluation programs for the Georges River Estuary (Tolerable Risk if not addressed)						
MI1. Undertake monitoring of the interaction between estuarine vegetation communities, particularly in response to climate pressures	2.5	STOP	SLOW	GO	SLOW	**YES**
MI2. Ongoing support of the Georges River estuary health monitoring program coordinated by the GRCCC	4.2	GO	SLOW	GO	SLOW	**YES**
MI3. Support the implementation and monitoring of the effectiveness of Plan	3.7	GO	SLOW	GO	SLOW	**YES**
MI4. Undertake a review of the CZMP every 5-10 years	3.4	STOP	SLOW	GO	nr	**YES**

APPENDIX F: NEXT BEST OPTIONS (NBOS) FURTHER DETAILS

Water Quality Next Best Options

NBO Description	Comments
MA5. Develop and implement education programs aimed at increasing community awareness regarding 'source control' of gross pollutants, nutrients and other pollutants	Councils adopt an approach to catchment planning that includes full engagement of the community as pioneered by Marrickville Council and CRSI. The education programs should increase community interest and knowledge regarding water quality in the Georges River Catchment.
MA7. Acknowledge the value of the large area of uncleared natural vegetation in the Georges River catchment and work towards the preservation of these areas	Undertake bush regeneration practices or re-establishment in priority areas to develop / enhance biodiversity corridors. Plans of Management should be specific about the requirements for the site.
MA9. Use appropriate modelling tools such as MUSIC and/or the Botany Bay CAPER DSS and the LGRSI decision support tool to evaluate and design WSUD projects	Interrogation of the Botany Bay CAPER DSS to determine what might be the long term capital and ongoing costs associated with installing WSUD infrastructure across LGAs in order to help meet WQIP objectives. Can also use the Decision Support Tool developed by the LGRSI, which was designed to nest under the BBWQIP Decision Support Tool. This information ultimately needs to be reflected within Councils' Asset Management Plans, and prepared as part of the new integrated planning and reporting framework
MA14. Educate private sewer owners on their obligations for maintenance and appropriate approaches to maintaining private sewers	Sydney Water to prepare educational materials.
MA16. All Councils have an appropriate pollution incident response protocol in place	
MA18. Develop and implement site specific water quality monitoring programs that are in partnership with, or at least consistent with, the estuary-wide River Health monitoring program	Rockdale • Implement recommendations from Council's Water Quality Monitoring Studies at Bicentennial Ponds, and Bado Berong Creek • Develop and undertake an ongoing water quality monitoring program across LGA Kogarah • Development of a comprehensive water quality monitoring program designed to capture routine conditions, particular stormwater events and contamination incidents. The program should also be targeted to develop a detailed understanding of the effectiveness of the existing stormwater treatment devices in the catchment (e.g. the constructed wetland at Shipwrights Bay Reserve). The program should include community and school based monitoring elements. Monitoring should be monthly and include flow monitoring, suspended solids, secchi depth, nitrate and nitrate, chlorophyll 'a', total nitrogen, total phosphorus, as well as faecal coliforms as per the beach watch program.

	• Water quality monitoring would assist in identifying ongoing effects of leachate entering the estuarine system. • Annual review of water quality monitoring programmes and results in order to establish/modify management initiatives • Develop a program and undertake monitoring on an annual basis to establish the level of groundwater contamination from former landfill sites in the catchment. • Adequate waste oil and grease collection needs to be in place in the catchment to ensure total hydrocarbons meet ANZECC (2000) guidelines. • Annual report on algal bloom notifications.

Aquatic & Riparian Habitat Next Best Options

NBO Description	Comments
MB1. Education of surrounding landholders regarding the role of the community in preserving and maintaining a healthy estuarine ecosystem including provision of appropriate educational signage around the estuary foreshores	Create Landcare Groups linked to Local Government Areas Bankstown • Signage / education regarding minimising boat propeller damage to seagrass near mouth of Salt Pan Creek. Fairfield • Example project: Canley Vale Public School – education of students about water pollution, native flora and fauna, and undertaking revegetation of parts of Orphan School Creek. Hurstville • Signange / education regarding foreshore and estuary management (including for example eco-friendly seawalls and illegal pruning of mangroves)
MB2. Identification and progressive control of invasive species from foreshore areas and adjacent bushland	Coordination of efforts between Councils on opposite sides of creeks to manage invasive transfer between banks and downstream (facilitated through GRCCC / Riverkeeper). Fairfield • Example Program: Creek Care Program, targeting Lansvale Reserve (Lower Prospect Creek), that focuses on removing weeds and revegetating riparian corridors. Kogarah • Priority locations include: o Oatley Bay o Kyle Bay o Shipwrights Bay o Moore Reserve, Poulton Pk o Kyle Williams Reserve (Swamp Oak Forest community and associated estuarine vegetation)

	Hurstville • Undertake invasive plant control in all EECs • Coordination of management efforts with neighbouring Councils (eg Bankstown Council in Salt Pan Creek) • Protection of seagrass • Hot spot: North of Riverwood Park, Salt Pan Creek Rockdale • Example location: Cook Park dune system Sutherland • Undertake invasive plant control in all EECs, and within estuarine vegetation, including reserved area in Mill Creek Liverpool • Undertake invasive plant control in all EECs, including River-Flat Eucalypt Forest EEC • Coordination of management efforts with neighbouring Councils (eg Cabramatta Creek) • Example location: Angle Park (*Lantana camara*)
MB3. Identification and progressive control of noxious species from the estuary and other waterways	Identified areas and control areas should be systematically mapped to ensure good quantitative records are kept for reporting considerations. Bankstown • Co-ordinate control programs between different land managers to maximise effectiveness. • Monitor and evaluate effectiveness of noxious weed control actions. • Hot spot: Yeramba Lagoon.
MB12. Promote and undertake compliance on unauthorised riparian and estuarine vegetation clearing  *Cleared Mangroves, Georges River*	Bankstown • Community education required • Encourage community to report incidences of illegal clearing • Evaluate options for most effective compliance (Council, OEH, DPI-Fisheries) • Hotspot locations: o Foreshore of Georges River o Salt Pan / Little Salt Pan Creek

Recreation & Amenity Next Best Options

NBO Description	Comments
MC2. Provide appropriate signage at selected locations around the estuary regarding recreational usage of the estuary and its foreshore reserves.	Bankstown • Barriers and signage required to deter 4WD damage and trampling, and encourage responsible off-leash and leash areas, trail bikes, horses etc • Education signage at public boat ramps, jetties and popular fishing and recreational locations. Kogarah • Consistent catchment signage (including fonts, maps) and signpost important habitats, with management goals included. • Possible periodic information sessions • Regular inspection required to access track condition and schedule maintenance as required. NPWS • 4WD access management and revegetation with saltmarsh species at southern side of the Georges River between Deadmans Creek and Mill Creek • Barriers and signage to deter 4WD damage and trampling, where necessary only • Increased enforcement required to deter illegal access.
MC9. Identify and engage with commercial operators through State Govt agencies to minimise impacts on the river	

MC10. Enhance foreshore access in appropriate locations through strategic planning and the land development process and Council works	Bankstown
	• Maintenance of existing public recreation areas including boardwalks and educational signage
	• Enhancement of public access to foreshore by linking discrete areas of foreshore.
	• Ensure that any future provision of access protects areas of high environmental significance.
	Kogarah
	• Example Sites: Dover Park (boat ramps and seawall); Shipwrights Bay Reserve (walking tracks)
	Rockdale
	• Example Site: Cook Park (pedestrian beach access paths to prevent informal access through dunes)
	Sutherland
	• Example Sites include:
	  • Kia Mia Way
	  • Bonna Point boat ramp upgrade
	  • Delardes
	  • Prince Edward Park

	• Burnum Burnum • Woolooware Bay • Taren Point shorebird reserve • Como pleasure ground • Cylla Bay boardwalk • Tom Ugly's Reserve boat ramp • Green Point Reserve

Land Use Planning & Development Next Best Options

NBO Description	Comments
MD1. Recommendations on restrictions to land use activities including mining in the upper catchment which arose from the Upper Georges River Sustainability Symposium (16th October 2010) should be considered and where appropriate acted upon	Hurstville • Consistency of landuse and environmental protection zones across LGAs required Sutherland • Botany Bay and Catchment WQIP guideline pollution levels incorporated into DCP Kogarah • Acquire / resume portions, or whole blocks, of land along foreshore area during redevelopment • Periodic review of LEP boundaries to maximise potential for rezoning and buyback/resumption NPWS • Acquisition of undeveloped land in upper catchment
MD2. Environmental requirements outlined in the NSW floodplain manual should continue to be considered during development and when building flood abatement works	Bankstown • Continue to implement actions outlined in adopted Flood Risk Management Plans (applicable to whole estuary)
MD6. Ensure relevant regulatory and consent authorities adopt best management practices when certifying and regulating land use activities	Kogarah • Landscaping requirements in foreshore scenic protection areas Hurstville • Consider environmental offset scheme • Ensure appropriate controls to minimise environmental problems eg. Acid Sulfate Soils, foreshore erosion Rockdale • Ensure all developments are setback from waterways Sutherland • Restrict future developments in sensitive environments including Mill creek • Review zoning to permit foreshore protection works

Bank Erosion & Sedimentation Next Best Options

NBO Description	Comments
ME8. Use a coordinated approach to managing bank erosion	Bankstown • Use speed limits in conjunction with on-ground works.
ME10. Prioritise estuarine macrophyte communities for management that are at risk of or impacted by sedimentation and associated contaminants	Bankstown • Identify where estuarine macrophyte communities are at risk of sedimentation. • Address priority actions identified in TSC Act Priority Action Statements and Recovery Plans (applicable across whole estuary).
ME11. Enforce strict environmental controls on any approved dredging for public navigation channels	Maritime • Undertake study to determine the need for dredging within the estuary to support river health (hotspot locations include: Alfords Point, Lugarno and at the entrance to the Woronora River). Sutherland • Monitor seagrass response to any dredging activities – sensitive seagrass areas include: o Mill Creek o Still Creek o Woronora River o Gwawley Bay o Woolooware Bay o Towra Point o Weeney Bay o Quibray Bay Kogarah • Annual review of the Excavation Management Plan against available sediment quality data obtained during any excavations • Hotspot location for sediment build-up: Silt fans in front of main stormwater channels and creeks draining into Kogarah Bay Liverpool • Hotspot location for sediment build-up: o Deadmans Creek confluence o Williams Creek confluence

Foreshore Protection Next Best Options

NBO Description	Comments
MF3. All councils and agencies involved in the building, design and approval of new foreshore developments to ensure compliance with environmental best practices	CMA/OEH to develop a set of guidelines for best practice foreshore development
MF4. Maintain compliance by relevant authorities on unauthorised or inappropriate foreshore structures and uses	Encourage the community to report illegal/unauthorised structures

Natural & Cultural Heritage Next Best Options

NBO Description	Comments
MG5. Use a coordinated approach to recording sites and values	Bankstown • Engage a consultant to develop a consistent and co-ordinated approach to recording sites and values
MG7. Social and aesthetic values need to be considered in the review and preparation of new Development Control Plans (DCPs)	Kogarah • Implement a foreshore DCP to protect the visual amenity of the foreshore from future development.

Climate Change & Sea Level Rise Next Best Options

NBO Description	Comments
MH2. Foreshore infrastructure with likely tidal inundation risk managed in such a way as to allow adaptation to sea level rise	Bankstown • Undertake a study to determine the extent of the impacts of Sea Level River in the LGA • Undertake a study to assess the impacts of Sea Level Rise on natural and built assets Rockdale • Undertake a study to assess the ability of existing infrastructure to cope with sea level rise Sutherland • Conduct risk assessment of natural and built assets
MH4. Prioritise protection and/or restoration of estuarine vegetation where there is potential for retreat of the estuarine vegetation	Bankstown • Undertake prioritisation program once risks have been determined. Rockdale

	• Example of potential habitat retreat: Scott Park saltmarsh Sutherland • Possibly construct saltmarsh in response to sea level rise at: o Oyster Bay o Scylla Bay

Monitoring & Evaluation Next Best Options

NBO Description	Comments
MI4. Undertake a review of the CZMP every 5-10 years	Bankstown (applicable to all Council areas) • GRCCC to coordinate and maintain a database on the status and completion of all projects/actions from the CZMP. • Undertake a mini review of the CZMP 5 years after gazettal. • Consider undertaking a major review of the CZMP 10 years after gazettal. Hurstville • Contribute to the GR EMPC to evaluate and update the CZMP Sutherland • Include estuary management actions under the integrated planning and reporting framework

APPENDIX G: CURRENT RIVERKEEPER WORK SITES

LGA	SITE LOCATION	UPPER MID or LOWER	SUB CATCHMENT
Bankstown	Little Salt Pan Reserve, Padstow	Mid	Little Salt Pan
Bankstown	Virginius Reserve Mangroves, Padstow	Mid	Little Salt Pan
Bankstown	Little Palt Pan Creek, Padstow	Mid	Little Salt Pan
Bankstown	Bill Delauney Reserve Wetlands, Revesby	Mid	Little Salt Pan
Bankstown	Deepwater Park, Milperra	Mid	Open River Mid
Bankstown	Alan Ashton Reserve, Picnic Point	Mid	Open River Mid
Bankstown	Lambeth & Picnic Point Reserves	Mid	Open River Mid
Bankstown	Monash Reserve	Mid	Open River Mid
Bankstown	Kelso Beach Foreshore, Milperra	Mid	Open River Mid
Bankstown	Kelso Creek North, Milperra	Mid	Open River Mid
Bankstown	Vale of Ah, Milperra	Mid	Open River Mid
Bankstown	East Hills Reserve Foreshore, East Hills	Mid	Open River Mid
Bankstown	East Hills Reserve, Cook Crescent, East Hills	Mid	Open River Mid
Bankstown	Piper-Keys Reserve, Milperra	Mid	Open River Mid
Bankstown	Morgans Creek Reserve, River Road, Revesby	Mid	Open River Mid
Bankstown	Gordon Parker Reserve, Milperra	Mid	Open River Mid
Bankstown	Mirambeena Reserve, Georges Hall	Mid	Prospect
Bankstown	Garrison Point & Boom, Georges Hall	Mid	Prospect
Bankstown	Kentucky Reserve, Georges Hall	Mid	Prospect
Bankstown	Keswick Reserve	Mid	Prospect
Bankstown	Salt Pan Reserve, Revesby	Mid	Salt Pan
Bankstown	Stuart Street Reserve Mangroves, Padstow	Mid	Salt Pan
Bankstown	Bridge Street Reserve Mangroves, Padstow	Mid	Salt Pan
Bankstown	Gow Street, Padstow	Mid	Salt Pan
Fairfield	Joe Broad Reserve, Mount Pritchard	Mid	Cabramatta
Fairfield	Prout Park, Oliphant St, Mount Pritchard	Mid	Cabramatta
Fairfield	Cutler Road Foreshore, Lansvale	Mid	Chipping Norton
Fairfield	Floyd Bay Foreshore, Lansvale	Mid	Chipping Norton
Fairfield	Shearer Park, Lansvale (Including Coot Island)	Mid	Chipping Norton
Fairfield	Howard Park, Lansvale	Mid	Chipping Norton
Fairfield	Rosford Street Reserve, Smithfield	Mid	Prospect
Fairfield	Parkes Reserve, Togil St, Canely Vale	Mid	Prospect
Fairfield	Burns Creek, Horsley Drive, Fairfield	Mid	Prospect
Fairfield	Allambie Road Reserve, Endensor Park	Mid	Prospect
Fairfield	Widemere Road, Wetherill Park	Mid	Prospect
Fairfield	Hassal Road, Wetherill Park	Mid	Prospect
Fairfield	Smithfield Road, Bonnyrigg	Mid	Prospect
Fairfield	Parklea Parade, Canley Vale	Mid	Prospect
Fairfield	Prince Park, West Fairfield	Mid	Prospect
Fairfield	Baragoola Crescent, West Fairfield	Mid	Prospect
Hurstville	Lime Kiln Bay, Jinna Street, Peakhurst	Lower	Open River Lower
Hurstville	Blackbutt Ave, Lugarno	Mid	Salt Pan
Hurstville	Clarendon Road Boat Ramp, Peakhurst	Mid	Salt Pan
Hurstville	Cypress Drive, Lugarno	Mid	Salt Pan
Hurstville	Basil Street Reserve, Riverwood	Mid	Salt Pan

LGA	SITE LOCATION	UPPER MID or LOWER	SUB CATCHMENT
Hurstville	Harvey Dixon Reserve Foreshore, Peakhurst	Mid	Salt Pan
Hurstville	William Road, Riverwood	Mid	Salt Pan
Hurstville	Coleridge Road, Riverwood	Mid	Salt Pan
Kogarah	Carrs Park	Lower	Kogarah Bay
Kogarah	Dover Park, Blakehurst	Lower	Kogarah Bay
Kogarah	Claydon Reserve, Sans Souci	Lower	Kogarah Bay
Kogarah	Kogarah Bay Foreshore, Kogarah Bay	Lower	Kogarah Bay
Kogarah	Kyle Bay Foreshore, Kyle Bay	Lower	Open River Lower
Kogarah	Connells Point Reserve, Connells Point	Lower	Open River Lower
Kogarah	Donnelly Park, Kyle Bay	Lower	Open River Lower
Kogarah	Poulton Park Foreshore, Connells Point	Lower	Open River Lower
Kogarah	Neverfail Bay, Oatley	Lower	Open River Lower
Kogarah	Oatley Bay Pleasure Grounds, Oatley	Lower	Open River Lower
Kogarah	Sans Souci Park, Sans Souci	Lower	Open River Lower
Kogarah	Poulton Park Mangrove Walk, Connells Point	Lower	Open River Lower
Kogarah	Oatley Bay Boat Ramp Foreshore, Hurstville Grove	Lower	Open River Lower
Kogarah	Oatley Creek Stormwater, Hurstville Road, Hurstville Grove	Lower	Open River Lower
Kogarah	Oatley Bay Mangroves, Moreshead Drive, Connells Point	Lower	Open River Lower
Liverpool	Hoxton Park Reserve, Hoxton Park	Mid	Cabramatta
Liverpool	Cecil Hills Lakes, Cecil Hills	Mid	Cabramatta
Liverpool	Lurnea Canal, Hill Rd, Lurnea	Mid	Cabramatta
Liverpool	Brickmakers Creek, Hume Hwy, Liverpool	Mid	Cabramatta
Liverpool	Bedwell Park, West Hoxton	Mid	Cabramatta
Liverpool	Freeman Oval & Boom, Warwick Farm	Mid	Cabramatta
Liverpool	Bugong Street, Prestons	Mid	Cabramatta
Liverpool	Angle Park, Chipping Norton	Mid	Chipping Norton
Liverpool	Blackmuscat Park, Chipping Norton	Mid	Chipping Norton
Liverpool	Heron Park, Chipping Norton	Mid	Chipping Norton
Liverpool	Homestead Park, Chipping Norton	Mid	Chipping Norton
Liverpool	Haigh Park, Lake Moore, Moorebank	Mid	Chipping Norton
Liverpool	Clinches Pond, Moorebank	Mid	Chipping Norton
Liverpool	Kelso Crescent, Moorebank	Mid	Chipping Norton
Liverpool	Davy Robinson Park, Chipping Norton	Mid	Open River Mid
Liverpool	Riverside Park, Chipping Norton		Open River Mid
Rockdale	Cook Park, Brighton Le Sands	Lower	Bay Foreshore
Rockdale	Kyeemagh Beach	Lower	Bay Foreshore
Rockdale	Kyeemagh Foredune, Kyeemagh	Lower	Bay Foreshore
Rockdale	Riverside Drive Foreshore & Scott Park, Sandringham	Lower	Bay Foreshore
Rockdale	Botany Bay Foreshore, Bath St to President Ave, Monterey	Lower	Bay Foreshore
Rockdale	Botany Bay Foreshore, Henson St to Bestic St, Brighton Le Sands	Lower	Bay Foreshore
Rockdale	Botany Bay Foreshore, President to Brighton Baths, Brighton Le Sands	Lower	Bay Foreshore
Rockdale	Dolls Point Foreshore, Dolls Point	Lower	Bay Foreshore
Rockdale	Bicentennial Park, Rockdale	Lower	Scarborough Wetlands
Rockdale	Tonbridge Creek, Ramsgate	Lower	Scarborough

LGA	SITE LOCATION	UPPER MID or LOWER	SUB CATCHMENT
			Wetlands
Rockdale	Monterey St Riparian Area, Monterey	Lower	Scarborough Wetlands
Rockdale	Burlington St Riparian Area, Monterey	Lower	Scarborough Wetlands
Sutherland	Horning Street Saltmarsh, Kurnell	Lower	Kurnell & Towra
Sutherland	Silver Beach & Bonna Point, Kurnell	Lower	Kurnell & Towra
Sutherland	Marton Park, Kurnell	Lower	Kurnell & Towra
Sutherland	Port Hacking Road Reserve, Sylvania Waters	Lower	Open River Lower
Sutherland	Taren Point Reserve, Taren Point	Lower	Open River Lower
Sutherland	Woolooware Bay Cycleway, Taren Point	Lower	Open River Lower
Sutherland	Mangrove Boardwalk, Wollooware	Lower	Open River Lower
Sutherland	Production Road, Taren Point	Lower	Open River Lower
Sutherland	Gwawley Oval Mangrove & Saltmarsh, Taren Point	Lower	Open River Lower
Sutherland	Sylvania Heights Oval, Sylvania Heights	Lower	Open River Lower
Sutherland	Heritage Oyster Farm, Taren Point	Lower	Open River Lower
Sutherland	Solander Playing Field Mangroves, Woolooware	Lower	Open River Lower
Sutherland	Bonnet Bay Reserve & Burnum Burnum Reserve, Bonnet Bay	Lower	Woronora
Sutherland	Lakewood City Reserve, Bonnet Bay	Lower	Woronora
Sutherland	Forbes Creek Reserve, Engadine	Lower	Woronora
Sutherland	Bonnet Bay Boat Ramp, Bonnet Bay	Lower	Woronora

BMT WBM Brisbane
Level 11, 490 Upper Edward Street Brisbane 4000
PO Box 203 Spring Hill QLD 4004
Tel +61 7 3831 6744 Fax +61 7 3832 3627
Email wbm@wbmpl.com.au
Web www.wbmpl.com.au

BMT WBM Denver
14 Inverness Drive East, #B132
Englewood Denver Colorado 80112 USA
Tel +1 303 792 9814 Fax +1 303 792 9742
Email wbmdenver@wbmpl.com.au
Web www.wbmpl.com.au

BMT WBM Mackay
Suite 1, 138 Wood Street Mackay 4740
PO Box 4447 Mackay QLD 4740
Tel +61 7 4953 5144 Fax +61 7 4953 5132
Email wbmmackay@wbmpl.com.au
Web www.wbmpl.com.au

BMT WBM Melbourne
Level 5, 99 King Street Melbourne 3000
PO Box 604 Collins Street West VIC 8007
Tel +61 3 8620 6100 Fax +61 3 8620 6105
Email wbmmelbourne@wbmpl.com.au
Web www.wbmpl.com.au

BMT WBM Newcastle
126 Belford Street Broadmeadow 2292
PO Box 266 Broadmeadow NSW 2292
Tel +61 2 4940 8882 Fax +61 2 4940 8887
Email wbmnewcastle@wbmpl.com.au
Web www.wbmpl.com.au

BMT WBM Perth
1 Brodie Hall Drive Technology Park Bentley 6102
Tel +61 8 9328 2029 Fax +61 8 9486 7588
Email wbmperth@wbmpl.com.au
Web www.wbmpl.com.au

BMT WBM Sydney
Level 1, 256-258 Norton Street Leichhardt 2040
PO Box 194 Leichhardt NSW 2040
Tel +61 2 9713 4836 Fax +61 2 9713 4890
Email wbmsydney@wbmpl.com.au
Web www.wbmpl.com.au

BMT WBM Vancouver
1190 Melville Street #700 Vancouver
British Columbia V6E 3W1 Canada
Tel +1 604 683 5777 Fax +1 604 608 3232
Email wbmvancouver@wbmpl.com.au
Web www.wbmpl.com.au

LIVERPOOL CITY COUNCIL

CITY PLANNING REPORT

ORDINARY MEETING **19/12/2012**

ITEM NO:	**PLAN 03**	**FILE NO:**	**RZ-8/2011**
SUBJECT:	**LEN WATERS ESTATE DRAFT AMENDMENT NO. 24 TO LIVERPOOL LOCAL ENVIRONMENTAL PLAN 2008 - PUBLIC EXHIBITION OUTCOMES**		

Liverpool City Council

Planning Proposal

B5 zoning on Lot 1 DP 1173634 Airfield Drive, Len Waters Estate

Draft Liverpool LEP 2008 Amendment No.24

December 2012

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Background

The Planning Proposal was initiated through a rezoning application seeking to change the land use zone of proposed Lot 1 DP 1173634 from IN1 General Industrial, IN2 Industrial and SP2 Infrastructure (Drainage) to B5 Business Development.

The site is bound by the M7 Motorway and Cowpasture Road and is part of the 41 hectare industrial precinct known as Len Waters Estate. The subject site area measures 3.47 hectares and is part of the 5.9 hectares that remains undeveloped at the southern end of the estate.

The site is cleared, and has no environmental value of note. There is a drainage easement for overland flow on the site but this does not substantially impact on development. Vehicular access is provided from the eastern boundary of the site via the newly constructed Aviation Drive. A locality map of the subject site is provided in Figure 1.

The rezoning to B5 - Business Development seeks to permit the development of a home improvement centre with a floor space of approximately 13,684 sqm. The development type has been defined as bulky goods retail as stipulated in the Liverpool LEP 2008. Generally, the site is located within the urban fringe area of the LGA which has a high current and projected demand for home improvement retailing. The adopted Liverpool Retail Hierarchy Report identifies sufficient economic capacity to support the rezoning. The proposal is therefore consistent with an adopted local strategy.

The site is considered to be an appropriate location for the use given the limitations of suitably zoned land and proximity of regional transport connections. The proposal provides for an employment generating use and seeks to address the shortage of bulky goods retailing in this region.

Site identification

The planning proposal applies to Lot 1 DP 1173634.

Figure 1: Land to which this planning proposal applies

This amendment originally referred to Lot 5054 DP 1161757. During the processing of this amendment the land was re-subdivided to create Lot 1 & Lot 2 of DP 1173634. The Planning Proposal has been updated with these new Lot/DP references.

Part 1 - Objectives

The objective of this rezoning is to facilitate a 13,684 sqm home improvement bulky goods premises along Aviation Drive, Len Waters Estate by rezoning the land from IN1 – General Industrial; IN2 – Light Industrial and SP2 – Drainage to B5 – Business Development. Further the proposal seeks to amend provisions relating to Floor Space Ratio, Lot Size, Maximum Building Height and Land Reservation Acquisition.

The proposed use, a Masters Home Improvement Centre comprises a combination of uses including ‘timber and building supplies’, ‘landscape and garden supplies’ and general “retail”. It is envisaged that the site will comprise of the following elements:

- General sales area of approximately 7,837sqm,
- Garden nursery of 2,173sqm,
- Trade sales area of 2,360 sqm,
- Loading and servicing area of 860sqm,
- Ancillary Office and administrative functions of 342sqm.

The most appropriate definition for the proposed uses is “bulky goods retail premises” which is not currently permitted in the existing zones.

Part 2 - Explanation of provisions

Zoning

The objectives of this Planning Proposal will be achieved via an amendment to Liverpool Local Environmental Plan 2008 (LLEP 2008). It is proposed that the zoning map be changed from IN1 – General Industrial; IN2 – Light Industrial; SP2 – Infrastructure to B5 – Business Development.

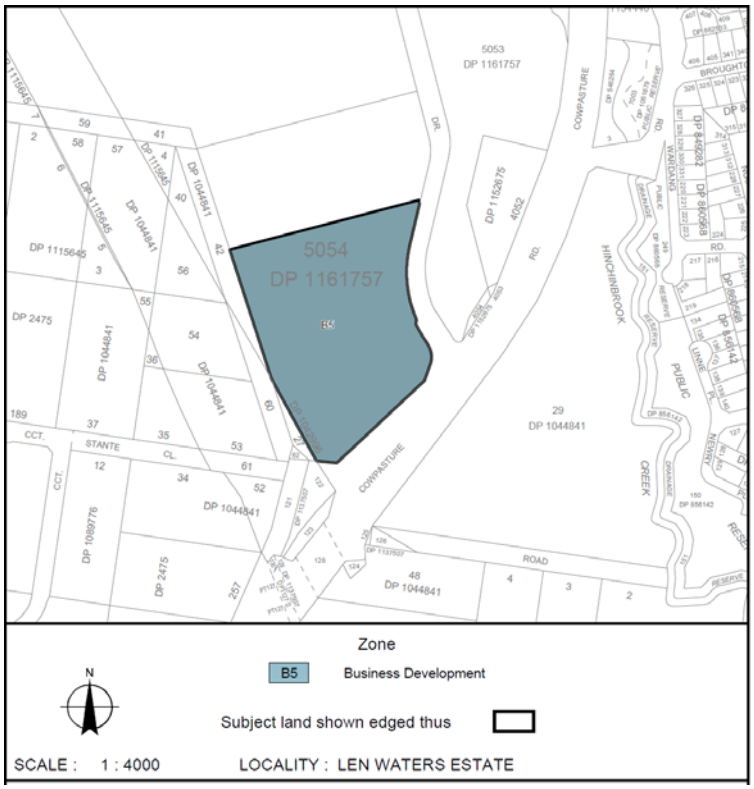


Figure 2 – Proposed change to land zoning map (LZN-008)

The B5 zone is deemed the most appropriate zone for this development type. An analysis of the zones objectives is provided as follows:

- To enable a mix of business and warehouse uses, and specialised retail uses that require a large floor area, in locations that are close to, and that support the viability of, centres.

Comment: The rezoning seeks to permit a large format bulky goods retail outlet in an accessible location within a region that has high projected growth in domestic construction activity. The site is located within adequate access to Carnes Hill and Green Valley commercial centres. Council's adopted Retail Hierarchy Review identifies sufficient economic capacity to support the development.

- To maintain the economic strength of centres by limiting the retailing of food and clothing.

Comment: The proposed retail offer does not include the retailing of groceries or clothing and thus the impacts upon the district commercial centres are negligible. This proposal would be consistent with this objective.

- To provide for a larger regionally significant business development centre in a location that is highly accessible to the region.

Comment: The site is highly accessible to vehicles, with access adjacent to the M7 (Western Sydney Orbital), Hoxton Park Road and Cowpasture Road. Also, proposed road improvements to the existing signalised intersection at Aviation Road and Cowpasture Road will facilitate the projected traffic increase and help improve accessibility issues in the immediate region.

- To ensure a reasonable concentration of business activity.

Comment: There is limited scope for locating large format retailing such as the proposed Masters development within the existing centres as these retailing formats require a significant land area to house the handling, display and storage of goods. Further extensive areas are required for the loading and unloading of goods and the provision of adequate customer parking, particularly considering the majority of trips are made by private vehicle, reflecting the nature and quantities of the goods purchased.

This site is a good location for large format bulky goods due to the high commuter exposure from M7 and Cowpasture Road, excellent connectivity to the regional arterial road network and that the site is located in proximity to emerging suburbs where demand for home improvement goods are high. The site is located five kilometres from the nearest bulky goods retailer and therefore should have a reasonable trade catchment area in its own right.

Permissibility

Under the Liverpool LEP 2008 the following land uses are permissible with consent in the B5 – Business Development zone:

Building identification signs; Bulky goods premises; Business identification signs; Car parks; Child care centres; Community facilities; Drainage; Earthworks; Environmental facilities; Environmental protection works; Flood mitigation works; Food and drink premises; Hotel or motel accommodation; Landscape and garden supplies; Light industries; Office premises; Passenger transport facilities; Places of public worship; Public administration buildings; Pubs; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Restaurants; Roads; Storage premises (other than offensive storage establishments or hazardous storage establishments); Timber and building supplies; Vehicle sales or hire premises; Warehouse or distribution centres

Although the rezoning seeks to specifically permit bulky goods premises, the possibility of other permissible development types has been considered. Development of the above uses would be subject to assessment under the Environmental Planning and Assessment Act 1979. Many of the abovementioned permissible uses would be deemed acceptable at this location and as such the Planning Proposal does not seek to specifically limit the range of permissible uses on the site.

Definition of the Proposal

The *Landscape and garden supplies* and *timber and building supplies* components of the development are permissible in the IN2 zone; however *bulky goods premises* are prohibited.

As such 84% of the total proposed floor space of the home improvement centre is currently permissible within the current IN2 – Light Industrial zoning.

Therefore a rezoning of the site to B5 Business Development is required to permit the various components of the Home Improvements Centre concept.

Land Reservation Acquisition

It is proposed that the Land Reservation Acquisition map be updated to delete the area highlighted as being acquired in the future. The initial intent of the SP2 – Drainage Reservation was to retain the overland drainage flow from the west. Since the application of the SP2 zone in 2008, the landowner has constructed an underground stormwater pipe and created an easement over the affected land. Council's engineers have certified the works.

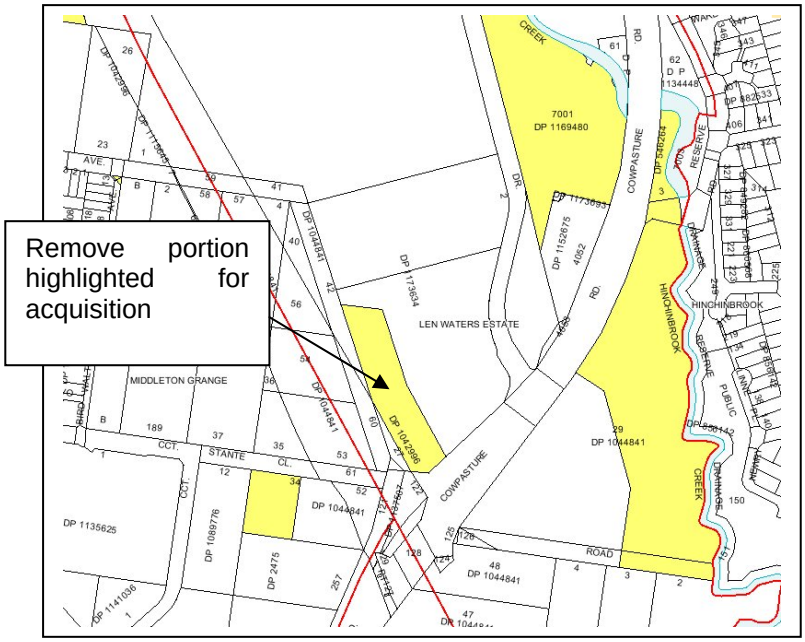


Figure 3 – Proposed change to Land Reservation Acquisition Map (LRA-08)

Floor Space Ratio

The floor space ratio map is to be amended to reflect the proposed FSR control of 0.75:1 to the area highlighted below. The floor space development standard has been allocated to ensure that the future commercial needs of the area can be accommodated whilst ensuring buildings are compatible with the bulk and scale of the character of the locality. The objective of the stipulated FSR control is also to ensure that any adverse impact of the development on the amenity and environment of the surrounding area is minimised. The map shows how the 0.75:1 control will be expanded westward to the area that currently has no FSR limitation.

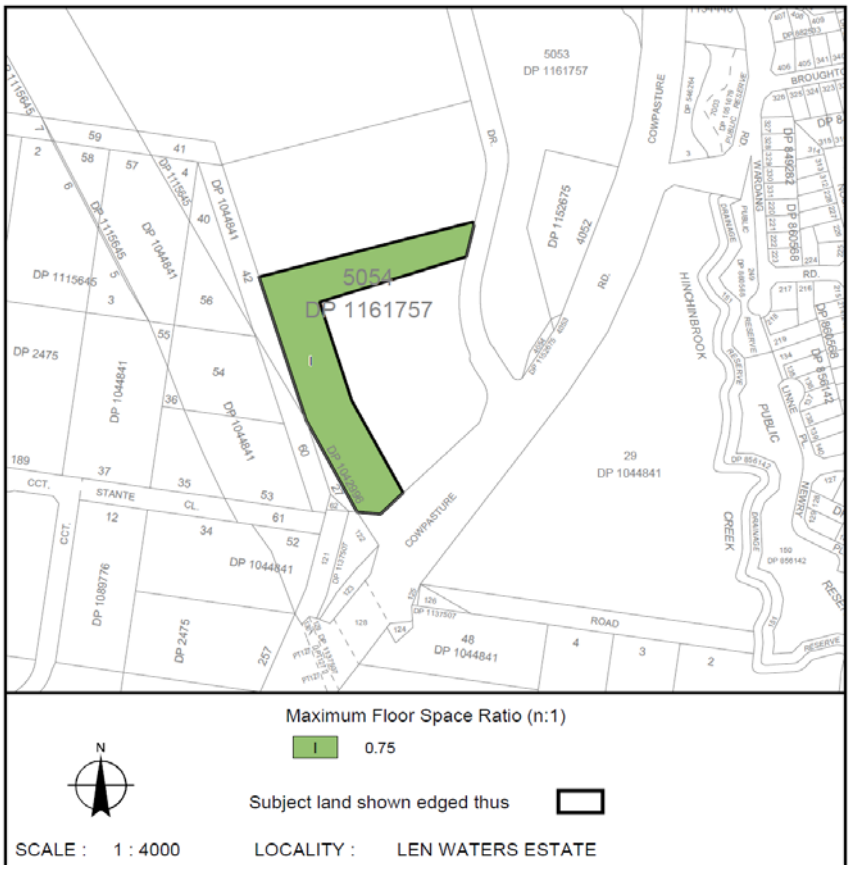


Figure 3 – Proposed change to Floor Space Ratio Map (FSR-008)

Lot Size

The Lot Size map is to be changed to reflect the minimum lot size control of 2000 sqm to the area highlighted below. The purpose of the standard imposed is to ensure that the predominant development pattern of the area is reinforced and the impact of the proposed development on the amenity of adjoining properties is minimised. The map shows that the minimum lot size of 2000 sqm will be expanded westward to the area that currently has no minimum lot size restriction.

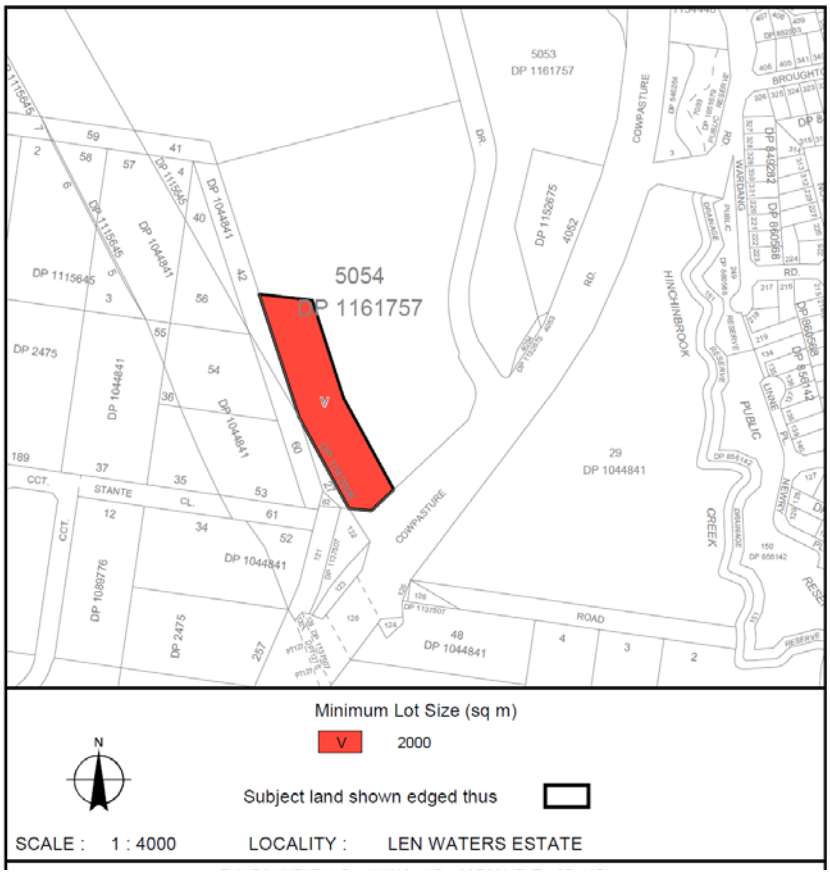


Figure 4 – Proposed Change to Minimum Lot Size Map (LSZ-008)

Height of Buildings

It is proposed that the Height of Buildings map be amended from 15 metres to 18 metres. The standard replicates the maximum height of building control applied to other B5 Business Development zones within the Liverpool LGA. The height limit is appropriate building height for the site. The height limit control aims to ensure that consistent building form within the area is maintained.

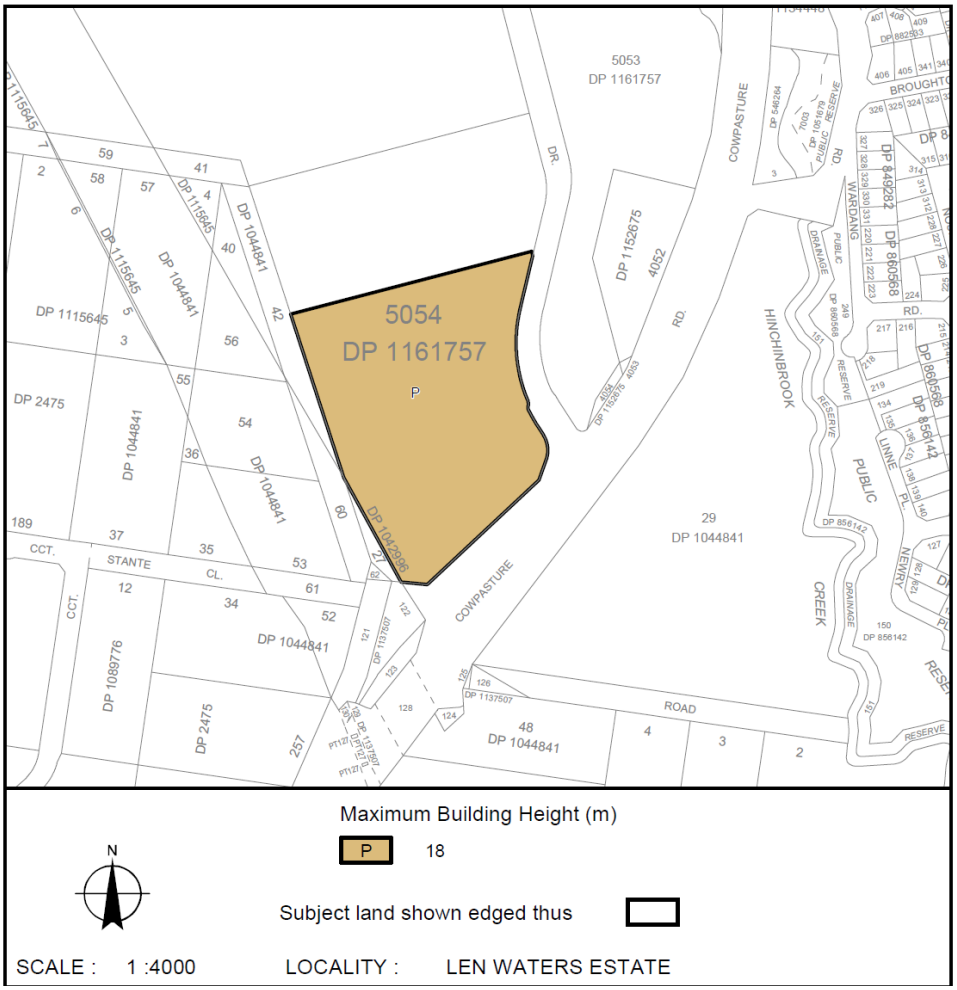


Figure 5 – Proposed Change to Building Height Map (HOB-008)

Part 3 - Justification

A. Need for the planning proposal

1. Is the planning proposal a result of any strategic study or report?

The Planning Proposal is the result of an owner initiated rezoning application.

Council has considered the following local strategic planning local policies:

- Liverpool Retail Hierarchy Study (Hill PDA July 2012),
- Economic Impacts Assessment Report (Hill PDA May 2011),
- Liverpool City Retail Centres Hierarchy Review (Leyshon Consulting December 2006).

The proposal is considered consistent with these strategic documents.

2. *Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?*

It is considered that the proposed rezoning is the most precise and best means of achieving the intended outcomes.

The B5 – Business Development zone, under the Standard Instrument Template, is considered the most appropriate zoning option for the home improvement centre. The mandated zone objective specifically provides for "bulky goods premises that require a large floor area". This use has also been defined as *bulky goods premises* by the Department of Planning and Infrastructure with a previous proposed rezoning at Warwick Farm (Liverpool LEP 2008 Amendment No.18).

3. *Will the net community benefit outweigh the cost of implementing and administering the planning proposal?*

The Planning Proposal has a net community benefit by providing for bulky goods premises in an area accessible to new urban release areas and a growing residential population. It also provides for bulky goods premises in a highly accessible location of high exposure.

The proposed development generates the need for road upgrades and intersection improvements. These works can be provided as part of the DA currently lodged with Council.

The proposed use of the site as a Masters Home improvement centre will provide net social and economic community benefits as follows:

- The new release areas and increase in population could potentially lead to traffic congestion in the surrounding road network. The proposed intersection improvement works and road upgrades to be provided by the applicant may lead to a wider benefit for the wider community.

- Improved competition and diversity of home improvement products can lead to better prices and services to customers.

- Increased economic activity resulting from the development of land and associated business operations of the site.

- Creation of direct employment opportunities by providing approximately 150 jobs (full time, part time and casual) to support the ongoing operation of the store. In addition, the project will generate approximately 377 employment multipliers (including 186 direct jobs per store during construction). Importantly many of the ongoing and construction jobs will be filled by people within the South Western Sydney region, which will be beneficial to the local economy.

- The use of the site for bulky goods retailing purposes is likely to generate more jobs than if the site were used for industrial purposes under the current land use zoning.

- The area has excellent access to potential labour markets.

B. Relationship to strategic planning framework

4. *Is the planning proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?*

The planning proposal is deemed generally consistent with the objectives of the Metropolitan Strategy and South-West Subregional Strategy. The proposal will contribute to meeting the employment targets of the region and increase investment and jobs within the South West. This proposal does remove 2% of the total vacant industrial land within the Liverpool Local Government Area however the loss of land is considered appropriate especially as it enables for a higher employment generating use than would otherwise be developed on the subject site and is a compatible extension of the industrial node.

The proposed rezoning would allow additional bulky goods retailing outside the existing bulky good clusters of Crossroads, Orange Grove and Warwick Farm. The economic reporting confirms that the proposal will not significantly impact on these nodes. Alternative sites within centres and bulky goods nodes are limited due to the need for 3.5 hectares to provide sufficient space for the proposed uses including the associated car parking, access and loading arrangements and landscaping. There is also the need to service particular emerging catchments. It is noted that within a release area context, retailing and bulky goods cannot be reasonably restricted to existing zoned sites in the east of the local government area.

Employment

The Economic Impact Assessment prepared by Hill PDA supporting the proposal, has indicated that the use of this site as a bulky goods premises will result in an increased employment intensity that is, bulky goods retailing would provide for 150 jobs whereas an industrial land use it would provide between 51 to 105 jobs. This proposal adds positively to meeting jobs targets for the Liverpool LGA under the subregional strategy. The proposal will not restrict the remaining 2.2 ha land from being developed for industrial purposes. The Masters Home Improvement Centre should not lead to any loss in existing employment lands.

In addition to the employment generated by the new bulky goods retail development, increased activity within the Len Waters Estate will further promote additional employment opportunities nearby. Delivery of jobs on the site meets both council's objectives for higher local employment and the targets set for employment in the sub- regional strategy.

Strategic Assessment Checklist of the Metropolitan Plan for Sydney 2036 (page 141 Strategic Direction E "*Growing Sydney's Economy*")

- **Consistency with Subregional Strategies**

The proposed home improvement centre is consistent with the South West Subregional Strategy as it provides for greater employment than the existing zoning. The Draft South West Subregional Strategy provides a number of targets, aims and objectives to be achieved by 2031. These include planning for 89,000 new jobs of which 35,000 jobs are expected to be accommodated in the Liverpool LGA. The proposal will employ approximately 130 to 150 staff (full time, part time and casual) and generate approximately 377 employment multipliers (including 186 direct jobs per store during construction). It is also likely to provide greater number of jobs per hectare to the industrial uses on site and provide new opportunities to employ people across a great range of job types. The proposed development contributes positively to the employment targets of the south west subregion as a whole.

The development is an out of centre development however the highly accessible location of this site on the arterial road network provides for an opportunity to address the shortfall in bulky goods premises in this region. Further it is a compatible expansion of existing uses to the north.

- **Current use of the area, and existing transport and infrastructure**

The site is currently vacant land and has been cleared. To the north the site has been developed predominantly as a logistics centre. The site is within a highly accessible location close to a major arterial road network and has the necessary infrastructure required to support such development. The development is likely to trigger need for additional intersection capacity, this will be determined through the development application.

- **Impacts on the long–term viability of the employment land precinct and any industry clusters in the precinct or surrounding area**

The proposal does not detract from the greater Len Waters Estate, 80% of which has already been developed. The supply of bulky goods floorspace in this location would form a compatible expansion of the estate.

- **Whether the employment lands support national or state significant infrastructure**

The proposal is located within close proximity to the M7 Motorway and Cowpasture Road interchange. The development is supported by and draws upon this accessibility.

- **Trends in local land use activity**

There is an increasing demand for bulky goods premises within the Liverpool LGA particularly in the emerging urban areas. Due to the size of the proposal, locating within an existing node was difficult and as such a stand alone B5 node is proposed. This proposal satisfies local demand in close proximity to the growing residential catchments on the urban fringe.

- **Suitability and extent of measures implemented to improve an area's employment lands viability**

The proposed bulky goods premises provide for more employment than the logistics uses that predominate in the area. This planning proposal provides for high density development in a well connected locality. The introduction of the use reduces the possibility of fragmentation of industrial lands. As such the proposal is consistent with employment targets established by the Metropolitan Plan and Draft Sub-Regional Strategy.

- **Potential to redevelop for industrial uses and/or new industrial uses (e.g., creative industries)**

The majority of the Len Waters Estate has recently developed and as such the proposal is not likely to change the nature of the estate. The subject land is currently vacant.

The development will not use up all the vacant land left within the Len Waters Estate. The remaining 2.4ha of the site can be used for industrial uses or other permissible employment uses. In the event a Masters Outlet is not developed on this site, a number of permissible uses with the B5 zone can be built without foreseeable interface issues within the remainder of Len Waters Estate. As such the land use is considered appropriate and compatible with surrounding land uses.

- **Impacts on stocks of local employment lands and the ability of remaining stocks to meet future local industrial needs.**

The proposal rezones and therefore reduces available industrial land. The land being rezoned comprises approximately 2% of the vacant land within the Liverpool Local Government Area which is a negligible impact. The remaining land within Liverpool, primarily Prestons-Yarrunga are large landholdings which will be able to better meet the industrial needs of Liverpool as they have minimal environmental constraints, serviced and accessible from the arterial road network.

The site represents an appropriate location for the bulky goods premises given the limited availability of available land in existing bulky goods clusters.

5. *Is the planning proposal consistent with the local council's Community Strategic Plan, or other local strategic plan?*

The proposed rezoning is consistent with the Liverpool Retail Hierarchy Study 2006 as it will serve to meet some of the identified demand in the retailing and bulky goods catchment. It is noted that this use is predominantly industrial in nature, with some bulky goods elements, and that the use seeks to serve the emerging release area catchments on the urban fringe. As such it is not seen as the creation of a new Bulky Goods location.

Liverpool Retail Centres Hierarchy Review

Council has recently commissioned Hill PDA to undertake a review of the 2006 Liverpool Retail Centres Hierarchy Review. An objective of the Retail Hierarchy Review is to define the existing centres and determine the future supply of retail floorspace. The review mentions that the proposed Masters Home Improvement Store is not being located within an existing bulky goods cluster. Masters considers themselves to be an anchor retailer in its own right and therefore do not require co-location with other bulky goods retailers and therefore do not need to cluster together with similar uses. The preferred location for the proposed development is determined by proximity to their target market and by the regional road network.

The Liverpool Retail Hierarchy Study also notes that there is a shortfall in the supply of floorspace for bulky goods premises in this region. This is mainly attributed to the population increase in the region. The proponent's economic impact assessment states that the shortfall is greater than predicted within the 2006 Liverpool Retail Hierarchy Study.

Even though the Liverpool Retail Hierarchy Study recommends that existing bulky goods nodes should be reinforced, there is sufficient justification that there is enough capacity to support the development of the proposed home improvement centre due to the large undersupply of bulky goods premises floorspace in the Liverpool Local Government Area and in consideration of the nature of bulky goods retailing being proposed ie mostly industrial in nature.

The Economic Impact Assessment submitted by the applicant suggests that:

- The highest and best use of the subject site is for bulky goods retail uses,
- The use of the Subject Site for bulky goods retailing purposes (as proposed) would generate as many if not more jobs than if the Subject Site were used for industrial purposes, which provides a local employment benefit.
- There is ample supply of industrial lands in the surrounding area. Therefore the site does not need to remain zoned for industrial purposes in order to meet future industrial demand.

6. *Is the planning proposal consistent with the applicable state environmental planning policies?*

The main State Environmental Planning Policy that is relevant to this planning proposal is the recent Draft SEPP (Competition) (2010) - Promoting Economic Growth and Competition through the Planning System. This Policy proposes that:

- The commercial viability of a proposed development may not be taken into consideration by a consent authority, usually the local council, when determining development applications;
- The likely impact of a proposed development on the commercial viability of other individual businesses may not be considered unless the proposed development is likely to have an overall adverse impact on the extent and adequacy of local community services and facilities, taking into account those to be provided by the proposed development itself; and
- Any restrictions in local planning instruments on the number of a particular type of retail store in an area, or the distance between stores of the same type, will have no effect.

In relation to commercial viability, the retail reporting supports the use and notes that it meets current shortfalls in the marketplace. Otherwise the SEPP applies as part of the DA Merit Assessment.

The Draft Centres Policy 2009 proposed that:

- New retail and business development should be in centres, and
- Development out of centres should be restricted.

This Planning Proposal is not consistent with this draft policy in proposing an out of centre location for bulky goods as it is not co-located with additional bulky goods premises or an existing general commercial centre.

The deviation from this draft policy is considered acceptable in this context for the following reasons:

- The lack of suitable sites within this growing trade catchment,
- 84% of the proposed trade area is already permissible in the existing zone;
- The location of this site is 5 kilometres away from the nearest bulky goods node and is adjacent to an industrial estate forming a de-facto employment node;
- The proximity to the regional road network,
- Within a release area context not all retailing can be contained to the existing centres in the east of the LGA.

7. *Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)?*

The Planning Proposal is considered to be consistent with the applicable Section 117 Directions:

<u>1.1 - Business and Industrial Zones</u>

This direction applies when a relevant planning authority prepares a planning proposal that will affect land within an existing or proposed business or industrial zone. The objectives of the Direction are to:

- Encourage employment growth in suitable locations

Comment: The proposed rezoning from IN1, IN2 and SP2 to B5 Zoning is consistent with the Direction and will meet the objective above, as the proposal encourages employment growth by permitting business uses on the site. The amendment to the LEP is consistent with the direction as it will generate employment (at a higher density than neighbouring logistics uses) and is located near high quality transport infrastructure.

- Protect employment land in business and industrial zones; and

Comment: The proposal seeks to introduce a compatible use on the highly exposed southern tip of an existing industrial/logistics location. The use will not reduce the developability of neighbouring land and provides for job creation in its own right. The Planning Proposal does not seek to rezone the 2.4 ha remaining vacant industrial land in the Len Waters Estate.

- Support the viability of identified strategic centres

Comment: The use provides for employment growth and investment in the South Western Sydney catchment. The use will provide for local jobs and will increase local demand for related support jobs eg banking, advertising, recruitment, meal services, legal and professional services As such the use supports the nearby Liverpool City Centre as the regional city for South Western Sydney.

The proposed rezoning has a limited impact upon the provision of industrial land as it only affects approximately 2% of the remaining vacant industrial land within the Liverpool Local Government Area. As the proposed use is also considered employment generating the loss of industrial land in this instance that is deemed acceptable.

<u>3.4 - Integrating Land Use and Transport.</u>

The Direction requires a planning proposal to locate zones for urban purposes and include provisions that give effect to and are consistent with the aims, objectives and principles of Improving Transport Choice – Guidelines for Planning and Development 2001 and The Right Place for Business and Services – Planning Policy 2001.

The proposal is consistent with this direction in that the site is located in an emerging area where new bus routes and modifications to existing routes are likely to be made to service upcoming residential development to the north and west of the site. There is also potential for the development to take advantage of improvements in services to Len Waters Estate.

This proposed site is an appropriate location as it:

- Has high commuter exposure from the M7 Motorway and Cowpasture Road,
- Excellent connectivity with the regional arterial road network,
- is in proximity to suburbs where demand for home improvement supplies is high,
- Is located 5 kilometres from the nearest bulky goods premises,.
- Provides for a bulky goods centre in an area with minimal impact on nearby industrial lands,
- The arterial road network is capable of servicing the proposed development without causing backlog or delays on other roads,

- Is large enough to facilitate large format retailing and associated parking.

An assessment of the traffic generation implications from RMS has resulted in the applicant agreeing to provide improvements to the Cowpasture Road and Airfield Drive intersection. Following consultation with RMS, an updated traffic report was also submitted that indicates that the Airfield Drive Approach to the Cowpasture Road intersection will be widened to provide four approach lanes (twin right turn lanes, provision for a short through lane and a separate left turn slip lane).

As the majority of customers will travel by private vehicle it is appropriate that the site is located on an arterial road and in proximity to the M7 Motorway interchange, limiting the impact upon local road networks.

The site is located approximately 700m from the nearest bus stop, however as the Middleton Grange Town Centre, and Elizabeth Hills areas aredeveloped a closer bus stop in close proximity may be incorporated in those developments. The site is also accessible from the M7 and Cowpasture Road cycle ways.

Due to the nature of bulky goods retailing, the majority of trips are made by private vehicle and sufficient parking would be mandated as part of the Development Application process.

<u>4.3 – Flood Prone Land</u>

The direction requires the following to be addressed:

(4) A Planning Proposal must include provisions that give effect to and are consistent with NSW Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005 (including the Guideline on Development Controls on Low Flood Risk Areas).

(5) A Planning Proposal must not rezone land within the flood planning areas from Special Use, Special Purpose, Recreation, Rural or Environmental Protection Zones to a Residential, Business, Industrial, Special Use or Special Purpose Zone.

(6) A planning proposal must not contain provisions that apply to the flood planning areas which:

1. permit development in floodway areas,
2. permit development that will result in significant flood impacts to other properties,
3. permit a significant increase in the development of that land,
4. are likely to result in a substantially increased requirement for government spending on flood mitigation measures, infrastructure or services, or
5. permit development to be carried out without development consent except for the purposes of agriculture (not including dams, drainage canals, levees, buildings or structures in floodways or high hazard areas), roads or exempt development.

(7) A planning proposal must not impose flood related development controls above the residential flood planning level for residential development on land, unless a relevant planning authority provides adequate justification for those controls to the satisfaction of the Director-General (or an officer of the Department nominated by the Director-General).

(8)For the purposes of a planning proposal, a relevant planning authority must not determine a flood planning level that is inconsistent with the Floodplain Development Manual 2005 (including the Guideline on Development Controls on Low Flood Risk Areas) unless a relevant planning authority provides adequate justification for the proposed departure from that Manual to the satisfaction of the Director-General (or an officer of the Department nominated by the Director-General).

The rezoning of Hoxton Park Airport under the previous LLEP 1997 considered flooding issues on the precinct as a whole. Following the previous concept approval on the site under Part 3A, environmental implications relating to flooding have been addressed and flood mitigation and site filling works carried out to ensure the site is flood free. The proposed rezoning does not require a further flooding study. Any potential impacts on flooding (eg – due to increased stormwater runoff) can be appropriately managed at the development application stage.

6.1 – Approval and Referral Requirements

The draft LEP will not alter the provisions relating to the approval and referral requirements.

7.1 – Implementation of the Metropolitan Plan for Sydney 2036

The objective of this direction is to give legal effect to the vision, transport and land use strategy, policies, outcomes and actions contained in the Metropolitan Plan for Sydney 2036.

A key element of the Strategy's centres approach continues to be concentrating activity in accessible centres and managing out–of–centre development to maximise the economic and social advantages of clustered activity while concentrating commercial activity and job destinations.

The Strategy states that the pressure for retailing to occur in industrial areas continues to exist. Ideally, retailing in areas with an industrial zoning should continue to be limited to retailing that is ancillary to an industrial use, and the retailing of products such as building supplies—where the retailing generates impacts akin to industrial uses.

It is noted that retailing which requires large floor areas, such as bulky goods premises, cannot always be readily accommodated in existing centres. Subregional planning and local planning will need to identify locations for subregional clusters for this kind of retail development which support the economic development of centres in those subregions.

The proposal is consistent with key elements of the Metropolitan Strategy for Sydney 2036 and the South West Subregional Strategy including:

- The proposal will contribute towards the target of over 50,000 new jobs for Sydney half of which are to be located in Western Sydney in 2031 and is located in a highly accessible location. The proposal will employ approximately 130 to 150 staff (full time, part time and casual) and generate approximately 377 employment multipliers (including 186 direct jobs per store during construction). It will also a greater number of jobs per hectare when compared to the industrial uses to the north of the site and provide new opportunities to employ people across a great range of job types.

- The proposed site is consistent with the strategy to increase investment and jobs to accommodate growth particularly given its proximity to the South West Growth Centres and will support a young, job ready subregional population.

- The proposed development concept is also consistent with other sites that allow industrial areas to co-locate with bulky goods development like at the Cross Roads.
- Only takes up 2% of undeveloped industrial land.
- The proposed development concept will retain 2.4 hectares of the residual lot (Lot 2) for industrial uses.

The site represents the most appropriate location for the use given the limitations of the current zoned land and bulky goods nodes.

C. Environmental, social and economic impact

8. Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

The site is a cleared development pad site. There are no critical habitats, threatened species or ecological communities on the site and the likelihood of any negative impacts is minimal.

9. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

There are no likely environmental impacts generated from the proposed development type. Any matters eg stormwater management considerations can be dealt with through the assessment of the Development Application.

10. How has the planning proposal adequately addressed any social and economic effects?

The planning proposal meets the social and economic objectives of the proposed B5 Business Development zone and provides for more employment capability than if left as IN2 – Light industrial.

The turnover of a home improvement centre on the Subject Site at 2014 is estimated to be $33M. This is likely to include some trade related expenditure, and thus the cumulative level of impact on retail businesses will be lower than this.

The assessment of economic impact found that a home improvement centre on the subject site would draw trade from a small number of bulky goods operators providing goods of a similar nature. It would have a wide and thin trade area and therefore any adverse impacts will be lessened. Also, the applicant has justified that there is ample supply of industrial land in the surrounding area. This is confirmed by Councils independent and adopted Retail Hierarchy Report.

Bulky goods expenditure in the trade area is forecast to grow from some $623m in 2009 to approximately$1,084m in 2026, an increase of $460m or 74%. A home improvement centre on the subject site would meet just 7% of this growth. Therefore the proposed store can be justified on the basis of growth alone and any short-term trade diversion from bulky goods retailers will be quickly mitigated by growth in expenditure. Even with a home improvement centre significant levels of additional bulky goods floorspace will be required. A home improvement centre would not result in any long-term adverse economic impact upon existing centres in the trade area. The impacts on existing centres will be immeasurable given that these centres only have a small component of businesses retailing bulky goods and given growth in demand forecast over the next couple of decades.

A home improvement centre would generate approximately 150 permanent full-time, part-time and casual jobs once it is fully operational. The construction phase of such a development would generate approximately 299 jobs per year directly and indirectly. Local employment has a substantial public benefit in relation of direct job availability, reduced travel to work journey lengths and increased spin off job creation.

Development of a home improvement centre is substantial investment and would represent a sign of confidence in the locality, particularly given the prominent positioning of the subject site. It would also increase consumer choice and convenience, which is particularly important given the location of the emerging retail markets of the South West Growth Centre. It would complement the existing shopping hierarchy without adversely impacting any existing retail centres.

D. State and Commonwealth interests

11. Is there adequate public infrastructure for the planning proposal?

The existing road infrastructure is being upgraded by the applicant in line with RMS advice to accommodate the proposed development and its impact on the existing traffic capacity. The proponent has acknowledged the need to upgrade the intersection of Cowpasture Road/Airfield Drive to alleviate transport network impacts. These works will be included as part of the works associated within the development application and facilitated through a works authorisation deed.

Otherwise the site already has access to all necessary utilities and services. The site is also easily accessible from the north and south via the Hume Highway, the South Western Motorway, Camden Valley Way and the M7.

12. What are the views of State and Commonwealth Public Authorities consulted in accordance with the gateway determination, and have they resulted in any variations to the planning proposal?

The gateway determination identified that consultation with the Roads and Traffic Authority was to be carried out. The views and issues raised by the RMS related generally to the development application. These matters have now been addressed and the planning proposal and associated DA has been updated to show the additional road works. It is anticipated that the works will be carried out under a works authorisation deed between the developer and the RMS.

Part 4 - Community Consultation

The planning proposal has been exhibited as per the terms contained within the Gateway Determination. The proposal was exhibited between the 3 October 2012 and 31 October 2012. A total of four submissions were received, with only one submission raising an objection, one being in support and two relating their non-objection. The public submission that objected to the proposal raised the following concerns:

- Inconsistencies between the LLEP 2008 and broader planning context relating to rezoning land within an industrial cluster.
- Need for an appropriate mechanism to ensure that road upgrades are identified and funded.
- Allowing a variety of uses, including bulky goods on the site is providing preferential treatment to this applicant.

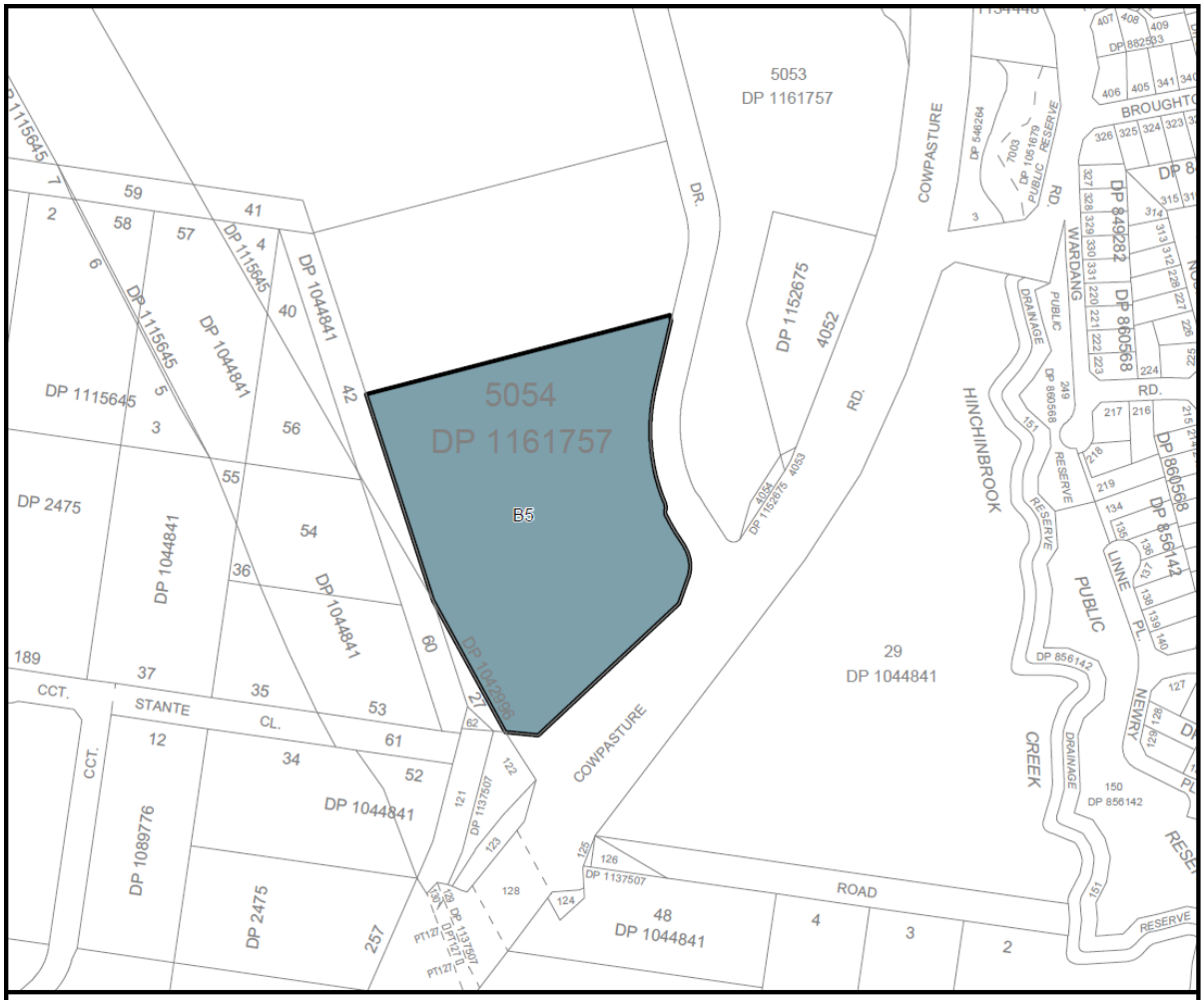
It is noted that these matters are addressed throughout this planning proposal. In summary the proposal is considered appropriately consistent with state and sub-regional strategies in that the development:

- is compatible with neighbouring industrial uses,
- creates local employment at a higher density than neighbouring logistics uses,
- draws from and will add to the capacity of major road infrastructure,
- promotes investment,
- provides for increased competition
- will generate spin-off jobs and investment in service related sectors.

In relation to a mechanism to ensure that road upgrades are undertaken, the RMS in correspondence have confirmed that these works would be carried out under a works authorisation deed between the developer and the RMS.

In relation to the variety of uses to be permitted on the site, this proposal has been justified in terms of its economic impact, by both the applicant's consultant and Council's independent Retail Heirarchy Review. The range of uses proposed has been evaluated and is considered acceptable (subject to development consent) given the highly exposed nature of the site, connectivity to district and regional level roads, and the growing population base in the locality.

Attachment 1 –Liverpool Local Environmental Plan 2008 Amendment Maps



Zone

B5 Business Development

N

Subject land shown edged thus

SCALE : 1 : 4000 LOCALITY : LEN WATERS ESTATE

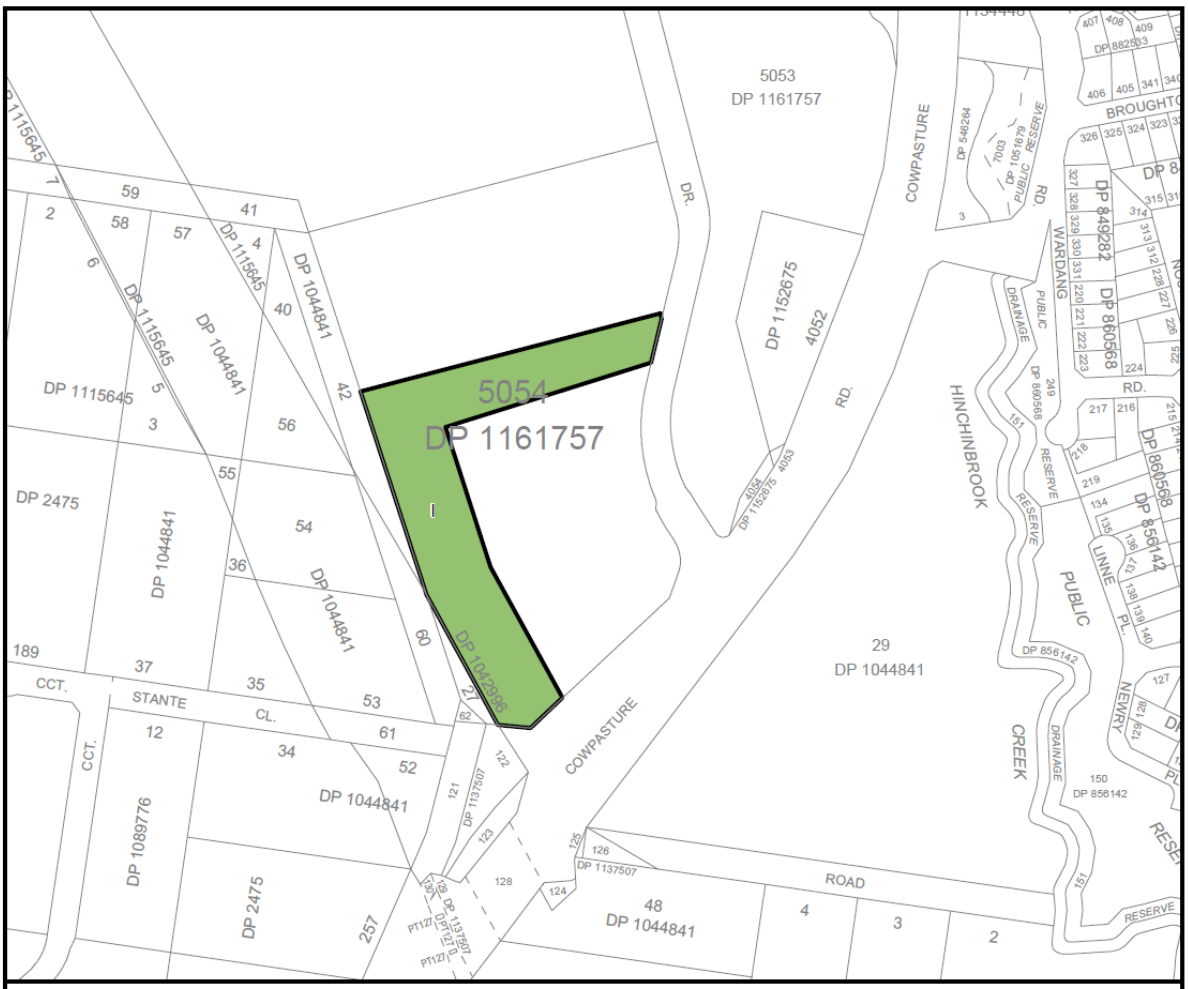
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

CITY OF LIVERPOOL

Liverpool Local Environmental Plan, 2008. (Draft Amendment No.24) Land Zoning Map (LZN)

Map 1

DRAWN BY : S ARCABA DATE: 30/1/2012	STATEMENT OF RELATIONSHIP WITH OTHER PLANS: AMENDS LIVERPOOL LOCAL ENVIRONMENT PLAN 2008
PLANNING OFFICER: JAMES SEMPLE	
COUNCIL FILE No.	
DEPARTMENT FILE No.	CERTIFIED IN ACCORDANCE WITH THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 AND REGULATION. GENERAL MANAGER DATE
GOVERNMENT GAZETTE No. DATE	



Maximum Floor Space Ratio (n:1)

I 0.75

N

Subject land shown edged thus

SCALE : 1 : 4000 LOCALITY : LEN WATERS ESTATE

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

CITY OF LIVERPOOL

Liverpool Local Environmental Plan, 2008. (Draft Amendment No.24) Floor Space Ratio Map (FSR) Map 2

DRAWN BY : S ARCABA DATE: 30/1/2012	STATEMENT OF RELATIONSHIP WITH OTHER PLANS: AMENDS LIVERPOOL LOCAL ENVIRONMENT PLAN 2008
PLANNING OFFICER: JAMES SEMPLE	
COUNCIL FILE No.	
DEPARTMENT FILE No.	CERTIFIED IN ACCORDANCE WITH THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 AND REGULATION. GENERAL MANAGER DATE
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